*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-418-090718 0-3ft
Date Sampled: 09/07/18 08:49
Percent Solids: 94
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:45 | C8I0183 | CI81102 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:45 | C8I0183 | CI81102 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:45 | C8I0183 | CI81102 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:45 | C8I0183 | CI81102 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:45 | C8I0183 | CI81102 |
| **Aroclor 1254 [2C]** | **1.9** (0.3) | | 8082A | | 5 | 09/14/18 3:46 | C8I0183 | CI81102 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:45 | C8I0183 | CI81102 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:45 | C8I0183 | CI81102 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:45 | C8I0183 | CI81102 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *85 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *86 %* | | *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-813-090718 6ft
Date Sampled: 09/07/18 09:46
Percent Solids: 87
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:04 | C8I0183 | CI81102 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:04 | C8I0183 | CI81102 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:04 | C8I0183 | CI81102 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:04 | C8I0183 | CI81102 |
| **Aroclor 1248 [2C]** | **1.3** (0.3) | | 8082A | | 5 | 09/14/18 4:05 | C8I0183 | CI81102 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:04 | C8I0183 | CI81102 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:04 | C8I0183 | CI81102 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:04 | C8I0183 | CI81102 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:04 | C8I0183 | CI81102 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *96 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *97 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *93 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *116 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-807-090718 6ft
Date Sampled: 09/07/18 09:49
Percent Solids: 87
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:23 | C8I0183 | CI81102 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:23 | C8I0183 | CI81102 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:23 | C8I0183 | CI81102 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:23 | C8I0183 | CI81102 |
| **Aroclor 1248 [2C]** | **2.5** (0.3) | | 8082A | | 5 | 09/14/18 4:24 | C8I0183 | CI81102 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:23 | C8I0183 | CI81102 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:23 | C8I0183 | CI81102 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:23 | C8I0183 | CI81102 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/12/18 20:23 | C8I0183 | CI81102 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *73 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *76 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *102 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-801-090718 6ft
Date Sampled: 09/07/18 09:54
Percent Solids: 84
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/13/18 23:58 | C8I0224 | CI81418 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/13/18 23:58 | C8I0224 | CI81418 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/13/18 23:58 | C8I0224 | CI81418 |
| **Aroclor 1242 [2C]** | **0.5** (0.06) | | 8082A | | 1 | 09/13/18 23:58 | C8I0224 | CI81418 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/13/18 23:58 | C8I0224 | CI81418 |
| **Aroclor 1254 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 09/13/18 23:58 | C8I0224 | CI81418 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/13/18 23:58 | C8I0224 | CI81418 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/13/18 23:58 | C8I0224 | CI81418 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/13/18 23:58 | C8I0224 | CI81418 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *66 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *74 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *78 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-797-090718 6ft
Date Sampled: 09/07/18 09:57
Percent Solids: 90
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/12/18 21:01 | C8I0183 | CI81102 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/12/18 21:01 | C8I0183 | CI81102 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/12/18 21:01 | C8I0183 | CI81102 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/12/18 21:01 | C8I0183 | CI81102 |
| **Aroclor 1248 [2C]** | **1.5** (0.3) | | 8082A | | 5 | 09/14/18 4:42 | C8I0183 | CI81102 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/12/18 21:01 | C8I0183 | CI81102 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/12/18 21:01 | C8I0183 | CI81102 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/12/18 21:01 | C8I0183 | CI81102 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/12/18 21:01 | C8I0183 | CI81102 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *75 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *93 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *90 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-812-090718 6ft
Date Sampled: 09/07/18 10:03
Percent Solids: 81
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (30.8) | | 8082A | | 500 | 09/14/18 8:34 | C8I0243 | CI81102 |
| Aroclor 1221 | ND (30.8) | | 8082A | | 500 | 09/14/18 8:34 | C8I0243 | CI81102 |
| Aroclor 1232 | ND (30.8) | | 8082A | | 500 | 09/14/18 8:34 | C8I0243 | CI81102 |
| Aroclor 1242 | ND (30.8) | | 8082A | | 500 | 09/14/18 8:34 | C8I0243 | CI81102 |
| **Aroclor 1248 [2C]** | **205** (30.8) | | 8082A | | 500 | 09/14/18 8:34 | C8I0243 | CI81102 |
| Aroclor 1254 | ND (30.8) | | 8082A | | 500 | 09/14/18 8:34 | C8I0243 | CI81102 |
| Aroclor 1260 | ND (30.8) | | 8082A | | 500 | 09/14/18 8:34 | C8I0243 | CI81102 |
| Aroclor 1262 | ND (30.8) | | 8082A | | 500 | 09/14/18 8:34 | C8I0243 | CI81102 |
| Aroclor 1268 | ND (30.8) | | 8082A | | 500 | 09/14/18 8:34 | C8I0243 | CI81102 |

| | %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-806 090718 6ft
Date Sampled: 09/07/18 10:07
Percent Solids: 70
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.07) | | 8082A | | 1 | 09/14/18 0:17 | C8I0224 | CI81418 |
| Aroclor 1221 | ND (0.07) | | 8082A | | 1 | 09/14/18 0:17 | C8I0224 | CI81418 |
| Aroclor 1232 | ND (0.07) | | 8082A | | 1 | 09/14/18 0:17 | C8I0224 | CI81418 |
| Aroclor 1242 | ND (0.07) | | 8082A | | 1 | 09/14/18 0:17 | C8I0224 | CI81418 |
| **Aroclor 1248 [2C]** | **1.4** (0.07) | | 8082A | | 1 | 09/14/18 0:17 | C8I0224 | CI81418 |
| Aroclor 1254 | ND (0.07) | | 8082A | | 1 | 09/14/18 0:17 | C8I0224 | CI81418 |
| Aroclor 1260 | ND (0.07) | | 8082A | | 1 | 09/14/18 0:17 | C8I0224 | CI81418 |
| Aroclor 1262 | ND (0.07) | | 8082A | | 1 | 09/14/18 0:17 | C8I0224 | CI81418 |
| Aroclor 1268 | ND (0.07) | | 8082A | | 1 | 09/14/18 0:17 | C8I0224 | CI81418 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *69 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *66 %* | | *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-800-090718 6ft
Date Sampled: 09/07/18 10:14
Percent Solids: 56
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.09) | | 8082A | | 1 | 09/14/18 0:36 | C8I0224 | CI81418 |
| Aroclor 1221 | ND (0.09) | | 8082A | | 1 | 09/14/18 0:36 | C8I0224 | CI81418 |
| Aroclor 1232 | ND (0.09) | | 8082A | | 1 | 09/14/18 0:36 | C8I0224 | CI81418 |
| **Aroclor 1242 [2C]** | **0.4** (0.09) | | 8082A | | 1 | 09/14/18 0:36 | C8I0224 | CI81418 |
| Aroclor 1248 | ND (0.09) | | 8082A | | 1 | 09/14/18 0:36 | C8I0224 | CI81418 |
| **Aroclor 1254 [2C]** | **0.2** (0.09) | | 8082A | | 1 | 09/14/18 0:36 | C8I0224 | CI81418 |
| Aroclor 1260 | ND (0.09) | | 8082A | | 1 | 09/14/18 0:36 | C8I0224 | CI81418 |
| Aroclor 1262 | ND (0.09) | | 8082A | | 1 | 09/14/18 0:36 | C8I0224 | CI81418 |
| Aroclor 1268 | ND (0.09) | | 8082A | | 1 | 09/14/18 0:36 | C8I0224 | CI81418 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *88 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *106 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *66 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *71 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-811-090718 5ft
Date Sampled: 09/07/18 10:29
Percent Solids: 81
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (304) | | 8082A | | 5000 | 09/14/18 5:21 | C8I0224 | CI81102 |
| Aroclor 1221 | ND (304) | | 8082A | | 5000 | 09/14/18 5:21 | C8I0224 | CI81102 |
| Aroclor 1232 | ND (304) | | 8082A | | 5000 | 09/14/18 5:21 | C8I0224 | CI81102 |
| Aroclor 1242 | ND (304) | | 8082A | | 5000 | 09/14/18 5:21 | C8I0224 | CI81102 |
| **Aroclor 1248 [2C]** | **4620** (304) | | 8082A | | 5000 | 09/14/18 5:21 | C8I0224 | CI81102 |
| Aroclor 1254 | ND (304) | | 8082A | | 5000 | 09/14/18 5:21 | C8I0224 | CI81102 |
| Aroclor 1260 | ND (304) | | 8082A | | 5000 | 09/14/18 5:21 | C8I0224 | CI81102 |
| Aroclor 1262 | ND (304) | | 8082A | | 5000 | 09/14/18 5:21 | C8I0224 | CI81102 |
| Aroclor 1268 | ND (304) | | 8082A | | 5000 | 09/14/18 5:21 | C8I0224 | CI81102 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-811-090718-1 5ft
Date Sampled: 09/07/18 10:29
Percent Solids: 82
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (318) | | 8082A | | 5000 | 09/14/18 5:39 | C8I0224 | CI81102 |
| Aroclor 1221 | ND (318) | | 8082A | | 5000 | 09/14/18 5:39 | C8I0224 | CI81102 |
| Aroclor 1232 | ND (318) | | 8082A | | 5000 | 09/14/18 5:39 | C8I0224 | CI81102 |
| Aroclor 1242 | ND (318) | | 8082A | | 5000 | 09/14/18 5:39 | C8I0224 | CI81102 |
| **Aroclor 1248 [2C]** | **3810** (318) | | 8082A | | 5000 | 09/14/18 5:39 | C8I0224 | CI81102 |
| Aroclor 1254 | ND (318) | | 8082A | | 5000 | 09/14/18 5:39 | C8I0224 | CI81102 |
| Aroclor 1260 | ND (318) | | 8082A | | 5000 | 09/14/18 5:39 | C8I0224 | CI81102 |
| Aroclor 1262 | ND (318) | | 8082A | | 5000 | 09/14/18 5:39 | C8I0224 | CI81102 |
| Aroclor 1268 | ND (318) | | 8082A | | 5000 | 09/14/18 5:39 | C8I0224 | CI81102 |

| | *%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-805-090718 6ft
Date Sampled: 09/07/18 10:35
Percent Solids: 79
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/14/18 0:55 | C8I0224 | CI81418 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/14/18 0:55 | C8I0224 | CI81418 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/14/18 0:55 | C8I0224 | CI81418 |
| **Aroclor 1242 [2C]** | **0.4** (0.06) | | 8082A | | 1 | 09/14/18 0:55 | C8I0224 | CI81418 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/14/18 0:55 | C8I0224 | CI81418 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/14/18 0:55 | C8I0224 | CI81418 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/14/18 0:55 | C8I0224 | CI81418 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/14/18 0:55 | C8I0224 | CI81418 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/14/18 0:55 | C8I0224 | CI81418 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *69 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *73 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *88 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-799-090718 6ft
Date Sampled: 09/07/18 10:37
Percent Solids: 86
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/12/18 23:53 | C8I0183 | CI81102 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/12/18 23:53 | C8I0183 | CI81102 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/12/18 23:53 | C8I0183 | CI81102 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/12/18 23:53 | C8I0183 | CI81102 |
| **Aroclor 1248** | **0.8** (0.06) | | 8082A | | 1 | 09/12/18 23:53 | C8I0183 | CI81102 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/12/18 23:53 | C8I0183 | CI81102 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/12/18 23:53 | C8I0183 | CI81102 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/12/18 23:53 | C8I0183 | CI81102 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/12/18 23:53 | C8I0183 | CI81102 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *59 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *60 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *69 %* | | *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-795-090718 6ft
Date Sampled: 09/07/18 10:42
Percent Solids: 72
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.07) | | 8082A | | 1 | 09/13/18 0:12 | C8I0183 | CI81102 |
| Aroclor 1221 | ND (0.07) | | 8082A | | 1 | 09/13/18 0:12 | C8I0183 | CI81102 |
| Aroclor 1232 | ND (0.07) | | 8082A | | 1 | 09/13/18 0:12 | C8I0183 | CI81102 |
| Aroclor 1242 | ND (0.07) | | 8082A | | 1 | 09/13/18 0:12 | C8I0183 | CI81102 |
| **Aroclor 1248** | **2.2** (0.4) | | 8082A | | 5 | 09/14/18 5:58 | C8I0183 | CI81102 |
| Aroclor 1254 | ND (0.07) | | 8082A | | 1 | 09/13/18 0:12 | C8I0183 | CI81102 |
| Aroclor 1260 | ND (0.07) | | 8082A | | 1 | 09/13/18 0:12 | C8I0183 | CI81102 |
| Aroclor 1262 | ND (0.07) | | 8082A | | 1 | 09/13/18 0:12 | C8I0183 | CI81102 |
| Aroclor 1268 | ND (0.07) | | 8082A | | 1 | 09/13/18 0:12 | C8I0183 | CI81102 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *56 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *58 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *63 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *77 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-821-090718 5ft
Date Sampled: 09/07/18 10:49
Percent Solids: 56
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:14 | C8I0224 | CI81418 |
| Aroclor 1221 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:14 | C8I0224 | CI81418 |
| Aroclor 1232 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:14 | C8I0224 | CI81418 |
| Aroclor 1242 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:14 | C8I0224 | CI81418 |
| **Aroclor 1248** | **2.6** (0.5) | | 8082A | | 5 | 09/14/18 8:51 | C8I0224 | CI81418 |
| Aroclor 1254 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:14 | C8I0224 | CI81418 |
| Aroclor 1260 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:14 | C8I0224 | CI81418 |
| Aroclor 1262 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:14 | C8I0224 | CI81418 |
| Aroclor 1268 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:14 | C8I0224 | CI81418 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *74 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *90 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-817-090718 5ft
Date Sampled: 09/07/18 10:54
Percent Solids: 55
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (4.7) | | 8082A | | 50 | 09/14/18 6:17 | C8I0224 | CI81102 |
| Aroclor 1221 | ND (4.7) | | 8082A | | 50 | 09/14/18 6:17 | C8I0224 | CI81102 |
| Aroclor 1232 | ND (4.7) | | 8082A | | 50 | 09/14/18 6:17 | C8I0224 | CI81102 |
| Aroclor 1242 | ND (4.7) | | 8082A | | 50 | 09/14/18 6:17 | C8I0224 | CI81102 |
| **Aroclor 1248** | **24.9** (4.7) | | 8082A | | 50 | 09/14/18 6:17 | C8I0224 | CI81102 |
| Aroclor 1254 | ND (4.7) | | 8082A | | 50 | 09/14/18 6:17 | C8I0224 | CI81102 |
| Aroclor 1260 | ND (4.7) | | 8082A | | 50 | 09/14/18 6:17 | C8I0224 | CI81102 |
| Aroclor 1262 | ND (4.7) | | 8082A | | 50 | 09/14/18 6:17 | C8I0224 | CI81102 |
| Aroclor 1268 | ND (4.7) | | 8082A | | 50 | 09/14/18 6:17 | C8I0224 | CI81102 |

| | *%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-820-090718 5ft
Date Sampled: 09/07/18 10:57
Percent Solids: 78
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (33.1) | | 8082A | | 500 | 09/14/18 6:36 | C8I0224 | CI81102 |
| Aroclor 1221 | ND (33.1) | | 8082A | | 500 | 09/14/18 6:36 | C8I0224 | CI81102 |
| Aroclor 1232 | ND (33.1) | | 8082A | | 500 | 09/14/18 6:36 | C8I0224 | CI81102 |
| Aroclor 1242 | ND (33.1) | | 8082A | | 500 | 09/14/18 6:36 | C8I0224 | CI81102 |
| **Aroclor 1248 [2C]** | **176** (33.1) | | 8082A | | 500 | 09/14/18 6:36 | C8I0224 | CI81102 |
| Aroclor 1254 | ND (33.1) | | 8082A | | 500 | 09/14/18 6:36 | C8I0224 | CI81102 |
| Aroclor 1260 | ND (33.1) | | 8082A | | 500 | 09/14/18 6:36 | C8I0224 | CI81102 |
| Aroclor 1262 | ND (33.1) | | 8082A | | 500 | 09/14/18 6:36 | C8I0224 | CI81102 |
| Aroclor 1268 | ND (33.1) | | 8082A | | 500 | 09/14/18 6:36 | C8I0224 | CI81102 |

| | *%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-816-090718 5ft
Date Sampled: 09/07/18 11:15
Percent Solids: 55
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809178
ESS Laboratory Sample ID: 1809178-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:32

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:33 | C8I0224 | CI81418 |
| Aroclor 1221 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:33 | C8I0224 | CI81418 |
| Aroclor 1232 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:33 | C8I0224 | CI81418 |
| Aroclor 1242 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:33 | C8I0224 | CI81418 |
| **Aroclor 1248 [2C]** | **3.4** (0.5) | | 8082A | | 5 | 09/14/18 9:10 | C8I0224 | CI81418 |
| Aroclor 1254 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:33 | C8I0224 | CI81418 |
| Aroclor 1260 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:33 | C8I0224 | CI81418 |
| Aroclor 1262 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:33 | C8I0224 | CI81418 |
| Aroclor 1268 | ND (0.09) | | 8082A | | 1 | 09/14/18 1:33 | C8I0224 | CI81418 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *73 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *67 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *82 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809178

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81102 - 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* | *0.0182* | | mg/kg wet | *0.02500* | | *73* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0204* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0192* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0224* | | mg/kg wet | *0.02500* | | *90* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.3 | 0.05 | mg/kg wet | 0.5000 | | 66 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.3 | 0.05 | mg/kg wet | 0.5000 | | 65 | 40-140 | | | |
| Aroclor 1260 | 0.3 | 0.05 | mg/kg wet | 0.5000 | | 62 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.3 | 0.05 | mg/kg wet | 0.5000 | | 66 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0145* | | mg/kg wet | *0.02500* | | *58* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0162* | | mg/kg wet | *0.02500* | | *65* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0150* | | mg/kg wet | *0.02500* | | *60* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0156* | | mg/kg wet | *0.02500* | | *62* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | 34 | 30 | D+ |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | 34 | 30 | D+ |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 89 | 40-140 | 35 | 30 | D+ |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | 34 | 30 | D+ |
| *Surrogate: Decachlorobiphenyl* | *0.0201* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0226* | | mg/kg wet | *0.02500* | | *90* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0220* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0230* | | mg/kg wet | *0.02500* | | *92* | *30-150* | | | |
| **Matrix Spike** **Source: 1809178-19** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809178

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81102 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 1.7 | 0.09 | mg/kg dry | 0.9421 | ND | 175 | 40-140 | | | |
| Aroclor 1016 [2C] | 1.5 | 0.09 | mg/kg dry | 0.9421 | ND | 159 | 40-140 | | | |
| Aroclor 1260 | 0.6 | 0.09 | mg/kg dry | 0.9421 | ND | 69 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.7 | 0.09 | mg/kg dry | 0.9421 | ND | 75 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0284* | | mg/kg dry | *0.04711* | | *60* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0279* | | mg/kg dry | *0.04711* | | *59* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0340* | | mg/kg dry | *0.04711* | | *72* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0266* | | mg/kg dry | *0.04711* | | *56* | *30-150* | | | |
| **Matrix Spike Dup Source: 1809178-19** | | | | | | | | | | |
| Aroclor 1016 | 1.7 | 0.09 | mg/kg dry | 0.9182 | ND | 190 | 40-140 | 5 | 30 | |
| Aroclor 1016 [2C] | 1.8 | 0.09 | mg/kg dry | 0.9182 | ND | 192 | 40-140 | 16 | 30 | |
| Aroclor 1260 | 0.8 | 0.09 | mg/kg dry | 0.9182 | ND | 82 | 40-140 | 15 | 30 | |
| Aroclor 1260 [2C] | 0.9 | 0.09 | mg/kg dry | 0.9182 | ND | 98 | 40-140 | 24 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0312* | | mg/kg dry | *0.04591* | | *68* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0322* | | mg/kg dry | *0.04591* | | *70* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0401* | | mg/kg dry | *0.04591* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0335* | | mg/kg dry | *0.04591* | | *73* | *30-150* | | | |
| **Batch CI81418 - 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* | *0.0195* | | mg/kg wet | *0.02500* | | *78* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0217* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0202* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0228* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| **LCS** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809178

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81418 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 71 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 71 | 40-140 | | | |
| Aroclor 1260 | 0.3 | 0.05 | mg/kg wet | 0.5000 | | 67 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 71 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0157* | | mg/kg wet | *0.02500* | | *63* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0174* | | mg/kg wet | *0.02500* | | *70* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0162* | | mg/kg wet | *0.02500* | | *65* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0170* | | mg/kg wet | *0.02500* | | *68* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 101 | 40-140 | 36 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 101 | 40-140 | 36 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 95 | 40-140 | 34 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 99 | 40-140 | 33 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0222* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0242* | | mg/kg wet | *0.02500* | | *97* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0246* | | mg/kg wet | *0.02500* | | *98* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0252* | | mg/kg wet | *0.02500* | | *101* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809178

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809178

**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: 1809178
Date Received: 9/7/2018
Project Due Date: 9/11/2018
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 | 264052 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 264051 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 264050 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 264049 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 264048 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 264047 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 264046 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 264045 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 264044 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 264043 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 264032 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 264033 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 264042 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 264041 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 264040 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 264039 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 264038 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 264037 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 264036 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 264035 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 264030 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 264031 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 264034 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809178
Date Received: 9/7/2018

**2nd Review**

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

Completed By: _____ Date & Time: 9/7/18 1615
Reviewed By: _____ Date & Time: 9/7/18 1718
Delivered By: _____ 9/7/18 1718

1 1/4

# 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 #: 1809178
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
Telephone Number: 978-577-7138
FAX Number: —
Project #: 3631055
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
Zip Code: 02109
PO #: —
Email Address: ating@aeiconsultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 9/7/18 | 0825 | | | B-620-090718 (3') | X |
| 2 | ↓ | 0834 | | | SW-413-090718 (0-3') | X |
| 3 | | 0849 | | | SW-418-090718 (0-3') | X |
| 4 | | 0946 | | | B-813-090718 (6') | X |
| 5 | | 0949 | | | B-807-090718 (6') | X |
| 6 | | 0954 | | | B-801-090718 (6') | X |
| 7 | | 0957 | | | B-797-090718 (6') | X |
| 8 | | 1003 | | | B-812-090718 (6') | X |
| 9 | | 1007 | | | B-806-090718 (6') | X |
| 10 | ↓ | 1014 | | | B-800-090718 (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 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) |
|---|---|---|---|
| [signature] 9/7/18 1453 | [signature] 9/7/18 14:53 | [signature] 9/7/18 15:19 | [signature] 9/7/18 1528 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

2/4

**ESS Laboratory**
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www.esslaboratory.com

# CHAIN OF CUSTODY

ESS Lab # 1809178

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 #: 31631055
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

Analysis: PCBs (Soxhlet)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 11 | 9/7/18 | 1029 | | | B-811-090718 (5') | |
| 12 | | 1029 | | | B-811-0907-18-1 (5') | |
| 11 | | 1029 | | | B-811-090718 (5') MS/MSD | |
| 13 | | 1035 | | | B-805-090718 (6') | |
| 14 | | 1037 | | | B-799-090718 (6') | |
| 15 | | 1042 | | | B-795-090718 (6') | |
| 16 | | 1049 | | | B-821-090718 (5') | |
| 17 | | 1054 | | | B-817-090718 (5') | |
| 18 | | 1057 | | | B-820-090718 (5') | |
| 19 | | 1115 | | | B-816-090718 (5') | |

**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: °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) |
|---|---|---|---|
| 9/7/18 1453 | 9/7/18 14:53 | 9/7/18 1519 | 9/7/18 1528 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

3/4 1


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# CHAIN OF CUSTODY

ESS Lab # 1809178

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 #: 31e31e55

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) |
|---|---|---|---|---|---|---|
| | 9/7/18 | 1115 | | | B-816-1-090718 (5') | |
| 19 | | 1115 | | | B-816-090718 (5') MS/MSD | |
| | | 1123 | | | B-810-090718 (5') | |
| | | 1128 | | | B-804-090718 (5') | |
| | | 1254 | | | B-798-090718 (5') | |
| | | 1300 | | | B-819-090718 (5') | |
| | | 1305 | | | B-815-090718 (5') | |
| | | 1313 | | | B-809-090718 (5') | |
| | | 1317 | | | B-803-090718 (5') | |
| | | 1320 | | | B-818-090718 (5') | |

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) |
|---|---|---|---|
| 9/7/18 1453 | 9/7/18 14:53 | 9/7/18 15:19 | 9/7/18 1525 |
| 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: 1809179**

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

Laurel Stoddard
Laboratory Director

**REVIEWED**
**By ESS Laboratory at 5:29 pm, Sep 13, 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: 1809179

## SAMPLE RECEIPT

The following samples were received on September 07, 2018 for the analyses specified on the enclosed Chain of Custody Record.

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809179-01 | B-816-1-090718 5ft | Soil | 8082A |
| 1809179-02 | B-810-090718 5ft | Soil | 8082A |
| 1809179-03 | B-804-090718 5ft | Soil | 8082A |
| 1809179-04 | B-798-090718 6ft | Soil | 8082A |
| 1809179-05 | B-819-090718 5ft | Soil | 8082A |
| 1809179-06 | B-815-090718 5ft | Soil | 8082A |
| 1809179-07 | B-809-090718 5ft | Soil | 8082A |
| 1809179-08 | B-803-090718 5ft | Soil | 8082A |
| 1809179-09 | B-818-090718 5ft | Soil | 8082A |
| 1809179-10 | B-814-090718 5ft | Soil | 8082A |
| 1809179-11 | B-808-090718 5ft | Soil | 8082A |
| 1809179-12 | B-802-090718 5ft | Soil | 8082A |
| 1809179-13 | B-794-090718 6ft | Soil | 8082A |
| 1809179-14 | B-610-090718 3ft | Soil | 8082A |
| 1809179-15 | SW-398-090718 0-3ft | Soil | 8082A |
| 1809179-16 | SW-403-090718 0-3ft | Soil | 8082A |
| 1809179-17 | B-796-090718 6ft | Soil | 8082A |
| 1809179-18 | 33B 1-2ft | Soil | 8082A |
| 1809179-19 | 33B 2-2.5ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809179

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809179-02 **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%)

1809179-03 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Tetrachloro-m-xylene (177% @ 30-150%)

1809179-04 **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%)

1809179-05 **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%)

1809179-06 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809179-07 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809179-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809179-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809179-10 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809179-11 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809179-12 **Percent difference between primary and confirmation results exceeds 40% (P).**
Aroclor 1248 [2C]

1809179-13 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

**No other observations noted.**

**End of Project Narrative.**

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809179

## DATA USABILITY LINKS

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Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

## 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-816-1-090718 5ft
Date Sampled: 09/07/18 11:15
Percent Solids: 53
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.1) | | 8082A | | 1 | 09/13/18 0:19 | C8I0184 | CI81301 |
| Aroclor 1221 | ND (0.1) | | 8082A | | 1 | 09/13/18 0:19 | C8I0184 | CI81301 |
| Aroclor 1232 | ND (0.1) | | 8082A | | 1 | 09/13/18 0:19 | C8I0184 | CI81301 |
| Aroclor 1242 | ND (0.1) | | 8082A | | 1 | 09/13/18 0:19 | C8I0184 | CI81301 |
| **Aroclor 1248** | **3.6** (0.5) | | 8082A | | 5 | 09/13/18 9:59 | C8I0184 | CI81301 |
| Aroclor 1254 | ND (0.1) | | 8082A | | 1 | 09/13/18 0:19 | C8I0184 | CI81301 |
| Aroclor 1260 | ND (0.1) | | 8082A | | 1 | 09/13/18 0:19 | C8I0184 | CI81301 |
| Aroclor 1262 | ND (0.1) | | 8082A | | 1 | 09/13/18 0:19 | C8I0184 | CI81301 |
| Aroclor 1268 | ND (0.1) | | 8082A | | 1 | 09/13/18 0:19 | C8I0184 | CI81301 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *98 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *94 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *113 %* | | *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-810-090718 5ft
Date Sampled: 09/07/18 11:23
Percent Solids: 82
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (6.1) | | 8082A | | 100 | 09/13/18 0:38 | C8I0184 | CI81103 |
| Aroclor 1221 | ND (6.1) | | 8082A | | 100 | 09/13/18 0:38 | C8I0184 | CI81103 |
| Aroclor 1232 | ND (6.1) | | 8082A | | 100 | 09/13/18 0:38 | C8I0184 | CI81103 |
| Aroclor 1242 | ND (6.1) | | 8082A | | 100 | 09/13/18 0:38 | C8I0184 | CI81103 |
| **Aroclor 1248 [2C]** | **50.2** (6.1) | | 8082A | | 100 | 09/13/18 0:38 | C8I0184 | CI81103 |
| Aroclor 1254 | ND (6.1) | | 8082A | | 100 | 09/13/18 0:38 | C8I0184 | CI81103 |
| Aroclor 1260 | ND (6.1) | | 8082A | | 100 | 09/13/18 0:38 | C8I0184 | CI81103 |
| Aroclor 1262 | ND (6.1) | | 8082A | | 100 | 09/13/18 0:38 | C8I0184 | CI81103 |
| Aroclor 1268 | ND (6.1) | | 8082A | | 100 | 09/13/18 0:38 | C8I0184 | CI81103 |

| | %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-804-090718 5ft
Date Sampled: 09/07/18 11:28
Percent Solids: 84
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/12/18 15:20 | C8I0184 | CI81103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/12/18 15:20 | C8I0184 | CI81103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/12/18 15:20 | C8I0184 | CI81103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/12/18 15:20 | C8I0184 | CI81103 |
| **Aroclor 1248** | **6.9** (0.6) | | 8082A | | 10 | 09/13/18 0:57 | C8I0184 | CI81103 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/12/18 15:20 | C8I0184 | CI81103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/12/18 15:20 | C8I0184 | CI81103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/12/18 15:20 | C8I0184 | CI81103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/12/18 15:20 | C8I0184 | CI81103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *90 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *177 %* | *SM* | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *90 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-798-090718 6ft
Date Sampled: 09/07/18 12:54
Percent Solids: 87
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (29.2) | | 8082A | | 500 | 09/13/18 1:17 | C8I0184 | CI81103 |
| Aroclor 1221 | ND (29.2) | | 8082A | | 500 | 09/13/18 1:17 | C8I0184 | CI81103 |
| Aroclor 1232 | ND (29.2) | | 8082A | | 500 | 09/13/18 1:17 | C8I0184 | CI81103 |
| Aroclor 1242 | ND (29.2) | | 8082A | | 500 | 09/13/18 1:17 | C8I0184 | CI81103 |
| **Aroclor 1248 [2C]** | **216** (29.2) | | 8082A | | 500 | 09/13/18 1:17 | C8I0184 | CI81103 |
| Aroclor 1254 | ND (29.2) | | 8082A | | 500 | 09/13/18 1:17 | C8I0184 | CI81103 |
| Aroclor 1260 | ND (29.2) | | 8082A | | 500 | 09/13/18 1:17 | C8I0184 | CI81103 |
| Aroclor 1262 | ND (29.2) | | 8082A | | 500 | 09/13/18 1:17 | C8I0184 | CI81103 |
| Aroclor 1268 | ND (29.2) | | 8082A | | 500 | 09/13/18 1:17 | C8I0184 | CI81103 |

| | %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-819-090718 5ft
Date Sampled: 09/07/18 13:00
Percent Solids: 56
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.8) | | 8082A | | 20 | 09/13/18 1:36 | C8I0184 | CI81103 |
| Aroclor 1221 | ND (1.8) | | 8082A | | 20 | 09/13/18 1:36 | C8I0184 | CI81103 |
| Aroclor 1232 | ND (1.8) | | 8082A | | 20 | 09/13/18 1:36 | C8I0184 | CI81103 |
| Aroclor 1242 | ND (1.8) | | 8082A | | 20 | 09/13/18 1:36 | C8I0184 | CI81103 |
| **Aroclor 1248** | **12.5** (1.8) | | 8082A | | 20 | 09/13/18 1:36 | C8I0184 | CI81103 |
| Aroclor 1254 | ND (1.8) | | 8082A | | 20 | 09/13/18 1:36 | C8I0184 | CI81103 |
| Aroclor 1260 | ND (1.8) | | 8082A | | 20 | 09/13/18 1:36 | C8I0184 | CI81103 |
| Aroclor 1262 | ND (1.8) | | 8082A | | 20 | 09/13/18 1:36 | C8I0184 | CI81103 |
| Aroclor 1268 | ND (1.8) | | 8082A | | 20 | 09/13/18 1:36 | C8I0184 | CI81103 |

| | %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-815-090718 5ft
Date Sampled: 09/07/18 13:05
Percent Solids: 69
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (35.7) | | 8082A | | 500 | 09/13/18 10:18 | C8I0225 | CI81103 |
| Aroclor 1221 | ND (35.7) | | 8082A | | 500 | 09/13/18 10:18 | C8I0225 | CI81103 |
| Aroclor 1232 | ND (35.7) | | 8082A | | 500 | 09/13/18 10:18 | C8I0225 | CI81103 |
| Aroclor 1242 | ND (35.7) | | 8082A | | 500 | 09/13/18 10:18 | C8I0225 | CI81103 |
| **Aroclor 1248 [2C]** | **229** (35.7) | | 8082A | | 500 | 09/13/18 10:18 | C8I0225 | CI81103 |
| Aroclor 1254 | ND (35.7) | | 8082A | | 500 | 09/13/18 10:18 | C8I0225 | CI81103 |
| Aroclor 1260 | ND (35.7) | | 8082A | | 500 | 09/13/18 10:18 | C8I0225 | CI81103 |
| Aroclor 1262 | ND (35.7) | | 8082A | | 500 | 09/13/18 10:18 | C8I0225 | CI81103 |
| Aroclor 1268 | ND (35.7) | | 8082A | | 500 | 09/13/18 10:18 | C8I0225 | CI81103 |

| | *%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-809-090718 5ft
Date Sampled: 09/07/18 13:13
Percent Solids: 80
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (317) | | 8082A | | 5000 | 09/13/18 13:31 | C8I0225 | CI81103 |
| Aroclor 1221 | ND (317) | | 8082A | | 5000 | 09/13/18 13:31 | C8I0225 | CI81103 |
| Aroclor 1232 | ND (317) | | 8082A | | 5000 | 09/13/18 13:31 | C8I0225 | CI81103 |
| Aroclor 1242 | ND (317) | | 8082A | | 5000 | 09/13/18 13:31 | C8I0225 | CI81103 |
| **Aroclor 1248 [2C]** | **2250** (317) | | 8082A | | 5000 | 09/13/18 13:31 | C8I0225 | CI81103 |
| Aroclor 1254 | ND (317) | | 8082A | | 5000 | 09/13/18 13:31 | C8I0225 | CI81103 |
| Aroclor 1260 | ND (317) | | 8082A | | 5000 | 09/13/18 13:31 | C8I0225 | CI81103 |
| Aroclor 1262 | ND (317) | | 8082A | | 5000 | 09/13/18 13:31 | C8I0225 | CI81103 |
| Aroclor 1268 | ND (317) | | 8082A | | 5000 | 09/13/18 13:31 | C8I0225 | CI81103 |

| | *%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-803-090718 5ft
Date Sampled: 09/07/18 13:17
Percent Solids: 76
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (34.3) | | 8082A | | 500 | 09/13/18 10:56 | C8I0225 | CI81103 |
| Aroclor 1221 | ND (34.3) | | 8082A | | 500 | 09/13/18 10:56 | C8I0225 | CI81103 |
| Aroclor 1232 | ND (34.3) | | 8082A | | 500 | 09/13/18 10:56 | C8I0225 | CI81103 |
| Aroclor 1242 | ND (34.3) | | 8082A | | 500 | 09/13/18 10:56 | C8I0225 | CI81103 |
| **Aroclor 1248 [2C]** | **200** (34.3) | | 8082A | | 500 | 09/13/18 10:56 | C8I0225 | CI81103 |
| Aroclor 1254 | ND (34.3) | | 8082A | | 500 | 09/13/18 10:56 | C8I0225 | CI81103 |
| Aroclor 1260 | ND (34.3) | | 8082A | | 500 | 09/13/18 10:56 | C8I0225 | CI81103 |
| Aroclor 1262 | ND (34.3) | | 8082A | | 500 | 09/13/18 10:56 | C8I0225 | CI81103 |
| Aroclor 1268 | ND (34.3) | | 8082A | | 500 | 09/13/18 10:56 | C8I0225 | CI81103 |

| | *%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-818-090718 5ft
Date Sampled: 09/07/18 13:20
Percent Solids: 92
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:16 | C8I0225 | CI81103 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:16 | C8I0225 | CI81103 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:16 | C8I0225 | CI81103 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:16 | C8I0225 | CI81103 |
| **Aroclor 1248 [2C]** | **7.5** (1.1) | | 8082A | | 20 | 09/13/18 11:16 | C8I0225 | CI81103 |
| Aroclor 1254 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:16 | C8I0225 | CI81103 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:16 | C8I0225 | CI81103 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:16 | C8I0225 | CI81103 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:16 | C8I0225 | CI81103 |

| | %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-814-090718 5ft
Date Sampled: 09/07/18 13:24
Percent Solids: 86
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/13/18 11:35 | C8I0225 | CI81103 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/13/18 11:35 | C8I0225 | CI81103 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/13/18 11:35 | C8I0225 | CI81103 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/13/18 11:35 | C8I0225 | CI81103 |
| **Aroclor 1248** | **9.6** (1.2) | | 8082A | | 20 | 09/13/18 11:35 | C8I0225 | CI81103 |
| Aroclor 1254 | ND (1.2) | | 8082A | | 20 | 09/13/18 11:35 | C8I0225 | CI81103 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/13/18 11:35 | C8I0225 | CI81103 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/13/18 11:35 | C8I0225 | CI81103 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/13/18 11:35 | C8I0225 | CI81103 |

| | %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-808-090718 5ft
Date Sampled: 09/07/18 13:29
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:54 | C8I0225 | CI81103 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:54 | C8I0225 | CI81103 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:54 | C8I0225 | CI81103 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:54 | C8I0225 | CI81103 |
| **Aroclor 1248** | **9.7** (1.1) | | 8082A | | 20 | 09/13/18 11:54 | C8I0225 | CI81103 |
| Aroclor 1254 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:54 | C8I0225 | CI81103 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:54 | C8I0225 | CI81103 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:54 | C8I0225 | CI81103 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/13/18 11:54 | C8I0225 | CI81103 |

| | %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-802-090718 5ft
Date Sampled: 09/07/18 13:32
Percent Solids: 86
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:13 | C8I0184 | CI81103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:13 | C8I0184 | CI81103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:13 | C8I0184 | CI81103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:13 | C8I0184 | CI81103 |
| **Aroclor 1248 [2C]** | **P 3.2** (0.3) | | 8082A | | 5 | 09/13/18 12:13 | C8I0184 | CI81103 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:13 | C8I0184 | CI81103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:13 | C8I0184 | CI81103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:13 | C8I0184 | CI81103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:13 | C8I0184 | CI81103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *88 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *74 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *73 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-794-090718 6ft
Date Sampled: 09/07/18 13:39
Percent Solids: 55
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.8) | | 8082A | | 20 | 09/13/18 12:33 | C8I0225 | CI81103 |
| Aroclor 1221 | ND (1.8) | | 8082A | | 20 | 09/13/18 12:33 | C8I0225 | CI81103 |
| Aroclor 1232 | ND (1.8) | | 8082A | | 20 | 09/13/18 12:33 | C8I0225 | CI81103 |
| Aroclor 1242 | ND (1.8) | | 8082A | | 20 | 09/13/18 12:33 | C8I0225 | CI81103 |
| **Aroclor 1248** | **16.3** (1.8) | | 8082A | | 20 | 09/13/18 12:33 | C8I0225 | CI81103 |
| Aroclor 1254 | ND (1.8) | | 8082A | | 20 | 09/13/18 12:33 | C8I0225 | CI81103 |
| Aroclor 1260 | ND (1.8) | | 8082A | | 20 | 09/13/18 12:33 | C8I0225 | CI81103 |
| Aroclor 1262 | ND (1.8) | | 8082A | | 20 | 09/13/18 12:33 | C8I0225 | CI81103 |
| Aroclor 1268 | ND (1.8) | | 8082A | | 20 | 09/13/18 12:33 | C8I0225 | CI81103 |

| | %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-610-090718 3ft
Date Sampled: 09/07/18 13:09
Percent Solids: 85
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:51 | C8I0184 | CI81103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:51 | C8I0184 | CI81103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:51 | C8I0184 | CI81103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:51 | C8I0184 | CI81103 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:51 | C8I0184 | CI81103 |
| **Aroclor 1254** | **4.5** (0.6) | | 8082A | | 10 | 09/13/18 12:52 | C8I0184 | CI81103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:51 | C8I0184 | CI81103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:51 | C8I0184 | CI81103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/12/18 18:51 | C8I0184 | CI81103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *80 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *65 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *72 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-398-090718 0-3ft
Date Sampled: 09/07/18 13:16
Percent Solids: 96
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:11 | C8I0184 | CI81103 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:11 | C8I0184 | CI81103 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:11 | C8I0184 | CI81103 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:11 | C8I0184 | CI81103 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:11 | C8I0184 | CI81103 |
| **Aroclor 1254 [2C]** | **0.5** (0.05) | | 8082A | | 1 | 09/12/18 19:11 | C8I0184 | CI81103 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:11 | C8I0184 | CI81103 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:11 | C8I0184 | CI81103 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/12/18 19:11 | C8I0184 | CI81103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *103 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *77 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-403-090718 0-3ft
Date Sampled: 09/07/18 13:24
Percent Solids: 93
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/12/18 19:30 | C8I0184 | CI81103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/12/18 19:30 | C8I0184 | CI81103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/12/18 19:30 | C8I0184 | CI81103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/12/18 19:30 | C8I0184 | CI81103 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/12/18 19:30 | C8I0184 | CI81103 |
| **Aroclor 1254** | **2.7** (0.3) | | 8082A | | 5 | 09/13/18 13:11 | C8I0184 | CI81103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/12/18 19:30 | C8I0184 | CI81103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/12/18 19:30 | C8I0184 | CI81103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/12/18 19:30 | C8I0184 | CI81103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *93 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *82 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *83 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-796-090718 6ft
Date Sampled: 09/07/18 13:37
Percent Solids: 85
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/13/18 13:50 | C8I0225 | CI81301 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/13/18 13:50 | C8I0225 | CI81301 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/13/18 13:50 | C8I0225 | CI81301 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/13/18 13:50 | C8I0225 | CI81301 |
| **Aroclor 1248 [2C]** | **0.1** (0.06) | | 8082A | | 1 | 09/13/18 13:50 | C8I0225 | CI81301 |
| **Aroclor 1254 [2C]** | **0.3** (0.06) | | 8082A | | 1 | 09/13/18 13:50 | C8I0225 | CI81301 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/13/18 13:50 | C8I0225 | CI81301 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/13/18 13:50 | C8I0225 | CI81301 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/13/18 13:50 | C8I0225 | CI81301 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *84 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *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: 33B 1-2ft
Date Sampled: 09/07/18 13:25
Percent Solids: 96
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:08 | C8I0184 | CI81103 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:08 | C8I0184 | CI81103 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:08 | C8I0184 | CI81103 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:08 | C8I0184 | CI81103 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:08 | C8I0184 | CI81103 |
| **Aroclor 1254** | **0.9** (0.05) | | 8082A | | 1 | 09/12/18 20:08 | C8I0184 | CI81103 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:08 | C8I0184 | CI81103 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:08 | C8I0184 | CI81103 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:08 | C8I0184 | CI81103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *91 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *72 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *83 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: 33B 2-2.5ft
Date Sampled: 09/07/18 13:35
Percent Solids: 96
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809179
ESS Laboratory Sample ID: 1809179-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/11/18 16:51

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:28 | C8I0184 | CI81103 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:28 | C8I0184 | CI81103 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:28 | C8I0184 | CI81103 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:28 | C8I0184 | CI81103 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:28 | C8I0184 | CI81103 |
| **Aroclor 1254 [2C]** | **0.8** (0.05) | | 8082A | | 1 | 09/12/18 20:28 | C8I0184 | CI81103 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:28 | C8I0184 | CI81103 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:28 | C8I0184 | CI81103 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/12/18 20:28 | C8I0184 | CI81103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *98 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *84 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809179

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81103 - 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* | *0.0211* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0181* | | mg/kg wet | *0.02500* | | *72* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0183* | | mg/kg wet | *0.02500* | | *73* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0182* | | mg/kg wet | *0.02500* | | *73* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 99 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 96 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0259* | | mg/kg wet | *0.02500* | | *104* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0224* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0226* | | mg/kg wet | *0.02500* | | *90* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0218* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | 13 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 81 | 40-140 | 13 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 85 | 40-140 | 12 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | 12 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0234* | | mg/kg wet | *0.02500* | | *94* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0202* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0198* | | mg/kg wet | *0.02500* | | *79* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0191* | | mg/kg wet | *0.02500* | | *76* | *30-150* | | | |
| **Batch CI81301 - 3540C** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809179

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81301 - 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* | *0.0183* | | mg/kg wet | *0.02500* | | *73* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0161* | | mg/kg wet | *0.02500* | | *64* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0186* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0180* | | mg/kg wet | *0.02500* | | *72* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 101 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 86 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0246* | | mg/kg wet | *0.02500* | | *99* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0211* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0231* | | mg/kg wet | *0.02500* | | *93* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0221* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 89 | 40-140 | 13 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | 12 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 84 | 40-140 | 9 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 80 | 40-140 | 7 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0231* | | mg/kg wet | *0.02500* | | *92* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0198* | | mg/kg wet | *0.02500* | | *79* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0204* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0194* | | mg/kg wet | *0.02500* | | *78* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809179

**Notes and Definitions**

| | |
|---|---|
| U | Analyte included in the analysis, but not detected |
| SM | Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM). |
| SD | Surrogate recovery(ies) diluted below the MRL (SD). |
| P | Percent difference between primary and confirmation results exceeds 40% (P). |
| 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: 1809179

**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: 1809179
Date Received: 9/7/2018
Project Due Date: 9/11/2018
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 | 264075 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 264074 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 264073 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 264072 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 264071 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 264070 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 264069 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 264068 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 264067 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 264066 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 264065 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 264064 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 264063 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 264062 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 264061 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 264060 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 264059 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 264058 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 264057 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

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

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809179
Date Received: 9/7/2018

Completed By: [signature] Date & Time: 9/7/18 1616

Reviewed By: [signature] Date & Time: 9/7/18 1713

Delivered By: [signature] 9/7/18 1713

3/4 1

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

# CHAIN OF CUSTODY

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

ESS Lab #: 1809179
Reporting Limits: see note 1
Electonic Deliverables: ☒Limit Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3163655
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 | 9/7/18 | 1115 | | | B-816-1-090718 (5') | |
| | | 1115 | | | B-816-090718 (5') MS/MSD | |
| 2 | | 1123 | | | B-810-090718 (5') | |
| 3 | | 1128 | | | B-804-090718 (5') | |
| 4 | | 1254 | | | B-798-090718 (6') | |
| 5 | | 1300 | | | B-819-090718 (5') | |
| 6 | | 1305 | | | B-815-090718 (5') | |
| 7 | | 1313 | | | B-809-090718 (5') | |
| 8 | | 1317 | | | B-803-090718 (5') | |
| 9 | | 1320 | | | B-818-090718 (5') | |

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: °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) |
|---|---|---|---|
| [signature] 9/7/18 1453 | [signature] 9/7/18 14:53 | [signature] 9/7/18 15:19 | [signature] 9/7/18 1528 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

1 4/4

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*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 # 180979

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 Tins
Project #: 3631055
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: atins@aeiconsultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 10 | 9/7/18 | 1324 | | | B-814-090718 (5') | X |
| 11 | | 1329 | | | B-808-090718 (5') | X |
| 12 | | 1332 | | | B-802-090718 (5') | X |
| 13 | | 1339 | | | B-794-090718 (6') | X |
| 14 | | 1309 | | | B-610-090718 (3') | X |
| 15 | | 1316 | | | B-ACI SW-398-090718 (0-3') | X |
| 16 | | 1324 | | | SW-403-090718 (0-3') | X |
| 17 | | 1337 | | | B-796-090718 (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* 16
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* 9
Number of Containers per Sample: 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) |
|---|---|---|---|
| 9/7/18 1433 | 9/7/18 14:53 | 9/7/18 15:19 | 9/7/18 1528 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

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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 #: 1809179
Reporting Limits: see note 1
Electonic Deliverables: ☒Limit Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3163655
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) |
|---|---|---|---|---|---|---|
| 18 | 9/7/18 | 1325 | G | S | 33B (1-2') | X |
| 19 | 9/7/18 | 1335 | G | S | 33B (2-2.5) | 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: 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) |
|---|---|---|---|
| Joseph D Dr 9/7/18 1458 | 9/7/18 14:58 | 9/7/18 15:19 | 9/7/18 1528 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

*CERTIFICATE OF ANALYSIS*

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

**RE: BASF Cranston (363655)**
**ESS Laboratory Work Order Number: 1809213**

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

Laurel Stoddard
Laboratory Director

**REVIEWED**
**By ESS Laboratory at 5:21 pm, Sep 14, 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: 1809213

## SAMPLE RECEIPT

The following samples were received on September 10, 2018 for the analyses specified on the enclosed Chain of Custody Record.

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809213-01 | SW-564-091018 0-4ft | Soil | 8082A |
| 1809213-02 | SW-565-091018 5-6ft | Soil | 8082A |
| 1809213-03 | SW-567-091018 5-6ft | Soil | 8082A |
| 1809213-04 | SW-566-091018 0-4ft | Soil | 8082A |
| 1809213-05 | SW-569-091018 5-6ft | Soil | 8082A |
| 1809213-06 | SW-568-091018 0-4ft | Soil | 8082A |
| 1809213-07 | SW-573-091018 5-6ft | Soil | 8082A |
| 1809213-08 | SW-572-091018 0-4ft | Soil | 8082A |
| 1809213-09 | SW-571-091018 5-6ft | Soil | 8082A |
| 1809213-10 | SW-570-091018 0-4ft | Soil | 8082A |
| 1809213-11 | SW-575-091018 5-6ft | Soil | 8082A |
| 1809213-12 | SW-574-091018 0-4ft | Soil | 8082A |
| 1809213-13 | SW-577-091018 5-6ft | Soil | 8082A |
| 1809213-14 | SW-576-091018 0-4ft | Soil | 8082A |
| 1809213-15 | SW-579-091018 5-6ft | Soil | 8082A |
| 1809213-16 | SW-578-091018 0-4ft | Soil | 8082A |
| 1809213-17 | SW-580-091018 0-4ft | Soil | 8082A |
| 1809213-18 | B-867-091018-A 2ft | Soil | 8082A |
| 1809213-19 | SW-691-091018-A 0-2ft | Soil | 8082A |
| 1809213-20 | SW-547-091018-A 0-4ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809213

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809213-02 **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%)

1809213-03 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Tetrachloro-m-xylene (164% @ 30-150%)

1809213-05 **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%)

1809213-09 **Percent difference between primary and confirmation results exceeds 40% (P).**
Aroclor 1254

1809213-16 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809213-19 **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: 1809213

## CURRENT SW-846 METHODOLOGY VERSIONS

**Analytical Methods**

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

**Prep Methods**

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-564-091018 0-4ft
Date Sampled: 09/10/18 09:15
Percent Solids: 97
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/13/18 15:06 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/13/18 15:06 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/13/18 15:06 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/13/18 15:06 | C8I0225 | CI81204 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/13/18 15:06 | C8I0225 | CI81204 |
| Aroclor 1254 | ND (0.05) | | 8082A | | 1 | 09/13/18 15:06 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/13/18 15:06 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/13/18 15:06 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/13/18 15:06 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *90 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *83 %* | | *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: SW-565-091018 5-6ft
Date Sampled: 09/10/18 09:17
Percent Solids: 90
Initial Volume: 20.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (10.8) | | 8082A | | 200 | 09/14/18 0:06 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (10.8) | | 8082A | | 200 | 09/14/18 0:06 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (10.8) | | 8082A | | 200 | 09/14/18 0:06 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (10.8) | | 8082A | | 200 | 09/14/18 0:06 | C8I0225 | CI81204 |
| **Aroclor 1248 [2C]** | **98.3** (10.8) | | 8082A | | 200 | 09/14/18 0:06 | C8I0225 | CI81204 |
| Aroclor 1254 | ND (10.8) | | 8082A | | 200 | 09/14/18 0:06 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (10.8) | | 8082A | | 200 | 09/14/18 0:06 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (10.8) | | 8082A | | 200 | 09/14/18 0:06 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (10.8) | | 8082A | | 200 | 09/14/18 0:06 | C8I0225 | CI81204 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-567-091018 5-6ft
Date Sampled: 09/10/18 09:18
Percent Solids: 90
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/13/18 15:45 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/13/18 15:45 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/13/18 15:45 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/13/18 15:45 | C8I0225 | CI81204 |
| **Aroclor 1248 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 09/13/18 15:45 | C8I0225 | CI81204 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/13/18 15:45 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/13/18 15:45 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/13/18 15:45 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/13/18 15:45 | C8I0225 | CI81204 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *95 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *164 %* | *SM* | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *84 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-566-091018 0-4ft
Date Sampled: 09/10/18 09:21
Percent Solids: 93
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:00 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:00 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:00 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:00 | C8I0225 | CI81204 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:00 | C8I0225 | CI81204 |
| Aroclor 1254 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:00 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:00 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:00 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:00 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *91 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *84 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-569-091018 5-6ft
Date Sampled: 09/10/18 09:22
Percent Solids: 90
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/14/18 9:54 | C8I0244 | CI81204 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/14/18 9:54 | C8I0244 | CI81204 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/14/18 9:54 | C8I0244 | CI81204 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/14/18 9:54 | C8I0244 | CI81204 |
| **Aroclor 1248 [2C]** | **12.8** (1.1) | | 8082A | | 20 | 09/14/18 9:54 | C8I0244 | CI81204 |
| Aroclor 1254 | ND (1.1) | | 8082A | | 20 | 09/14/18 9:54 | C8I0244 | CI81204 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/14/18 9:54 | C8I0244 | CI81204 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/14/18 9:54 | C8I0244 | CI81204 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/14/18 9:54 | C8I0244 | CI81204 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-568-091018 0-4ft
Date Sampled: 09/10/18 09:24
Percent Solids: 97
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:39 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:39 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:39 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:39 | C8I0225 | CI81204 |
| **Aroclor 1248 [2C]** | **0.07** (0.05) | | 8082A | | 1 | 09/13/18 18:39 | C8I0225 | CI81204 |
| Aroclor 1254 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:39 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:39 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:39 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/13/18 18:39 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *96 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *85 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *90 %* | | *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-573-091018 5-6ft
Date Sampled: 09/10/18 09:31
Percent Solids: 83
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/13/18 18:58 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/13/18 18:58 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/13/18 18:58 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/13/18 18:58 | C8I0225 | CI81204 |
| **Aroclor 1248 [2C]** | **0.9** (0.06) | | 8082A | | 1 | 09/13/18 18:58 | C8I0225 | CI81204 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/13/18 18:58 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/13/18 18:58 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/13/18 18:58 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/13/18 18:58 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *104 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *101 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *95 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-572-091018 0-4ft
Date Sampled: 09/10/18 09:32
Percent Solids: 82
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:17 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:17 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:17 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:17 | C8I0225 | CI81204 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:17 | C8I0225 | CI81204 |
| **Aroclor 1254 [2C]** | **0.8** (0.06) | | 8082A | | 1 | 09/13/18 19:17 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:17 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:17 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:17 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *102 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *84 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-571-091018 5-6ft
Date Sampled: 09/10/18 09:34
Percent Solids: 87
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:36 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:36 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:36 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:36 | C8I0225 | CI81204 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:36 | C8I0225 | CI81204 |
| **Aroclor 1254** | **P 0.3** (0.06) | | 8082A | | 1 | 09/13/18 19:36 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:36 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:36 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:36 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *100 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *94 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-570-091018 0-4ft
Date Sampled: 09/10/18 09:35
Percent Solids: 89
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:55 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:55 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:55 | C8I0225 | CI81204 |
| **Aroclor 1242** | **0.2** (0.06) | | 8082A | | 1 | 09/13/18 19:55 | C8I0225 | CI81204 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:55 | C8I0225 | CI81204 |
| **Aroclor 1254 [2C]** | **1.1** (0.06) | | 8082A | | 1 | 09/13/18 19:55 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:55 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:55 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/13/18 19:55 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *85 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *75 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-575-091018 5-6ft
Date Sampled: 09/10/18 09:38
Percent Solids: 81
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:15 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:15 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:15 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:15 | C8I0225 | CI81204 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:15 | C8I0225 | CI81204 |
| **Aroclor 1254** | **0.5** (0.06) | | 8082A | | 1 | 09/13/18 20:15 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:15 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:15 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:15 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *97 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *84 %* | | *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: SW-574-091018 0-4ft
Date Sampled: 09/10/18 09:42
Percent Solids: 93
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/13/18 20:34 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/13/18 20:34 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/13/18 20:34 | C8I0225 | CI81204 |
| **Aroclor 1242** | **0.3** (0.05) | | 8082A | | 1 | 09/13/18 20:34 | C8I0225 | CI81204 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/13/18 20:34 | C8I0225 | CI81204 |
| **Aroclor 1254** | **2.3** (0.3) | | 8082A | | 5 | 09/14/18 10:13 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/13/18 20:34 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/13/18 20:34 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/13/18 20:34 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *103 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *90 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *95 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *89 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-577-091018 5-6ft
Date Sampled: 09/10/18 09:45
Percent Solids: 83
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:54 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:54 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:54 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:54 | C8I0225 | CI81204 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:54 | C8I0225 | CI81204 |
| **Aroclor 1254** | **0.1** (0.06) | | 8082A | | 1 | 09/13/18 20:54 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:54 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:54 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/13/18 20:54 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *38 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *34 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *59 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *55 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-576-091018 0-4ft
Date Sampled: 09/10/18 09:47
Percent Solids: 98
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/13/18 21:13 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/13/18 21:13 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/13/18 21:13 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/13/18 21:13 | C8I0225 | CI81204 |
| **Aroclor 1248 [2C]** | **0.08** (0.05) | | 8082A | | 1 | 09/13/18 21:13 | C8I0225 | CI81204 |
| Aroclor 1254 [2C] | ND (0.05) | | 8082A | | 1 | 09/13/18 21:13 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/13/18 21:13 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/13/18 21:13 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/13/18 21:13 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *100 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *74 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-579-091018 5-6ft
Date Sampled: 09/10/18 09:49
Percent Solids: 81
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/13/18 21:32 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/13/18 21:32 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/13/18 21:32 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/13/18 21:32 | C8I0225 | CI81204 |
| **Aroclor 1248 [2C]** | **0.6** (0.06) | | 8082A | | 1 | 09/13/18 21:32 | C8I0225 | CI81204 |
| **Aroclor 1254** | **0.4** (0.06) | | 8082A | | 1 | 09/13/18 21:32 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/13/18 21:32 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/13/18 21:32 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/13/18 21:32 | C8I0225 | CI81204 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *83 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *68 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *74 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *77 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-578-091018 0-4ft
Date Sampled: 09/10/18 09:51
Percent Solids: 95
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.7) | | 8082A | | 50 | 09/14/18 10:33 | C8I0244 | CI81204 |
| Aroclor 1221 | ND (2.7) | | 8082A | | 50 | 09/14/18 10:33 | C8I0244 | CI81204 |
| Aroclor 1232 | ND (2.7) | | 8082A | | 50 | 09/14/18 10:33 | C8I0244 | CI81204 |
| Aroclor 1242 | ND (2.7) | | 8082A | | 50 | 09/14/18 10:33 | C8I0244 | CI81204 |
| **Aroclor 1248** | **24.9** (2.7) | | 8082A | | 50 | 09/14/18 10:33 | C8I0244 | CI81204 |
| Aroclor 1254 | ND (2.7) | | 8082A | | 50 | 09/14/18 10:33 | C8I0244 | CI81204 |
| Aroclor 1260 | ND (2.7) | | 8082A | | 50 | 09/14/18 10:33 | C8I0244 | CI81204 |
| Aroclor 1262 | ND (2.7) | | 8082A | | 50 | 09/14/18 10:33 | C8I0244 | CI81204 |
| Aroclor 1268 | ND (2.7) | | 8082A | | 50 | 09/14/18 10:33 | C8I0244 | CI81204 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-580-091018 0-4ft
Date Sampled: 09/10/18 09:56
Percent Solids: 96
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:11 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:11 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:11 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:11 | C8I0225 | CI81204 |
| **Aroclor 1248 [2C]** | **5.0** (0.5) | | 8082A | | 10 | 09/14/18 10:52 | C8I0225 | CI81204 |
| Aroclor 1254 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:11 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:11 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:11 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:11 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *63 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *47 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *57 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *57 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-867-091018-A 2ft
Date Sampled: 09/10/18 14:00
Percent Solids: 96
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:30 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:30 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:30 | C8I0225 | CI81204 |
| **Aroclor 1242** | **0.7** (0.05) | | 8082A | | 1 | 09/13/18 22:30 | C8I0225 | CI81204 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:30 | C8I0225 | CI81204 |
| **Aroclor 1254** | **4.9** (0.5) | | 8082A | | 10 | 09/14/18 11:11 | C8I0225 | CI81204 |
| **Aroclor 1260** | **0.9** (0.05) | | 8082A | | 1 | 09/13/18 22:30 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:30 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/13/18 22:30 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *99 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *112 %* | | *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: SW-691-091018-A 0-2ft
Date Sampled: 09/10/18 14:04
Percent Solids: 95
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.7) | | 8082A | | 50 | 09/14/18 11:29 | C8I0244 | CI81204 |
| Aroclor 1221 | ND (2.7) | | 8082A | | 50 | 09/14/18 11:29 | C8I0244 | CI81204 |
| Aroclor 1232 | ND (2.7) | | 8082A | | 50 | 09/14/18 11:29 | C8I0244 | CI81204 |
| Aroclor 1242 | ND (2.7) | | 8082A | | 50 | 09/14/18 11:29 | C8I0244 | CI81204 |
| Aroclor 1248 | ND (2.7) | | 8082A | | 50 | 09/14/18 11:29 | C8I0244 | CI81204 |
| **Aroclor 1254** | **18.2** (2.7) | | 8082A | | 50 | 09/14/18 11:29 | C8I0244 | CI81204 |
| Aroclor 1260 | ND (2.7) | | 8082A | | 50 | 09/14/18 11:29 | C8I0244 | CI81204 |
| Aroclor 1262 | ND (2.7) | | 8082A | | 50 | 09/14/18 11:29 | C8I0244 | CI81204 |
| Aroclor 1268 | ND (2.7) | | 8082A | | 50 | 09/14/18 11:29 | C8I0244 | CI81204 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-547-091018-A 0-4ft
Date Sampled: 09/10/18 14:40
Percent Solids: 94
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809213
ESS Laboratory Sample ID: 1809213-20
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/12/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/13/18 23:09 | C8I0225 | CI81204 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/13/18 23:09 | C8I0225 | CI81204 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/13/18 23:09 | C8I0225 | CI81204 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/13/18 23:09 | C8I0225 | CI81204 |
| **Aroclor 1248 [2C]** | **0.7** (0.05) | | 8082A | | 1 | 09/13/18 23:09 | C8I0225 | CI81204 |
| **Aroclor 1254 [2C]** | **0.4** (0.05) | | 8082A | | 1 | 09/13/18 23:09 | C8I0225 | CI81204 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/13/18 23:09 | C8I0225 | CI81204 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/13/18 23:09 | C8I0225 | CI81204 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/13/18 23:09 | C8I0225 | CI81204 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *122 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *77 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809213

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81204 - 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* | *0.0228* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0195* | | mg/kg wet | *0.02500* | | *78* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0195* | | mg/kg wet | *0.02500* | | *78* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0197* | | mg/kg wet | *0.02500* | | *79* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 99 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 95 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 94 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0252* | | mg/kg wet | *0.02500* | | *101* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0218* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0223* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0216* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 94 | 40-140 | 5 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 89 | 40-140 | 4 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | 6 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | 6 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0239* | | mg/kg wet | *0.02500* | | *96* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0206* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0212* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0205* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809213

**Notes and Definitions**

| | |
|---|---|
| U | Analyte included in the analysis, but not detected |
| SM | Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM). |
| SD | Surrogate recovery(ies) diluted below the MRL (SD). |
| P | Percent difference between primary and confirmation results exceeds 40% (P). |
| 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: 1809213

**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: 1809213
Date Received: 9/10/2018
Project Due Date: 9/12/2018
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: 4.6 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 | 264432 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 264431 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 264430 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 264429 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 264428 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 264427 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 264426 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 264425 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 264424 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 264423 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 264422 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 264421 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 264420 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 264419 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 264418 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 264417 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 264416 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 264415 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 264414 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 20 | 264413 | 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: 1809213

Date Received: 9/10/2018

Are all necessary stickers attached? Yes / No

Completed By: _____ Date & Time: 9/10/18 1616

Reviewed By: _____ Date & Time: 9/10/18 1636

Delivered By: _____ 9/10/18 1636

3/4

**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 #: 1809213
Reporting Limits: see note 1
Electonic Deliverables: ☒Limit Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 31631055
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 | 9/10/18 | 0915 | C | S | SW-564-091018 (0-4') | X |
| 2 | ↓ | 0917 | ↓ | ↓ | SW-565-091018 (5-6') | X |
| 3 | | 0918 | | | SW-567-091018 (5-6') | X |
| 4 | | 0921 | | | SW-566-091018 (0-4') | X |
| 5 | | 0922 | | | SW-569-091018 (5-6') | X |
| 6 | | 0924 | | | SW-568-091018 (0-4') | X |
| 7 | | 0931 | | | SW-573-091018 (5-6') | X |
| 8 | | 0932 | | | SW-572-091018 (0-4') | X |
| 9 | | 0934 | | | SW-571-091018 (5-6') | X |
| 10 | | 0935 | | | SW-570-091018 (0-4') | X |

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

**Laboratory Use Only**
Cooler Present: —
Seals Intact: —
Cooler Temperature: Icc 9.6 °C 9/10/18

Sampled by: A. Ting
Comments: Please specify "Other" preservative and containers types in this space
note1: see project QAPP

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/10/18 1506 | 9/10/18 15:06 | 9/10/18 15:19 | 9/10/18 1530 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

1 4/4

# 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 # 1809213
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
Telephone Number: 978-577-7138
FAX Number: —
Project #: 3636055
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
Zip Code: 02109
PO #: —
Email Address: ating@aeiconsultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 11 | 9/10/18 | 0938 | C | S | SW-575-091018 (5-6') | X |
| 12 | ↓ | 0942 | ↓ | ↓ | SW-574-091018 (0-4') | X |
| 13 | | 0945 | | | SW-577-091018 (5-6') | X |
| 14 | | 0947 | | | SW-576-091018 (0-4') | X |
| 15 | | 0949 | | | SW-579-091018 (5-6') | X |
| 16 | | 0951 | | | SW-578-091018 (0-4') | X |
| 17 | | 0956 | | | SW-580-091018 (0-4') | X |
| 18 | 9/10/18 | 1400 | G | S | B-867-091018-A (2') | X |
| 19 | ↓ | 1404 | C | ↓ | SW-671-091018-A (0-2') | X |
| 20 | | 1440 | C | | SW-547-091018-A (0-4') | X |

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

**Laboratory Use Only**
Cooler Present: —
Seals Intact: —
Cooler Temperature: Ice 4.6 °C 9/10/18

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) |
|---|---|---|---|
| [signature] 9/10/18 1506 | [signature] 9/10/18 15:06 | [signature] 9/10/18 15:19 | [signature] 9/10/18 1530 |
| 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: 1809214**

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

Laurel Stoddard
Laboratory Director

**REVIEWED**
**By ESS Laboratory at 1:36 pm, Sep 19, 2018**

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

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809214

## SAMPLE RECEIPT

The following samples were received on September 10, 2018 for the analyses specified on the enclosed Chain of Custody Record.

**Due to the high concentration of target analytes, the requested MS/MSD for sample 1809214-04 has not been reported.**

**Revision 1 September 19. 2018: This report has been revised to include corrected Client Sample ID for ESS Laboratory Sample ID 1809214-05.**

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809214-01 | SW-585-091018 5-6ft | Soil | 8082A |
| 1809214-02 | SW-584-091018 0-4ft | Soil | 8082A |
| 1809214-03 | SW-684-091018 5-6ft | Soil | 8082A |
| 1809214-04 | SW-683-091018 0-4ft | Soil | 8082A |
| 1809214-05 | SW-683-091018-1 0-4ft | Soil | 8082A |
| 1809214-06 | SW-552-091018 0-4ft | Soil | 8082A |
| 1809214-07 | SW-553-091018 0-4ft | Soil | 8082A |
| 1809214-08 | SW-554-091018 0-4ft | Soil | 8082A |
| 1809214-09 | SW-555-091018 0-4ft | Soil | 8082A |
| 1809214-10 | SW-583-091018 5-6ft | Soil | 8082A |
| 1809214-11 | SW-582-091018 0-4ft | Soil | 8082A |
| 1809214-12 | SW-556-091018 0-4ft | Soil | 8082A |
| 1809214-13 | SW-558-091018 0-4ft | Soil | 8082A |
| 1809214-14 | SW-559-091018 0-4ft | Soil | 8082A |
| 1809214-15 | SW-557-091018 0-4ft | Soil | 8082A |
| 1809214-16 | SW-560-091018 0-4ft | Soil | 8082A |
| 1809214-17 | SW-561-091018 0-4ft | Soil | 8082A |
| 1809214-18 | SW-562-091018 0-4ft | Soil | 8082A |
| 1809214-19 | SW-563-091018 0-4ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809214

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809214-04 **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%)

1809214-05 **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%)

1809214-06 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809214-07 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809214-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809214-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809214-10 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809214-11 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809214-12 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809214-15 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809214-16 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809214-17 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809214-18 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Tetrachloro-m-xylene (252% @ 30-150%)

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809214

**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: 1809214

## CURRENT SW-846 METHODOLOGY VERSIONS

**Analytical Methods**

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

**Prep Methods**

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-585-091018 5-6ft
Date Sampled: 09/10/18 08:15
Percent Solids: 84
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/14/18 15:35 | C8I0244 | CI81304 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/14/18 15:35 | C8I0244 | CI81304 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/14/18 15:35 | C8I0244 | CI81304 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/14/18 15:35 | C8I0244 | CI81304 |
| **Aroclor 1248 [2C]** | **0.3** (0.06) | | 8082A | | 1 | 09/14/18 15:35 | C8I0244 | CI81304 |
| **Aroclor 1254** | **0.1** (0.06) | | 8082A | | 1 | 09/14/18 15:35 | C8I0244 | CI81304 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/14/18 15:35 | C8I0244 | CI81304 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/14/18 15:35 | C8I0244 | CI81304 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/14/18 15:35 | C8I0244 | CI81304 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *93 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *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: SW-584-091018 0-4ft
Date Sampled: 09/10/18 08:17
Percent Solids: 96
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/14/18 15:54 | C8I0244 | CI81304 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/14/18 15:54 | C8I0244 | CI81304 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/14/18 15:54 | C8I0244 | CI81304 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/14/18 15:54 | C8I0244 | CI81304 |
| **Aroclor 1248 [2C]** | **0.2** (0.05) | | 8082A | | 1 | 09/14/18 15:54 | C8I0244 | CI81304 |
| **Aroclor 1254** | **0.1** (0.05) | | 8082A | | 1 | 09/14/18 15:54 | C8I0244 | CI81304 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/14/18 15:54 | C8I0244 | CI81304 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/14/18 15:54 | C8I0244 | CI81304 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/14/18 15:54 | C8I0244 | CI81304 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *88 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *85 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *84 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-684-091018 5-6ft
Date Sampled: 09/10/18 08:18
Percent Solids: 84
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/14/18 16:13 | C8I0244 | CI81304 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/14/18 16:13 | C8I0244 | CI81304 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/14/18 16:13 | C8I0244 | CI81304 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/14/18 16:13 | C8I0244 | CI81304 |
| **Aroclor 1248** | **1.1** (0.06) | | 8082A | | 1 | 09/14/18 16:13 | C8I0244 | CI81304 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/14/18 16:13 | C8I0244 | CI81304 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/14/18 16:13 | C8I0244 | CI81304 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/14/18 16:13 | C8I0244 | CI81304 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/14/18 16:13 | C8I0244 | CI81304 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *91 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *82 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *127 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *81 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-683-091018 0-4ft
Date Sampled: 09/10/18 08:21
Percent Solids: 87
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 09/15/18 9:51 | C8I0264 | CI81304 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 09/15/18 9:51 | C8I0264 | CI81304 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 09/15/18 9:51 | C8I0264 | CI81304 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 09/15/18 9:51 | C8I0264 | CI81304 |
| **Aroclor 1248 [2C]** | **16.9** (2.8) | | 8082A | | 50 | 09/15/18 9:51 | C8I0264 | CI81304 |
| Aroclor 1254 | ND (2.8) | | 8082A | | 50 | 09/15/18 9:51 | C8I0264 | CI81304 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 09/15/18 9:51 | C8I0264 | CI81304 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 09/15/18 9:51 | C8I0264 | CI81304 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 09/15/18 9:51 | C8I0264 | CI81304 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-683-091018-1 0-4ft
Date Sampled: 09/10/18 08:21
Percent Solids: 90
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 09/15/18 10:08 | C8I0264 | CI81304 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 09/15/18 10:08 | C8I0264 | CI81304 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 09/15/18 10:08 | C8I0264 | CI81304 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 09/15/18 10:08 | C8I0264 | CI81304 |
| **Aroclor 1248 [2C]** | **15.9** (2.8) | | 8082A | | 50 | 09/15/18 10:08 | C8I0264 | CI81304 |
| Aroclor 1254 | ND (2.8) | | 8082A | | 50 | 09/15/18 10:08 | C8I0264 | CI81304 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 09/15/18 10:08 | C8I0264 | CI81304 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 09/15/18 10:08 | C8I0264 | CI81304 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 09/15/18 10:08 | C8I0264 | CI81304 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-552-091018 0-4ft
Date Sampled: 09/10/18 08:27
Percent Solids: 91
Initial Volume: 20.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (26.6) | | 8082A | | 500 | 09/15/18 10:27 | C8I0264 | CI81304 |
| Aroclor 1221 | ND (26.6) | | 8082A | | 500 | 09/15/18 10:27 | C8I0264 | CI81304 |
| Aroclor 1232 | ND (26.6) | | 8082A | | 500 | 09/15/18 10:27 | C8I0264 | CI81304 |
| Aroclor 1242 | ND (26.6) | | 8082A | | 500 | 09/15/18 10:27 | C8I0264 | CI81304 |
| **Aroclor 1248** | **297** (26.6) | | 8082A | | 500 | 09/15/18 10:27 | C8I0264 | CI81304 |
| Aroclor 1254 | ND (26.6) | | 8082A | | 500 | 09/15/18 10:27 | C8I0264 | CI81304 |
| Aroclor 1260 | ND (26.6) | | 8082A | | 500 | 09/15/18 10:27 | C8I0264 | CI81304 |
| Aroclor 1262 | ND (26.6) | | 8082A | | 500 | 09/15/18 10:27 | C8I0264 | CI81304 |
| Aroclor 1268 | ND (26.6) | | 8082A | | 500 | 09/15/18 10:27 | C8I0264 | CI81304 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-553-091018 0-4ft
Date Sampled: 09/10/18 08:29
Percent Solids: 82
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (6.1) | | 8082A | | 100 | 09/15/18 10:47 | C8I0264 | CI81304 |
| Aroclor 1221 | ND (6.1) | | 8082A | | 100 | 09/15/18 10:47 | C8I0264 | CI81304 |
| Aroclor 1232 | ND (6.1) | | 8082A | | 100 | 09/15/18 10:47 | C8I0264 | CI81304 |
| Aroclor 1242 | ND (6.1) | | 8082A | | 100 | 09/15/18 10:47 | C8I0264 | CI81304 |
| **Aroclor 1248 [2C]** | **53.9** (6.1) | | 8082A | | 100 | 09/15/18 10:47 | C8I0264 | CI81304 |
| Aroclor 1254 | ND (6.1) | | 8082A | | 100 | 09/15/18 10:47 | C8I0264 | CI81304 |
| Aroclor 1260 | ND (6.1) | | 8082A | | 100 | 09/15/18 10:47 | C8I0264 | CI81304 |
| Aroclor 1262 | ND (6.1) | | 8082A | | 100 | 09/15/18 10:47 | C8I0264 | CI81304 |
| Aroclor 1268 | ND (6.1) | | 8082A | | 100 | 09/15/18 10:47 | C8I0264 | CI81304 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-554-091018 0-4ft
Date Sampled: 09/10/18 08:31
Percent Solids: 81
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (6.1) | | 8082A | | 100 | 09/15/18 11:06 | C8I0264 | CI81304 |
| Aroclor 1221 | ND (6.1) | | 8082A | | 100 | 09/15/18 11:06 | C8I0264 | CI81304 |
| Aroclor 1232 | ND (6.1) | | 8082A | | 100 | 09/15/18 11:06 | C8I0264 | CI81304 |
| Aroclor 1242 | ND (6.1) | | 8082A | | 100 | 09/15/18 11:06 | C8I0264 | CI81304 |
| **Aroclor 1248** | **87.9** (6.1) | | 8082A | | 100 | 09/15/18 11:06 | C8I0264 | CI81304 |
| Aroclor 1254 | ND (6.1) | | 8082A | | 100 | 09/15/18 11:06 | C8I0264 | CI81304 |
| Aroclor 1260 | ND (6.1) | | 8082A | | 100 | 09/15/18 11:06 | C8I0264 | CI81304 |
| Aroclor 1262 | ND (6.1) | | 8082A | | 100 | 09/15/18 11:06 | C8I0264 | CI81304 |
| Aroclor 1268 | ND (6.1) | | 8082A | | 100 | 09/15/18 11:06 | C8I0264 | CI81304 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-555-091018 0-4ft
Date Sampled: 09/10/18 08:33
Percent Solids: 93
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/15/18 11:25 | C8I0264 | CI81304 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/15/18 11:25 | C8I0264 | CI81304 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/15/18 11:25 | C8I0264 | CI81304 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/15/18 11:25 | C8I0264 | CI81304 |
| **Aroclor 1248 [2C]** | **14.0** (1.1) | | 8082A | | 20 | 09/15/18 11:25 | C8I0264 | CI81304 |
| Aroclor 1254 | ND (1.1) | | 8082A | | 20 | 09/15/18 11:25 | C8I0264 | CI81304 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/15/18 11:25 | C8I0264 | CI81304 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/15/18 11:25 | C8I0264 | CI81304 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/15/18 11:25 | C8I0264 | CI81304 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-583-091018 5-6ft
Date Sampled: 09/10/18 08:35
Percent Solids: 95
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (5.2) | | 8082A | | 100 | 09/15/18 11:44 | C8I0264 | CI81304 |
| Aroclor 1221 | ND (5.2) | | 8082A | | 100 | 09/15/18 11:44 | C8I0264 | CI81304 |
| Aroclor 1232 | ND (5.2) | | 8082A | | 100 | 09/15/18 11:44 | C8I0264 | CI81304 |
| Aroclor 1242 | ND (5.2) | | 8082A | | 100 | 09/15/18 11:44 | C8I0264 | CI81304 |
| **Aroclor 1248** | **39.8** (5.2) | | 8082A | | 100 | 09/15/18 11:44 | C8I0264 | CI81304 |
| Aroclor 1254 | ND (5.2) | | 8082A | | 100 | 09/15/18 11:44 | C8I0264 | CI81304 |
| Aroclor 1260 | ND (5.2) | | 8082A | | 100 | 09/15/18 11:44 | C8I0264 | CI81304 |
| Aroclor 1262 | ND (5.2) | | 8082A | | 100 | 09/15/18 11:44 | C8I0264 | CI81304 |
| Aroclor 1268 | ND (5.2) | | 8082A | | 100 | 09/15/18 11:44 | C8I0264 | CI81304 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-582-091018 0-4ft
Date Sampled: 09/10/18 08:36
Percent Solids: 90
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/15/18 12:04 | C8I0264 | CI81304 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/15/18 12:04 | C8I0264 | CI81304 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/15/18 12:04 | C8I0264 | CI81304 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/15/18 12:04 | C8I0264 | CI81304 |
| **Aroclor 1248** | **11.3** (1.1) | | 8082A | | 20 | 09/15/18 12:04 | C8I0264 | CI81304 |
| Aroclor 1254 | ND (1.1) | | 8082A | | 20 | 09/15/18 12:04 | C8I0264 | CI81304 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/15/18 12:04 | C8I0264 | CI81304 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/15/18 12:04 | C8I0264 | CI81304 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/15/18 12:04 | C8I0264 | CI81304 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-556-091018 0-4ft
Date Sampled: 09/10/18 08:38
Percent Solids: 87
Initial Volume: 20.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 09/15/18 12:23 | C8I0264 | CI81304 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 09/15/18 12:23 | C8I0264 | CI81304 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 09/15/18 12:23 | C8I0264 | CI81304 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 09/15/18 12:23 | C8I0264 | CI81304 |
| **Aroclor 1248** | **28.0** (2.8) | | 8082A | | 50 | 09/15/18 12:23 | C8I0264 | CI81304 |
| Aroclor 1254 | ND (2.8) | | 8082A | | 50 | 09/15/18 12:23 | C8I0264 | CI81304 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 09/15/18 12:23 | C8I0264 | CI81304 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 09/15/18 12:23 | C8I0264 | CI81304 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 09/15/18 12:23 | C8I0264 | CI81304 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-558-091018 0-4ft
Date Sampled: 09/10/18 08:43
Percent Solids: 98
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/14/18 21:59 | C8I0244 | CI81304 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/14/18 21:59 | C8I0244 | CI81304 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/14/18 21:59 | C8I0244 | CI81304 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/14/18 21:59 | C8I0244 | CI81304 |
| **Aroclor 1248** | **0.09** (0.05) | | 8082A | | 1 | 09/14/18 21:59 | C8I0244 | CI81304 |
| Aroclor 1254 | ND (0.05) | | 8082A | | 1 | 09/14/18 21:59 | C8I0244 | CI81304 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/14/18 21:59 | C8I0244 | CI81304 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/14/18 21:59 | C8I0244 | CI81304 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/14/18 21:59 | C8I0244 | CI81304 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *96 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *82 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *88 %* | | *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: SW-559-091018 0-4ft
Date Sampled: 09/10/18 08:44
Percent Solids: 96
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/14/18 22:18 | C8I0244 | CI81304 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/14/18 22:18 | C8I0244 | CI81304 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/14/18 22:18 | C8I0244 | CI81304 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/14/18 22:18 | C8I0244 | CI81304 |
| **Aroclor 1248** | **0.4** (0.05) | | 8082A | | 1 | 09/14/18 22:18 | C8I0244 | CI81304 |
| Aroclor 1254 | ND (0.05) | | 8082A | | 1 | 09/14/18 22:18 | C8I0244 | CI81304 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/14/18 22:18 | C8I0244 | CI81304 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/14/18 22:18 | C8I0244 | CI81304 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/14/18 22:18 | C8I0244 | CI81304 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *99 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *87 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-557-091018 0-4ft
Date Sampled: 09/10/18 08:40
Percent Solids: 84
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/15/18 12:42 | C8I0264 | CI81304 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/15/18 12:42 | C8I0264 | CI81304 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/15/18 12:42 | C8I0264 | CI81304 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/15/18 12:42 | C8I0264 | CI81304 |
| **Aroclor 1248** | **9.6** (1.2) | | 8082A | | 20 | 09/15/18 12:42 | C8I0264 | CI81304 |
| Aroclor 1254 | ND (1.2) | | 8082A | | 20 | 09/15/18 12:42 | C8I0264 | CI81304 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/15/18 12:42 | C8I0264 | CI81304 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/15/18 12:42 | C8I0264 | CI81304 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/15/18 12:42 | C8I0264 | CI81304 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-560-091018 0-4ft
Date Sampled: 09/10/18 08:50
Percent Solids: 85
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:01 | C8I0264 | CI81304 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:01 | C8I0264 | CI81304 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:01 | C8I0264 | CI81304 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:01 | C8I0264 | CI81304 |
| **Aroclor 1248 [2C]** | **9.2** (1.2) | | 8082A | | 20 | 09/15/18 13:01 | C8I0264 | CI81304 |
| Aroclor 1254 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:01 | C8I0264 | CI81304 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:01 | C8I0264 | CI81304 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:01 | C8I0264 | CI81304 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:01 | C8I0264 | CI81304 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-561-091018 0-4ft
Date Sampled: 09/10/18 09:10
Percent Solids: 82
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:21 | C8I0264 | CI81304 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:21 | C8I0264 | CI81304 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:21 | C8I0264 | CI81304 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:21 | C8I0264 | CI81304 |
| **Aroclor 1248** | **11.5** (1.2) | | 8082A | | 20 | 09/15/18 13:21 | C8I0264 | CI81304 |
| Aroclor 1254 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:21 | C8I0264 | CI81304 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:21 | C8I0264 | CI81304 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:21 | C8I0264 | CI81304 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/15/18 13:21 | C8I0264 | CI81304 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-562-091018 0-4ft
Date Sampled: 09/10/18 09:12
Percent Solids: 97
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:34 | C8I0244 | CI81304 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:34 | C8I0244 | CI81304 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:34 | C8I0244 | CI81304 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:34 | C8I0244 | CI81304 |
| **Aroclor 1248** | **0.5** (0.05) | | 8082A | | 1 | 09/14/18 23:34 | C8I0244 | CI81304 |
| Aroclor 1254 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:34 | C8I0244 | CI81304 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:34 | C8I0244 | CI81304 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:34 | C8I0244 | CI81304 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:34 | C8I0244 | CI81304 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *95 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *252 %* | *SM* | *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: SW-563-091018 0-4ft
Date Sampled: 09/10/18 09:13
Percent Solids: 97
Initial Volume: 20.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809214
ESS Laboratory Sample ID: 1809214-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 16:54

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:53 | C8I0244 | CI81304 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:53 | C8I0244 | CI81304 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:53 | C8I0244 | CI81304 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:53 | C8I0244 | CI81304 |
| **Aroclor 1248 [2C]** | **0.06** (0.05) | | 8082A | | 1 | 09/14/18 23:53 | C8I0244 | CI81304 |
| Aroclor 1254 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:53 | C8I0244 | CI81304 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:53 | C8I0244 | CI81304 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:53 | C8I0244 | CI81304 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/14/18 23:53 | C8I0244 | CI81304 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *94 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *90 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *88 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809214

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81304 - 3540C** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| Aroclor 1016 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1016 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0253* | | mg/kg wet | *0.02500* | | *101* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0214* | | mg/kg wet | *0.02500* | | *86* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0212* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0213* | | mg/kg wet | *0.02500* | | *85* | *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 | | 92 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 97 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0261* | | mg/kg wet | *0.02500* | | *104* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0222* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0229* | | mg/kg wet | *0.02500* | | *92* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0220* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 81 | 40-140 | 22 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 75 | 40-140 | 20 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 77 | 40-140 | 22 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 75 | 40-140 | 21 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0209* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0179* | | mg/kg wet | *0.02500* | | *71* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0179* | | mg/kg wet | *0.02500* | | *72* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0172* | | mg/kg wet | *0.02500* | | *69* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809214

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809214

**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: 1809214
Date Received: 9/10/2018
Project Due Date: 9/12/2018
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: 4.6 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 | 264452 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 264451 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 264450 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 264449 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 264453 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 264454 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 264448 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 264447 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 264446 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 264445 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 264444 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 264443 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 264442 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 264441 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 264440 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 264439 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 264438 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 264437 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 264436 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 264435 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 264434 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

**2nd Review**

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809214
Date Received: 9/10/2018

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

Completed By: _____ Date & Time: 9/10/18 1615

Reviewed By: _____ Date & Time: 9/10/18 1641

Delivered By: _____ 9/10/18 1641

1/4

**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 #: 1809214
Reporting Limits: see note 1
Electonic Deliverables: ☒Limit Checker ☒Standard Excel ☐Other (Please Specify →)

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 3636055 | BASF Cranston |

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

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

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

Analysis: PCBs (Soxhlet)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 9/10/18 | 0815 | C | S | SW-585-091018 (5-6') | X |
| 2 | ↓ | 0817 | ↓ | ↓ | SW-584-091018 (0-4') | X |
| 3 | | 0818 | | | SW-684-091018 (5-6') | X |
| 4 | | 0821 | | | SW-683-091018 (0-4') | X |
| 5 | | 0821 | | | SW-683-091018-1 (0-4') | X |
| 4 | | 0821 | | | SW-683-091018 (0-4') MS/MSD | X |
| 6 | | 0827 | | | SW-552-091018 (0-4') | X |
| 7 | | 0829 | | | SW-553-091018 (0-4') | X |
| 8 | | 0831 | | | SW-554-091018 (0-4') | X |
| 9 | ↓ | 0833 | ↓ | ↓ | SW-555-091018 (0-4') | X |

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

**Laboratory Use Only**
Cooler Present: —
Seals Intact: —
Cooler Temperature: Ice 4.6 °C 9/10/18

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) |
|---|---|---|---|
| [signature] 9/10/18 1506 | [signature] 9/10/18 15:06 | [signature] 9/10/18 15:14 | [signature] 9/10/18 1529 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

2/4

# 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 # 1809214

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

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

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3163055
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) |
|---|---|---|---|---|---|---|
| 10 | 9/10/18 | 0835 | C | S | SW-583-091018 (5-6') | X |
| 11 | | 0836 | | | SW-582-091018 (0-4') | X |
| 12 | | 0838 | | | SW-556-091018 (0-4') | X |
| 13 | | 0843 | | | SW-558-091018 (0-4') | X |
| 14 | | 0844 | | | SW-559-091018 (0-4') | X |
| 15 | | 0840 | | | SW-557-091018 (0-4') | X |
| 16 | | 0850 | | | SW-560-091018 (0-4') | X |
| 17 | | 0910 | | | SW-561-091018 (0-4') | X |
| 18 | | 0912 | | | SW-562-091018 (0-4') | X |
| 19 | | 0913 | | | SW-563-091018 (0-4') | X |

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

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 4.6°C 9/10/18

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) |
|---|---|---|---|
| 9/10/18 1506 | 9/10/18 15:06 | 9/10/18 15:19 | 9/10/18 1529 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

*CERTIFICATE OF ANALYSIS*

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

**RE: BASF Cranston (363655)**
**ESS Laboratory Work Order Number: 1809215**

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

Laurel Stoddard
Laboratory Director

**REVIEWED**
**By ESS Laboratory at 5:24 pm, Sep 14, 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: 1809215

## SAMPLE RECEIPT

The following samples were received on September 10, 2018 for the analyses specified on the enclosed Chain of Custody Record.

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809215-01 | W-14A 0-2ft | Soil | 8082A |
| 1809215-02 | W-17A 0-2ft | Soil | 8082A |
| 1809215-03 | W-17B 0-2ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809215

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809215-01 **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: 1809215

## 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: W-14A 0-2ft
Date Sampled: 09/10/18 09:55
Percent Solids: 95
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809215
ESS Laboratory Sample ID: 1809215-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 17:28

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/14/18 14:00 | C8I0244 | CI81305 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/14/18 14:00 | C8I0244 | CI81305 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/14/18 14:00 | C8I0244 | CI81305 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/14/18 14:00 | C8I0244 | CI81305 |
| **Aroclor 1248 [2C]** | **6.0** (1.1) | | 8082A | | 20 | 09/14/18 14:00 | C8I0244 | CI81305 |
| **Aroclor 1254** | **7.1** (1.1) | | 8082A | | 20 | 09/14/18 14:00 | C8I0244 | CI81305 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/14/18 14:00 | C8I0244 | CI81305 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/14/18 14:00 | C8I0244 | CI81305 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/14/18 14:00 | C8I0244 | CI81305 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: W-17A 0-2ft
Date Sampled: 09/10/18 11:42
Percent Solids: 92
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809215
ESS Laboratory Sample ID: 1809215-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 17:28

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/14/18 12:07 | C8I0244 | CI81305 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/14/18 12:07 | C8I0244 | CI81305 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/14/18 12:07 | C8I0244 | CI81305 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/14/18 12:07 | C8I0244 | CI81305 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/14/18 12:07 | C8I0244 | CI81305 |
| **Aroclor 1254** | **0.3** (0.05) | | 8082A | | 1 | 09/14/18 12:07 | C8I0244 | CI81305 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/14/18 12:07 | C8I0244 | CI81305 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/14/18 12:07 | C8I0244 | CI81305 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/14/18 12:07 | C8I0244 | CI81305 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *87 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *76 %* | | *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: W-17B 0-2ft
Date Sampled: 09/10/18 12:10
Percent Solids: 92
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809215
ESS Laboratory Sample ID: 1809215-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/18 17:28

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/14/18 12:26 | C8I0244 | CI81305 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/14/18 12:26 | C8I0244 | CI81305 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/14/18 12:26 | C8I0244 | CI81305 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/14/18 12:26 | C8I0244 | CI81305 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/14/18 12:26 | C8I0244 | CI81305 |
| **Aroclor 1254 [2C]** | **3.0** (0.3) | | 8082A | | 5 | 09/14/18 14:19 | C8I0244 | CI81305 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/14/18 12:26 | C8I0244 | CI81305 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/14/18 12:26 | C8I0244 | CI81305 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/14/18 12:26 | C8I0244 | CI81305 |

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809215

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81305 - 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* | *0.0182* | | mg/kg wet | *0.02500* | | *73* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0175* | | mg/kg wet | *0.02500* | | *70* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0195* | | mg/kg wet | *0.02500* | | *78* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0230* | | mg/kg wet | *0.02500* | | *92* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 96 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 98 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0201* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0190* | | mg/kg wet | *0.02500* | | *76* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0203* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0222* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 94 | 40-140 | 1 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 97 | 40-140 | 1 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 99 | 40-140 | 0.9 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 94 | 40-140 | 0.8 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0201* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0191* | | mg/kg wet | *0.02500* | | *76* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0206* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0222* | | 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: 1809215

**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: 1809215

**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: 1809215
Date Received: 9/10/2018
Project Due Date: 9/17/2018
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 4.6 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 | 264457 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 264456 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 264455 | 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: 9/10/18 1555
Reviewed By: Date & Time: 9/10/18 1634
Delivered By: 9/10/18 1634

1 1/1

# ESS Laboratory

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

## CHAIN OF CUSTODY

ESS Lab # K809215

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 #: 31e31055
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 | 9-10-18 | 09:55 | C | Soil | W-14A ~~0-2'~~ 0-2' | X |
| 2 | " | 11:42 | C | Soil | W-17A 0-2' | X |
| 3 | " | 12:10 | C | Soil | W-17B 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 | A6
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other* | 9
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other* | 1
Number of Containers per Sample: | 1

**Laboratory Use Only**
Cooler Present: —
Seals Intact: —
Cooler Temperature: Ice 4.6 °C 9/10/18

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) |
|---|---|---|---|
| Joshua [illegible] 9-10-18 15:06 | [illegible] 9/10/18 15:06 | [illegible] 9/10/18 15:14 | [illegible] 9/10/18 1530 |
| 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: 1809249**

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 4:34 pm, Sep 19, 2018**

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

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809249

## SAMPLE RECEIPT

The following samples were received on September 11, 2018 for the analyses specified on the enclosed Chain of Custody Record.

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809249-01 | B-462-091118-A 3ft | Soil | 8082A |
| 1809249-02 | B-463-091118-A 3ft | Soil | 8082A |
| 1809249-03 | B-464-091118-A 3ft | Soil | 8082A |
| 1809249-04 | B-472-091118-A 3ft | Soil | 8082A |
| 1809249-05 | B-478-091118-A 3ft | Soil | 8082A |
| 1809249-06 | B-479-091118-A 3ft | Soil | 8082A |
| 1809249-07 | SW-641-091118-A 0-2ft | Soil | 8082A |
| 1809249-08 | SW-642-091118-A 0-2ft | Soil | 8082A |
| 1809249-09 | SW-644-091118-A 0-3ft | Soil | 8082A |
| 1809249-10 | B-457-091118-A 3ft | Soil | 8082A |
| 1809249-11 | SW-664-091118-A 0-3ft | Soil | 8082A |
| 1809249-12 | SW-390-091118-A 0-3ft | Soil | 8082A |
| 1809249-13 | SW-665-091118-A 0-3ft | Soil | 8082A |
| 1809249-14 | SW-389-091118-A 0-3ft | Soil | 8082A |
| 1809249-15 | B-473-091118-A 3ft | Soil | 8082A |
| 1809249-16 | SW-669-091118-A 0-3ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809249

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809249-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809249-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809249-12 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809249-13 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809249-14 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809249-16 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

**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: 1809249

## 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-462-091118-A 3ft
Date Sampled: 09/11/18 11:37
Percent Solids: 90
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:17 | C8I0327 | CI81704 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:17 | C8I0327 | CI81704 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:17 | C8I0327 | CI81704 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:17 | C8I0327 | CI81704 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:17 | C8I0327 | CI81704 |
| **Aroclor 1254** | **1.6** (0.3) | | 8082A | | 5 | 09/18/18 20:18 | C8I0327 | CI81704 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:17 | C8I0327 | CI81704 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:17 | C8I0327 | CI81704 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:17 | C8I0327 | CI81704 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *71 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *66 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *74 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *83 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-463-091118-A 3ft
Date Sampled: 09/11/18 12:46
Percent Solids: 91
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:36 | C8I0327 | CI81704 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:36 | C8I0327 | CI81704 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:36 | C8I0327 | CI81704 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:36 | C8I0327 | CI81704 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:36 | C8I0327 | CI81704 |
| **Aroclor 1254 [2C]** | **3.7** (0.6) | | 8082A | | 10 | 09/18/18 20:37 | C8I0327 | CI81704 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:36 | C8I0327 | CI81704 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:36 | C8I0327 | CI81704 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:36 | C8I0327 | CI81704 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *72 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *67 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *77 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-464-091118-A 3ft
Date Sampled: 09/11/18 12:52
Percent Solids: 88
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:55 | C8I0327 | CI81704 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:55 | C8I0327 | CI81704 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:55 | C8I0327 | CI81704 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:55 | C8I0327 | CI81704 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:55 | C8I0327 | CI81704 |
| **Aroclor 1254 [2C]** | **0.3** (0.06) | | 8082A | | 1 | 09/18/18 13:55 | C8I0327 | CI81704 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:55 | C8I0327 | CI81704 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:55 | C8I0327 | CI81704 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 13:55 | C8I0327 | CI81704 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *73 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *66 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *76 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-472-091118-A 3ft
Date Sampled: 09/11/18 12:56
Percent Solids: 92
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:14 | C8I0327 | CI81704 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:14 | C8I0327 | CI81704 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:14 | C8I0327 | CI81704 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:14 | C8I0327 | CI81704 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:14 | C8I0327 | CI81704 |
| **Aroclor 1254** | **0.8** (0.05) | | 8082A | | 1 | 09/18/18 14:14 | C8I0327 | CI81704 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:14 | C8I0327 | CI81704 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:14 | C8I0327 | CI81704 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:14 | C8I0327 | CI81704 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *64 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *64 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *58 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *69 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-478-091118-A 3ft
Date Sampled: 09/11/18 13:00
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:34 | C8I0327 | CI81704 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:34 | C8I0327 | CI81704 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:34 | C8I0327 | CI81704 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:34 | C8I0327 | CI81704 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:34 | C8I0327 | CI81704 |
| **Aroclor 1254 [2C]** | **0.3** (0.06) | | 8082A | | 1 | 09/18/18 14:34 | C8I0327 | CI81704 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:34 | C8I0327 | CI81704 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:34 | C8I0327 | CI81704 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:34 | C8I0327 | CI81704 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *77 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *89 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-479-091118-A 3ft
Date Sampled: 09/11/18 13:03
Percent Solids: 87
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:53 | C8I0327 | CI81704 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:53 | C8I0327 | CI81704 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:53 | C8I0327 | CI81704 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:53 | C8I0327 | CI81704 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:53 | C8I0327 | CI81704 |
| **Aroclor 1254 [2C]** | **0.3** (0.06) | | 8082A | | 1 | 09/18/18 14:53 | C8I0327 | CI81704 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:53 | C8I0327 | CI81704 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:53 | C8I0327 | CI81704 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:53 | C8I0327 | CI81704 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *85 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *78 %* | | *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: SW-641-091118-A 0-2ft
Date Sampled: 09/11/18 13:08
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:12 | C8I0327 | CI81704 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:12 | C8I0327 | CI81704 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:12 | C8I0327 | CI81704 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:12 | C8I0327 | CI81704 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:12 | C8I0327 | CI81704 |
| **Aroclor 1254** | **5.4** (0.6) | | 8082A | | 10 | 09/18/18 20:56 | C8I0327 | CI81704 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:12 | C8I0327 | CI81704 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:12 | C8I0327 | CI81704 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:12 | C8I0327 | CI81704 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *78 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *72 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *76 %* | | *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: SW-642-091118-A 0-2ft
Date Sampled: 09/11/18 13:11
Percent Solids: 94
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:15 | C8I0327 | CI81704 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:15 | C8I0327 | CI81704 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:15 | C8I0327 | CI81704 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:15 | C8I0327 | CI81704 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:15 | C8I0327 | CI81704 |
| **Aroclor 1254** | **13.3** (1.1) | | 8082A | | 20 | 09/18/18 21:15 | C8I0327 | CI81704 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:15 | C8I0327 | CI81704 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:15 | C8I0327 | CI81704 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:15 | C8I0327 | CI81704 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-644-091118-A 0-3ft
Date Sampled: 09/11/18 13:17
Percent Solids: 95
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:35 | C8I0327 | CI81704 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:35 | C8I0327 | CI81704 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:35 | C8I0327 | CI81704 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:35 | C8I0327 | CI81704 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:35 | C8I0327 | CI81704 |
| **Aroclor 1254** | **11.5** (1.1) | | 8082A | | 20 | 09/18/18 21:35 | C8I0327 | CI81704 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:35 | C8I0327 | CI81704 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:35 | C8I0327 | CI81704 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/18/18 21:35 | C8I0327 | CI81704 |

| | %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-457-091118-A 3ft
Date Sampled: 09/11/18 13:22
Percent Solids: 91
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:09 | C8I0327 | CI81704 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:09 | C8I0327 | CI81704 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:09 | C8I0327 | CI81704 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:09 | C8I0327 | CI81704 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:09 | C8I0327 | CI81704 |
| **Aroclor 1254** | **1.1** (0.06) | | 8082A | | 1 | 09/18/18 16:09 | C8I0327 | CI81704 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:09 | C8I0327 | CI81704 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:09 | C8I0327 | CI81704 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:09 | C8I0327 | CI81704 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *70 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *76 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *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: SW-664-091118-A 0-3ft
Date Sampled: 09/11/18 13:26
Percent Solids: 89
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:29 | C8I0327 | CI81704 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:29 | C8I0327 | CI81704 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:29 | C8I0327 | CI81704 |
| **Aroclor 1242** | **0.7** (0.06) | | 8082A | | 1 | 09/18/18 16:29 | C8I0327 | CI81704 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:29 | C8I0327 | CI81704 |
| **Aroclor 1254 [2C]** | **6.7** (0.6) | | 8082A | | 10 | 09/19/18 9:44 | C8I0327 | CI81704 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:29 | C8I0327 | CI81704 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:29 | C8I0327 | CI81704 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:29 | C8I0327 | CI81704 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *75 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *83 %* | | *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-390-091118-A 0-3ft
Date Sampled: 09/11/18 13:34
Percent Solids: 87
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:01 | C8I0332 | CI81704 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:01 | C8I0332 | CI81704 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:01 | C8I0332 | CI81704 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:01 | C8I0332 | CI81704 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:01 | C8I0332 | CI81704 |
| **Aroclor 1254 [2C]** | **16.4** (1.1) | | 8082A | | 20 | 09/19/18 10:01 | C8I0332 | CI81704 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:01 | C8I0332 | CI81704 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:01 | C8I0332 | CI81704 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:01 | C8I0332 | CI81704 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-665-091118-A 0-3ft
Date Sampled: 09/11/18 13:35
Percent Solids: 92
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:20 | C8I0332 | CI81704 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:20 | C8I0332 | CI81704 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:20 | C8I0332 | CI81704 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:20 | C8I0332 | CI81704 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:20 | C8I0332 | CI81704 |
| **Aroclor 1254** | **17.2** (1.1) | | 8082A | | 20 | 09/19/18 10:20 | C8I0332 | CI81704 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:20 | C8I0332 | CI81704 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:20 | C8I0332 | CI81704 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:20 | C8I0332 | CI81704 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-389-091118-A 0-3ft
Date Sampled: 09/11/18 13:36
Percent Solids: 89
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:40 | C8I0332 | CI81704 |
| Aroclor 1221 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:40 | C8I0332 | CI81704 |
| Aroclor 1232 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:40 | C8I0332 | CI81704 |
| Aroclor 1242 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:40 | C8I0332 | CI81704 |
| Aroclor 1248 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:40 | C8I0332 | CI81704 |
| **Aroclor 1254** | **25.8** (2.9) | | 8082A | | 50 | 09/19/18 10:40 | C8I0332 | CI81704 |
| Aroclor 1260 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:40 | C8I0332 | CI81704 |
| Aroclor 1262 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:40 | C8I0332 | CI81704 |
| Aroclor 1268 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:40 | C8I0332 | CI81704 |

| | *%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-473-091118-A 3ft
Date Sampled: 09/11/18 13:38
Percent Solids: 99
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/18/18 19:40 | C8I0327 | CI81704 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/18/18 19:40 | C8I0327 | CI81704 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/18/18 19:40 | C8I0327 | CI81704 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/18/18 19:40 | C8I0327 | CI81704 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/18/18 19:40 | C8I0327 | CI81704 |
| **Aroclor 1254** | **0.9** (0.05) | | 8082A | | 1 | 09/18/18 19:40 | C8I0327 | CI81704 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/18/18 19:40 | C8I0327 | CI81704 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/18/18 19:40 | C8I0327 | CI81704 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/18/18 19:40 | C8I0327 | CI81704 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *72 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *81 %* | | *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: SW-669-091118-A 0-3ft
Date Sampled: 09/11/18 13:42
Percent Solids: 93
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809249
ESS Laboratory Sample ID: 1809249-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 16:46

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:59 | C8I0332 | CI81704 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:59 | C8I0332 | CI81704 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:59 | C8I0332 | CI81704 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:59 | C8I0332 | CI81704 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:59 | C8I0332 | CI81704 |
| **Aroclor 1254** | **12.0** (1.1) | | 8082A | | 20 | 09/19/18 10:59 | C8I0332 | CI81704 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:59 | C8I0332 | CI81704 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:59 | C8I0332 | CI81704 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:59 | C8I0332 | CI81704 |

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809249

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81704 - 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* | *0.0178* | | mg/kg wet | *0.02500* | | *71* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0171* | | mg/kg wet | *0.02500* | | *68* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0176* | | mg/kg wet | *0.02500* | | *70* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0206* | | mg/kg wet | *0.02500* | | *82* | *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 | | 105 | 40-140 | | | |
| Aroclor 1260 | 0.6 | 0.05 | mg/kg wet | 0.5000 | | 110 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 105 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0215* | | mg/kg wet | *0.02500* | | *86* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0204* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0219* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0232* | | mg/kg wet | *0.02500* | | *93* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 85 | 40-140 | 20 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 89 | 40-140 | 16 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 94 | 40-140 | 16 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | 17 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0178* | | mg/kg wet | *0.02500* | | *71* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0168* | | mg/kg wet | *0.02500* | | *67* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0180* | | mg/kg wet | *0.02500* | | *72* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0193* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809249

**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: 1809249

**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: 1809249
Date Received: 9/11/2018
Project Due Date: 9/13/2018
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: 0.1 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 | 264890 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 264889 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 264888 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 264887 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 264886 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 264885 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 264884 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 264883 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 264882 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 264881 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 264880 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 264879 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 264878 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 264877 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 264876 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 264875 | 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: 9/11/18 1715

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809249

Date Received: 9/11/2018

Reviewed By: [signature]

Date & Time: 9/11/18 1807

Delivered By: 9/11/18 1807

1/4


**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 #: 1809 249
Reporting Limits: see note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3163055
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 (Soxh Lot) |
|---|---|---|---|---|---|---|
| 1 | 9/11/18 | 11:37 | G | S | B-462-091118-A (3') | X |
| 2 | | 12:46 | | | B-463-091118-A (3') | X |
| 3 | | 12:52 | | | B-464-091118-A (3') | X |
| 4 | | 12:56 | | | B-472-091118-A (3') | X |
| 5 | | 13:00 | | | B-478-091118-A (3') | X |
| 6 | | 13:03 | | | B-479-091118-A (3') | X |
| 7 | | 13:08 | C | | SW-641-091118-A (0-2') | X |
| 8 | | 13:11 | | | SW-642-091118-A (0-2') | X |
| 9 | | 13:17 | | | SW-644-091118-A (0-3') | X |
| 10 | | 13:22 | G | | B-457-091118-A [redacted] (3') | X |

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

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

Laboratory Use Only
Cooler Present: ✓
Seals Intact:
Cooler Temperature: 0.1 °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) |
|---|---|---|---|
| 9/11/18 1535 | 9/11/18 15:35 | 9/11/18 15:38 | 9/11/18 1638 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |

4/4

# 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 #: 1809249
Reporting Limits: see note 1
Electonic Deliverables: ☒Limit Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3163055
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) |
|---|---|---|---|---|---|---|
| 11 | 9/11/18 | 13:26 | C | G | SW-664-091118-A (0-3) | X |
| 12 | 9/11/18 | 13:34 | ↓ | ↓ | SW-390-091118-A (0-3') | X |
| 13 | ↓ | 13:35 | ↓ | ↓ | SW-665-091118-A (0-3') | X |
| 14 | ↓ | 13:36 | ↓ | ↓ | SW-389-091118-A (0-3') | X |
| 15 | ↓ | 1338 | G | ↓ | B-473-091118-A (3') | X |
| 16 | ↓ | 1342 | C | ↓ | SW-669-091118-A (0-3') | X |

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

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

Laboratory Use Only
Cooler Present: ✓
Seals Intact:
Cooler Temperature: 0.1 °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) |
|---|---|---|---|
| 9/11/18 1535 | 9/11/18 15:35 | 9/11/18 15:58 | 9/11/18 1636 |
| 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: 1809250**

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

Laurel Stoddard
Laboratory Director

**REVIEWED**
**By ESS Laboratory at 1:27 pm, Sep 19, 2018**

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

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809250

## SAMPLE RECEIPT

The following samples were received on September 11, 2018 for the analyses specified on the enclosed Chain of Custody Record.

**Revision 1 September 19, 2018: This report has been revised to include sample ID change for 1809250-02 from B-479-091118-A 5ft to B-749-091118-A 5ft.**

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809250-01 | B-748-091118-A 5ft | Soil | 8082A |
| 1809250-02 | B-749-091118-A 5ft | Soil | 8082A |
| 1809250-03 | B-750-091118-A 5ft | Soil | 8082A |
| 1809250-04 | B-751-091118-A 5ft | Soil | 8082A |
| 1809250-05 | B-753-091118-A 5ft | Soil | 8082A |
| 1809250-06 | B-755-091118-A 5ft | Soil | 8082A |
| 1809250-07 | B-758-091118-A 5ft | Soil | 8082A |
| 1809250-08 | B-762-091118-A 5ft | Soil | 8082A |
| 1809250-09 | B-763-091118-A 5ft | Soil | 8082A |
| 1809250-10 | SW-504-091118-A 0-4ft | Soil | 8082A |
| 1809250-11 | SW-506-091118-A 0-4ft | Soil | 8082A |
| 1809250-12 | SW-507-091118-A 0-4ft | Soil | 8082A |
| 1809250-13 | SW-508-091118-A 0-4ft | Soil | 8082A |
| 1809250-14 | B-851-091118-A 4ft | Soil | 8082A |
| 1809250-15 | B-858-091118-A 4ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809250

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809250-10 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

**No other observations noted.**

**End of Project Narrative.**

## DATA USABILITY LINKS

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

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809250

## 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-748-091118-A 5ft
Date Sampled: 09/11/18 08:30
Percent Solids: 90
Initial Volume: 20.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:01 | C8I0293 | CI81507 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:01 | C8I0293 | CI81507 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:01 | C8I0293 | CI81507 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:01 | C8I0293 | CI81507 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:01 | C8I0293 | CI81507 |
| **Aroclor 1254** | **0.7** (0.05) | | 8082A | | 1 | 09/17/18 11:01 | C8I0293 | CI81507 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:01 | C8I0293 | CI81507 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:01 | C8I0293 | CI81507 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:01 | C8I0293 | CI81507 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *99 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *101 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *98 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-749-091118-A 5ft
Date Sampled: 09/11/18 08:35
Percent Solids: 92
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:20 | C8I0293 | CI81507 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:20 | C8I0293 | CI81507 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:20 | C8I0293 | CI81507 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:20 | C8I0293 | CI81507 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:20 | C8I0293 | CI81507 |
| **Aroclor 1254 [2C]** | **0.1** (0.06) | | 8082A | | 1 | 09/17/18 11:20 | C8I0293 | CI81507 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:20 | C8I0293 | CI81507 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:20 | C8I0293 | CI81507 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:20 | C8I0293 | CI81507 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *97 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *90 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-750-091118-A 5ft
Date Sampled: 09/11/18 08:40
Percent Solids: 82
Initial Volume: 20.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:39 | C8I0293 | CI81507 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:39 | C8I0293 | CI81507 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:39 | C8I0293 | CI81507 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:39 | C8I0293 | CI81507 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:39 | C8I0293 | CI81507 |
| **Aroclor 1254 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 09/17/18 11:39 | C8I0293 | CI81507 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:39 | C8I0293 | CI81507 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:39 | C8I0293 | CI81507 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:39 | C8I0293 | CI81507 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *102 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *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-751-091118-A 5ft
Date Sampled: 09/11/18 08:45
Percent Solids: 88
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:58 | C8I0293 | CI81507 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:58 | C8I0293 | CI81507 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:58 | C8I0293 | CI81507 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:58 | C8I0293 | CI81507 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:58 | C8I0293 | CI81507 |
| **Aroclor 1254 [2C]** | **0.5** (0.06) | | 8082A | | 1 | 09/17/18 11:58 | C8I0293 | CI81507 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:58 | C8I0293 | CI81507 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:58 | C8I0293 | CI81507 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/17/18 11:58 | C8I0293 | CI81507 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *106 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *76 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *107 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-753-091118-A 5ft
Date Sampled: 09/11/18 08:50
Percent Solids: 87
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:18 | C8I0293 | CI81507 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:18 | C8I0293 | CI81507 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:18 | C8I0293 | CI81507 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:18 | C8I0293 | CI81507 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:18 | C8I0293 | CI81507 |
| **Aroclor 1254 [2C]** | **0.1** (0.06) | | 8082A | | 1 | 09/17/18 12:18 | C8I0293 | CI81507 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:18 | C8I0293 | CI81507 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:18 | C8I0293 | CI81507 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:18 | C8I0293 | CI81507 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *108 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *82 %* | | *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-755-091118-A 5ft
Date Sampled: 09/11/18 08:55
Percent Solids: 88
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:36 | C8I0293 | CI81507 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:36 | C8I0293 | CI81507 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:36 | C8I0293 | CI81507 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:36 | C8I0293 | CI81507 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:36 | C8I0293 | CI81507 |
| **Aroclor 1254** | **5.3** (0.6) | | 8082A | | 10 | 09/17/18 23:08 | C8I0293 | CI81507 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:36 | C8I0293 | CI81507 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:36 | C8I0293 | CI81507 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:36 | C8I0293 | CI81507 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *101 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *116 %* | | *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-758-091118-A 5ft
Date Sampled: 09/11/18 09:00
Percent Solids: 87
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:55 | C8I0293 | CI81507 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:55 | C8I0293 | CI81507 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:55 | C8I0293 | CI81507 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:55 | C8I0293 | CI81507 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:55 | C8I0293 | CI81507 |
| Aroclor 1254 [2C] | ND (0.06) | | 8082A | | 1 | 09/17/18 12:55 | C8I0293 | CI81507 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:55 | C8I0293 | CI81507 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:55 | C8I0293 | CI81507 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/17/18 12:55 | C8I0293 | CI81507 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *100 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *82 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-762-091118-A 5ft
Date Sampled: 09/11/18 09:05
Percent Solids: 88
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:14 | C8I0293 | CI81507 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:14 | C8I0293 | CI81507 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:14 | C8I0293 | CI81507 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:14 | C8I0293 | CI81507 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:14 | C8I0293 | CI81507 |
| Aroclor 1254 [2C] | ND (0.06) | | 8082A | | 1 | 09/17/18 13:14 | C8I0293 | CI81507 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:14 | C8I0293 | CI81507 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:14 | C8I0293 | CI81507 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:14 | C8I0293 | CI81507 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *113 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *99 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *108 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-763-091118-A 5ft
Date Sampled: 09/11/18 09:10
Percent Solids: 84
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:33 | C8I0293 | CI81507 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:33 | C8I0293 | CI81507 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:33 | C8I0293 | CI81507 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:33 | C8I0293 | CI81507 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:33 | C8I0293 | CI81507 |
| Aroclor 1254 [2C] | ND (0.06) | | 8082A | | 1 | 09/17/18 13:33 | C8I0293 | CI81507 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:33 | C8I0293 | CI81507 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:33 | C8I0293 | CI81507 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/17/18 13:33 | C8I0293 | CI81507 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *103 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *90 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *82 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *97 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-504-091118-A 0-4ft
Date Sampled: 09/11/18 09:30
Percent Solids: 89
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/17/18 23:27 | C8I0293 | CI81507 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/17/18 23:27 | C8I0293 | CI81507 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/17/18 23:27 | C8I0293 | CI81507 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/17/18 23:27 | C8I0293 | CI81507 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/17/18 23:27 | C8I0293 | CI81507 |
| **Aroclor 1254** | **12.0** (1.2) | | 8082A | | 20 | 09/17/18 23:27 | C8I0293 | CI81507 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/17/18 23:27 | C8I0293 | CI81507 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/17/18 23:27 | C8I0293 | CI81507 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/17/18 23:27 | C8I0293 | CI81507 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-506-091118-A 0-4ft
Date Sampled: 09/11/18 09:15
Percent Solids: 85
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/17/18 14:11 | C8I0293 | CI81507 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/17/18 14:11 | C8I0293 | CI81507 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/17/18 14:11 | C8I0293 | CI81507 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/17/18 14:11 | C8I0293 | CI81507 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/17/18 14:11 | C8I0293 | CI81507 |
| **Aroclor 1254** | **4.3** (0.6) | | 8082A | | 10 | 09/17/18 23:47 | C8I0293 | CI81507 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/17/18 14:11 | C8I0293 | CI81507 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/17/18 14:11 | C8I0293 | CI81507 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/17/18 14:11 | C8I0293 | CI81507 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *127 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *85 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *110 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *98 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-507-091118-A 0-4ft
Date Sampled: 09/11/18 09:20
Percent Solids: 91
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/17/18 14:30 | C8I0293 | CI81507 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/17/18 14:30 | C8I0293 | CI81507 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/17/18 14:30 | C8I0293 | CI81507 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/17/18 14:30 | C8I0293 | CI81507 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/17/18 14:30 | C8I0293 | CI81507 |
| **Aroclor 1254** | **2.4** (0.3) | | 8082A | | 5 | 09/18/18 0:06 | C8I0293 | CI81507 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/17/18 14:30 | C8I0293 | CI81507 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/17/18 14:30 | C8I0293 | CI81507 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/17/18 14:30 | C8I0293 | CI81507 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *117 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *82 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *95 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-508-091118-A 0-4ft
Date Sampled: 09/11/18 09:25
Percent Solids: 94
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:08 | C8I0292 | CI81508 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:08 | C8I0292 | CI81508 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:08 | C8I0292 | CI81508 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:08 | C8I0292 | CI81508 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:08 | C8I0292 | CI81508 |
| **Aroclor 1254 [2C]** | **1.6** (0.3) | | 8082A | | 5 | 09/17/18 21:01 | C8I0292 | CI81508 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:08 | C8I0292 | CI81508 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:08 | C8I0292 | CI81508 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/17/18 11:08 | C8I0292 | CI81508 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *83 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *95 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-851-091118-A 4ft
Date Sampled: 09/11/18 10:10
Percent Solids: 69
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.07) | | 8082A | | 1 | 09/17/18 12:06 | C8I0292 | CI81508 |
| Aroclor 1221 | ND (0.07) | | 8082A | | 1 | 09/17/18 12:06 | C8I0292 | CI81508 |
| Aroclor 1232 | ND (0.07) | | 8082A | | 1 | 09/17/18 12:06 | C8I0292 | CI81508 |
| Aroclor 1242 | ND (0.07) | | 8082A | | 1 | 09/17/18 12:06 | C8I0292 | CI81508 |
| Aroclor 1248 | ND (0.07) | | 8082A | | 1 | 09/17/18 12:06 | C8I0292 | CI81508 |
| Aroclor 1254 | ND (0.07) | | 8082A | | 1 | 09/17/18 12:06 | C8I0292 | CI81508 |
| Aroclor 1260 | ND (0.07) | | 8082A | | 1 | 09/17/18 12:06 | C8I0292 | CI81508 |
| Aroclor 1262 | ND (0.07) | | 8082A | | 1 | 09/17/18 12:06 | C8I0292 | CI81508 |
| Aroclor 1268 | ND (0.07) | | 8082A | | 1 | 09/17/18 12:06 | C8I0292 | CI81508 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *87 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *78 %* | | *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-858-091118-A 4ft
Date Sampled: 09/11/18 10:12
Percent Solids: 38
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809250
ESS Laboratory Sample ID: 1809250-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/15/18 14:30

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.1) | | 8082A | | 1 | 09/17/18 12:25 | C8I0292 | CI81508 |
| Aroclor 1221 | ND (0.1) | | 8082A | | 1 | 09/17/18 12:25 | C8I0292 | CI81508 |
| Aroclor 1232 | ND (0.1) | | 8082A | | 1 | 09/17/18 12:25 | C8I0292 | CI81508 |
| **Aroclor 1242** | **0.2** (0.1) | | 8082A | | 1 | 09/17/18 12:25 | C8I0292 | CI81508 |
| Aroclor 1248 | ND (0.1) | | 8082A | | 1 | 09/17/18 12:25 | C8I0292 | CI81508 |
| **Aroclor 1254 [2C]** | **0.2** (0.1) | | 8082A | | 1 | 09/17/18 12:25 | C8I0292 | CI81508 |
| Aroclor 1260 | ND (0.1) | | 8082A | | 1 | 09/17/18 12:25 | C8I0292 | CI81508 |
| Aroclor 1262 | ND (0.1) | | 8082A | | 1 | 09/17/18 12:25 | C8I0292 | CI81508 |
| Aroclor 1268 | ND (0.1) | | 8082A | | 1 | 09/17/18 12:25 | C8I0292 | CI81508 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *38 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *41 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *41 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *40 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809250

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81507 - 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* | *0.0255* | | mg/kg wet | *0.02500* | | *102* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0210* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0245* | | mg/kg wet | *0.02500* | | *98* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0245* | | mg/kg wet | *0.02500* | | *98* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.6 | 0.05 | mg/kg wet | 0.5000 | | 114 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 105 | 40-140 | | | |
| Aroclor 1260 | 0.6 | 0.05 | mg/kg wet | 0.5000 | | 110 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 106 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0306* | | mg/kg wet | *0.02500* | | *122* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0254* | | mg/kg wet | *0.02500* | | *102* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0273* | | mg/kg wet | *0.02500* | | *109* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0264* | | mg/kg wet | *0.02500* | | *106* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 98 | 40-140 | 15 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 14 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 95 | 40-140 | 15 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 15 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0259* | | mg/kg wet | *0.02500* | | *104* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0216* | | mg/kg wet | *0.02500* | | *86* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0228* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0221* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| **Batch CI81508 - 3540C** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809250

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81508 - 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* | *0.0205* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0213* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0228* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0265* | | mg/kg wet | *0.02500* | | *106* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 86 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0199* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0209* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0220* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0223* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 103 | 40-140 | 13 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 101 | 40-140 | 14 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 99 | 40-140 | 13 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 102 | 40-140 | 15 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0223* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0235* | | mg/kg wet | *0.02500* | | *94* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0249* | | mg/kg wet | *0.02500* | | *100* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0255* | | mg/kg wet | *0.02500* | | *102* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809250

**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: 1809250

**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: 1809250
Date Received: 9/11/2018
Project Due Date: 9/13/2018
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: 0.1 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 | 264906 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 264905 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 264904 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 264903 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 264902 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 264901 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 264900 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 264899 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 264898 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 264897 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 264896 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 264895 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 264894 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 264893 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 264892 | 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:
Reviewed

Date & Time: 9/11/18 1717

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809250

By: [illegible] Date & Time: 9/11/18 1811

Delivered By: [illegible] 9/11/18 1811

Date Received: 9/11/2018

2/4

**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 # 1809250

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

Reporting Limits see note 1

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

Company Name: AEI
Contact Person: Aaron Ting
Project #: 31631055
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 | 9/11/18 | 0830 | G | S | B-748-091118-A (5') | X |
| 2 | ↓ | 0835 | ↓ | ↓ | B-749-091118-A (5') | X |
| 3 | | 0840 | | | B-750-091118-A (5') | X |
| 4 | | 0845 | | | B-751-091118-A (5') | X |
| 5 | | 0850 | | | B-753-091118-A (5') | X |
| 6 | | 0855 | | | B-755-091118-A (5') | X |
| 7 | | 0900 | | | B-758-091118-A (5') | X |
| 8 | | 0905 | | | B-762-091118-A (5') | X |
| 9 | | 0910 | | | B-763-091118-A (5') | X |
| 10 | | 0930 | C | | SW-504-091118-A (0-4') | X |

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

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: ✓
Cooler Temperature: 0.1 °C

Sampled by: A. Ting
Comments: Please specify "Other" preservative and containers types in this space
note1: see project QAPP

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/11/18 1535 | 9/11/18 15:35 | 9/11/18 15:58 | 9/11/18 1636 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

* Sample ID's updated per client 9/13/18 LLB

3/4

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www.essiaboratory.com

# CHAIN OF CUSTODY

ESS Lab # 1809250

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

Company Name: AEI
Contact Person: Aaron Ting
Project #: 316316055
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 | 9/11/18 | 0915 | C | S | SW-506-091118-A (0-4')* | X |
| 12 | ↓ | 0920 | ↓ | ↓ | SW-507-091118-A (0-4')* | X |
| 13 | ↓ | 0925 | ↓ | ↓ | SW-508-091118-A (0-4')* | X |
| 14 | ↓ | 1010 | G | ↓ | B-851-091118-A (4')* | X |
| 15 | ↓ | 1012 | ↓ | ↓ | B-858-091118-A (4')* | X |

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

| Analysis | Container Type | Container Volume | Preservation Code |
|---|---|---|---|
| PCBs (Soxhlet) | AG | 9 | 1 |

Number of Containers per Sample: 1

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: 0.1 °C

Sampled by: A. Ting
Comments: Please specify "Other" preservative and containers types in this space
note1: see project QAPP

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/11/18 1535 | 9/11/18 1535 | 9/11/18 1558 | 9/11/18 1636 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

2/4

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# CHAIN OF CUSTODY

ESS Lab # 1809250

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

Company Name: AEI
Contact Person: Aaron Ting
Project #: 31631055
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 | 9/11/18 | 0830 | G | S | B-748-091118-A (5') | X |
| 2 | ↓ | 0835 | ↓ | ↓ | B-749-091118-A (5') | X |
| 3 | | 0840 | | | B-750-091118-A (5') | X |
| 4 | | 0845 | | | B-751-091118-A (5') | X |
| 5 | | 0850 | | | B-753-091118-A (5') | X |
| 6 | | 0855 | | | B-755-091118-A (5') | X |
| 7 | | 0900 | | | B-758-091118-A (5') | X |
| 8 | | 0905 | | | B-762-091118-A (5') | X |
| 9 | | 0910 | | | B-763-091118-A (5') | X |
| 10 | | 0930 | C | | SW-504-091118-A (0-4') | X |

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

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: ✓
Cooler Temperature: 0.1 °C

Sampled by: A. Ting
Comments: Please specify "Other" preservative and containers types in this space
note1: see project QAPP

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/11/18 1535 | 9/11/18 15:35 | 9/11/18 15:58 | 9/11/18 1636 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

3/4

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# CHAIN OF CUSTODY

ESS Lab # 1809250

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

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

Company Name: AEI
Contact Person: Aaron Ting
Project # 316316055
Project Name: BASF Cranston
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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 | 9/11/18 | 0915 | C | S | SW-506-091118-A | 1 |
| 12 | ↓ | 0920 | ↓ | ↓ | SW-507-091118-A | 1 |
| 13 | ↓ | 0925 | ↓ | ↓ | SW-508-091118-A | 1 |
| 14 | ↓ | 1010 | G | ↓ | B-851-091118-A | 1 |
| 15 | ↓ | 1012 | ↓ | ↓ | B-858-091118-A | 1 |

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other* AG
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* 9
Number of Containers per Sample: 1

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: 0.1 °C

Sampled by: A. Ting
Comments: Please specify "Other" preservative and containers types in this space
note1: see project QAPP

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/11/18 1535 | 9/11/18 1535 | 9/11/18 1558 | 9/11/18 1636 |
| 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: 1809282**

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

Laurel Stoddard
Laboratory Director

**REVIEWED**
**By ESS Laboratory at 5:36 pm, Sep 19, 2018**

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

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809282

## SAMPLE RECEIPT

The following samples were received on September 12, 2018 for the analyses specified on the enclosed Chain of Custody Record.

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809282-01 | B-559-091218-A 4ft | Soil | 8082A |
| 1809282-02 | B-631-091218-A 4ft | Soil | 8082A |
| 1809282-03 | B-629-091218-A 4ft | Soil | 8082A |
| 1809282-04 | B-621-091218-A 4ft | Soil | 8082A |
| 1809282-05 | B-622-091218-A 4ft | Soil | 8082A |
| 1809282-06 | SW-430-091218-A 0-4ft | Soil | 8082A |
| 1809282-07 | SW-380-091218-A 0-3ft | Soil | 8082A |
| 1809282-08 | SW-377-091218-A 0-3ft | Soil | 8082A |
| 1809282-09 | SW-357-091218-A 3-7ft | Soil | 8082A |
| 1809282-10 | SW-358-091218-A 0-3ft | Soil | 8082A |
| 1809282-11 | SW-359-091218-A 3-7ft | Soil | 8082A |
| 1809282-12 | SW-360-091218-A 0-3ft | Soil | 8082A |
| 1809282-13 | B-535-091218-A 8ft | Soil | 8082A |
| 1809282-14 | B-523-091218-A 8ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809282

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809282-01 **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%)

1809282-02 **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%)

1809282-03 **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%)

1809282-13 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809282-14 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

**No other observations noted.**

**End of Project Narrative.**

## DATA USABILITY LINKS

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Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809282

## 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-559-091218-A 4ft
Date Sampled: 09/12/18 11:22
Percent Solids: 85
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (6.0) | | 8082A | | 100 | 09/18/18 21:17 | C8I0325 | CI81705 |
| Aroclor 1221 | ND (6.0) | | 8082A | | 100 | 09/18/18 21:17 | C8I0325 | CI81705 |
| Aroclor 1232 | ND (6.0) | | 8082A | | 100 | 09/18/18 21:17 | C8I0325 | CI81705 |
| Aroclor 1242 | ND (6.0) | | 8082A | | 100 | 09/18/18 21:17 | C8I0325 | CI81705 |
| Aroclor 1248 | ND (6.0) | | 8082A | | 100 | 09/18/18 21:17 | C8I0325 | CI81705 |
| **Aroclor 1254 [2C]** | **58.8** (6.0) | | 8082A | | 100 | 09/18/18 21:17 | C8I0325 | CI81705 |
| Aroclor 1260 | ND (6.0) | | 8082A | | 100 | 09/18/18 21:17 | C8I0325 | CI81705 |
| Aroclor 1262 | ND (6.0) | | 8082A | | 100 | 09/18/18 21:17 | C8I0325 | CI81705 |
| Aroclor 1268 | ND (6.0) | | 8082A | | 100 | 09/18/18 21:17 | C8I0325 | CI81705 |

| | *%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-631-091218-A 4ft
Date Sampled: 09/12/18 11:21
Percent Solids: 89
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:36 | C8I0325 | CI81705 |
| Aroclor 1221 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:36 | C8I0325 | CI81705 |
| Aroclor 1232 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:36 | C8I0325 | CI81705 |
| Aroclor 1242 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:36 | C8I0325 | CI81705 |
| Aroclor 1248 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:36 | C8I0325 | CI81705 |
| **Aroclor 1254 [2C]** | **19.2** (2.9) | | 8082A | | 50 | 09/18/18 21:36 | C8I0325 | CI81705 |
| Aroclor 1260 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:36 | C8I0325 | CI81705 |
| Aroclor 1262 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:36 | C8I0325 | CI81705 |
| Aroclor 1268 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:36 | C8I0325 | CI81705 |

| | *%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-629-091218-A 4ft
Date Sampled: 09/12/18 11:19
Percent Solids: 88
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:55 | C8I0325 | CI81705 |
| Aroclor 1221 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:55 | C8I0325 | CI81705 |
| Aroclor 1232 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:55 | C8I0325 | CI81705 |
| Aroclor 1242 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:55 | C8I0325 | CI81705 |
| Aroclor 1248 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:55 | C8I0325 | CI81705 |
| **Aroclor 1254 [2C]** | **32.4** (2.9) | | 8082A | | 50 | 09/18/18 21:55 | C8I0325 | CI81705 |
| Aroclor 1260 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:55 | C8I0325 | CI81705 |
| Aroclor 1262 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:55 | C8I0325 | CI81705 |
| Aroclor 1268 | ND (2.9) | | 8082A | | 50 | 09/18/18 21:55 | C8I0325 | CI81705 |

| | %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-621-091218-A 4ft
Date Sampled: 09/12/18 12:58
Percent Solids: 93
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:14 | C8I0325 | CI81705 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:14 | C8I0325 | CI81705 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:14 | C8I0325 | CI81705 |
| Aroclor 1242 [2C] | ND (0.06) | | 8082A | | 1 | 09/18/18 22:14 | C8I0325 | CI81705 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:14 | C8I0325 | CI81705 |
| **Aroclor 1254 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 09/18/18 22:14 | C8I0325 | CI81705 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:14 | C8I0325 | CI81705 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:14 | C8I0325 | CI81705 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:14 | C8I0325 | CI81705 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *85 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *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-622-091218-A 4ft
Date Sampled: 09/12/18 13:00
Percent Solids: 92
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:16 | C8I0325 | CI81705 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:16 | C8I0325 | CI81705 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:16 | C8I0325 | CI81705 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:16 | C8I0325 | CI81705 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:16 | C8I0325 | CI81705 |
| **Aroclor 1254** | **0.1** (0.06) | | 8082A | | 1 | 09/18/18 14:16 | C8I0325 | CI81705 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:16 | C8I0325 | CI81705 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:16 | C8I0325 | CI81705 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:16 | C8I0325 | CI81705 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *81 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *65 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *70 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *75 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-430-091218-A 0-4ft
Date Sampled: 09/12/18 13:08
Percent Solids: 95
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:35 | C8I0325 | CI81705 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:35 | C8I0325 | CI81705 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:35 | C8I0325 | CI81705 |
| **Aroclor 1242 [2C]** | **0.9** (0.05) | | 8082A | | 1 | 09/18/18 14:35 | C8I0325 | CI81705 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:35 | C8I0325 | CI81705 |
| **Aroclor 1254** | **1.9** (0.3) | | 8082A | | 5 | 09/18/18 22:33 | C8I0325 | CI81705 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:35 | C8I0325 | CI81705 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:35 | C8I0325 | CI81705 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/18/18 14:35 | C8I0325 | CI81705 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *55 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *58 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *60 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *64 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-380-091218-A 0-3ft
Date Sampled: 09/12/18 13:32
Percent Solids: 90
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:54 | C8I0325 | CI81705 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:54 | C8I0325 | CI81705 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:54 | C8I0325 | CI81705 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:54 | C8I0325 | CI81705 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:54 | C8I0325 | CI81705 |
| **Aroclor 1254 [2C]** | **2.5** (0.3) | | 8082A | | 5 | 09/18/18 22:52 | C8I0325 | CI81705 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:54 | C8I0325 | CI81705 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:54 | C8I0325 | CI81705 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 14:54 | C8I0325 | CI81705 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *82 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *103 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-377-091218-A 0-3ft
Date Sampled: 09/12/18 13:37
Percent Solids: 91
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:13 | C8I0325 | CI81705 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:13 | C8I0325 | CI81705 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:13 | C8I0325 | CI81705 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:13 | C8I0325 | CI81705 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:13 | C8I0325 | CI81705 |
| **Aroclor 1254** | **2.4** (0.3) | | 8082A | | 5 | 09/18/18 23:11 | C8I0325 | CI81705 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:13 | C8I0325 | CI81705 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:13 | C8I0325 | CI81705 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:13 | C8I0325 | CI81705 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *74 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *89 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-357-091218-A 3-7ft
Date Sampled: 09/12/18 13:58
Percent Solids: 89
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:33 | C8I0325 | CI81705 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:33 | C8I0325 | CI81705 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:33 | C8I0325 | CI81705 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:33 | C8I0325 | CI81705 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:33 | C8I0325 | CI81705 |
| **Aroclor 1254 [2C]** | **5.0** (0.6) | | 8082A | | 10 | 09/18/18 23:30 | C8I0325 | CI81705 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:33 | C8I0325 | CI81705 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:33 | C8I0325 | CI81705 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 15:33 | C8I0325 | CI81705 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *87 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *85 %* | | *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: SW-358-091218-A 0-3ft
Date Sampled: 09/12/18 13:59
Percent Solids: 92
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/19/18 13:35 | C8I0331 | CI81809 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/19/18 13:35 | C8I0331 | CI81809 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/19/18 13:35 | C8I0331 | CI81809 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/19/18 13:35 | C8I0331 | CI81809 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/19/18 13:35 | C8I0331 | CI81809 |
| **Aroclor 1254** | **2.7** (0.3) | | 8082A | | 5 | 09/19/18 14:04 | C8I0331 | CI81809 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/19/18 13:35 | C8I0331 | CI81809 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/19/18 13:35 | C8I0331 | CI81809 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/19/18 13:35 | C8I0331 | CI81809 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *101 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *91 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-359-091218-A 3-7ft
Date Sampled: 09/12/18 14:00
Percent Solids: 86
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:11 | C8I0325 | CI81705 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:11 | C8I0325 | CI81705 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:11 | C8I0325 | CI81705 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:11 | C8I0325 | CI81705 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:11 | C8I0325 | CI81705 |
| **Aroclor 1254 [2C]** | **6.8** (0.6) | | 8082A | | 10 | 09/18/18 23:50 | C8I0325 | CI81705 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:11 | C8I0325 | CI81705 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:11 | C8I0325 | CI81705 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:11 | C8I0325 | CI81705 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *55 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *66 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *75 %* | | *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-360-091218-A 0-3ft
Date Sampled: 09/12/18 14:01
Percent Solids: 88
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:30 | C8I0325 | CI81705 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:30 | C8I0325 | CI81705 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:30 | C8I0325 | CI81705 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:30 | C8I0325 | CI81705 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:30 | C8I0325 | CI81705 |
| **Aroclor 1254 [2C]** | **5.8** (0.6) | | 8082A | | 10 | 09/19/18 10:03 | C8I0325 | CI81705 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:30 | C8I0325 | CI81705 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:30 | C8I0325 | CI81705 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 16:30 | C8I0325 | CI81705 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *47 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *76 %* | | *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-535-091218-A 8ft
Date Sampled: 09/12/18 14:05
Percent Solids: 74
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.5) | | 8082A | | 50 | 09/19/18 10:21 | C8I0330 | CI81705 |
| Aroclor 1221 | ND (3.5) | | 8082A | | 50 | 09/19/18 10:21 | C8I0330 | CI81705 |
| Aroclor 1232 | ND (3.5) | | 8082A | | 50 | 09/19/18 10:21 | C8I0330 | CI81705 |
| Aroclor 1242 | ND (3.5) | | 8082A | | 50 | 09/19/18 10:21 | C8I0330 | CI81705 |
| Aroclor 1248 | ND (3.5) | | 8082A | | 50 | 09/19/18 10:21 | C8I0330 | CI81705 |
| **Aroclor 1254** | **28.3** (3.5) | | 8082A | | 50 | 09/19/18 10:21 | C8I0330 | CI81705 |
| Aroclor 1260 | ND (3.5) | | 8082A | | 50 | 09/19/18 10:21 | C8I0330 | CI81705 |
| Aroclor 1262 | ND (3.5) | | 8082A | | 50 | 09/19/18 10:21 | C8I0330 | CI81705 |
| Aroclor 1268 | ND (3.5) | | 8082A | | 50 | 09/19/18 10:21 | C8I0330 | CI81705 |

| | %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-523-091218-A 8ft
Date Sampled: 09/12/18 14:16
Percent Solids: 84
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809282
ESS Laboratory Sample ID: 1809282-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:22

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/19/18 10:40 | C8I0330 | CI81705 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/19/18 10:40 | C8I0330 | CI81705 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/19/18 10:40 | C8I0330 | CI81705 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/19/18 10:40 | C8I0330 | CI81705 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/19/18 10:40 | C8I0330 | CI81705 |
| **Aroclor 1254** | **7.7** (1.2) | | 8082A | | 20 | 09/19/18 10:40 | C8I0330 | CI81705 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/19/18 10:40 | C8I0330 | CI81705 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/19/18 10:40 | C8I0330 | CI81705 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/19/18 10:40 | C8I0330 | CI81705 |

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809282

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81705 - 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* | *0.0153* | | mg/kg wet | *0.02500* | | *61* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0161* | | mg/kg wet | *0.02500* | | *64* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0157* | | mg/kg wet | *0.02500* | | *63* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0185* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 81 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 80 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 77 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 80 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0165* | | mg/kg wet | *0.02500* | | *66* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0176* | | mg/kg wet | *0.02500* | | *70* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0180* | | mg/kg wet | *0.02500* | | *72* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0182* | | mg/kg wet | *0.02500* | | *73* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | 14 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | 15 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 89 | 40-140 | 15 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 13 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0190* | | mg/kg wet | *0.02500* | | *76* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0203* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0209* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0214* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| **Batch CI81809 - 3540C** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809282

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81809 - 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* | *0.0235* | | mg/kg wet | *0.02500* | | *94* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0204* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0200* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0202* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 106 | 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 | | 100 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 98 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0253* | | mg/kg wet | *0.02500* | | *101* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0217* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0236* | | mg/kg wet | *0.02500* | | *94* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0228* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 104 | 40-140 | 2 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 97 | 40-140 | 2 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 98 | 40-140 | 3 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 95 | 40-140 | 2 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0243* | | mg/kg wet | *0.02500* | | *97* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0210* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0230* | | mg/kg wet | *0.02500* | | *92* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0222* | | 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: 1809282

**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: 1809282

**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: 1809282
Date Received: 9/12/2018
Project Due Date: 9/14/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 0.8 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 265299 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 265298 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 265297 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 265296 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 265295 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 265294 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 265293 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 265292 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 265291 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 265290 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 265289 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 265288 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 265287 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 265286 | 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: 9/12/18 1624
Reviewed By: Date & Time: 9/12/18 1714

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809282

Date Received: 9/12/2018

Delivered By: 9/12/18 1714

**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 # 1809282

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

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

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3636055
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 | 9/12/18 | 1122 | G | S | B-559-091218-A (4') | X |
| 2 | ↓ | 1121 | ↓ | ↓ | B-631-091218-A (4') | X |
| 3 | | 1119 | | | B-629-091218-A (4') | X |
| 4 | | 1258 | | | B-621-091218-A (4') | X |
| 5 | | 1300 | ↓ | | B-622-091218-A (4') | X |
| 6 | | 1308 | C | | SW-430-091218-A (0-4') | X |
| 7 | | 1332 | ↓ | | SW-380-091218-A (0-3') | X |
| 8 | | 1337 | | | SW-377-091218-A (0-3') | X |
| | | | | | ~~SW-401-091218-A~~ (ASS) | |
| 9 | ↓ | 1358 | ↓ | ↓ | (AO) SW-357-091218-A (3-7') | X |

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

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: ✓
Cooler Temperature: 0.8 °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) |
|---|---|---|---|
| 1505 9/12/18 | 9/12/18 15:02 | 9/12/18 15:36 | 9/12/18 1552 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

**ESS Laboratory**
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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 |
| Company Name | AEI |
| Contact Person | Aaron Ting |
| Project # | 3163055 |
| 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 # | 509282 |
| Reporting Limits | see note 1 |
| Electonic Deliverables | ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →) |

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 10 | 9/12/18 | 1359 | C | S | SW-358-091218-A(0-3') | X |
| 11 | ↓ | 1400 | ↓ | ↓ | SW-359-091218-A(3-7') | X |
| 12 | | 1401 | | | SW-360-091218-A(0-3') | X |
| 13 | | 1405 | G | | ~~SW~~ SCD B-535-091218-A(8') | X |
| 14 | ✓ | 1416 | ↓ | ↓ | B-523-091218-A(8') | 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:** 16 / 9 / 1 / 1

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact:
Cooler Temperature: 0.8 °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) |
|---|---|---|---|
| 9/12/18 15:05 | 9/12/18 15:02 | 9/12/18 15:36 | 9/12/18 1552 |
| 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: 1809330**

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

Laurel Stoddard
Laboratory Director

**REVIEWED**
**By ESS Laboratory at 5:48 pm, Sep 19, 2018**

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

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809330

## SAMPLE RECEIPT

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

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809330-01 | B-442-091318-A 8ft | Soil | 8082A |
| 1809330-02 | B-439-091318-A 8ft | Soil | 8082A |
| 1809330-03 | B-181-091318-A 3ft | Soil | 8082A |
| 1809330-04 | B-181-091318-A-1 3ft | Soil | 8082A |
| 1809330-05 | SW-98-091318-A 0-2ft | Soil | 8082A |
| 1809330-06 | SW-100-091318-A 0-2ft | Soil | 8082A |
| 1809330-07 | SW-692-091318 0-2ft | Soil | 8082A |
| 1809330-08 | SW-602-091318-A 0-4ft | Soil | 8082A |
| 1809330-09 | SW-400-091318-A 0-3ft | Soil | 8082A |
| 1809330-10 | SW-401-091318-A 0-3ft | Soil | 8082A |
| 1809330-11 | SW-387-091318-A 0-3ft | Soil | 8082A |
| 1809330-12 | SW-429-091318-A 0-4ft | Soil | 8082A |
| 1809330-13 | B-88-091318-A 7ft | Soil | 8082A |
| 1809330-14 | B-92-091318-A 7ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809330

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809330-05 **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%)

1809330-06 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809330-07 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809330-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809330-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809330-13 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809330-14 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

**No other observations noted.**

**End of Project Narrative.**

## 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: 1809330

## 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-442-091318-A 8ft
Date Sampled: 09/13/18 08:48
Percent Solids: 84
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:27 | C8I0326 | CI81706 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:27 | C8I0326 | CI81706 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:27 | C8I0326 | CI81706 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:27 | C8I0326 | CI81706 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:27 | C8I0326 | CI81706 |
| **Aroclor 1254** | **0.3** (0.06) | | 8082A | | 1 | 09/18/18 22:27 | C8I0326 | CI81706 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:27 | C8I0326 | CI81706 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:27 | C8I0326 | CI81706 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:27 | C8I0326 | CI81706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *95 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *70 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *70 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-439-091318-A 8ft
Date Sampled: 09/13/18 08:56
Percent Solids: 90
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:46 | C8I0326 | CI81706 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:46 | C8I0326 | CI81706 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:46 | C8I0326 | CI81706 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:46 | C8I0326 | CI81706 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:46 | C8I0326 | CI81706 |
| **Aroclor 1254** | **0.7** (0.06) | | 8082A | | 1 | 09/18/18 22:46 | C8I0326 | CI81706 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:46 | C8I0326 | CI81706 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:46 | C8I0326 | CI81706 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 22:46 | C8I0326 | CI81706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *100 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *82 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *88 %* | | *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-181-091318-A 3ft
Date Sampled: 09/13/18 10:19
Percent Solids: 87
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/18/18 23:05 | C8I0326 | CI81706 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/18/18 23:05 | C8I0326 | CI81706 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/18/18 23:05 | C8I0326 | CI81706 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/18/18 23:05 | C8I0326 | CI81706 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/18/18 23:05 | C8I0326 | CI81706 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/18/18 23:05 | C8I0326 | CI81706 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/18/18 23:05 | C8I0326 | CI81706 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/18/18 23:05 | C8I0326 | CI81706 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/18/18 23:05 | C8I0326 | CI81706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *105 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *94 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-181-091318-A-1 3ft
Date Sampled: 09/13/18 10:19
Percent Solids: 88
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/19/18 0:03 | C8I0326 | CI81706 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/19/18 0:03 | C8I0326 | CI81706 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/19/18 0:03 | C8I0326 | CI81706 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/19/18 0:03 | C8I0326 | CI81706 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/19/18 0:03 | C8I0326 | CI81706 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/19/18 0:03 | C8I0326 | CI81706 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/19/18 0:03 | C8I0326 | CI81706 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/19/18 0:03 | C8I0326 | CI81706 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/19/18 0:03 | C8I0326 | CI81706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *97 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *90 %* | | *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: SW-98-091318-A 0-2ft
Date Sampled: 09/13/18 10:55
Percent Solids: 88
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/19/18 9:46 | C8I0331 | CI81706 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/19/18 9:46 | C8I0331 | CI81706 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/19/18 9:46 | C8I0331 | CI81706 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/19/18 9:46 | C8I0331 | CI81706 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/19/18 9:46 | C8I0331 | CI81706 |
| **Aroclor 1254** | **13.2** (1.1) | | 8082A | | 20 | 09/19/18 9:46 | C8I0331 | CI81706 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/19/18 9:46 | C8I0331 | CI81706 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/19/18 9:46 | C8I0331 | CI81706 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/19/18 9:46 | C8I0331 | CI81706 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-100-091318-A 0-2ft
Date Sampled: 09/13/18 10:57
Percent Solids: 92
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:03 | C8I0331 | CI81706 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:03 | C8I0331 | CI81706 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:03 | C8I0331 | CI81706 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:03 | C8I0331 | CI81706 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:03 | C8I0331 | CI81706 |
| **Aroclor 1254** | **14.0** (1.1) | | 8082A | | 20 | 09/19/18 10:03 | C8I0331 | CI81706 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:03 | C8I0331 | CI81706 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:03 | C8I0331 | CI81706 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:03 | C8I0331 | CI81706 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-692-091318 0-2ft
Date Sampled: 09/13/18 11:20
Percent Solids: 91
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:22 | C8I0331 | CI81706 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:22 | C8I0331 | CI81706 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:22 | C8I0331 | CI81706 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:22 | C8I0331 | CI81706 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:22 | C8I0331 | CI81706 |
| **Aroclor 1254** | **7.7** (1.1) | | 8082A | | 20 | 09/19/18 10:22 | C8I0331 | CI81706 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:22 | C8I0331 | CI81706 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:22 | C8I0331 | CI81706 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/19/18 10:22 | C8I0331 | CI81706 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-602-091318-A 0-4ft
Date Sampled: 09/13/18 11:21
Percent Solids: 86
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:42 | C8I0331 | CI81706 |
| Aroclor 1221 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:42 | C8I0331 | CI81706 |
| Aroclor 1232 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:42 | C8I0331 | CI81706 |
| Aroclor 1242 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:42 | C8I0331 | CI81706 |
| Aroclor 1248 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:42 | C8I0331 | CI81706 |
| **Aroclor 1254** | **17.6** (2.9) | | 8082A | | 50 | 09/19/18 10:42 | C8I0331 | CI81706 |
| Aroclor 1260 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:42 | C8I0331 | CI81706 |
| Aroclor 1262 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:42 | C8I0331 | CI81706 |
| Aroclor 1268 | ND (2.9) | | 8082A | | 50 | 09/19/18 10:42 | C8I0331 | CI81706 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-400-091318-A 0-3ft
Date Sampled: 09/13/18 14:00
Percent Solids: 84
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/19/18 11:01 | C8I0331 | CI81706 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/19/18 11:01 | C8I0331 | CI81706 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/19/18 11:01 | C8I0331 | CI81706 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/19/18 11:01 | C8I0331 | CI81706 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/19/18 11:01 | C8I0331 | CI81706 |
| **Aroclor 1254** | **12.1** (1.2) | | 8082A | | 20 | 09/19/18 11:01 | C8I0331 | CI81706 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/19/18 11:01 | C8I0331 | CI81706 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/19/18 11:01 | C8I0331 | CI81706 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/19/18 11:01 | C8I0331 | CI81706 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-401-091318-A 0-3ft
Date Sampled: 09/13/18 14:02
Percent Solids: 86
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/19/18 1:59 | C8I0326 | CI81706 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/19/18 1:59 | C8I0326 | CI81706 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/19/18 1:59 | C8I0326 | CI81706 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/19/18 1:59 | C8I0326 | CI81706 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/19/18 1:59 | C8I0326 | CI81706 |
| **Aroclor 1254 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 09/19/18 1:59 | C8I0326 | CI81706 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/19/18 1:59 | C8I0326 | CI81706 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/19/18 1:59 | C8I0326 | CI81706 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/19/18 1:59 | C8I0326 | CI81706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *126 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *95 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *94 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-387-091318-A 0-3ft
Date Sampled: 09/13/18 13:24
Percent Solids: 89
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:13 | C8I0326 | CI81706 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:13 | C8I0326 | CI81706 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:13 | C8I0326 | CI81706 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:13 | C8I0326 | CI81706 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:13 | C8I0326 | CI81706 |
| **Aroclor 1254 [2C]** | **5.9** (0.6) | | 8082A | | 10 | 09/19/18 11:20 | C8I0326 | CI81706 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:13 | C8I0326 | CI81706 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:13 | C8I0326 | CI81706 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:13 | C8I0326 | CI81706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *85 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *87 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-429-091318-A 0-4ft
Date Sampled: 09/13/18 13:26
Percent Solids: 88
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:32 | C8I0326 | CI81706 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:32 | C8I0326 | CI81706 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:32 | C8I0326 | CI81706 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:32 | C8I0326 | CI81706 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:32 | C8I0326 | CI81706 |
| **Aroclor 1254 [2C]** | **0.1** (0.06) | | 8082A | | 1 | 09/19/18 4:32 | C8I0326 | CI81706 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:32 | C8I0326 | CI81706 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:32 | C8I0326 | CI81706 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/19/18 4:32 | C8I0326 | CI81706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *100 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *75 %* | | *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
Client Sample ID: B-88-091318-A 7ft
Date Sampled: 09/13/18 10:26
Percent Solids: 73
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.4) | | 8082A | | 50 | 09/19/18 11:39 | C8I0331 | CI81706 |
| Aroclor 1221 | ND (3.4) | | 8082A | | 50 | 09/19/18 11:39 | C8I0331 | CI81706 |
| Aroclor 1232 | ND (3.4) | | 8082A | | 50 | 09/19/18 11:39 | C8I0331 | CI81706 |
| Aroclor 1242 | ND (3.4) | | 8082A | | 50 | 09/19/18 11:39 | C8I0331 | CI81706 |
| Aroclor 1248 | ND (3.4) | | 8082A | | 50 | 09/19/18 11:39 | C8I0331 | CI81706 |
| **Aroclor 1254** | **36.9** (3.4) | | 8082A | | 50 | 09/19/18 11:39 | C8I0331 | CI81706 |
| Aroclor 1260 | ND (3.4) | | 8082A | | 50 | 09/19/18 11:39 | C8I0331 | CI81706 |
| Aroclor 1262 | ND (3.4) | | 8082A | | 50 | 09/19/18 11:39 | C8I0331 | CI81706 |
| Aroclor 1268 | ND (3.4) | | 8082A | | 50 | 09/19/18 11:39 | C8I0331 | CI81706 |

| | %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-92-091318-A 7ft
Date Sampled: 09/13/18 10:28
Percent Solids: 81
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809330
ESS Laboratory Sample ID: 1809330-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/17/18 17:59

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.3) | | 8082A | | 20 | 09/19/18 11:59 | C8I0331 | CI81706 |
| Aroclor 1221 | ND (1.3) | | 8082A | | 20 | 09/19/18 11:59 | C8I0331 | CI81706 |
| Aroclor 1232 | ND (1.3) | | 8082A | | 20 | 09/19/18 11:59 | C8I0331 | CI81706 |
| Aroclor 1242 | ND (1.3) | | 8082A | | 20 | 09/19/18 11:59 | C8I0331 | CI81706 |
| Aroclor 1248 | ND (1.3) | | 8082A | | 20 | 09/19/18 11:59 | C8I0331 | CI81706 |
| **Aroclor 1254** | **8.5** (1.3) | | 8082A | | 20 | 09/19/18 11:59 | C8I0331 | CI81706 |
| Aroclor 1260 | ND (1.3) | | 8082A | | 20 | 09/19/18 11:59 | C8I0331 | CI81706 |
| Aroclor 1262 | ND (1.3) | | 8082A | | 20 | 09/19/18 11:59 | C8I0331 | CI81706 |
| Aroclor 1268 | ND (1.3) | | 8082A | | 20 | 09/19/18 11:59 | C8I0331 | CI81706 |

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809330

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81706 - 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* | *0.0239* | | mg/kg wet | *0.02500* | | *96* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0203* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0217* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0219* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 96 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 89 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0229* | | mg/kg wet | *0.02500* | | *92* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0196* | | mg/kg wet | *0.02500* | | *78* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0211* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0204* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 104 | 40-140 | 8 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 97 | 40-140 | 8 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 98 | 40-140 | 8 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 96 | 40-140 | 8 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0246* | | mg/kg wet | *0.02500* | | *98* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0210* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0229* | | mg/kg wet | *0.02500* | | *92* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0220* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| **Matrix Spike** **Source: 1809330-03** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809330

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81706 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.6 | 0.06 | mg/kg dry | 0.5923 | ND | 108 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.6 | 0.06 | mg/kg dry | 0.5923 | ND | 101 | 40-140 | | | |
| Aroclor 1260 | 0.6 | 0.06 | mg/kg dry | 0.5923 | ND | 101 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.6 | 0.06 | mg/kg dry | 0.5923 | ND | 99 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0304* | | mg/kg dry | *0.02962* | | *103* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0268* | | mg/kg dry | *0.02962* | | *90* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0292* | | mg/kg dry | *0.02962* | | *99* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0285* | | mg/kg dry | *0.02962* | | *96* | *30-150* | | | |
| **Matrix Spike Dup Source: 1809330-03** | | | | | | | | | | |
| Aroclor 1016 | 0.6 | 0.06 | mg/kg dry | 0.5923 | ND | 105 | 40-140 | 3 | 30 | |
| Aroclor 1016 [2C] | 0.6 | 0.06 | mg/kg dry | 0.5923 | ND | 99 | 40-140 | 2 | 30 | |
| Aroclor 1260 | 0.6 | 0.06 | mg/kg dry | 0.5923 | ND | 97 | 40-140 | 4 | 30 | |
| Aroclor 1260 [2C] | 0.6 | 0.06 | mg/kg dry | 0.5923 | ND | 95 | 40-140 | 4 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0293* | | mg/kg dry | *0.02962* | | *99* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0251* | | mg/kg dry | *0.02962* | | *85* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0279* | | mg/kg dry | *0.02962* | | *94* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0274* | | mg/kg dry | *0.02962* | | *92* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809330

**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: 1809330

**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: 1809330
Date Received: 9/13/2018
Project Due Date: 9/20/2018
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 5.7 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 | 265902 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 265901 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 265900 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 265943 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 265944 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 265899 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 265898 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 265897 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 265896 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 265895 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 265894 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 265893 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 265892 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 265891 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 265890 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 265889 | 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: 9/13/18 1611

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809330

Date Received: 9/13/2018

Reviewed By: [signature]

Date & Time: 9/13/18 1629

Delivered By: [signature]

9/13/18 1629

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

ESS Lab # 1809330

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: AET
Contact Person: Aaron Ting
Project # 3163055
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 (South Lot) |
|---|---|---|---|---|---|---|
| 1 | 9/13/18 | 0848 | G | S | B-442-091318-A (8') | X |
| 2 | | 0856 | ↓ | ↓ | B-439-091318-A (8') | X |
| 3 | | 1019 | | | B-181-091318-A (3') | X |
| 4 | | 1019 | | | B-181-091318-A-1 (3') | X |
| 5 | | 1019 | | | B-181-091318-A MS/MSD (3') | X |
| 6 | | 1055 | C | | SW-98-091318-A (0-2') | X |
| 7 | | 1057 | | | SW-100-091318-A (0-2') | X |
| 8 | | 1120 | | | SW-692-091318-A (0-2') | X |
| 9 | | 1121 | | | SW-602-091318-A (0-4') | X |
| 10 | | 1400 | ↓ | ↓ | SW-400-091318-A (0-3') | X |

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

| Analysis | Container Type | Container Volume | Preservation Code |
|---|---|---|---|
| PCBs (South Lot) | AG | 9 | 1 |

Number of Containers per Sample: 1

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 5.7 °C

Sampled by: A. Ting
Comments: Please specify "Other" preservative and containers types in this space
note1: see project QAPP

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/13/18 1508 | 9/13/18 15:10 | 9/13/18 1522 | 9/13/18 1524 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

1 2/2

**ESS Laboratory**
*Division of Thielsch Engineering, Inc.*
185 Frances Avenue, Cranston RI 02910
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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 #: 1809330
Reporting Limits: see note 1
Electonic Deliverables: ☒Limit Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 31631055
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 (South Lot) |
|---|---|---|---|---|---|---|
| 1 | 09/13/18 | 1402 | C | S | SW-401-091318-A (0-3') | X |
| 2 | 1 | 1324 | 1 | 1 | SW-387-091318-A (0-3') | X |
| 3 | 2 | 1326 | ↓ | ↓ | SW-429-091318-A (0-4') | X |
| 4 | 3 | 1026 | G | ↓ | B-88-091318-A (7') | X |
| 5 | 4 | 1028 | ↓ | ↓ | B-92-091318-A (7') | X |

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial
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* — AG
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* — 9
Number of Containers per Sample: 1

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 5.7 °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) |
|---|---|---|---|
| 9/13/18 1508 | 9/13/18 15:18 | 9/13/18 15:22 | 9/13/18 1524 |
| 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: 1809409**

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

Laurel Stoddard
Laboratory Director

**REVIEWED**
**By ESS Laboratory at 5:30 pm, Sep 20, 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: 1809409

## SAMPLE RECEIPT

The following samples were received on September 17, 2018 for the analyses specified on the enclosed Chain of Custody Record.

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809409-03 | B-634-091718 3FT | Soil | 8082A |
| 1809409-04 | SW-441-091718 0-3FT | Soil | 8082A |
| 1809409-05 | B-618-091718 3FT | Soil | 8082A |
| 1809409-06 | B-618-091718-1 3FT | Soil | 8082A |
| 1809409-07 | SW-414-091718 0-3FT | Soil | 8082A |
| 1809409-08 | SW-415-091718 0-3FT | Soil | 8082A |
| 1809409-09 | SW-416-091718 0-3FT | Soil | 8082A |
| 1809409-10 | SW-417-091718 0-3FT | Soil | 8082A |
| 1809409-11 | SW-419-091718 0-3FT | Soil | 8082A |
| 1809409-12 | SW-420-091718 0-3FT | Soil | 8082A |
| 1809409-13 | B-619-091718 3FT | Soil | 8082A |
| 1809409-14 | SW-529-091718-A 0-3FT | Soil | 8082A |
| 1809409-15 | W-14a 0-1FT | Soil | 8082A |
| 1809409-16 | W-14a 1-2FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809409

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809409-03 **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%)

1809409-14 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809409-15 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

**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: 1809409

## 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-634-091718 3FT
Date Sampled: 09/17/18 11:13
Percent Solids: 95
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/19/18 22:23 | C8I0332 | CI81808 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/19/18 22:23 | C8I0332 | CI81808 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/19/18 22:23 | C8I0332 | CI81808 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/19/18 22:23 | C8I0332 | CI81808 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/19/18 22:23 | C8I0332 | CI81808 |
| **Aroclor 1254** | **14.2** (1.1) | | 8082A | | 20 | 09/19/18 22:23 | C8I0332 | CI81808 |
| **Aroclor 1260** | **4.9** (1.1) | | 8082A | | 20 | 09/19/18 22:23 | C8I0332 | CI81808 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/19/18 22:23 | C8I0332 | CI81808 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/19/18 22:23 | C8I0332 | CI81808 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-441-091718 0-3FT
Date Sampled: 09/17/18 11:12
Percent Solids: 93
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/19/18 14:05 | C8I0332 | CI81808 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/19/18 14:05 | C8I0332 | CI81808 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/19/18 14:05 | C8I0332 | CI81808 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/19/18 14:05 | C8I0332 | CI81808 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/19/18 14:05 | C8I0332 | CI81808 |
| **Aroclor 1254** | **1.6** (0.3) | | 8082A | | 5 | 09/19/18 22:42 | C8I0332 | CI81808 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/19/18 14:05 | C8I0332 | CI81808 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/19/18 14:05 | C8I0332 | CI81808 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/19/18 14:05 | C8I0332 | CI81808 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *70 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *76 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *87 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-618-091718 3FT
Date Sampled: 09/17/18 11:20
Percent Solids: 93
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/19/18 14:24 | C8I0332 | CI81808 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/19/18 14:24 | C8I0332 | CI81808 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/19/18 14:24 | C8I0332 | CI81808 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/19/18 14:24 | C8I0332 | CI81808 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/19/18 14:24 | C8I0332 | CI81808 |
| **Aroclor 1254 [2C]** | **0.6** (0.06) | | 8082A | | 1 | 09/19/18 14:24 | C8I0332 | CI81808 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/19/18 14:24 | C8I0332 | CI81808 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/19/18 14:24 | C8I0332 | CI81808 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/19/18 14:24 | C8I0332 | CI81808 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *75 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *75 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *86 %* | | *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-618-091718-1 3FT
Date Sampled: 09/17/18 11:20
Percent Solids: 91
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/19/18 15:21 | C8I0332 | CI81808 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/19/18 15:21 | C8I0332 | CI81808 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/19/18 15:21 | C8I0332 | CI81808 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/19/18 15:21 | C8I0332 | CI81808 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/19/18 15:21 | C8I0332 | CI81808 |
| **Aroclor 1254 [2C]** | **0.6** (0.06) | | 8082A | | 1 | 09/19/18 15:21 | C8I0332 | CI81808 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/19/18 15:21 | C8I0332 | CI81808 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/19/18 15:21 | C8I0332 | CI81808 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/19/18 15:21 | C8I0332 | CI81808 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *78 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *73 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *95 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-414-091718 0-3FT
Date Sampled: 09/17/18 11:21
Percent Solids: 98
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:17 | C8I0332 | CI81808 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:17 | C8I0332 | CI81808 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:17 | C8I0332 | CI81808 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:17 | C8I0332 | CI81808 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:17 | C8I0332 | CI81808 |
| **Aroclor 1254 [2C]** | **1.0** (0.05) | | 8082A | | 1 | 09/19/18 17:17 | C8I0332 | CI81808 |
| **Aroclor 1260** | **0.9** (0.05) | | 8082A | | 1 | 09/19/18 17:17 | C8I0332 | CI81808 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:17 | C8I0332 | CI81808 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:17 | C8I0332 | CI81808 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *80 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *82 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *89 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-415-091718 0-3FT
Date Sampled: 09/17/18 11:22
Percent Solids: 98
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:36 | C8I0332 | CI81808 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:36 | C8I0332 | CI81808 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:36 | C8I0332 | CI81808 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:36 | C8I0332 | CI81808 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:36 | C8I0332 | CI81808 |
| **Aroclor 1254 [2C]** | **1.6** (0.3) | | 8082A | | 5 | 09/20/18 10:10 | C8I0332 | CI81808 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:36 | C8I0332 | CI81808 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:36 | C8I0332 | CI81808 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:36 | C8I0332 | CI81808 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *75 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *72 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *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: SW-416-091718 0-3FT
Date Sampled: 09/17/18 11:23
Percent Solids: 98
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:55 | C8I0332 | CI81808 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:55 | C8I0332 | CI81808 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:55 | C8I0332 | CI81808 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:55 | C8I0332 | CI81808 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:55 | C8I0332 | CI81808 |
| **Aroclor 1254 [2C]** | **6.0** (0.5) | | 8082A | | 10 | 09/20/18 10:27 | C8I0332 | CI81808 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:55 | C8I0332 | CI81808 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:55 | C8I0332 | CI81808 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/19/18 17:55 | C8I0332 | CI81808 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *79 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *78 %* | | *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: SW-417-091718 0-3FT
Date Sampled: 09/17/18 11:24
Percent Solids: 98
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:14 | C8I0332 | CI81808 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:14 | C8I0332 | CI81808 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:14 | C8I0332 | CI81808 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:14 | C8I0332 | CI81808 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:14 | C8I0332 | CI81808 |
| **Aroclor 1254 [2C]** | **1.9** (0.3) | | 8082A | | 5 | 09/20/18 10:46 | C8I0332 | CI81808 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:14 | C8I0332 | CI81808 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:14 | C8I0332 | CI81808 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:14 | C8I0332 | CI81808 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *72 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *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-419-091718 0-3FT
Date Sampled: 09/17/18 11:25
Percent Solids: 91
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/19/18 18:33 | C8I0332 | CI81808 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/19/18 18:33 | C8I0332 | CI81808 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/19/18 18:33 | C8I0332 | CI81808 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/19/18 18:33 | C8I0332 | CI81808 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/19/18 18:33 | C8I0332 | CI81808 |
| **Aroclor 1254 [2C]** | **0.9** (0.06) | | 8082A | | 1 | 09/19/18 18:33 | C8I0332 | CI81808 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/19/18 18:33 | C8I0332 | CI81808 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/19/18 18:33 | C8I0332 | CI81808 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/19/18 18:33 | C8I0332 | CI81808 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *79 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *94 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-420-091718 0-3FT
Date Sampled: 09/17/18 11:26
Percent Solids: 94
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:52 | C8I0332 | CI81808 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:52 | C8I0332 | CI81808 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:52 | C8I0332 | CI81808 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:52 | C8I0332 | CI81808 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:52 | C8I0332 | CI81808 |
| **Aroclor 1254 [2C]** | **0.5** (0.05) | | 8082A | | 1 | 09/19/18 18:52 | C8I0332 | CI81808 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:52 | C8I0332 | CI81808 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:52 | C8I0332 | CI81808 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/19/18 18:52 | C8I0332 | CI81808 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *74 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *89 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-619-091718 3FT
Date Sampled: 09/17/18 11:14
Percent Solids: 93
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/19/18 19:11 | C8I0332 | CI81808 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/19/18 19:11 | C8I0332 | CI81808 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/19/18 19:11 | C8I0332 | CI81808 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/19/18 19:11 | C8I0332 | CI81808 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/19/18 19:11 | C8I0332 | CI81808 |
| **Aroclor 1254 [2C]** | **2.3** (0.3) | | 8082A | | 5 | 09/20/18 11:05 | C8I0332 | CI81808 |
| **Aroclor 1260 [2C]** | **0.8** (0.06) | | 8082A | | 1 | 09/19/18 19:11 | C8I0332 | CI81808 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/19/18 19:11 | C8I0332 | CI81808 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/19/18 19:11 | C8I0332 | CI81808 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *69 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *61 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *87 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-529-091718-A 0-3FT
Date Sampled: 09/17/18 13:30
Percent Solids: 87
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/20/18 11:25 | C8I0364 | CI81808 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/20/18 11:25 | C8I0364 | CI81808 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/20/18 11:25 | C8I0364 | CI81808 |
| **Aroclor 1242 [2C]** | **7.8** (1.2) | | 8082A | | 20 | 09/20/18 11:25 | C8I0364 | CI81808 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/20/18 11:25 | C8I0364 | CI81808 |
| **Aroclor 1254** | **18.9** (1.2) | | 8082A | | 20 | 09/20/18 11:25 | C8I0364 | CI81808 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/20/18 11:25 | C8I0364 | CI81808 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/20/18 11:25 | C8I0364 | CI81808 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/20/18 11:25 | C8I0364 | CI81808 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: W-14a 0-1FT
Date Sampled: 09/17/18 14:06
Percent Solids: 93
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/20/18 11:44 | C8I0364 | CI81808 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/20/18 11:44 | C8I0364 | CI81808 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/20/18 11:44 | C8I0364 | CI81808 |
| **Aroclor 1242** | **3.1** (1.1) | | 8082A | | 20 | 09/20/18 11:44 | C8I0364 | CI81808 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/20/18 11:44 | C8I0364 | CI81808 |
| **Aroclor 1254** | **17.4** (1.1) | | 8082A | | 20 | 09/20/18 11:44 | C8I0364 | CI81808 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/20/18 11:44 | C8I0364 | CI81808 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/20/18 11:44 | C8I0364 | CI81808 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/20/18 11:44 | C8I0364 | CI81808 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: W-14a 1-2FT
Date Sampled: 09/17/18 14:08
Percent Solids: 97
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809409
ESS Laboratory Sample ID: 1809409-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/18/18 17:09

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/19/18 20:09 | C8I0332 | CI81808 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/19/18 20:09 | C8I0332 | CI81808 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/19/18 20:09 | C8I0332 | CI81808 |
| **Aroclor 1242** | **0.3** (0.05) | | 8082A | | 1 | 09/19/18 20:09 | C8I0332 | CI81808 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/19/18 20:09 | C8I0332 | CI81808 |
| **Aroclor 1254** | **1.7** (0.3) | | 8082A | | 5 | 09/20/18 12:03 | C8I0332 | CI81808 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/19/18 20:09 | C8I0332 | CI81808 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/19/18 20:09 | C8I0332 | CI81808 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/19/18 20:09 | C8I0332 | CI81808 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *63 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *73 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *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: 1809409

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81808 - 3540C** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| Aroclor 1016 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1016 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0168* | | mg/kg wet | *0.02500* | | *67* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0154* | | mg/kg wet | *0.02500* | | *61* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0174* | | mg/kg wet | *0.02500* | | *70* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0205* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 98 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 99 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0186* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0174* | | mg/kg wet | *0.02500* | | *69* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0202* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0218* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 95 | 40-140 | 4 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 101 | 40-140 | 3 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 103 | 40-140 | 4 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 96 | 40-140 | 3 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0193* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0182* | | mg/kg wet | *0.02500* | | *73* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0206* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0220* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| **Matrix Spike** **Source: 1809409-05** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809409

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81808 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.6 | 0.05 | mg/kg dry | 0.5351 | ND | 120 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.6 | 0.05 | mg/kg dry | 0.5351 | ND | 121 | 40-140 | | | |
| Aroclor 1260 | 0.7 | 0.05 | mg/kg dry | 0.5351 | ND | 123 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.6 | 0.05 | mg/kg dry | 0.5351 | ND | 105 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0210* | | mg/kg dry | *0.02676* | | *78* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0191* | | mg/kg dry | *0.02676* | | *71* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0246* | | mg/kg dry | *0.02676* | | *92* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0253* | | mg/kg dry | *0.02676* | | *94* | *30-150* | | | |
| **Matrix Spike Dup Source: 1809409-05** | | | | | | | | | | |
| Aroclor 1016 | 0.6 | 0.05 | mg/kg dry | 0.5460 | ND | 106 | 40-140 | 11 | 30 | |
| Aroclor 1016 [2C] | 0.6 | 0.05 | mg/kg dry | 0.5460 | ND | 115 | 40-140 | 3 | 30 | |
| Aroclor 1260 | 0.6 | 0.05 | mg/kg dry | 0.5460 | ND | 112 | 40-140 | 7 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg dry | 0.5460 | ND | 95 | 40-140 | 9 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0198* | | mg/kg dry | *0.02730* | | *72* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0182* | | mg/kg dry | *0.02730* | | *67* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0229* | | mg/kg dry | *0.02730* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0244* | | mg/kg dry | *0.02730* | | *89* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809409

**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: 1809409

**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: 1809409
Date Received: 9/17/2018
Project Due Date: 9/24/2018
Days for Project: ~~5 Day~~ 2 Day 9/17 [illegible]

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 3.1 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 266976 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 266975 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 266974 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 266973 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 266959 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 266960 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 266972 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 266971 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 266970 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 266969 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 266968 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 266967 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 266966 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 266965 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 266964 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 266963 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 266962 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 266961 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

**2nd Review**

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

# ESS Laboratory Sample and Cooler Receipt Checklist

| | | | |
|---|---|---|---|
| Client: | AEI Consultants, Inc. - TB/MM | ESS Project ID: | 1809409 |
| | | Date Received: | 9/17/2018 |
| Completed By: | | Date & Time: | 9/17/18 1611 |
| Reviewed By: | | Date & Time: | 9/17/18 1625 |
| Delivered By: | | | 9/17/18 1625 |

1 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

ESS Lab # 1809409

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

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

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3163055
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 | 9/17/18 | 1110 | C | S | SW-602-091718(0-3') | X |
| 2 | ↓ | 1109 | ↓ | ↓ | SW-692-091718 (0-2') | X |
| 3 | ↓ | 1113 | ↓ | ↓ | ~~SW~~ AA B-634-091718 (3') | X |
| 4 | ↓ | 1112 | ↓ | ↓ | SW-441-091718 (0-3') | X |
| 5 | ↓ | 1120 | G | ↓ | B-618-091718 (3') | X |
| 6 | ↓ | 1120 | ↓ | ↓ | B-618-091718-1 (3') | X |
| 5 | ↓ | 1120 | ↓ | ↓ | B-618-091718 (3') MS/MSD | X |
| 7 | ↓ | 1121 ~~1114~~ | C | ↓ | SW-414-091718 (0-3') | X |
| 8 | ↓ | 1122 | ↓ | ↓ | SW-415-091718 (0-3') | X |
| 9 | ↓ | 1123 | ↓ | ↓ | SW-416-091718 (0-3') | X |

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

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 3.1 °C

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/17/18 1510 | 9/17/18 15:10 | 9/17/18 15:26 | 9/17/18 1535 |
| 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.*
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# 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 #: 1809409
Reporting Limits: see note 1
Electonic Deliverables: ☒Limit Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name: AET
Contact Person: Aaron Ting
Project #: 316316055
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 (South Lot) |
|---|---|---|---|---|---|---|
| 10 | 9/17/18 | 1124 | C | S | SW-417-091718(0-3') | X |
| 11 | ↓ | 1125 | ↓ | ↓ | SW-419-091718(0-3') | X |
| 12 | ↓ | 1126 | ↓ | ↓ | SW-420-091718(0-3') | X |
| 13 | ↓ | 1114 | G | ↓ | B-619-091718(3') | X |
| 14 | 9/17/18 | 1330 | C | S | SW-529-091718-A(0-3') | X |
| 15 | 9/17/18 | 1406 | G | S | W-14a (0-1') | X |
| 16 | 9/17/18 | 1408 | G | S | W-14a (1-2') | X |

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

**Laboratory Use Only**
Cooler Present: —
Seals Intact: —
Cooler Temperature: Ice 3.1 °C

Sampled by: A. Ting
Comments: Please specify "Other" preservative and containers types in this space
note1: see project QAPP

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/17/18 1510 | 9/17/18 15:10 | 9/17/18 15:28 | 9/17/18 1535 |
| 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: 1809440**

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 3:00 pm, Sep 21, 2018**

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

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809440

## SAMPLE RECEIPT

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

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809440-01 | B-638-091818 1FT | Soil | 8082A |
| 1809440-02 | SW-695-091818 0-3FT | Soil | 8082A |
| 1809440-03 | SW-700-091818 0-3FT | Soil | 8082A |
| 1809440-04 | B-450-091818 1FT | Soil | 8082A |
| 1809440-05 | B-451-091818 1FT | Soil | 8082A |
| 1809440-06 | B-452-091818 1FT | Soil | 8082A |
| 1809440-07 | B-453-091818 1FT | Soil | 8082A |
| 1809440-08 | SW-693-091818 0-3FT | Soil | 8082A |
| 1809440-09 | SW-694-091818 0-3FT | Soil | 8082A |
| 1809440-10 | SW-696-091818 0-3FT | Soil | 8082A |
| 1809440-11 | SW-697-091818 0-3FT | Soil | 8082A |
| 1809440-12 | SW-698-091818 0-3FT | Soil | 8082A |
| 1809440-13 | SW-693-091818-1 0-3FT | Soil | 8082A |
| 1809440-14 | SW-699-091818 0-3FT | Soil | 8082A |
| 1809440-15 | B-903-091818 3FT | Soil | 8082A |
| 1809440-16 | B-905-091818 3FT | Soil | 8082A |
| 1809440-17 | B-789-091818-A 2FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809440

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809440-02 **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%)

1809440-03 **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%)

1809440-05 **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%)

1809440-06 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809440-07 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809440-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809440-13 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809440-14 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

CI81905-MS1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (1260% @ 40-140%), Aroclor 1016 [2C] (746% @ 40-140%), Aroclor 1260 (1070% @ 40-140%), Aroclor 1260 [2C] (1220% @ 40-140%)

CI81905-MS1 **Surrogate recovery(ies) above upper control limit (S+).**
Decachlorobiphenyl [2C] (164% @ 30-150%)

CI81905-MSD1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (1020% @ 40-140%), Aroclor 1016 [2C] (615% @ 40-140%), Aroclor 1260 (857% @ 40-140%), Aroclor 1260 [2C] (953% @ 40-140%)

CI81905-MSD1 **Surrogate recovery(ies) above upper control limit (S+).**
Decachlorobiphenyl [2C] (193% @ 30-150%)

**No other observations noted.**

**End of Project Narrative.**

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809440

## DATA USABILITY LINKS

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

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

## CURRENT SW-846 METHODOLOGY VERSIONS

### Analytical Methods

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

### Prep Methods

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-638-091818 1FT
Date Sampled: 09/18/18 10:29
Percent Solids: 97
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:01 | C8I0362 | CI81905 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:01 | C8I0362 | CI81905 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:01 | C8I0362 | CI81905 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:01 | C8I0362 | CI81905 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:01 | C8I0362 | CI81905 |
| **Aroclor 1254 [2C]** | **2.2** (0.3) | | 8082A | | 5 | 09/20/18 20:56 | C8I0362 | CI81905 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:01 | C8I0362 | CI81905 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:01 | C8I0362 | CI81905 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:01 | C8I0362 | CI81905 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *78 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *100 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-695-091818 0-3FT
Date Sampled: 09/18/18 11:26
Percent Solids: 91
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/20/18 21:15 | C8I0362 | CI81905 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/20/18 21:15 | C8I0362 | CI81905 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/20/18 21:15 | C8I0362 | CI81905 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/20/18 21:15 | C8I0362 | CI81905 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/20/18 21:15 | C8I0362 | CI81905 |
| **Aroclor 1254 [2C]** | **10.2** (1.1) | | 8082A | | 20 | 09/20/18 21:15 | C8I0362 | CI81905 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/20/18 21:15 | C8I0362 | CI81905 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/20/18 21:15 | C8I0362 | CI81905 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/20/18 21:15 | C8I0362 | CI81905 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-700-091818 0-3FT
Date Sampled: 09/18/18 11:21
Percent Solids: 88
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/20/18 21:34 | C8I0362 | CI81905 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/20/18 21:34 | C8I0362 | CI81905 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/20/18 21:34 | C8I0362 | CI81905 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/20/18 21:34 | C8I0362 | CI81905 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/20/18 21:34 | C8I0362 | CI81905 |
| **Aroclor 1254 [2C]** | **15.1** (1.2) | | 8082A | | 20 | 09/20/18 21:34 | C8I0362 | CI81905 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/20/18 21:34 | C8I0362 | CI81905 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/20/18 21:34 | C8I0362 | CI81905 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/20/18 21:34 | C8I0362 | CI81905 |

| | *%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-450-091818 1FT
Date Sampled: 09/18/18 10:44
Percent Solids: 95
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:56 | C8I0362 | CI81905 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:56 | C8I0362 | CI81905 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:56 | C8I0362 | CI81905 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:56 | C8I0362 | CI81905 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:56 | C8I0362 | CI81905 |
| **Aroclor 1254 [2C]** | **6.2** (0.5) | | 8082A | | 10 | 09/20/18 21:53 | C8I0362 | CI81905 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:56 | C8I0362 | CI81905 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:56 | C8I0362 | CI81905 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/20/18 13:56 | C8I0362 | CI81905 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *43 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *143 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *86 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-451-091818 1FT
Date Sampled: 09/18/18 10:46
Percent Solids: 94
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.7) | | 8082A | | 50 | 09/20/18 22:12 | C8I0362 | CI81905 |
| Aroclor 1221 | ND (2.7) | | 8082A | | 50 | 09/20/18 22:12 | C8I0362 | CI81905 |
| Aroclor 1232 | ND (2.7) | | 8082A | | 50 | 09/20/18 22:12 | C8I0362 | CI81905 |
| Aroclor 1242 | ND (2.7) | | 8082A | | 50 | 09/20/18 22:12 | C8I0362 | CI81905 |
| Aroclor 1248 | ND (2.7) | | 8082A | | 50 | 09/20/18 22:12 | C8I0362 | CI81905 |
| **Aroclor 1254 [2C]** | **19.5** (2.7) | | 8082A | | 50 | 09/20/18 22:12 | C8I0362 | CI81905 |
| Aroclor 1260 | ND (2.7) | | 8082A | | 50 | 09/20/18 22:12 | C8I0362 | CI81905 |
| Aroclor 1262 | ND (2.7) | | 8082A | | 50 | 09/20/18 22:12 | C8I0362 | CI81905 |
| Aroclor 1268 | ND (2.7) | | 8082A | | 50 | 09/20/18 22:12 | C8I0362 | CI81905 |

| | %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-452-091818 1FT
Date Sampled: 09/18/18 10:47
Percent Solids: 93
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 09/20/18 22:31 | C8I0362 | CI81905 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 09/20/18 22:31 | C8I0362 | CI81905 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 09/20/18 22:31 | C8I0362 | CI81905 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 09/20/18 22:31 | C8I0362 | CI81905 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 09/20/18 22:31 | C8I0362 | CI81905 |
| **Aroclor 1254 [2C]** | **17.0** (2.8) | | 8082A | | 50 | 09/20/18 22:31 | C8I0362 | CI81905 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 09/20/18 22:31 | C8I0362 | CI81905 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 09/20/18 22:31 | C8I0362 | CI81905 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 09/20/18 22:31 | C8I0362 | CI81905 |

| | %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-453-091818 1FT
Date Sampled: 09/18/18 10:48
Percent Solids: 95
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/20/18 22:50 | C8I0362 | CI81905 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/20/18 22:50 | C8I0362 | CI81905 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/20/18 22:50 | C8I0362 | CI81905 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/20/18 22:50 | C8I0362 | CI81905 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/20/18 22:50 | C8I0362 | CI81905 |
| **Aroclor 1254 [2C]** | **10.2** (1.1) | | 8082A | | 20 | 09/20/18 22:50 | C8I0362 | CI81905 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/20/18 22:50 | C8I0362 | CI81905 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/20/18 22:50 | C8I0362 | CI81905 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/20/18 22:50 | C8I0362 | CI81905 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-693-091818 0-3FT
Date Sampled: 09/18/18 11:28
Percent Solids: 90
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 09/20/18 23:09 | C8I0362 | CI81905 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 09/20/18 23:09 | C8I0362 | CI81905 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 09/20/18 23:09 | C8I0362 | CI81905 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 09/20/18 23:09 | C8I0362 | CI81905 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 09/20/18 23:09 | C8I0362 | CI81905 |
| **Aroclor 1254** | **19.2** (2.8) | | 8082A | | 50 | 09/20/18 23:09 | C8I0362 | CI81905 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 09/20/18 23:09 | C8I0362 | CI81905 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 09/20/18 23:09 | C8I0362 | CI81905 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 09/20/18 23:09 | C8I0362 | CI81905 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-694-091818 0-3FT
Date Sampled: 09/18/18 11:27
Percent Solids: 90
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 09/21/18 8:57 | C8I0388 | CI81905 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 09/21/18 8:57 | C8I0388 | CI81905 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 09/21/18 8:57 | C8I0388 | CI81905 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 09/21/18 8:57 | C8I0388 | CI81905 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 09/21/18 8:57 | C8I0388 | CI81905 |
| **Aroclor 1254** | **17.8** (2.8) | | 8082A | | 50 | 09/21/18 8:57 | C8I0388 | CI81905 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 09/21/18 8:57 | C8I0388 | CI81905 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 09/21/18 8:57 | C8I0388 | CI81905 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 09/21/18 8:57 | C8I0388 | CI81905 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-696-091818 0-3FT
Date Sampled: 09/18/18 11:25
Percent Solids: 92
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:16 | C8I0388 | CI81905 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:16 | C8I0388 | CI81905 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:16 | C8I0388 | CI81905 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:16 | C8I0388 | CI81905 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:16 | C8I0388 | CI81905 |
| **Aroclor 1254** | **10.5** (1.1) | | 8082A | | 20 | 09/21/18 9:16 | C8I0388 | CI81905 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:16 | C8I0388 | CI81905 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:16 | C8I0388 | CI81905 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:16 | C8I0388 | CI81905 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-697-091818 0-3FT
Date Sampled: 09/18/18 11:24
Percent Solids: 94
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:35 | C8I0388 | CI81905 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:35 | C8I0388 | CI81905 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:35 | C8I0388 | CI81905 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:35 | C8I0388 | CI81905 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:35 | C8I0388 | CI81905 |
| **Aroclor 1254** | **11.3** (1.1) | | 8082A | | 20 | 09/21/18 9:35 | C8I0388 | CI81905 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:35 | C8I0388 | CI81905 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:35 | C8I0388 | CI81905 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:35 | C8I0388 | CI81905 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-698-091818 0-3FT
Date Sampled: 09/18/18 11:22
Percent Solids: 93
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:54 | C8I0388 | CI81905 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:54 | C8I0388 | CI81905 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:54 | C8I0388 | CI81905 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:54 | C8I0388 | CI81905 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:54 | C8I0388 | CI81905 |
| **Aroclor 1254** | **11.2** (1.1) | | 8082A | | 20 | 09/21/18 9:54 | C8I0388 | CI81905 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:54 | C8I0388 | CI81905 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:54 | C8I0388 | CI81905 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/21/18 9:54 | C8I0388 | CI81905 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-693-091818-1 0-3FT
Date Sampled: 09/18/18 11:28
Percent Solids: 91
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 09/21/18 10:13 | C8I0388 | CI81905 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 09/21/18 10:13 | C8I0388 | CI81905 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 09/21/18 10:13 | C8I0388 | CI81905 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 09/21/18 10:13 | C8I0388 | CI81905 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 09/21/18 10:13 | C8I0388 | CI81905 |
| **Aroclor 1254** | **26.1** (2.8) | | 8082A | | 50 | 09/21/18 10:13 | C8I0388 | CI81905 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 09/21/18 10:13 | C8I0388 | CI81905 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 09/21/18 10:13 | C8I0388 | CI81905 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 09/21/18 10:13 | C8I0388 | CI81905 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-699-091818 0-3FT
Date Sampled: 09/18/18 11:20
Percent Solids: 89
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/21/18 10:32 | C8I0388 | CI81905 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/21/18 10:32 | C8I0388 | CI81905 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/21/18 10:32 | C8I0388 | CI81905 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/21/18 10:32 | C8I0388 | CI81905 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/21/18 10:32 | C8I0388 | CI81905 |
| **Aroclor 1254** | **10.5** (1.2) | | 8082A | | 20 | 09/21/18 10:32 | C8I0388 | CI81905 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/21/18 10:32 | C8I0388 | CI81905 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/21/18 10:32 | C8I0388 | CI81905 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/21/18 10:32 | C8I0388 | CI81905 |

| | *%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-903-091818 3FT
Date Sampled: 09/18/18 11:19
Percent Solids: 93
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/20/18 19:59 | C8I0362 | CI81905 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/20/18 19:59 | C8I0362 | CI81905 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/20/18 19:59 | C8I0362 | CI81905 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/20/18 19:59 | C8I0362 | CI81905 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/20/18 19:59 | C8I0362 | CI81905 |
| **Aroclor 1254 [2C]** | **3.0** (0.6) | | 8082A | | 10 | 09/21/18 10:51 | C8I0362 | CI81905 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/20/18 19:59 | C8I0362 | CI81905 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/20/18 19:59 | C8I0362 | CI81905 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/20/18 19:59 | C8I0362 | CI81905 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *129 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *115 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *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-905-091818 3FT
Date Sampled: 09/18/18 11:17
Percent Solids: 93
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:15

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/20/18 20:18 | C8I0362 | CI81905 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/20/18 20:18 | C8I0362 | CI81905 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/20/18 20:18 | C8I0362 | CI81905 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/20/18 20:18 | C8I0362 | CI81905 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/20/18 20:18 | C8I0362 | CI81905 |
| **Aroclor 1254 [2C]** | **2.3** (0.3) | | 8082A | | 5 | 09/21/18 11:10 | C8I0362 | CI81905 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/20/18 20:18 | C8I0362 | CI81905 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/20/18 20:18 | C8I0362 | CI81905 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/20/18 20:18 | C8I0362 | CI81905 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *96 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *106 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *78 %* | | *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-789-091818-A 2FT
Date Sampled: 09/18/18 13:14
Percent Solids: 91
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809440
ESS Laboratory Sample ID: 1809440-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:26 | C8I0363 | CI81907 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:26 | C8I0363 | CI81907 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:26 | C8I0363 | CI81907 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:26 | C8I0363 | CI81907 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:26 | C8I0363 | CI81907 |
| **Aroclor 1254** | **4.7** (0.6) | | 8082A | | 10 | 09/21/18 1:01 | C8I0363 | CI81907 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:26 | C8I0363 | CI81907 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:26 | C8I0363 | CI81907 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:26 | C8I0363 | CI81907 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *89 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *94 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809440

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81905 - 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* | *0.0174* | | mg/kg wet | *0.02500* | | *70* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0194* | | mg/kg wet | *0.02500* | | *78* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0181* | | mg/kg wet | *0.02500* | | *73* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0215* | | mg/kg wet | *0.02500* | | *86* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 89 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0177* | | mg/kg wet | *0.02500* | | *71* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0196* | | mg/kg wet | *0.02500* | | *79* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0195* | | mg/kg wet | *0.02500* | | *78* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0200* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | 4 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | 4 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | 4 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | 4 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0185* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0207* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0202* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0209* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| **Matrix Spike** **Source: 1809440-08** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809440

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81905 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 7.3 | 0.06 | mg/kg dry | 0.5792 | ND | NR | 40-140 | | | MC |
| Aroclor 1016 [2C] | 4.3 | 0.06 | mg/kg dry | 0.5792 | ND | 746 | 40-140 | | | MC |
| Aroclor 1260 | 6.2 | 0.06 | mg/kg dry | 0.5792 | ND | NR | 40-140 | | | MC |
| Aroclor 1260 [2C] | 7.1 | 0.06 | mg/kg dry | 0.5792 | ND | NR | 40-140 | | | MC |
| *Surrogate: Decachlorobiphenyl* | *0.0346* | | mg/kg dry | *0.02896* | | *119* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0476* | | mg/kg dry | *0.02896* | | *164* | *30-150* | | | *S+* |
| *Surrogate: Tetrachloro-m-xylene* | *0.0283* | | mg/kg dry | *0.02896* | | *98* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0340* | | mg/kg dry | *0.02896* | | *117* | *30-150* | | | |
| **Matrix Spike Dup Source: 1809440-08** | | | | | | | | | | |
| Aroclor 1016 | 5.9 | 0.06 | mg/kg dry | 0.5762 | ND | NR | 40-140 | 22 | 30 | MC |
| Aroclor 1016 [2C] | 3.5 | 0.06 | mg/kg dry | 0.5762 | ND | 615 | 40-140 | 20 | 30 | MC |
| Aroclor 1260 | 4.9 | 0.06 | mg/kg dry | 0.5762 | ND | 857 | 40-140 | 22 | 30 | MC |
| Aroclor 1260 [2C] | 5.5 | 0.06 | mg/kg dry | 0.5762 | ND | 953 | 40-140 | 25 | 30 | MC |
| *Surrogate: Decachlorobiphenyl* | *0.0422* | | mg/kg dry | *0.02881* | | *146* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0557* | | mg/kg dry | *0.02881* | | *193* | *30-150* | | | *S+* |
| *Surrogate: Tetrachloro-m-xylene* | *0.0255* | | mg/kg dry | *0.02881* | | *88* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0313* | | mg/kg dry | *0.02881* | | *109* | *30-150* | | | |
| **Batch CI81907 - 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* | *0.0226* | | mg/kg wet | *0.02500* | | *90* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0192* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0194* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0195* | | mg/kg wet | *0.02500* | | *78* | *30-150* | | | |
| **LCS** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809440

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81907 - 3540C** | | | | | | | | | | |
| 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 | | 96 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 101 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 98 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0251* | | mg/kg wet | *0.02500* | | *100* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0216* | | mg/kg wet | *0.02500* | | *86* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0221* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0213* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | 11 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | 11 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | 11 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | 12 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0220* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0189* | | mg/kg wet | *0.02500* | | *75* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0197* | | mg/kg wet | *0.02500* | | *79* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0188* | | mg/kg wet | *0.02500* | | *75* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809440

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809440

**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: 1809440
Date Received: 9/18/2018
Project Due Date: 9/20/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 5.0 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

**Added sample 17**

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 | 267582 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 267581 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 267580 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 267579 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 267578 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 267577 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 267576 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 267575 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 267583 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 267584 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 267574 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 267573 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 267572 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 267571 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 267570 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 267569 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 267568 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 267567 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 267956 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

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

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809440
Date Received: 9/18/2018

Completed By: _____ Date & Time: 9/19/18 1338
Reviewed By: _____ Date & Time: 9/19/18 1529
Delivered By: _____ 9/19/18 1529

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1809440
Date Received: 9/18/2018
Project Due Date: 9/20/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 5.0 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 267582 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 267581 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 267580 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 267579 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 267578 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 267577 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 267576 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 267575 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 267583 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 267584 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 267574 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 267573 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 267572 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 267571 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 267570 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 267569 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 267568 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 267567 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

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

# ESS Laboratory Sample and Cooler Receipt Checklist

| | | | |
|---|---|---|---|
| Client: | AEI Consultants, Inc. - TB/MM | ESS Project ID: | 1809440 |
| | | Date Received: | 9/18/2018 |
| Completed By: | | Date & Time: | 9/18/18 1632 |
| Reviewed By: | | Date & Time: | 9/18/18 1700 |
| Delivered By: | | | 9/18/18 1700 |

1 2/3

**ESS Laboratory**
*Division of Thielsch Engineering, Inc.*
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.essiaboratory.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 #: 1809440
Reporting Limits: see note 1
Electonic Deliverables: ☒ Quick Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 31231055
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 | 9/18/18 | 1029 | G | S | B-638-091818 (1') | X |
| 2 | | 1126 | C | | SW-695-091818 (0-3') | X |
| 3 | | 1121 | C | | SW-700-091818 (0-3') | X |
| 4 | | 1044 | G | | B-450-091818 (1') | X |
| 5 | | 1046 | G | | B-451-091818 (1') | X |
| 6 | | 1047 | G | | B-452-091818 (1') | X |
| 7 | | 1048 | G | | B-453-091818 (1') | X |
| 8 | | 1128 | C | | SW-693-091818 (0-3') | X |
| 9 | | 1127 | C | | SW-694-091818 (0-3') | X |
| 10 | | 1125 | C | | SW-696-091818 (0-3') | X |

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial | 16
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: 5.0 °C ICE RC

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/18/18 1525 | 9/18/18 1525 | 9/18/18 1557 | 9/18/18 1604 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

REVISED - ACT 9/19/2018

3/3


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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 |
| Company Name | AEI |
| Contact Person | Aaron Ting |
| Project # | 3L3L055 |
| 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 # | 1809440 |
| Reporting Limits | see note 1 |
| Electonic Deliverables | ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →) |

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 11 | 9/18/18 | 1124 | C | S | SW-697-091818 (0-3') | X |
| 12 | | 1122 | | | SW-698-091818 (0-3') | X |
| 8 | | 1128 | | | SW-693-091818 (0-3') MS/MSD | X |
| 13 | | 1128 | | | SW-693-091818 (0-3') | X |
| 14 | | 1120 | | | SW-699-091818 (0-3') | X |
| | | | | | ~~SW-700-091818~~ (ACT) | |
| | | 1127 | C | | ~~SW-698-091818 (0-3')~~ (ACT) | X |
| 15 | | 1119 | G | | B-903-091818 (3') | X |
| 16 | | 1117 | G | S | B-905-091818 (3') | |
| 17 | | 1314 | G | S | B-789-091818-A (2') | X |
| Container Type: | AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial | | | | | 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: 5.0 °C ICE PC

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) |
|---|---|---|---|
| 9/18/18 1525 | 9/18/18 1525 | 9/18/18 1557 | 9/18/18 1604 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

1 2/3

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# 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 #: 1809440
Reporting Limits: see note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3163055
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 (South Lot) |
|---|---|---|---|---|---|---|
| 1 | 9/18/18 | 1029 | G | S | B-638-091818 (1') | X |
| 2 | | 1126 | C | | SW-695-091818 (0-3') | X |
| 3 | | 1121 | C | | SW-700-091818 (0-3') | X |
| 4 | | 1044 | G | | B-450-091818 (1') | X |
| 5 | | 1046 | G | | B-451-091818 (1') | X |
| 6 | | 1047 | G | | B-452-091818 (1') | X |
| 7 | | 1048 | G | | B-453-091818 (1') | X |
| 8 | | 1128 | C | | SW-693-091818 (0-3') | X |
| 9 | | 1127 | C | | SW-694-091818 (0-3') | X |
| 10 | | 1125 | C | | SW-696-091818 (0-3') | X |

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

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: 5.0 °C ICE RC

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/18/18 1525 | 9/18/18 1525 | 9/18/18 1557 | 9/18/18 1604 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

3/3

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# 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 #: 1809440
Reporting Limits: see note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3163055
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 | 9/18/18 | 1124 | C | S | SW-697-091818 (0-3') | X | | | | | | | | | | | | | | | |
| 12 | | 1122 | | | SW-698-091818 (0-3') | X | | | | | | | | | | | | | | | |
| 8 | | 1128 | | | SW-693-091818 (0-3') MS/MSD | X | | | | | | | | | | | | | | | |
| 13 | | 1128 | | | SW-693-091818 (0-3') | X | | | | | | | | | | | | | | | |
| 14 | | 1120 | | | SW-699-091818 (0-3') | X | | | | | | | | | | | | | | | |
| — | | | | | ~~SW-700-091818~~ (ACT) | | | | | | | | | | | | | | | | |
| — | | 1127 | C | | ~~SW-698-091818 (0-3')~~ (ACT) | X | | | | | | | | | | | | | | | |
| 15 | | 11:19 | G | | B-903-091818 (3') | X | | | | | | | | | | | | | | | |
| 16 | | 11:17 | G | S | B-905-091818 (3') | X | | | | | | | | | | | | | | | |

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

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

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: 5.0 °C ICE 2C

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) |
|---|---|---|---|
| [signature] 9/18/18 1525 | R Carlson 9/18/18 1525 | R Carlson 9/18/18 1557 | [signature] 9/18/18 1604 |
| 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: 1809441**

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 2:19 pm, Sep 21, 2018**

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

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809441

## SAMPLE RECEIPT

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

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809441-01 | SW-535-091818-A 0-3FT | Soil | 8082A |
| 1809441-02 | SW-536-091818-A 0-3FT | Soil | 8082A |
| 1809441-03 | SW-541-091818-A 0-3FT | Soil | 8082A |
| 1809441-04 | SW-542-091818-A 0-3FT | Soil | 8082A |
| 1809441-05 | SW-543-091818-A 0-2FT | Soil | 8082A |
| 1809441-06 | B-776-091818-A 3FT | Soil | 8082A |
| 1809441-07 | SW-520-091818-A 0-3FT | Soil | 8082A |
| 1809441-08 | SW-521-091818-A 0-3FT | Soil | 8082A |
| 1809441-09 | SW-522-091818-A 0-3FT | Soil | 8082A |
| 1809441-10 | B-637-091818 1FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809441

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809441-02 **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%)

1809441-03 **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%)

1809441-06 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809441-10 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

**No other observations noted.**

**End of Project Narrative.**

## DATA USABILITY LINKS

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

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809441

## CURRENT SW-846 METHODOLOGY VERSIONS

**Analytical Methods**

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

**Prep Methods**

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-535-091818-A 0-3FT
Date Sampled: 09/18/18 07:40
Percent Solids: 88
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809441
ESS Laboratory Sample ID: 1809441-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:50

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/20/18 13:57 | C8I0364 | CI81906 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/20/18 13:57 | C8I0364 | CI81906 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/20/18 13:57 | C8I0364 | CI81906 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/20/18 13:57 | C8I0364 | CI81906 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/20/18 13:57 | C8I0364 | CI81906 |
| **Aroclor 1254** | **6.0** (0.6) | | 8082A | | 10 | 09/20/18 23:07 | C8I0364 | CI81906 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/20/18 13:57 | C8I0364 | CI81906 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/20/18 13:57 | C8I0364 | CI81906 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/20/18 13:57 | C8I0364 | CI81906 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *97 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *96 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *72 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *87 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-536-091818-A 0-3FT
Date Sampled: 09/18/18 07:41
Percent Solids: 90
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809441
ESS Laboratory Sample ID: 1809441-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:50

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.9) | | 8082A | | 50 | 09/20/18 23:26 | C8I0364 | CI81906 |
| Aroclor 1221 | ND (2.9) | | 8082A | | 50 | 09/20/18 23:26 | C8I0364 | CI81906 |
| Aroclor 1232 | ND (2.9) | | 8082A | | 50 | 09/20/18 23:26 | C8I0364 | CI81906 |
| Aroclor 1242 | ND (2.9) | | 8082A | | 50 | 09/20/18 23:26 | C8I0364 | CI81906 |
| Aroclor 1248 | ND (2.9) | | 8082A | | 50 | 09/20/18 23:26 | C8I0364 | CI81906 |
| **Aroclor 1254** | **29.7** (2.9) | | 8082A | | 50 | 09/20/18 23:26 | C8I0364 | CI81906 |
| Aroclor 1260 | ND (2.9) | | 8082A | | 50 | 09/20/18 23:26 | C8I0364 | CI81906 |
| Aroclor 1262 | ND (2.9) | | 8082A | | 50 | 09/20/18 23:26 | C8I0364 | CI81906 |
| Aroclor 1268 | ND (2.9) | | 8082A | | 50 | 09/20/18 23:26 | C8I0364 | CI81906 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-541-091818-A 0-3FT
Date Sampled: 09/18/18 07:44
Percent Solids: 87
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809441
ESS Laboratory Sample ID: 1809441-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:50

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/20/18 23:45 | C8I0364 | CI81906 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/20/18 23:45 | C8I0364 | CI81906 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/20/18 23:45 | C8I0364 | CI81906 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/20/18 23:45 | C8I0364 | CI81906 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/20/18 23:45 | C8I0364 | CI81906 |
| **Aroclor 1254 [2C]** | **11.3** (1.1) | | 8082A | | 20 | 09/20/18 23:45 | C8I0364 | CI81906 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/20/18 23:45 | C8I0364 | CI81906 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/20/18 23:45 | C8I0364 | CI81906 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/20/18 23:45 | C8I0364 | CI81906 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-542-091818-A 0-3FT
Date Sampled: 09/18/18 07:47
Percent Solids: 90
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809441
ESS Laboratory Sample ID: 1809441-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:50

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:09 | C8I0364 | CI81906 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:09 | C8I0364 | CI81906 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:09 | C8I0364 | CI81906 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:09 | C8I0364 | CI81906 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:09 | C8I0364 | CI81906 |
| **Aroclor 1254** | **2.7** (0.3) | | 8082A | | 5 | 09/21/18 0:04 | C8I0364 | CI81906 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:09 | C8I0364 | CI81906 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:09 | C8I0364 | CI81906 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:09 | C8I0364 | CI81906 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *108 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *74 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *83 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-543-091818-A 0-2FT
Date Sampled: 09/18/18 07:48
Percent Solids: 90
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809441
ESS Laboratory Sample ID: 1809441-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:50

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:28 | C8I0364 | CI81906 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:28 | C8I0364 | CI81906 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:28 | C8I0364 | CI81906 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:28 | C8I0364 | CI81906 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:28 | C8I0364 | CI81906 |
| **Aroclor 1254** | **0.3** (0.06) | | 8082A | | 1 | 09/20/18 15:28 | C8I0364 | CI81906 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:28 | C8I0364 | CI81906 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:28 | C8I0364 | CI81906 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/20/18 15:28 | C8I0364 | CI81906 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *103 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *83 %* | | *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-776-091818-A 3FT
Date Sampled: 09/18/18 07:52
Percent Solids: 85
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809441
ESS Laboratory Sample ID: 1809441-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:50

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/21/18 0:24 | C8I0364 | CI81906 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/21/18 0:24 | C8I0364 | CI81906 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/21/18 0:24 | C8I0364 | CI81906 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/21/18 0:24 | C8I0364 | CI81906 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/21/18 0:24 | C8I0364 | CI81906 |
| **Aroclor 1254 [2C]** | **15.6** (1.2) | | 8082A | | 20 | 09/21/18 0:24 | C8I0364 | CI81906 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/21/18 0:24 | C8I0364 | CI81906 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/21/18 0:24 | C8I0364 | CI81906 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/21/18 0:24 | C8I0364 | CI81906 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-520-091818-A 0-3FT
Date Sampled: 09/18/18 10:16
Percent Solids: 94
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809441
ESS Laboratory Sample ID: 1809441-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:50

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/20/18 16:06 | C8I0364 | CI81906 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/20/18 16:06 | C8I0364 | CI81906 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/20/18 16:06 | C8I0364 | CI81906 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/20/18 16:06 | C8I0364 | CI81906 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/20/18 16:06 | C8I0364 | CI81906 |
| **Aroclor 1254 [2C]** | **1.9** (0.3) | | 8082A | | 5 | 09/21/18 0:43 | C8I0364 | CI81906 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/20/18 16:06 | C8I0364 | CI81906 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/20/18 16:06 | C8I0364 | CI81906 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/20/18 16:06 | C8I0364 | CI81906 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *93 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *94 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *76 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *86 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-521-091818-A 0-3FT
Date Sampled: 09/18/18 10:17
Percent Solids: 93
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809441
ESS Laboratory Sample ID: 1809441-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:50

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/20/18 16:25 | C8I0364 | CI81906 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/20/18 16:25 | C8I0364 | CI81906 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/20/18 16:25 | C8I0364 | CI81906 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/20/18 16:25 | C8I0364 | CI81906 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/20/18 16:25 | C8I0364 | CI81906 |
| **Aroclor 1254** | **1.0** (0.05) | | 8082A | | 1 | 09/20/18 16:25 | C8I0364 | CI81906 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/20/18 16:25 | C8I0364 | CI81906 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/20/18 16:25 | C8I0364 | CI81906 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/20/18 16:25 | C8I0364 | CI81906 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *96 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *85 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *75 %* | | *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: SW-522-091818-A 0-3FT
Date Sampled: 09/18/18 10:18
Percent Solids: 95
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809441
ESS Laboratory Sample ID: 1809441-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:50

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/20/18 18:39 | C8I0364 | CI81906 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/20/18 18:39 | C8I0364 | CI81906 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/20/18 18:39 | C8I0364 | CI81906 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/20/18 18:39 | C8I0364 | CI81906 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/20/18 18:39 | C8I0364 | CI81906 |
| **Aroclor 1254 [2C]** | **0.5** (0.05) | | 8082A | | 1 | 09/20/18 18:39 | C8I0364 | CI81906 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/20/18 18:39 | C8I0364 | CI81906 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/20/18 18:39 | C8I0364 | CI81906 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/20/18 18:39 | C8I0364 | CI81906 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *95 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *94 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *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-637-091818 1FT
Date Sampled: 09/18/18 10:28
Percent Solids: 93
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809441
ESS Laboratory Sample ID: 1809441-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/19/18 16:50

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.7) | | 8082A | | 50 | 09/21/18 9:24 | C8I0390 | CI81906 |
| Aroclor 1221 | ND (2.7) | | 8082A | | 50 | 09/21/18 9:24 | C8I0390 | CI81906 |
| Aroclor 1232 | ND (2.7) | | 8082A | | 50 | 09/21/18 9:24 | C8I0390 | CI81906 |
| Aroclor 1242 | ND (2.7) | | 8082A | | 50 | 09/21/18 9:24 | C8I0390 | CI81906 |
| Aroclor 1248 | ND (2.7) | | 8082A | | 50 | 09/21/18 9:24 | C8I0390 | CI81906 |
| **Aroclor 1254** | **27.7** (2.7) | | 8082A | | 50 | 09/21/18 9:24 | C8I0390 | CI81906 |
| Aroclor 1260 | ND (2.7) | | 8082A | | 50 | 09/21/18 9:24 | C8I0390 | CI81906 |
| Aroclor 1262 | ND (2.7) | | 8082A | | 50 | 09/21/18 9:24 | C8I0390 | CI81906 |
| Aroclor 1268 | ND (2.7) | | 8082A | | 50 | 09/21/18 9:24 | C8I0390 | CI81906 |

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809441

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI81906 - 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* | *0.0249* | | mg/kg wet | *0.02500* | | *100* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0228* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0187* | | mg/kg wet | *0.02500* | | *75* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0207* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 100 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 107 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 100 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0246* | | mg/kg wet | *0.02500* | | *99* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0232* | | mg/kg wet | *0.02500* | | *93* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0199* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0212* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | 0.2 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 100 | 40-140 | 0.02 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 107 | 40-140 | 0.3 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 101 | 40-140 | 0.6 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0246* | | mg/kg wet | *0.02500* | | *99* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0237* | | mg/kg wet | *0.02500* | | *95* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0199* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0214* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809441

**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: 1809441

**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: 1809441
Date Received: 9/18/2018
Project Due Date: 9/20/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 5.0 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? No
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

**Rec'd B-789-A (2') not on COC**

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? Aaron Ting Date: 9/19/18 Time: 1010 By: ML

Will add sample to project 1809440

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 267594 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 267593 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 267592 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 267591 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 267590 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 267589 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 267588 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 267587 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 267586 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 267585 | 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: 9/18/18 1638
Reviewed By: Date & Time: 9/18/18 1656
Delivered By: 9/18/18 1656

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

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10. Were any analyses received outside of hold time? Yes / No

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

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    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

**Rec'd B-789-A (2') not on COC**

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 | 267594 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
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| 06 | 267589 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 267588 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 267587 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 267586 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 267585 | 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: 9/18/18 1638
Reviewed By: Date & Time: 9/18/18 1656
Delivered By: 9/18/18 1656

1/3

**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 # 1809441

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

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

Company Name: AEI
Contact Person: Aaron Ting
Project # 3163055
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 (South Lot) |
|---|---|---|---|---|---|---|
| 1 | 9/18/18 | 0740 | C | S | SW-535-091818-A (0-3') | X |
| 2 | | 0741 | | | SW-536-091818-A (0-3') | X |
| 3 | | 0744 | | | SW-541-091818-A (0-3') | X |
| 4 | | 0747 | | | SW-542-091818-A (0-3') | X |
| 5 | | 0748 | | | SW-543-091818-A (0-2') | X |
| 6 | | 0752 | G | | B-776-091818-A (3') | X |
| 7 | | 1016 | C | | SW-520-091818-A (0-3') | X |
| 8 | | 1017 | | | SW-521-091818-A (0-3') | X |
| 9 | | 1018 | | | SW-522-091818-A (0-3') | X |
| 10 | | 1028 | G | | B-637-091818 (1') | X |

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

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact:
Cooler Temperature: 5.0 °C ICE RC

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/18/18 1525 | 9/18/18 1525 | 9/18/18 1557 | 9/18/18 1603 |
| 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: 1809505**

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 4:47 pm, Oct 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: 1809505

## SAMPLE RECEIPT

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

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

**Revision 1 October 2, 2018: This report has been revised to include corrected sample receipt page.**

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809505-01 | B-328-091918 6ft | Soil | 8082A |
| 1809505-02 | B-329-091918 6ft | Soil | 8082A |
| 1809505-03 | B-383-091918 1ft | Soil | 8082A |
| 1809505-04 | B-331-091918 6ft | Soil | 8082A |
| 1809505-05 | B-332-091918 6ft | Soil | 8082A |
| 1809505-06 | B-333-091918 6ft | Soil | 8082A |
| 1809505-07 | B-335-091918 6ft | Soil | 8082A |
| 1809505-08 | B-336-091918 6ft | Soil | 8082A |
| 1809505-09 | B-339-091918 6ft | Soil | 8082A |
| 1809505-10 | B-340-091918 6ft | Soil | 8082A |
| 1809505-11 | B-341-091918 6ft | Soil | 8082A |
| 1809505-12 | B-342-091918 6ft | Soil | 8082A |
| 1809505-13 | B-343-091918 6ft | Soil | 8082A |
| 1809505-14 | B-344-091918 6ft | Soil | 8082A |
| 1809505-15 | B-345-091918 6ft | Soil | 8082A |
| 1809505-16 | B-346-091918 6ft | Soil | 8082A |
| 1809505-17 | B-347-091918 6ft | Soil | 8082A |
| 1809505-18 | B-352-091918 6ft | Soil | 8082A |
| 1809505-19 | B-353-091918 6ft | Soil | 8082A |
| 1809505-20 | B-354-091918 6ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809505

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

| | |
|---|---|
| 1809505-04 | **Surrogate recovery(ies) diluted below the MRL (SD).**<br>Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%) |
| 1809505-05 | **Surrogate recovery(ies) diluted below the MRL (SD).**<br>Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%) |
| 1809505-06 | **Surrogate recovery(ies) diluted below the MRL (SD).**<br>Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%) |
| 1809505-10 | **Surrogate recovery(ies) diluted below the MRL (SD).**<br>Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%) |
| CI82003-MSD1 | **Matrix Spike recovery is above upper control limit (M+).**<br>Aroclor 1260 [2C] (146% @ 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: 1809505

## 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-328-091918 6ft
Date Sampled: 09/19/18 10:12
Percent Solids: 89
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/21/18 13:59 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/21/18 13:59 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/21/18 13:59 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/21/18 13:59 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/21/18 13:59 | C8I0388 | CI82003 |
| **Aroclor 1254** | **0.07** (0.06) | | 8082A | | 1 | 09/21/18 13:59 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/21/18 13:59 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/21/18 13:59 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/21/18 13:59 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *69 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *76 %* | | *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-329-091918 6ft
Date Sampled: 09/19/18 10:15
Percent Solids: 89
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/21/18 14:18 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/21/18 14:18 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/21/18 14:18 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/21/18 14:18 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/21/18 14:18 | C8I0388 | CI82003 |
| **Aroclor 1254 [2C]** | **0.09** (0.06) | | 8082A | | 1 | 09/21/18 14:18 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/21/18 14:18 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/21/18 14:18 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/21/18 14:18 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *69 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *78 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-383-091918 1ft
Date Sampled: 09/19/18 15:31
Percent Solids: 97
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/21/18 14:37 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/21/18 14:37 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/21/18 14:37 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/21/18 14:37 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/21/18 14:37 | C8I0388 | CI82003 |
| **Aroclor 1254 [2C]** | **0.7** (0.05) | | 8082A | | 1 | 09/21/18 14:37 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/21/18 14:37 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/21/18 14:37 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/21/18 14:37 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *71 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *73 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *82 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-331-091918 6ft
Date Sampled: 09/19/18 10:19
Percent Solids: 83
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.1) | | 8082A | | 50 | 09/22/18 11:37 | C8I0413 | CI82003 |
| Aroclor 1221 | ND (3.1) | | 8082A | | 50 | 09/22/18 11:37 | C8I0413 | CI82003 |
| Aroclor 1232 | ND (3.1) | | 8082A | | 50 | 09/22/18 11:37 | C8I0413 | CI82003 |
| Aroclor 1242 | ND (3.1) | | 8082A | | 50 | 09/22/18 11:37 | C8I0413 | CI82003 |
| Aroclor 1248 | ND (3.1) | | 8082A | | 50 | 09/22/18 11:37 | C8I0413 | CI82003 |
| **Aroclor 1254 [2C]** | **16.6** (3.1) | | 8082A | | 50 | 09/22/18 11:37 | C8I0413 | CI82003 |
| Aroclor 1260 | ND (3.1) | | 8082A | | 50 | 09/22/18 11:37 | C8I0413 | CI82003 |
| Aroclor 1262 | ND (3.1) | | 8082A | | 50 | 09/22/18 11:37 | C8I0413 | CI82003 |
| Aroclor 1268 | ND (3.1) | | 8082A | | 50 | 09/22/18 11:37 | C8I0413 | CI82003 |

| | *%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-332-091918 6ft
Date Sampled: 09/19/18 10:21
Percent Solids: 82
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/22/18 11:54 | C8I0413 | CI82003 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/22/18 11:54 | C8I0413 | CI82003 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/22/18 11:54 | C8I0413 | CI82003 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/22/18 11:54 | C8I0413 | CI82003 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/22/18 11:54 | C8I0413 | CI82003 |
| **Aroclor 1254 [2C]** | **11.8** (1.2) | | 8082A | | 20 | 09/22/18 11:54 | C8I0413 | CI82003 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/22/18 11:54 | C8I0413 | CI82003 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/22/18 11:54 | C8I0413 | CI82003 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/22/18 11:54 | C8I0413 | CI82003 |

| | %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-333-091918 6ft
Date Sampled: 09/19/18 10:29
Percent Solids: 84
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:13 | C8I0413 | CI82003 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:13 | C8I0413 | CI82003 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:13 | C8I0413 | CI82003 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:13 | C8I0413 | CI82003 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:13 | C8I0413 | CI82003 |
| **Aroclor 1254** | **7.9** (1.2) | | 8082A | | 20 | 09/22/18 12:13 | C8I0413 | CI82003 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:13 | C8I0413 | CI82003 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:13 | C8I0413 | CI82003 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:13 | C8I0413 | CI82003 |

| | %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-335-091918 6ft
Date Sampled: 09/19/18 10:42
Percent Solids: 81
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:25 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:25 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:25 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:25 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:25 | C8I0388 | CI82003 |
| **Aroclor 1254** | **0.6** (0.06) | | 8082A | | 1 | 09/21/18 18:25 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:25 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:25 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:25 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *128 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *103 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *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-336-091918 6ft
Date Sampled: 09/19/18 10:43
Percent Solids: 88
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:45 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:45 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:45 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:45 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:45 | C8I0388 | CI82003 |
| **Aroclor 1254** | **0.2** (0.06) | | 8082A | | 1 | 09/21/18 18:45 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:45 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:45 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/21/18 18:45 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *71 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *73 %* | | *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-339-091918 6ft
Date Sampled: 09/19/18 10:36
Percent Solids: 90
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:04 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:04 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:04 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:04 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:04 | C8I0388 | CI82003 |
| **Aroclor 1254 [2C]** | **6.8** (0.6) | | 8082A | | 10 | 09/22/18 12:33 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:04 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:04 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:04 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *56 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *70 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *59 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *66 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-340-091918 6ft
Date Sampled: 09/19/18 10:47
Percent Solids: 86
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:51 | C8I0413 | CI82003 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:51 | C8I0413 | CI82003 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:51 | C8I0413 | CI82003 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:51 | C8I0413 | CI82003 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:51 | C8I0413 | CI82003 |
| **Aroclor 1254** | **9.4** (1.2) | | 8082A | | 20 | 09/22/18 12:51 | C8I0413 | CI82003 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:51 | C8I0413 | CI82003 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:51 | C8I0413 | CI82003 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/22/18 12:51 | C8I0413 | CI82003 |

| | *%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-341-091918 6ft
Date Sampled: 09/19/18 10:49
Percent Solids: 85
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:42 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:42 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:42 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:42 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:42 | C8I0388 | CI82003 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:42 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:42 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:42 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/21/18 19:42 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *133 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *110 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *82 %* | | *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-342-091918 6ft
Date Sampled: 09/19/18 10:50
Percent Solids: 84
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:01 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:01 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:01 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:01 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:01 | C8I0388 | CI82003 |
| **Aroclor 1254 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 09/21/18 20:01 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:01 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:01 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:01 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *78 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *108 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-343-091918 6ft
Date Sampled: 09/19/18 10:51
Percent Solids: 86
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:20 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:20 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:20 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:20 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:20 | C8I0388 | CI82003 |
| **Aroclor 1254** | **0.4** (0.06) | | 8082A | | 1 | 09/21/18 20:20 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:20 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:20 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:20 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *78 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *83 %* | | *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-344-091918 6ft
Date Sampled: 09/19/18 10:52
Percent Solids: 61
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.08) | | 8082A | | 1 | 09/21/18 20:39 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.08) | | 8082A | | 1 | 09/21/18 20:39 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.08) | | 8082A | | 1 | 09/21/18 20:39 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.08) | | 8082A | | 1 | 09/21/18 20:39 | C8I0388 | CI82003 |
| **Aroclor 1248** | **4.9** (0.4) | | 8082A | | 5 | 09/22/18 13:10 | C8I0388 | CI82003 |
| **Aroclor 1254** | **2.9** (0.4) | | 8082A | | 5 | 09/22/18 13:10 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.08) | | 8082A | | 1 | 09/21/18 20:39 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.08) | | 8082A | | 1 | 09/21/18 20:39 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.08) | | 8082A | | 1 | 09/21/18 20:39 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *69 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *76 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-345-091918 6ft
Date Sampled: 09/19/18 10:54
Percent Solids: 90
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:58 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:58 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:58 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:58 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:58 | C8I0388 | CI82003 |
| **Aroclor 1254** | **0.2** (0.06) | | 8082A | | 1 | 09/21/18 20:58 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:58 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:58 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/21/18 20:58 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *77 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *90 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-346-091918 6ft
Date Sampled: 09/19/18 11:10
Percent Solids: 84
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:17 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:17 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:17 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:17 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:17 | C8I0388 | CI82003 |
| **Aroclor 1254 [2C]** | **4.2** (0.6) | | 8082A | | 10 | 09/22/18 13:29 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:17 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:17 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:17 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *68 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *81 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-347-091918 6ft
Date Sampled: 09/19/18 11:10
Percent Solids: 81
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:36 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:36 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:36 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:36 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:36 | C8I0388 | CI82003 |
| **Aroclor 1254 [2C]** | **6.0** (0.6) | | 8082A | | 10 | 09/22/18 13:49 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:36 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:36 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:36 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *45 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *52 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *36 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *42 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-352-091918 6ft
Date Sampled: 09/19/18 11:02
Percent Solids: 86
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:55 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:55 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:55 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:55 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:55 | C8I0388 | CI82003 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:55 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:55 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:55 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/21/18 21:55 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *94 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *97 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *85 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *104 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-353-091918 6ft
Date Sampled: 09/19/18 11:02
Percent Solids: 84
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:08 | C8I0413 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:08 | C8I0413 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:08 | C8I0413 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:08 | C8I0413 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:08 | C8I0413 | CI82003 |
| **Aroclor 1254** | **0.7** (0.06) | | 8082A | | 1 | 09/22/18 14:08 | C8I0413 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:08 | C8I0413 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:08 | C8I0413 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:08 | C8I0413 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *75 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *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-354-091918 6ft
Date Sampled: 09/19/18 11:00
Percent Solids: 79
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809505
ESS Laboratory Sample ID: 1809505-20
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/20/18 16:44

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/21/18 22:14 | C8I0388 | CI82003 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/21/18 22:14 | C8I0388 | CI82003 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/21/18 22:14 | C8I0388 | CI82003 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/21/18 22:14 | C8I0388 | CI82003 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/21/18 22:14 | C8I0388 | CI82003 |
| **Aroclor 1254** | **0.9** (0.06) | | 8082A | | 1 | 09/21/18 22:14 | C8I0388 | CI82003 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/21/18 22:14 | C8I0388 | CI82003 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/21/18 22:14 | C8I0388 | CI82003 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/21/18 22:14 | C8I0388 | CI82003 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *73 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *89 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809505

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82003 - 3540C** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| Aroclor 1016 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1016 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0220* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0249* | | mg/kg wet | *0.02500* | | *100* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0226* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0269* | | mg/kg wet | *0.02500* | | *107* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 105 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 103 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 99 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 102 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0204* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0229* | | 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]* | *0.0232* | | mg/kg wet | *0.02500* | | *93* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 97 | 40-140 | 9 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 96 | 40-140 | 7 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 8 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 96 | 40-140 | 6 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0192* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0215* | | mg/kg wet | *0.02500* | | *86* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0209* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0216* | | mg/kg wet | *0.02500* | | *86* | *30-150* | | | |
| **Matrix Spike** **Source: 1809505-03** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809505

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82003 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.6 | 0.05 | mg/kg dry | 0.5242 | ND | 107 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.6 | 0.05 | mg/kg dry | 0.5242 | ND | 112 | 40-140 | | | |
| Aroclor 1260 | 0.6 | 0.05 | mg/kg dry | 0.5242 | ND | 114 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.6 | 0.05 | mg/kg dry | 0.5242 | ND | 115 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0215* | | mg/kg dry | *0.02621* | | *82* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0233* | | mg/kg dry | *0.02621* | | *89* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0243* | | mg/kg dry | *0.02621* | | *93* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0256* | | mg/kg dry | *0.02621* | | *98* | *30-150* | | | |
| **Matrix Spike Dup Source: 1809505-03** | | | | | | | | | | |
| Aroclor 1016 | 0.6 | 0.05 | mg/kg dry | 0.5351 | ND | 110 | 40-140 | 5 | 30 | |
| Aroclor 1016 [2C] | 0.6 | 0.05 | mg/kg dry | 0.5351 | ND | 118 | 40-140 | 7 | 30 | |
| Aroclor 1260 | 0.6 | 0.05 | mg/kg dry | 0.5351 | ND | 118 | 40-140 | 6 | 30 | |
| Aroclor 1260 [2C] | 0.8 | 0.05 | mg/kg dry | 0.5351 | ND | 146 | 40-140 | 26 | 30 | M+ |
| *Surrogate: Decachlorobiphenyl* | *0.0221* | | mg/kg dry | *0.02676* | | *83* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0242* | | mg/kg dry | *0.02676* | | *90* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0250* | | mg/kg dry | *0.02676* | | *94* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0266* | | mg/kg dry | *0.02676* | | *99* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809505

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809505

**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: 1809505
Date Received: 9/19/2018
Project Due Date: 9/21/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 13.1 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:

Moved sample -03 MS/MSD to this job from 1809507.
Moved sample -03 from this w/o to 1809507. 9/20/18

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 268261 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| ~~01~~ | ~~268473~~ | ~~Yes~~ | ~~NA~~ | ~~Yes~~ | ~~4 oz. Jar - Unpres~~ | ~~NP~~ | Unused label |
| ~~01~~ | ~~268474~~ | ~~Yes~~ | ~~NA~~ | ~~Yes~~ | ~~4 oz. Jar - Unpres~~ | ~~NP~~ | Unused label 9/19/18 |
| 02 | 268260 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 268259 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 268475 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | Added for MS/MSD analysis |
| 03 | 268476 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 268258 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 268257 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 268256 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 268255 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 268254 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 268253 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 268252 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 268251 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 268250 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 268249 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 268248 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 268247 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 268246 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 268245 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 268244 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 268243 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 20 | 268242 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809505
Date Received: 9/19/2018

**2nd Review**

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

Completed By: _____ Date & Time: 9/20/18 13:30

Reviewed By: _____ Date & Time: 9/20/18 1335

Delivered By: _____

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

Shipped/Delivered Via: Client

ESS Project ID: 1809505
Date Received: 9/19/2018
Project Due Date: 9/21/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 13.1 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 | 268261 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 268260 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 268259 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 268258 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 268257 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 268256 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 268255 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 268254 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 268253 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 268252 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 268251 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 268250 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 268249 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 268248 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 268247 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 268246 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 268245 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 268244 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 268243 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 20 | 268242 | 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: 1809505
Date Received: 9/19/2018

Are all necessary stickers attached? Yes / No

Completed By: _____ Date & Time: 9/19/18 2032

Reviewed By: _____ Date & Time: 9/19/18 2038

Delivered By: _____ 9/19/18 2038

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# CHAIN OF CUSTODY

ESS Lab # P809505

Turn Time Rush 48 hr

Reporting Limits See note 1

Regulatory State RI

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

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

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BAJF Cranston |

| Contact Person | Address |
|---|---|
| Aaron Ting | 112 Water St, 5th floor |

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

| Telephone Number | FAX Number | Email Address |
|---|---|---|
| 978-577-7138 | — | ating@aei consultants.com |

Analysis: PCBs (Soxhlet)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 9/19/18 | 1012 | G | S | B-328-091918(6') | X |
| 2 | | 1015 | | | B-329-091918(6') | X |
| ~~3~~ | | ~~1017~~ | | | ~~B-330-091918(6')~~ | X |
| 4 | | 1019 | | | B-331-091918(6') | X |
| 5 | | 1021 | | | B-332-091918(6') | X |
| 6 | | 1024 | | | B-333-091918(6') | X |
| 7 | | 1042 | | | B-335-091918(6') | X |
| 8 | | 1043 | | | B-336-091918(6') | X |
| 9 | | 1036 | | | B-339-091918(6') | X |
| 10 | | 1047 | | | B-340-091918(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-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other*

Number of Containers per Sample:

Laboratory Use Only
Cooler Present: Y
Seals Intact: NA
Cooler Temperature: 13.1 °C

Sampled by: JD

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

note: See project QAPP

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| Joseph D Dr 9/19/18 1631 | 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

1 of 34
Rev 11/1/18

1809505

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# CHAIN OF CUSTODY

ESS Lab # ~~1809507~~

Turn Time Rush 48 hr

Regulatory State RI

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

Reporting Limits See note 1

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

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BASF Cranston |

| Contact Person | Address |
|---|---|
| Aaron Ting | 112 Water St, 5th floor |

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

| Telephone Number | FAX Number | Email Address |
|---|---|---|
| 978-577-7138 | — | ating@aei.consultants.com |

Analysis: PCBs (Soxhlet)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| ~~1~~ | ~~9/19/18~~ | ~~1354~~ | ~~G~~ | ~~S~~ | ~~B-411-091918 (6')~~ | X |
| | ~~9/19/18~~ | ~~1050~~ | | | ~~B-342-091918-1 (6')~~ | |
| | ~~9/19/18~~ | ~~1043~~ | | | ~~B-336-091918-1 (6')~~ | |
| | ~~9/19/18~~ | ~~1405~~ | | | ~~B-375-091918-1 (6')~~ | |
| ~~2~~ | ~~9/19/18~~ | ~~1530~~ | | | ~~B-372-091918 (1')~~ | X |
| 3 | 9/19/18 | 1531 | | | B-383-091918 (1') | X |
| ~~4~~ | ~~9/19/18~~ | ~~1532~~ | | | ~~B-393-091918 (1')~~ | X |

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

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

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

Number of Containers per Sample:

**Laboratory Use Only**

Cooler Present: Y

Seals Intact: M

Cooler Temperature: 13.1 °C

Sampled by: JD

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 [signature] 9/19/18 1631 | [signature] 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

2 of 4

Per [signature]

1809505

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# CHAIN OF CUSTODY

ESS Lab # ~~1809507~~ Z

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

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

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BAJF Cranston |

| Contact Person | Address |
|---|---|
| Aaron Ting | 112 Water St, 5th floor |

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

| Telephone Number | FAX Number | Email Address |
|---|---|---|
| 978-577-7138 | — | ating@aei.consultants.com |

Analysis: PCB Soxhlet

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCB Soxhlet |
|---|---|---|---|---|---|---|
| ~~6~~ | ~~9/19/18~~ | ~~1531~~ | ~~G~~ | ~~S~~ | ~~B-383-091918-1 (1')~~ | X |
| 3 | 9/19/18 | 1531 | G | S | B-383-091918 (1') 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:

**Laboratory Use Only**
Cooler Present: Y
Seals Intact: [illegible]
Cooler Temperature: 13.1 °C

Sampled by :
Comments: Please specify "Other" preservative and containers types in this space
please include in same lab report as B-383-091918 (1')

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| Joseph D Dreh 9/19/18 1631 | [signature] 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

3 of 4
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# CHAIN OF CUSTODY

ESS Lab # 1809505

Turn Time Rush 48hr

Reporting Limits See note 1

Regulatory State RI

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

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

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BAJF Cranston |

| Contact Person | Address |
|---|---|
| Aaron Ting | 112 Water St, 5th floor |

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

| Telephone Number | FAX Number | Email Address |
|---|---|---|
| 978-577-7138 | — | ating@aei-consultants.com |

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (soxhlet) |
|---|---|---|---|---|---|---|
| 11 | 9/19/18 | 1049 | G | S | B-341-091918(6') | X |
| 12 | | 1050 | | | B-342-091918(6') | X |
| 13 | | 1051 | | | B-343-091918(6') | X |
| 14 | | 1052 | | | B-344-091918(6') | X |
| 15 | | 1054 | | | B-345-091918(6') | X |
| 16 | | 1110 | | | B-346-091918(6') | X |
| 17 | | 1110 | | | B-347-091918(6') | X |
| 18 | | 1102 | | | B-352-091918(6') | X |
| 19 | | 1102 | | | B-353-091918(6') | X |
| 20 | | 1100 | | | B-354-091918(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-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other*

Number of Containers per Sample:

**Laboratory Use Only**

Cooler Present: Y

Seals Intact: NA

Cooler Temperature: 13.1 °C

Sampled by: JD

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) |
|---|---|---|---|
| [signature] 9/19/18 1631 | [signature] 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

4 of 4
Rev 11/2/18

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# CHAIN OF CUSTODY

| | |
|---|---|
| ESS Lab # | 1809505 |
| Reporting Limits | See note 1 |
| Electonic Deliverables | ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →) |

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

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

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 9/19/18 | 1012 | G | S | B-328-091918(6') | X |
| 2 | ↓ | 1015 | ↓ | ↓ | B-329-091918(6') | X |
| 3 | | 1017 | | | B-330-091918(6') | X |
| 4 | | 1019 | | | B-331-091918(6') | X |
| 5 | | 1021 | | | B-332-091918(6') | X |
| 6 | | 1029 | | | B-333-091918(6') | X |
| 7 | | 1042 | | | B-335-091918(6') | X |
| 8 | | 1043 | | | B-336-091918(6') | X |
| 9 | | 1036 | | | B-339-091918(6') | X |
| 10 | ↓ | 1047 | ↓ | ↓ | B-340-091918(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-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other*
**Number of Containers per Sample:**

**Laboratory Use Only**
Cooler Present: Y
Seals Intact: NA
Cooler Temperature: 13.1 °C

Sampled by: JD
Comments: Please specify "Other" preservative and containers types in this space
note: 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 Dan 9/19/18 1631 | 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

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# CHAIN OF CUSTODY

| | |
|---|---|
| ESS Lab # | 1809505 |
| Reporting Limits | See note 1 |
| Electonic Deliverables | ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →) |

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

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

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 11 | 9/19/18 | 1049 | G | S | B-341-091918(6') | X |
| 12 | | 1050 | | | B-342-091918(6') | X |
| 13 | | 1051 | | | B-343-091918(6') | X |
| 14 | | 1052 | | | B-344-091918(6') | X |
| 15 | | 1054 | | | B-345-091918(6') | X |
| 16 | | 1110 | | | B-346-091918(6') | X |
| 17 | | 1110 | | | B-347-091918(6') | X |
| 18 | | 1102 | | | B-352-091918(6') | X |
| 19 | | 1102 | | | B-353-091918(6') | X |
| 20 | | 1100 | | | B-354-091918(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-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other*
**Number of Containers per Sample:**

**Laboratory Use Only**
Cooler Present: Y
Seals Intact: NA
Cooler Temperature: 13.1 °C

Sampled by: JD
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) |
|---|---|---|---|
| [signature] 9/19/18 1631 | [signature] 9/19/18 1632 | | |
| 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: 1809506**

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 6:15 pm, Sep 24, 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: 1809506

## SAMPLE RECEIPT

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

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

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809506-01 | B-355-091918 6ft | Soil | 8082A |
| 1809506-02 | B-364-091918 6ft | Soil | 8082A |
| 1809506-03 | B-365-091918 6ft | Soil | 8082A |
| 1809506-04 | B-393-091918 1ft | Soil | 8082A |
| 1809506-05 | B-367-091918 6ft | Soil | 8082A |
| 1809506-06 | B-368-091918 6ft | Soil | 8082A |
| 1809506-07 | B-369-091918 6ft | Soil | 8082A |
| 1809506-08 | B-370-091918 6ft | Soil | 8082A |
| 1809506-09 | B-368N-091918 6ft | Soil | 8082A |
| 1809506-10 | B-375-091918 6ft | Soil | 8082A |
| 1809506-11 | B-376-091918 6ft | Soil | 8082A |
| 1809506-12 | B-377-091918 6ft | Soil | 8082A |
| 1809506-13 | B-378-091918 6ft | Soil | 8082A |
| 1809506-14 | B-379-091918 6ft | Soil | 8082A |
| 1809506-15 | B-380-091918 6ft | Soil | 8082A |
| 1809506-16 | B-381-091918 6ft | Soil | 8082A |
| 1809506-17 | B-386-091918 6ft | Soil | 8082A |
| 1809506-18 | B-387-091918 6ft | Soil | 8082A |
| 1809506-19 | B-388-091918 6ft | Soil | 8082A |
| 1809506-20 | B-389-091918 6ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809506

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809506-07 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809506-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809506-15 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809506-16 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809506-20 **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: 1809506

## 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-355-091918 6ft
Date Sampled: 09/19/18 11:00
Percent Solids: 81
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:31 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:31 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:31 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:31 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:31 | C8I0414 | CI82103 |
| **Aroclor 1254 [2C]** | **0.3** (0.06) | | 8082A | | 1 | 09/22/18 13:31 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:31 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:31 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:31 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *94 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *88 %* | | *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-364-091918 6ft
Date Sampled: 09/19/18 11:40
Percent Solids: 90
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:50 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:50 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:50 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:50 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:50 | C8I0414 | CI82103 |
| **Aroclor 1254 [2C]** | **0.5** (0.06) | | 8082A | | 1 | 09/22/18 13:50 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:50 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:50 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 13:50 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *99 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *82 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *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-365-091918 6ft
Date Sampled: 09/19/18 11:22
Percent Solids: 89
Initial Volume: 20.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/22/18 14:10 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/22/18 14:10 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/22/18 14:10 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/22/18 14:10 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/22/18 14:10 | C8I0414 | CI82103 |
| **Aroclor 1254** | **0.6** (0.05) | | 8082A | | 1 | 09/22/18 14:10 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/22/18 14:10 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/22/18 14:10 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/22/18 14:10 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *82 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *75 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *98 %* | | *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-393-091918 1ft
Date Sampled: 09/19/18 15:32
Percent Solids: 91
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:29 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:29 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:29 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:29 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:29 | C8I0414 | CI82103 |
| **Aroclor 1254** | **0.2** (0.06) | | 8082A | | 1 | 09/22/18 14:29 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:29 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:29 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 14:29 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *95 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *82 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *101 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *104 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-367-091918 6ft
Date Sampled: 09/19/18 11:08
Percent Solids: 71
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.07) | | 8082A | | 1 | 09/22/18 15:27 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.07) | | 8082A | | 1 | 09/22/18 15:27 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.07) | | 8082A | | 1 | 09/22/18 15:27 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.07) | | 8082A | | 1 | 09/22/18 15:27 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.07) | | 8082A | | 1 | 09/22/18 15:27 | C8I0414 | CI82103 |
| **Aroclor 1254** | **1.3** (0.07) | | 8082A | | 1 | 09/22/18 15:27 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.07) | | 8082A | | 1 | 09/22/18 15:27 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.07) | | 8082A | | 1 | 09/22/18 15:27 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.07) | | 8082A | | 1 | 09/22/18 15:27 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *97 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *109 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *95 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-368-091918 6ft
Date Sampled: 09/19/18 12:55
Percent Solids: 85
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 15:46 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 15:46 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 15:46 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 15:46 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 15:46 | C8I0414 | CI82103 |
| **Aroclor 1254** | **6.2** (0.6) | | 8082A | | 10 | 09/24/18 10:19 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 15:46 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 15:46 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 15:46 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *99 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *132 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *82 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-369-091918 6ft
Date Sampled: 09/19/18 13:05
Percent Solids: 66
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.8) | | 8082A | | 50 | 09/24/18 10:37 | C8I0431 | CI82103 |
| Aroclor 1221 | ND (3.8) | | 8082A | | 50 | 09/24/18 10:37 | C8I0431 | CI82103 |
| Aroclor 1232 | ND (3.8) | | 8082A | | 50 | 09/24/18 10:37 | C8I0431 | CI82103 |
| Aroclor 1242 | ND (3.8) | | 8082A | | 50 | 09/24/18 10:37 | C8I0431 | CI82103 |
| Aroclor 1248 | ND (3.8) | | 8082A | | 50 | 09/24/18 10:37 | C8I0431 | CI82103 |
| **Aroclor 1254** | **28.4** (3.8) | | 8082A | | 50 | 09/24/18 10:37 | C8I0431 | CI82103 |
| Aroclor 1260 | ND (3.8) | | 8082A | | 50 | 09/24/18 10:37 | C8I0431 | CI82103 |
| Aroclor 1262 | ND (3.8) | | 8082A | | 50 | 09/24/18 10:37 | C8I0431 | CI82103 |
| Aroclor 1268 | ND (3.8) | | 8082A | | 50 | 09/24/18 10:37 | C8I0431 | CI82103 |

| | *%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-370-091918 6ft
Date Sampled: 09/19/18 11:22
Percent Solids: 53
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (4.8) | | 8082A | | 50 | 09/24/18 10:56 | C8I0431 | CI82103 |
| Aroclor 1221 | ND (4.8) | | 8082A | | 50 | 09/24/18 10:56 | C8I0431 | CI82103 |
| Aroclor 1232 | ND (4.8) | | 8082A | | 50 | 09/24/18 10:56 | C8I0431 | CI82103 |
| Aroclor 1242 | ND (4.8) | | 8082A | | 50 | 09/24/18 10:56 | C8I0431 | CI82103 |
| Aroclor 1248 | ND (4.8) | | 8082A | | 50 | 09/24/18 10:56 | C8I0431 | CI82103 |
| **Aroclor 1254** | **32.6** (4.8) | | 8082A | | 50 | 09/24/18 10:56 | C8I0431 | CI82103 |
| Aroclor 1260 | ND (4.8) | | 8082A | | 50 | 09/24/18 10:56 | C8I0431 | CI82103 |
| Aroclor 1262 | ND (4.8) | | 8082A | | 50 | 09/24/18 10:56 | C8I0431 | CI82103 |
| Aroclor 1268 | ND (4.8) | | 8082A | | 50 | 09/24/18 10:56 | C8I0431 | CI82103 |

| | *%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-368N-091918 6ft
Date Sampled: 09/19/18 12:56
Percent Solids: 89
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 16:44 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 16:44 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 16:44 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 16:44 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 16:44 | C8I0414 | CI82103 |
| **Aroclor 1254** | **3.3** (0.6) | | 8082A | | 10 | 09/24/18 11:15 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 16:44 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 16:44 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 16:44 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *99 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *128 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *90 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-375-091918 6ft
Date Sampled: 09/19/18 14:05
Percent Solids: 75
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:03 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:03 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:03 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:03 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:03 | C8I0414 | CI82103 |
| **Aroclor 1254** | **1.0** (0.07) | | 8082A | | 1 | 09/22/18 17:03 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:03 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:03 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:03 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *83 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *68 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *89 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-376-091918 6ft
Date Sampled: 09/19/18 14:06
Percent Solids: 69
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:22 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:22 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:22 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:22 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:22 | C8I0414 | CI82103 |
| **Aroclor 1254** | **0.3** (0.07) | | 8082A | | 1 | 09/22/18 17:22 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:22 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:22 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.07) | | 8082A | | 1 | 09/22/18 17:22 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *80 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *73 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *82 %* | | *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-377-091918 6ft
Date Sampled: 09/19/18 14:06
Percent Solids: 86
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 17:42 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 17:42 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 17:42 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 17:42 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 17:42 | C8I0414 | CI82103 |
| **Aroclor 1254** | **0.4** (0.06) | | 8082A | | 1 | 09/22/18 17:42 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 17:42 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 17:42 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 17:42 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *88 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *67 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *89 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-378-091918 6ft
Date Sampled: 09/19/18 13:07
Percent Solids: 82
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 18:01 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 18:01 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 18:01 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 18:01 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 18:01 | C8I0414 | CI82103 |
| **Aroclor 1254** | **4.1** (0.6) | | 8082A | | 10 | 09/24/18 11:35 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 18:01 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 18:01 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 18:01 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *85 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *101 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *83 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-379-091918 6ft
Date Sampled: 09/19/18 13:08
Percent Solids: 86
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:16 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:16 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:16 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:16 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:16 | C8I0414 | CI82103 |
| **Aroclor 1254** | **7.3** (0.6) | | 8082A | | 10 | 09/24/18 11:54 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:16 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:16 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:16 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *89 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *82 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *132 %* | | *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-380-091918 6ft
Date Sampled: 09/19/18 13:13
Percent Solids: 88
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.9) | | 8082A | | 50 | 09/24/18 12:13 | C8I0431 | CI82103 |
| Aroclor 1221 | ND (2.9) | | 8082A | | 50 | 09/24/18 12:13 | C8I0431 | CI82103 |
| Aroclor 1232 | ND (2.9) | | 8082A | | 50 | 09/24/18 12:13 | C8I0431 | CI82103 |
| Aroclor 1242 | ND (2.9) | | 8082A | | 50 | 09/24/18 12:13 | C8I0431 | CI82103 |
| Aroclor 1248 | ND (2.9) | | 8082A | | 50 | 09/24/18 12:13 | C8I0431 | CI82103 |
| **Aroclor 1254** | **21.5** (2.9) | | 8082A | | 50 | 09/24/18 12:13 | C8I0431 | CI82103 |
| Aroclor 1260 | ND (2.9) | | 8082A | | 50 | 09/24/18 12:13 | C8I0431 | CI82103 |
| Aroclor 1262 | ND (2.9) | | 8082A | | 50 | 09/24/18 12:13 | C8I0431 | CI82103 |
| Aroclor 1268 | ND (2.9) | | 8082A | | 50 | 09/24/18 12:13 | C8I0431 | CI82103 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-381-091918 6ft
Date Sampled: 09/19/18 13:13
Percent Solids: 77
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.3) | | 8082A | | 50 | 09/24/18 12:32 | C8I0431 | CI82103 |
| Aroclor 1221 | ND (3.3) | | 8082A | | 50 | 09/24/18 12:32 | C8I0431 | CI82103 |
| Aroclor 1232 | ND (3.3) | | 8082A | | 50 | 09/24/18 12:32 | C8I0431 | CI82103 |
| Aroclor 1242 | ND (3.3) | | 8082A | | 50 | 09/24/18 12:32 | C8I0431 | CI82103 |
| Aroclor 1248 | ND (3.3) | | 8082A | | 50 | 09/24/18 12:32 | C8I0431 | CI82103 |
| **Aroclor 1254** | **22.8** (3.3) | | 8082A | | 50 | 09/24/18 12:32 | C8I0431 | CI82103 |
| Aroclor 1260 | ND (3.3) | | 8082A | | 50 | 09/24/18 12:32 | C8I0431 | CI82103 |
| Aroclor 1262 | ND (3.3) | | 8082A | | 50 | 09/24/18 12:32 | C8I0431 | CI82103 |
| Aroclor 1268 | ND (3.3) | | 8082A | | 50 | 09/24/18 12:32 | C8I0431 | CI82103 |

| | *%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-386-091918 6ft
Date Sampled: 09/19/18 14:00
Percent Solids: 83
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:13 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:13 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:13 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:13 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:13 | C8I0414 | CI82103 |
| **Aroclor 1254 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 09/22/18 21:13 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:13 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:13 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:13 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *124 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *95 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *95 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-387-091918 6ft
Date Sampled: 09/19/18 14:01
Percent Solids: 82
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:33 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:33 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:33 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:33 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:33 | C8I0414 | CI82103 |
| **Aroclor 1254** | **0.6** (0.06) | | 8082A | | 1 | 09/22/18 21:33 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:33 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:33 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:33 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *95 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *93 %* | | *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-388-091918 6ft
Date Sampled: 09/19/18 13:14
Percent Solids: 83
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:52 | C8I0414 | CI82103 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:52 | C8I0414 | CI82103 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:52 | C8I0414 | CI82103 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:52 | C8I0414 | CI82103 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:52 | C8I0414 | CI82103 |
| **Aroclor 1254** | **6.2** (0.6) | | 8082A | | 10 | 09/24/18 12:51 | C8I0414 | CI82103 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:52 | C8I0414 | CI82103 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:52 | C8I0414 | CI82103 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 21:52 | C8I0414 | CI82103 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *129 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *122 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *83 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-389-091918 6ft
Date Sampled: 09/19/18 13:15
Percent Solids: 83
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809506
ESS Laboratory Sample ID: 1809506-20
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:06

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/24/18 13:11 | C8I0431 | CI82103 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/24/18 13:11 | C8I0431 | CI82103 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/24/18 13:11 | C8I0431 | CI82103 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/24/18 13:11 | C8I0431 | CI82103 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/24/18 13:11 | C8I0431 | CI82103 |
| **Aroclor 1254** | **8.7** (1.2) | | 8082A | | 20 | 09/24/18 13:11 | C8I0431 | CI82103 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/24/18 13:11 | C8I0431 | CI82103 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/24/18 13:11 | C8I0431 | CI82103 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/24/18 13:11 | C8I0431 | CI82103 |

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809506

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82103 - 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* | *0.0240* | | mg/kg wet | *0.02500* | | *96* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0202* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0220* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0222* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 94 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 86 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 86 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0246* | | mg/kg wet | *0.02500* | | *98* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0206* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0224* | | mg/kg wet | *0.02500* | | *90* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0216* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 96 | 40-140 | 3 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | 2 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 2 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | 1 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0246* | | mg/kg wet | *0.02500* | | *98* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0207* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0229* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0221* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| **Matrix Spike** **Source: 1809506-04** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809506

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82103 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.6 | 0.06 | mg/kg dry | 0.5650 | ND | 104 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.06 | mg/kg dry | 0.5650 | ND | 93 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.06 | mg/kg dry | 0.5650 | ND | 90 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.06 | mg/kg dry | 0.5650 | ND | 87 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0249* | | mg/kg dry | *0.02825* | | *88* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0229* | | mg/kg dry | *0.02825* | | *81* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0271* | | mg/kg dry | *0.02825* | | *96* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0267* | | mg/kg dry | *0.02825* | | *94* | *30-150* | | | |
| **Matrix Spike Dup Source: 1809506-04** | | | | | | | | | | |
| Aroclor 1016 | 0.6 | 0.06 | mg/kg dry | 0.5650 | ND | 115 | 40-140 | 10 | 30 | |
| Aroclor 1016 [2C] | 0.6 | 0.06 | mg/kg dry | 0.5650 | ND | 104 | 40-140 | 12 | 30 | |
| Aroclor 1260 | 0.6 | 0.06 | mg/kg dry | 0.5650 | ND | 100 | 40-140 | 11 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.06 | mg/kg dry | 0.5650 | ND | 97 | 40-140 | 11 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0259* | | mg/kg dry | *0.02825* | | *92* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0240* | | mg/kg dry | *0.02825* | | *85* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0288* | | mg/kg dry | *0.02825* | | *102* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0284* | | mg/kg dry | *0.02825* | | *101* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809506

**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: 1809506

**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: 1809506
Date Received: 9/19/2018
Project Due Date: 9/21/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 13.1 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 / NA
    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? Aaron Date: 9/20/18 Time: PM By: ML

Moved sample -04 w/ MS/MSD to this job from 1809507.
Moved sample -04 from this w/o to 1809507.

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 268281 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| ~~01~~ | ~~268471~~ | ~~Yes~~ | ~~NA~~ | ~~Yes~~ | ~~4 oz. Jar - Unpres~~ | ~~NP~~ | Unused label 9/20/18 |
| ~~01~~ | ~~268472~~ | ~~Yes~~ | ~~NA~~ | ~~Yes~~ | ~~4 oz. Jar - Unpres~~ | ~~NP~~ | |
| 02 | 268280 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 268279 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 268278 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 268469 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | Added for MS/MSD 9/20/18 |
| 04 | 268470 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 268277 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 268276 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 268275 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 268274 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 268273 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 268272 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 268271 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 268270 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 268269 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 268268 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 268267 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 268266 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 268265 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 268264 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 268263 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 20 | 268262 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809506
Date Received: 9/19/2018

**2nd Review**

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

Completed By: Date & Time: 9/20/18 13:30

Reviewed By: Date & Time: 9/21/18 1335

Delivered By:

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

Shipped/Delivered Via: Client

ESS Project ID: 1809506
Date Received: 9/19/2018
Project Due Date: 9/21/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 13.1 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 | 268281 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 268280 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 268279 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 268278 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 268277 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 268276 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 268275 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 268274 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 268273 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 268272 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 268271 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 268270 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 268269 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 268268 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 268267 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 268266 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 268265 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 268264 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 268263 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 20 | 268262 | 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: 1809506

Date Received: 9/19/2018

Are all necessary stickers attached? Yes / No

Completed By: _____ Date & Time: 9/19/18 2034

Reviewed By: _____ Date & Time: 9/19/18 2043

Delivered By: _____ 9/19/18 2043

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 # 1809506

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

Reporting Limits: See note 1
Electonic Deliverables: [X] Limit Checker [X] Standard Excel [ ] Other (Please Specify →)

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BAJF Cranston |

| Contact Person | Address |
|---|---|
| Aaron Ting | 112 Water St, 5th floor |

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

| Telephone Number | FAX Number | Email Address |
|---|---|---|
| 978-577-7138 | — | ating@aei.consultants.com |

Analysis: PCBs (Soxlet)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID |
|---|---|---|---|---|---|
| 1 | [illegible] | [illegible] | G | [illegible] | B-355-091918(6') |
| 2 | ↓ | 1140 | ↓ | ↓ | B-364-091918(6') |
| 3 | ↓ | 1122 | ↓ | ↓ | B-365-091918(6') |
| ~~4~~ | ↓ | ~~1106~~ | ↓ | ↓ | ~~B-366-091918(6')~~ |
| 5 | ↓ | 1108 | ↓ | ↓ | B-367-091918(6') |
| 6 | ↓ | 1255 | ↓ | ↓ | B-368-091918(6') |
| 7 | ↓ | 1305 | ↓ | ↓ | B-369-091918(6') |
| 8 | ↓ | 1122 | ↓ | ↓ | B-370-091918(6') |
| 9 | ↓ | 1256 | ↓ | ↓ | B-368N-091918(6') |
| 10 | ↓ | 1405 | ↓ | ↓ | B-375-091918(6') |

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

**Laboratory Use Only**
Cooler Present: [signature]
Seals Intact: [signature]
Cooler Temperature: 13 °C

Sampled by: JD

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) |
|---|---|---|---|
| [signature] 9/19/18 1631 | [signature] 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

Rev 1 of 4 9/20/18 [initials]

1809506

**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 # ~~1809507~~

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

Reporting Limits See note 1
Electonic Deliverables ☑Limit Checker ☒Standard Excel ☐Other (Please Specify →)

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

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs Soxhlet |
|---|---|---|---|---|---|---|
| ~~2~~ | ~~9/19/18~~ | ~~15:32~~ | ~~G~~ | ~~S~~ | ~~B-393-091918-1(1')~~ | ~~X~~ |
| 4 | 9/19/18 | 15:32 | G | S | B-393-091918(1') 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:

**Laboratory Use Only**
Cooler Present: Y
Seals Intact: Y
Cooler Temperature: 3.1 °C

Sampled by:
Comments: Please specify "Other" preservative and containers types in this space
Please includ in same lab report as B-393-091918(1')

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| Joseph D Dion 9/19/18 1631 | 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

Rev 2 of 4
9/20/18

1809506

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# CHAIN OF CUSTODY

ESS Lab # ~~1809507~~

Turn Time Rush 48hr

Regulatory State RI

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

Reporting Limits See note 1

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

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BASF Cranston |

| Contact Person | Address |
|---|---|
| Aaron Ting | 112 Water St, 5th floor |

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

| Telephone Number | FAX Number | Email Address |
|---|---|---|
| 978-577-7138 | — | ating@aei consultants.com |

Analysis: PCBs (Soxhlet)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| ~~1~~ | ~~9/19/18~~ | ~~1354~~ | ~~G~~ | ~~S~~ | ~~B-411-091918 (6')~~ | ~~X~~ |
| | ~~9/19/18~~ | ~~1050~~ | | | ~~B-342-091918-1 (6')~~ | |
| | ~~9/19/18~~ | ~~1043~~ | | | ~~B-336-091918-1 (6')~~ | |
| | ~~9/19/18~~ | ~~1405~~ | | | ~~B-375-091918-1 (6')~~ | |
| ~~2~~ | ~~9/19/18~~ | ~~1530~~ | | | ~~B-372-091918 (1')~~ | ~~X~~ |
| ~~3~~ | ~~9/19/18~~ | ~~1531~~ | | | ~~B-383-091918 (1')~~ | ~~X~~ |
| 4 | 9/19/18 | 1532 | | | B-393-091918 (1') | X |

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

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

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

Number of Containers per Sample:

Laboratory Use Only

Cooler Present: Y

Seals Intact: M

Cooler Temperature: 13.1 °C

Sampled by: JD

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 [signature] 9/19/18 1631 | [signature] 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

Rev 3 of 4
9/20/18

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# 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 #: 1809586
Reporting Limits: See note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BASF Cranston |

| Contact Person | Address |
|---|---|
| Aaron Ting | 112 Water St, 5th floor |

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

| Telephone Number | FAX Number | Email Address |
|---|---|---|
| 978-577-7138 | — | ating@aei consultants.com |

Analysis: PCBs (Soxhlet)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID |
|---|---|---|---|---|---|
| 11 | 9/19/18 | 1300 | G | S | B-376-091918(6') |
| 12 | ↓ | 1301 | ↓ | ↓ | B-377-091918(6') |
| 13 | ↓ | 1307 | ↓ | ↓ | B-378-091918(6') |
| 14 | ↓ | 1308 | ↓ | ↓ | B-379-091918(6') |
| 15 | ↓ | 1313 | ↓ | ↓ | B-380-091918(6') |
| 16 | ↓ | 1313 | ↓ | ↓ | B-381-091918(6') |
| 17 | ↓ | 1400 | ↓ | ↓ | B-386-091918(6') |
| 18 | ↓ | 1401 | ↓ | ↓ | B-387-091918(6') |
| 19 | ↓ | 1314 | ↓ | ↓ | B-388-091918(6') |
| 20 | ↓ | 1315 | ↓ | ↓ | B-389-091918(6') |

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

Laboratory Use Only
Cooler Present: Y
Seals Intact: No
Cooler Temperature: 3.1 °C

Sampled by: JD
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 Tim 9/19/18 1631 | 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

Rev 4 of 4 9/20/18

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# CHAIN OF CUSTODY

ESS Lab # 1809506

Turn Time Rush 48hr

Regulatory State RI

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

Reporting Limits See note 1

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

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BAJF Cranston |

| Contact Person | Address |
|---|---|
| Aaron Ting | 112 Water St, 5th floor |

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

| Telephone Number | FAX Number | Email Address |
|---|---|---|
| 978-577-7138 | — | ating@aei.consultants.com |

Analysis: PCBs (Suxelet)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCBs (Suxelet) |
|---|---|---|---|---|---|---|
| 1 | 9/19/18 | 1100 | G | S | B-355-091918(6') | |
| 2 | | 1140 | | | B-364-091918(6') | |
| 3 | | 1122 | | | B-365-091918(6') | |
| 4 | | 1106 | | | B-366-091918(6') | |
| 5 | | 1108 | | | B-367-091918(6') | |
| 6 | | 1255 | | | B-368-091918(6') | |
| 7 | | 1305 | | | B-369-091918(6') | |
| 8 | | 1122 | | | B-370-091918(6') | |
| 9 | | 1256 | | | B-368N-091918(6') | |
| 10 | | 1405 | | | B-375-091918(6') | |

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

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

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

Number of Containers per Sample:

**Laboratory Use Only**

Cooler Present: Y

Seals Intact: Y

Cooler Temperature: 13.1 °C

Sampled by : JD

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) |
|---|---|---|---|
| [signature] 9/19/18 1631 | [signature] 9/19/18 1637 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

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# CHAIN OF CUSTODY

| | |
|---|---|
| Turn Time | Rush 48hr |
| Regulatory State | RI |
| Is this project for any of the following?: | ○CT RCP ○MA MCP ○RGP |
| ESS Lab # | 1809506 |
| Reporting Limits | See note 1 |
| Electonic Deliverables | ☒Limit Checker ☒Standard Excel ☐Other (Please Specify →) |

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BASF Cranston |

| Contact Person | Address |
|---|---|
| Aaron Ting | 112 Water St, 5th floor |

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

| Telephone Number | FAX Number | Email Address |
|---|---|---|
| 978-577-7138 | — | ating@aei.consultants.com |

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 11 | 9/19/18 | 1406 | G | S | B-376-091918(6') | |
| 12 | | 1406 | | | B-377-091918(6') | |
| 13 | | 1307 | | | B-378-091918(6') | |
| 14 | | 1308 | | | B-379-091918(6') | |
| 15 | | 1313 | | | B-380-091918(6') | |
| 16 | | 1313 | | | B-381-091918(6') | |
| 17 | | 1400 | | | B-386-091918(6') | |
| 18 | | 1401 | | | B-387-091918(6') | |
| 19 | | 1314 | | | B-388-091918(6') | |
| 20 | | 1315 | | | B-389-091918(6') | |

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

**Laboratory Use Only**
Cooler Present: Y
Seals Intact: No
Cooler Temperature: 13.1 °C

Sampled by: JD
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) |
|---|---|---|---|
| [signature] 9/19/18 1631 | [signature] 9/19/18 1632 | | |
| 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: 1809507**

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 4:49 pm, Oct 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: 1809507

## SAMPLE RECEIPT

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

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

**Revision 1 October 2, 2018: This report has been revised to include corrected client sample ID's for 1809507-03 and 1809507-04.**

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809507-01 | B-411-091918 6ft | Soil | 8082A |
| 1809507-02 | B-372-091918 1ft | Soil | 8082A |
| 1809507-03 | B-330-091918 6ft | Soil | 8082A |
| 1809507-04 | B-366-091918 6ft | Soil | 8082A |
| 1809507-05 | B-372-091918-1 1ft | Soil | 8082A |
| 1809507-06 | B-383-091918-1 1ft | Soil | 8082A |
| 1809507-07 | B-393-091918-1 1ft | Soil | 8082A |
| 1809507-08 | B-342-091918-1 6ft | Soil | 8082A |
| 1809507-09 | B-390-091918 6ft | Soil | 8082A |
| 1809507-10 | B-391-091918 6ft | Soil | 8082A |
| 1809507-11 | B-397-091918 6ft | Soil | 8082A |
| 1809507-12 | B-398-091918 6ft | Soil | 8082A |
| 1809507-13 | B-399-091918 6ft | Soil | 8082A |
| 1809507-14 | B-400-091918 6ft | Soil | 8082A |
| 1809507-15 | B-401-091918 6ft | Soil | 8082A |
| 1809507-16 | B-408-091918 6ft | Soil | 8082A |
| 1809507-17 | B-409-091918 6ft | Soil | 8082A |
| 1809507-18 | B-410-091918 6ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809507

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809507-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809507-10 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809507-14 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809507-15 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809507-16 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809507-17 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809507-18 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

C8I0430-CCV3 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Decachlorobiphenyl (31% @ 20%)

**No other observations noted.**

**End of Project Narrative.**

## DATA USABILITY LINKS

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

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809507

## CURRENT SW-846 METHODOLOGY VERSIONS

**Analytical Methods**

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

**Prep Methods**

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-411-091918 6ft
Date Sampled: 09/19/18 13:54
Percent Solids: 75
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.07) | | 8082A | | 1 | 09/22/18 16:02 | C8I0413 | CI82104 |
| Aroclor 1221 | ND (0.07) | | 8082A | | 1 | 09/22/18 16:02 | C8I0413 | CI82104 |
| Aroclor 1232 | ND (0.07) | | 8082A | | 1 | 09/22/18 16:02 | C8I0413 | CI82104 |
| Aroclor 1242 | ND (0.07) | | 8082A | | 1 | 09/22/18 16:02 | C8I0413 | CI82104 |
| Aroclor 1248 | ND (0.07) | | 8082A | | 1 | 09/22/18 16:02 | C8I0413 | CI82104 |
| **Aroclor 1254 [2C]** | **8.2** (0.7) | | 8082A | | 10 | 09/24/18 10:03 | C8I0413 | CI82104 |
| Aroclor 1260 | ND (0.07) | | 8082A | | 1 | 09/22/18 16:02 | C8I0413 | CI82104 |
| Aroclor 1262 | ND (0.07) | | 8082A | | 1 | 09/22/18 16:02 | C8I0413 | CI82104 |
| Aroclor 1268 | ND (0.07) | | 8082A | | 1 | 09/22/18 16:02 | C8I0413 | CI82104 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *72 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *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-372-091918 1ft
Date Sampled: 09/19/18 15:30
Percent Solids: 96
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/22/18 16:21 | C8I0413 | CI82104 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/22/18 16:21 | C8I0413 | CI82104 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/22/18 16:21 | C8I0413 | CI82104 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/22/18 16:21 | C8I0413 | CI82104 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/22/18 16:21 | C8I0413 | CI82104 |
| **Aroclor 1254** | **0.5** (0.05) | | 8082A | | 1 | 09/22/18 16:21 | C8I0413 | CI82104 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/22/18 16:21 | C8I0413 | CI82104 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/22/18 16:21 | C8I0413 | CI82104 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/22/18 16:21 | C8I0413 | CI82104 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *92 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *108 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *101 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-330-091918 6ft
Date Sampled: 09/19/18 15:31
Percent Solids: 91
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/22/18 17:18 | C8I0413 | CI82104 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/22/18 17:18 | C8I0413 | CI82104 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/22/18 17:18 | C8I0413 | CI82104 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/22/18 17:18 | C8I0413 | CI82104 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/22/18 17:18 | C8I0413 | CI82104 |
| **Aroclor 1254 [2C]** | **0.9** (0.05) | | 8082A | | 1 | 09/22/18 17:18 | C8I0413 | CI82104 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/22/18 17:18 | C8I0413 | CI82104 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/22/18 17:18 | C8I0413 | CI82104 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/22/18 17:18 | C8I0413 | CI82104 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *54 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *59 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *59 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *71 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-366-091918 6ft
Date Sampled: 09/19/18 15:32
Percent Solids: 53
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.09) | | 8082A | | 1 | 09/22/18 17:37 | C8I0413 | CI82104 |
| Aroclor 1221 | ND (0.09) | | 8082A | | 1 | 09/22/18 17:37 | C8I0413 | CI82104 |
| Aroclor 1232 | ND (0.09) | | 8082A | | 1 | 09/22/18 17:37 | C8I0413 | CI82104 |
| Aroclor 1242 | ND (0.09) | | 8082A | | 1 | 09/22/18 17:37 | C8I0413 | CI82104 |
| Aroclor 1248 | ND (0.09) | | 8082A | | 1 | 09/22/18 17:37 | C8I0413 | CI82104 |
| **Aroclor 1254** | **4.6** (0.5) | | 8082A | | 5 | 09/24/18 10:21 | C8I0413 | CI82104 |
| Aroclor 1260 | ND (0.09) | | 8082A | | 1 | 09/22/18 17:37 | C8I0413 | CI82104 |
| Aroclor 1262 | ND (0.09) | | 8082A | | 1 | 09/22/18 17:37 | C8I0413 | CI82104 |
| Aroclor 1268 | ND (0.09) | | 8082A | | 1 | 09/22/18 17:37 | C8I0413 | CI82104 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *78 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *85 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *70 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *81 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-372-091918-1 1ft
Date Sampled: 09/19/18 15:30
Percent Solids: 96
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/22/18 19:51 | C8I0413 | CI82104 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/22/18 19:51 | C8I0413 | CI82104 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/22/18 19:51 | C8I0413 | CI82104 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/22/18 19:51 | C8I0413 | CI82104 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/22/18 19:51 | C8I0413 | CI82104 |
| **Aroclor 1254 [2C]** | **0.6** (0.05) | | 8082A | | 1 | 09/22/18 19:51 | C8I0413 | CI82104 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/22/18 19:51 | C8I0413 | CI82104 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/22/18 19:51 | C8I0413 | CI82104 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/22/18 19:51 | C8I0413 | CI82104 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *79 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *85 %* | | *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-383-091918-1 1ft
Date Sampled: 09/19/18 15:31
Percent Solids: 97
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/22/18 20:10 | C8I0413 | CI82104 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/22/18 20:10 | C8I0413 | CI82104 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/22/18 20:10 | C8I0413 | CI82104 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/22/18 20:10 | C8I0413 | CI82104 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/22/18 20:10 | C8I0413 | CI82104 |
| **Aroclor 1254 [2C]** | **0.9** (0.05) | | 8082A | | 1 | 09/22/18 20:10 | C8I0413 | CI82104 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/22/18 20:10 | C8I0413 | CI82104 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/22/18 20:10 | C8I0413 | CI82104 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/22/18 20:10 | C8I0413 | CI82104 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *86 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *97 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-393-091918-1 1ft
Date Sampled: 09/19/18 15:32
Percent Solids: 92
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:29 | C8I0413 | CI82104 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:29 | C8I0413 | CI82104 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:29 | C8I0413 | CI82104 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:29 | C8I0413 | CI82104 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:29 | C8I0413 | CI82104 |
| **Aroclor 1254 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 09/22/18 20:29 | C8I0413 | CI82104 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:29 | C8I0413 | CI82104 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:29 | C8I0413 | CI82104 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:29 | C8I0413 | CI82104 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *75 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *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-342-091918-1 6ft
Date Sampled: 09/19/18 00:00
Percent Solids: 85
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:48 | C8I0413 | CI82104 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:48 | C8I0413 | CI82104 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:48 | C8I0413 | CI82104 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:48 | C8I0413 | CI82104 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:48 | C8I0413 | CI82104 |
| **Aroclor 1254 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 09/22/18 20:48 | C8I0413 | CI82104 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:48 | C8I0413 | CI82104 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:48 | C8I0413 | CI82104 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 20:48 | C8I0413 | CI82104 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *80 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *90 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *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-390-091918 6ft
Date Sampled: 09/19/18 13:20
Percent Solids: 81
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.3) | | 8082A | | 20 | 09/24/18 10:40 | C8I0430 | CI82104 |
| Aroclor 1221 | ND (1.3) | | 8082A | | 20 | 09/24/18 10:40 | C8I0430 | CI82104 |
| Aroclor 1232 | ND (1.3) | | 8082A | | 20 | 09/24/18 10:40 | C8I0430 | CI82104 |
| Aroclor 1242 | ND (1.3) | | 8082A | | 20 | 09/24/18 10:40 | C8I0430 | CI82104 |
| Aroclor 1248 | ND (1.3) | | 8082A | | 20 | 09/24/18 10:40 | C8I0430 | CI82104 |
| **Aroclor 1254 [2C]** | **10.2** (1.3) | | 8082A | | 20 | 09/24/18 10:40 | C8I0430 | CI82104 |
| Aroclor 1260 | ND (1.3) | | 8082A | | 20 | 09/24/18 10:40 | C8I0430 | CI82104 |
| Aroclor 1262 | ND (1.3) | | 8082A | | 20 | 09/24/18 10:40 | C8I0430 | CI82104 |
| Aroclor 1268 | ND (1.3) | | 8082A | | 20 | 09/24/18 10:40 | C8I0430 | CI82104 |

| | %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-391-091918 6ft
Date Sampled: 09/19/18 13:21
Percent Solids: 71
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.4) | | 8082A | | 20 | 09/24/18 10:59 | C8I0430 | CI82104 |
| Aroclor 1221 | ND (1.4) | | 8082A | | 20 | 09/24/18 10:59 | C8I0430 | CI82104 |
| Aroclor 1232 | ND (1.4) | | 8082A | | 20 | 09/24/18 10:59 | C8I0430 | CI82104 |
| Aroclor 1242 | ND (1.4) | | 8082A | | 20 | 09/24/18 10:59 | C8I0430 | CI82104 |
| Aroclor 1248 | ND (1.4) | | 8082A | | 20 | 09/24/18 10:59 | C8I0430 | CI82104 |
| **Aroclor 1254 [2C]** | **12.7** (1.4) | | 8082A | | 20 | 09/24/18 10:59 | C8I0430 | CI82104 |
| Aroclor 1260 | ND (1.4) | | 8082A | | 20 | 09/24/18 10:59 | C8I0430 | CI82104 |
| Aroclor 1262 | ND (1.4) | | 8082A | | 20 | 09/24/18 10:59 | C8I0430 | CI82104 |
| Aroclor 1268 | ND (1.4) | | 8082A | | 20 | 09/24/18 10:59 | C8I0430 | CI82104 |

| | *%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-397-091918 6ft
Date Sampled: 09/19/18 14:02
Percent Solids: 78
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.07) | | 8082A | | 1 | 09/22/18 21:45 | C8I0413 | CI82104 |
| Aroclor 1221 | ND (0.07) | | 8082A | | 1 | 09/22/18 21:45 | C8I0413 | CI82104 |
| Aroclor 1232 | ND (0.07) | | 8082A | | 1 | 09/22/18 21:45 | C8I0413 | CI82104 |
| Aroclor 1242 | ND (0.07) | | 8082A | | 1 | 09/22/18 21:45 | C8I0413 | CI82104 |
| Aroclor 1248 | ND (0.07) | | 8082A | | 1 | 09/22/18 21:45 | C8I0413 | CI82104 |
| **Aroclor 1254 [2C]** | **0.6** (0.07) | | 8082A | | 1 | 09/22/18 21:45 | C8I0413 | CI82104 |
| Aroclor 1260 | ND (0.07) | | 8082A | | 1 | 09/22/18 21:45 | C8I0413 | CI82104 |
| Aroclor 1262 | ND (0.07) | | 8082A | | 1 | 09/22/18 21:45 | C8I0413 | CI82104 |
| Aroclor 1268 | ND (0.07) | | 8082A | | 1 | 09/22/18 21:45 | C8I0413 | CI82104 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *65 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *149 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *87 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-398-091918 6ft
Date Sampled: 09/19/18 13:34
Percent Solids: 81
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/22/18 22:04 | C8I0413 | CI82104 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/22/18 22:04 | C8I0413 | CI82104 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/22/18 22:04 | C8I0413 | CI82104 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/22/18 22:04 | C8I0413 | CI82104 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/22/18 22:04 | C8I0413 | CI82104 |
| **Aroclor 1254 [2C]** | **4.6** (0.6) | | 8082A | | 10 | 09/24/18 11:18 | C8I0413 | CI82104 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/22/18 22:04 | C8I0413 | CI82104 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/22/18 22:04 | C8I0413 | CI82104 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/22/18 22:04 | C8I0413 | CI82104 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *69 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *75 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *72 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *89 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-399-091918 6ft
Date Sampled: 09/19/18 13:35
Percent Solids: 76
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.07) | | 8082A | | 1 | 09/22/18 22:23 | C8I0413 | CI82104 |
| Aroclor 1221 | ND (0.07) | | 8082A | | 1 | 09/22/18 22:23 | C8I0413 | CI82104 |
| Aroclor 1232 | ND (0.07) | | 8082A | | 1 | 09/22/18 22:23 | C8I0413 | CI82104 |
| Aroclor 1242 | ND (0.07) | | 8082A | | 1 | 09/22/18 22:23 | C8I0413 | CI82104 |
| Aroclor 1248 | ND (0.07) | | 8082A | | 1 | 09/22/18 22:23 | C8I0413 | CI82104 |
| **Aroclor 1254 [2C]** | **7.4** (0.7) | | 8082A | | 10 | 09/24/18 11:37 | C8I0413 | CI82104 |
| Aroclor 1260 | ND (0.07) | | 8082A | | 1 | 09/22/18 22:23 | C8I0413 | CI82104 |
| Aroclor 1262 | ND (0.07) | | 8082A | | 1 | 09/22/18 22:23 | C8I0413 | CI82104 |
| Aroclor 1268 | ND (0.07) | | 8082A | | 1 | 09/22/18 22:23 | C8I0413 | CI82104 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *80 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *85 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *66 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *74 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-400-091918 6ft
Date Sampled: 09/19/18 13:30
Percent Solids: 83
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/24/18 11:56 | C8I0430 | CI82104 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/24/18 11:56 | C8I0430 | CI82104 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/24/18 11:56 | C8I0430 | CI82104 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/24/18 11:56 | C8I0430 | CI82104 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/24/18 11:56 | C8I0430 | CI82104 |
| **Aroclor 1254 [2C]** | **11.6** (1.2) | | 8082A | | 20 | 09/24/18 11:56 | C8I0430 | CI82104 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/24/18 11:56 | C8I0430 | CI82104 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/24/18 11:56 | C8I0430 | CI82104 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/24/18 11:56 | C8I0430 | CI82104 |

| | *%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-401-091918 6ft
Date Sampled: 09/19/18 13:30
Percent Solids: 74
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.4) | | 8082A | | 20 | 09/24/18 12:15 | C8I0430 | CI82104 |
| Aroclor 1221 | ND (1.4) | | 8082A | | 20 | 09/24/18 12:15 | C8I0430 | CI82104 |
| Aroclor 1232 | ND (1.4) | | 8082A | | 20 | 09/24/18 12:15 | C8I0430 | CI82104 |
| Aroclor 1242 | ND (1.4) | | 8082A | | 20 | 09/24/18 12:15 | C8I0430 | CI82104 |
| Aroclor 1248 | ND (1.4) | | 8082A | | 20 | 09/24/18 12:15 | C8I0430 | CI82104 |
| **Aroclor 1254 [2C]** | **10.3** (1.4) | | 8082A | | 20 | 09/24/18 12:15 | C8I0430 | CI82104 |
| Aroclor 1260 | ND (1.4) | | 8082A | | 20 | 09/24/18 12:15 | C8I0430 | CI82104 |
| Aroclor 1262 | ND (1.4) | | 8082A | | 20 | 09/24/18 12:15 | C8I0430 | CI82104 |
| Aroclor 1268 | ND (1.4) | | 8082A | | 20 | 09/24/18 12:15 | C8I0430 | CI82104 |

| | %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-408-091918 6ft
Date Sampled: 09/19/18 13:46
Percent Solids: 82
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/24/18 12:34 | C8I0430 | CI82104 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/24/18 12:34 | C8I0430 | CI82104 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/24/18 12:34 | C8I0430 | CI82104 |
| **Aroclor 1242** | **9.0** (1.2) | | 8082A | | 20 | 09/24/18 12:34 | C8I0430 | CI82104 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/24/18 12:34 | C8I0430 | CI82104 |
| **Aroclor 1254** | **4.7** (1.2) | | 8082A | | 20 | 09/24/18 12:34 | C8I0430 | CI82104 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/24/18 12:34 | C8I0430 | CI82104 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/24/18 12:34 | C8I0430 | CI82104 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/24/18 12:34 | C8I0430 | CI82104 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-409-091918 6ft
Date Sampled: 09/19/18 13:46
Percent Solids: 83
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.3) | | 8082A | | 20 | 09/24/18 12:53 | C8I0430 | CI82104 |
| Aroclor 1221 | ND (1.3) | | 8082A | | 20 | 09/24/18 12:53 | C8I0430 | CI82104 |
| Aroclor 1232 | ND (1.3) | | 8082A | | 20 | 09/24/18 12:53 | C8I0430 | CI82104 |
| Aroclor 1242 | ND (1.3) | | 8082A | | 20 | 09/24/18 12:53 | C8I0430 | CI82104 |
| Aroclor 1248 | ND (1.3) | | 8082A | | 20 | 09/24/18 12:53 | C8I0430 | CI82104 |
| **Aroclor 1254 [2C]** | **9.0** (1.3) | | 8082A | | 20 | 09/24/18 12:53 | C8I0430 | CI82104 |
| Aroclor 1260 | ND (1.3) | | 8082A | | 20 | 09/24/18 12:53 | C8I0430 | CI82104 |
| Aroclor 1262 | ND (1.3) | | 8082A | | 20 | 09/24/18 12:53 | C8I0430 | CI82104 |
| Aroclor 1268 | ND (1.3) | | 8082A | | 20 | 09/24/18 12:53 | C8I0430 | CI82104 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-410-091918 6ft
Date Sampled: 09/19/18 13:54
Percent Solids: 81
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809507
ESS Laboratory Sample ID: 1809507-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/21/18 15:23

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.3) | | 8082A | | 20 | 09/24/18 13:12 | C8I0430 | CI82104 |
| Aroclor 1221 | ND (1.3) | | 8082A | | 20 | 09/24/18 13:12 | C8I0430 | CI82104 |
| Aroclor 1232 | ND (1.3) | | 8082A | | 20 | 09/24/18 13:12 | C8I0430 | CI82104 |
| Aroclor 1242 | ND (1.3) | | 8082A | | 20 | 09/24/18 13:12 | C8I0430 | CI82104 |
| Aroclor 1248 | ND (1.3) | | 8082A | | 20 | 09/24/18 13:12 | C8I0430 | CI82104 |
| **Aroclor 1254 [2C]** | **10.3** (1.3) | | 8082A | | 20 | 09/24/18 13:12 | C8I0430 | CI82104 |
| Aroclor 1260 | ND (1.3) | | 8082A | | 20 | 09/24/18 13:12 | C8I0430 | CI82104 |
| Aroclor 1262 | ND (1.3) | | 8082A | | 20 | 09/24/18 13:12 | C8I0430 | CI82104 |
| Aroclor 1268 | ND (1.3) | | 8082A | | 20 | 09/24/18 13:12 | C8I0430 | CI82104 |

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809507

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82104 - 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* | *0.0205* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0221* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0210* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0248* | | mg/kg wet | *0.02500* | | *99* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 89 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 89 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 82 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 85 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0196* | | mg/kg wet | *0.02500* | | *79* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0218* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0216* | | mg/kg wet | *0.02500* | | *86* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0228* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 2 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 1 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 85 | 40-140 | 3 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | 2 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0202* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0227* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0212* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0223* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| **Matrix Spike** **Source: 1809507-02** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809507

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82104 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.6 | 0.05 | mg/kg dry | 0.5418 | ND | 116 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.6 | 0.05 | mg/kg dry | 0.5418 | ND | 105 | 40-140 | | | |
| Aroclor 1260 | 0.6 | 0.05 | mg/kg dry | 0.5418 | ND | 118 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.7 | 0.05 | mg/kg dry | 0.5418 | ND | 134 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0234* | | mg/kg dry | *0.02709* | | *86* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0251* | | mg/kg dry | *0.02709* | | *93* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0264* | | mg/kg dry | *0.02709* | | *97* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0281* | | mg/kg dry | *0.02709* | | *104* | *30-150* | | | |
| **Matrix Spike Dup Source: 1809507-02** | | | | | | | | | | |
| Aroclor 1016 | 0.7 | 0.05 | mg/kg dry | 0.5390 | ND | 121 | 40-140 | 4 | 30 | |
| Aroclor 1016 [2C] | 0.6 | 0.05 | mg/kg dry | 0.5390 | ND | 110 | 40-140 | 4 | 30 | |
| Aroclor 1260 | 0.7 | 0.05 | mg/kg dry | 0.5390 | ND | 125 | 40-140 | 5 | 30 | |
| Aroclor 1260 [2C] | 0.7 | 0.05 | mg/kg dry | 0.5390 | ND | 136 | 40-140 | 1 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0232* | | mg/kg dry | *0.02695* | | *86* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0251* | | mg/kg dry | *0.02695* | | *93* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0272* | | mg/kg dry | *0.02695* | | *101* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0293* | | mg/kg dry | *0.02695* | | *109* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809507

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809507

**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: 1809507
Date Received: 9/19/2018
Project Due Date: 9/21/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 13.1 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 / NA
    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? Naomi Date: 9/20/18 Time: AM By: ML
    Moved MS/MSD's for -03 & -04 to jobs 1809505 & 1809706.

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 268301 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 268300 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 268306 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 268307 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 268299 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| ~~03~~ | ~~268304~~ | ~~Yes~~ | ~~NA~~ | ~~Yes~~ | ~~4 oz. Jar - Unpres~~ | ~~NP~~ | Unused label & shelf |
| ~~03~~ | ~~268305~~ | ~~Yes~~ | ~~NA~~ | ~~Yes~~ | ~~4 oz. Jar - Unpres~~ | ~~NP~~ | |
| 04 | 268298 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| ~~04~~ | ~~268302~~ | ~~Yes~~ | ~~NA~~ | ~~Yes~~ | ~~4 oz. Jar - Unpres~~ | ~~NP~~ | Unused label shelf & |
| ~~04~~ | ~~268303~~ | ~~Yes~~ | ~~NA~~ | ~~Yes~~ | ~~4 oz. Jar - Unpres~~ | ~~NP~~ | |
| 05 | 268297 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 268296 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 268295 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 268294 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 268293 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 268292 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 268291 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 268290 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 268289 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 268288 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 268287 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 268286 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 268285 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 268284 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809507
Date Received: 9/19/2018

**2nd Review**

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

Completed By: _____ Date & Time: 9/20/18 13:30

Reviewed By: _____ Date & Time: 9/21/18 1335

Delivered By: _____

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

Shipped/Delivered Via: Client

ESS Project ID: 1809507
Date Received: 9/19/2018
Project Due Date: 9/21/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 13.1 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 | 268301 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 268300 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 268306 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 268307 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 268299 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 268304 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 268305 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 268298 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 268302 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 268303 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 268297 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 268296 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 268295 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 268294 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 268293 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 268292 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 268291 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 268290 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 268289 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 268288 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 268287 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 268286 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 268285 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 268284 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809507
Date Received: 9/19/2018

**2nd Review**

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

Completed By: _____ Date & Time: 9/19/18 2035
Reviewed By: _____ Date & Time: 9/19/18 2046
Delivered By: _____ 9/19/18 2046

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# CHAIN OF CUSTODY

ESS Lab # 1809507

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

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

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BWF Cranston |

| Contact Person | Address |
|---|---|
| Aaron Ting | 112 Water St, 5th floor |

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

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

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 9/19/18 | 1354 | G | S | B-411-091918 (6') | X |
| | ~~9/19/18~~ | ~~0950~~ | | | ~~B-342-091918-1 (6')~~ | |
| | ~~9/19/18~~ | ~~1007~~ | | | ~~B-336-091918-1 (6')~~ | |
| | ~~9/19/18~~ | ~~1405~~ | | | ~~B-375-091918-1 (6')~~ | |
| 2 | 9/19/18 | 1530 | | | B-372-091918 (1') | X |
| ~~3~~ | ~~9/19/18~~ | ~~1531~~ | | | ~~B-383-091918 (1')~~ | X |
| ~~4~~ | ~~9/19/18~~ | ~~1532~~ | | | ~~B-393-091918 (1')~~ | X |

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

**Laboratory Use Only**
Cooler Present: Y
Seals Intact: N
Cooler Temperature: 13.1 °C

Sampled by: JD
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) |
|---|---|---|---|
| [signature] 9/19/18 1631 | [signature] 9/19/18 1732 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

1 of 8
Rev 1/20/18

1809507

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## CHAIN OF CUSTODY

| | |
|---|---|
| ESS Lab # | ~~1809505~~ |
| Reporting Limits | See note 1 |
| Electonic Deliverables | [X] Limit Checker [X] Standard Excel [ ] Other (Please Specify →) |

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

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

Analysis: PCBs (Soxhlet)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| ~~1~~ | ~~9/19/18~~ | ~~1012~~ | ~~G~~ | ~~S~~ | ~~B-328-091918(6')~~ | X |
| ~~2~~ | | ~~1015~~ | | | ~~B-329-091918(6')~~ | X |
| 3 | | 1017 | | | B-330-091918(6') | X |
| ~~4~~ | | ~~1019~~ | | | ~~B-331-091918(6')~~ | X |
| ~~5~~ | | ~~1021~~ | | | ~~B-332-091918(6')~~ | X |
| ~~6~~ | | ~~1029~~ | | | ~~B-333-091918(6')~~ | X |
| ~~7~~ | | ~~1042~~ | | | ~~B-335-091918(6')~~ | X |
| ~~8~~ | | ~~1043~~ | | | ~~B-336-091918(6')~~ | X |
| ~~9~~ | | ~~1036~~ | | | ~~B-339-091918(6')~~ | X |
| ~~10~~ | | ~~1047~~ | | | ~~B-340-091918(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-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other*
Number of Containers per Sample:

**Laboratory Use Only**

Cooler Present: Y
Seals Intact: NA
Cooler Temperature: 13.1 °C

Sampled by: JD

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

note: See project QAPP

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| Joseph D Dr 9/19/18 1631 | [signature] 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

2 of 8
Rev 1/20/18

1809507

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# CHAIN OF CUSTODY

ESS Lab # ~~1809506~~

Turn Time Rush 48hr

Regulatory State RI

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

Reporting Limits See note 1

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

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BASF Cranston |

| Contact Person | Address |
|---|---|
| Aaron Ting | 112 Water St, 5th floor |

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

| Telephone Number | FAX Number | Email Address |
|---|---|---|
| 978-577-7138 | — | ating@aei.consultants.com |

Analysis: PCBs (Soxelet)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID |
|---|---|---|---|---|---|
| 1 | 9/19/18 | 1100 | G | S | B-355-091918(6') |
| 2 | ↓ | 1140 | ↓ | ↓ | B-364-091918(6') |
| 3 | | 1122 | | | B-365-091918(6') |
| 4 | | 1106 | | | B-366-091918(6') |
| 5 | | 1108 | | | B-367-091918(6') |
| 6 | | 1255 | | | B-368-091918(6') |
| 7 | | 1305 | | | B-369-091918(6') |
| 8 | | 1122 | | | B-370-091918(6') |
| 9 | | 1256 | | | B-368N-091918(6') |
| 10 | ↓ | 1405 | ↓ | ↓ | B-375-091918(6') |

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

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

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

Number of Containers per Sample:

**Laboratory Use Only**

Cooler Present: Y

Seals Intact: NA

Cooler Temperature: 13 °C

Sampled by: JD

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 [signature] 9/19/18 1631 | [signature] 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

3 of 8

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# CHAIN OF CUSTODY

ESS Lab # 1809507

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 | AET |
| 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@aet-consultants.com |

Analysis: PCB soxhlet

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCB soxhlet |
|---|---|---|---|---|---|---|
| 1 | 9/19/18 | 1530 | G | S | B-372-091918-1 (1') | X |
| 2 | 9/19/18 | 1530 | G | S | B-372-091918 (1') 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:

**Laboratory Use Only**
Cooler Present: Y
Seals Intact: N
Cooler Temperature: 13.1 °C

Sampled by :
Comments: Please include in same lab report as B-372-091918 (1')
Please specify "Other" preservative and containers types in this space

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| [signature] 9/19/18 1631 | [signature] 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

4 of 8
Rev 11/2/18

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# 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 # | 1809507 |
| Reporting Limits | See note 1 |
| Electonic Deliverables | ☑Limit Checker ☒Standard Excel ☐Other (Please Specify →) |

| | | | |
|---|---|---|---|
| Company Name: AEI | Project #: 363635 | Project Name: BASF Cranston | |
| Contact Person: Aaron Ting | Address: 112 Water St, 5th floor | | |
| City: Boston | State: MA | Zip Code: 02109 | PO #: — |
| Telephone Number: 978-577-7138 | FAX Number: — | Email Address: ating@aei-consultants.com | |

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCB Soxhlet |
|---|---|---|---|---|---|---|
| 6 | 9/19/18 | 1531 | G | S | B-383-091918-1 (1') | X |
| ~~3~~ | ~~9/19/18~~ | ~~1531~~ | ~~G~~ | ~~S~~ | ~~B-383-091918 (1') 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:

**Laboratory Use Only**
Cooler Present: Y
Seals Intact: Y
Cooler Temperature: 5.1 °C

Sampled by :
Comments: Please specify "Other" preservative and containers types in this space
Please include in same lab report as B-383-091918 (1')

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| Joseph D Orr 9/19/18 1631 | 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

5 of 8
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# CHAIN OF CUSTODY

| | |
|---|---|
| ESS Lab # | 1809507 |
| Turn Time | Rush 48hr |
| Regulatory State | RI |
| Reporting Limits | See note 1 |
| Is this project for any of the following?: | ○CT RCP ○MA MCP ○RGP |
| Electonic Deliverables | ☑Limit Checker ☒Standard Excel ☐Other (Please Specify →) |

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

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: SCP: Soxhlet |
|---|---|---|---|---|---|---|
| 7 | 9/19/18 | 15:32 | G | S | B-393-091918-1 (1') | X |
| ~~4~~ | ~~9/19/18~~ | ~~15:32~~ | ~~G~~ | ~~S~~ | ~~B-393-091918 (1') 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:

**Laboratory Use Only**
Cooler Present: Y
Seals Intact: Y
Cooler Temperature: 3.1 °C

Sampled by :

Comments: Please specify "Other" preservative and containers types in this space
Please includ in same lab report as B-393-091918 (1')

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| Joseph D Ting 9/19/18 1631 | 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

6 of 8
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# CHAIN OF CUSTODY

ESS Lab # 1809507

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

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

| | |
|---|---|
| Company Name | AEI |
| Contact Person | Aaron Ting |
| Project # | 363655 |
| Project Name | BAJ 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@aei.consultants.com |

Analysis

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID |
|---|---|---|---|---|---|
| 8 | 9/19/18 | | G | S | B-342-091918-1(6') |
| | | | | | ~~84~~ 90 |
| | | | | | |
| | | | | | |
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Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other*
Number of Containers per Sample:

**Laboratory Use Only**
Cooler Present: _____
Seals Intact: _____
Cooler Temperature: °C

Sampled by: JD
Comments: Please specify "Other" preservative and containers types in this space
Please include in same lab report as

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| [signature] 9/19/18 1631 | | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

7 of 8
Rev 1/20/18

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
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@aei-consultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (soxhlet) |
|---|---|---|---|---|---|---|
| 9 | 9/19/18 | 1320 | G | S | B-390-091918 (6') | |
| 10 | ↓ | 1321 | ↓ | ↓ | B-391-091918 (6') | |
| 11 | | 1402 | | | B-397-091918 (6') | |
| 12 | | 1334 | | | B-398-091918 (6') | |
| 13 | | 1335 | | | B-399-091918 (6') | |
| 14 | | 1330 | | | B-400-091918 (6') | |
| 15 | | 1330 | | | B-401-091918 (6') | |
| 16 | | 1348 | | | B-408-091918 (6') | |
| 17 | | 1346 | | | B-409-091918 (6') | |
| 18 | ↓ | 1354 | ↓ | ↓ | B-410-091918 (6') | |

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

**Laboratory Use Only**
Cooler Present: Y
Seals Intact: NA
Cooler Temperature: 17.1 °C

Sampled by: JD
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) |
|---|---|---|---|
| 9/19/18 1631 | 9/19/18 1632 | | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

8 of 8
Rev 1/10/18

*CERTIFICATE OF ANALYSIS*

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

**RE: BASF Cranston (363655)**
**ESS Laboratory Work Order Number: 1809528**

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

Laurel Stoddard
Laboratory Director

**REVIEWED**
**By ESS Laboratory at 5:46 pm, Sep 25, 2018**

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

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809528

## SAMPLE RECEIPT

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

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809528-01 | SW-389-092018-B 0-3ft | Soil | 8082A |
| 1809528-02 | B-559-092018-B 6ft | Soil | 8082A |
| 1809528-03 | B-629-092018-B 6ft | Soil | 8082A |
| 1809528-04 | SW-356-092018-A 2-6ft | Soil | 8082A |
| 1809528-05 | SW-508-092018-B 0-5ft | Soil | 8082A |
| 1809528-06 | SW-507-092018-B 0-5ft | Soil | 8082A |
| 1809528-07 | SW-506-092018-B 0-4ft | Soil | 8082A |
| 1809528-08 | SW-505-092018-A 0-4ft | Soil | 8082A |
| 1809528-09 | SW-82-092018-A 4-6ft | Soil | 8082A |
| 1809528-10 | SW-78-092018-A 4-6ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809528

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809528-01 **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%)

1809528-02 **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%)

1809528-03 **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%)

1809528-04 **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%)

1809528-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

**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: 1809528

## CURRENT SW-846 METHODOLOGY VERSIONS

**Analytical Methods**

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

**Prep Methods**

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-389-092018-B 0-3ft
Date Sampled: 09/20/18 09:10
Percent Solids: 88
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809528
ESS Laboratory Sample ID: 1809528-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.9) | | 8082A | | 50 | 09/25/18 11:25 | C8I0459 | CI82201 |
| Aroclor 1221 | ND (2.9) | | 8082A | | 50 | 09/25/18 11:25 | C8I0459 | CI82201 |
| Aroclor 1232 | ND (2.9) | | 8082A | | 50 | 09/25/18 11:25 | C8I0459 | CI82201 |
| Aroclor 1242 | ND (2.9) | | 8082A | | 50 | 09/25/18 11:25 | C8I0459 | CI82201 |
| Aroclor 1248 | ND (2.9) | | 8082A | | 50 | 09/25/18 11:25 | C8I0459 | CI82201 |
| **Aroclor 1254** | **23.6** (2.9) | | 8082A | | 50 | 09/25/18 11:25 | C8I0459 | CI82201 |
| Aroclor 1260 | ND (2.9) | | 8082A | | 50 | 09/25/18 11:25 | C8I0459 | CI82201 |
| Aroclor 1262 | ND (2.9) | | 8082A | | 50 | 09/25/18 11:25 | C8I0459 | CI82201 |
| Aroclor 1268 | ND (2.9) | | 8082A | | 50 | 09/25/18 11:25 | C8I0459 | CI82201 |

| | *%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-559-092018-B 6ft
Date Sampled: 09/20/18 10:01
Percent Solids: 88
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809528
ESS Laboratory Sample ID: 1809528-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (5.7) | | 8082A | | 100 | 09/25/18 11:42 | C8I0459 | CI82201 |
| Aroclor 1221 | ND (5.7) | | 8082A | | 100 | 09/25/18 11:42 | C8I0459 | CI82201 |
| Aroclor 1232 | ND (5.7) | | 8082A | | 100 | 09/25/18 11:42 | C8I0459 | CI82201 |
| Aroclor 1242 | ND (5.7) | | 8082A | | 100 | 09/25/18 11:42 | C8I0459 | CI82201 |
| Aroclor 1248 | ND (5.7) | | 8082A | | 100 | 09/25/18 11:42 | C8I0459 | CI82201 |
| **Aroclor 1254** | **63.6** (5.7) | | 8082A | | 100 | 09/25/18 11:42 | C8I0459 | CI82201 |
| Aroclor 1260 | ND (5.7) | | 8082A | | 100 | 09/25/18 11:42 | C8I0459 | CI82201 |
| Aroclor 1262 | ND (5.7) | | 8082A | | 100 | 09/25/18 11:42 | C8I0459 | CI82201 |
| Aroclor 1268 | ND (5.7) | | 8082A | | 100 | 09/25/18 11:42 | C8I0459 | CI82201 |

| | *%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-629-092018-B 6ft
Date Sampled: 09/20/18 10:03
Percent Solids: 86
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809528
ESS Laboratory Sample ID: 1809528-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/25/18 12:01 | C8I0459 | CI82201 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/25/18 12:01 | C8I0459 | CI82201 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/25/18 12:01 | C8I0459 | CI82201 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/25/18 12:01 | C8I0459 | CI82201 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/25/18 12:01 | C8I0459 | CI82201 |
| **Aroclor 1254 [2C]** | **8.5** (1.2) | | 8082A | | 20 | 09/25/18 12:01 | C8I0459 | CI82201 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/25/18 12:01 | C8I0459 | CI82201 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/25/18 12:01 | C8I0459 | CI82201 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/25/18 12:01 | C8I0459 | CI82201 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-356-092018-A 2-6ft
Date Sampled: 09/20/18 09:02
Percent Solids: 87
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809528
ESS Laboratory Sample ID: 1809528-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.9) | | 8082A | | 50 | 09/25/18 12:21 | C8I0459 | CI82201 |
| Aroclor 1221 | ND (2.9) | | 8082A | | 50 | 09/25/18 12:21 | C8I0459 | CI82201 |
| Aroclor 1232 | ND (2.9) | | 8082A | | 50 | 09/25/18 12:21 | C8I0459 | CI82201 |
| Aroclor 1242 | ND (2.9) | | 8082A | | 50 | 09/25/18 12:21 | C8I0459 | CI82201 |
| Aroclor 1248 | ND (2.9) | | 8082A | | 50 | 09/25/18 12:21 | C8I0459 | CI82201 |
| **Aroclor 1254** | **19.7** (2.9) | | 8082A | | 50 | 09/25/18 12:21 | C8I0459 | CI82201 |
| Aroclor 1260 | ND (2.9) | | 8082A | | 50 | 09/25/18 12:21 | C8I0459 | CI82201 |
| Aroclor 1262 | ND (2.9) | | 8082A | | 50 | 09/25/18 12:21 | C8I0459 | CI82201 |
| Aroclor 1268 | ND (2.9) | | 8082A | | 50 | 09/25/18 12:21 | C8I0459 | CI82201 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-508-092018-B 0-5ft
Date Sampled: 09/20/18 09:37
Percent Solids: 90
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809528
ESS Laboratory Sample ID: 1809528-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:09 | C8I0431 | CI82201 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:09 | C8I0431 | CI82201 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:09 | C8I0431 | CI82201 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:09 | C8I0431 | CI82201 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:09 | C8I0431 | CI82201 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:09 | C8I0431 | CI82201 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:09 | C8I0431 | CI82201 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:09 | C8I0431 | CI82201 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:09 | C8I0431 | CI82201 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *144 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *94 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *92 %* | | *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: SW-507-092018-B 0-5ft
Date Sampled: 09/20/18 09:39
Percent Solids: 92
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809528
ESS Laboratory Sample ID: 1809528-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:28 | C8I0431 | CI82201 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:28 | C8I0431 | CI82201 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:28 | C8I0431 | CI82201 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:28 | C8I0431 | CI82201 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:28 | C8I0431 | CI82201 |
| **Aroclor 1254 [2C]** | **1.0** (0.06) | | 8082A | | 1 | 09/25/18 6:28 | C8I0431 | CI82201 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:28 | C8I0431 | CI82201 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:28 | C8I0431 | CI82201 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/25/18 6:28 | C8I0431 | CI82201 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *79 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *65 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *89 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-506-092018-B 0-4ft
Date Sampled: 09/20/18 09:40
Percent Solids: 95
Initial Volume: 20.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809528
ESS Laboratory Sample ID: 1809528-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/25/18 6:48 | C8I0431 | CI82201 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/25/18 6:48 | C8I0431 | CI82201 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/25/18 6:48 | C8I0431 | CI82201 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/25/18 6:48 | C8I0431 | CI82201 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/25/18 6:48 | C8I0431 | CI82201 |
| **Aroclor 1254 [2C]** | **0.2** (0.05) | | 8082A | | 1 | 09/25/18 6:48 | C8I0431 | CI82201 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/25/18 6:48 | C8I0431 | CI82201 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/25/18 6:48 | C8I0431 | CI82201 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/25/18 6:48 | C8I0431 | CI82201 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *100 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *72 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *85 %* | | *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: SW-505-092018-A 0-4ft
Date Sampled: 09/20/18 09:41
Percent Solids: 92
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809528
ESS Laboratory Sample ID: 1809528-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/25/18 12:40 | C8I0459 | CI82201 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/25/18 12:40 | C8I0459 | CI82201 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/25/18 12:40 | C8I0459 | CI82201 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/25/18 12:40 | C8I0459 | CI82201 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/25/18 12:40 | C8I0459 | CI82201 |
| **Aroclor 1254** | **8.1** (1.1) | | 8082A | | 20 | 09/25/18 12:40 | C8I0459 | CI82201 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/25/18 12:40 | C8I0459 | CI82201 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/25/18 12:40 | C8I0459 | CI82201 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/25/18 12:40 | C8I0459 | CI82201 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-82-092018-A 4-6ft
Date Sampled: 09/20/18 10:33
Percent Solids: 94
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809528
ESS Laboratory Sample ID: 1809528-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/25/18 7:26 | C8I0431 | CI82201 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/25/18 7:26 | C8I0431 | CI82201 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/25/18 7:26 | C8I0431 | CI82201 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/25/18 7:26 | C8I0431 | CI82201 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/25/18 7:26 | C8I0431 | CI82201 |
| **Aroclor 1254 [2C]** | **0.4** (0.05) | | 8082A | | 1 | 09/25/18 7:26 | C8I0431 | CI82201 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/25/18 7:26 | C8I0431 | CI82201 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/25/18 7:26 | C8I0431 | CI82201 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/25/18 7:26 | C8I0431 | CI82201 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *106 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *76 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *97 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-78-092018-A 4-6ft
Date Sampled: 09/20/18 10:44
Percent Solids: 85
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809528
ESS Laboratory Sample ID: 1809528-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/25/18 7:45 | C8I0431 | CI82201 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/25/18 7:45 | C8I0431 | CI82201 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/25/18 7:45 | C8I0431 | CI82201 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/25/18 7:45 | C8I0431 | CI82201 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/25/18 7:45 | C8I0431 | CI82201 |
| **Aroclor 1254** | **0.2** (0.06) | | 8082A | | 1 | 09/25/18 7:45 | C8I0431 | CI82201 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/25/18 7:45 | C8I0431 | CI82201 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/25/18 7:45 | C8I0431 | CI82201 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/25/18 7:45 | C8I0431 | CI82201 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *100 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *90 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809528

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82201 - 3540C** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| Aroclor 1016 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1016 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0251* | | mg/kg wet | *0.02500* | | *100* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0186* | | mg/kg wet | *0.02500* | | *75* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0193* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0202* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | | | |
| Aroclor 1260 | 0.6 | 0.05 | mg/kg wet | 0.5000 | | 111 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0287* | | mg/kg wet | *0.02500* | | *115* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0207* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0219* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0224* | | mg/kg wet | *0.02500* | | *90* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | 10 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | 5 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 98 | 40-140 | 13 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | 5 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0262* | | mg/kg wet | *0.02500* | | *105* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0193* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0200* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0206* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809528

**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: 1809528

**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: 1809528
Date Received: 9/20/2018
Project Due Date: 9/24/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.0 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 268570 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 268569 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 268568 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 268567 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 268566 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 268565 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 268564 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 268563 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 268562 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 268561 | 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: 9/20/18 1801
Reviewed By: Date & Time: 9/20/18 1813
Delivered By: 9/20/18 1813

1/3

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 # | 1809528 |
| Reporting Limits | See note 1 |
| Electonic Deliverables | [X] Limit Checker [X] Standard Excel [ ] Other (Please Specify →) |

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

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BAJF Cranston |

| Contact Person | Address |
|---|---|
| Aaron Ting | 112 Water St, 5th floor |

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

| Telephone Number | FAX Number | Email Address |
|---|---|---|
| 978-577-7138 | — | ating@aei.consultants.com |

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID (ACT) | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 09/20/18 | 0910 | E | S | ~~SW-389-092018~~ SW-389-092018-B (0-3') | X |
| 2 | | 1001 | G | | B-559-092018-B (6') | X |
| 3 | | 1003 | G | | B-629-092018-B(6') | X |
| 4 | | 0902 | C | | SW-356-092018-A (2-6') | X |
| 5 | | 0937 | C | | SW-508-092018-B(0-5') | X |
| 6 | | 0939 | C | | SW-507-092018-B (0-5') | X |
| 7 | | 0940 | C | | SW-506-092018-B (0-4') | X |
| 8 | | 0941 | C | | SW-505-092018-A(0-4') | X |
| 9 | | 1033 | C | | SW-82-092018-A (4-6') | X |
| 10 | | 1044 | C | | SW-78-092018-A (4-6') | X |

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

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 2.0 °C

Sampled by: ATing

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

Note: See project QAPP

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/20/18 1510 | 9/20/18 15:11 | 9/20/18 17:19 | 9/20/18 1725 |
| 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: 1809529**

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 4:31 pm, Sep 26, 2018**

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

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809529

## SAMPLE RECEIPT

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

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809529-01 | SW-97-092018-A 2-6ft | Soil | 8082A |
| 1809529-02 | SW-96-092018-A 2-6ft | Soil | 8082A |
| 1809529-03 | SW-94-092018-A 2-6ft | Soil | 8082A |
| 1809529-04 | B-755-092018-B 7ft | Soil | 8082A |
| 1809529-05 | SW-502-092018-A 0-4ft | Soil | 8082A |
| 1809529-06 | SW-503-092018-A 0-5ft | Soil | 8082A |
| 1809529-07 | B-535-092018-B 10ft | Soil | 8082A |
| 1809529-08 | SW-84-092018-A 4-6ft | Soil | 8082A |
| 1809529-09 | B-88-092018-B 4ft | Soil | 8082A |
| 1809529-10 | SW-135-092018-A 3-7ft | Soil | 8082A |
| 1809529-11 | SW-504-092018-B 0-5ft | Soil | 8082A |
| 1809529-12 | SW-134-092018-A 3-7ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809529

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809529-03 **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%)

1809529-07 **Surrogate recovery(ies) above upper control limit (S+).**
Tetrachloro-m-xylene (270% @ 30-150%)

1809529-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809529-10 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809529-12 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

**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: 1809529

## CURRENT SW-846 METHODOLOGY VERSIONS

**Analytical Methods**

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

**Prep Methods**

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-97-092018-A 2-6ft
Date Sampled: 09/20/18 10:46
Percent Solids: 92
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809529
ESS Laboratory Sample ID: 1809529-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/24/18 16:24

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/25/18 13:53 | C8I0460 | CI82412 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/25/18 13:53 | C8I0460 | CI82412 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/25/18 13:53 | C8I0460 | CI82412 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/25/18 13:53 | C8I0460 | CI82412 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/25/18 13:53 | C8I0460 | CI82412 |
| **Aroclor 1254** | **0.6** (0.06) | | 8082A | | 1 | 09/25/18 13:53 | C8I0460 | CI82412 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/25/18 13:53 | C8I0460 | CI82412 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/25/18 13:53 | C8I0460 | CI82412 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/25/18 13:53 | C8I0460 | CI82412 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *70 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *64 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *78 %* | | *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: SW-96-092018-A 2-6ft
Date Sampled: 09/20/18 10:55
Percent Solids: 88
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809529
ESS Laboratory Sample ID: 1809529-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/24/18 16:24

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:10 | C8I0460 | CI82412 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:10 | C8I0460 | CI82412 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:10 | C8I0460 | CI82412 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:10 | C8I0460 | CI82412 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:10 | C8I0460 | CI82412 |
| **Aroclor 1254** | **5.3** (0.6) | | 8082A | | 10 | 09/25/18 20:32 | C8I0460 | CI82412 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:10 | C8I0460 | CI82412 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:10 | C8I0460 | CI82412 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:10 | C8I0460 | CI82412 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *74 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *70 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *85 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *94 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-94-092018-A 2-6ft
Date Sampled: 09/20/18 11:15
Percent Solids: 85
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809529
ESS Laboratory Sample ID: 1809529-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/24/18 16:24

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/25/18 20:51 | C8I0460 | CI82412 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/25/18 20:51 | C8I0460 | CI82412 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/25/18 20:51 | C8I0460 | CI82412 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/25/18 20:51 | C8I0460 | CI82412 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/25/18 20:51 | C8I0460 | CI82412 |
| **Aroclor 1254** | **15.1** (1.2) | | 8082A | | 20 | 09/25/18 20:51 | C8I0460 | CI82412 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/25/18 20:51 | C8I0460 | CI82412 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/25/18 20:51 | C8I0460 | CI82412 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/25/18 20:51 | C8I0460 | CI82412 |

| | *%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-755-092018-B 7ft
Date Sampled: 09/20/18 09:20
Percent Solids: 89
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809529
ESS Laboratory Sample ID: 1809529-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/24/18 16:24

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:48 | C8I0460 | CI82412 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:48 | C8I0460 | CI82412 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:48 | C8I0460 | CI82412 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:48 | C8I0460 | CI82412 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:48 | C8I0460 | CI82412 |
| **Aroclor 1254 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 09/25/18 14:48 | C8I0460 | CI82412 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:48 | C8I0460 | CI82412 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:48 | C8I0460 | CI82412 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/25/18 14:48 | C8I0460 | CI82412 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *89 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *55 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *92 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-502-092018-A 0-4ft
Date Sampled: 09/20/18 10:50
Percent Solids: 94
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809529
ESS Laboratory Sample ID: 1809529-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/24/18 16:24

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:07 | C8I0460 | CI82412 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:07 | C8I0460 | CI82412 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:07 | C8I0460 | CI82412 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:07 | C8I0460 | CI82412 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:07 | C8I0460 | CI82412 |
| **Aroclor 1254** | **1.4** (0.3) | | 8082A | | 5 | 09/25/18 21:11 | C8I0460 | CI82412 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:07 | C8I0460 | CI82412 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:07 | C8I0460 | CI82412 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:07 | C8I0460 | CI82412 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *78 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *67 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *86 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-503-092018-A 0-5ft
Date Sampled: 09/20/18 10:51
Percent Solids: 96
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809529
ESS Laboratory Sample ID: 1809529-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/24/18 16:24

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:26 | C8I0460 | CI82412 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:26 | C8I0460 | CI82412 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:26 | C8I0460 | CI82412 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:26 | C8I0460 | CI82412 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:26 | C8I0460 | CI82412 |
| **Aroclor 1254** | **0.1** (0.05) | | 8082A | | 1 | 09/25/18 15:26 | C8I0460 | CI82412 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:26 | C8I0460 | CI82412 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:26 | C8I0460 | CI82412 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/25/18 15:26 | C8I0460 | CI82412 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *80 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *90 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-535-092018-B 10ft
Date Sampled: 09/20/18 12:57
Percent Solids: 86
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809529
ESS Laboratory Sample ID: 1809529-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/24/18 16:24

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/25/18 15:45 | C8I0460 | CI82412 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/25/18 15:45 | C8I0460 | CI82412 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/25/18 15:45 | C8I0460 | CI82412 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/25/18 15:45 | C8I0460 | CI82412 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/25/18 15:45 | C8I0460 | CI82412 |
| **Aroclor 1254** | **0.6** (0.06) | | 8082A | | 1 | 09/25/18 15:45 | C8I0460 | CI82412 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/25/18 15:45 | C8I0460 | CI82412 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/25/18 15:45 | C8I0460 | CI82412 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/25/18 15:45 | C8I0460 | CI82412 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *66 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *58 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *270 %* | *S+* | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *74 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-84-092018-A 4-6ft
Date Sampled: 09/20/18 13:17
Percent Solids: 94
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809529
ESS Laboratory Sample ID: 1809529-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/24/18 16:24

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/25/18 16:05 | C8I0460 | CI82412 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/25/18 16:05 | C8I0460 | CI82412 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/25/18 16:05 | C8I0460 | CI82412 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/25/18 16:05 | C8I0460 | CI82412 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/25/18 16:05 | C8I0460 | CI82412 |
| **Aroclor 1254** | **0.8** (0.05) | | 8082A | | 1 | 09/25/18 16:05 | C8I0460 | CI82412 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/25/18 16:05 | C8I0460 | CI82412 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/25/18 16:05 | C8I0460 | CI82412 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/25/18 16:05 | C8I0460 | CI82412 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *71 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *65 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *92 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-88-092018-B 4ft
Date Sampled: 09/20/18 13:25
Percent Solids: 82
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809529
ESS Laboratory Sample ID: 1809529-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/24/18 16:24

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.2) | | 8082A | | 50 | 09/26/18 9:56 | C8I0485 | CI82412 |
| Aroclor 1221 | ND (3.2) | | 8082A | | 50 | 09/26/18 9:56 | C8I0485 | CI82412 |
| Aroclor 1232 | ND (3.2) | | 8082A | | 50 | 09/26/18 9:56 | C8I0485 | CI82412 |
| Aroclor 1242 | ND (3.2) | | 8082A | | 50 | 09/26/18 9:56 | C8I0485 | CI82412 |
| Aroclor 1248 | ND (3.2) | | 8082A | | 50 | 09/26/18 9:56 | C8I0485 | CI82412 |
| **Aroclor 1254** | **28.8** (3.2) | | 8082A | | 50 | 09/26/18 9:56 | C8I0485 | CI82412 |
| Aroclor 1260 | ND (3.2) | | 8082A | | 50 | 09/26/18 9:56 | C8I0485 | CI82412 |
| Aroclor 1262 | ND (3.2) | | 8082A | | 50 | 09/26/18 9:56 | C8I0485 | CI82412 |
| Aroclor 1268 | ND (3.2) | | 8082A | | 50 | 09/26/18 9:56 | C8I0485 | CI82412 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-135-092018-A 3-7ft
Date Sampled: 09/20/18 13:58
Percent Solids: 90
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809529
ESS Laboratory Sample ID: 1809529-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/24/18 16:24

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:15 | C8I0485 | CI82412 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:15 | C8I0485 | CI82412 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:15 | C8I0485 | CI82412 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:15 | C8I0485 | CI82412 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:15 | C8I0485 | CI82412 |
| **Aroclor 1254** | **19.4** (2.8) | | 8082A | | 50 | 09/26/18 10:15 | C8I0485 | CI82412 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:15 | C8I0485 | CI82412 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:15 | C8I0485 | CI82412 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:15 | C8I0485 | CI82412 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-504-092018-B 0-5ft
Date Sampled: 09/20/18 14:15
Percent Solids: 96
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809529
ESS Laboratory Sample ID: 1809529-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/24/18 16:24

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/25/18 18:57 | C8I0460 | CI82412 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/25/18 18:57 | C8I0460 | CI82412 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/25/18 18:57 | C8I0460 | CI82412 |
| **Aroclor 1242** | **0.5** (0.05) | | 8082A | | 1 | 09/25/18 18:57 | C8I0460 | CI82412 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/25/18 18:57 | C8I0460 | CI82412 |
| **Aroclor 1254** | **0.8** (0.05) | | 8082A | | 1 | 09/25/18 18:57 | C8I0460 | CI82412 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/25/18 18:57 | C8I0460 | CI82412 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/25/18 18:57 | C8I0460 | CI82412 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/25/18 18:57 | C8I0460 | CI82412 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *78 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *70 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *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-134-092018-A 3-7ft
Date Sampled: 09/20/18 14:01
Percent Solids: 90
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809529
ESS Laboratory Sample ID: 1809529-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/24/18 16:24

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:34 | C8I0485 | CI82412 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:34 | C8I0485 | CI82412 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:34 | C8I0485 | CI82412 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:34 | C8I0485 | CI82412 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:34 | C8I0485 | CI82412 |
| **Aroclor 1254** | **18.5** (2.8) | | 8082A | | 50 | 09/26/18 10:34 | C8I0485 | CI82412 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:34 | C8I0485 | CI82412 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:34 | C8I0485 | CI82412 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 09/26/18 10:34 | C8I0485 | CI82412 |

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809529

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82412 - 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* | *0.0186* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0178* | | mg/kg wet | *0.02500* | | *71* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0190* | | mg/kg wet | *0.02500* | | *76* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0214* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 86 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0190* | | mg/kg wet | *0.02500* | | *76* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0179* | | mg/kg wet | *0.02500* | | *72* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0191* | | mg/kg wet | *0.02500* | | *76* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0207* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | 4 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 4 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 96 | 40-140 | 4 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | 4 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0197* | | mg/kg wet | *0.02500* | | *79* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0186* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0197* | | mg/kg wet | *0.02500* | | *79* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0212* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809529

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809529

**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: 1809529
Date Received: 9/20/2018
Project Due Date: 9/24/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.0 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 268582 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 268581 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 268580 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 268579 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 268578 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 268577 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 268576 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 268575 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 268574 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 268573 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 268572 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 268571 | 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: 9/20/18 1800
Reviewed By: Date & Time: 9/20/18 1811
Delivered By: 9/20/18 1811

2/3

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 #: 1809529
Reporting Limits: See note 1
Electonic Deliverables: [X] Limit Checker [X] Standard Excel [ ] Other (Please Specify →)

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

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 9/20/18 | 1046 | C | S | SW-97-092018-A(2-6') | |
| 2 | | 1055 | C | S | SW-96-092018-A(2-6') | X |
| 3 | | 1115 | C | S | SW-94-092018-A(2-6') | X |
| 4 | | 0920 | G | S | B-755-092018-B(7') | X |
| 5 | | 1050 | C | S | SW-502-092018-A(0-4') | X |
| 6 | | 1051 | C | S | SW-503-092018-A(6-8') | X |
| 7 | | 1257 | G | S | B-535-092018-B(10') | X |
| 8 | | 1317 | C | S | SW-84-092018-A(4-6') | X |
| 9 | | 1325 | G | S | B-88-092018-B(4') | X |
| 10 | | 1358 | C | S | SW-135-092018-A(3-7') | X |

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial
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: A6, 9, 1, 1

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 2.0 °C

Sampled by: ATing

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/20/18 1510 | 9/20/18 1511 | 9/20/18 1219 | 9/20/18 1725 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

3/3

ESS Laboratory
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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 #: 1809529
Reporting Limits: See note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

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

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 11 | 9/20/18 | 1415 | C | S | SW-504-092018-B(0-5') | X |
| 12 | 9/20/18 | 1401 | C | S | SW-134-092018-A(3-7') | X |

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial
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 2.0 °C

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/20/18 1510 | 9/20/18 1511 | 9/20/18 1719 | 9/20/18 1725 |
| 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: 1809575**

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 4:28 pm, Oct 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: 1809575

## SAMPLE RECEIPT

The following samples were received on September 21, 2018 for the analyses specified on the enclosed Chain of Custody Record.

**Revision 1 October 1, 2018: This report has been revised to include corrected sample date on all samples.**

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809575-01 | B-413-092118-C | Solid | 8082A |
| 1809575-02 | B-732-092118 4FT | Soil | 8082A |
| 1809575-03 | B-733-092118 4FT | Soil | 8082A |
| 1809575-04 | B-734-092118 4FT | Soil | 8082A |
| 1809575-05 | B-735-092118-1 4FT | Soil | 8082A |
| 1809575-06 | B-735-092118 4FT | Soil | 8082A |
| 1809575-07 | B-736-092118 4FT | Soil | 8082A |
| 1809575-08 | B-737-092118 4FT | Soil | 8082A |
| 1809575-09 | B-739-092118 4FT | Soil | 8082A |
| 1809575-10 | B-740 092118 4FT | Soil | 8082A |
| 1809575-11 | B-741-092118 4FT | Soil | 8082A |
| 1809575-12 | B-742-092118 4FT | Soil | 8082A |
| 1809575-13 | B-743-092118 4FT | Soil | 8082A |
| 1809575-14 | B-744-092118 4FT | Soil | 8082A |
| 1809575-15 | B-745-092118 4FT | Soil | 8082A |
| 1809575-16 | B-746-092118 4FT | Soil | 8082A |
| 1809575-17 | B-747-092118 4FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809575

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

| | |
|---|---|
| 1809575-03 | **Surrogate recovery(ies) diluted below the MRL (SD).**<br>Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%) |
| 1809575-11 | **Surrogate recovery(ies) diluted below the MRL (SD).**<br>Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%) |
| C8I0430-CCV3 | **Continuing Calibration %Diff/Drift is below control limit (CD-).**<br>Decachlorobiphenyl (31% @ 20%) |

**No other observations noted.**

**End of Project Narrative.**

## DATA USABILITY LINKS

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

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809575

## 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-413-092118-C
Date Sampled: 09/21/18 13:13
Percent Solids: 98
Initial Volume: 5.01
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-01
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 9/24/18 17:48

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.1) | | 8082A | | 1 | 09/25/18 11:54 | C8I0458 | CI82414 |
| Aroclor 1221 | ND (0.1) | | 8082A | | 1 | 09/25/18 11:54 | C8I0458 | CI82414 |
| Aroclor 1232 | ND (0.1) | | 8082A | | 1 | 09/25/18 11:54 | C8I0458 | CI82414 |
| Aroclor 1242 | ND (0.1) | | 8082A | | 1 | 09/25/18 11:54 | C8I0458 | CI82414 |
| Aroclor 1248 | ND (0.1) | | 8082A | | 1 | 09/25/18 11:54 | C8I0458 | CI82414 |
| **Aroclor 1254 [2C]** | **0.8** (0.1) | | 8082A | | 1 | 09/25/18 11:54 | C8I0458 | CI82414 |
| Aroclor 1260 | ND (0.1) | | 8082A | | 1 | 09/25/18 11:54 | C8I0458 | CI82414 |
| Aroclor 1262 | ND (0.1) | | 8082A | | 1 | 09/25/18 11:54 | C8I0458 | CI82414 |
| Aroclor 1268 | ND (0.1) | | 8082A | | 1 | 09/25/18 11:54 | C8I0458 | CI82414 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *34 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *41 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *41 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *47 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-732-092118 4FT
Date Sampled: 09/21/18 13:15
Percent Solids: 92
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/24/18 15:45 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/24/18 15:45 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/24/18 15:45 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/24/18 15:45 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/24/18 15:45 | C8I0430 | CI82202 |
| **Aroclor 1254 [2C]** | **2.5** (0.3) | | 8082A | | 5 | 09/24/18 23:23 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/24/18 15:45 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/24/18 15:45 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/24/18 15:45 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *70 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *107 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-733-092118 4FT
Date Sampled: 09/21/18 13:16
Percent Solids: 88
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:00 | C8I0458 | CI82202 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:00 | C8I0458 | CI82202 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:00 | C8I0458 | CI82202 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:00 | C8I0458 | CI82202 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:00 | C8I0458 | CI82202 |
| **Aroclor 1254 [2C]** | **11.3** (1.2) | | 8082A | | 20 | 09/25/18 10:00 | C8I0458 | CI82202 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:00 | C8I0458 | CI82202 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:00 | C8I0458 | CI82202 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:00 | C8I0458 | CI82202 |

| | %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-734-092118 4FT
Date Sampled: 09/21/18 13:17
Percent Solids: 95
Initial Volume: 20.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/24/18 18:18 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/24/18 18:18 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/24/18 18:18 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/24/18 18:18 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/24/18 18:18 | C8I0430 | CI82202 |
| **Aroclor 1254 [2C]** | **1.7** (0.3) | | 8082A | | 5 | 09/25/18 10:19 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/24/18 18:18 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/24/18 18:18 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/24/18 18:18 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *75 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *110 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-735-092118-1 4FT
Date Sampled: 09/21/18 13:21
Percent Solids: 88
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:37 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:37 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:37 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:37 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:37 | C8I0430 | CI82202 |
| **Aroclor 1254 [2C]** | **0.5** (0.06) | | 8082A | | 1 | 09/24/18 18:37 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:37 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:37 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:37 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *73 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *108 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-735-092118 4FT
Date Sampled: 09/21/18 13:21
Percent Solids: 89
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:56 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:56 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:56 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:56 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:56 | C8I0430 | CI82202 |
| **Aroclor 1254** | **0.4** (0.06) | | 8082A | | 1 | 09/24/18 18:56 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:56 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:56 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/24/18 18:56 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *73 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *90 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *82 %* | | *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-736-092118 4FT
Date Sampled: 09/21/18 13:24
Percent Solids: 87
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/24/18 19:53 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/24/18 19:53 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/24/18 19:53 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/24/18 19:53 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/24/18 19:53 | C8I0430 | CI82202 |
| **Aroclor 1254 [2C]** | **1.1** (0.06) | | 8082A | | 1 | 09/24/18 19:53 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/24/18 19:53 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/24/18 19:53 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/24/18 19:53 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *68 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *76 %* | | *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-737-092118 4FT
Date Sampled: 09/21/18 13:23
Percent Solids: 87
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:12 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:12 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:12 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:12 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:12 | C8I0430 | CI82202 |
| **Aroclor 1254 [2C]** | **0.5** (0.06) | | 8082A | | 1 | 09/24/18 20:12 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:12 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:12 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:12 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *64 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *75 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *73 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *90 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-739-092118 4FT
Date Sampled: 09/21/18 13:25
Percent Solids: 89
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:31 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:31 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:31 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:31 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:31 | C8I0430 | CI82202 |
| **Aroclor 1254 [2C]** | **0.8** (0.06) | | 8082A | | 1 | 09/24/18 20:31 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:31 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:31 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:31 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *73 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *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-740 092118 4FT
Date Sampled: 09/21/18 13:27
Percent Solids: 90
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:50 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:50 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:50 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:50 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:50 | C8I0430 | CI82202 |
| **Aroclor 1254 [2C]** | **0.8** (0.06) | | 8082A | | 1 | 09/24/18 20:50 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:50 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:50 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/24/18 20:50 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *76 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *102 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-741-092118 4FT
Date Sampled: 09/21/18 13:29
Percent Solids: 87
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:38 | C8I0458 | CI82202 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:38 | C8I0458 | CI82202 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:38 | C8I0458 | CI82202 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:38 | C8I0458 | CI82202 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:38 | C8I0458 | CI82202 |
| **Aroclor 1254 [2C]** | **15.2** (1.2) | | 8082A | | 20 | 09/25/18 10:38 | C8I0458 | CI82202 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:38 | C8I0458 | CI82202 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:38 | C8I0458 | CI82202 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/25/18 10:38 | C8I0458 | CI82202 |

| | *%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-742-092118 4FT
Date Sampled: 09/21/18 13:30
Percent Solids: 86
Initial Volume: 20.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:28 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:28 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:28 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:28 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:28 | C8I0430 | CI82202 |
| **Aroclor 1254** | **0.2** (0.06) | | 8082A | | 1 | 09/24/18 21:28 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:28 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:28 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:28 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *127 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *130 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *82 %* | | *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-743-092118 4FT
Date Sampled: 09/21/18 13:31
Percent Solids: 92
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:48 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:48 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:48 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:48 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:48 | C8I0430 | CI82202 |
| **Aroclor 1254 [2C]** | **0.8** (0.06) | | 8082A | | 1 | 09/24/18 21:48 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:48 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:48 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/24/18 21:48 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *76 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *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-744-092118 4FT
Date Sampled: 09/21/18 13:32
Percent Solids: 86
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:07 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:07 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:07 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:07 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:07 | C8I0430 | CI82202 |
| **Aroclor 1254 [2C]** | **1.1** (0.06) | | 8082A | | 1 | 09/24/18 22:07 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:07 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:07 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:07 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *85 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *85 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *102 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-745-092118 4FT
Date Sampled: 09/21/18 13:33
Percent Solids: 87
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:26 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:26 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:26 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:26 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:26 | C8I0430 | CI82202 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:26 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:26 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:26 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:26 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *44 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *43 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *36 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *43 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-746-092118 4FT
Date Sampled: 09/21/18 13:34
Percent Solids: 88
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:45 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:45 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:45 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:45 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:45 | C8I0430 | CI82202 |
| **Aroclor 1254 [2C]** | **0.08** (0.06) | | 8082A | | 1 | 09/24/18 22:45 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:45 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:45 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/24/18 22:45 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *74 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *95 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-747-092118 4FT
Date Sampled: 09/21/18 13:35
Percent Solids: 91
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809575
ESS Laboratory Sample ID: 1809575-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/22/18 16:45

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/24/18 23:04 | C8I0430 | CI82202 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/24/18 23:04 | C8I0430 | CI82202 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/24/18 23:04 | C8I0430 | CI82202 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/24/18 23:04 | C8I0430 | CI82202 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/24/18 23:04 | C8I0430 | CI82202 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/24/18 23:04 | C8I0430 | CI82202 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/24/18 23:04 | C8I0430 | CI82202 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/24/18 23:04 | C8I0430 | CI82202 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/24/18 23:04 | C8I0430 | CI82202 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *69 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *92 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809575

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82202 - 3540C** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| Aroclor 1016 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1016 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0168* | | mg/kg wet | *0.02500* | | *67* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0188* | | mg/kg wet | *0.02500* | | *75* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0182* | | mg/kg wet | *0.02500* | | *73* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0222* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 84 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0178* | | mg/kg wet | *0.02500* | | *71* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0211* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0211* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0222* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | 9 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 86 | 40-140 | 6 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 76 | 40-140 | 10 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 81 | 40-140 | 7 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0164* | | mg/kg wet | *0.02500* | | *65* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0193* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0192* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0206* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| **Matrix Spike** **Source: 1809575-06** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809575

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82202 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.06 | mg/kg dry | 0.5511 | ND | 99 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.06 | mg/kg dry | 0.5511 | ND | 99 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.06 | mg/kg dry | 0.5511 | ND | 98 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.06 | mg/kg dry | 0.5511 | ND | 100 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0200* | | mg/kg dry | *0.02755* | | *73* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0240* | | mg/kg dry | *0.02755* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0238* | | mg/kg dry | *0.02755* | | *86* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0272* | | mg/kg dry | *0.02755* | | *99* | *30-150* | | | |
| **Matrix Spike Dup Source: 1809575-06** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg dry | 0.5352 | ND | 91 | 40-140 | 12 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg dry | 0.5352 | ND | 89 | 40-140 | 13 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg dry | 0.5352 | ND | 91 | 40-140 | 11 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg dry | 0.5352 | ND | 93 | 40-140 | 10 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0167* | | mg/kg dry | *0.02676* | | *62* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0199* | | mg/kg dry | *0.02676* | | *74* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0204* | | mg/kg dry | *0.02676* | | *76* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0231* | | mg/kg dry | *0.02676* | | *86* | *30-150* | | | |
| **Batch CI82414 - 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* | *0.0184* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0193* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0177* | | mg/kg wet | *0.02500* | | *71* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0209* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| **LCS** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809575

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82414 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 79 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 81 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 73 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 78 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0164* | | mg/kg wet | *0.02500* | | *66* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0188* | | mg/kg wet | *0.02500* | | *75* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0184* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0196* | | mg/kg wet | *0.02500* | | *78* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | 12 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 11 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | 12 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | 11 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0183* | | mg/kg wet | *0.02500* | | *73* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0213* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0207* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0220* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809575

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809575

**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: 1809575
Date Received: 9/21/2018
Project Due Date: 9/25/2018
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: 3.3 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 269576 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 269575 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 269574 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 269573 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 269572 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 269571 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 269887 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 269888 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 269570 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 269569 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 269568 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 269567 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 269566 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 269565 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 269564 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 269563 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 269562 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 269561 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 269560 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

**2nd Review**

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

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809575

Date Received: 9/21/2018

Completed By: [signature] Date & Time: 9/21/18 1815

Reviewed By: [signature] Date & Time: 9/21/18 19:16

Delivered By: [signature] 9/21/18 1928

**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 #: 1809575
Reporting Limits: see note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3163055
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 | PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 9/21/18 | 1313 | G | C | B-413-092018-C (AT) | X |
| 2 | ↓ | 1315 | ↓ | S | B-732-092018 (4') | X |
| 3 | ↓ | 1316 | ↓ | ↓ | B-733-092018 (4') | X |
| 4 | ↓ | 1317 | ↓ | ↓ | B-734-092018 (4') | X |
| 5 | ↓ | 1321 | ↓ | ↓ | B-735-092018-1 (4') | X |
| 6 4 | ↓ | 1321 | ↓ | ↓ | B-735-092018 (4') MS/MSD | X |
| 7 6 | ↓ | ~~1321~~ 1324 | ↓ | ↓ | B-736-092018 (4') | X |
| 8 7 | ↓ | 1323 | ↓ | ↓ | B-737-092018 (4') | X |
| 9 8 | ↓ | 1325 | ↓ | ↓ | B-739-092018 (4') | X |
| 10 9 | ↓ | 1327 | ↓ | ↓ | B-740-092018 (4') | X |

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

| Analysis | |
|---|---|
| | AG |
| | 9 |
| | 1 |
| Number of Containers per Sample: | 1 |

**Laboratory Use Only**
Cooler Present: —
Seals Intact: —
Cooler Temperature: Ice 3.3 °C

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| [signature] 9/21/18 1455 | [signature] 9/21/18 14:25 | [signature] 9/21/18 15:32 | [signature] 9/21/18 1753 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

**ESS Laboratory**
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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 #: 1809575
Reporting Limits: see note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3163055
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 | 9/21/18 | 1329 | G | S | B-741-092018 (4') | X |
| 12 | ↓ | 1330 | ↓ | ↓ | B-742-092018 (4') | X |
| 13 | | 1331 | | | B-743-092018 (4') | X |
| 14 | | 1332 | | | B-744-092018 (4') | X |
| 15 | | 1333 | | | B-745-092018 (4') | X |
| 16 | | 1334 | | | B-746-092018 (4') | X |
| 17 | | 1335 | | | B-747-092018 (4') | X |
| 18 | | 1321 | | | B-735-092018 (4') | X |
| | | | | | | |
| | | | | | | |

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

Number of Containers per Sample: AG 9, P 1, S 1

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 3.3 °C

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/21/18 1455 | 9/21/18 14:56 | 9/21/18 15:32 | 9/21/18 1753 |
| 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: 1809616**

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, Sep 27, 2018**

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

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809616

## SAMPLE RECEIPT

The following samples were received on September 24, 2018 for the analyses specified on the enclosed Chain of Custody Record.

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809616-01 | SW-701-092418 0-4FT | Soil | 8082A |
| 1809616-02 | SW-493-092418 0-4FT | Soil | 8082A |
| 1809616-03 | SW-494-092418 0-4FT | Soil | 8082A |
| 1809616-04 | SW-495-092418 0-4FT | Soil | 8082A |
| 1809616-05 | SW-509-092418 0-4FT | Soil | 8082A |
| 1809616-06 | SW-510-092418 0-4FT | Soil | 8082A |
| 1809616-07 | SW-511-092418 0-4FT | Soil | 8082A |
| 1809616-08 | SW-512-092418 0-4FT | Soil | 8082A |
| 1809616-09 | SW-513-092418 0-4FT | Soil | 8082A |
| 1809616-10 | SW-514-092418 0-4FT | Soil | 8082A |
| 1809616-11 | B-508-092418 2FT | Soil | 8082A |
| 1809616-12 | B-509-092418 2FT | Soil | 8082A |
| 1809616-13 | B-517-092418 2FT | Soil | 8082A |
| 1809616-14 | B-506-092418 2FT | Soil | 8082A |
| 1809616-15 | B-511-092418 2FT | Soil | 8082A |
| 1809616-16 | B-516-092418 2FT | Soil | 8082A |
| 1809616-17 | SW-493-092418-1 0-4FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809616

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809616-03 **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%)

1809616-11 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809616-13 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809616-16 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809616-17 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

CI82513-MS1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (141% @ 40-140%), Aroclor 1260 (150% @ 40-140%)

CI82513-MSD1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (156% @ 40-140%), Aroclor 1016 [2C] (143% @ 40-140%), Aroclor 1260 (181% @ 40-140%), Aroclor 1260 [2C] (178% @ 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: 1809616

## CURRENT SW-846 METHODOLOGY VERSIONS

**Analytical Methods**

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

**Prep Methods**

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-701-092418 0-4FT
Date Sampled: 09/24/18 09:26
Percent Solids: 95
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/26/18 12:30 | C8I0483 | CI82513 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/26/18 12:30 | C8I0483 | CI82513 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/26/18 12:30 | C8I0483 | CI82513 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/26/18 12:30 | C8I0483 | CI82513 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/26/18 12:30 | C8I0483 | CI82513 |
| **Aroclor 1254 [2C]** | **3.9** (0.5) | | 8082A | | 10 | 09/26/18 20:25 | C8I0483 | CI82513 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/26/18 12:30 | C8I0483 | CI82513 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/26/18 12:30 | C8I0483 | CI82513 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/26/18 12:30 | C8I0483 | CI82513 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *70 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *76 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *85 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *98 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-493-092418 0-4FT
Date Sampled: 09/24/18 09:26
Percent Solids: 96
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/26/18 13:25 | C8I0483 | CI82513 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/26/18 13:25 | C8I0483 | CI82513 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/26/18 13:25 | C8I0483 | CI82513 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/26/18 13:25 | C8I0483 | CI82513 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/26/18 13:25 | C8I0483 | CI82513 |
| **Aroclor 1254 [2C]** | **4.6** (0.5) | | 8082A | | 10 | 09/26/18 20:44 | C8I0483 | CI82513 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/26/18 13:25 | C8I0483 | CI82513 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/26/18 13:25 | C8I0483 | CI82513 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/26/18 13:25 | C8I0483 | CI82513 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *84 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *97 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *97 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-494-092418 0-4FT
Date Sampled: 09/24/18 09:31
Percent Solids: 88
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.9) | | 8082A | | 50 | 09/26/18 21:03 | C8I0483 | CI82513 |
| Aroclor 1221 | ND (2.9) | | 8082A | | 50 | 09/26/18 21:03 | C8I0483 | CI82513 |
| Aroclor 1232 | ND (2.9) | | 8082A | | 50 | 09/26/18 21:03 | C8I0483 | CI82513 |
| Aroclor 1242 | ND (2.9) | | 8082A | | 50 | 09/26/18 21:03 | C8I0483 | CI82513 |
| Aroclor 1248 | ND (2.9) | | 8082A | | 50 | 09/26/18 21:03 | C8I0483 | CI82513 |
| **Aroclor 1254** | **27.4** (2.9) | | 8082A | | 50 | 09/26/18 21:03 | C8I0483 | CI82513 |
| Aroclor 1260 | ND (2.9) | | 8082A | | 50 | 09/26/18 21:03 | C8I0483 | CI82513 |
| Aroclor 1262 | ND (2.9) | | 8082A | | 50 | 09/26/18 21:03 | C8I0483 | CI82513 |
| Aroclor 1268 | ND (2.9) | | 8082A | | 50 | 09/26/18 21:03 | C8I0483 | CI82513 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-495-092418 0-4FT
Date Sampled: 09/24/18 09:33
Percent Solids: 95
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:03 | C8I0483 | CI82513 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:03 | C8I0483 | CI82513 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:03 | C8I0483 | CI82513 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:03 | C8I0483 | CI82513 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:03 | C8I0483 | CI82513 |
| **Aroclor 1254 [2C]** | **1.6** (0.3) | | 8082A | | 5 | 09/26/18 21:22 | C8I0483 | CI82513 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:03 | C8I0483 | CI82513 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:03 | C8I0483 | CI82513 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:03 | C8I0483 | CI82513 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *46 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *139 %* | | *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: SW-509-092418 0-4FT
Date Sampled: 09/24/18 09:38
Percent Solids: 95
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:22 | C8I0483 | CI82513 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:22 | C8I0483 | CI82513 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:22 | C8I0483 | CI82513 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:22 | C8I0483 | CI82513 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:22 | C8I0483 | CI82513 |
| **Aroclor 1254 [2C]** | **0.1** (0.05) | | 8082A | | 1 | 09/26/18 14:22 | C8I0483 | CI82513 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:22 | C8I0483 | CI82513 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:22 | C8I0483 | CI82513 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:22 | C8I0483 | CI82513 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *87 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *105 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-510-092418 0-4FT
Date Sampled: 09/24/18 09:39
Percent Solids: 94
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:41 | C8I0483 | CI82513 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:41 | C8I0483 | CI82513 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:41 | C8I0483 | CI82513 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:41 | C8I0483 | CI82513 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:41 | C8I0483 | CI82513 |
| **Aroclor 1254 [2C]** | **1.0** (0.05) | | 8082A | | 1 | 09/26/18 14:41 | C8I0483 | CI82513 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:41 | C8I0483 | CI82513 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:41 | C8I0483 | CI82513 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/26/18 14:41 | C8I0483 | CI82513 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *79 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *107 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-511-092418 0-4FT
Date Sampled: 09/24/18 09:40
Percent Solids: 89
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:00 | C8I0483 | CI82513 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:00 | C8I0483 | CI82513 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:00 | C8I0483 | CI82513 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:00 | C8I0483 | CI82513 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:00 | C8I0483 | CI82513 |
| **Aroclor 1254 [2C]** | **0.3** (0.06) | | 8082A | | 1 | 09/26/18 15:00 | C8I0483 | CI82513 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:00 | C8I0483 | CI82513 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:00 | C8I0483 | CI82513 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:00 | C8I0483 | CI82513 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *60 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *62 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *59 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *70 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-512-092418 0-4FT
Date Sampled: 09/24/18 09:38
Percent Solids: 92
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:20 | C8I0483 | CI82513 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:20 | C8I0483 | CI82513 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:20 | C8I0483 | CI82513 |
| **Aroclor 1242** | **0.3** (0.06) | | 8082A | | 1 | 09/26/18 15:20 | C8I0483 | CI82513 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:20 | C8I0483 | CI82513 |
| **Aroclor 1254 [2C]** | **0.8** (0.06) | | 8082A | | 1 | 09/26/18 15:20 | C8I0483 | CI82513 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:20 | C8I0483 | CI82513 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:20 | C8I0483 | CI82513 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:20 | C8I0483 | CI82513 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *69 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *82 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *97 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-513-092418 0-4FT
Date Sampled: 09/24/18 09:34
Percent Solids: 94
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/26/18 15:39 | C8I0483 | CI82513 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/26/18 15:39 | C8I0483 | CI82513 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/26/18 15:39 | C8I0483 | CI82513 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/26/18 15:39 | C8I0483 | CI82513 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/26/18 15:39 | C8I0483 | CI82513 |
| **Aroclor 1254 [2C]** | **0.4** (0.05) | | 8082A | | 1 | 09/26/18 15:39 | C8I0483 | CI82513 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/26/18 15:39 | C8I0483 | CI82513 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/26/18 15:39 | C8I0483 | CI82513 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/26/18 15:39 | C8I0483 | CI82513 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *70 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *100 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-514-092418 0-4FT
Date Sampled: 09/24/18 09:33
Percent Solids: 88
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:58 | C8I0483 | CI82513 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:58 | C8I0483 | CI82513 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:58 | C8I0483 | CI82513 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:58 | C8I0483 | CI82513 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:58 | C8I0483 | CI82513 |
| **Aroclor 1254 [2C]** | **6.1** (0.6) | | 8082A | | 10 | 09/26/18 21:41 | C8I0483 | CI82513 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:58 | C8I0483 | CI82513 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:58 | C8I0483 | CI82513 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/26/18 15:58 | C8I0483 | CI82513 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *76 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *108 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-508-092418 2FT
Date Sampled: 09/24/18 11:06
Percent Solids: 93
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.7) | | 8082A | | 50 | 09/27/18 9:36 | C8I0512 | CI82513 |
| Aroclor 1221 | ND (2.7) | | 8082A | | 50 | 09/27/18 9:36 | C8I0512 | CI82513 |
| Aroclor 1232 | ND (2.7) | | 8082A | | 50 | 09/27/18 9:36 | C8I0512 | CI82513 |
| Aroclor 1242 | ND (2.7) | | 8082A | | 50 | 09/27/18 9:36 | C8I0512 | CI82513 |
| Aroclor 1248 | ND (2.7) | | 8082A | | 50 | 09/27/18 9:36 | C8I0512 | CI82513 |
| **Aroclor 1254 [2C]** | **17.5** (2.7) | | 8082A | | 50 | 09/27/18 9:36 | C8I0512 | CI82513 |
| Aroclor 1260 | ND (2.7) | | 8082A | | 50 | 09/27/18 9:36 | C8I0512 | CI82513 |
| Aroclor 1262 | ND (2.7) | | 8082A | | 50 | 09/27/18 9:36 | C8I0512 | CI82513 |
| Aroclor 1268 | ND (2.7) | | 8082A | | 50 | 09/27/18 9:36 | C8I0512 | CI82513 |

| | *%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-509-092418 2FT
Date Sampled: 09/24/18 11:05
Percent Solids: 98
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/26/18 18:30 | C8I0483 | CI82513 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/26/18 18:30 | C8I0483 | CI82513 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/26/18 18:30 | C8I0483 | CI82513 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/26/18 18:30 | C8I0483 | CI82513 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/26/18 18:30 | C8I0483 | CI82513 |
| **Aroclor 1254 [2C]** | **2.5** (0.3) | | 8082A | | 5 | 09/27/18 9:55 | C8I0483 | CI82513 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/26/18 18:30 | C8I0483 | CI82513 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/26/18 18:30 | C8I0483 | CI82513 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/26/18 18:30 | C8I0483 | CI82513 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *40 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *143 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *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-517-092418 2FT
Date Sampled: 09/24/18 11:04
Percent Solids: 95
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:14 | C8I0512 | CI82513 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:14 | C8I0512 | CI82513 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:14 | C8I0512 | CI82513 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:14 | C8I0512 | CI82513 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:14 | C8I0512 | CI82513 |
| **Aroclor 1254 [2C]** | **7.5** (1.1) | | 8082A | | 20 | 09/27/18 10:14 | C8I0512 | CI82513 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:14 | C8I0512 | CI82513 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:14 | C8I0512 | CI82513 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:14 | C8I0512 | CI82513 |

| | %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-506-092418 2FT
Date Sampled: 09/24/18 11:00
Percent Solids: 96
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:09 | C8I0483 | CI82513 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:09 | C8I0483 | CI82513 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:09 | C8I0483 | CI82513 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:09 | C8I0483 | CI82513 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:09 | C8I0483 | CI82513 |
| **Aroclor 1254 [2C]** | **0.6** (0.05) | | 8082A | | 1 | 09/26/18 19:09 | C8I0483 | CI82513 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:09 | C8I0483 | CI82513 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:09 | C8I0483 | CI82513 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:09 | C8I0483 | CI82513 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *57 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *133 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *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-511-092418 2FT
Date Sampled: 09/24/18 11:00
Percent Solids: 97
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:28 | C8I0483 | CI82513 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:28 | C8I0483 | CI82513 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:28 | C8I0483 | CI82513 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:28 | C8I0483 | CI82513 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:28 | C8I0483 | CI82513 |
| **Aroclor 1254 [2C]** | **4.8** (0.5) | | 8082A | | 10 | 09/27/18 10:33 | C8I0483 | CI82513 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:28 | C8I0483 | CI82513 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:28 | C8I0483 | CI82513 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/26/18 19:28 | C8I0483 | CI82513 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *77 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *87 %* | | *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-516-092418 2FT
Date Sampled: 09/24/18 11:10
Percent Solids: 93
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:52 | C8I0512 | CI82513 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:52 | C8I0512 | CI82513 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:52 | C8I0512 | CI82513 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:52 | C8I0512 | CI82513 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:52 | C8I0512 | CI82513 |
| **Aroclor 1254 [2C]** | **6.5** (1.1) | | 8082A | | 20 | 09/27/18 10:52 | C8I0512 | CI82513 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:52 | C8I0512 | CI82513 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:52 | C8I0512 | CI82513 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/27/18 10:52 | C8I0512 | CI82513 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-493-092418-1 0-4FT
Date Sampled: 09/24/18 09:26
Percent Solids: 96
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809616
ESS Laboratory Sample ID: 1809616-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/25/18 17:18

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.7) | | 8082A | | 50 | 09/27/18 11:11 | C8I0512 | CI82513 |
| Aroclor 1221 | ND (2.7) | | 8082A | | 50 | 09/27/18 11:11 | C8I0512 | CI82513 |
| Aroclor 1232 | ND (2.7) | | 8082A | | 50 | 09/27/18 11:11 | C8I0512 | CI82513 |
| Aroclor 1242 | ND (2.7) | | 8082A | | 50 | 09/27/18 11:11 | C8I0512 | CI82513 |
| Aroclor 1248 | ND (2.7) | | 8082A | | 50 | 09/27/18 11:11 | C8I0512 | CI82513 |
| **Aroclor 1254 [2C]** | **20.7** (2.7) | | 8082A | | 50 | 09/27/18 11:11 | C8I0512 | CI82513 |
| Aroclor 1260 | ND (2.7) | | 8082A | | 50 | 09/27/18 11:11 | C8I0512 | CI82513 |
| Aroclor 1262 | ND (2.7) | | 8082A | | 50 | 09/27/18 11:11 | C8I0512 | CI82513 |
| Aroclor 1268 | ND (2.7) | | 8082A | | 50 | 09/27/18 11:11 | C8I0512 | CI82513 |

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809616

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82513 - 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* | *0.0180* | | mg/kg wet | *0.02500* | | *72* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0200* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0190* | | mg/kg wet | *0.02500* | | *76* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0231* | | mg/kg wet | *0.02500* | | *92* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 81 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 84 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0178* | | mg/kg wet | *0.02500* | | *71* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0206* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0198* | | mg/kg wet | *0.02500* | | *79* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0208* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | 3 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 4 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | 3 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | 4 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0186* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0213* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0208* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0220* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| **Matrix Spike** **Source: 1809616-01** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809616

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82513 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.7 | 0.05 | mg/kg dry | 0.5292 | ND | 141 | 40-140 | | | MC |
| Aroclor 1016 [2C] | 0.7 | 0.05 | mg/kg dry | 0.5292 | ND | 130 | 40-140 | | | |
| Aroclor 1260 | 0.8 | 0.05 | mg/kg dry | 0.5292 | ND | 150 | 40-140 | | | MC |
| Aroclor 1260 [2C] | 0.7 | 0.05 | mg/kg dry | 0.5292 | ND | 139 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0217* | | mg/kg dry | *0.02646* | | *82* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0241* | | mg/kg dry | *0.02646* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0249* | | mg/kg dry | *0.02646* | | *94* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0264* | | mg/kg dry | *0.02646* | | *100* | *30-150* | | | |
| **Matrix Spike Dup Source: 1809616-01** | | | | | | | | | | |
| Aroclor 1016 | 0.8 | 0.05 | mg/kg dry | 0.5429 | ND | 156 | 40-140 | 13 | 30 | MC |
| Aroclor 1016 [2C] | 0.8 | 0.05 | mg/kg dry | 0.5429 | ND | 143 | 40-140 | 12 | 30 | MC |
| Aroclor 1260 | 1.0 | 0.05 | mg/kg dry | 0.5429 | ND | 181 | 40-140 | 21 | 30 | MC |
| Aroclor 1260 [2C] | 1.0 | 0.05 | mg/kg dry | 0.5429 | ND | 178 | 40-140 | 27 | 30 | MC |
| *Surrogate: Decachlorobiphenyl* | *0.0217* | | mg/kg dry | *0.02714* | | *80* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0250* | | mg/kg dry | *0.02714* | | *92* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0263* | | mg/kg dry | *0.02714* | | *97* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0280* | | mg/kg dry | *0.02714* | | *103* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809616

**Notes and Definitions**

| | |
|---|---|
| U | Analyte included in the analysis, but not detected |
| SD | Surrogate recovery(ies) diluted below the MRL (SD). |
| 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: 1809616

**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: 1809616
Date Received: 9/24/2018
Project Due Date: 10/1/2018
Days for Project: 5 Day

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

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

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

Sample Receiving Notes:

**COC= duplicate SW-514-092418(0-4')collected@0933, Rec'd=SW-515collected 9-24-18@0929**

9/24/18

COC = SW-513 collected 0934 Label = SW 514 collected 934
COC = SW B-508 collected @ 1105 Cap = B509 collected 1105 COC = B509 collected 1106 Cap = B508 1106

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 | 270358 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 01 | 270375 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 270374 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 270373 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 270372 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 270371 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 270370 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 270369 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 270368 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 270367 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 270366 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 270365 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 270364 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 270363 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 270362 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 270361 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 270360 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 270359 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

**2nd Review**

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

# ESS Laboratory Sample and Cooler Receipt Checklist

| | | | |
|---|---|---|---|
| Client: | AEI Consultants, Inc. - TB/MM | ESS Project ID: | 1809616 |
| | | Date Received: | 9/24/2018 |
| Completed By: | | Date & Time: | 9/21/18 1639 |
| Reviewed By: | | Date & Time: | 9/24/18 1708 |
| Delivered By: | | | 9/24/18 1708 |

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# CHAIN OF CUSTODY

ESS Lab # 1809616

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

Reporting Limits: See note 1

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

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

Analysis: PCBs (Soxhlet)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 11 | 092418 | 0933 | C | S | SW-514-092418(0-4') | X |
| 12 | | 1105 | G | | B-508-092418(2') | X |
| 13 | | 1105 | G | | B-509-092418(2') | X |
| 14 | | 1104 | G | | B-517-092418(2') | X |
| 15 | | 1100 | G | | B-506-092418(2') | X |
| 16 | | 1100 | G | | B-511-092418(2') | X |
| 17 | | 1110 | G | | B-516-092418(2') | X |
| FB | | 0926 | C | | SW-493-092418-1 EH (0-4') | X |
| 1 | | 0926 | C | | SW-701-092418-MS/MSD (0-4') | X |
| | | | | | ~~SW-701-092418~~ EH | |

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*
Number of Containers per Sample: 1

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

Sampled by: ~~ATing~~ J. Klement

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) |
|---|---|---|---|
| 9/24/18 15:51 | 9/24/18 15:51 | 9/24/18 16:03 | 9/24/18 1606 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

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# CHAIN OF CUSTODY

| | |
|---|---|
| ESS Lab # | 1809616 |
| Reporting Limits | See note 1 |
| Electonic Deliverables | [X] Limit Checker [X] Standard Excel [ ] Other (Please Specify →) |

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

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

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCB (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 9/24/18 | 0926 | C | S | SW-701-092418(0-4') | X |
| 2 | ↓ | 0926 | ↓ | ↓ | SW-493-092418(0-4') | X |
| 3 | | 0931 | | | SW-494-092418(0-4') | X |
| 4 | | 0933 | | | SW-495-092418(0-4') | X |
| 5 | | 0938 | | | SW-509-092418(0-4') | X |
| 6 | | 0939 | | | SW-510-092418(0-4') | X |
| 7 | | 0940 | | | SW-511-092418(0-4') | X |
| 8 | | 0938 | | | SW-512-092418(0-4') | X |
| 9 | | 0939 | | | SW-513-092418(0-4') | X |
| 10 | | 0933 | | | SW-514-092418(0-4') | X |

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

**Laboratory Use Only**
Cooler Present: —
Seals Intact: —
Cooler Temperature: Ice 2.8 °C

Sampled by: ~~A Ting~~ J Klement

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/24/18 15:51 | 9/24/18 15:51 | 9/24/18 16:03 | 9/24/18 1608 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

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# CHAIN OF CUSTODY

ESS Lab # 1809616

Turn Time Rush 48hr

Regulatory State RI

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

Reporting Limits See note 1

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

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@aei.consultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (soxhlet) |
|---|---|---|---|---|---|---|
| ~~11~~ | ~~09/24/18~~ | 0933 | C | S | SW-514-092418(0-4') | X |
| 12 | 11 | 1105 | G | | B-508-092418(2') | X |
| 13 | 12 | 1106 | G | | B-509-092418(2') | X |
| 14 | 13 | 1104 | G | | B-517-092418(2') | X |
| 15 | 14 | 1100 | G | | B-506-092418(2') | X |
| 16 | 15 | 1100 | G | | B-511-092418(2') | X |
| 17 | 16 | 1110 | G | | B-516-092418(2') | X |
| 18 | 17 | 0926 | C | | SW-493-092418-1 ~~(EH)~~ EH (0-4') | X |
| 1 | | 0926 | C | | SW-701-092418-ms/msd (0-4') | X |
| | | | | | ~~SW-701-092418~~ EH | |

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* — 4
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 2.8 °C

Sampled by: ~~ATing~~ J. Klement

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) |
|---|---|---|---|
| 9/24/18 15:51 | 9/24/18 15:51 | 9/24/18 16:03 | 9/24/18 1606 |
| 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: 1809651**

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 4:19 pm, Sep 28, 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: 1809651

## SAMPLE RECEIPT

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

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809651-01 | B-484-092418 2FT | Soil | 8082A |
| 1809651-02 | B-486-092418 2FT | Soil | 8082A |
| 1809651-03 | B-491-092418 2FT | Soil | 8082A |
| 1809651-04 | B-492-092418 2FT | Soil | 8082A |
| 1809651-05 | B-493-092418 2FT | Soil | 8082A |
| 1809651-06 | B-495-092418 2FT | Soil | 8082A |
| 1809651-07 | B-415-092518 1FT | Soil | 8082A |
| 1809651-08 | B-420-092518 1FT | Soil | 8082A |
| 1809651-09 | B-420-092518-1 1FT | Soil | 8082A |
| 1809651-10 | B-425-092518 1FT | Soil | 8082A |
| 1809651-11 | B-430-092518 1FT | Soil | 8082A |
| 1809651-12 | SW-520-092518-B 0-3FT | Soil | 8082A |
| 1809651-13 | SW-521-092518-B 0-3FT | Soil | 8082A |
| 1809651-14 | B-414-092518 1FT | Soil | 8082A |
| 1809651-15 | B-417-092518 1FT | Soil | 8082A |
| 1809651-16 | B-418-092518 1FT | Soil | 8082A |
| 1809651-17 | B-421-092518 1FT | Soil | 8082A |
| 1809651-18 | B-426-092518 1FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809651

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809651-07 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809651-14 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

**No other observations noted.**

**End of Project Narrative.**

## 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: 1809651

## 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-484-092418 2FT
Date Sampled: 09/24/18 12:04
Percent Solids: 97
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 11:56 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 11:56 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 11:56 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 11:56 | C8I0513 | CI82605 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/27/18 11:56 | C8I0513 | CI82605 |
| **Aroclor 1254** | **0.6** (0.05) | | 8082A | | 1 | 09/27/18 11:56 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 11:56 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 11:56 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 11:56 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *71 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *59 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *73 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *74 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-486-092418 2FT
Date Sampled: 09/24/18 11:43
Percent Solids: 92
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/27/18 12:13 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/27/18 12:13 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/27/18 12:13 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/27/18 12:13 | C8I0513 | CI82605 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/27/18 12:13 | C8I0513 | CI82605 |
| **Aroclor 1254** | **6.5** (0.6) | | 8082A | | 10 | 09/27/18 20:54 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/27/18 12:13 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/27/18 12:13 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/27/18 12:13 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *88 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *86 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-491-092418 2FT
Date Sampled: 09/24/18 12:00
Percent Solids: 97
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:32 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:32 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:32 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:32 | C8I0513 | CI82605 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:32 | C8I0513 | CI82605 |
| **Aroclor 1254** | **3.2** (0.5) | | 8082A | | 10 | 09/27/18 21:13 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:32 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:32 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:32 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *98 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *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-492-092418 2FT
Date Sampled: 09/24/18 12:01
Percent Solids: 99
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:51 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:51 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:51 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:51 | C8I0513 | CI82605 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:51 | C8I0513 | CI82605 |
| **Aroclor 1254 [2C]** | **1.7** (0.3) | | 8082A | | 5 | 09/27/18 21:32 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:51 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:51 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 12:51 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *91 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *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-493-092418 2FT
Date Sampled: 09/24/18 12:02
Percent Solids: 98
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:11 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:11 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:11 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:11 | C8I0513 | CI82605 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:11 | C8I0513 | CI82605 |
| **Aroclor 1254 [2C]** | **3.2** (0.5) | | 8082A | | 10 | 09/27/18 21:51 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:11 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:11 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:11 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *86 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *74 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *76 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *82 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-495-092418 2FT
Date Sampled: 09/24/18 11:30
Percent Solids: 97
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:30 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:30 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:30 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:30 | C8I0513 | CI82605 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:30 | C8I0513 | CI82605 |
| **Aroclor 1254** | **5.1** (0.5) | | 8082A | | 10 | 09/27/18 22:11 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:30 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:30 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:30 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *85 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *73 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *87 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-415-092518 1FT
Date Sampled: 09/25/18 09:12
Percent Solids: 86
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.0) | | 8082A | | 50 | 09/27/18 22:30 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (3.0) | | 8082A | | 50 | 09/27/18 22:30 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (3.0) | | 8082A | | 50 | 09/27/18 22:30 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (3.0) | | 8082A | | 50 | 09/27/18 22:30 | C8I0513 | CI82605 |
| Aroclor 1248 | ND (3.0) | | 8082A | | 50 | 09/27/18 22:30 | C8I0513 | CI82605 |
| **Aroclor 1254** | **19.7** (3.0) | | 8082A | | 50 | 09/27/18 22:30 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (3.0) | | 8082A | | 50 | 09/27/18 22:30 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (3.0) | | 8082A | | 50 | 09/27/18 22:30 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (3.0) | | 8082A | | 50 | 09/27/18 22:30 | C8I0513 | CI82605 |

| | *%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-420-092518 1FT
Date Sampled: 09/25/18 09:23
Percent Solids: 92
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/27/18 14:08 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/27/18 14:08 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/27/18 14:08 | C8I0513 | CI82605 |
| **Aroclor 1242** | **0.4** (0.06) | | 8082A | | 1 | 09/27/18 14:08 | C8I0513 | CI82605 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/27/18 14:08 | C8I0513 | CI82605 |
| **Aroclor 1254 [2C]** | **0.6** (0.06) | | 8082A | | 1 | 09/27/18 14:08 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/27/18 14:08 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/27/18 14:08 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/27/18 14:08 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *121 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *87 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-420-092518-1 1FT
Date Sampled: 09/25/18 09:23
Percent Solids: 92
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:06 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:06 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:06 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:06 | C8I0513 | CI82605 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:06 | C8I0513 | CI82605 |
| **Aroclor 1254 [2C]** | **0.4** (0.06) | | 8082A | | 1 | 09/27/18 15:06 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:06 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:06 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:06 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *90 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *67 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *72 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *78 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-425-092518 1FT
Date Sampled: 09/25/18 09:31
Percent Solids: 91
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:26 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:26 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:26 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:26 | C8I0513 | CI82605 |
| **Aroclor 1248 [2C]** | **1.5** (0.3) | | 8082A | | 5 | 09/27/18 22:49 | C8I0513 | CI82605 |
| **Aroclor 1254** | **0.7** (0.06) | | 8082A | | 1 | 09/27/18 15:26 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:26 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:26 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:26 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *88 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *73 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *85 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-430-092518 1FT
Date Sampled: 09/25/18 09:36
Percent Solids: 90
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:45 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:45 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:45 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:45 | C8I0513 | CI82605 |
| **Aroclor 1248** | **1.0** (0.06) | | 8082A | | 1 | 09/27/18 15:45 | C8I0513 | CI82605 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:45 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:45 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:45 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:45 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *88 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *82 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-520-092518-B 0-3FT
Date Sampled: 09/25/18 10:34
Percent Solids: 92
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:04 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:04 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:04 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:04 | C8I0513 | CI82605 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:04 | C8I0513 | CI82605 |
| **Aroclor 1254** | **1.1** (0.06) | | 8082A | | 1 | 09/27/18 16:04 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:04 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:04 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:04 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *88 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *78 %* | | *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: SW-521-092518-B 0-3FT
Date Sampled: 09/25/18 10:35
Percent Solids: 84
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:23 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:23 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:23 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:23 | C8I0513 | CI82605 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:23 | C8I0513 | CI82605 |
| **Aroclor 1254 [2C]** | **0.1** (0.06) | | 8082A | | 1 | 09/27/18 16:23 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:23 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:23 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/27/18 16:23 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *83 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *72 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *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-414-092518 1FT
Date Sampled: 09/25/18 09:09
Percent Solids: 88
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.0) | | 8082A | | 50 | 09/28/18 9:28 | C8I0540 | CI82605 |
| Aroclor 1221 | ND (3.0) | | 8082A | | 50 | 09/28/18 9:28 | C8I0540 | CI82605 |
| Aroclor 1232 | ND (3.0) | | 8082A | | 50 | 09/28/18 9:28 | C8I0540 | CI82605 |
| Aroclor 1242 | ND (3.0) | | 8082A | | 50 | 09/28/18 9:28 | C8I0540 | CI82605 |
| Aroclor 1248 | ND (3.0) | | 8082A | | 50 | 09/28/18 9:28 | C8I0540 | CI82605 |
| **Aroclor 1254** | **27.9** (3.0) | | 8082A | | 50 | 09/28/18 9:28 | C8I0540 | CI82605 |
| Aroclor 1260 | ND (3.0) | | 8082A | | 50 | 09/28/18 9:28 | C8I0540 | CI82605 |
| Aroclor 1262 | ND (3.0) | | 8082A | | 50 | 09/28/18 9:28 | C8I0540 | CI82605 |
| Aroclor 1268 | ND (3.0) | | 8082A | | 50 | 09/28/18 9:28 | C8I0540 | CI82605 |

| | *%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-417-092518 1FT
Date Sampled: 09/25/18 09:15
Percent Solids: 93
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 17:02 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 17:02 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 17:02 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 17:02 | C8I0513 | CI82605 |
| **Aroclor 1248 [2C]** | **2.0** (0.3) | | 8082A | | 5 | 09/28/18 9:47 | C8I0513 | CI82605 |
| Aroclor 1254 | ND (0.05) | | 8082A | | 1 | 09/27/18 17:02 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 17:02 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 17:02 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 17:02 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *131 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *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-418-092518 1FT
Date Sampled: 09/25/18 09:17
Percent Solids: 93
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:17 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:17 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:17 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:17 | C8I0513 | CI82605 |
| **Aroclor 1248** | **1.1** (0.06) | | 8082A | | 1 | 09/27/18 19:17 | C8I0513 | CI82605 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:17 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:17 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:17 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:17 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *78 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *72 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *75 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-421-092518 1FT
Date Sampled: 09/25/18 09:26
Percent Solids: 93
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0513 | CI82605 |
| **Aroclor 1248 [2C]** | **1.3** (0.3) | | 8082A | | 5 | 09/28/18 10:06 | C8I0513 | CI82605 |
| Aroclor 1254 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *89 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *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-426-092518 1FT
Date Sampled: 09/25/18 09:32
Percent Solids: 92
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809651
ESS Laboratory Sample ID: 1809651-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 15:52

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:56 | C8I0513 | CI82605 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:56 | C8I0513 | CI82605 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:56 | C8I0513 | CI82605 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:56 | C8I0513 | CI82605 |
| **Aroclor 1248 [2C]** | **1.6** (0.3) | | 8082A | | 5 | 09/28/18 10:26 | C8I0513 | CI82605 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:56 | C8I0513 | CI82605 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:56 | C8I0513 | CI82605 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:56 | C8I0513 | CI82605 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/27/18 19:56 | C8I0513 | CI82605 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *91 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *85 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *90 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809651

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82605 - 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* | *0.0187* | | mg/kg wet | *0.02500* | | *75* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0157* | | mg/kg wet | *0.02500* | | *63* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0181* | | mg/kg wet | *0.02500* | | *73* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0191* | | mg/kg wet | *0.02500* | | *76* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 84 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 82 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 80 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0225* | | mg/kg wet | *0.02500* | | *90* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0189* | | mg/kg wet | *0.02500* | | *76* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0200* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0204* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 84 | 40-140 | 1 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | 0.3 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | 1 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 81 | 40-140 | 0.4 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0222* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0188* | | mg/kg wet | *0.02500* | | *75* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0197* | | mg/kg wet | *0.02500* | | *79* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0201* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| **Matrix Spike** **Source: 1809651-08** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809651

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82605 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.6 | 0.05 | mg/kg dry | 0.5420 | ND | 114 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.6 | 0.05 | mg/kg dry | 0.5420 | ND | 114 | 40-140 | | | |
| Aroclor 1260 | 0.6 | 0.05 | mg/kg dry | 0.5420 | ND | 108 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg dry | 0.5420 | ND | 100 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0246* | | mg/kg dry | *0.02710* | | *91* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0210* | | mg/kg dry | *0.02710* | | *77* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0229* | | mg/kg dry | *0.02710* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0231* | | mg/kg dry | *0.02710* | | *85* | *30-150* | | | |
| **Matrix Spike Dup Source: 1809651-08** | | | | | | | | | | |
| Aroclor 1016 | 0.7 | 0.06 | mg/kg dry | 0.5617 | ND | 125 | 40-140 | 12 | 30 | |
| Aroclor 1016 [2C] | 0.6 | 0.06 | mg/kg dry | 0.5617 | ND | 100 | 40-140 | 10 | 30 | |
| Aroclor 1260 | 0.7 | 0.06 | mg/kg dry | 0.5617 | ND | 132 | 40-140 | 24 | 30 | |
| Aroclor 1260 [2C] | 0.7 | 0.06 | mg/kg dry | 0.5617 | ND | 117 | 40-140 | 19 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0271* | | mg/kg dry | *0.02808* | | *97* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0209* | | mg/kg dry | *0.02808* | | *75* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0242* | | mg/kg dry | *0.02808* | | *86* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0246* | | mg/kg dry | *0.02808* | | *88* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809651

**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: 1809651

**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: 1809651
Date Received: 9/25/2018
Project Due Date: 9/27/2018
Days for Project: 2 Day

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

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 270789 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 270788 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 270787 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 270786 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 270785 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 270784 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 270783 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 270782 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 270790 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 270791 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 270781 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 270780 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 270779 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 270778 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 270777 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 270776 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 270775 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 270774 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 270773 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 270772 | 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: 1809651

Date Received: 9/25/2018

Are all necessary stickers attached? Yes / No

Completed By: [signature] Date & Time: 9/25/18 1638

Reviewed By: [signature] Date & Time: 9/26/18 1718

Delivered By: [signature] 9/26/18 1718

1/2

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

# CHAIN OF CUSTODY

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

ESS Lab #: 1809651
Reporting Limits: see note 1
Electronic Deliverables: ☒ Mult Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 31631055
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
City: Boston
State: MA
Zip Code: 02109
PO #: —
Telephone Number: 978-573-3138
FAX Number: —
Email Address: ating@aeiconsultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (South Lot) |
|---|---|---|---|---|---|---|
| 1 | 9 24 18 | 1204 | G | S | B-484-092418 (2') | X |
| 2 | | 1143 | | | B-486-092418 (2') | X |
| 3 | | 1200 | | | B-491-092418 (2') | X |
| 4 | | 1201 | | | B-492-092418 (2') | X |
| 5 | | 1202 | | | ~~B-493~~ B-493-092418 (2') | X |
| 6 | | 1130 | | | B-495-092418 (2') | X |
| 7 | 9/25/18 | 0912 | G | | B-415-092518 (1') | X |
| 8 | | 0923 | | | B-420-092518 (1') | X |
| 9 | | 0923 | | | B-420-092518-A (1') | X |
| 8 | | 0923 | | | B-420-092518-A' (1') MS/MSD | X |

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

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 5.5 °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) |
|---|---|---|---|
| 9/25/18 1529 | 9/25/18 15:29 | 9/25/18 15:43 | |
| 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 48-hr
Regulatory State: RI
Is this project for any of the following?: ○ CT RCP ○ MA MCP ○ RGP

ESS Lab #: 1809651
Reporting Limits: see note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 31631055
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 (South Lot) |
|---|---|---|---|---|---|---|
| 10 | 9/25/18 | 09:31 | G | S | B-425-092518 (1') | X |
| 11 | 9/25/18 | 09:36 | G | | B-430-092518 (1') | X |
| 12 | 9/25/18 | 10:34 | C | | SW-520-092518-B (0-3') | X |
| 13 | 9/25/18 | 10:35 | C | | SW 521-092518-B (0-3') | X |
| ~~14~~ 14 | | 0909 | G | S | B-414-092518 (1') | X |
| 15 | | ~~0914~~ 0915 | | | B-417-092518 (1') | X |
| 16 | | 0917 | | | B-418-092518 (1') | X |
| 17 | | 0926 | | | B-421-092518 (1') | X |
| 18 | | 0932 | | | B-426-092518 (1') | X |

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

**Laboratory Use Only**
Cooler Present: —
Seals Intact: —
Cooler Temperature: Ice 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) |
|---|---|---|---|
| 9/25/18 1529 | 9/25/18 15:29 | 9/25/18 15:43 | |
| 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: 1809681**

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 3:18 pm, Sep 28, 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: 1809681

## SAMPLE RECEIPT

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

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809681-01 | SW-645-092418 0-2FT | Soil | 8082A |
| 1809681-02 | SW-648-092418 0-2FT | Soil | 8082A |
| 1809681-03 | SW-649-092418 0-2FT | Soil | 8082A |
| 1809681-04 | SW-649-092418-1 0-2FT | Soil | 8082A |
| 1809681-05 | SW-650-092418 0-2FT | Soil | 8082A |
| 1809681-06 | SW-651-092418 0-2FT | Soil | 8082A |
| 1809681-07 | SW-652-092418 0-2FT | Soil | 8082A |
| 1809681-08 | SW-653-092418 0-2FT | Soil | 8082A |
| 1809681-09 | SW-654-092418 0-2FT | Soil | 8082A |
| 1809681-10 | SW-656-092418 0-2FT | Soil | 8082A |
| 1809681-11 | B-458-092418 2FT | Soil | 8082A |
| 1809681-12 | B-459-092418 2FT | Soil | 8082A |
| 1809681-13 | B-460-092418 2FT | Soil | 8082A |
| 1809681-14 | B-461-092418 2FT | Soil | 8082A |
| 1809681-15 | B-468-092418 2FT | Soil | 8082A |
| 1809681-16 | B-476-092418 2FT | Soil | 8082A |
| 1809681-17 | B-477-092418 2FT | Soil | 8082A |
| 1809681-18 | B-476-092418-1 2FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809681

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809681-01 **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%)

1809681-02 **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%)

1809681-03 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl [2C] (239% @ 30-150%)

1809681-06 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809681-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809681-10 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809681-11 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809681-12 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809681-13 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809681-14 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809681-15 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl [2C] (295% @ 30-150%)

CI82607-MS1 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1016 (182% @ 40-140%), Aroclor 1016 [2C] (163% @ 40-140%), Aroclor 1260 (191% @ 40-140%), Aroclor 1260 [2C] (174% @ 40-140%)

CI82607-MSD1 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1260 (152% @ 40-140%)

CI82607-MSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
Aroclor 1016 (52% @ 30%), Aroclor 1016 [2C] (38% @ 30%), Aroclor 1260 [2C] (37% @ 30%)

CI82607-MSD2 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1016 (161% @ 40-140%), Aroclor 1016 [2C] (144% @ 40-140%), Aroclor 1260 (196% @ 40-140%), Aroclor 1260 [2C] (173% @ 40-140%)

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston ESS Laboratory Work Order: 1809681

CI82607-MSD2 **Relative percent difference for duplicate is outside of criteria (D+).**
Aroclor 1260 (53% @ 30%), Aroclor 1260 [2C] (40% @ 30%)

**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: 1809681

## CURRENT SW-846 METHODOLOGY VERSIONS

**Analytical Methods**

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

**Prep Methods**

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-645-092418 0-2FT
Date Sampled: 09/24/18 13:39
Percent Solids: 93
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/27/18 21:12 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/27/18 21:12 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/27/18 21:12 | C8I0512 | CI82607 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/27/18 21:12 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/27/18 21:12 | C8I0512 | CI82607 |
| **Aroclor 1254 [2C]** | **12.7** (1.1) | | 8082A | | 20 | 09/27/18 21:12 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/27/18 21:12 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/27/18 21:12 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/27/18 21:12 | C8I0512 | CI82607 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-648-092418 0-2FT
Date Sampled: 09/24/18 14:33
Percent Solids: 91
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 09/27/18 21:31 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 09/27/18 21:31 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 09/27/18 21:31 | C8I0512 | CI82607 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 09/27/18 21:31 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 09/27/18 21:31 | C8I0512 | CI82607 |
| **Aroclor 1254 [2C]** | **34.8** (2.8) | | 8082A | | 50 | 09/27/18 21:31 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 09/27/18 21:31 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 09/27/18 21:31 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 09/27/18 21:31 | C8I0512 | CI82607 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-649-092418 0-2FT
Date Sampled: 09/24/18 14:31
Percent Solids: 96
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:33 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:33 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:33 | C8I0512 | CI82607 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:33 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:33 | C8I0512 | CI82607 |
| **Aroclor 1254 [2C]** | **4.5** (0.5) | | 8082A | | 10 | 09/27/18 21:50 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:33 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:33 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:33 | C8I0512 | CI82607 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *44 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *239 %* | *SM* | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *97 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-649-092418-1 0-2FT
Date Sampled: 09/24/18 14:31
Percent Solids: 96
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:52 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:52 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:52 | C8I0512 | CI82607 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:52 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:52 | C8I0512 | CI82607 |
| **Aroclor 1254 [2C]** | **4.4** (0.5) | | 8082A | | 10 | 09/27/18 22:09 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:52 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:52 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 13:52 | C8I0512 | CI82607 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *98 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *100 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *99 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-650-092418 0-2FT
Date Sampled: 09/24/18 14:28
Percent Solids: 96
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:11 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:11 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:11 | C8I0512 | CI82607 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:11 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:11 | C8I0512 | CI82607 |
| **Aroclor 1254 [2C]** | **4.3** (0.5) | | 8082A | | 10 | 09/27/18 22:29 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:11 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:11 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:11 | C8I0512 | CI82607 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *99 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *101 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *94 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *107 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-651-092418 0-2FT
Date Sampled: 09/24/18 14:26
Percent Solids: 94
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/27/18 22:48 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/27/18 22:48 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/27/18 22:48 | C8I0512 | CI82607 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/27/18 22:48 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/27/18 22:48 | C8I0512 | CI82607 |
| **Aroclor 1254 [2C]** | **11.8** (1.1) | | 8082A | | 20 | 09/27/18 22:48 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/27/18 22:48 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/27/18 22:48 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/27/18 22:48 | C8I0512 | CI82607 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-652-092418 0-2FT
Date Sampled: 09/24/18 14:23
Percent Solids: 95
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:49 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:49 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:49 | C8I0512 | CI82607 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:49 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:49 | C8I0512 | CI82607 |
| **Aroclor 1254 [2C]** | **4.8** (0.5) | | 8082A | | 10 | 09/27/18 23:07 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:49 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:49 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 14:49 | C8I0512 | CI82607 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *66 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *104 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *97 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-653-092418 0-2FT
Date Sampled: 09/24/18 14:20
Percent Solids: 95
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/27/18 23:26 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/27/18 23:26 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/27/18 23:26 | C8I0512 | CI82607 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/27/18 23:26 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/27/18 23:26 | C8I0512 | CI82607 |
| **Aroclor 1254 [2C]** | **11.9** (1.1) | | 8082A | | 20 | 09/27/18 23:26 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/27/18 23:26 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/27/18 23:26 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/27/18 23:26 | C8I0512 | CI82607 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-654-092418 0-2FT
Date Sampled: 09/24/18 14:08
Percent Solids: 94
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:27 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:27 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:27 | C8I0512 | CI82607 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:27 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:27 | C8I0512 | CI82607 |
| **Aroclor 1254 [2C]** | **5.2** (0.6) | | 8082A | | 10 | 09/27/18 23:45 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:27 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:27 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/27/18 15:27 | C8I0512 | CI82607 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *45 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *124 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *67 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *76 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-656-092418 0-2FT
Date Sampled: 09/24/18 14:02
Percent Solids: 93
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 09/28/18 0:04 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 09/28/18 0:04 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 09/28/18 0:04 | C8I0512 | CI82607 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 09/28/18 0:04 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 09/28/18 0:04 | C8I0512 | CI82607 |
| **Aroclor 1254 [2C]** | **13.8** (1.1) | | 8082A | | 20 | 09/28/18 0:04 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 09/28/18 0:04 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 09/28/18 0:04 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 09/28/18 0:04 | C8I0512 | CI82607 |

| | *%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-458-092418 2FT
Date Sampled: 09/24/18 13:13
Percent Solids: 93
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.6) | | 8082A | | 50 | 09/28/18 9:07 | C8I0539 | CI82607 |
| Aroclor 1221 | ND (2.6) | | 8082A | | 50 | 09/28/18 9:07 | C8I0539 | CI82607 |
| Aroclor 1232 | ND (2.6) | | 8082A | | 50 | 09/28/18 9:07 | C8I0539 | CI82607 |
| Aroclor 1242 | ND (2.6) | | 8082A | | 50 | 09/28/18 9:07 | C8I0539 | CI82607 |
| Aroclor 1248 | ND (2.6) | | 8082A | | 50 | 09/28/18 9:07 | C8I0539 | CI82607 |
| **Aroclor 1254 [2C]** | **20.4** (2.6) | | 8082A | | 50 | 09/28/18 9:07 | C8I0539 | CI82607 |
| Aroclor 1260 | ND (2.6) | | 8082A | | 50 | 09/28/18 9:07 | C8I0539 | CI82607 |
| Aroclor 1262 | ND (2.6) | | 8082A | | 50 | 09/28/18 9:07 | C8I0539 | CI82607 |
| Aroclor 1268 | ND (2.6) | | 8082A | | 50 | 09/28/18 9:07 | C8I0539 | CI82607 |

| | *%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-459-092418 2FT
Date Sampled: 09/24/18 13:21
Percent Solids: 81
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (6.4) | | 8082A | | 100 | 09/28/18 9:26 | C8I0539 | CI82607 |
| Aroclor 1221 | ND (6.4) | | 8082A | | 100 | 09/28/18 9:26 | C8I0539 | CI82607 |
| Aroclor 1232 | ND (6.4) | | 8082A | | 100 | 09/28/18 9:26 | C8I0539 | CI82607 |
| **Aroclor 1242** | **22.7** (6.4) | | 8082A | | 100 | 09/28/18 9:26 | C8I0539 | CI82607 |
| Aroclor 1248 | ND (6.4) | | 8082A | | 100 | 09/28/18 9:26 | C8I0539 | CI82607 |
| **Aroclor 1254** | **90.3** (6.4) | | 8082A | | 100 | 09/28/18 9:26 | C8I0539 | CI82607 |
| Aroclor 1260 | ND (6.4) | | 8082A | | 100 | 09/28/18 9:26 | C8I0539 | CI82607 |
| Aroclor 1262 | ND (6.4) | | 8082A | | 100 | 09/28/18 9:26 | C8I0539 | CI82607 |
| Aroclor 1268 | ND (6.4) | | 8082A | | 100 | 09/28/18 9:26 | C8I0539 | CI82607 |

| | *%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-460-092418 2FT
Date Sampled: 09/24/18 13:20
Percent Solids: 82
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (12.2) | | 8082A | | 200 | 09/28/18 9:45 | C8I0539 | CI82607 |
| Aroclor 1221 | ND (12.2) | | 8082A | | 200 | 09/28/18 9:45 | C8I0539 | CI82607 |
| Aroclor 1232 | ND (12.2) | | 8082A | | 200 | 09/28/18 9:45 | C8I0539 | CI82607 |
| Aroclor 1242 | ND (12.2) | | 8082A | | 200 | 09/28/18 9:45 | C8I0539 | CI82607 |
| Aroclor 1248 | ND (12.2) | | 8082A | | 200 | 09/28/18 9:45 | C8I0539 | CI82607 |
| **Aroclor 1254 [2C]** | **141** (12.2) | | 8082A | | 200 | 09/28/18 9:45 | C8I0539 | CI82607 |
| Aroclor 1260 | ND (12.2) | | 8082A | | 200 | 09/28/18 9:45 | C8I0539 | CI82607 |
| Aroclor 1262 | ND (12.2) | | 8082A | | 200 | 09/28/18 9:45 | C8I0539 | CI82607 |
| Aroclor 1268 | ND (12.2) | | 8082A | | 200 | 09/28/18 9:45 | C8I0539 | CI82607 |

| | *%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-461-092418 2FT
Date Sampled: 09/24/18 13:18
Percent Solids: 90
Initial Volume: 20.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (5.4) | | 8082A | | 100 | 09/28/18 10:04 | C8I0539 | CI82607 |
| Aroclor 1221 | ND (5.4) | | 8082A | | 100 | 09/28/18 10:04 | C8I0539 | CI82607 |
| Aroclor 1232 | ND (5.4) | | 8082A | | 100 | 09/28/18 10:04 | C8I0539 | CI82607 |
| Aroclor 1242 | ND (5.4) | | 8082A | | 100 | 09/28/18 10:04 | C8I0539 | CI82607 |
| Aroclor 1248 | ND (5.4) | | 8082A | | 100 | 09/28/18 10:04 | C8I0539 | CI82607 |
| **Aroclor 1254** | **57.8** (5.4) | | 8082A | | 100 | 09/28/18 10:04 | C8I0539 | CI82607 |
| Aroclor 1260 | ND (5.4) | | 8082A | | 100 | 09/28/18 10:04 | C8I0539 | CI82607 |
| Aroclor 1262 | ND (5.4) | | 8082A | | 100 | 09/28/18 10:04 | C8I0539 | CI82607 |
| Aroclor 1268 | ND (5.4) | | 8082A | | 100 | 09/28/18 10:04 | C8I0539 | CI82607 |

| | *%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-468-092418 2FT
Date Sampled: 09/24/18 13:25
Percent Solids: 96
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:17 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:17 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:17 | C8I0512 | CI82607 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:17 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:17 | C8I0512 | CI82607 |
| **Aroclor 1254** | **1.6** (0.3) | | 8082A | | 5 | 09/28/18 10:23 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:17 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:17 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:17 | C8I0512 | CI82607 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *55 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *295 %* | *SM* | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *73 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *84 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-476-092418 2FT
Date Sampled: 09/24/18 13:32
Percent Solids: 97
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0512 | CI82607 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0512 | CI82607 |
| **Aroclor 1254 [2C]** | **1.3** (0.3) | | 8082A | | 5 | 09/28/18 10:42 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:36 | C8I0512 | CI82607 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *86 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *102 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-477-092418 2FT
Date Sampled: 09/24/18 13:30
Percent Solids: 97
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:55 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:55 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:55 | C8I0512 | CI82607 |
| **Aroclor 1242** | **3.4** (0.5) | | 8082A | | 10 | 09/28/18 11:01 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:55 | C8I0512 | CI82607 |
| **Aroclor 1254** | **3.3** (0.5) | | 8082A | | 10 | 09/28/18 11:01 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:55 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:55 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 19:55 | C8I0512 | CI82607 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *80 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *107 %* | | *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-476-092418-1 2FT
Date Sampled: 09/24/18 13:32
Percent Solids: 97
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809681
ESS Laboratory Sample ID: 1809681-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/26/18 17:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/27/18 20:15 | C8I0512 | CI82607 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/27/18 20:15 | C8I0512 | CI82607 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/27/18 20:15 | C8I0512 | CI82607 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/27/18 20:15 | C8I0512 | CI82607 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/27/18 20:15 | C8I0512 | CI82607 |
| **Aroclor 1254 [2C]** | **1.3** (0.3) | | 8082A | | 5 | 09/28/18 11:20 | C8I0512 | CI82607 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/27/18 20:15 | C8I0512 | CI82607 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/27/18 20:15 | C8I0512 | CI82607 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/27/18 20:15 | C8I0512 | CI82607 |

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809681

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82607 - 3540C** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| Aroclor 1016 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1016 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0175* | | mg/kg wet | *0.02500* | | *70* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0200* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0197* | | mg/kg wet | *0.02500* | | *79* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0220* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 85 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 89 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0192* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0222* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0221* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0231* | | mg/kg wet | *0.02500* | | *92* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 94 | 40-140 | 2 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 94 | 40-140 | 0.9 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | 4 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 3 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0193* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0222* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0225* | | mg/kg wet | *0.02500* | | *90* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0235* | | mg/kg wet | *0.02500* | | *94* | *30-150* | | | |
| **Matrix Spike** **Source: 1809681-03** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809681

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **8082A Polychlorinated Biphenyls (PCB)** | | | | | | | | | | |
| **Batch CI82607 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.9 | 0.05 | mg/kg dry | 0.5198 | ND | 182 | 40-140 | | | M+ |
| Aroclor 1016 [2C] | 0.8 | 0.05 | mg/kg dry | 0.5198 | ND | 163 | 40-140 | | | M+ |
| Aroclor 1260 | 1.0 | 0.05 | mg/kg dry | 0.5198 | ND | 191 | 40-140 | | | M+ |
| Aroclor 1260 [2C] | 0.9 | 0.05 | mg/kg dry | 0.5198 | ND | 174 | 40-140 | | | M+ |
| *Surrogate: Decachlorobiphenyl* | *0.0213* | | mg/kg dry | *0.02599* | | *82* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0247* | | mg/kg dry | *0.02599* | | *95* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0267* | | mg/kg dry | *0.02599* | | *103* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0282* | | mg/kg dry | *0.02599* | | *109* | *30-150* | | | |
| **Matrix Spike** **Source: 1809681-16** | | | | | | | | | | |
| Aroclor 1016 | 0.6 | 0.05 | mg/kg dry | 0.5319 | ND | 120 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.6 | 0.05 | mg/kg dry | 0.5319 | ND | 111 | 40-140 | | | |
| Aroclor 1260 | 0.6 | 0.05 | mg/kg dry | 0.5319 | ND | 114 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.6 | 0.05 | mg/kg dry | 0.5319 | ND | 115 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0217* | | mg/kg dry | *0.02659* | | *81* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0230* | | mg/kg dry | *0.02659* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0262* | | mg/kg dry | *0.02659* | | *98* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0276* | | mg/kg dry | *0.02659* | | *104* | *30-150* | | | |
| **Matrix Spike Dup** **Source: 1809681-03** | | | | | | | | | | |
| Aroclor 1016 | 0.6 | 0.05 | mg/kg dry | 0.5330 | ND | 105 | 40-140 | 52 | 30 | D+ |
| Aroclor 1016 [2C] | 0.6 | 0.05 | mg/kg dry | 0.5330 | ND | 107 | 40-140 | 38 | 30 | D+ |
| Aroclor 1260 | 0.8 | 0.05 | mg/kg dry | 0.5330 | ND | 152 | 40-140 | 20 | 30 | M+ |
| Aroclor 1260 [2C] | 0.6 | 0.05 | mg/kg dry | 0.5330 | ND | 117 | 40-140 | 37 | 30 | D+ |
| *Surrogate: Decachlorobiphenyl* | *0.0332* | | mg/kg dry | *0.02665* | | *124* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0281* | | mg/kg dry | *0.02665* | | *106* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0246* | | mg/kg dry | *0.02665* | | *92* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0261* | | mg/kg dry | *0.02665* | | *98* | *30-150* | | | |
| **Matrix Spike Dup** **Source: 1809681-16** | | | | | | | | | | |
| Aroclor 1016 | 0.9 | 0.05 | mg/kg dry | 0.5291 | ND | 161 | 40-140 | 28 | 30 | M+ |
| Aroclor 1016 [2C] | 0.8 | 0.05 | mg/kg dry | 0.5291 | ND | 144 | 40-140 | 25 | 30 | M+ |
| Aroclor 1260 | 1.0 | 0.05 | mg/kg dry | 0.5291 | ND | 196 | 40-140 | 53 | 30 | D+, M+ |
| Aroclor 1260 [2C] | 0.9 | 0.05 | mg/kg dry | 0.5291 | ND | 173 | 40-140 | 40 | 30 | D+, M+ |
| *Surrogate: Decachlorobiphenyl* | *0.0220* | | mg/kg dry | *0.02646* | | *83* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0242* | | mg/kg dry | *0.02646* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0248* | | mg/kg dry | *0.02646* | | *94* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0266* | | mg/kg dry | *0.02646* | | *100* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809681

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809681

**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: 1809681
Date Received: 9/26/2018
Project Due Date: 9/28/2018
Days for Project: 2 Day

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

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 271218 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 271217 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 271216 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 271257 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 271258 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 271215 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 271214 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 271213 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 271212 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 271211 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 271210 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 271209 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 271208 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 271207 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 271206 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 271205 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 271204 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 271203 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 271255 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 271256 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 271202 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 271201 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809681
Date Received: 9/26/2018

**2nd Review**

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

Completed By: _____ Date & Time: 9/26/18 1546
Reviewed By: _____ Date & Time: 9/26/18 16:32
Delivered By: _____ 9/26/18 16:40

**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 #: 1809681
Reporting Limits: see note 1
Electonic Deliverables: ☒Leak Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3163655
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 | 9/24/18 | 1339 | C | S | SW-645-092418(0-2') | X |
| 2 | ↓ | 1433 | ↓ | ↓ | SW-648-092418 (0-2') | X |
| 3 | | 1437 | | | SW-649-092418(0-2') | X |
| 4 | | 1431 | | | SW-649-092418-1(0-2') | X |
| 3 ~~5~~ | | 1431 | | | SW-649-092418-ms/msd (0-2') | X |
| ~~4~~ 5 ~~6~~ | | 1428 | | | SW-650-092418(0-2') | X |
| 6 ~~7~~ | | 1426 | | | SW-651-092418(0-2') | X |
| 7 ~~8~~ | | 1423 | | | SW-652-092418(0-2') | X |
| 8 ~~9~~ | | 1420 | | | SW-653-092418(0-2') | X |
| 9 ~~10~~ | ↓ | 1408 | ↓ | ↓ | SW-654-092418(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*

| Container Type | Container Volume | Preservation Code |
|---|---|---|
| AG | 9 | 1 |

Number of Containers per Sample: 1

**Laboratory Use Only**
Cooler Present: —
Seals Intact: —
Cooler Temperature: Ice 4.8 °C

Sampled by: ~~A. Ting~~ J Klement
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) |
|---|---|---|---|
| [signature] 9/26/18 1506 | [signature] 9/26/18 1506 | [signature] 9/26/18 1618 | [signature] 9/26/18 1528 |
| 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 #: 1809 681
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
Telephone Number: 978-577-7138
FAX Number: —
Project #: 3631055
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
Zip Code: 02109
PO #: —
Email Address: ating@aeiconsultants.com

| | ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|---|
| 10 | 1 | 9/24/18 | 1402 | C | S | SW-656-092418(0-2') | X |
| 11 | 2 | 9/24/18 | 13:13 | G | S | B-458-092418 (2') | X |
| 12 | 13 | | 13:21 | | | B-459-092418 (2') | X |
| 13 | 14 | | 13:20 | | | B-460-092418 (2') | X |
| 14 | 15 | | 13:18 | | | B-461-092418 (2') | X |
| 15 | 16 | | 13:25 | | | B-468-092418 (2') | X |
| 16 | 17 | | 13:32 | | | B-476-092418 (2') | X |
| 17 | 18 | | 13:30 | | | B-477-092418 (2') | X |
| 18 | 19 | | 1338 | | | B-476-092418-1 (2') | X |
| 16 | 20 | | 1332 | | | B-476-092418 (2) 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*

| | |
|---|---|
| AG | 9 |
| 1 | 1 |
| Number of Containers per Sample: | 1 |

**Laboratory Use Only**
Cooler Present: —
Seals Intact: —
Cooler Temperature: Ice 4.8 °C

Sampled by: ~~A. Ting~~ Josh Klement
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) |
|---|---|---|---|
| [signature] 9/26/18 1506 | [signature] 9/26/18 1506 | [signature] 9/26/18 15:18 | [signature] 9/26/18 1528 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

*CERTIFICATE OF ANALYSIS*

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

**RE: BASF Cranston (363655)**
**ESS Laboratory Work Order Number: 1809724**

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

Laurel Stoddard
Laboratory Director

**REVIEWED**
**By ESS Laboratory at 5:36 pm, Oct 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: 1809724

## SAMPLE RECEIPT

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

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809724-01 | B-169-092718 2FT | Soil | 8082A |
| 1809724-02 | B-466-092718 2FT | Solid | 8082A |
| 1809724-03 | B-165-092718 2FT | Soil | 8082A |
| 1809724-04 | B-171-092718 2FT | Soil | 8082A |
| 1809724-05 | B-173-092718 2FT | Soil | 8082A |
| 1809724-06 | B-174-092718 2FT | Soil | 8082A |
| 1809724-07 | B-176-092718 2FT | Soil | 8082A |
| 1809724-08 | B-170-092718 2FT | Soil | 8082A |
| 1809724-09 | B-175-092718 2FT | Soil | 8082A |
| 1809724-10 | SW-145-092718 0-2FT | Soil | 8082A |
| 1809724-11 | SW-146-092718 0-2FT | Solid | 8082A |
| 1809724-12 | SW-147-092718 0-2FT | Solid | 8082A |
| 1809724-13 | SW-148-092718 0-2FT | Solid | 8082A |
| 1809724-14 | SW-149-092718 0-2FT | Solid | 8082A |
| 1809724-15 | SW-150-092718 0-2FT | Soil | 8082A |
| 1809724-16 | SW-152-092718 0-2FT | Soil | 8082A |
| 1809724-17 | B-910-092718 1FT | Soil | 8082A |
| 1809724-18 | B-920-092718 1FT | Soil | 8082A |
| 1809724-19 | SW-536-092518-B 0-2FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809724

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1809724-01 **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%)

1809724-02 **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%)

1809724-03 **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%)

1809724-04 **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%)

1809724-05 **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%)

1809724-06 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809724-07 **Surrogate recovery(ies) above upper control limit (S+).**
Decachlorobiphenyl [2C] (168% @ 30-150%)

1809724-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809724-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1809724-15 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

C8J0014-CCV3 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Decachlorobiphenyl (30% @ 20%)

**No other observations noted.**

**End of Project Narrative.**

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809724

## DATA USABILITY LINKS

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

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

## CURRENT SW-846 METHODOLOGY VERSIONS

### Analytical Methods

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

### Prep Methods

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-169-092718 2FT
Date Sampled: 09/27/18 08:31
Percent Solids: 84
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/28/18 22:09 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/28/18 22:09 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/28/18 22:09 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/28/18 22:09 | C8I0539 | CI82706 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/28/18 22:09 | C8I0539 | CI82706 |
| **Aroclor 1254 [2C]** | **13.6** (1.2) | | 8082A | | 20 | 09/28/18 22:09 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/28/18 22:09 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/28/18 22:09 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/28/18 22:09 | C8I0539 | CI82706 |

| | *%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-466-092718 2FT
Date Sampled: 09/27/18 09:55
Percent Solids: 97
Initial Volume: 5.03
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-02
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (10.3) | | 8082A | | 50 | 09/28/18 22:28 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (10.3) | | 8082A | | 50 | 09/28/18 22:28 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (10.3) | | 8082A | | 50 | 09/28/18 22:28 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (10.3) | | 8082A | | 50 | 09/28/18 22:28 | C8I0539 | CI82706 |
| Aroclor 1248 | ND (10.3) | | 8082A | | 50 | 09/28/18 22:28 | C8I0539 | CI82706 |
| **Aroclor 1254 [2C]** | **86.6** (10.3) | | 8082A | | 50 | 09/28/18 22:28 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (10.3) | | 8082A | | 50 | 09/28/18 22:28 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (10.3) | | 8082A | | 50 | 09/28/18 22:28 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (10.3) | | 8082A | | 50 | 09/28/18 22:28 | C8I0539 | CI82706 |

| | *%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-165-092718 2FT
Date Sampled: 09/27/18 08:27
Percent Solids: 83
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.3) | | 8082A | | 20 | 09/28/18 22:47 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (1.3) | | 8082A | | 20 | 09/28/18 22:47 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (1.3) | | 8082A | | 20 | 09/28/18 22:47 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (1.3) | | 8082A | | 20 | 09/28/18 22:47 | C8I0539 | CI82706 |
| Aroclor 1248 | ND (1.3) | | 8082A | | 20 | 09/28/18 22:47 | C8I0539 | CI82706 |
| **Aroclor 1254 [2C]** | **11.5** (1.3) | | 8082A | | 20 | 09/28/18 22:47 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (1.3) | | 8082A | | 20 | 09/28/18 22:47 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (1.3) | | 8082A | | 20 | 09/28/18 22:47 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (1.3) | | 8082A | | 20 | 09/28/18 22:47 | C8I0539 | CI82706 |

| | %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-171-092718 2FT
Date Sampled: 09/27/18 08:33
Percent Solids: 84
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 09/28/18 23:06 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 09/28/18 23:06 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 09/28/18 23:06 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 09/28/18 23:06 | C8I0539 | CI82706 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 09/28/18 23:06 | C8I0539 | CI82706 |
| **Aroclor 1254 [2C]** | **12.8** (1.2) | | 8082A | | 20 | 09/28/18 23:06 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 09/28/18 23:06 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 09/28/18 23:06 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 09/28/18 23:06 | C8I0539 | CI82706 |

| | *%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-173-092718 2FT
Date Sampled: 09/27/18 08:35
Percent Solids: 89
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/01/18 10:05 | C8J0014 | CI82706 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/01/18 10:05 | C8J0014 | CI82706 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/01/18 10:05 | C8J0014 | CI82706 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/01/18 10:05 | C8J0014 | CI82706 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/01/18 10:05 | C8J0014 | CI82706 |
| **Aroclor 1254 [2C]** | **13.2** (1.2) | | 8082A | | 20 | 10/01/18 10:05 | C8J0014 | CI82706 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/01/18 10:05 | C8J0014 | CI82706 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/01/18 10:05 | C8J0014 | CI82706 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/01/18 10:05 | C8J0014 | CI82706 |

| | *%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-174-092718 2FT
Date Sampled: 09/27/18 08:36
Percent Solids: 89
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 10/01/18 10:23 | C8J0014 | CI82706 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 10/01/18 10:23 | C8J0014 | CI82706 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 10/01/18 10:23 | C8J0014 | CI82706 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 10/01/18 10:23 | C8J0014 | CI82706 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 10/01/18 10:23 | C8J0014 | CI82706 |
| **Aroclor 1254 [2C]** | **18.4** (2.8) | | 8082A | | 50 | 10/01/18 10:23 | C8J0014 | CI82706 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 10/01/18 10:23 | C8J0014 | CI82706 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 10/01/18 10:23 | C8J0014 | CI82706 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 10/01/18 10:23 | C8J0014 | CI82706 |

| | *%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-176-092718 2FT
Date Sampled: 09/27/18 08:38
Percent Solids: 88
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:01 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:01 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:01 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:01 | C8I0539 | CI82706 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:01 | C8I0539 | CI82706 |
| **Aroclor 1254 [2C]** | **3.4** (0.6) | | 8082A | | 10 | 10/01/18 10:42 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:01 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:01 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:01 | C8I0539 | CI82706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *59 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *168 %* | *S+* | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *93 %* | | *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-170-092718 2FT
Date Sampled: 09/27/18 08:32
Percent Solids: 84
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.0) | | 8082A | | 50 | 10/01/18 11:01 | C8J0014 | CI82706 |
| Aroclor 1221 | ND (3.0) | | 8082A | | 50 | 10/01/18 11:01 | C8J0014 | CI82706 |
| Aroclor 1232 | ND (3.0) | | 8082A | | 50 | 10/01/18 11:01 | C8J0014 | CI82706 |
| Aroclor 1242 | ND (3.0) | | 8082A | | 50 | 10/01/18 11:01 | C8J0014 | CI82706 |
| Aroclor 1248 | ND (3.0) | | 8082A | | 50 | 10/01/18 11:01 | C8J0014 | CI82706 |
| **Aroclor 1254 [2C]** | **18.9** (3.0) | | 8082A | | 50 | 10/01/18 11:01 | C8J0014 | CI82706 |
| Aroclor 1260 | ND (3.0) | | 8082A | | 50 | 10/01/18 11:01 | C8J0014 | CI82706 |
| Aroclor 1262 | ND (3.0) | | 8082A | | 50 | 10/01/18 11:01 | C8J0014 | CI82706 |
| Aroclor 1268 | ND (3.0) | | 8082A | | 50 | 10/01/18 11:01 | C8J0014 | CI82706 |

| | %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-175-092718 2FT
Date Sampled: 09/27/18 08:37
Percent Solids: 92
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/01/18 11:20 | C8J0014 | CI82706 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/01/18 11:20 | C8J0014 | CI82706 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/01/18 11:20 | C8J0014 | CI82706 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/01/18 11:20 | C8J0014 | CI82706 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/01/18 11:20 | C8J0014 | CI82706 |
| **Aroclor 1254 [2C]** | **8.3** (1.1) | | 8082A | | 20 | 10/01/18 11:20 | C8J0014 | CI82706 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/01/18 11:20 | C8J0014 | CI82706 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/01/18 11:20 | C8J0014 | CI82706 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/01/18 11:20 | C8J0014 | CI82706 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-145-092718 0-2FT
Date Sampled: 09/27/18 08:43
Percent Solids: 90
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:58 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:58 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:58 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:58 | C8I0539 | CI82706 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:58 | C8I0539 | CI82706 |
| **Aroclor 1254 [2C]** | **3.2** (0.6) | | 8082A | | 10 | 10/01/18 11:39 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:58 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:58 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/28/18 18:58 | C8I0539 | CI82706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *75 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *119 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *96 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *112 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-146-092718 0-2FT
Date Sampled: 09/27/18 09:02
Percent Solids: 94
Initial Volume: 5.01
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-11
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:17 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:17 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:17 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:17 | C8I0539 | CI82706 |
| Aroclor 1248 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:17 | C8I0539 | CI82706 |
| **Aroclor 1254 [2C]** | **0.3** (0.2) | | 8082A | | 1 | 09/28/18 19:17 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:17 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:17 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:17 | C8I0539 | CI82706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *76 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *65 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *51 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *60 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-147-092718 0-2FT
Date Sampled: 09/27/18 09:11
Percent Solids: 95
Initial Volume: 5.08
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-12
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:36 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:36 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:36 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:36 | C8I0539 | CI82706 |
| Aroclor 1248 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:36 | C8I0539 | CI82706 |
| Aroclor 1254 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:36 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:36 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:36 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:36 | C8I0539 | CI82706 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *89 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *95 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *109 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-148-092718 0-2FT
Date Sampled: 09/27/18 09:24
Percent Solids: 95
Initial Volume: 5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-13
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:55 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:55 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:55 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:55 | C8I0539 | CI82706 |
| Aroclor 1248 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:55 | C8I0539 | CI82706 |
| Aroclor 1254 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:55 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:55 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:55 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (0.2) | | 8082A | | 1 | 09/28/18 19:55 | C8I0539 | CI82706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *82 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *105 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-149-092718 0-2FT
Date Sampled: 09/27/18 09:36
Percent Solids: 95
Initial Volume: 5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-14
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.2) | | 8082A | | 1 | 09/28/18 20:14 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (0.2) | | 8082A | | 1 | 09/28/18 20:14 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (0.2) | | 8082A | | 1 | 09/28/18 20:14 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (0.2) | | 8082A | | 1 | 09/28/18 20:14 | C8I0539 | CI82706 |
| Aroclor 1248 | ND (0.2) | | 8082A | | 1 | 09/28/18 20:14 | C8I0539 | CI82706 |
| Aroclor 1254 [2C] | ND (0.2) | | 8082A | | 1 | 09/28/18 20:14 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (0.2) | | 8082A | | 1 | 09/28/18 20:14 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (0.2) | | 8082A | | 1 | 09/28/18 20:14 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (0.2) | | 8082A | | 1 | 09/28/18 20:14 | C8I0539 | CI82706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *68 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *76 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *87 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-150-092718 0-2FT
Date Sampled: 09/27/18 08:44
Percent Solids: 85
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/01/18 11:58 | C8J0014 | CI82706 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/01/18 11:58 | C8J0014 | CI82706 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/01/18 11:58 | C8J0014 | CI82706 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/01/18 11:58 | C8J0014 | CI82706 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/01/18 11:58 | C8J0014 | CI82706 |
| **Aroclor 1254 [2C]** | **7.7** (1.2) | | 8082A | | 20 | 10/01/18 11:58 | C8J0014 | CI82706 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/01/18 11:58 | C8J0014 | CI82706 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/01/18 11:58 | C8J0014 | CI82706 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/01/18 11:58 | C8J0014 | CI82706 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-152-092718 0-2FT
Date Sampled: 09/27/18 08:46
Percent Solids: 90
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 09/28/18 20:52 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 09/28/18 20:52 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 09/28/18 20:52 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 09/28/18 20:52 | C8I0539 | CI82706 |
| **Aroclor 1248** | **1.5** (0.3) | | 8082A | | 5 | 10/01/18 12:17 | C8I0539 | CI82706 |
| **Aroclor 1254 [2C]** | **1.2** (0.3) | | 8082A | | 5 | 10/01/18 12:17 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 09/28/18 20:52 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 09/28/18 20:52 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 09/28/18 20:52 | C8I0539 | CI82706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *68 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *120 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *97 %* | | *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-910-092718 1FT
Date Sampled: 09/27/18 13:20
Percent Solids: 93
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:12 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:12 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:12 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:12 | C8I0539 | CI82706 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:12 | C8I0539 | CI82706 |
| **Aroclor 1254 [2C]** | **1.8** (0.3) | | 8082A | | 5 | 10/01/18 12:36 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:12 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:12 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:12 | C8I0539 | CI82706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *96 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *108 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *99 %* | | *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-920-092718 1FT
Date Sampled: 09/27/18 13:17
Percent Solids: 94
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:31 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:31 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:31 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:31 | C8I0539 | CI82706 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:31 | C8I0539 | CI82706 |
| **Aroclor 1254 [2C]** | **0.6** (0.05) | | 8082A | | 1 | 09/28/18 21:31 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:31 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:31 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:31 | C8I0539 | CI82706 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *72 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *103 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-536-092518-B 0-2FT
Date Sampled: 09/25/18 10:21
Percent Solids: 93
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1809724
ESS Laboratory Sample ID: 1809724-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/27/18 18:08

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:50 | C8I0539 | CI82706 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:50 | C8I0539 | CI82706 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:50 | C8I0539 | CI82706 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:50 | C8I0539 | CI82706 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:50 | C8I0539 | CI82706 |
| **Aroclor 1254 [2C]** | **1.5** (0.3) | | 8082A | | 5 | 10/01/18 12:55 | C8I0539 | CI82706 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:50 | C8I0539 | CI82706 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:50 | C8I0539 | CI82706 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 09/28/18 21:50 | C8I0539 | CI82706 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *84 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *101 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809724

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CI82706 - 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* | *0.0279* | | mg/kg wet | *0.02500* | | *112* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0263* | | mg/kg wet | *0.02500* | | *105* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0213* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0242* | | mg/kg wet | *0.02500* | | *97* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 94 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 85 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0205* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0224* | | mg/kg wet | *0.02500* | | *90* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0226* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0238* | | mg/kg wet | *0.02500* | | *95* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 95 | 40-140 | 2 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 95 | 40-140 | 0.6 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | 2 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | 3 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0200* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0227* | | 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]* | *0.0236* | | mg/kg wet | *0.02500* | | *95* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1809724

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809724

**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: 1809724
Date Received: 9/27/2018
Project Due Date: 10/1/2018
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: 1.3 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 271565 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 271564 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 271563 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 271562 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 271561 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 271560 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 271559 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 271558 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 271557 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 271556 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 271555 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 271554 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 271553 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 271552 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 271551 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 271550 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 271549 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 271548 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 271547 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

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

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809724
Date Received: 9/27/2018

Completed By: LAS Date & Time: 9/27/18 1715
Reviewed By: [illegible] Date & Time: 9/27/18 1715
Delivered By: [illegible] 9/27/18 1715

1 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 48 hr
Regulatory State RI
Is this project for any of the following?: ○CT RCP ○MA MCP ○RGP

ESS Lab # 1809724
Reporting Limits see note 1
Electronic Deliverables ☐Quick Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project # 31631055
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 | 9-27-18 | 0831 | G | S | B-169-092718(2') - | X |
| 2 | | 0955 | G | concrete | B-166-092718(2') - | X |
| 3 | | 0827 | G | S | B-165-092718(2') - | X |
| 4 | | 0833 | G | S | B-171-092718(2') - | X |
| 5 | | 0835 | G | S | B-173-092718(2') - | X |
| 6 | | 0836 | G | S | B-174-092718(2') - | X |
| 7 | | 0838 | G | S | B-176-092718(2') - | X |
| 8 | | 0832 | G | S | B-170-092718(2') - | X |
| 9 | | 0837 | G | S | B-175-092718(2') | X |
| 10 | ✓ | 0843 | C | S | SW-145-092718 ~~(2')~~ (0-2') | X |

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

Laboratory Use Only
Cooler Present: ✓
Seals Intact:
Cooler Temperature: 1.3 °C

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 9/27/18 1450 | 9/27/18 14:50 | 9/27/18 16:54 | 1705 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |

1 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 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
Project #: 3162055
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 (Soxh Lot) |
|---|---|---|---|---|---|---|
| 11 | 9/27/18 | 0902 | C | concrete | SW-146-092718(0-2') - | X |
| 12 | ↓ | 0918 | ↓ | ↓ | SW-147-092718(0-2') - | X |
| 13 | | 0924 | | | SW-148-092718(0-2') - | X |
| 14 | | 0936 | | | SW-149-092718(0-2') - | X |
| 15 | | 0844 | C | S | SW-150-092718(0-2') - | X |
| 16 | ↓ | 0846 | C | S | SW-152-092718(0-2') - | X |
| | ~~9/25/18~~ | ~~1021~~ | ~~C~~ | ~~S~~ | ~~SW-536B-092718(0-4')~~ ACT | ~~X~~ |
| 17 | 9/27/18 | 1320 | G | S | B-910-092718(1') - | X |
| 18 | 9/27/18 | 1317 | G | S | B-920-092718(1') - | X |
| 19 | 9/25/18 | 1021 | C | S | SW-536-092518-B(0-2') ACT | 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: 1.5 °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) |
|---|---|---|---|
| 9/27/18 1450 | 9/27/18 14:50 | 9/27/18 16:54 | 1705 |
| 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: 1809780**

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 4:48 pm, Oct 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: 1809780

## SAMPLE RECEIPT

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

**Low Level VOA vials were frozen by ESS Laboratory on September 28, 2018 @ 16:27.**

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1809780-01 | SW-160-092818 0-2FT | Soil | 8260B Low |
| 1809780-02 | SW-164-092818 0-2FT | Soil | 8260B Low |
| 1809780-03 | SW-167-092818 0-2FT | Soil | 8260B Low |
| 1809780-04 | SW-174-092818 0-2FT | Soil | 8260B Low |
| 1809780-05 | SW-177-092818 0-2FT | Soil | 8260B Low |
| 1809780-06 | SW-182-092818 0-2FT | Soil | 8260B Low |
| 1809780-07 | B-218-092818 2FT | Soil | 8260B Low |
| 1809780-08 | B-241-092818 2FT | Soil | 8260B Low |
| 1809780-09 | TB | Solid | 8260B Low |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809780

## PROJECT NARRATIVE

**5035/8260B Volatile Organic Compounds / Low Level**

CJ80147-BSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
1,4-Dioxane (23% @ 20%)

**No other observations noted.**

**End of Project Narrative.**

## DATA USABILITY LINKS

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

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809780

## CURRENT SW-846 METHODOLOGY VERSIONS

**Analytical Methods**

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

**Prep Methods**

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-160-092818 0-2FT
Date Sampled: 09/28/18 08:25
Percent Solids: 87
Initial Volume: 9.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,1,1-Trichloroethane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,1,2,2-Tetrachloroethane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,1,2-Trichloroethane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,1-Dichloroethane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,1-Dichloroethene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,1-Dichloropropene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,2,3-Trichlorobenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,2,3-Trichloropropane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,2,4-Trichlorobenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,2,4-Trimethylbenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,2-Dibromo-3-Chloropropane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,2-Dibromoethane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,2-Dichlorobenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,2-Dichloroethane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,2-Dichloropropane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,3,5-Trimethylbenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,3-Dichlorobenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,3-Dichloropropane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,4-Dichlorobenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1,4-Dioxane | ND (0.0595) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 1-Chlorohexane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 2,2-Dichloropropane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 2-Butanone | ND (0.0297) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 2-Chlorotoluene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 2-Hexanone | ND (0.0297) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 4-Chlorotoluene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 4-Isopropyltoluene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| 4-Methyl-2-Pentanone | ND (0.0297) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Acetone | ND (0.0297) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Benzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Bromobenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-160-092818 0-2FT
Date Sampled: 09/28/18 08:25
Percent Solids: 87
Initial Volume: 9.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Bromodichloromethane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Bromoform | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Bromomethane | ND (0.0059) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Carbon Disulfide | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Carbon Tetrachloride | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Chlorobenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Chloroethane | ND (0.0059) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Chloroform | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Chloromethane | ND (0.0059) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| cis-1,2-Dichloroethene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| cis-1,3-Dichloropropene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Dibromochloromethane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Dibromomethane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Dichlorodifluoromethane | ND (0.0059) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Diethyl Ether | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Di-isopropyl ether | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Ethyl tertiary-butyl ether | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Ethylbenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Hexachlorobutadiene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Isopropylbenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Methyl tert-Butyl Ether | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Methylene Chloride | ND (0.0149) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Naphthalene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| n-Butylbenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| n-Propylbenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| sec-Butylbenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Styrene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| tert-Butylbenzene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Tertiary-amyl methyl ether | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Tetrachloroethene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Tetrahydrofuran | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-160-092818 0-2FT
Date Sampled: 09/28/18 08:25
Percent Solids: 87
Initial Volume: 9.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Toluene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| trans-1,2-Dichloroethene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| trans-1,3-Dichloropropene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Trichloroethene | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Trichlorofluoromethane | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Vinyl Acetate | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Vinyl Chloride | ND (0.0059) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Xylene O | ND (0.0030) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Xylene P,M | ND (0.0059) | | 8260B Low | | 1 | 10/01/18 15:55 | C8J0024 | CJ80147 |
| Xylenes (Total) | ND (0.0059) | | 8260B Low | | 1 | 10/01/18 15:55 | | [CALC] |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | *115 %* | | *70-130* |
| *Surrogate: 4-Bromofluorobenzene* | *96 %* | | *70-130* |
| *Surrogate: Dibromofluoromethane* | *112 %* | | *70-130* |
| *Surrogate: Toluene-d8* | *96 %* | | *70-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-164-092818 0-2FT
Date Sampled: 09/28/18 08:30
Percent Solids: 80
Initial Volume: 7.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,1,1-Trichloroethane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,1,2,2-Tetrachloroethane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,1,2-Trichloroethane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,1-Dichloroethane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,1-Dichloroethene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,1-Dichloropropene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,2,3-Trichlorobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,2,3-Trichloropropane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,2,4-Trichlorobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,2,4-Trimethylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,2-Dibromo-3-Chloropropane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,2-Dibromoethane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,2-Dichlorobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,2-Dichloroethane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,2-Dichloropropane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,3,5-Trimethylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,3-Dichlorobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,3-Dichloropropane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,4-Dichlorobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1,4-Dioxane | ND (0.0787) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 1-Chlorohexane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 2,2-Dichloropropane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 2-Butanone | ND (0.0393) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 2-Chlorotoluene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 2-Hexanone | ND (0.0393) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 4-Chlorotoluene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 4-Isopropyltoluene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| 4-Methyl-2-Pentanone | ND (0.0393) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Acetone | ND (0.0393) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Benzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Bromobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-164-092818 0-2FT
Date Sampled: 09/28/18 08:30
Percent Solids: 80
Initial Volume: 7.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Bromodichloromethane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Bromoform | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Bromomethane | ND (0.0079) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Carbon Disulfide | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Carbon Tetrachloride | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Chlorobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Chloroethane | ND (0.0079) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Chloroform | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Chloromethane | ND (0.0079) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| cis-1,2-Dichloroethene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| cis-1,3-Dichloropropene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Dibromochloromethane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Dibromomethane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Dichlorodifluoromethane | ND (0.0079) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Diethyl Ether | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Di-isopropyl ether | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Ethyl tertiary-butyl ether | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Ethylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Hexachlorobutadiene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Isopropylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Methyl tert-Butyl Ether | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Methylene Chloride | ND (0.0197) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Naphthalene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| n-Butylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| n-Propylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| sec-Butylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Styrene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| tert-Butylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Tertiary-amyl methyl ether | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Tetrachloroethene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Tetrahydrofuran | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-164-092818 0-2FT
Date Sampled: 09/28/18 08:30
Percent Solids: 80
Initial Volume: 7.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Toluene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| trans-1,2-Dichloroethene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| trans-1,3-Dichloropropene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Trichloroethene | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Trichlorofluoromethane | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Vinyl Acetate | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Vinyl Chloride | ND (0.0079) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Xylene O | ND (0.0039) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Xylene P,M | ND (0.0079) | | 8260B Low | | 1 | 10/01/18 16:20 | C8J0024 | CJ80147 |
| Xylenes (Total) | ND (0.0079) | | 8260B Low | | 1 | 10/01/18 16:20 | | [CALC] |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | *114 %* | | *70-130* |
| *Surrogate: 4-Bromofluorobenzene* | *98 %* | | *70-130* |
| *Surrogate: Dibromofluoromethane* | *111 %* | | *70-130* |
| *Surrogate: Toluene-d8* | *95 %* | | *70-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-167-092818 0-2FT
Date Sampled: 09/28/18 08:35
Percent Solids: 86
Initial Volume: 7.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,1,1-Trichloroethane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,1,2,2-Tetrachloroethane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,1,2-Trichloroethane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,1-Dichloroethane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,1-Dichloroethene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,1-Dichloropropene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,2,3-Trichlorobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,2,3-Trichloropropane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,2,4-Trichlorobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,2,4-Trimethylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,2-Dibromo-3-Chloropropane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,2-Dibromoethane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,2-Dichlorobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,2-Dichloroethane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,2-Dichloropropane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,3,5-Trimethylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,3-Dichlorobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,3-Dichloropropane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,4-Dichlorobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1,4-Dioxane | ND (0.0816) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 1-Chlorohexane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 2,2-Dichloropropane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 2-Butanone | ND (0.0408) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 2-Chlorotoluene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 2-Hexanone | ND (0.0408) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 4-Chlorotoluene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 4-Isopropyltoluene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| 4-Methyl-2-Pentanone | ND (0.0408) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Acetone | ND (0.0408) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Benzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Bromobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-167-092818 0-2FT
Date Sampled: 09/28/18 08:35
Percent Solids: 86
Initial Volume: 7.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Bromodichloromethane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Bromoform | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Bromomethane | ND (0.0082) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Carbon Disulfide | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Carbon Tetrachloride | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Chlorobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Chloroethane | ND (0.0082) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Chloroform | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Chloromethane | ND (0.0082) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| cis-1,2-Dichloroethene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| cis-1,3-Dichloropropene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Dibromochloromethane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Dibromomethane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Dichlorodifluoromethane | ND (0.0082) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Diethyl Ether | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Di-isopropyl ether | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Ethyl tertiary-butyl ether | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Ethylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Hexachlorobutadiene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Isopropylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Methyl tert-Butyl Ether | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Methylene Chloride | ND (0.0204) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Naphthalene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| n-Butylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| n-Propylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| sec-Butylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Styrene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| tert-Butylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Tertiary-amyl methyl ether | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Tetrachloroethene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Tetrahydrofuran | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-167-092818 0-2FT
Date Sampled: 09/28/18 08:35
Percent Solids: 86
Initial Volume: 7.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Toluene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| trans-1,2-Dichloroethene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| trans-1,3-Dichloropropene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Trichloroethene | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Trichlorofluoromethane | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Vinyl Acetate | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Vinyl Chloride | ND (0.0082) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Xylene O | ND (0.0041) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Xylene P,M | ND (0.0082) | | 8260B Low | | 1 | 10/01/18 16:46 | C8J0024 | CJ80147 |
| Xylenes (Total) | ND (0.0082) | | 8260B Low | | 1 | 10/01/18 16:46 | | [CALC] |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | *115 %* | | *70-130* |
| *Surrogate: 4-Bromofluorobenzene* | *99 %* | | *70-130* |
| *Surrogate: Dibromofluoromethane* | *110 %* | | *70-130* |
| *Surrogate: Toluene-d8* | *97 %* | | *70-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-174-092818 0-2FT
Date Sampled: 09/28/18 08:40
Percent Solids: 81
Initial Volume: 8.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,1,1-Trichloroethane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,1,2,2-Tetrachloroethane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,1,2-Trichloroethane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,1-Dichloroethane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,1-Dichloroethene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,1-Dichloropropene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,2,3-Trichlorobenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,2,3-Trichloropropane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,2,4-Trichlorobenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,2,4-Trimethylbenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,2-Dibromo-3-Chloropropane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,2-Dibromoethane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,2-Dichlorobenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,2-Dichloroethane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,2-Dichloropropane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,3,5-Trimethylbenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,3-Dichlorobenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,3-Dichloropropane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,4-Dichlorobenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1,4-Dioxane | ND (0.0693) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 1-Chlorohexane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 2,2-Dichloropropane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 2-Butanone | ND (0.0346) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 2-Chlorotoluene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 2-Hexanone | ND (0.0346) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 4-Chlorotoluene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 4-Isopropyltoluene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| 4-Methyl-2-Pentanone | ND (0.0346) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Acetone | ND (0.0346) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Benzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Bromobenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-174-092818 0-2FT
Date Sampled: 09/28/18 08:40
Percent Solids: 81
Initial Volume: 8.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Bromodichloromethane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Bromoform | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Bromomethane | ND (0.0069) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Carbon Disulfide | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Carbon Tetrachloride | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Chlorobenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Chloroethane | ND (0.0069) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Chloroform | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Chloromethane | ND (0.0069) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| cis-1,2-Dichloroethene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| cis-1,3-Dichloropropene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Dibromochloromethane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Dibromomethane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Dichlorodifluoromethane | ND (0.0069) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Diethyl Ether | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Di-isopropyl ether | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Ethyl tertiary-butyl ether | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Ethylbenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Hexachlorobutadiene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Isopropylbenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Methyl tert-Butyl Ether | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Methylene Chloride | ND (0.0173) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Naphthalene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| n-Butylbenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| n-Propylbenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| sec-Butylbenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Styrene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| tert-Butylbenzene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Tertiary-amyl methyl ether | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Tetrachloroethene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Tetrahydrofuran | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-174-092818 0-2FT
Date Sampled: 09/28/18 08:40
Percent Solids: 81
Initial Volume: 8.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Toluene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| trans-1,2-Dichloroethene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| trans-1,3-Dichloropropene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Trichloroethene | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Trichlorofluoromethane | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Vinyl Acetate | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Vinyl Chloride | ND (0.0069) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Xylene O | ND (0.0035) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Xylene P,M | ND (0.0069) | | 8260B Low | | 1 | 10/01/18 17:12 | C8J0024 | CJ80147 |
| Xylenes (Total) | ND (0.0069) | | 8260B Low | | 1 | 10/01/18 17:12 | | [CALC] |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | *114 %* | | *70-130* |
| *Surrogate: 4-Bromofluorobenzene* | *96 %* | | *70-130* |
| *Surrogate: Dibromofluoromethane* | *109 %* | | *70-130* |
| *Surrogate: Toluene-d8* | *97 %* | | *70-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-177-092818 0-2FT
Date Sampled: 09/28/18 08:45
Percent Solids: 83
Initial Volume: 8.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,1,1-Trichloroethane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,1,2,2-Tetrachloroethane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,1,2-Trichloroethane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,1-Dichloroethane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,1-Dichloroethene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,1-Dichloropropene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,2,3-Trichlorobenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,2,3-Trichloropropane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,2,4-Trichlorobenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,2,4-Trimethylbenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,2-Dibromo-3-Chloropropane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,2-Dibromoethane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,2-Dichlorobenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,2-Dichloroethane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,2-Dichloropropane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,3,5-Trimethylbenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,3-Dichlorobenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,3-Dichloropropane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,4-Dichlorobenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1,4-Dioxane | ND (0.0681) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 1-Chlorohexane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 2,2-Dichloropropane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 2-Butanone | ND (0.0341) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 2-Chlorotoluene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 2-Hexanone | ND (0.0341) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 4-Chlorotoluene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 4-Isopropyltoluene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| 4-Methyl-2-Pentanone | ND (0.0341) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Acetone | ND (0.0341) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Benzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Bromobenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-177-092818 0-2FT
Date Sampled: 09/28/18 08:45
Percent Solids: 83
Initial Volume: 8.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Bromodichloromethane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Bromoform | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Bromomethane | ND (0.0068) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Carbon Disulfide | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Carbon Tetrachloride | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Chlorobenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Chloroethane | ND (0.0068) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Chloroform | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Chloromethane | ND (0.0068) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| cis-1,2-Dichloroethene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| cis-1,3-Dichloropropene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Dibromochloromethane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Dibromomethane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Dichlorodifluoromethane | ND (0.0068) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Diethyl Ether | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Di-isopropyl ether | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Ethyl tertiary-butyl ether | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Ethylbenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Hexachlorobutadiene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Isopropylbenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Methyl tert-Butyl Ether | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Methylene Chloride | ND (0.0170) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Naphthalene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| n-Butylbenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| n-Propylbenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| sec-Butylbenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Styrene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| tert-Butylbenzene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Tertiary-amyl methyl ether | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Tetrachloroethene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Tetrahydrofuran | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-177-092818 0-2FT
Date Sampled: 09/28/18 08:45
Percent Solids: 83
Initial Volume: 8.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Toluene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| trans-1,2-Dichloroethene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| trans-1,3-Dichloropropene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Trichloroethene | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Trichlorofluoromethane | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Vinyl Acetate | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Vinyl Chloride | ND (0.0068) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Xylene O | ND (0.0034) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Xylene P,M | ND (0.0068) | | 8260B Low | | 1 | 10/01/18 17:37 | C8J0024 | CJ80147 |
| Xylenes (Total) | ND (0.0068) | | 8260B Low | | 1 | 10/01/18 17:37 | | [CALC] |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | *116 %* | | *70-130* |
| *Surrogate: 4-Bromofluorobenzene* | *98 %* | | *70-130* |
| *Surrogate: Dibromofluoromethane* | *110 %* | | *70-130* |
| *Surrogate: Toluene-d8* | *95 %* | | *70-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-182-092818 0-2FT
Date Sampled: 09/28/18 08:50
Percent Solids: 81
Initial Volume: 8.5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,1,1-Trichloroethane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,1,2,2-Tetrachloroethane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,1,2-Trichloroethane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,1-Dichloroethane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,1-Dichloroethene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,1-Dichloropropene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,2,3-Trichlorobenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,2,3-Trichloropropane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,2,4-Trichlorobenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,2,4-Trimethylbenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,2-Dibromo-3-Chloropropane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,2-Dibromoethane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,2-Dichlorobenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,2-Dichloroethane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,2-Dichloropropane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,3,5-Trimethylbenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,3-Dichlorobenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,3-Dichloropropane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,4-Dichlorobenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1,4-Dioxane | ND (0.0730) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 1-Chlorohexane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 2,2-Dichloropropane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 2-Butanone | ND (0.0365) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 2-Chlorotoluene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 2-Hexanone | ND (0.0365) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 4-Chlorotoluene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 4-Isopropyltoluene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| 4-Methyl-2-Pentanone | ND (0.0365) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Acetone | ND (0.0365) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Benzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Bromobenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-182-092818 0-2FT
Date Sampled: 09/28/18 08:50
Percent Solids: 81
Initial Volume: 8.5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Bromodichloromethane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Bromoform | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Bromomethane | ND (0.0073) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Carbon Disulfide | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Carbon Tetrachloride | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Chlorobenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Chloroethane | ND (0.0073) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Chloroform | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Chloromethane | ND (0.0073) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| cis-1,2-Dichloroethene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| cis-1,3-Dichloropropene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Dibromochloromethane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Dibromomethane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Dichlorodifluoromethane | ND (0.0073) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Diethyl Ether | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Di-isopropyl ether | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Ethyl tertiary-butyl ether | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Ethylbenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Hexachlorobutadiene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Isopropylbenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Methyl tert-Butyl Ether | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Methylene Chloride | ND (0.0183) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Naphthalene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| n-Butylbenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| n-Propylbenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| sec-Butylbenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Styrene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| tert-Butylbenzene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Tertiary-amyl methyl ether | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Tetrachloroethene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Tetrahydrofuran | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-182-092818 0-2FT
Date Sampled: 09/28/18 08:50
Percent Solids: 81
Initial Volume: 8.5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Toluene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| trans-1,2-Dichloroethene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| trans-1,3-Dichloropropene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Trichloroethene | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Trichlorofluoromethane | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Vinyl Acetate | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Vinyl Chloride | ND (0.0073) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Xylene O | ND (0.0037) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Xylene P,M | ND (0.0073) | | 8260B Low | | 1 | 10/01/18 18:03 | C8J0024 | CJ80147 |
| Xylenes (Total) | ND (0.0073) | | 8260B Low | | 1 | 10/01/18 18:03 | | [CALC] |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | *118 %* | | *70-130* |
| *Surrogate: 4-Bromofluorobenzene* | *98 %* | | *70-130* |
| *Surrogate: Dibromofluoromethane* | *112 %* | | *70-130* |
| *Surrogate: Toluene-d8* | *95 %* | | *70-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-218-092818 2FT
Date Sampled: 09/28/18 08:55
Percent Solids: 86
Initial Volume: 7.6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,1,1-Trichloroethane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,1,2,2-Tetrachloroethane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,1,2-Trichloroethane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,1-Dichloroethane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,1-Dichloroethene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,1-Dichloropropene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,2,3-Trichlorobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,2,3-Trichloropropane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,2,4-Trichlorobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,2,4-Trimethylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,2-Dibromo-3-Chloropropane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,2-Dibromoethane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,2-Dichlorobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,2-Dichloroethane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,2-Dichloropropane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,3,5-Trimethylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,3-Dichlorobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,3-Dichloropropane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,4-Dichlorobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1,4-Dioxane | ND (0.0765) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 1-Chlorohexane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 2,2-Dichloropropane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 2-Butanone | ND (0.0383) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 2-Chlorotoluene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 2-Hexanone | ND (0.0383) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 4-Chlorotoluene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 4-Isopropyltoluene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| 4-Methyl-2-Pentanone | ND (0.0383) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Acetone | ND (0.0383) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Benzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Bromobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-218-092818 2FT
Date Sampled: 09/28/18 08:55
Percent Solids: 86
Initial Volume: 7.6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Bromodichloromethane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Bromoform | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Bromomethane | ND (0.0077) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Carbon Disulfide | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Carbon Tetrachloride | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Chlorobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Chloroethane | ND (0.0077) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Chloroform | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Chloromethane | ND (0.0077) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| cis-1,2-Dichloroethene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| cis-1,3-Dichloropropene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Dibromochloromethane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Dibromomethane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Dichlorodifluoromethane | ND (0.0077) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Diethyl Ether | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Di-isopropyl ether | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Ethyl tertiary-butyl ether | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Ethylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Hexachlorobutadiene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Isopropylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Methyl tert-Butyl Ether | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Methylene Chloride | ND (0.0191) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Naphthalene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| n-Butylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| n-Propylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| sec-Butylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Styrene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| tert-Butylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Tertiary-amyl methyl ether | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Tetrachloroethene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Tetrahydrofuran | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-218-092818 2FT
Date Sampled: 09/28/18 08:55
Percent Solids: 86
Initial Volume: 7.6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Toluene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| trans-1,2-Dichloroethene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| trans-1,3-Dichloropropene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Trichloroethene | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Trichlorofluoromethane | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Vinyl Acetate | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Vinyl Chloride | ND (0.0077) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Xylene O | ND (0.0038) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Xylene P,M | ND (0.0077) | | 8260B Low | | 1 | 10/01/18 18:28 | C8J0024 | CJ80147 |
| Xylenes (Total) | ND (0.0077) | | 8260B Low | | 1 | 10/01/18 18:28 | | [CALC] |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | *118 %* | | *70-130* |
| *Surrogate: 4-Bromofluorobenzene* | *101 %* | | *70-130* |
| *Surrogate: Dibromofluoromethane* | *110 %* | | *70-130* |
| *Surrogate: Toluene-d8* | *95 %* | | *70-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-241-092818 2FT
Date Sampled: 09/28/18 09:00
Percent Solids: 83
Initial Volume: 9.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,1,1-Trichloroethane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,1,2,2-Tetrachloroethane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,1,2-Trichloroethane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,1-Dichloroethane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,1-Dichloroethene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,1-Dichloropropene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,2,3-Trichlorobenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,2,3-Trichloropropane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,2,4-Trichlorobenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,2,4-Trimethylbenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,2-Dibromo-3-Chloropropane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,2-Dibromoethane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,2-Dichlorobenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,2-Dichloroethane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,2-Dichloropropane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,3,5-Trimethylbenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,3-Dichlorobenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,3-Dichloropropane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,4-Dichlorobenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1,4-Dioxane | ND (0.0662) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 1-Chlorohexane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 2,2-Dichloropropane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 2-Butanone | ND (0.0331) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 2-Chlorotoluene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 2-Hexanone | ND (0.0331) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 4-Chlorotoluene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 4-Isopropyltoluene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| 4-Methyl-2-Pentanone | ND (0.0331) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Acetone | ND (0.0331) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Benzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Bromobenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-241-092818 2FT
Date Sampled: 09/28/18 09:00
Percent Solids: 83
Initial Volume: 9.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Bromodichloromethane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Bromoform | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Bromomethane | ND (0.0066) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Carbon Disulfide | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Carbon Tetrachloride | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Chlorobenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Chloroethane | ND (0.0066) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Chloroform | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Chloromethane | ND (0.0066) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| cis-1,2-Dichloroethene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| cis-1,3-Dichloropropene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Dibromochloromethane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Dibromomethane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Dichlorodifluoromethane | ND (0.0066) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Diethyl Ether | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Di-isopropyl ether | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Ethyl tertiary-butyl ether | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Ethylbenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Hexachlorobutadiene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Isopropylbenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Methyl tert-Butyl Ether | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Methylene Chloride | ND (0.0165) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Naphthalene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| n-Butylbenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| n-Propylbenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| sec-Butylbenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Styrene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| tert-Butylbenzene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Tertiary-amyl methyl ether | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Tetrachloroethene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Tetrahydrofuran | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-241-092818 2FT
Date Sampled: 09/28/18 09:00
Percent Solids: 83
Initial Volume: 9.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Toluene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| trans-1,2-Dichloroethene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| trans-1,3-Dichloropropene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Trichloroethene | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Trichlorofluoromethane | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Vinyl Acetate | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Vinyl Chloride | ND (0.0066) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Xylene O | ND (0.0033) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Xylene P,M | ND (0.0066) | | 8260B Low | | 1 | 10/01/18 18:54 | C8J0024 | CJ80147 |
| Xylenes (Total) | ND (0.0066) | | 8260B Low | | 1 | 10/01/18 18:54 | | [CALC] |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | *118 %* | | *70-130* |
| *Surrogate: 4-Bromofluorobenzene* | *96 %* | | *70-130* |
| *Surrogate: Dibromofluoromethane* | *111 %* | | *70-130* |
| *Surrogate: Toluene-d8* | *95 %* | | *70-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: TB
Date Sampled: 09/28/18 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-09
Sample Matrix: Solid
Units: mg/kg wet
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,1,1-Trichloroethane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,1,2,2-Tetrachloroethane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,1,2-Trichloroethane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,1-Dichloroethane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,1-Dichloroethene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,1-Dichloropropene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,2,3-Trichlorobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,2,3-Trichloropropane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,2,4-Trichlorobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,2,4-Trimethylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,2-Dibromo-3-Chloropropane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,2-Dibromoethane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,2-Dichlorobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,2-Dichloroethane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,2-Dichloropropane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,3,5-Trimethylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,3-Dichlorobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,3-Dichloropropane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,4-Dichlorobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1,4-Dioxane | ND (0.100) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 1-Chlorohexane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 2,2-Dichloropropane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 2-Butanone | ND (0.0500) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 2-Chlorotoluene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 2-Hexanone | ND (0.0500) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 4-Chlorotoluene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 4-Isopropyltoluene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| 4-Methyl-2-Pentanone | ND (0.0500) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Acetone | ND (0.0500) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Benzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Bromobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: TB
Date Sampled: 09/28/18 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-09
Sample Matrix: Solid
Units: mg/kg wet
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Bromodichloromethane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Bromoform | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Bromomethane | ND (0.0100) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Carbon Disulfide | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Carbon Tetrachloride | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Chlorobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Chloroethane | ND (0.0100) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Chloroform | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Chloromethane | ND (0.0100) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| cis-1,2-Dichloroethene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| cis-1,3-Dichloropropene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Dibromochloromethane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Dibromomethane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Dichlorodifluoromethane | ND (0.0100) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Diethyl Ether | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Di-isopropyl ether | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Ethyl tertiary-butyl ether | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Ethylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Hexachlorobutadiene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Isopropylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Methyl tert-Butyl Ether | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Methylene Chloride | ND (0.0250) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Naphthalene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| n-Butylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| n-Propylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| sec-Butylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Styrene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| tert-Butylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Tertiary-amyl methyl ether | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Tetrachloroethene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Tetrahydrofuran | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: TB
Date Sampled: 09/28/18 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1809780
ESS Laboratory Sample ID: 1809780-09
Sample Matrix: Solid
Units: mg/kg wet
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Toluene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| trans-1,2-Dichloroethene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| trans-1,3-Dichloropropene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Trichloroethene | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Trichlorofluoromethane | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Vinyl Acetate | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Vinyl Chloride | ND (0.0100) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Xylene O | ND (0.0050) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Xylene P,M | ND (0.0100) | | 8260B Low | | 1 | 10/01/18 15:04 | C8J0024 | CJ80147 |
| Xylenes (Total) | ND (0.0100) | | 8260B Low | | 1 | 10/01/18 15:04 | | [CALC] |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | *107 %* | | *70-130* |
| *Surrogate: 4-Bromofluorobenzene* | *97 %* | | *70-130* |
| *Surrogate: Dibromofluoromethane* | *104 %* | | *70-130* |
| *Surrogate: Toluene-d8* | *96 %* | | *70-130* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809780

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 5035/8260B Volatile Organic Compounds / Low Level | | | | | | | | | | |
| **Batch CJ80147 - 5035** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,1,1-Trichloroethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,1,2-Trichloroethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,1-Dichloroethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,1-Dichloroethene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,1-Dichloropropene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2,3-Trichloropropane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2-Dibromo-3-Chloropropane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2-Dibromoethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2-Dichlorobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2-Dichloroethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2-Dichloropropane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,3-Dichlorobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,3-Dichloropropane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,4-Dichlorobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,4-Dioxane | ND | 0.100 | mg/kg wet | | | | | | | |
| 1-Chlorohexane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 2,2-Dichloropropane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 2-Butanone | ND | 0.0500 | mg/kg wet | | | | | | | |
| 2-Chlorotoluene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 2-Hexanone | ND | 0.0500 | mg/kg wet | | | | | | | |
| 4-Chlorotoluene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 4-Isopropyltoluene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 4-Methyl-2-Pentanone | ND | 0.0500 | mg/kg wet | | | | | | | |
| Acetone | ND | 0.0500 | mg/kg wet | | | | | | | |
| Benzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Bromobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Bromochloromethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| Bromodichloromethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| Bromoform | ND | 0.0050 | mg/kg wet | | | | | | | |
| Bromomethane | ND | 0.0100 | mg/kg wet | | | | | | | |
| Carbon Disulfide | ND | 0.0050 | mg/kg wet | | | | | | | |
| Carbon Tetrachloride | ND | 0.0050 | mg/kg wet | | | | | | | |
| Chlorobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Chloroethane | ND | 0.0100 | mg/kg wet | | | | | | | |
| Chloroform | ND | 0.0050 | mg/kg wet | | | | | | | |
| Chloromethane | ND | 0.0100 | mg/kg wet | | | | | | | |
| cis-1,2-Dichloroethene | ND | 0.0050 | mg/kg wet | | | | | | | |
| cis-1,3-Dichloropropene | ND | 0.0050 | mg/kg wet | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809780

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **5035/8260B Volatile Organic Compounds / Low Level** | | | | | | | | | | |
| **Batch CJ80147 - 5035** | | | | | | | | | | |
| Dibromochloromethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| Dibromomethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| Dichlorodifluoromethane | ND | 0.0100 | mg/kg wet | | | | | | | |
| Diethyl Ether | ND | 0.0050 | mg/kg wet | | | | | | | |
| Di-isopropyl ether | ND | 0.0050 | mg/kg wet | | | | | | | |
| Ethyl tertiary-butyl ether | ND | 0.0050 | mg/kg wet | | | | | | | |
| Ethylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Hexachlorobutadiene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Isopropylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Methyl tert-Butyl Ether | ND | 0.0050 | mg/kg wet | | | | | | | |
| Methylene Chloride | ND | 0.0250 | mg/kg wet | | | | | | | |
| Naphthalene | ND | 0.0050 | mg/kg wet | | | | | | | |
| n-Butylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| n-Propylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| sec-Butylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Styrene | ND | 0.0050 | mg/kg wet | | | | | | | |
| tert-Butylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Tertiary-amyl methyl ether | ND | 0.0050 | mg/kg wet | | | | | | | |
| Tetrachloroethene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Tetrahydrofuran | ND | 0.0050 | mg/kg wet | | | | | | | |
| Toluene | ND | 0.0050 | mg/kg wet | | | | | | | |
| trans-1,2-Dichloroethene | ND | 0.0050 | mg/kg wet | | | | | | | |
| trans-1,3-Dichloropropene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Trichloroethene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Trichlorofluoromethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| Vinyl Acetate | ND | 0.0050 | mg/kg wet | | | | | | | |
| Vinyl Chloride | ND | 0.0100 | mg/kg wet | | | | | | | |
| Xylene O | ND | 0.0050 | mg/kg wet | | | | | | | |
| Xylene P,M | ND | 0.0100 | mg/kg wet | | | | | | | |
| Xylenes (Total) | ND | 0.0100 | mg/kg wet | | | | | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *0.0551* | | mg/kg wet | *0.05000* | | *110* | *70-130* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.0493* | | mg/kg wet | *0.05000* | | *99* | *70-130* | | | |
| *Surrogate: Dibromofluoromethane* | *0.0535* | | mg/kg wet | *0.05000* | | *107* | *70-130* | | | |
| *Surrogate: Toluene-d8* | *0.0476* | | mg/kg wet | *0.05000* | | *95* | *70-130* | | | |
| **LCS** | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 0.0482 | 0.0050 | mg/kg wet | 0.05000 | | 96 | 70-130 | | | |
| 1,1,1-Trichloroethane | 0.0506 | 0.0050 | mg/kg wet | 0.05000 | | 101 | 70-130 | | | |
| 1,1,2,2-Tetrachloroethane | 0.0468 | 0.0050 | mg/kg wet | 0.05000 | | 94 | 70-130 | | | |
| 1,1,2-Trichloroethane | 0.0464 | 0.0050 | mg/kg wet | 0.05000 | | 93 | 70-130 | | | |
| 1,1-Dichloroethane | 0.0476 | 0.0050 | mg/kg wet | 0.05000 | | 95 | 70-130 | | | |
| 1,1-Dichloroethene | 0.0522 | 0.0050 | mg/kg wet | 0.05000 | | 104 | 70-130 | | | |
| 1,1-Dichloropropene | 0.0528 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | | | |
| 1,2,3-Trichlorobenzene | 0.0489 | 0.0050 | mg/kg wet | 0.05000 | | 98 | 70-130 | | | |
| 1,2,3-Trichloropropane | 0.0436 | 0.0050 | mg/kg wet | 0.05000 | | 87 | 70-130 | | | |
| 1,2,4-Trichlorobenzene | 0.0498 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809780

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **5035/8260B Volatile Organic Compounds / Low Level** | | | | | | | | | | |
| **Batch CJ80147 - 5035** | | | | | | | | | | |
| 1,2,4-Trimethylbenzene | 0.0502 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | | | |
| 1,2-Dibromo-3-Chloropropane | 0.0446 | 0.0050 | mg/kg wet | 0.05000 | | 89 | 70-130 | | | |
| 1,2-Dibromoethane | 0.0481 | 0.0050 | mg/kg wet | 0.05000 | | 96 | 70-130 | | | |
| 1,2-Dichlorobenzene | 0.0491 | 0.0050 | mg/kg wet | 0.05000 | | 98 | 70-130 | | | |
| 1,2-Dichloroethane | 0.0462 | 0.0050 | mg/kg wet | 0.05000 | | 92 | 70-130 | | | |
| 1,2-Dichloropropane | 0.0465 | 0.0050 | mg/kg wet | 0.05000 | | 93 | 70-130 | | | |
| 1,3,5-Trimethylbenzene | 0.0516 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | | | |
| 1,3-Dichlorobenzene | 0.0490 | 0.0050 | mg/kg wet | 0.05000 | | 98 | 70-130 | | | |
| 1,3-Dichloropropane | 0.0479 | 0.0050 | mg/kg wet | 0.05000 | | 96 | 70-130 | | | |
| 1,4-Dichlorobenzene | 0.0483 | 0.0050 | mg/kg wet | 0.05000 | | 97 | 70-130 | | | |
| 1,4-Dioxane | 0.906 | 0.100 | mg/kg wet | 1.000 | | 91 | 70-130 | | | |
| 1-Chlorohexane | 0.0482 | 0.0050 | mg/kg wet | 0.05000 | | 96 | 70-130 | | | |
| 2,2-Dichloropropane | 0.0513 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | | | |
| 2-Butanone | 0.230 | 0.0500 | mg/kg wet | 0.2500 | | 92 | 70-130 | | | |
| 2-Chlorotoluene | 0.0510 | 0.0050 | mg/kg wet | 0.05000 | | 102 | 70-130 | | | |
| 2-Hexanone | 0.215 | 0.0500 | mg/kg wet | 0.2500 | | 86 | 70-130 | | | |
| 4-Chlorotoluene | 0.0504 | 0.0050 | mg/kg wet | 0.05000 | | 101 | 70-130 | | | |
| 4-Isopropyltoluene | 0.0517 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | | | |
| 4-Methyl-2-Pentanone | 0.225 | 0.0500 | mg/kg wet | 0.2500 | | 90 | 70-130 | | | |
| Acetone | 0.218 | 0.0500 | mg/kg wet | 0.2500 | | 87 | 70-130 | | | |
| Benzene | 0.0493 | 0.0050 | mg/kg wet | 0.05000 | | 99 | 70-130 | | | |
| Bromobenzene | 0.0501 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | | | |
| Bromochloromethane | 0.0476 | 0.0050 | mg/kg wet | 0.05000 | | 95 | 70-130 | | | |
| Bromodichloromethane | 0.0469 | 0.0050 | mg/kg wet | 0.05000 | | 94 | 70-130 | | | |
| Bromoform | 0.0487 | 0.0050 | mg/kg wet | 0.05000 | | 97 | 70-130 | | | |
| Bromomethane | 0.0502 | 0.0100 | mg/kg wet | 0.05000 | | 100 | 70-130 | | | |
| Carbon Disulfide | 0.0518 | 0.0050 | mg/kg wet | 0.05000 | | 104 | 70-130 | | | |
| Carbon Tetrachloride | 0.0511 | 0.0050 | mg/kg wet | 0.05000 | | 102 | 70-130 | | | |
| Chlorobenzene | 0.0493 | 0.0050 | mg/kg wet | 0.05000 | | 99 | 70-130 | | | |
| Chloroethane | 0.0476 | 0.0100 | mg/kg wet | 0.05000 | | 95 | 70-130 | | | |
| Chloroform | 0.0484 | 0.0050 | mg/kg wet | 0.05000 | | 97 | 70-130 | | | |
| Chloromethane | 0.0430 | 0.0100 | mg/kg wet | 0.05000 | | 86 | 70-130 | | | |
| cis-1,2-Dichloroethene | 0.0501 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | | | |
| cis-1,3-Dichloropropene | 0.0463 | 0.0050 | mg/kg wet | 0.05000 | | 93 | 70-130 | | | |
| Dibromochloromethane | 0.0455 | 0.0050 | mg/kg wet | 0.05000 | | 91 | 70-130 | | | |
| Dibromomethane | 0.0467 | 0.0050 | mg/kg wet | 0.05000 | | 93 | 70-130 | | | |
| Dichlorodifluoromethane | 0.0453 | 0.0100 | mg/kg wet | 0.05000 | | 91 | 70-130 | | | |
| Diethyl Ether | 0.0487 | 0.0050 | mg/kg wet | 0.05000 | | 97 | 70-130 | | | |
| Di-isopropyl ether | 0.0479 | 0.0050 | mg/kg wet | 0.05000 | | 96 | 70-130 | | | |
| Ethyl tertiary-butyl ether | 0.0428 | 0.0050 | mg/kg wet | 0.05000 | | 86 | 70-130 | | | |
| Ethylbenzene | 0.0527 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | | | |
| Hexachlorobutadiene | 0.0527 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | | | |
| Isopropylbenzene | 0.0541 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | | | |
| Methyl tert-Butyl Ether | 0.0466 | 0.0050 | mg/kg wet | 0.05000 | | 93 | 70-130 | | | |
| Methylene Chloride | 0.0443 | 0.0250 | mg/kg wet | 0.05000 | | 89 | 70-130 | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809780

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **5035/8260B Volatile Organic Compounds / Low Level** | | | | | | | | | | |
| **Batch CJ80147 - 5035** | | | | | | | | | | |
| Naphthalene | 0.0422 | 0.0050 | mg/kg wet | 0.05000 | | 84 | 70-130 | | | |
| n-Butylbenzene | 0.0525 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | | | |
| n-Propylbenzene | 0.0528 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | | | |
| sec-Butylbenzene | 0.0519 | 0.0050 | mg/kg wet | 0.05000 | | 104 | 70-130 | | | |
| Styrene | 0.0524 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | | | |
| tert-Butylbenzene | 0.0534 | 0.0050 | mg/kg wet | 0.05000 | | 107 | 70-130 | | | |
| Tertiary-amyl methyl ether | 0.0434 | 0.0050 | mg/kg wet | 0.05000 | | 87 | 70-130 | | | |
| Tetrachloroethene | 0.0520 | 0.0050 | mg/kg wet | 0.05000 | | 104 | 70-130 | | | |
| Tetrahydrofuran | 0.0457 | 0.0050 | mg/kg wet | 0.05000 | | 91 | 70-130 | | | |
| Toluene | 0.0511 | 0.0050 | mg/kg wet | 0.05000 | | 102 | 70-130 | | | |
| trans-1,2-Dichloroethene | 0.0490 | 0.0050 | mg/kg wet | 0.05000 | | 98 | 70-130 | | | |
| trans-1,3-Dichloropropene | 0.0428 | 0.0050 | mg/kg wet | 0.05000 | | 86 | 70-130 | | | |
| Trichloroethene | 0.0492 | 0.0050 | mg/kg wet | 0.05000 | | 98 | 70-130 | | | |
| Trichlorofluoromethane | 0.0518 | 0.0050 | mg/kg wet | 0.05000 | | 104 | 70-130 | | | |
| Vinyl Acetate | 0.0424 | 0.0050 | mg/kg wet | 0.05000 | | 85 | 70-130 | | | |
| Vinyl Chloride | 0.0506 | 0.0100 | mg/kg wet | 0.05000 | | 101 | 70-130 | | | |
| Xylene O | 0.0495 | 0.0050 | mg/kg wet | 0.05000 | | 99 | 70-130 | | | |
| Xylene P,M | 0.110 | 0.0100 | mg/kg wet | 0.1000 | | 110 | 70-130 | | | |
| Xylenes (Total) | 0.159 | 0.0100 | mg/kg wet | | | | | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *0.0459* | | mg/kg wet | *0.05000* | | *92* | *70-130* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.0508* | | mg/kg wet | *0.05000* | | *102* | *70-130* | | | |
| *Surrogate: Dibromofluoromethane* | *0.0478* | | mg/kg wet | *0.05000* | | *96* | *70-130* | | | |
| *Surrogate: Toluene-d8* | *0.0496* | | mg/kg wet | *0.05000* | | *99* | *70-130* | | | |
| **LCS Dup** | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 0.0523 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | 8 | 25 | |
| 1,1,1-Trichloroethane | 0.0554 | 0.0050 | mg/kg wet | 0.05000 | | 111 | 70-130 | 9 | 25 | |
| 1,1,2,2-Tetrachloroethane | 0.0543 | 0.0050 | mg/kg wet | 0.05000 | | 109 | 70-130 | 15 | 25 | |
| 1,1,2-Trichloroethane | 0.0514 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | 10 | 25 | |
| 1,1-Dichloroethane | 0.0519 | 0.0050 | mg/kg wet | 0.05000 | | 104 | 70-130 | 9 | 25 | |
| 1,1-Dichloroethene | 0.0574 | 0.0050 | mg/kg wet | 0.05000 | | 115 | 70-130 | 9 | 25 | |
| 1,1-Dichloropropene | 0.0574 | 0.0050 | mg/kg wet | 0.05000 | | 115 | 70-130 | 8 | 25 | |
| 1,2,3-Trichlorobenzene | 0.0539 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | 10 | 25 | |
| 1,2,3-Trichloropropane | 0.0498 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | 13 | 25 | |
| 1,2,4-Trichlorobenzene | 0.0542 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | 9 | 25 | |
| 1,2,4-Trimethylbenzene | 0.0548 | 0.0050 | mg/kg wet | 0.05000 | | 110 | 70-130 | 9 | 25 | |
| 1,2-Dibromo-3-Chloropropane | 0.0523 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | 16 | 25 | |
| 1,2-Dibromoethane | 0.0535 | 0.0050 | mg/kg wet | 0.05000 | | 107 | 70-130 | 11 | 25 | |
| 1,2-Dichlorobenzene | 0.0538 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | 9 | 25 | |
| 1,2-Dichloroethane | 0.0499 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | 8 | 25 | |
| 1,2-Dichloropropane | 0.0510 | 0.0050 | mg/kg wet | 0.05000 | | 102 | 70-130 | 9 | 25 | |
| 1,3,5-Trimethylbenzene | 0.0561 | 0.0050 | mg/kg wet | 0.05000 | | 112 | 70-130 | 8 | 25 | |
| 1,3-Dichlorobenzene | 0.0532 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | 8 | 25 | |
| 1,3-Dichloropropane | 0.0526 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | 9 | 25 | |
| 1,4-Dichlorobenzene | 0.0528 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | 9 | 25 | |
| 1,4-Dioxane | 1.14 | 0.100 | mg/kg wet | 1.000 | | 114 | 70-130 | 23 | 20 | D+ |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809780

# Quality Control Data

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch CJ80147 - 5035** | | | | | | | | | | |
| 1-Chlorohexane | 0.0524 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | 8 | 25 | |
| 2,2-Dichloropropane | 0.0553 | 0.0050 | mg/kg wet | 0.05000 | | 111 | 70-130 | 8 | 25 | |
| 2-Butanone | 0.259 | 0.0500 | mg/kg wet | 0.2500 | | 103 | 70-130 | 12 | 25 | |
| 2-Chlorotoluene | 0.0556 | 0.0050 | mg/kg wet | 0.05000 | | 111 | 70-130 | 9 | 25 | |
| 2-Hexanone | 0.253 | 0.0500 | mg/kg wet | 0.2500 | | 101 | 70-130 | 16 | 25 | |
| 4-Chlorotoluene | 0.0550 | 0.0050 | mg/kg wet | 0.05000 | | 110 | 70-130 | 9 | 25 | |
| 4-Isopropyltoluene | 0.0559 | 0.0050 | mg/kg wet | 0.05000 | | 112 | 70-130 | 8 | 25 | |
| 4-Methyl-2-Pentanone | 0.263 | 0.0500 | mg/kg wet | 0.2500 | | 105 | 70-130 | 15 | 25 | |
| Acetone | 0.248 | 0.0500 | mg/kg wet | 0.2500 | | 99 | 70-130 | 13 | 25 | |
| Benzene | 0.0537 | 0.0050 | mg/kg wet | 0.05000 | | 107 | 70-130 | 8 | 25 | |
| Bromobenzene | 0.0551 | 0.0050 | mg/kg wet | 0.05000 | | 110 | 70-130 | 9 | 25 | |
| Bromochloromethane | 0.0519 | 0.0050 | mg/kg wet | 0.05000 | | 104 | 70-130 | 8 | 25 | |
| Bromodichloromethane | 0.0514 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | 9 | 25 | |
| Bromoform | 0.0537 | 0.0050 | mg/kg wet | 0.05000 | | 107 | 70-130 | 10 | 25 | |
| Bromomethane | 0.0536 | 0.0100 | mg/kg wet | 0.05000 | | 107 | 70-130 | 7 | 25 | |
| Carbon Disulfide | 0.0563 | 0.0050 | mg/kg wet | 0.05000 | | 113 | 70-130 | 8 | 25 | |
| Carbon Tetrachloride | 0.0555 | 0.0050 | mg/kg wet | 0.05000 | | 111 | 70-130 | 8 | 25 | |
| Chlorobenzene | 0.0530 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | 7 | 25 | |
| Chloroethane | 0.0519 | 0.0100 | mg/kg wet | 0.05000 | | 104 | 70-130 | 9 | 25 | |
| Chloroform | 0.0527 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | 9 | 25 | |
| Chloromethane | 0.0461 | 0.0100 | mg/kg wet | 0.05000 | | 92 | 70-130 | 7 | 25 | |
| cis-1,2-Dichloroethene | 0.0544 | 0.0050 | mg/kg wet | 0.05000 | | 109 | 70-130 | 8 | 25 | |
| cis-1,3-Dichloropropene | 0.0512 | 0.0050 | mg/kg wet | 0.05000 | | 102 | 70-130 | 10 | 25 | |
| Dibromochloromethane | 0.0499 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | 9 | 25 | |
| Dibromomethane | 0.0519 | 0.0050 | mg/kg wet | 0.05000 | | 104 | 70-130 | 11 | 25 | |
| Dichlorodifluoromethane | 0.0494 | 0.0100 | mg/kg wet | 0.05000 | | 99 | 70-130 | 9 | 25 | |
| Diethyl Ether | 0.0547 | 0.0050 | mg/kg wet | 0.05000 | | 109 | 70-130 | 11 | 25 | |
| Di-isopropyl ether | 0.0531 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | 10 | 25 | |
| Ethyl tertiary-butyl ether | 0.0479 | 0.0050 | mg/kg wet | 0.05000 | | 96 | 70-130 | 11 | 25 | |
| Ethylbenzene | 0.0571 | 0.0050 | mg/kg wet | 0.05000 | | 114 | 70-130 | 8 | 25 | |
| Hexachlorobutadiene | 0.0573 | 0.0050 | mg/kg wet | 0.05000 | | 115 | 70-130 | 8 | 25 | |
| Isopropylbenzene | 0.0591 | 0.0050 | mg/kg wet | 0.05000 | | 118 | 70-130 | 9 | 25 | |
| Methyl tert-Butyl Ether | 0.0522 | 0.0050 | mg/kg wet | 0.05000 | | 104 | 70-130 | 11 | 25 | |
| Methylene Chloride | 0.0476 | 0.0250 | mg/kg wet | 0.05000 | | 95 | 70-130 | 7 | 25 | |
| Naphthalene | 0.0478 | 0.0050 | mg/kg wet | 0.05000 | | 96 | 70-130 | 12 | 25 | |
| n-Butylbenzene | 0.0567 | 0.0050 | mg/kg wet | 0.05000 | | 113 | 70-130 | 8 | 25 | |
| n-Propylbenzene | 0.0576 | 0.0050 | mg/kg wet | 0.05000 | | 115 | 70-130 | 9 | 25 | |
| sec-Butylbenzene | 0.0563 | 0.0050 | mg/kg wet | 0.05000 | | 113 | 70-130 | 8 | 25 | |
| Styrene | 0.0568 | 0.0050 | mg/kg wet | 0.05000 | | 114 | 70-130 | 8 | 25 | |
| tert-Butylbenzene | 0.0589 | 0.0050 | mg/kg wet | 0.05000 | | 118 | 70-130 | 10 | 25 | |
| Tertiary-amyl methyl ether | 0.0491 | 0.0050 | mg/kg wet | 0.05000 | | 98 | 70-130 | 12 | 25 | |
| Tetrachloroethene | 0.0560 | 0.0050 | mg/kg wet | 0.05000 | | 112 | 70-130 | 7 | 25 | |
| Tetrahydrofuran | 0.0526 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | 14 | 25 | |
| Toluene | 0.0560 | 0.0050 | mg/kg wet | 0.05000 | | 112 | 70-130 | 9 | 25 | |
| trans-1,2-Dichloroethene | 0.0535 | 0.0050 | mg/kg wet | 0.05000 | | 107 | 70-130 | 9 | 25 | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809780

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 5035/8260B Volatile Organic Compounds / Low Level | | | | | | | | | | |
| **Batch CJ80147 - 5035** | | | | | | | | | | |
| trans-1,3-Dichloropropene | 0.0473 | 0.0050 | mg/kg wet | 0.05000 | | 95 | 70-130 | 10 | 25 | |
| Trichloroethene | 0.0540 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | 9 | 25 | |
| Trichlorofluoromethane | 0.0563 | 0.0050 | mg/kg wet | 0.05000 | | 113 | 70-130 | 8 | 25 | |
| Vinyl Acetate | 0.0478 | 0.0050 | mg/kg wet | 0.05000 | | 96 | 70-130 | 12 | 25 | |
| Vinyl Chloride | 0.0550 | 0.0100 | mg/kg wet | 0.05000 | | 110 | 70-130 | 8 | 25 | |
| Xylene O | 0.0538 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | 8 | 25 | |
| Xylene P,M | 0.119 | 0.0100 | mg/kg wet | 0.1000 | | 119 | 70-130 | 8 | 25 | |
| Xylenes (Total) | 0.173 | 0.0100 | mg/kg wet | | | | | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *0.0459* | | mg/kg wet | *0.05000* | | *92* | *70-130* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.0504* | | mg/kg wet | *0.05000* | | *101* | *70-130* | | | |
| *Surrogate: Dibromofluoromethane* | *0.0478* | | mg/kg wet | *0.05000* | | *96* | *70-130* | | | |
| *Surrogate: Toluene-d8* | *0.0494* | | mg/kg wet | *0.05000* | | *99* | *70-130* | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1809780

**Notes and Definitions**

| | |
|---|---|
| U | Analyte included in the analysis, but not detected |
| D+ | Relative percent difference for duplicate is outside of criteria (D+). |
| 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: 1809780

**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: 1809780
Date Received: 9/28/2018
Project Due Date: 10/2/2018
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: 2.8 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? No
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: 9/28/18 Time: 1627 By: [illegible]

Sample Receiving Notes:

COC = SW-167-092818 (0-2') ; Labels = SW-168-092818 (0-2) (vials)

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 | 272219 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 01 | 272236 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 01 | 272237 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 01 | 272245 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 272218 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 02 | 272234 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 02 | 272235 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 02 | 272244 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 272217 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 03 | 272232 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 03 | 272233 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 03 | 272243 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 272216 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 04 | 272230 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 04 | 272231 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 04 | 272242 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 272215 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 05 | 272228 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 05 | 272229 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 05 | 272241 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 272214 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 06 | 272226 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 06 | 272227 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 06 | 272240 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1809780
Date Received: 9/28/2018

| | | | | | | |
|---|---|---|---|---|---|---|
| 07 | 272213 | Yes | NA | Yes | VOA Vial - Methanol | MeOH |
| 07 | 272224 | Yes | NA | Yes | VOA Vial - Other | Other |
| 07 | 272225 | Yes | NA | Yes | VOA Vial - Other | Other |
| 07 | 272239 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP |
| 08 | 272212 | Yes | NA | Yes | VOA Vial - Methanol | MeOH |
| 08 | 272222 | Yes | NA | Yes | VOA Vial - Other | Other |
| 08 | 272223 | Yes | NA | Yes | VOA Vial - Other | Other |
| 08 | 272238 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP |
| 09 | 272211 | Yes | NA | Yes | VOA Vial - Methanol | MeOH |
| 09 | 272220 | Yes | NA | Yes | VOA Vial - Other | Other |

**2nd Review**

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

Completed By: _____ Date & Time: 9/28/18 1617

Reviewed By: _____ Date & Time: 9/28/18 16:25

Delivered By: _____ 9/28/18 16:25

1 1/1

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

# CHAIN OF CUSTODY

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

ESS Lab #: 1809780
Reporting Limits: see note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3163055
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 | PCBs (Soxhlet) | VOC 8260 | % Solids |
|---|---|---|---|---|---|---|---|---|
| 1 | 9/28/18 | 0825 | C | S | SW-160-092818(0-2') EAH | | X | X |
| 2 | | 0830 | | | SW-169-092818(0-2') | | X | X |
| 3 | | 0835 | | | SW-167-092818(0-2') | | X | X |
| 4 | | 0840 | | | SW-174-092818(0-2') | | X | X |
| 5 | | 0845 | | | SW-177-092818(0-2') | | X | X |
| 6 | | 0850 | | | SW-182-092818(0-2') | | X | X |
| 7 | | 0855 | G | S | B-218-092818 EAH (2') | | X | X |
| 8 | | 0900 | | | B-241-092818(2') | | X | X |
| 9 | | — | — | — | TB | | X | | |

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

| Number of Containers per Sample: | AG | 9 | 1 | 1 |
|---|---|---|---|---|

**Laboratory Use Only**
Cooler Present: —
Seals Intact: —
Cooler Temperature: Ice 2.8 °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) |
|---|---|---|---|
| 9/28/18 1511 | 9/28/18 1511 | 9/28/18 1522 | 9/28/18 1559 |
| 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: 1810028**

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

Laurel Stoddard
Laboratory Director

**REVIEWED**
**By ESS Laboratory at 5:01 pm, Oct 03, 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: 1810028

## SAMPLE RECEIPT

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

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1810028-01 | B-898-100118 0-4FT | Soil | 6010C, 7471B, 8081B, 8082A, 8270D, 9014 |
| 1810028-02 | B-898-100118 3FT | Soil | 8260B Low |
| 1810028-03 | B-897-100118 0-4FT | Soil | 6010C, 7471B, 8081B, 8082A, 8270D, 9014 |
| 1810028-04 | B-897-100118 3FT | Soil | 8260B Low |
| 1810028-05 | B-896-100118 0-4FT | Soil | 6010C, 7471B, 8081B, 8082A, 8270D, 9014 |
| 1810028-06 | B-896-100118 3FT | Soil | 8260B Low |
| 1810028-07 | TRIP BLANK | Solid | 8260B Low |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

## PROJECT NARRATIVE

**8081B Organochlorine Pesticides**

1810028-01 **Lower value is used due to matrix interferences (LC).**
Endosulfan I [2C] , Endosulfan II

1810028-01 **Percent difference between primary and confirmation results exceeds 40% (P).**
Endosulfan I [2C] , Endosulfan II

1810028-01 **Presence of PCBs in the sample may cause this analyte to be biased high.**
Endosulfan I [2C] , Endosulfan II

1810028-03 **Lower value is used due to matrix interferences (LC).**
4,4´-DDT

1810028-03 **Percent difference between primary and confirmation results exceeds 40% (P).**
4,4´-DDT

1810028-03 **Presence of PCBs in the sample may cause this analyte to be biased high.**
4,4´-DDT , Dieldrin [2C]

1810028-05 **Lower value is used due to matrix interferences (LC).**
Dieldrin

1810028-05 **Percent difference between primary and confirmation results exceeds 40% (P).**
Dieldrin

1810028-05 **Presence of PCBs in the sample may cause this analyte to be biased high.**
Dieldrin

**8082A Polychlorinated Biphenyls (PCB)**

C8J0070-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Decachlorobiphenyl (29% @ 20%)

C8J0070-CCV2 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Decachlorobiphenyl (23% @ 20%)

**8270D Semi-Volatile Organic Compounds**

C8J0026-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (94% @ 80-120%), 4,6-Dinitro-2-Methylphenol (100% @ 80-120%), Benzoic Acid (109% @ 80-120%), Pentachlorophenol (116% @ 80-120%)

C8J0026-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Benzyl Alcohol (25% @ 20%), Hexachlorocyclopentadiene (27% @ 20%)

C8J0030-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (88% @ 80-120%), 4,6-Dinitro-2-Methylphenol (97% @ 80-120%), Benzoic Acid (84% @ 80-120%), Pentachlorophenol (114% @ 80-120%)

C8J0030-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
4-Nitrophenol (21% @ 20%)

C8J0030-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Benzyl Alcohol (22% @ 20%), Hexachlorocyclopentadiene (30% @ 20%)

CJ80113-BS1 **Blank Spike recovery is below lower control limit (B-).**
Benzyl Alcohol (38% @ 40-140%)

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

**Total Metals**

CJ80153-BS1 **Blank Spike recovery is below lower control limit (B-).**
Selenium (82% @ 86-115%)

CJ80153-BSD1 **Blank Spike recovery is below lower control limit (B-).**
Cadmium (81% @ 84-116%), Selenium (80% @ 86-115%)

**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: 1810028

## 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-898-100118 0-4FT
Date Sampled: 10/01/18 10:45
Percent Solids: 92

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

## Total Metals

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyst | Analyzed | I/V | F/V | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| **Arsenic** | **6.13** (1.53) | | 6010C | | 1 | BJV | 10/02/18 11:14 | 3.53 | 100 | CJ80153 |
| **Barium** | **18.5** (1.53) | | 6010C | | 1 | BJV | 10/02/18 11:14 | 3.53 | 100 | CJ80153 |
| Cadmium | ND (0.31) | | 6010C | | 1 | BJV | 10/02/18 11:14 | 3.53 | 100 | CJ80153 |
| **Chromium** | **4.79** (0.61) | | 6010C | | 1 | BJV | 10/02/18 11:14 | 3.53 | 100 | CJ80153 |
| **Lead** | **20.9** (3.06) | | 6010C | | 1 | BJV | 10/02/18 11:14 | 3.53 | 100 | CJ80153 |
| **Mercury** | **0.025** (0.023) | | 7471B | | 1 | MJV | 10/02/18 13:10 | 0.94 | 40 | CJ80154 |
| Selenium | ND (3.06) | | 6010C | | 1 | BJV | 10/02/18 11:14 | 3.53 | 100 | CJ80153 |
| Silver | ND (0.31) | | 6010C | | 1 | BJV | 10/02/18 11:14 | 3.53 | 100 | CJ80153 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-898-100118 0-4FT
Date Sampled: 10/01/18 10:45
Percent Solids: 92
Initial Volume: 19.4
Final Volume: 5
Extraction Method: 3546

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 10/1/18 16:33

## 8081B Organochlorine Pesticides

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 4,4´-DDD | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| 4,4´-DDE | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| 4,4´-DDT | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| Aldrin | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| alpha-BHC | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| alpha-Chlordane | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| beta-BHC | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| Chlordane (Total) | ND (0.0335) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| delta-BHC | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| Dieldrin | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| **Endosulfan I [2C]** | **LC, P, PB 0.0056** (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| **Endosulfan II** | **LC, P, PB 0.0075** (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| Endosulfan Sulfate | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| Endrin | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| Endrin Aldehyde | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| Endrin Ketone | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| gamma-BHC (Lindane) | ND (0.0017) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| gamma-Chlordane | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| Heptachlor | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| Heptachlor Epoxide | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| Hexachlorobenzene | ND (0.0028) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |
| **Methoxychlor** | **0.488** (0.139) | | 8081B | | 50 | 10/03/18 13:09 | C8J0057 | CJ80112 |
| Toxaphene | ND (0.139) | | 8081B | | 1 | 10/03/18 13:39 | C8J0057 | CJ80112 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *91 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *85 %* | | *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-898-100118 0-4FT
Date Sampled: 10/01/18 10:45
Percent Solids: 92
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/1/18 16:26

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/02/18 11:32 | C8J0070 | CJ80108 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/02/18 11:32 | C8J0070 | CJ80108 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/02/18 11:32 | C8J0070 | CJ80108 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/02/18 11:32 | C8J0070 | CJ80108 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/02/18 11:32 | C8J0070 | CJ80108 |
| **Aroclor 1254 [2C]** | **1.6** (0.3) | | 8082A | | 5 | 10/02/18 19:50 | C8J0070 | CJ80108 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/02/18 11:32 | C8J0070 | CJ80108 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/02/18 11:32 | C8J0070 | CJ80108 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/02/18 11:32 | C8J0070 | CJ80108 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *75 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *110 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-898-100118 0-4FT
Date Sampled: 10/01/18 10:45
Percent Solids: 92
Initial Volume: 15
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 10/1/18 16:33

## 8270D Semi-Volatile Organic Compounds

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1-Biphenyl | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 1,2,4-Trichlorobenzene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 1,2-Dichlorobenzene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 1,3-Dichlorobenzene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 1,4-Dichlorobenzene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2,3,4,6-Tetrachlorophenol | ND (1.81) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2,4,5-Trichlorophenol | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2,4,6-Trichlorophenol | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2,4-Dichlorophenol | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2,4-Dimethylphenol | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2,4-Dinitrophenol | ND (1.81) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2,4-Dinitrotoluene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2,6-Dinitrotoluene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2-Chloronaphthalene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2-Chlorophenol | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2-Methylnaphthalene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2-Methylphenol | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2-Nitroaniline | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 2-Nitrophenol | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 3,3´-Dichlorobenzidine | ND (0.722) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 3+4-Methylphenol | ND (0.722) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 3-Nitroaniline | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 4,6-Dinitro-2-Methylphenol | ND (1.81) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 4-Bromophenyl-phenylether | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 4-Chloro-3-Methylphenol | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 4-Chloroaniline | ND (0.722) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 4-Chloro-phenyl-phenyl ether | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 4-Nitroaniline | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| 4-Nitrophenol | ND (1.81) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Acenaphthene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Acenaphthylene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Acetophenone | ND (0.722) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-898-100118 0-4FT
Date Sampled: 10/01/18 10:45
Percent Solids: 92
Initial Volume: 15
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 10/1/18 16:33

## 8270D Semi-Volatile Organic Compounds

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aniline | ND (0.722) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Anthracene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Azobenzene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| **Benzo(a)anthracene** | **0.465** (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| **Benzo(a)pyrene** | **0.389** (0.181) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| **Benzo(b)fluoranthene** | **0.378** (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Benzo(g,h,i)perylene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Benzo(k)fluoranthene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Benzoic Acid | ND (1.81) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Benzyl Alcohol | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| bis(2-Chloroethoxy)methane | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| bis(2-Chloroethyl)ether | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| bis(2-chloroisopropyl)Ether | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| bis(2-Ethylhexyl)phthalate | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Butylbenzylphthalate | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Carbazole | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| **Chrysene** | **0.447** (0.181) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Dibenzo(a,h)Anthracene | ND (0.181) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Dibenzofuran | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Diethylphthalate | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Dimethylphthalate | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Di-n-butylphthalate | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Di-n-octylphthalate | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| **Fluoranthene** | **0.763** (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Fluorene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Hexachlorobenzene | ND (0.181) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Hexachlorobutadiene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Hexachlorocyclopentadiene | ND (1.81) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Hexachloroethane | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Indeno(1,2,3-cd)Pyrene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Isophorone | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Naphthalene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-898-100118 0-4FT
Date Sampled: 10/01/18 10:45
Percent Solids: 92
Initial Volume: 15
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 10/1/18 16:33

## 8270D Semi-Volatile Organic Compounds

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Nitrobenzene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| N-Nitrosodimethylamine | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| N-Nitroso-Di-n-Propylamine | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| N-nitrosodiphenylamine | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Pentachlorophenol | ND (1.81) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Phenanthrene | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Phenol | ND (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| **Pyrene** | **0.705** (0.360) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |
| Pyridine | ND (1.81) | | 8270D | | 1 | 10/02/18 0:33 | C8J0026 | CJ80113 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: 1,2-Dichlorobenzene-d4* | *59 %* | | *30-130* |
| *Surrogate: 2,4,6-Tribromophenol* | *73 %* | | *30-130* |
| *Surrogate: 2-Chlorophenol-d4* | *64 %* | | *30-130* |
| *Surrogate: 2-Fluorobiphenyl* | *74 %* | | *30-130* |
| *Surrogate: 2-Fluorophenol* | *65 %* | | *30-130* |
| *Surrogate: Nitrobenzene-d5* | *72 %* | | *30-130* |
| *Surrogate: Phenol-d6* | *65 %* | | *30-130* |
| *Surrogate: p-Terphenyl-d14* | *86 %* | | *30-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-898-100118 0-4FT
Date Sampled: 10/01/18 10:45
Percent Solids: 92

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-01
Sample Matrix: Soil

## Classical Chemistry

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyst | Analyzed | Units | Batch |
|---|---|---|---|---|---|---|---|---|---|
| Total Cyanide | ND (1.06) | | 9014 | | 1 | EEM | 10/02/18 12:30 | mg/kg dry | CJ80224 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-898-100118 3FT
Date Sampled: 10/01/18 10:45
Percent Solids: 92
Initial Volume: 6.6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,1,1-Trichloroethane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,1,2,2-Tetrachloroethane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,1,2-Trichloroethane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,1-Dichloroethane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,1-Dichloroethene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,1-Dichloropropene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,2,3-Trichlorobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,2,3-Trichloropropane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,2,4-Trichlorobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,2,4-Trimethylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,2-Dibromo-3-Chloropropane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,2-Dibromoethane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,2-Dichlorobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,2-Dichloroethane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,2-Dichloropropane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,3,5-Trimethylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,3-Dichlorobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,3-Dichloropropane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,4-Dichlorobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1,4-Dioxane | ND (0.0819) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 1-Chlorohexane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 2,2-Dichloropropane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 2-Butanone | ND (0.0410) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 2-Chlorotoluene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 2-Hexanone | ND (0.0410) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 4-Chlorotoluene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 4-Isopropyltoluene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| 4-Methyl-2-Pentanone | ND (0.0410) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Acetone | ND (0.0410) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Benzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Bromobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-898-100118 3FT
Date Sampled: 10/01/18 10:45
Percent Solids: 92
Initial Volume: 6.6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Bromodichloromethane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Bromoform | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Bromomethane | ND (0.0082) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Carbon Disulfide | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Carbon Tetrachloride | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Chlorobenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Chloroethane | ND (0.0082) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Chloroform | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Chloromethane | ND (0.0082) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| cis-1,2-Dichloroethene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| cis-1,3-Dichloropropene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Dibromochloromethane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Dibromomethane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Dichlorodifluoromethane | ND (0.0082) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Diethyl Ether | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Di-isopropyl ether | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Ethyl tertiary-butyl ether | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Ethylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Hexachlorobutadiene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Isopropylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Methyl tert-Butyl Ether | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Methylene Chloride | ND (0.0205) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Naphthalene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| n-Butylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| n-Propylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| sec-Butylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Styrene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| tert-Butylbenzene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Tertiary-amyl methyl ether | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Tetrachloroethene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Tetrahydrofuran | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-898-100118 3FT
Date Sampled: 10/01/18 10:45
Percent Solids: 92
Initial Volume: 6.6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Toluene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| trans-1,2-Dichloroethene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| trans-1,3-Dichloropropene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Trichloroethene | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Trichlorofluoromethane | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Vinyl Acetate | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Vinyl Chloride | ND (0.0082) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Xylene O | ND (0.0041) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Xylene P,M | ND (0.0082) | | 8260B Low | | 1 | 10/02/18 16:05 | C8J0041 | CJ80231 |
| Xylenes (Total) | ND (0.0082) | | 8260B Low | | 1 | 10/02/18 16:05 | | [CALC] |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | *117 %* | | *70-130* |
| *Surrogate: 4-Bromofluorobenzene* | *97 %* | | *70-130* |
| *Surrogate: Dibromofluoromethane* | *112 %* | | *70-130* |
| *Surrogate: Toluene-d8* | *94 %* | | *70-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-897-100118 0-4FT
Date Sampled: 10/01/18 10:55
Percent Solids: 91

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-03
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

## Total Metals

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyst | Analyzed | I/V | F/V | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| **Arsenic** | **1.96** (1.58) | | 6010C | | 1 | BJV | 10/02/18 11:18 | 3.48 | 100 | CJ80153 |
| **Barium** | **20.3** (1.58) | | 6010C | | 1 | BJV | 10/02/18 11:18 | 3.48 | 100 | CJ80153 |
| Cadmium | ND (0.32) | | 6010C | | 1 | BJV | 10/02/18 11:18 | 3.48 | 100 | CJ80153 |
| **Chromium** | **5.50** (0.63) | | 6010C | | 1 | BJV | 10/02/18 11:18 | 3.48 | 100 | CJ80153 |
| **Lead** | **17.5** (3.17) | | 6010C | | 1 | BJV | 10/02/18 11:18 | 3.48 | 100 | CJ80153 |
| **Mercury** | **0.035** (0.019) | | 7471B | | 1 | MJV | 10/02/18 13:12 | 1.14 | 40 | CJ80154 |
| Selenium | ND (3.17) | | 6010C | | 1 | BJV | 10/02/18 11:18 | 3.48 | 100 | CJ80153 |
| Silver | ND (0.32) | | 6010C | | 1 | BJV | 10/02/18 11:18 | 3.48 | 100 | CJ80153 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-897-100118 0-4FT
Date Sampled: 10/01/18 10:55
Percent Solids: 91
Initial Volume: 20.2
Final Volume: 5
Extraction Method: 3546

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 10/1/18 16:33

## 8081B Organochlorine Pesticides

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 4,4´-DDD | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| 4,4´-DDE | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| **4,4´-DDT** | **LC, P, PB 0.0190** (0.0109) | | 8081B | | 4 | 10/03/18 12:10 | C8J0057 | CJ80112 |
| Aldrin | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| alpha-BHC | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| alpha-Chlordane | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| beta-BHC | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| Chlordane (Total) | ND (0.0327) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| delta-BHC | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| **Dieldrin [2C]** | **PB 0.0086** (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| Endosulfan I [2C] | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| Endosulfan II | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| Endosulfan Sulfate | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| Endrin | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| Endrin Aldehyde | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| Endrin Ketone | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| gamma-BHC (Lindane) | ND (0.0016) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| gamma-Chlordane | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| Heptachlor | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| Heptachlor Epoxide | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| Hexachlorobenzene | ND (0.0027) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |
| **Methoxychlor [2C]** | **0.0653** (0.0109) | | 8081B | | 4 | 10/03/18 12:10 | C8J0057 | CJ80112 |
| Toxaphene | ND (0.136) | | 8081B | | 1 | 10/03/18 12:40 | C8J0057 | CJ80112 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *84 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *85 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *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-897-100118 0-4FT
Date Sampled: 10/01/18 10:55
Percent Solids: 91
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/1/18 16:26

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/02/18 11:51 | C8J0070 | CJ80108 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/02/18 11:51 | C8J0070 | CJ80108 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/02/18 11:51 | C8J0070 | CJ80108 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/02/18 11:51 | C8J0070 | CJ80108 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/02/18 11:51 | C8J0070 | CJ80108 |
| **Aroclor 1254** | **0.2** (0.06) | | 8082A | | 1 | 10/02/18 11:51 | C8J0070 | CJ80108 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/02/18 11:51 | C8J0070 | CJ80108 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/02/18 11:51 | C8J0070 | CJ80108 |
| **Aroclor 1268 [2C]** | **0.1** (0.06) | | 8082A | | 1 | 10/02/18 11:51 | C8J0070 | CJ80108 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *90 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *87 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *73 %* | | *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-897-100118 0-4FT
Date Sampled: 10/01/18 10:55
Percent Solids: 91
Initial Volume: 14.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 10/1/18 16:33

## 8270D Semi-Volatile Organic Compounds

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1-Biphenyl | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 1,2,4-Trichlorobenzene | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 1,2-Dichlorobenzene | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 1,3-Dichlorobenzene | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 1,4-Dichlorobenzene | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2,3,4,6-Tetrachlorophenol | ND (1.94) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2,4,5-Trichlorophenol | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2,4,6-Trichlorophenol | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2,4-Dichlorophenol | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2,4-Dimethylphenol | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2,4-Dinitrophenol | ND (1.94) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2,4-Dinitrotoluene | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2,6-Dinitrotoluene | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2-Chloronaphthalene | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2-Chlorophenol | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2-Methylnaphthalene | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2-Methylphenol | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2-Nitroaniline | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 2-Nitrophenol | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 3,3´-Dichlorobenzidine | ND (0.776) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 3+4-Methylphenol | ND (0.776) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 3-Nitroaniline | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 4,6-Dinitro-2-Methylphenol | ND (1.94) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 4-Bromophenyl-phenylether | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 4-Chloro-3-Methylphenol | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 4-Chloroaniline | ND (0.776) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 4-Chloro-phenyl-phenyl ether | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 4-Nitroaniline | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| 4-Nitrophenol | ND (1.94) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Acenaphthene** | **0.499** (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Acenaphthylene | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Acetophenone | ND (0.776) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-897-100118 0-4FT
Date Sampled: 10/01/18 10:55
Percent Solids: 91
Initial Volume: 14.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 10/1/18 16:33

## 8270D Semi-Volatile Organic Compounds

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aniline | ND (0.776) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Anthracene** | **1.42** (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Azobenzene | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Benzo(a)anthracene** | **4.67** (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Benzo(a)pyrene** | **3.97** (0.194) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Benzo(b)fluoranthene** | **3.67** (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Benzo(g,h,i)perylene** | **3.34** (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Benzo(k)fluoranthene** | **2.97** (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Benzoic Acid | ND (1.94) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Benzyl Alcohol | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| bis(2-Chloroethoxy)methane | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| bis(2-Chloroethyl)ether | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| bis(2-chloroisopropyl)Ether | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| bis(2-Ethylhexyl)phthalate | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Butylbenzylphthalate | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Carbazole** | **0.542** (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Chrysene** | **4.40** (0.194) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Dibenzo(a,h)Anthracene** | **1.54** (0.194) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Dibenzofuran | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Diethylphthalate | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Dimethylphthalate | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Di-n-butylphthalate | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Di-n-octylphthalate | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Fluoranthene** | **8.49** (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Fluorene** | **0.483** (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Hexachlorobenzene | ND (0.194) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Hexachlorobutadiene | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Hexachlorocyclopentadiene | ND (1.94) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Hexachloroethane | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Indeno(1,2,3-cd)Pyrene** | **2.48** (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Isophorone | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Naphthalene | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-897-100118 0-4FT
Date Sampled: 10/01/18 10:55
Percent Solids: 91
Initial Volume: 14.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 10/1/18 16:33

## 8270D Semi-Volatile Organic Compounds

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Nitrobenzene | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| N-Nitrosodimethylamine | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| N-Nitroso-Di-n-Propylamine | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| N-nitrosodiphenylamine | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Pentachlorophenol | ND (1.94) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Phenanthrene** | **4.98** (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Phenol | ND (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| **Pyrene** | **7.70** (0.388) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |
| Pyridine | ND (1.94) | | 8270D | | 1 | 10/02/18 1:08 | C8J0026 | CJ80113 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: 1,2-Dichlorobenzene-d4* | *58 %* | | *30-130* |
| *Surrogate: 2,4,6-Tribromophenol* | *78 %* | | *30-130* |
| *Surrogate: 2-Chlorophenol-d4* | *67 %* | | *30-130* |
| *Surrogate: 2-Fluorobiphenyl* | *82 %* | | *30-130* |
| *Surrogate: 2-Fluorophenol* | *66 %* | | *30-130* |
| *Surrogate: Nitrobenzene-d5* | *73 %* | | *30-130* |
| *Surrogate: Phenol-d6* | *70 %* | | *30-130* |
| *Surrogate: p-Terphenyl-d14* | *81 %* | | *30-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-897-100118 0-4FT
Date Sampled: 10/01/18 10:55
Percent Solids: 91

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-03
Sample Matrix: Soil

## Classical Chemistry

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyst | Analyzed | Units | Batch |
|---|---|---|---|---|---|---|---|---|---|
| Total Cyanide | ND (1.07) | | 9014 | | 1 | EEM | 10/02/18 12:30 | mg/kg dry | CJ80224 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-897-100118 3FT
Date Sampled: 10/01/18 10:55
Percent Solids: 91
Initial Volume: 7.2
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,1,1-Trichloroethane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,1,2,2-Tetrachloroethane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,1,2-Trichloroethane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,1-Dichloroethane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,1-Dichloroethene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,1-Dichloropropene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,2,3-Trichlorobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,2,3-Trichloropropane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,2,4-Trichlorobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,2,4-Trimethylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,2-Dibromo-3-Chloropropane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,2-Dibromoethane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,2-Dichlorobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,2-Dichloroethane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,2-Dichloropropane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,3,5-Trimethylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,3-Dichlorobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,3-Dichloropropane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,4-Dichlorobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1,4-Dioxane | ND (0.0765) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 1-Chlorohexane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 2,2-Dichloropropane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 2-Butanone | ND (0.0383) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 2-Chlorotoluene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 2-Hexanone | ND (0.0383) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 4-Chlorotoluene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 4-Isopropyltoluene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| 4-Methyl-2-Pentanone | ND (0.0383) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Acetone | ND (0.0383) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Benzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Bromobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-897-100118 3FT
Date Sampled: 10/01/18 10:55
Percent Solids: 91
Initial Volume: 7.2
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Bromodichloromethane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Bromoform | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Bromomethane | ND (0.0077) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Carbon Disulfide | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Carbon Tetrachloride | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Chlorobenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Chloroethane | ND (0.0077) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Chloroform | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Chloromethane | ND (0.0077) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| cis-1,2-Dichloroethene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| cis-1,3-Dichloropropene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Dibromochloromethane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Dibromomethane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Dichlorodifluoromethane | ND (0.0077) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Diethyl Ether | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Di-isopropyl ether | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Ethyl tertiary-butyl ether | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Ethylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Hexachlorobutadiene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Isopropylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Methyl tert-Butyl Ether | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Methylene Chloride | ND (0.0191) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Naphthalene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| n-Butylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| n-Propylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| sec-Butylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Styrene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| tert-Butylbenzene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Tertiary-amyl methyl ether | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Tetrachloroethene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Tetrahydrofuran | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-897-100118 3FT
Date Sampled: 10/01/18 10:55
Percent Solids: 91
Initial Volume: 7.2
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Toluene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| trans-1,2-Dichloroethene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| trans-1,3-Dichloropropene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Trichloroethene | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Trichlorofluoromethane | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Vinyl Acetate | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Vinyl Chloride | ND (0.0077) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Xylene O | ND (0.0038) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Xylene P,M | ND (0.0077) | | 8260B Low | | 1 | 10/02/18 16:31 | C8J0041 | CJ80231 |
| Xylenes (Total) | ND (0.0077) | | 8260B Low | | 1 | 10/02/18 16:31 | | [CALC] |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | *117 %* | | *70-130* |
| *Surrogate: 4-Bromofluorobenzene* | *97 %* | | *70-130* |
| *Surrogate: Dibromofluoromethane* | *111 %* | | *70-130* |
| *Surrogate: Toluene-d8* | *97 %* | | *70-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-896-100118 0-4FT
Date Sampled: 10/01/18 11:04
Percent Solids: 94

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-05
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

## Total Metals

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyst | Analyzed | I/V | F/V | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| **Arsenic** | **4.62** (1.43) | | 6010C | | 1 | BJV | 10/02/18 11:22 | 3.72 | 100 | CJ80153 |
| **Barium** | **16.9** (1.43) | | 6010C | | 1 | BJV | 10/02/18 11:22 | 3.72 | 100 | CJ80153 |
| Cadmium | ND (0.29) | | 6010C | | 1 | BJV | 10/02/18 11:22 | 3.72 | 100 | CJ80153 |
| **Chromium** | **6.41** (0.57) | | 6010C | | 1 | BJV | 10/02/18 11:22 | 3.72 | 100 | CJ80153 |
| **Lead** | **9.71** (2.86) | | 6010C | | 1 | BJV | 10/02/18 11:22 | 3.72 | 100 | CJ80153 |
| **Mercury** | **0.030** (0.016) | | 7471B | | 1 | MJV | 10/02/18 13:14 | 1.3 | 40 | CJ80154 |
| Selenium | ND (2.86) | | 6010C | | 1 | BJV | 10/02/18 11:22 | 3.72 | 100 | CJ80153 |
| Silver | ND (0.29) | | 6010C | | 1 | BJV | 10/02/18 11:22 | 3.72 | 100 | CJ80153 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-896-100118 0-4FT
Date Sampled: 10/01/18 11:04
Percent Solids: 94
Initial Volume: 19.6
Final Volume: 5
Extraction Method: 3546

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 10/1/18 16:33

## 8081B Organochlorine Pesticides

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 4,4´-DDD | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| 4,4´-DDE | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| 4,4´-DDT | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| Aldrin | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| alpha-BHC | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| alpha-Chlordane | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| beta-BHC | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| Chlordane (Total) | ND (0.0325) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| delta-BHC [2C] | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| **Dieldrin** | **LC, P, PB 0.0049** (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| Endosulfan I [2C] | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| Endosulfan II | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| Endosulfan Sulfate | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| Endrin | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| Endrin Aldehyde | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| Endrin Ketone | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| gamma-BHC (Lindane) | ND (0.0016) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| gamma-Chlordane | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| Heptachlor | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| Heptachlor Epoxide | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| Hexachlorobenzene | ND (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| **Methoxychlor** | **0.0201** (0.0027) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |
| Toxaphene | ND (0.136) | | 8081B | | 1 | 10/03/18 11:41 | C8J0057 | CJ80112 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *72 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *64 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *73 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-896-100118 0-4FT
Date Sampled: 10/01/18 11:04
Percent Solids: 94
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/1/18 16:26

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/02/18 12:10 | C8J0070 | CJ80108 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/02/18 12:10 | C8J0070 | CJ80108 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/02/18 12:10 | C8J0070 | CJ80108 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/02/18 12:10 | C8J0070 | CJ80108 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/02/18 12:10 | C8J0070 | CJ80108 |
| **Aroclor 1254** | **0.2** (0.05) | | 8082A | | 1 | 10/02/18 12:10 | C8J0070 | CJ80108 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/02/18 12:10 | C8J0070 | CJ80108 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/02/18 12:10 | C8J0070 | CJ80108 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/02/18 12:10 | C8J0070 | CJ80108 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *63 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *70 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *64 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *87 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-896-100118 0-4FT
Date Sampled: 10/01/18 11:04
Percent Solids: 94
Initial Volume: 14.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 10/1/18 16:33

## 8270D Semi-Volatile Organic Compounds

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1-Biphenyl | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 1,2,4-Trichlorobenzene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 1,2-Dichlorobenzene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 1,3-Dichlorobenzene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 1,4-Dichlorobenzene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2,3,4,6-Tetrachlorophenol | ND (1.82) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2,4,5-Trichlorophenol | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2,4,6-Trichlorophenol | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2,4-Dichlorophenol | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2,4-Dimethylphenol | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2,4-Dinitrophenol | ND (1.82) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2,4-Dinitrotoluene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2,6-Dinitrotoluene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2-Chloronaphthalene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2-Chlorophenol | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2-Methylnaphthalene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2-Methylphenol | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2-Nitroaniline | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 2-Nitrophenol | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 3,3´-Dichlorobenzidine | ND (0.728) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 3+4-Methylphenol | ND (0.728) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 3-Nitroaniline | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 4,6-Dinitro-2-Methylphenol | ND (1.82) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 4-Bromophenyl-phenylether | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 4-Chloro-3-Methylphenol | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 4-Chloroaniline | ND (0.728) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 4-Chloro-phenyl-phenyl ether | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 4-Nitroaniline | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| 4-Nitrophenol | ND (1.82) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Acenaphthene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Acenaphthylene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Acetophenone | ND (0.728) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-896-100118 0-4FT
Date Sampled: 10/01/18 11:04
Percent Solids: 94
Initial Volume: 14.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 10/1/18 16:33

## 8270D Semi-Volatile Organic Compounds

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aniline | ND (0.728) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Anthracene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Azobenzene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| **Benzo(a)anthracene** | **0.532** (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| **Benzo(a)pyrene** | **0.433** (0.182) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| **Benzo(b)fluoranthene** | **0.448** (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Benzo(g,h,i)perylene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Benzo(k)fluoranthene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Benzoic Acid | ND (1.82) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Benzyl Alcohol | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| bis(2-Chloroethoxy)methane | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| bis(2-Chloroethyl)ether | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| bis(2-chloroisopropyl)Ether | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| bis(2-Ethylhexyl)phthalate | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Butylbenzylphthalate | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Carbazole | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| **Chrysene** | **0.489** (0.182) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Dibenzo(a,h)Anthracene | ND (0.182) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Dibenzofuran | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Diethylphthalate | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Dimethylphthalate | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Di-n-butylphthalate | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Di-n-octylphthalate | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| **Fluoranthene** | **0.967** (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Fluorene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Hexachlorobenzene | ND (0.182) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Hexachlorobutadiene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Hexachlorocyclopentadiene | ND (1.82) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Hexachloroethane | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Indeno(1,2,3-cd)Pyrene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Isophorone | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Naphthalene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-896-100118 0-4FT
Date Sampled: 10/01/18 11:04
Percent Solids: 94
Initial Volume: 14.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 10/1/18 16:33

## 8270D Semi-Volatile Organic Compounds

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Nitrobenzene | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| N-Nitrosodimethylamine | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| N-Nitroso-Di-n-Propylamine | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| N-nitrosodiphenylamine | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Pentachlorophenol | ND (1.82) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| **Phenanthrene** | **0.544** (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Phenol | ND (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| **Pyrene** | **0.859** (0.363) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |
| Pyridine | ND (1.82) | | 8270D | | 1 | 10/02/18 16:14 | C8J0030 | CJ80113 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: 1,2-Dichlorobenzene-d4* | *62 %* | | *30-130* |
| *Surrogate: 2,4,6-Tribromophenol* | *70 %* | | *30-130* |
| *Surrogate: 2-Chlorophenol-d4* | *69 %* | | *30-130* |
| *Surrogate: 2-Fluorobiphenyl* | *69 %* | | *30-130* |
| *Surrogate: 2-Fluorophenol* | *68 %* | | *30-130* |
| *Surrogate: Nitrobenzene-d5* | *72 %* | | *30-130* |
| *Surrogate: Phenol-d6* | *73 %* | | *30-130* |
| *Surrogate: p-Terphenyl-d14* | *82 %* | | *30-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-896-100118 0-4FT
Date Sampled: 10/01/18 11:04
Percent Solids: 94

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-05
Sample Matrix: Soil

## Classical Chemistry

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyst | Analyzed | Units | Batch |
|---|---|---|---|---|---|---|---|---|---|
| Total Cyanide | ND (0.98) | | 9014 | | 1 | EEM | 10/02/18 12:30 | mg/kg dry | CJ80224 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-896-100118 3FT
Date Sampled: 10/01/18 11:04
Percent Solids: 94
Initial Volume: 6.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,1,1-Trichloroethane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,1,2,2-Tetrachloroethane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,1,2-Trichloroethane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,1-Dichloroethane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,1-Dichloroethene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,1-Dichloropropene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,2,3-Trichlorobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,2,3-Trichloropropane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,2,4-Trichlorobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,2,4-Trimethylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,2-Dibromo-3-Chloropropane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,2-Dibromoethane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,2-Dichlorobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,2-Dichloroethane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,2-Dichloropropane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,3,5-Trimethylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,3-Dichlorobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,3-Dichloropropane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,4-Dichlorobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1,4-Dioxane | ND (0.0781) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 1-Chlorohexane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 2,2-Dichloropropane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 2-Butanone | ND (0.0391) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 2-Chlorotoluene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 2-Hexanone | ND (0.0391) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 4-Chlorotoluene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 4-Isopropyltoluene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| 4-Methyl-2-Pentanone | ND (0.0391) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Acetone | ND (0.0391) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Benzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Bromobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-896-100118 3FT
Date Sampled: 10/01/18 11:04
Percent Solids: 94
Initial Volume: 6.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Bromodichloromethane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Bromoform | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Bromomethane | ND (0.0078) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Carbon Disulfide | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Carbon Tetrachloride | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Chlorobenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Chloroethane | ND (0.0078) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Chloroform | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Chloromethane | ND (0.0078) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| cis-1,2-Dichloroethene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| cis-1,3-Dichloropropene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Dibromochloromethane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Dibromomethane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Dichlorodifluoromethane | ND (0.0078) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Diethyl Ether | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Di-isopropyl ether | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Ethyl tertiary-butyl ether | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Ethylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Hexachlorobutadiene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Isopropylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Methyl tert-Butyl Ether | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Methylene Chloride | ND (0.0195) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Naphthalene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| n-Butylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| n-Propylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| sec-Butylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Styrene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| tert-Butylbenzene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Tertiary-amyl methyl ether | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Tetrachloroethene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Tetrahydrofuran | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-896-100118 3FT
Date Sampled: 10/01/18 11:04
Percent Solids: 94
Initial Volume: 6.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Toluene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| trans-1,2-Dichloroethene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| trans-1,3-Dichloropropene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Trichloroethene | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Trichlorofluoromethane | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Vinyl Acetate | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Vinyl Chloride | ND (0.0078) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Xylene O | ND (0.0039) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Xylene P,M | ND (0.0078) | | 8260B Low | | 1 | 10/02/18 16:56 | C8J0041 | CJ80231 |
| Xylenes (Total) | ND (0.0078) | | 8260B Low | | 1 | 10/02/18 16:56 | | [CALC] |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | *116 %* | | *70-130* |
| *Surrogate: 4-Bromofluorobenzene* | *96 %* | | *70-130* |
| *Surrogate: Dibromofluoromethane* | *112 %* | | *70-130* |
| *Surrogate: Toluene-d8* | *96 %* | | *70-130* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: TRIP BLANK
Date Sampled: 10/01/18 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-07
Sample Matrix: Solid
Units: mg/kg wet
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,1,1-Trichloroethane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,1,2,2-Tetrachloroethane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,1,2-Trichloroethane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,1-Dichloroethane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,1-Dichloroethene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,1-Dichloropropene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,2,3-Trichlorobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,2,3-Trichloropropane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,2,4-Trichlorobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,2,4-Trimethylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,2-Dibromo-3-Chloropropane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,2-Dibromoethane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,2-Dichlorobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,2-Dichloroethane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,2-Dichloropropane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,3,5-Trimethylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,3-Dichlorobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,3-Dichloropropane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,4-Dichlorobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1,4-Dioxane | ND (0.100) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 1-Chlorohexane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 2,2-Dichloropropane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 2-Butanone | ND (0.0500) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 2-Chlorotoluene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 2-Hexanone | ND (0.0500) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 4-Chlorotoluene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 4-Isopropyltoluene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| 4-Methyl-2-Pentanone | ND (0.0500) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Acetone | ND (0.0500) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Benzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Bromobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: TRIP BLANK
Date Sampled: 10/01/18 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-07
Sample Matrix: Solid
Units: mg/kg wet
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Bromodichloromethane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Bromoform | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Bromomethane | ND (0.0100) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Carbon Disulfide | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Carbon Tetrachloride | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Chlorobenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Chloroethane | ND (0.0100) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Chloroform | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Chloromethane | ND (0.0100) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| cis-1,2-Dichloroethene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| cis-1,3-Dichloropropene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Dibromochloromethane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Dibromomethane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Dichlorodifluoromethane | ND (0.0100) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Diethyl Ether | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Di-isopropyl ether | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Ethyl tertiary-butyl ether | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Ethylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Hexachlorobutadiene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Isopropylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Methyl tert-Butyl Ether | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Methylene Chloride | ND (0.0250) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Naphthalene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| n-Butylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| n-Propylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| sec-Butylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Styrene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| tert-Butylbenzene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Tertiary-amyl methyl ether | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Tetrachloroethene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Tetrahydrofuran | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: TRIP BLANK
Date Sampled: 10/01/18 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810028
ESS Laboratory Sample ID: 1810028-07
Sample Matrix: Solid
Units: mg/kg wet
Analyst: MEK

## 5035/8260B Volatile Organic Compounds / Low Level

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Toluene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| trans-1,2-Dichloroethene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| trans-1,3-Dichloropropene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Trichloroethene | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Trichlorofluoromethane | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Vinyl Acetate | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Vinyl Chloride | ND (0.0100) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Xylene O | ND (0.0050) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Xylene P,M | ND (0.0100) | | 8260B Low | | 1 | 10/02/18 13:58 | C8J0041 | CJ80231 |
| Xylenes (Total) | ND (0.0100) | | 8260B Low | | 1 | 10/02/18 13:58 | | [CALC] |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | *111 %* | | *70-130* |
| *Surrogate: 4-Bromofluorobenzene* | *96 %* | | *70-130* |
| *Surrogate: Dibromofluoromethane* | *109 %* | | *70-130* |
| *Surrogate: Toluene-d8* | *99 %* | | *70-130* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Metals** | | | | | | | | | | |
| **Batch CJ80153 - 3050B** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| Arsenic | ND | 2.50 | mg/kg wet | | | | | | | |
| Barium | ND | 2.50 | mg/kg wet | | | | | | | |
| Cadmium | ND | 0.50 | mg/kg wet | | | | | | | |
| Chromium | ND | 1.00 | mg/kg wet | | | | | | | |
| Lead | ND | 5.00 | mg/kg wet | | | | | | | |
| Selenium | ND | 5.00 | mg/kg wet | | | | | | | |
| Silver | ND | 0.50 | mg/kg wet | | | | | | | |
| **LCS** | | | | | | | | | | |
| Arsenic | 51.8 | 8.62 | mg/kg wet | 59.00 | | 88 | 85-115 | | | |
| Barium | 235 | 8.62 | mg/kg wet | 233.0 | | 101 | 83-116 | | | |
| Cadmium | 83.7 | 1.72 | mg/kg wet | 98.70 | | 85 | 84-116 | | | |
| Chromium | 230 | 3.45 | mg/kg wet | 240.0 | | 96 | 85-115 | | | |
| Lead | 247 | 17.2 | mg/kg wet | 276.0 | | 90 | 84-116 | | | |
| Selenium | 82.3 | 17.2 | mg/kg wet | 100.0 | | 82 | 86-115 | | | B- |
| Silver | 38.6 | 1.72 | mg/kg wet | 39.70 | | 97 | 81-120 | | | |
| **LCS Dup** | | | | | | | | | | |
| Arsenic | 52.6 | 8.20 | mg/kg wet | 59.00 | | 89 | 85-115 | 2 | 20 | |
| Barium | 200 | 8.20 | mg/kg wet | 233.0 | | 86 | 83-116 | 16 | 20 | |
| Cadmium | 79.5 | 1.64 | mg/kg wet | 98.70 | | 81 | 84-116 | 5 | 20 | B- |
| Chromium | 220 | 3.28 | mg/kg wet | 240.0 | | 92 | 85-115 | 5 | 20 | |
| Lead | 235 | 16.4 | mg/kg wet | 276.0 | | 85 | 84-116 | 5 | 20 | |
| Selenium | 80.2 | 16.4 | mg/kg wet | 100.0 | | 80 | 86-115 | 3 | 20 | B- |
| Silver | 37.0 | 1.64 | mg/kg wet | 39.70 | | 93 | 81-120 | 4 | 20 | |
| **Batch CJ80154 - 7471B** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| Mercury | ND | 0.033 | mg/kg wet | | | | | | | |
| **LCS** | | | | | | | | | | |
| Mercury | 12.9 | 1.25 | mg/kg wet | 12.00 | | 107 | 80-120 | | | |
| **LCS Dup** | | | | | | | | | | |
| Mercury | 12.5 | 1.80 | mg/kg wet | 12.00 | | 104 | 80-120 | 3 | 20 | |
| **5035/8260B Volatile Organic Compounds / Low Level** | | | | | | | | | | |
| **Batch CJ80231 - 5035** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,1,1-Trichloroethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,1,2-Trichloroethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,1-Dichloroethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,1-Dichloroethene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,1-Dichloropropene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 5035/8260B Volatile Organic Compounds / Low Level | | | | | | | | | | |
| **Batch CJ80231 - 5035** | | | | | | | | | | |
| 1,2,3-Trichloropropane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2-Dibromo-3-Chloropropane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2-Dibromoethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2-Dichlorobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2-Dichloroethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,2-Dichloropropane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,3-Dichlorobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,3-Dichloropropane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,4-Dichlorobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 1,4-Dioxane | ND | 0.100 | mg/kg wet | | | | | | | |
| 1-Chlorohexane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 2,2-Dichloropropane | ND | 0.0050 | mg/kg wet | | | | | | | |
| 2-Butanone | ND | 0.0500 | mg/kg wet | | | | | | | |
| 2-Chlorotoluene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 2-Hexanone | ND | 0.0500 | mg/kg wet | | | | | | | |
| 4-Chlorotoluene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 4-Isopropyltoluene | ND | 0.0050 | mg/kg wet | | | | | | | |
| 4-Methyl-2-Pentanone | ND | 0.0500 | mg/kg wet | | | | | | | |
| Acetone | ND | 0.0500 | mg/kg wet | | | | | | | |
| Benzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Bromobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Bromochloromethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| Bromodichloromethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| Bromoform | ND | 0.0050 | mg/kg wet | | | | | | | |
| Bromomethane | ND | 0.0100 | mg/kg wet | | | | | | | |
| Carbon Disulfide | ND | 0.0050 | mg/kg wet | | | | | | | |
| Carbon Tetrachloride | ND | 0.0050 | mg/kg wet | | | | | | | |
| Chlorobenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Chloroethane | ND | 0.0100 | mg/kg wet | | | | | | | |
| Chloroform | ND | 0.0050 | mg/kg wet | | | | | | | |
| Chloromethane | ND | 0.0100 | mg/kg wet | | | | | | | |
| cis-1,2-Dichloroethene | ND | 0.0050 | mg/kg wet | | | | | | | |
| cis-1,3-Dichloropropene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Dibromochloromethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| Dibromomethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| Dichlorodifluoromethane | ND | 0.0100 | mg/kg wet | | | | | | | |
| Diethyl Ether | ND | 0.0050 | mg/kg wet | | | | | | | |
| Di-isopropyl ether | ND | 0.0050 | mg/kg wet | | | | | | | |
| Ethyl tertiary-butyl ether | ND | 0.0050 | mg/kg wet | | | | | | | |
| Ethylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Hexachlorobutadiene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Isopropylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 5035/8260B Volatile Organic Compounds / Low Level | | | | | | | | | | |
| **Batch CJ80231 - 5035** | | | | | | | | | | |
| Methyl tert-Butyl Ether | ND | 0.0050 | mg/kg wet | | | | | | | |
| Methylene Chloride | ND | 0.0250 | mg/kg wet | | | | | | | |
| Naphthalene | ND | 0.0050 | mg/kg wet | | | | | | | |
| n-Butylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| n-Propylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| sec-Butylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Styrene | ND | 0.0050 | mg/kg wet | | | | | | | |
| tert-Butylbenzene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Tertiary-amyl methyl ether | ND | 0.0050 | mg/kg wet | | | | | | | |
| Tetrachloroethene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Tetrahydrofuran | ND | 0.0050 | mg/kg wet | | | | | | | |
| Toluene | ND | 0.0050 | mg/kg wet | | | | | | | |
| trans-1,2-Dichloroethene | ND | 0.0050 | mg/kg wet | | | | | | | |
| trans-1,3-Dichloropropene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Trichloroethene | ND | 0.0050 | mg/kg wet | | | | | | | |
| Trichlorofluoromethane | ND | 0.0050 | mg/kg wet | | | | | | | |
| Vinyl Acetate | ND | 0.0050 | mg/kg wet | | | | | | | |
| Vinyl Chloride | ND | 0.0100 | mg/kg wet | | | | | | | |
| Xylene O | ND | 0.0050 | mg/kg wet | | | | | | | |
| Xylene P,M | ND | 0.0100 | mg/kg wet | | | | | | | |
| Xylenes (Total) | ND | 0.0100 | mg/kg wet | | | | | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *0.0541* | | mg/kg wet | *0.05000* | | *108* | *70-130* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.0479* | | mg/kg wet | *0.05000* | | *96* | *70-130* | | | |
| *Surrogate: Dibromofluoromethane* | *0.0538* | | mg/kg wet | *0.05000* | | *108* | *70-130* | | | |
| *Surrogate: Toluene-d8* | *0.0483* | | mg/kg wet | *0.05000* | | *97* | *70-130* | | | |
| **LCS** | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 0.0495 | 0.0050 | mg/kg wet | 0.05000 | | 99 | 70-130 | | | |
| 1,1,1-Trichloroethane | 0.0522 | 0.0050 | mg/kg wet | 0.05000 | | 104 | 70-130 | | | |
| 1,1,2,2-Tetrachloroethane | 0.0482 | 0.0050 | mg/kg wet | 0.05000 | | 96 | 70-130 | | | |
| 1,1,2-Trichloroethane | 0.0480 | 0.0050 | mg/kg wet | 0.05000 | | 96 | 70-130 | | | |
| 1,1-Dichloroethane | 0.0485 | 0.0050 | mg/kg wet | 0.05000 | | 97 | 70-130 | | | |
| 1,1-Dichloroethene | 0.0523 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | | | |
| 1,1-Dichloropropene | 0.0531 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | | | |
| 1,2,3-Trichlorobenzene | 0.0469 | 0.0050 | mg/kg wet | 0.05000 | | 94 | 70-130 | | | |
| 1,2,3-Trichloropropane | 0.0446 | 0.0050 | mg/kg wet | 0.05000 | | 89 | 70-130 | | | |
| 1,2,4-Trichlorobenzene | 0.0466 | 0.0050 | mg/kg wet | 0.05000 | | 93 | 70-130 | | | |
| 1,2,4-Trimethylbenzene | 0.0501 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | | | |
| 1,2-Dibromo-3-Chloropropane | 0.0447 | 0.0050 | mg/kg wet | 0.05000 | | 89 | 70-130 | | | |
| 1,2-Dibromoethane | 0.0486 | 0.0050 | mg/kg wet | 0.05000 | | 97 | 70-130 | | | |
| 1,2-Dichlorobenzene | 0.0481 | 0.0050 | mg/kg wet | 0.05000 | | 96 | 70-130 | | | |
| 1,2-Dichloroethane | 0.0477 | 0.0050 | mg/kg wet | 0.05000 | | 95 | 70-130 | | | |
| 1,2-Dichloropropane | 0.0476 | 0.0050 | mg/kg wet | 0.05000 | | 95 | 70-130 | | | |
| 1,3,5-Trimethylbenzene | 0.0516 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | | | |
| 1,3-Dichlorobenzene | 0.0482 | 0.0050 | mg/kg wet | 0.05000 | | 96 | 70-130 | | | |
| 1,3-Dichloropropane | 0.0485 | 0.0050 | mg/kg wet | 0.05000 | | 97 | 70-130 | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 5035/8260B Volatile Organic Compounds / Low Level | | | | | | | | | | |
| **Batch CJ80231 - 5035** | | | | | | | | | | |
| 1,4-Dichlorobenzene | 0.0480 | 0.0050 | mg/kg wet | 0.05000 | | 96 | 70-130 | | | |
| 1,4-Dioxane | 0.931 | 0.100 | mg/kg wet | 1.000 | | 93 | 70-130 | | | |
| 1-Chlorohexane | 0.0468 | 0.0050 | mg/kg wet | 0.05000 | | 94 | 70-130 | | | |
| 2,2-Dichloropropane | 0.0516 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | | | |
| 2-Butanone | 0.237 | 0.0500 | mg/kg wet | 0.2500 | | 95 | 70-130 | | | |
| 2-Chlorotoluene | 0.0509 | 0.0050 | mg/kg wet | 0.05000 | | 102 | 70-130 | | | |
| 2-Hexanone | 0.215 | 0.0500 | mg/kg wet | 0.2500 | | 86 | 70-130 | | | |
| 4-Chlorotoluene | 0.0498 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | | | |
| 4-Isopropyltoluene | 0.0511 | 0.0050 | mg/kg wet | 0.05000 | | 102 | 70-130 | | | |
| 4-Methyl-2-Pentanone | 0.226 | 0.0500 | mg/kg wet | 0.2500 | | 90 | 70-130 | | | |
| Acetone | 0.226 | 0.0500 | mg/kg wet | 0.2500 | | 90 | 70-130 | | | |
| Benzene | 0.0498 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | | | |
| Bromobenzene | 0.0500 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | | | |
| Bromochloromethane | 0.0488 | 0.0050 | mg/kg wet | 0.05000 | | 98 | 70-130 | | | |
| Bromodichloromethane | 0.0485 | 0.0050 | mg/kg wet | 0.05000 | | 97 | 70-130 | | | |
| Bromoform | 0.0492 | 0.0050 | mg/kg wet | 0.05000 | | 98 | 70-130 | | | |
| Bromomethane | 0.0487 | 0.0100 | mg/kg wet | 0.05000 | | 97 | 70-130 | | | |
| Carbon Disulfide | 0.0523 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | | | |
| Carbon Tetrachloride | 0.0526 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | | | |
| Chlorobenzene | 0.0492 | 0.0050 | mg/kg wet | 0.05000 | | 98 | 70-130 | | | |
| Chloroethane | 0.0476 | 0.0100 | mg/kg wet | 0.05000 | | 95 | 70-130 | | | |
| Chloroform | 0.0501 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | | | |
| Chloromethane | 0.0423 | 0.0100 | mg/kg wet | 0.05000 | | 85 | 70-130 | | | |
| cis-1,2-Dichloroethene | 0.0508 | 0.0050 | mg/kg wet | 0.05000 | | 102 | 70-130 | | | |
| cis-1,3-Dichloropropene | 0.0471 | 0.0050 | mg/kg wet | 0.05000 | | 94 | 70-130 | | | |
| Dibromochloromethane | 0.0470 | 0.0050 | mg/kg wet | 0.05000 | | 94 | 70-130 | | | |
| Dibromomethane | 0.0489 | 0.0050 | mg/kg wet | 0.05000 | | 98 | 70-130 | | | |
| Dichlorodifluoromethane | 0.0458 | 0.0100 | mg/kg wet | 0.05000 | | 92 | 70-130 | | | |
| Diethyl Ether | 0.0503 | 0.0050 | mg/kg wet | 0.05000 | | 101 | 70-130 | | | |
| Di-isopropyl ether | 0.0488 | 0.0050 | mg/kg wet | 0.05000 | | 98 | 70-130 | | | |
| Ethyl tertiary-butyl ether | 0.0433 | 0.0050 | mg/kg wet | 0.05000 | | 87 | 70-130 | | | |
| Ethylbenzene | 0.0520 | 0.0050 | mg/kg wet | 0.05000 | | 104 | 70-130 | | | |
| Hexachlorobutadiene | 0.0513 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | | | |
| Isopropylbenzene | 0.0539 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | | | |
| Methyl tert-Butyl Ether | 0.0476 | 0.0050 | mg/kg wet | 0.05000 | | 95 | 70-130 | | | |
| Methylene Chloride | 0.0443 | 0.0250 | mg/kg wet | 0.05000 | | 89 | 70-130 | | | |
| Naphthalene | 0.0406 | 0.0050 | mg/kg wet | 0.05000 | | 81 | 70-130 | | | |
| n-Butylbenzene | 0.0515 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | | | |
| n-Propylbenzene | 0.0525 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | | | |
| sec-Butylbenzene | 0.0516 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | | | |
| Styrene | 0.0516 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | | | |
| tert-Butylbenzene | 0.0535 | 0.0050 | mg/kg wet | 0.05000 | | 107 | 70-130 | | | |
| Tertiary-amyl methyl ether | 0.0436 | 0.0050 | mg/kg wet | 0.05000 | | 87 | 70-130 | | | |
| Tetrachloroethene | 0.0517 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | | | |
| Tetrahydrofuran | 0.0458 | 0.0050 | mg/kg wet | 0.05000 | | 92 | 70-130 | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **5035/8260B Volatile Organic Compounds / Low Level** | | | | | | | | | | |
| **Batch CJ80231 - 5035** | | | | | | | | | | |
| Toluene | 0.0513 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | | | |
| trans-1,2-Dichloroethene | 0.0488 | 0.0050 | mg/kg wet | 0.05000 | | 98 | 70-130 | | | |
| trans-1,3-Dichloropropene | 0.0428 | 0.0050 | mg/kg wet | 0.05000 | | 86 | 70-130 | | | |
| Trichloroethene | 0.0503 | 0.0050 | mg/kg wet | 0.05000 | | 101 | 70-130 | | | |
| Trichlorofluoromethane | 0.0530 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | | | |
| Vinyl Acetate | 0.0425 | 0.0050 | mg/kg wet | 0.05000 | | 85 | 70-130 | | | |
| Vinyl Chloride | 0.0492 | 0.0100 | mg/kg wet | 0.05000 | | 98 | 70-130 | | | |
| Xylene O | 0.0489 | 0.0050 | mg/kg wet | 0.05000 | | 98 | 70-130 | | | |
| Xylene P,M | 0.109 | 0.0100 | mg/kg wet | 0.1000 | | 109 | 70-130 | | | |
| Xylenes (Total) | 0.157 | 0.0100 | mg/kg wet | | | | | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *0.0469* | | mg/kg wet | *0.05000* | | *94* | *70-130* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.0509* | | mg/kg wet | *0.05000* | | *102* | *70-130* | | | |
| *Surrogate: Dibromofluoromethane* | *0.0483* | | mg/kg wet | *0.05000* | | *97* | *70-130* | | | |
| *Surrogate: Toluene-d8* | *0.0492* | | mg/kg wet | *0.05000* | | *98* | *70-130* | | | |
| **LCS Dup** | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 0.0517 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | 4 | 25 | |
| 1,1,1-Trichloroethane | 0.0564 | 0.0050 | mg/kg wet | 0.05000 | | 113 | 70-130 | 8 | 25 | |
| 1,1,2,2-Tetrachloroethane | 0.0536 | 0.0050 | mg/kg wet | 0.05000 | | 107 | 70-130 | 11 | 25 | |
| 1,1,2-Trichloroethane | 0.0535 | 0.0050 | mg/kg wet | 0.05000 | | 107 | 70-130 | 11 | 25 | |
| 1,1-Dichloroethane | 0.0527 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | 8 | 25 | |
| 1,1-Dichloroethene | 0.0573 | 0.0050 | mg/kg wet | 0.05000 | | 115 | 70-130 | 9 | 25 | |
| 1,1-Dichloropropene | 0.0578 | 0.0050 | mg/kg wet | 0.05000 | | 116 | 70-130 | 9 | 25 | |
| 1,2,3-Trichlorobenzene | 0.0530 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | 12 | 25 | |
| 1,2,3-Trichloropropane | 0.0500 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | 11 | 25 | |
| 1,2,4-Trichlorobenzene | 0.0530 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | 13 | 25 | |
| 1,2,4-Trimethylbenzene | 0.0539 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | 7 | 25 | |
| 1,2-Dibromo-3-Chloropropane | 0.0536 | 0.0050 | mg/kg wet | 0.05000 | | 107 | 70-130 | 18 | 25 | |
| 1,2-Dibromoethane | 0.0529 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | 8 | 25 | |
| 1,2-Dichlorobenzene | 0.0528 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | 9 | 25 | |
| 1,2-Dichloroethane | 0.0525 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | 10 | 25 | |
| 1,2-Dichloropropane | 0.0516 | 0.0050 | mg/kg wet | 0.05000 | | 103 | 70-130 | 8 | 25 | |
| 1,3,5-Trimethylbenzene | 0.0551 | 0.0050 | mg/kg wet | 0.05000 | | 110 | 70-130 | 7 | 25 | |
| 1,3-Dichlorobenzene | 0.0534 | 0.0050 | mg/kg wet | 0.05000 | | 107 | 70-130 | 10 | 25 | |
| 1,3-Dichloropropane | 0.0524 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | 8 | 25 | |
| 1,4-Dichlorobenzene | 0.0507 | 0.0050 | mg/kg wet | 0.05000 | | 101 | 70-130 | 5 | 25 | |
| 1,4-Dioxane | 1.11 | 0.100 | mg/kg wet | 1.000 | | 111 | 70-130 | 17 | 20 | |
| 1-Chlorohexane | 0.0500 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | 7 | 25 | |
| 2,2-Dichloropropane | 0.0558 | 0.0050 | mg/kg wet | 0.05000 | | 112 | 70-130 | 8 | 25 | |
| 2-Butanone | 0.270 | 0.0500 | mg/kg wet | 0.2500 | | 108 | 70-130 | 13 | 25 | |
| 2-Chlorotoluene | 0.0537 | 0.0050 | mg/kg wet | 0.05000 | | 107 | 70-130 | 5 | 25 | |
| 2-Hexanone | 0.251 | 0.0500 | mg/kg wet | 0.2500 | | 100 | 70-130 | 15 | 25 | |
| 4-Chlorotoluene | 0.0546 | 0.0050 | mg/kg wet | 0.05000 | | 109 | 70-130 | 9 | 25 | |
| 4-Isopropyltoluene | 0.0550 | 0.0050 | mg/kg wet | 0.05000 | | 110 | 70-130 | 7 | 25 | |
| 4-Methyl-2-Pentanone | 0.270 | 0.0500 | mg/kg wet | 0.2500 | | 108 | 70-130 | 18 | 25 | |
| Acetone | 0.268 | 0.0500 | mg/kg wet | 0.2500 | | 107 | 70-130 | 17 | 25 | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **5035/8260B Volatile Organic Compounds / Low Level** | | | | | | | | | | |
| **Batch CJ80231 - 5035** | | | | | | | | | | |
| Benzene | 0.0540 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | 8 | 25 | |
| Bromobenzene | 0.0542 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | 8 | 25 | |
| Bromochloromethane | 0.0537 | 0.0050 | mg/kg wet | 0.05000 | | 107 | 70-130 | 10 | 25 | |
| Bromodichloromethane | 0.0528 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | 8 | 25 | |
| Bromoform | 0.0538 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | 9 | 25 | |
| Bromomethane | 0.0530 | 0.0100 | mg/kg wet | 0.05000 | | 106 | 70-130 | 9 | 25 | |
| Carbon Disulfide | 0.0564 | 0.0050 | mg/kg wet | 0.05000 | | 113 | 70-130 | 8 | 25 | |
| Carbon Tetrachloride | 0.0568 | 0.0050 | mg/kg wet | 0.05000 | | 114 | 70-130 | 8 | 25 | |
| Chlorobenzene | 0.0524 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | 6 | 25 | |
| Chloroethane | 0.0515 | 0.0100 | mg/kg wet | 0.05000 | | 103 | 70-130 | 8 | 25 | |
| Chloroform | 0.0543 | 0.0050 | mg/kg wet | 0.05000 | | 109 | 70-130 | 8 | 25 | |
| Chloromethane | 0.0463 | 0.0100 | mg/kg wet | 0.05000 | | 93 | 70-130 | 9 | 25 | |
| cis-1,2-Dichloroethene | 0.0550 | 0.0050 | mg/kg wet | 0.05000 | | 110 | 70-130 | 8 | 25 | |
| cis-1,3-Dichloropropene | 0.0519 | 0.0050 | mg/kg wet | 0.05000 | | 104 | 70-130 | 10 | 25 | |
| Dibromochloromethane | 0.0498 | 0.0050 | mg/kg wet | 0.05000 | | 100 | 70-130 | 6 | 25 | |
| Dibromomethane | 0.0541 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | 10 | 25 | |
| Dichlorodifluoromethane | 0.0497 | 0.0100 | mg/kg wet | 0.05000 | | 99 | 70-130 | 8 | 25 | |
| Diethyl Ether | 0.0564 | 0.0050 | mg/kg wet | 0.05000 | | 113 | 70-130 | 11 | 25 | |
| Di-isopropyl ether | 0.0538 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | 10 | 25 | |
| Ethyl tertiary-butyl ether | 0.0484 | 0.0050 | mg/kg wet | 0.05000 | | 97 | 70-130 | 11 | 25 | |
| Ethylbenzene | 0.0555 | 0.0050 | mg/kg wet | 0.05000 | | 111 | 70-130 | 6 | 25 | |
| Hexachlorobutadiene | 0.0549 | 0.0050 | mg/kg wet | 0.05000 | | 110 | 70-130 | 7 | 25 | |
| Isopropylbenzene | 0.0577 | 0.0050 | mg/kg wet | 0.05000 | | 115 | 70-130 | 7 | 25 | |
| Methyl tert-Butyl Ether | 0.0542 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | 13 | 25 | |
| Methylene Chloride | 0.0475 | 0.0250 | mg/kg wet | 0.05000 | | 95 | 70-130 | 7 | 25 | |
| Naphthalene | 0.0477 | 0.0050 | mg/kg wet | 0.05000 | | 95 | 70-130 | 16 | 25 | |
| n-Butylbenzene | 0.0556 | 0.0050 | mg/kg wet | 0.05000 | | 111 | 70-130 | 8 | 25 | |
| n-Propylbenzene | 0.0561 | 0.0050 | mg/kg wet | 0.05000 | | 112 | 70-130 | 7 | 25 | |
| sec-Butylbenzene | 0.0552 | 0.0050 | mg/kg wet | 0.05000 | | 110 | 70-130 | 7 | 25 | |
| Styrene | 0.0551 | 0.0050 | mg/kg wet | 0.05000 | | 110 | 70-130 | 7 | 25 | |
| tert-Butylbenzene | 0.0574 | 0.0050 | mg/kg wet | 0.05000 | | 115 | 70-130 | 7 | 25 | |
| Tertiary-amyl methyl ether | 0.0496 | 0.0050 | mg/kg wet | 0.05000 | | 99 | 70-130 | 13 | 25 | |
| Tetrachloroethene | 0.0548 | 0.0050 | mg/kg wet | 0.05000 | | 110 | 70-130 | 6 | 25 | |
| Tetrahydrofuran | 0.0558 | 0.0050 | mg/kg wet | 0.05000 | | 112 | 70-130 | 20 | 25 | |
| Toluene | 0.0562 | 0.0050 | mg/kg wet | 0.05000 | | 112 | 70-130 | 9 | 25 | |
| trans-1,2-Dichloroethene | 0.0532 | 0.0050 | mg/kg wet | 0.05000 | | 106 | 70-130 | 9 | 25 | |
| trans-1,3-Dichloropropene | 0.0483 | 0.0050 | mg/kg wet | 0.05000 | | 97 | 70-130 | 12 | 25 | |
| Trichloroethene | 0.0542 | 0.0050 | mg/kg wet | 0.05000 | | 108 | 70-130 | 7 | 25 | |
| Trichlorofluoromethane | 0.0570 | 0.0050 | mg/kg wet | 0.05000 | | 114 | 70-130 | 7 | 25 | |
| Vinyl Acetate | 0.0495 | 0.0050 | mg/kg wet | 0.05000 | | 99 | 70-130 | 15 | 25 | |
| Vinyl Chloride | 0.0538 | 0.0100 | mg/kg wet | 0.05000 | | 108 | 70-130 | 9 | 25 | |
| Xylene O | 0.0524 | 0.0050 | mg/kg wet | 0.05000 | | 105 | 70-130 | 7 | 25 | |
| Xylene P,M | 0.116 | 0.0100 | mg/kg wet | 0.1000 | | 116 | 70-130 | 6 | 25 | |
| Xylenes (Total) | 0.168 | 0.0100 | mg/kg wet | | | | | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *0.0476* | | mg/kg wet | *0.05000* | | *95* | *70-130* | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **5035/8260B Volatile Organic Compounds / Low Level** | | | | | | | | | | |
| **Batch CJ80231 - 5035** | | | | | | | | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.0496* | | mg/kg wet | *0.05000* | | *99* | *70-130* | | | |
| *Surrogate: Dibromofluoromethane* | *0.0489* | | mg/kg wet | *0.05000* | | *98* | *70-130* | | | |
| *Surrogate: Toluene-d8* | *0.0476* | | mg/kg wet | *0.05000* | | *95* | *70-130* | | | |
| **8081B Organochlorine Pesticides** | | | | | | | | | | |
| **Batch CJ80112 - 3546** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| 4,4´-DDD | ND | 0.0025 | mg/kg wet | | | | | | | |
| 4,4´-DDD [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| 4,4´-DDE | ND | 0.0025 | mg/kg wet | | | | | | | |
| 4,4´-DDE [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| 4,4´-DDT | ND | 0.0025 | mg/kg wet | | | | | | | |
| 4,4´-DDT [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| Aldrin | ND | 0.0025 | mg/kg wet | | | | | | | |
| Aldrin [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| alpha-BHC | ND | 0.0025 | mg/kg wet | | | | | | | |
| alpha-BHC [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| alpha-Chlordane | ND | 0.0025 | mg/kg wet | | | | | | | |
| alpha-Chlordane [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| beta-BHC | ND | 0.0025 | mg/kg wet | | | | | | | |
| beta-BHC [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| delta-BHC | ND | 0.0025 | mg/kg wet | | | | | | | |
| delta-BHC [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| Dieldrin | ND | 0.0025 | mg/kg wet | | | | | | | |
| Dieldrin [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| Endosulfan I | ND | 0.0025 | mg/kg wet | | | | | | | |
| Endosulfan I [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| Endosulfan II | ND | 0.0025 | mg/kg wet | | | | | | | |
| Endosulfan II [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| Endosulfan Sulfate | ND | 0.0025 | mg/kg wet | | | | | | | |
| Endosulfan Sulfate [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| Endrin | ND | 0.0025 | mg/kg wet | | | | | | | |
| Endrin [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| Endrin Aldehyde | ND | 0.0025 | mg/kg wet | | | | | | | |
| Endrin Aldehyde [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| Endrin Ketone | ND | 0.0025 | mg/kg wet | | | | | | | |
| Endrin Ketone [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| gamma-BHC (Lindane) | ND | 0.0015 | mg/kg wet | | | | | | | |
| gamma-BHC (Lindane) [2C] | ND | 0.0015 | mg/kg wet | | | | | | | |
| gamma-Chlordane | ND | 0.0025 | mg/kg wet | | | | | | | |
| gamma-Chlordane [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| Heptachlor | ND | 0.0025 | mg/kg wet | | | | | | | |
| Heptachlor [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| Heptachlor Epoxide | ND | 0.0025 | mg/kg wet | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **8081B Organochlorine Pesticides** | | | | | | | | | | |
| **Batch CJ80112 - 3546** | | | | | | | | | | |
| Heptachlor Epoxide [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| Hexachlorobenzene | ND | 0.0025 | mg/kg wet | | | | | | | |
| Hexachlorobenzene [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| Methoxychlor | ND | 0.0025 | mg/kg wet | | | | | | | |
| Methoxychlor [2C] | ND | 0.0025 | mg/kg wet | | | | | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0133* | | mg/kg wet | *0.01250* | | *107* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0118* | | mg/kg wet | *0.01250* | | *94* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0124* | | mg/kg wet | *0.01250* | | *100* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0120* | | mg/kg wet | *0.01250* | | *96* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| 4,4´-DDD | 0.0110 | 0.0025 | mg/kg wet | 0.01250 | | 88 | 40-140 | | | |
| 4,4´-DDD [2C] | 0.0119 | 0.0025 | mg/kg wet | 0.01250 | | 96 | 40-140 | | | |
| 4,4´-DDE | 0.0104 | 0.0025 | mg/kg wet | 0.01250 | | 84 | 40-140 | | | |
| 4,4´-DDE [2C] | 0.0119 | 0.0025 | mg/kg wet | 0.01250 | | 95 | 40-140 | | | |
| 4,4´-DDT | 0.0117 | 0.0025 | mg/kg wet | 0.01250 | | 94 | 40-140 | | | |
| 4,4´-DDT [2C] | 0.0118 | 0.0025 | mg/kg wet | 0.01250 | | 94 | 40-140 | | | |
| Aldrin | 0.0105 | 0.0025 | mg/kg wet | 0.01250 | | 84 | 40-140 | | | |
| Aldrin [2C] | 0.0114 | 0.0025 | mg/kg wet | 0.01250 | | 91 | 40-140 | | | |
| alpha-BHC | 0.0110 | 0.0025 | mg/kg wet | 0.01250 | | 88 | 40-140 | | | |
| alpha-BHC [2C] | 0.0116 | 0.0025 | mg/kg wet | 0.01250 | | 93 | 40-140 | | | |
| alpha-Chlordane | 0.0118 | 0.0025 | mg/kg wet | 0.01250 | | 94 | 40-140 | | | |
| alpha-Chlordane [2C] | 0.0115 | 0.0025 | mg/kg wet | 0.01250 | | 92 | 40-140 | | | |
| beta-BHC | 0.0117 | 0.0025 | mg/kg wet | 0.01250 | | 93 | 40-140 | | | |
| beta-BHC [2C] | 0.0108 | 0.0025 | mg/kg wet | 0.01250 | | 86 | 40-140 | | | |
| delta-BHC | 0.0105 | 0.0025 | mg/kg wet | 0.01250 | | 84 | 40-140 | | | |
| delta-BHC [2C] | 0.0110 | 0.0025 | mg/kg wet | 0.01250 | | 88 | 40-140 | | | |
| Dieldrin | 0.0121 | 0.0025 | mg/kg wet | 0.01250 | | 97 | 40-140 | | | |
| Dieldrin [2C] | 0.0125 | 0.0025 | mg/kg wet | 0.01250 | | 100 | 40-140 | | | |
| Endosulfan I | 0.0115 | 0.0025 | mg/kg wet | 0.01250 | | 92 | 40-140 | | | |
| Endosulfan I [2C] | 0.0118 | 0.0025 | mg/kg wet | 0.01250 | | 94 | 40-140 | | | |
| Endosulfan II | 0.0118 | 0.0025 | mg/kg wet | 0.01250 | | 94 | 40-140 | | | |
| Endosulfan II [2C] | 0.0121 | 0.0025 | mg/kg wet | 0.01250 | | 97 | 40-140 | | | |
| Endosulfan Sulfate | 0.0121 | 0.0025 | mg/kg wet | 0.01250 | | 97 | 40-140 | | | |
| Endosulfan Sulfate [2C] | 0.0120 | 0.0025 | mg/kg wet | 0.01250 | | 96 | 40-140 | | | |
| Endrin | 0.0114 | 0.0025 | mg/kg wet | 0.01250 | | 91 | 40-140 | | | |
| Endrin [2C] | 0.0120 | 0.0025 | mg/kg wet | 0.01250 | | 96 | 40-140 | | | |
| Endrin Aldehyde | 0.0125 | 0.0025 | mg/kg wet | 0.01250 | | 100 | 40-140 | | | |
| Endrin Aldehyde [2C] | 0.0117 | 0.0025 | mg/kg wet | 0.01250 | | 93 | 40-140 | | | |
| Endrin Ketone | 0.0126 | 0.0025 | mg/kg wet | 0.01250 | | 101 | 40-140 | | | |
| Endrin Ketone [2C] | 0.0124 | 0.0025 | mg/kg wet | 0.01250 | | 99 | 40-140 | | | |
| gamma-BHC (Lindane) | 0.0108 | 0.0015 | mg/kg wet | 0.01250 | | 86 | 40-140 | | | |
| gamma-BHC (Lindane) [2C] | 0.0113 | 0.0015 | mg/kg wet | 0.01250 | | 90 | 40-140 | | | |
| gamma-Chlordane | 0.0118 | 0.0025 | mg/kg wet | 0.01250 | | 95 | 40-140 | | | |
| gamma-Chlordane [2C] | 0.0117 | 0.0025 | mg/kg wet | 0.01250 | | 94 | 40-140 | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **8081B Organochlorine Pesticides** | | | | | | | | | | |
| **Batch CJ80112 - 3546** | | | | | | | | | | |
| Heptachlor | 0.0111 | 0.0025 | mg/kg wet | 0.01250 | | 88 | 40-140 | | | |
| Heptachlor [2C] | 0.0105 | 0.0025 | mg/kg wet | 0.01250 | | 84 | 40-140 | | | |
| Heptachlor Epoxide | 0.0122 | 0.0025 | mg/kg wet | 0.01250 | | 98 | 40-140 | | | |
| Heptachlor Epoxide [2C] | 0.0119 | 0.0025 | mg/kg wet | 0.01250 | | 96 | 40-140 | | | |
| Hexachlorobenzene | 0.0122 | 0.0025 | mg/kg wet | 0.01250 | | 98 | 40-140 | | | |
| Hexachlorobenzene [2C] | 0.0122 | 0.0025 | mg/kg wet | 0.01250 | | 98 | 40-140 | | | |
| Methoxychlor | 0.0113 | 0.0025 | mg/kg wet | 0.01250 | | 90 | 40-140 | | | |
| Methoxychlor [2C] | 0.0112 | 0.0025 | mg/kg wet | 0.01250 | | 90 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0137* | | mg/kg wet | *0.01250* | | *110* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0122* | | mg/kg wet | *0.01250* | | *98* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0128* | | mg/kg wet | *0.01250* | | *102* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0121* | | mg/kg wet | *0.01250* | | *97* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| 4,4´-DDD | 0.0116 | 0.0025 | mg/kg wet | 0.01250 | | 93 | 40-140 | 6 | 30 | |
| 4,4´-DDD [2C] | 0.0122 | 0.0025 | mg/kg wet | 0.01250 | | 98 | 40-140 | 2 | 30 | |
| 4,4´-DDE | 0.0109 | 0.0025 | mg/kg wet | 0.01250 | | 87 | 40-140 | 4 | 30 | |
| 4,4´-DDE [2C] | 0.0123 | 0.0025 | mg/kg wet | 0.01250 | | 98 | 40-140 | 3 | 30 | |
| 4,4´-DDT | 0.0116 | 0.0025 | mg/kg wet | 0.01250 | | 93 | 40-140 | 0.4 | 30 | |
| 4,4´-DDT [2C] | 0.0119 | 0.0025 | mg/kg wet | 0.01250 | | 95 | 40-140 | 1 | 30 | |
| Aldrin | 0.0112 | 0.0025 | mg/kg wet | 0.01250 | | 89 | 40-140 | 6 | 30 | |
| Aldrin [2C] | 0.0119 | 0.0025 | mg/kg wet | 0.01250 | | 95 | 40-140 | 4 | 30 | |
| alpha-BHC | 0.0117 | 0.0025 | mg/kg wet | 0.01250 | | 93 | 40-140 | 6 | 30 | |
| alpha-BHC [2C] | 0.0121 | 0.0025 | mg/kg wet | 0.01250 | | 97 | 40-140 | 4 | 30 | |
| alpha-Chlordane | 0.0123 | 0.0025 | mg/kg wet | 0.01250 | | 99 | 40-140 | 4 | 30 | |
| alpha-Chlordane [2C] | 0.0118 | 0.0025 | mg/kg wet | 0.01250 | | 94 | 40-140 | 2 | 30 | |
| beta-BHC | 0.0124 | 0.0025 | mg/kg wet | 0.01250 | | 99 | 40-140 | 6 | 30 | |
| beta-BHC [2C] | 0.0110 | 0.0025 | mg/kg wet | 0.01250 | | 88 | 40-140 | 2 | 30 | |
| delta-BHC | 0.0107 | 0.0025 | mg/kg wet | 0.01250 | | 85 | 40-140 | 2 | 30 | |
| delta-BHC [2C] | 0.0112 | 0.0025 | mg/kg wet | 0.01250 | | 90 | 40-140 | 2 | 30 | |
| Dieldrin | 0.0129 | 0.0025 | mg/kg wet | 0.01250 | | 103 | 40-140 | 7 | 30 | |
| Dieldrin [2C] | 0.0128 | 0.0025 | mg/kg wet | 0.01250 | | 102 | 40-140 | 3 | 30 | |
| Endosulfan I | 0.0122 | 0.0025 | mg/kg wet | 0.01250 | | 98 | 40-140 | 6 | 30 | |
| Endosulfan I [2C] | 0.0121 | 0.0025 | mg/kg wet | 0.01250 | | 97 | 40-140 | 3 | 30 | |
| Endosulfan II | 0.0119 | 0.0025 | mg/kg wet | 0.01250 | | 95 | 40-140 | 1 | 30 | |
| Endosulfan II [2C] | 0.0124 | 0.0025 | mg/kg wet | 0.01250 | | 99 | 40-140 | 3 | 30 | |
| Endosulfan Sulfate | 0.0129 | 0.0025 | mg/kg wet | 0.01250 | | 103 | 40-140 | 6 | 30 | |
| Endosulfan Sulfate [2C] | 0.0121 | 0.0025 | mg/kg wet | 0.01250 | | 97 | 40-140 | 0.6 | 30 | |
| Endrin | 0.0121 | 0.0025 | mg/kg wet | 0.01250 | | 97 | 40-140 | 6 | 30 | |
| Endrin [2C] | 0.0123 | 0.0025 | mg/kg wet | 0.01250 | | 99 | 40-140 | 2 | 30 | |
| Endrin Aldehyde | 0.0130 | 0.0025 | mg/kg wet | 0.01250 | | 104 | 40-140 | 4 | 30 | |
| Endrin Aldehyde [2C] | 0.0118 | 0.0025 | mg/kg wet | 0.01250 | | 95 | 40-140 | 1 | 30 | |
| Endrin Ketone | 0.0131 | 0.0025 | mg/kg wet | 0.01250 | | 105 | 40-140 | 4 | 30 | |
| Endrin Ketone [2C] | 0.0126 | 0.0025 | mg/kg wet | 0.01250 | | 101 | 40-140 | 2 | 30 | |
| gamma-BHC (Lindane) | 0.0114 | 0.0015 | mg/kg wet | 0.01250 | | 91 | 40-140 | 6 | 30 | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **8081B Organochlorine Pesticides** | | | | | | | | | | |
| **Batch CJ80112 - 3546** | | | | | | | | | | |
| gamma-BHC (Lindane) [2C] | 0.0117 | 0.0015 | mg/kg wet | 0.01250 | | 93 | 40-140 | 4 | 30 | |
| gamma-Chlordane | 0.0125 | 0.0025 | mg/kg wet | 0.01250 | | 100 | 40-140 | 5 | 30 | |
| gamma-Chlordane [2C] | 0.0121 | 0.0025 | mg/kg wet | 0.01250 | | 96 | 40-140 | 3 | 30 | |
| Heptachlor | 0.0117 | 0.0025 | mg/kg wet | 0.01250 | | 94 | 40-140 | 6 | 30 | |
| Heptachlor [2C] | 0.0110 | 0.0025 | mg/kg wet | 0.01250 | | 88 | 40-140 | 5 | 30 | |
| Heptachlor Epoxide | 0.0129 | 0.0025 | mg/kg wet | 0.01250 | | 103 | 40-140 | 5 | 30 | |
| Heptachlor Epoxide [2C] | 0.0123 | 0.0025 | mg/kg wet | 0.01250 | | 98 | 40-140 | 3 | 30 | |
| Hexachlorobenzene | 0.0131 | 0.0025 | mg/kg wet | 0.01250 | | 105 | 40-140 | 7 | 30 | |
| Hexachlorobenzene [2C] | 0.0129 | 0.0025 | mg/kg wet | 0.01250 | | 103 | 40-140 | 5 | 30 | |
| Methoxychlor | 0.0125 | 0.0025 | mg/kg wet | 0.01250 | | 100 | 40-140 | 10 | 30 | |
| Methoxychlor [2C] | 0.0114 | 0.0025 | mg/kg wet | 0.01250 | | 91 | 40-140 | 1 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0136* | | mg/kg wet | *0.01250* | | *109* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0121* | | mg/kg wet | *0.01250* | | *97* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0133* | | mg/kg wet | *0.01250* | | *106* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0125* | | mg/kg wet | *0.01250* | | *100* | *30-150* | | | |
| **8082A Polychlorinated Biphenyls (PCB)** | | | | | | | | | | |
| **Batch CJ80108 - 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* | *0.0146* | | mg/kg wet | *0.02500* | | *58* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0179* | | mg/kg wet | *0.02500* | | *72* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0192* | | mg/kg wet | *0.02500* | | *77* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0232* | | mg/kg wet | *0.02500* | | *93* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **8082A Polychlorinated Biphenyls (PCB)** | | | | | | | | | | |
| **Batch CJ80108 - 3540C** | | | | | | | | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 95 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 81 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 89 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0166* | | mg/kg wet | *0.02500* | | *67* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0199* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0212* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0226* | | mg/kg wet | *0.02500* | | *90* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | 0.4 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 96 | 40-140 | 0.5 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | 2 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | 2 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0168* | | mg/kg wet | *0.02500* | | *67* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0201* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0209* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0221* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| **8270D Semi-Volatile Organic Compounds** | | | | | | | | | | |
| **Batch CJ80113 - 3546** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| 1,1-Biphenyl | ND | 0.333 | mg/kg wet | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 0.333 | mg/kg wet | | | | | | | |
| 1,2-Dichlorobenzene | ND | 0.333 | mg/kg wet | | | | | | | |
| 1,3-Dichlorobenzene | ND | 0.333 | mg/kg wet | | | | | | | |
| 1,4-Dichlorobenzene | ND | 0.333 | mg/kg wet | | | | | | | |
| 2,3,4,6-Tetrachlorophenol | ND | 1.67 | mg/kg wet | | | | | | | |
| 2,4,5-Trichlorophenol | ND | 0.333 | mg/kg wet | | | | | | | |
| 2,4,6-Trichlorophenol | ND | 0.333 | mg/kg wet | | | | | | | |
| 2,4-Dichlorophenol | ND | 0.333 | mg/kg wet | | | | | | | |
| 2,4-Dimethylphenol | ND | 0.333 | mg/kg wet | | | | | | | |
| 2,4-Dinitrophenol | ND | 1.67 | mg/kg wet | | | | | | | |
| 2,4-Dinitrotoluene | ND | 0.333 | mg/kg wet | | | | | | | |
| 2,6-Dinitrotoluene | ND | 0.333 | mg/kg wet | | | | | | | |
| 2-Chloronaphthalene | ND | 0.333 | mg/kg wet | | | | | | | |
| 2-Chlorophenol | ND | 0.333 | mg/kg wet | | | | | | | |
| 2-Methylnaphthalene | ND | 0.333 | mg/kg wet | | | | | | | |
| 2-Methylphenol | ND | 0.333 | mg/kg wet | | | | | | | |
| 2-Nitroaniline | ND | 0.333 | mg/kg wet | | | | | | | |
| 2-Nitrophenol | ND | 0.333 | mg/kg wet | | | | | | | |
| 3,3´-Dichlorobenzidine | ND | 0.667 | mg/kg wet | | | | | | | |
| 3+4-Methylphenol | ND | 0.667 | mg/kg wet | | | | | | | |
| 3-Nitroaniline | ND | 0.333 | mg/kg wet | | | | | | | |
| 4,6-Dinitro-2-Methylphenol | ND | 1.67 | mg/kg wet | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **8270D Semi-Volatile Organic Compounds** | | | | | | | | | | |
| **Batch CJ80113 - 3546** | | | | | | | | | | |
| 4-Bromophenyl-phenylether | ND | 0.333 | mg/kg wet | | | | | | | |
| 4-Chloro-3-Methylphenol | ND | 0.333 | mg/kg wet | | | | | | | |
| 4-Chloroaniline | ND | 0.667 | mg/kg wet | | | | | | | |
| 4-Chloro-phenyl-phenyl ether | ND | 0.333 | mg/kg wet | | | | | | | |
| 4-Nitroaniline | ND | 0.333 | mg/kg wet | | | | | | | |
| 4-Nitrophenol | ND | 1.67 | mg/kg wet | | | | | | | |
| Acenaphthene | ND | 0.333 | mg/kg wet | | | | | | | |
| Acenaphthylene | ND | 0.333 | mg/kg wet | | | | | | | |
| Acetophenone | ND | 0.667 | mg/kg wet | | | | | | | |
| Aniline | ND | 0.667 | mg/kg wet | | | | | | | |
| Anthracene | ND | 0.333 | mg/kg wet | | | | | | | |
| Azobenzene | ND | 0.333 | mg/kg wet | | | | | | | |
| Benzo(a)anthracene | ND | 0.333 | mg/kg wet | | | | | | | |
| Benzo(a)pyrene | ND | 0.167 | mg/kg wet | | | | | | | |
| Benzo(b)fluoranthene | ND | 0.333 | mg/kg wet | | | | | | | |
| Benzo(g,h,i)perylene | ND | 0.333 | mg/kg wet | | | | | | | |
| Benzo(k)fluoranthene | ND | 0.333 | mg/kg wet | | | | | | | |
| Benzoic Acid | ND | 1.67 | mg/kg wet | | | | | | | |
| Benzyl Alcohol | ND | 0.333 | mg/kg wet | | | | | | | |
| bis(2-Chloroethoxy)methane | ND | 0.333 | mg/kg wet | | | | | | | |
| bis(2-Chloroethyl)ether | ND | 0.333 | mg/kg wet | | | | | | | |
| bis(2-chloroisopropyl)Ether | ND | 0.333 | mg/kg wet | | | | | | | |
| bis(2-Ethylhexyl)phthalate | ND | 0.333 | mg/kg wet | | | | | | | |
| Butylbenzylphthalate | ND | 0.333 | mg/kg wet | | | | | | | |
| Carbazole | ND | 0.333 | mg/kg wet | | | | | | | |
| Chrysene | ND | 0.167 | mg/kg wet | | | | | | | |
| Dibenzo(a,h)Anthracene | ND | 0.167 | mg/kg wet | | | | | | | |
| Dibenzofuran | ND | 0.333 | mg/kg wet | | | | | | | |
| Diethylphthalate | ND | 0.333 | mg/kg wet | | | | | | | |
| Dimethylphthalate | ND | 0.333 | mg/kg wet | | | | | | | |
| Di-n-butylphthalate | ND | 0.333 | mg/kg wet | | | | | | | |
| Di-n-octylphthalate | ND | 0.333 | mg/kg wet | | | | | | | |
| Fluoranthene | ND | 0.333 | mg/kg wet | | | | | | | |
| Fluorene | ND | 0.333 | mg/kg wet | | | | | | | |
| Hexachlorobenzene | ND | 0.167 | mg/kg wet | | | | | | | |
| Hexachlorobutadiene | ND | 0.333 | mg/kg wet | | | | | | | |
| Hexachlorocyclopentadiene | ND | 1.67 | mg/kg wet | | | | | | | |
| Hexachloroethane | ND | 0.333 | mg/kg wet | | | | | | | |
| Indeno(1,2,3-cd)Pyrene | ND | 0.333 | mg/kg wet | | | | | | | |
| Isophorone | ND | 0.333 | mg/kg wet | | | | | | | |
| Naphthalene | ND | 0.333 | mg/kg wet | | | | | | | |
| Nitrobenzene | ND | 0.333 | mg/kg wet | | | | | | | |
| N-Nitrosodimethylamine | ND | 0.333 | mg/kg wet | | | | | | | |
| N-Nitroso-Di-n-Propylamine | ND | 0.333 | mg/kg wet | | | | | | | |
| N-nitrosodiphenylamine | ND | 0.333 | mg/kg wet | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **8270D Semi-Volatile Organic Compounds** | | | | | | | | | | |
| **Batch CJ80113 - 3546** | | | | | | | | | | |
| Pentachlorophenol | ND | 1.67 | mg/kg wet | | | | | | | |
| Phenanthrene | ND | 0.333 | mg/kg wet | | | | | | | |
| Phenol | ND | 0.333 | mg/kg wet | | | | | | | |
| Pyrene | ND | 0.333 | mg/kg wet | | | | | | | |
| Pyridine | ND | 1.67 | mg/kg wet | | | | | | | |
| *Surrogate: 1,2-Dichlorobenzene-d4* | *2.08* | | mg/kg wet | *3.333* | | *62* | *30-130* | | | |
| *Surrogate: 2,4,6-Tribromophenol* | *3.29* | | mg/kg wet | *5.000* | | *66* | *30-130* | | | |
| *Surrogate: 2-Chlorophenol-d4* | *3.26* | | mg/kg wet | *5.000* | | *65* | *30-130* | | | |
| *Surrogate: 2-Fluorobiphenyl* | *2.22* | | mg/kg wet | *3.333* | | *67* | *30-130* | | | |
| *Surrogate: 2-Fluorophenol* | *3.28* | | mg/kg wet | *5.000* | | *66* | *30-130* | | | |
| *Surrogate: Nitrobenzene-d5* | *2.32* | | mg/kg wet | *3.333* | | *70* | *30-130* | | | |
| *Surrogate: Phenol-d6* | *3.42* | | mg/kg wet | *5.000* | | *68* | *30-130* | | | |
| *Surrogate: p-Terphenyl-d14* | *3.30* | | mg/kg wet | *3.333* | | *99* | *30-130* | | | |
| **LCS** | | | | | | | | | | |
| 1,1-Biphenyl | 2.17 | 0.333 | mg/kg wet | 3.333 | | 65 | 40-140 | | | |
| 1,2,4-Trichlorobenzene | 1.91 | 0.333 | mg/kg wet | 3.333 | | 57 | 40-140 | | | |
| 1,2-Dichlorobenzene | 1.79 | 0.333 | mg/kg wet | 3.333 | | 54 | 40-140 | | | |
| 1,3-Dichlorobenzene | 1.81 | 0.333 | mg/kg wet | 3.333 | | 54 | 40-140 | | | |
| 1,4-Dichlorobenzene | 1.81 | 0.333 | mg/kg wet | 3.333 | | 54 | 40-140 | | | |
| 2,3,4,6-Tetrachlorophenol | 2.16 | 1.67 | mg/kg wet | 3.333 | | 65 | 30-130 | | | |
| 2,4,5-Trichlorophenol | 2.29 | 0.333 | mg/kg wet | 3.333 | | 69 | 30-130 | | | |
| 2,4,6-Trichlorophenol | 2.29 | 0.333 | mg/kg wet | 3.333 | | 69 | 30-130 | | | |
| 2,4-Dichlorophenol | 2.09 | 0.333 | mg/kg wet | 3.333 | | 63 | 30-130 | | | |
| 2,4-Dimethylphenol | 2.12 | 0.333 | mg/kg wet | 3.333 | | 64 | 30-130 | | | |
| 2,4-Dinitrophenol | 2.25 | 1.67 | mg/kg wet | 3.333 | | 68 | 30-130 | | | |
| 2,4-Dinitrotoluene | 2.26 | 0.333 | mg/kg wet | 3.333 | | 68 | 40-140 | | | |
| 2,6-Dinitrotoluene | 2.21 | 0.333 | mg/kg wet | 3.333 | | 66 | 40-140 | | | |
| 2-Chloronaphthalene | 2.03 | 0.333 | mg/kg wet | 3.333 | | 61 | 40-140 | | | |
| 2-Chlorophenol | 1.88 | 0.333 | mg/kg wet | 3.333 | | 56 | 30-130 | | | |
| 2-Methylnaphthalene | 1.84 | 0.333 | mg/kg wet | 3.333 | | 55 | 40-140 | | | |
| 2-Methylphenol | 1.86 | 0.333 | mg/kg wet | 3.333 | | 56 | 30-130 | | | |
| 2-Nitroaniline | 2.41 | 0.333 | mg/kg wet | 3.333 | | 72 | 40-140 | | | |
| 2-Nitrophenol | 1.95 | 0.333 | mg/kg wet | 3.333 | | 58 | 30-130 | | | |
| 3,3´-Dichlorobenzidine | 2.20 | 0.667 | mg/kg wet | 3.333 | | 66 | 40-140 | | | |
| 3+4-Methylphenol | 3.86 | 0.667 | mg/kg wet | 6.667 | | 58 | 30-130 | | | |
| 3-Nitroaniline | 2.05 | 0.333 | mg/kg wet | 3.333 | | 62 | 40-140 | | | |
| 4,6-Dinitro-2-Methylphenol | 2.63 | 1.67 | mg/kg wet | 3.333 | | 79 | 30-130 | | | |
| 4-Bromophenyl-phenylether | 2.39 | 0.333 | mg/kg wet | 3.333 | | 72 | 40-140 | | | |
| 4-Chloro-3-Methylphenol | 2.23 | 0.333 | mg/kg wet | 3.333 | | 67 | 30-130 | | | |
| 4-Chloroaniline | 1.74 | 0.667 | mg/kg wet | 3.333 | | 52 | 40-140 | | | |
| 4-Chloro-phenyl-phenyl ether | 2.10 | 0.333 | mg/kg wet | 3.333 | | 63 | 40-140 | | | |
| 4-Nitroaniline | 2.29 | 0.333 | mg/kg wet | 3.333 | | 69 | 40-140 | | | |
| 4-Nitrophenol | 2.41 | 1.67 | mg/kg wet | 3.333 | | 72 | 30-130 | | | |
| Acenaphthene | 2.05 | 0.333 | mg/kg wet | 3.333 | | 62 | 40-140 | | | |
| Acenaphthylene | 1.98 | 0.333 | mg/kg wet | 3.333 | | 59 | 40-140 | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **8270D Semi-Volatile Organic Compounds** | | | | | | | | | | |
| **Batch CJ80113 - 3546** | | | | | | | | | | |
| Acetophenone | 1.93 | 0.667 | mg/kg wet | 3.333 | | 58 | 40-140 | | | |
| Aniline | 1.69 | 0.667 | mg/kg wet | 3.333 | | 51 | 40-140 | | | |
| Anthracene | 2.41 | 0.333 | mg/kg wet | 3.333 | | 72 | 40-140 | | | |
| Azobenzene | 2.69 | 0.333 | mg/kg wet | 3.333 | | 81 | 40-140 | | | |
| Benzo(a)anthracene | 2.43 | 0.333 | mg/kg wet | 3.333 | | 73 | 40-140 | | | |
| Benzo(a)pyrene | 2.48 | 0.167 | mg/kg wet | 3.333 | | 74 | 40-140 | | | |
| Benzo(b)fluoranthene | 2.55 | 0.333 | mg/kg wet | 3.333 | | 77 | 40-140 | | | |
| Benzo(g,h,i)perylene | 2.65 | 0.333 | mg/kg wet | 3.333 | | 79 | 40-140 | | | |
| Benzo(k)fluoranthene | 2.44 | 0.333 | mg/kg wet | 3.333 | | 73 | 40-140 | | | |
| Benzoic Acid | 2.52 | 1.67 | mg/kg wet | 3.333 | | 76 | 40-140 | | | |
| Benzyl Alcohol | 1.26 | 0.333 | mg/kg wet | 3.333 | | 38 | 40-140 | | | B- |
| bis(2-Chloroethoxy)methane | 2.06 | 0.333 | mg/kg wet | 3.333 | | 62 | 40-140 | | | |
| bis(2-Chloroethyl)ether | 1.96 | 0.333 | mg/kg wet | 3.333 | | 59 | 40-140 | | | |
| bis(2-chloroisopropyl)Ether | 1.78 | 0.333 | mg/kg wet | 3.333 | | 53 | 40-140 | | | |
| bis(2-Ethylhexyl)phthalate | 2.65 | 0.333 | mg/kg wet | 3.333 | | 80 | 40-140 | | | |
| Butylbenzylphthalate | 2.58 | 0.333 | mg/kg wet | 3.333 | | 77 | 40-140 | | | |
| Carbazole | 2.32 | 0.333 | mg/kg wet | 3.333 | | 70 | 40-140 | | | |
| Chrysene | 2.47 | 0.167 | mg/kg wet | 3.333 | | 74 | 40-140 | | | |
| Dibenzo(a,h)Anthracene | 2.59 | 0.167 | mg/kg wet | 3.333 | | 78 | 40-140 | | | |
| Dibenzofuran | 2.08 | 0.333 | mg/kg wet | 3.333 | | 62 | 40-140 | | | |
| Diethylphthalate | 2.26 | 0.333 | mg/kg wet | 3.333 | | 68 | 40-140 | | | |
| Dimethylphthalate | 2.21 | 0.333 | mg/kg wet | 3.333 | | 66 | 40-140 | | | |
| Di-n-butylphthalate | 2.46 | 0.333 | mg/kg wet | 3.333 | | 74 | 40-140 | | | |
| Di-n-octylphthalate | 2.56 | 0.333 | mg/kg wet | 3.333 | | 77 | 40-140 | | | |
| Fluoranthene | 2.18 | 0.333 | mg/kg wet | 3.333 | | 65 | 40-140 | | | |
| Fluorene | 2.15 | 0.333 | mg/kg wet | 3.333 | | 64 | 40-140 | | | |
| Hexachlorobenzene | 2.52 | 0.167 | mg/kg wet | 3.333 | | 76 | 40-140 | | | |
| Hexachlorobutadiene | 1.93 | 0.333 | mg/kg wet | 3.333 | | 58 | 40-140 | | | |
| Hexachlorocyclopentadiene | 1.60 | 1.67 | mg/kg wet | 3.333 | | 48 | 40-140 | | | |
| Hexachloroethane | 1.80 | 0.333 | mg/kg wet | 3.333 | | 54 | 40-140 | | | |
| Indeno(1,2,3-cd)Pyrene | 2.65 | 0.333 | mg/kg wet | 3.333 | | 80 | 40-140 | | | |
| Isophorone | 1.90 | 0.333 | mg/kg wet | 3.333 | | 57 | 40-140 | | | |
| Naphthalene | 1.90 | 0.333 | mg/kg wet | 3.333 | | 57 | 40-140 | | | |
| Nitrobenzene | 2.11 | 0.333 | mg/kg wet | 3.333 | | 63 | 40-140 | | | |
| N-Nitrosodimethylamine | 1.91 | 0.333 | mg/kg wet | 3.333 | | 57 | 40-140 | | | |
| N-Nitroso-Di-n-Propylamine | 1.99 | 0.333 | mg/kg wet | 3.333 | | 60 | 40-140 | | | |
| N-nitrosodiphenylamine | 2.69 | 0.333 | mg/kg wet | 3.333 | | 81 | 40-140 | | | |
| Pentachlorophenol | 2.82 | 1.67 | mg/kg wet | 3.333 | | 84 | 30-130 | | | |
| Phenanthrene | 2.36 | 0.333 | mg/kg wet | 3.333 | | 71 | 40-140 | | | |
| Phenol | 1.89 | 0.333 | mg/kg wet | 3.333 | | 57 | 30-130 | | | |
| Pyrene | 2.58 | 0.333 | mg/kg wet | 3.333 | | 77 | 40-140 | | | |
| Pyridine | 1.80 | 1.67 | mg/kg wet | 3.333 | | 54 | 40-140 | | | |
| *Surrogate: 1,2-Dichlorobenzene-d4* | *1.94* | | mg/kg wet | *3.333* | | *58* | *30-130* | | | |
| *Surrogate: 2,4,6-Tribromophenol* | *4.00* | | mg/kg wet | *5.000* | | *80* | *30-130* | | | |
| *Surrogate: 2-Chlorophenol-d4* | *3.08* | | mg/kg wet | *5.000* | | *62* | *30-130* | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **8270D Semi-Volatile Organic Compounds** | | | | | | | | | | |
| **Batch CJ80113 - 3546** | | | | | | | | | | |
| *Surrogate: 2-Fluorobiphenyl* | *2.30* | | mg/kg wet | *3.333* | | *69* | *30-130* | | | |
| *Surrogate: 2-Fluorophenol* | *3.09* | | mg/kg wet | *5.000* | | *62* | *30-130* | | | |
| *Surrogate: Nitrobenzene-d5* | *2.31* | | mg/kg wet | *3.333* | | *69* | *30-130* | | | |
| *Surrogate: Phenol-d6* | *3.21* | | mg/kg wet | *5.000* | | *64* | *30-130* | | | |
| *Surrogate: p-Terphenyl-d14* | *2.82* | | mg/kg wet | *3.333* | | *85* | *30-130* | | | |
| **LCS Dup** | | | | | | | | | | |
| 1,1-Biphenyl | 2.47 | 0.333 | mg/kg wet | 3.333 | | 74 | 40-140 | 13 | 30 | |
| 1,2,4-Trichlorobenzene | 2.23 | 0.333 | mg/kg wet | 3.333 | | 67 | 40-140 | 16 | 30 | |
| 1,2-Dichlorobenzene | 2.11 | 0.333 | mg/kg wet | 3.333 | | 63 | 40-140 | 17 | 30 | |
| 1,3-Dichlorobenzene | 2.14 | 0.333 | mg/kg wet | 3.333 | | 64 | 40-140 | 17 | 30 | |
| 1,4-Dichlorobenzene | 2.15 | 0.333 | mg/kg wet | 3.333 | | 65 | 40-140 | 18 | 30 | |
| 2,3,4,6-Tetrachlorophenol | 2.52 | 1.67 | mg/kg wet | 3.333 | | 76 | 30-130 | 15 | 30 | |
| 2,4,5-Trichlorophenol | 2.65 | 0.333 | mg/kg wet | 3.333 | | 79 | 30-130 | 15 | 30 | |
| 2,4,6-Trichlorophenol | 2.67 | 0.333 | mg/kg wet | 3.333 | | 80 | 30-130 | 15 | 30 | |
| 2,4-Dichlorophenol | 2.48 | 0.333 | mg/kg wet | 3.333 | | 74 | 30-130 | 17 | 30 | |
| 2,4-Dimethylphenol | 2.50 | 0.333 | mg/kg wet | 3.333 | | 75 | 30-130 | 16 | 30 | |
| 2,4-Dinitrophenol | 2.74 | 1.67 | mg/kg wet | 3.333 | | 82 | 30-130 | 20 | 30 | |
| 2,4-Dinitrotoluene | 2.69 | 0.333 | mg/kg wet | 3.333 | | 81 | 40-140 | 17 | 30 | |
| 2,6-Dinitrotoluene | 2.62 | 0.333 | mg/kg wet | 3.333 | | 79 | 40-140 | 17 | 30 | |
| 2-Chloronaphthalene | 2.27 | 0.333 | mg/kg wet | 3.333 | | 68 | 40-140 | 11 | 30 | |
| 2-Chlorophenol | 2.31 | 0.333 | mg/kg wet | 3.333 | | 69 | 30-130 | 21 | 30 | |
| 2-Methylnaphthalene | 2.16 | 0.333 | mg/kg wet | 3.333 | | 65 | 40-140 | 16 | 30 | |
| 2-Methylphenol | 2.29 | 0.333 | mg/kg wet | 3.333 | | 69 | 30-130 | 21 | 30 | |
| 2-Nitroaniline | 2.80 | 0.333 | mg/kg wet | 3.333 | | 84 | 40-140 | 15 | 30 | |
| 2-Nitrophenol | 2.30 | 0.333 | mg/kg wet | 3.333 | | 69 | 30-130 | 16 | 30 | |
| 3,3´-Dichlorobenzidine | 2.36 | 0.667 | mg/kg wet | 3.333 | | 71 | 40-140 | 7 | 30 | |
| 3+4-Methylphenol | 4.69 | 0.667 | mg/kg wet | 6.667 | | 70 | 30-130 | 19 | 30 | |
| 3-Nitroaniline | 2.42 | 0.333 | mg/kg wet | 3.333 | | 73 | 40-140 | 16 | 30 | |
| 4,6-Dinitro-2-Methylphenol | 3.03 | 1.67 | mg/kg wet | 3.333 | | 91 | 30-130 | 14 | 30 | |
| 4-Bromophenyl-phenylether | 2.72 | 0.333 | mg/kg wet | 3.333 | | 81 | 40-140 | 13 | 30 | |
| 4-Chloro-3-Methylphenol | 2.66 | 0.333 | mg/kg wet | 3.333 | | 80 | 30-130 | 18 | 30 | |
| 4-Chloroaniline | 1.99 | 0.667 | mg/kg wet | 3.333 | | 60 | 40-140 | 14 | 30 | |
| 4-Chloro-phenyl-phenyl ether | 2.43 | 0.333 | mg/kg wet | 3.333 | | 73 | 40-140 | 15 | 30 | |
| 4-Nitroaniline | 2.59 | 0.333 | mg/kg wet | 3.333 | | 78 | 40-140 | 12 | 30 | |
| 4-Nitrophenol | 2.80 | 1.67 | mg/kg wet | 3.333 | | 84 | 30-130 | 15 | 30 | |
| Acenaphthene | 2.37 | 0.333 | mg/kg wet | 3.333 | | 71 | 40-140 | 14 | 30 | |
| Acenaphthylene | 2.29 | 0.333 | mg/kg wet | 3.333 | | 69 | 40-140 | 14 | 30 | |
| Acetophenone | 2.35 | 0.667 | mg/kg wet | 3.333 | | 71 | 40-140 | 20 | 30 | |
| Aniline | 2.08 | 0.667 | mg/kg wet | 3.333 | | 62 | 40-140 | 21 | 30 | |
| Anthracene | 2.74 | 0.333 | mg/kg wet | 3.333 | | 82 | 40-140 | 13 | 30 | |
| Azobenzene | 3.04 | 0.333 | mg/kg wet | 3.333 | | 91 | 40-140 | 12 | 30 | |
| Benzo(a)anthracene | 2.80 | 0.333 | mg/kg wet | 3.333 | | 84 | 40-140 | 14 | 30 | |
| Benzo(a)pyrene | 2.86 | 0.167 | mg/kg wet | 3.333 | | 86 | 40-140 | 14 | 30 | |
| Benzo(b)fluoranthene | 2.93 | 0.333 | mg/kg wet | 3.333 | | 88 | 40-140 | 14 | 30 | |
| Benzo(g,h,i)perylene | 3.02 | 0.333 | mg/kg wet | 3.333 | | 91 | 40-140 | 13 | 30 | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **8270D Semi-Volatile Organic Compounds** | | | | | | | | | | |
| **Batch CJ80113 - 3546** | | | | | | | | | | |
| Benzo(k)fluoranthene | 2.94 | 0.333 | mg/kg wet | 3.333 | | 88 | 40-140 | 19 | 30 | |
| Benzoic Acid | 3.05 | 1.67 | mg/kg wet | 3.333 | | 91 | 40-140 | 19 | 30 | |
| Benzyl Alcohol | 1.57 | 0.333 | mg/kg wet | 3.333 | | 47 | 40-140 | 22 | 30 | |
| bis(2-Chloroethoxy)methane | 2.42 | 0.333 | mg/kg wet | 3.333 | | 73 | 40-140 | 16 | 30 | |
| bis(2-Chloroethyl)ether | 2.39 | 0.333 | mg/kg wet | 3.333 | | 72 | 40-140 | 20 | 30 | |
| bis(2-chloroisopropyl)Ether | 2.19 | 0.333 | mg/kg wet | 3.333 | | 66 | 40-140 | 21 | 30 | |
| bis(2-Ethylhexyl)phthalate | 3.37 | 0.333 | mg/kg wet | 3.333 | | 101 | 40-140 | 24 | 30 | |
| Butylbenzylphthalate | 3.29 | 0.333 | mg/kg wet | 3.333 | | 99 | 40-140 | 24 | 30 | |
| Carbazole | 2.63 | 0.333 | mg/kg wet | 3.333 | | 79 | 40-140 | 12 | 30 | |
| Chrysene | 2.83 | 0.167 | mg/kg wet | 3.333 | | 85 | 40-140 | 13 | 30 | |
| Dibenzo(a,h)Anthracene | 2.97 | 0.167 | mg/kg wet | 3.333 | | 89 | 40-140 | 13 | 30 | |
| Dibenzofuran | 2.43 | 0.333 | mg/kg wet | 3.333 | | 73 | 40-140 | 16 | 30 | |
| Diethylphthalate | 2.67 | 0.333 | mg/kg wet | 3.333 | | 80 | 40-140 | 17 | 30 | |
| Dimethylphthalate | 2.58 | 0.333 | mg/kg wet | 3.333 | | 77 | 40-140 | 15 | 30 | |
| Di-n-butylphthalate | 2.93 | 0.333 | mg/kg wet | 3.333 | | 88 | 40-140 | 17 | 30 | |
| Di-n-octylphthalate | 3.39 | 0.333 | mg/kg wet | 3.333 | | 102 | 40-140 | 28 | 30 | |
| Fluoranthene | 2.45 | 0.333 | mg/kg wet | 3.333 | | 73 | 40-140 | 11 | 30 | |
| Fluorene | 2.48 | 0.333 | mg/kg wet | 3.333 | | 75 | 40-140 | 15 | 30 | |
| Hexachlorobenzene | 2.87 | 0.167 | mg/kg wet | 3.333 | | 86 | 40-140 | 13 | 30 | |
| Hexachlorobutadiene | 2.27 | 0.333 | mg/kg wet | 3.333 | | 68 | 40-140 | 16 | 30 | |
| Hexachlorocyclopentadiene | 1.87 | 1.67 | mg/kg wet | 3.333 | | 56 | 40-140 | 16 | 30 | |
| Hexachloroethane | 2.16 | 0.333 | mg/kg wet | 3.333 | | 65 | 40-140 | 18 | 30 | |
| Indeno(1,2,3-cd)Pyrene | 3.02 | 0.333 | mg/kg wet | 3.333 | | 91 | 40-140 | 13 | 30 | |
| Isophorone | 2.25 | 0.333 | mg/kg wet | 3.333 | | 67 | 40-140 | 17 | 30 | |
| Naphthalene | 2.21 | 0.333 | mg/kg wet | 3.333 | | 66 | 40-140 | 15 | 30 | |
| Nitrobenzene | 2.46 | 0.333 | mg/kg wet | 3.333 | | 74 | 40-140 | 15 | 30 | |
| N-Nitrosodimethylamine | 2.23 | 0.333 | mg/kg wet | 3.333 | | 67 | 40-140 | 15 | 30 | |
| N-Nitroso-Di-n-Propylamine | 2.39 | 0.333 | mg/kg wet | 3.333 | | 72 | 40-140 | 18 | 30 | |
| N-nitrosodiphenylamine | 3.05 | 0.333 | mg/kg wet | 3.333 | | 92 | 40-140 | 13 | 30 | |
| Pentachlorophenol | 3.27 | 1.67 | mg/kg wet | 3.333 | | 98 | 30-130 | 15 | 30 | |
| Phenanthrene | 2.67 | 0.333 | mg/kg wet | 3.333 | | 80 | 40-140 | 12 | 30 | |
| Phenol | 2.34 | 0.333 | mg/kg wet | 3.333 | | 70 | 30-130 | 21 | 30 | |
| Pyrene | 3.31 | 0.333 | mg/kg wet | 3.333 | | 99 | 40-140 | 25 | 30 | |
| Pyridine | 2.06 | 1.67 | mg/kg wet | 3.333 | | 62 | 40-140 | 14 | 30 | |
| *Surrogate: 1,2-Dichlorobenzene-d4* | *2.24* | | mg/kg wet | *3.333* | | *67* | *30-130* | | | |
| *Surrogate: 2,4,6-Tribromophenol* | *4.40* | | mg/kg wet | *5.000* | | *88* | *30-130* | | | |
| *Surrogate: 2-Chlorophenol-d4* | *3.68* | | mg/kg wet | *5.000* | | *74* | *30-130* | | | |
| *Surrogate: 2-Fluorobiphenyl* | *2.56* | | mg/kg wet | *3.333* | | *77* | *30-130* | | | |
| *Surrogate: 2-Fluorophenol* | *3.67* | | mg/kg wet | *5.000* | | *73* | *30-130* | | | |
| *Surrogate: Nitrobenzene-d5* | *2.63* | | mg/kg wet | *3.333* | | *79* | *30-130* | | | |
| *Surrogate: Phenol-d6* | *3.84* | | mg/kg wet | *5.000* | | *77* | *30-130* | | | |
| *Surrogate: p-Terphenyl-d14* | *3.56* | | mg/kg wet | *3.333* | | *107* | *30-130* | | | |
| **Classical Chemistry** | | | | | | | | | | |
| **Batch CJ80224 - TCN Prep** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810028

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Classical Chemistry** | | | | | | | | | | |
| **Batch CJ80224 - TCN Prep** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| Total Cyanide | ND | 1.00 | mg/kg wet | | | | | | | |
| **LCS** | | | | | | | | | | |
| Total Cyanide | 4.96 | 1.00 | mg/kg wet | 5.015 | | 99 | 90-110 | | | |
| **Reference** | | | | | | | | | | |
| Total Cyanide | 51.0 | 4.97 | mg/kg wet | 48.40 | | 105 | 36.16-206.6 | | | |
| **Reference** | | | | | | | | | | |
| Total Cyanide | 50.2 | 5.00 | mg/kg wet | 48.40 | | 104 | 36.16-206.6 | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810028

**Notes and Definitions**

| | |
|---|---|
| U | Analyte included in the analysis, but not detected |
| Q | Calibration required quadratic regression (Q). |
| PB | Presence of PCBs in the sample may cause this analyte to be biased high. |
| P | Percent difference between primary and confirmation results exceeds 40% (P). |
| LC | Lower value is used due to matrix interferences (LC). |
| D | Diluted. |
| CD+ | Continuing Calibration %Diff/Drift is above control limit (CD+). |
| CD- | Continuing Calibration %Diff/Drift is below control limit (CD-). |
| B- | Blank Spike recovery is below lower control limit (B-). |
| 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: 1810028

**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: 1810028
Date Received: 10/1/2018
Project Due Date: 10/3/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 5.4 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? No
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

**COC=B-897-1001189(0-4')&(3') collected10-1-18@1104,Rec'd=B-896-100118(0-4')&(3') collected10-1-18@1104**

10/1/18

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? Aaron Ting Date: 10/1/18 Time: 1721 By: ML

Sample ID's on the COC need to reflec "B-896"

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 272756 | Yes | NA | Yes | 8 oz. Jar - Unpres | NP | |
| 01 | 272757 | Yes | NA | Yes | 8 oz. Jar - Unpres | NP | |
| 02 | 272708 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 02 | 272714 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 02 | 272715 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 03 | 272754 | Yes | NA | Yes | 8 oz. Jar - Unpres | NP | |
| 03 | 272755 | Yes | NA | Yes | 8 oz. Jar - Unpres | NP | |
| 04 | 272707 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 04 | 272712 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 04 | 272713 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 05 | 272752 | Yes | NA | Yes | 8 oz. Jar - Unpres | NP | |
| 05 | 272753 | Yes | NA | Yes | 8 oz. Jar - Unpres | NP | |
| 06 | 272706 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 06 | 272710 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 06 | 272711 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 07 | 272705 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 07 | 272709 | Yes | NA | Yes | VOA Vial - Other | Other | |

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

Completed

# ESS Laboratory Sample and Cooler Receipt Checklist

| | | | |
|---|---|---|---|
| Client: | AEI Consultants, Inc. - TB/MM | ESS Project ID: | 1810028 |
| | | Date Received: | 10/1/2018 |
| By: | | Date & Time: | 10/1/18 1601 |
| Reviewed By: | | Date & Time: | 10/1/18 16:10 |
| Delivered By: | | | 1650 |

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1810028
Date Received: 10/1/2018
Project Due Date: 10/3/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 5.4 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? No
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

**COC=B-897-1001189(0-4')&(3') collected10-1-18@1104,Rec'd=B-896-100118(0-4')&(3') collected10-1-18@1104**

10/1/18

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 | 272756 | Yes | NA | Yes | 8 oz. Jar - Unpres | NP | |
| 01 | 272757 | Yes | NA | Yes | 8 oz. Jar - Unpres | NP | |
| 02 | 272708 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 02 | 272714 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 02 | 272715 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 03 | 272754 | Yes | NA | Yes | 8 oz. Jar - Unpres | NP | |
| 03 | 272755 | Yes | NA | Yes | 8 oz. Jar - Unpres | NP | |
| 04 | 272707 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 04 | 272712 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 04 | 272713 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 05 | 272752 | Yes | NA | Yes | 8 oz. Jar - Unpres | NP | |
| 05 | 272753 | Yes | NA | Yes | 8 oz. Jar - Unpres | NP | |
| 06 | 272706 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 06 | 272710 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 06 | 272711 | Yes | NA | Yes | VOA Vial - Other | Other | |
| 07 | 272705 | Yes | NA | Yes | VOA Vial - Methanol | MeOH | |
| 07 | 272709 | Yes | NA | Yes | VOA Vial - Other | Other | |

**2nd Review**

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

Completed

# ESS Laboratory Sample and Cooler Receipt Checklist

| | | | |
|---|---|---|---|
| Client: | AEI Consultants, Inc. - TB/MM | ESS Project ID: | 1810028 |
| | | Date Received: | 10/1/2018 |
| By: | | Date & Time: | 10/1/18 1601 |
| Reviewed By: | | Date & Time: | 10/1/18 16:10 |
| Delivered By: | | | 1650 |

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 #: 1810028
Reporting Limits: see note 1
Electonic Deliverables: ☒ Limit Checker ☐ Other (Please Specify →) ☒ Standard Excel

Company Name: AEI
Contact Person: Aaron Ting
City: Boston
State: MA
Telephone Number: 978-577-7138
FAX Number: —
Project #: 31636055
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
Zip Code: 02109
PO #: —
Email Address: ating@aeiconsultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCBs (Soxhlet) | SVOCs (8270) | Pesticides | RCRA 8 Metals | Total CN | VOCs (8260) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10/1/18 | 1045 | C | S | B-898-100118 (0-4') | X | X | X | X | X | |
| 2 | | 1045 | G | | B-898-100118 (3') | | | | | | X |
| 3 | | 1055 | C | | B-897-100118 (0-4') | X | X | X | X | X | |
| 4 | | 1055 | G | | B-897-100118 (3') | | | | | | X |
| 5 | | 1104 | C | | B-~~897~~ 896-100118 (0-4') | X | X | X | X | X | |
| 6 | | 1104 | G | | B-~~897~~ 896-100118 (3') | | | | | | X |
| 7 | | | | | Trip Blank | | | | | | |

Changes made 10/2/18 - ML

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 | AG | AG | AG | AG | V | |
| 10 | 10 | 10 | 10 | 10 | 7 | |
| 1 | 1 | 1 | 1 | 1 | 4/10 | |
| 1 | — | — | — | 2 | 3 | |

Laboratory Use Only
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 5.4 °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) |
|---|---|---|---|
| 10/1/18 1510 | 10/1/18 15:11 | 10/1/18 15:23 | 10/1/18 1525 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |

ESS Laboratory
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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 #: 1810028
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
Telephone Number: 978-577-7138
FAX Number: —
Project #: 3636055
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
Zip Code: 02109
PO #: —
Email Address: ating@aeiconsultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCBs (Soxhlet) | SVOCs (8270) | Pesticides | RCRA 8 Metals | Total CN | VOCs (8260) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10/1/18 | 1045 | C | S | B-898-100118 (0-4') | X | X | X | X | X | |
| 2 | | 1045 | G | | B-898-100118 (3') | | | | | | X |
| 3 | | 1055 | C | | B-897-100118 (0-4') | X | X | X | X | X | |
| 4 | | 1055 | G | | B-897-100118 (3') | | | | | | X |
| 5 | | 1104 | C | | B-897-100118 (0-4') | X | X | X | X | X | |
| 6 | | 1104 | G | | B-897-100118 (3') | | | | | | X |
| 7 | | | | | Trip Blank | | | | | | |

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 | AG | AG | AG | AG | V | |
| 10 | 10 | 10 | 10 | 10 | 7 | |
| 1 | 1 | 1 | 1 | 1 | 4/10 | |
| 1 | — | — | — | → | 3 | |

Laboratory Use Only
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 5.4 °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) |
|---|---|---|---|
| 10/1/18 1510 | 10/1/18 15:11 | 10/1/18 15:23 | 10/1/18 1525 |
| 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: 1810069**

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 3:32 pm, Oct 04, 2018**

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

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810069

## SAMPLE RECEIPT

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

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1810069-01 | B-77-100218 6FT | Soil | 8082A |
| 1810069-02 | B-78-100218 6FT | Soil | 8082A |
| 1810069-03 | B-79-100218 6FT | Soil | 8082A |
| 1810069-04 | B-80-100218 6FT | Soil | 8082A |
| 1810069-05 | SW-64-100218 4-6FT | Soil | 8082A |
| 1810069-06 | SW-65-100218 4-6FT | Soil | 8082A |
| 1810069-07 | SW-67-100218 4-6FT | Soil | 8082A |
| 1810069-08 | SW-69-100218 4-6FT | Soil | 8082A |
| 1810069-09 | SW-71-100218 4-6FT | Soil | 8082A |
| 1810069-10 | SW-73-100218 4-6FT | Soil | 8082A |
| 1810069-11 | SW-77-100218 4-6FT | Soil | 8082A |
| 1810069-12 | SW-75-100218 4-6FT | Soil | 8082A |
| 1810069-13 | B-115-100218 3FT | Soil | 8082A |
| 1810069-14 | B-120-100218 3FT | Soil | 8082A |
| 1810069-15 | B-125-100218 3FT | Soil | 8082A |
| 1810069-16 | B-130-100218 3FT | Soil | 8082A |
| 1810069-17 | B-135-100218 3FT | Soil | 8082A |
| 1810069-18 | B-140-100218 3FT | Soil | 8082A |
| 1810069-19 | SW-715-100218 0-4FT | Soil | 8082A |
| 1810069-20 | SW-70-100218 0-4FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810069

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1810069-05 **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%)

1810069-06 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810069-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810069-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810069-11 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810069-12 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810069-14 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810069-15 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810069-16 **Surrogate recovery(ies) above upper control limit (S+).**
Decachlorobiphenyl (162% @ 30-150%)

1810069-18 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810069-19 **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%)

1810069-20 **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%)

C8J0077-CCV8 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Decachlorobiphenyl (26% @ 20%)

C8J0077-CCVC **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Decachlorobiphenyl (25% @ 20%)

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810069

**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: 1810069

## 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-77-100218 6FT
Date Sampled: 10/02/18 11:00
Percent Solids: 86
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/03/18 10:50 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/03/18 10:50 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/03/18 10:50 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/03/18 10:50 | C8J0077 | CJ80216 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/03/18 10:50 | C8J0077 | CJ80216 |
| **Aroclor 1254 [2C]** | **7.0** (0.6) | | 8082A | | 10 | 10/03/18 19:04 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/03/18 10:50 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/03/18 10:50 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/03/18 10:50 | C8J0077 | CJ80216 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *54 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *65 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *75 %* | | *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-78-100218 6FT
Date Sampled: 10/02/18 11:04
Percent Solids: 78
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.07) | | 8082A | | 1 | 10/03/18 11:07 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (0.07) | | 8082A | | 1 | 10/03/18 11:07 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (0.07) | | 8082A | | 1 | 10/03/18 11:07 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (0.07) | | 8082A | | 1 | 10/03/18 11:07 | C8J0077 | CJ80216 |
| Aroclor 1248 | ND (0.07) | | 8082A | | 1 | 10/03/18 11:07 | C8J0077 | CJ80216 |
| **Aroclor 1254** | **5.9** (0.7) | | 8082A | | 10 | 10/03/18 19:23 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (0.07) | | 8082A | | 1 | 10/03/18 11:07 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (0.07) | | 8082A | | 1 | 10/03/18 11:07 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (0.07) | | 8082A | | 1 | 10/03/18 11:07 | C8J0077 | CJ80216 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *49 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *60 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *66 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *72 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-79-100218 6FT
Date Sampled: 10/02/18 11:00
Percent Solids: 85
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:26 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:26 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:26 | C8J0077 | CJ80216 |
| **Aroclor 1242** | **2.4** (0.3) | | 8082A | | 5 | 10/03/18 19:42 | C8J0077 | CJ80216 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:26 | C8J0077 | CJ80216 |
| **Aroclor 1254** | **2.1** (0.3) | | 8082A | | 5 | 10/03/18 19:42 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:26 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:26 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:26 | C8J0077 | CJ80216 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *75 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *64 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *70 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *72 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-80-100218 6FT
Date Sampled: 10/02/18 11:04
Percent Solids: 85
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:45 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:45 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:45 | C8J0077 | CJ80216 |
| **Aroclor 1242** | **0.4** (0.06) | | 8082A | | 1 | 10/03/18 11:45 | C8J0077 | CJ80216 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:45 | C8J0077 | CJ80216 |
| **Aroclor 1254 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 10/03/18 11:45 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:45 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:45 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/03/18 11:45 | C8J0077 | CJ80216 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *39 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *46 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *60 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-64-100218 4-6FT
Date Sampled: 10/02/18 11:07
Percent Solids: 87
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/03/18 20:01 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/03/18 20:01 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/03/18 20:01 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/03/18 20:01 | C8J0077 | CJ80216 |
| **Aroclor 1248** | **15.0** (1.2) | | 8082A | | 20 | 10/03/18 20:01 | C8J0077 | CJ80216 |
| **Aroclor 1254** | **15.1** (1.2) | | 8082A | | 20 | 10/03/18 20:01 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/03/18 20:01 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/03/18 20:01 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/03/18 20:01 | C8J0077 | CJ80216 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-65-100218 4-6FT
Date Sampled: 10/02/18 11:07
Percent Solids: 87
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:20 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:20 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:20 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:20 | C8J0077 | CJ80216 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:20 | C8J0077 | CJ80216 |
| **Aroclor 1254 [2C]** | **10.3** (1.1) | | 8082A | | 20 | 10/03/18 20:20 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:20 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:20 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:20 | C8J0077 | CJ80216 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-67-100218 4-6FT
Date Sampled: 10/02/18 11:09
Percent Solids: 84
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/03/18 12:42 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/03/18 12:42 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/03/18 12:42 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/03/18 12:42 | C8J0077 | CJ80216 |
| **Aroclor 1248** | **1.7** (0.3) | | 8082A | | 5 | 10/03/18 20:39 | C8J0077 | CJ80216 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 10/03/18 12:42 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/03/18 12:42 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/03/18 12:42 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/03/18 12:42 | C8J0077 | CJ80216 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *73 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *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: SW-69-100218 4-6FT
Date Sampled: 10/02/18 11:09
Percent Solids: 88
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:58 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:58 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:58 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:58 | C8J0077 | CJ80216 |
| **Aroclor 1248** | **8.9** (1.1) | | 8082A | | 20 | 10/03/18 20:58 | C8J0077 | CJ80216 |
| Aroclor 1254 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:58 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:58 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:58 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/03/18 20:58 | C8J0077 | CJ80216 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-71-100218 4-6FT
Date Sampled: 10/02/18 11:15
Percent Solids: 85
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:17 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:17 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:17 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:17 | C8J0077 | CJ80216 |
| **Aroclor 1248 [2C]** | **22.6** (3.0) | | 8082A | | 50 | 10/03/18 21:17 | C8J0077 | CJ80216 |
| Aroclor 1254 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:17 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:17 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:17 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:17 | C8J0077 | CJ80216 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-73-100218 4-6FT
Date Sampled: 10/02/18 11:15
Percent Solids: 81
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/03/18 13:39 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/03/18 13:39 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/03/18 13:39 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/03/18 13:39 | C8J0077 | CJ80216 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/03/18 13:39 | C8J0077 | CJ80216 |
| **Aroclor 1254 [2C]** | **6.0** (0.6) | | 8082A | | 10 | 10/03/18 21:36 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/03/18 13:39 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/03/18 13:39 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/03/18 13:39 | C8J0077 | CJ80216 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *45 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *56 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *56 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *62 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-77-100218 4-6FT
Date Sampled: 10/02/18 13:06
Percent Solids: 85
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:55 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:55 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:55 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:55 | C8J0077 | CJ80216 |
| Aroclor 1248 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:55 | C8J0077 | CJ80216 |
| **Aroclor 1254 [2C]** | **32.1** (3.0) | | 8082A | | 50 | 10/03/18 21:55 | C8J0077 | CJ80216 |
| **Aroclor 1260 [2C]** | **23.8** (3.0) | | 8082A | | 50 | 10/03/18 21:55 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:55 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (3.0) | | 8082A | | 50 | 10/03/18 21:55 | C8J0077 | CJ80216 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-75-100218 4-6FT
Date Sampled: 10/02/18 13:07
Percent Solids: 87
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.9) | | 8082A | | 50 | 10/03/18 22:14 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (2.9) | | 8082A | | 50 | 10/03/18 22:14 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (2.9) | | 8082A | | 50 | 10/03/18 22:14 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (2.9) | | 8082A | | 50 | 10/03/18 22:14 | C8J0077 | CJ80216 |
| Aroclor 1248 | ND (2.9) | | 8082A | | 50 | 10/03/18 22:14 | C8J0077 | CJ80216 |
| **Aroclor 1254 [2C]** | **28.0** (2.9) | | 8082A | | 50 | 10/03/18 22:14 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (2.9) | | 8082A | | 50 | 10/03/18 22:14 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (2.9) | | 8082A | | 50 | 10/03/18 22:14 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (2.9) | | 8082A | | 50 | 10/03/18 22:14 | C8J0077 | CJ80216 |

| | %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-115-100218 3FT
Date Sampled: 10/02/18 13:30
Percent Solids: 90
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/03/18 14:37 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/03/18 14:37 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/03/18 14:37 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/03/18 14:37 | C8J0077 | CJ80216 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/03/18 14:37 | C8J0077 | CJ80216 |
| **Aroclor 1254 [2C]** | **7.0** (0.6) | | 8082A | | 10 | 10/03/18 22:33 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/03/18 14:37 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/03/18 14:37 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/03/18 14:37 | C8J0077 | CJ80216 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *137 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *119 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *87 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-120-100218 3FT
Date Sampled: 10/02/18 13:33
Percent Solids: 86
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/03/18 22:53 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/03/18 22:53 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/03/18 22:53 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/03/18 22:53 | C8J0077 | CJ80216 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/03/18 22:53 | C8J0077 | CJ80216 |
| **Aroclor 1254 [2C]** | **11.2** (1.1) | | 8082A | | 20 | 10/03/18 22:53 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/03/18 22:53 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/03/18 22:53 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/03/18 22:53 | C8J0077 | CJ80216 |

| | %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-125-100218 3FT
Date Sampled: 10/02/18 13:35
Percent Solids: 89
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 10/03/18 23:12 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 10/03/18 23:12 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 10/03/18 23:12 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 10/03/18 23:12 | C8J0077 | CJ80216 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 10/03/18 23:12 | C8J0077 | CJ80216 |
| **Aroclor 1254 [2C]** | **32.4** (2.8) | | 8082A | | 50 | 10/03/18 23:12 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 10/03/18 23:12 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 10/03/18 23:12 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 10/03/18 23:12 | C8J0077 | CJ80216 |

| | *%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-130-100218 3FT
Date Sampled: 10/02/18 13:36
Percent Solids: 88
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:34 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:34 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:34 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:34 | C8J0077 | CJ80216 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:34 | C8J0077 | CJ80216 |
| **Aroclor 1254 [2C]** | **6.3** (0.6) | | 8082A | | 10 | 10/03/18 23:31 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:34 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:34 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:34 | C8J0077 | CJ80216 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *162 %* | *S+* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *94 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *65 %* | | *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-135-100218 3FT
Date Sampled: 10/02/18 13:38
Percent Solids: 89
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:53 | C8J0077 | CJ80216 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:53 | C8J0077 | CJ80216 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:53 | C8J0077 | CJ80216 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:53 | C8J0077 | CJ80216 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:53 | C8J0077 | CJ80216 |
| **Aroclor 1254 [2C]** | **4.8** (0.6) | | 8082A | | 10 | 10/03/18 23:50 | C8J0077 | CJ80216 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:53 | C8J0077 | CJ80216 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:53 | C8J0077 | CJ80216 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/03/18 15:53 | C8J0077 | CJ80216 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *78 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *91 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-140-100218 3FT
Date Sampled: 10/02/18 13:40
Percent Solids: 80
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.2) | | 8082A | | 50 | 10/04/18 9:48 | C8J0110 | CJ80216 |
| Aroclor 1221 | ND (3.2) | | 8082A | | 50 | 10/04/18 9:48 | C8J0110 | CJ80216 |
| Aroclor 1232 | ND (3.2) | | 8082A | | 50 | 10/04/18 9:48 | C8J0110 | CJ80216 |
| Aroclor 1242 | ND (3.2) | | 8082A | | 50 | 10/04/18 9:48 | C8J0110 | CJ80216 |
| Aroclor 1248 | ND (3.2) | | 8082A | | 50 | 10/04/18 9:48 | C8J0110 | CJ80216 |
| **Aroclor 1254 [2C]** | **32.7** (3.2) | | 8082A | | 50 | 10/04/18 9:48 | C8J0110 | CJ80216 |
| Aroclor 1260 | ND (3.2) | | 8082A | | 50 | 10/04/18 9:48 | C8J0110 | CJ80216 |
| Aroclor 1262 | ND (3.2) | | 8082A | | 50 | 10/04/18 9:48 | C8J0110 | CJ80216 |
| Aroclor 1268 | ND (3.2) | | 8082A | | 50 | 10/04/18 9:48 | C8J0110 | CJ80216 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-715-100218 0-4FT
Date Sampled: 10/02/18 10:02
Percent Solids: 91
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 10/04/18 10:07 | C8J0110 | CJ80216 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 10/04/18 10:07 | C8J0110 | CJ80216 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 10/04/18 10:07 | C8J0110 | CJ80216 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 10/04/18 10:07 | C8J0110 | CJ80216 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 10/04/18 10:07 | C8J0110 | CJ80216 |
| **Aroclor 1254 [2C]** | **24.1** (2.8) | | 8082A | | 50 | 10/04/18 10:07 | C8J0110 | CJ80216 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 10/04/18 10:07 | C8J0110 | CJ80216 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 10/04/18 10:07 | C8J0110 | CJ80216 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 10/04/18 10:07 | C8J0110 | CJ80216 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-70-100218 0-4FT
Date Sampled: 10/02/18 10:08
Percent Solids: 91
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810069
ESS Laboratory Sample ID: 1810069-20
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/2/18 16:11

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/04/18 10:26 | C8J0110 | CJ80216 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/04/18 10:26 | C8J0110 | CJ80216 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/04/18 10:26 | C8J0110 | CJ80216 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/04/18 10:26 | C8J0110 | CJ80216 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/04/18 10:26 | C8J0110 | CJ80216 |
| **Aroclor 1254 [2C]** | **11.8** (1.1) | | 8082A | | 20 | 10/04/18 10:26 | C8J0110 | CJ80216 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/04/18 10:26 | C8J0110 | CJ80216 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/04/18 10:26 | C8J0110 | CJ80216 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/04/18 10:26 | C8J0110 | CJ80216 |

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810069

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CJ80216 - 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* | *0.0157* | | mg/kg wet | *0.02500* | | *63* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0186* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0176* | | mg/kg wet | *0.02500* | | *70* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0208* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 95 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 84 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0172* | | mg/kg wet | *0.02500* | | *69* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0203* | | mg/kg wet | *0.02500* | | *81* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0208* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0220* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 0.4 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 95 | 40-140 | 0.2 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 84 | 40-140 | 0.6 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 0.3 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0178* | | mg/kg wet | *0.02500* | | *71* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0211* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0209* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0222* | | 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: 1810069

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810069

**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: 1810069
Date Received: 10/2/2018
Project Due Date: 10/4/2018
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: 5.1 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 | 273299 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 273298 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 273297 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 273296 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 273295 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 273294 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 273293 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 273292 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 273291 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 273290 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 273289 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 273288 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 273287 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 273286 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 273285 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 273284 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 273283 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 273282 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 273281 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 20 | 273280 | 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: 1810069
Date Received: 10/2/2018

Are all necessary stickers attached? Yes / No

Completed By: Date & Time: 10/2/18 1542

Reviewed By: Date & Time: 10/2/18 1547

Delivered By: 10/2/18 1547

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

ESS Lab #: 1810 069
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 | 10-2-18 | 1100 | G | S | B-77-100218(6') ✓ | X |
| 2 | | 1104 | | | B-78-100218 (6') ✓ | X |
| 3 | | 1100 | | | B-79-100218(6') ✓ | X |
| 4 | | 1104 | | | B-80-100218(6') ✓ | X |
| 5 | | 1107 | C | | SW-64-100218 (4-6') ✓ | X |
| 6 | | 1107 | | | SW-65-100218(4-6') ✓ | X |
| 7 | | 1109 | | | SW-67-100218(4-6') ✓ | X |
| 8 | | 1109 | | | SW-69-100218(4-6') ✓ | X |
| 9 | | 1115 | | | SW-71-100218(4-6') ✓ | X |
| 10 | | 1115 | | | SW-73-100218(4-6') ✓ | X |

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial — 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: 5.1 °C

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 10/2/18 1503 | 10/2/18 1503 | 10/2/18 1516 | 10/2/18 1520 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |

2|2

**ESS Laboratory**
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185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

# CHAIN OF CUSTODY

ESS Lab # 1810069

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 # 31631055
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 | 10/2/18 | 1306 | C | S | SW-77 (4-6') 100218 ✓ | X |
| 12 | ↓ | ~~1305~~ 1307 AC | ↓ | ↓ | SW-75 (4-6') 100218 ✓ | X |
| 13 | ↓ | 1330 | G | S | B-115-100218 (3') ✓ | X |
| 14 | ↓ | 1333 | ↓ | ↓ | B-120-100218 (3') ✓ | X |
| 15 | ↓ | 1335 | ↓ | ↓ | B-125-100218 (3') ✓ | X |
| 16 | ↓ | 1336 | ↓ | ↓ | B-130-100218 (3') ✓ | X |
| 17 | ↓ | 1338 | ↓ | ↓ | B-135-100218 (3') ✓ | X |
| 18 | ↓ | 1340 | ↓ | ↓ | B-140-100218 (3') ✓ | X |
| 19 | 10/2/18 | 1002 | C | S | SW-715-100218 (0-4') ✓ | X |
| 20 | ↓ | 1008 | ↓ | ↓ | SW-70-100218 (0-4') ✓ | X |

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

**Laboratory Use Only**
Cooler Present: —
Seals Intact: —
Cooler Temperature: 5.1 °C

Sampled by: A. Ting

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 10/2/18 15:03 | 10/2/18 15:13 | 10/2/18 15:16 | 10/2/18 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: 1810120**

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, Oct 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: 1810120

## SAMPLE RECEIPT

The following samples were received on October 03, 2018 for the analyses specified on the enclosed Chain of Custody Record.

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1810120-01 | B-113-100218 3FT | Soil | 8082A |
| 1810120-02 | B-114-100218 3FT | Soil | 8082A |
| 1810120-03 | B-116-100218 3FT | Soil | 8082A |
| 1810120-04 | B-116-100218-1 3FT | Soil | 8082A |
| 1810120-05 | B-117-100218 3FT | Soil | 8082A |
| 1810120-06 | B-117-100218-1 3FT | Soil | 8082A |
| 1810120-07 | B-118-100218 3FT | Soil | 8082A |
| 1810120-08 | B-119-100218 3FT | Soil | 8082A |
| 1810120-09 | B-119-100218-1 3FT | Soil | 8082A |
| 1810120-10 | B-121-100218 3FT | Soil | 8082A |
| 1810120-11 | B-121-100218-1 3FT | Soil | 8082A |
| 1810120-12 | B-122-100218 3FT | Soil | 8082A |
| 1810120-13 | B-123-100218 3FT | Soil | 8082A |
| 1810120-14 | B-124-100218 3FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810120

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1810120-01 **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%)

1810120-02 **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%)

1810120-03 **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%)

1810120-04 **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%)

1810120-05 **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%)

1810120-06 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810120-07 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810120-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810120-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810120-10 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810120-11 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810120-12 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810120-13 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810120-14 **Surrogate recovery(ies) diluted below the MRL (SD).**

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston ESS Laboratory Work Order: 1810120

Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

C8J0138-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Decachlorobiphenyl [2C] (23% @ 20%)

CJ80305-MS1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (258% @ 40-140%), Aroclor 1016 [2C] (169% @ 40-140%), Aroclor 1260 (339% @ 40-140%), Aroclor 1260 [2C] (639% @ 40-140%)

CJ80305-MS1 **Surrogate recovery(ies) above upper control limit (S+).**
Decachlorobiphenyl (273% @ 30-150%), Decachlorobiphenyl [2C] (166% @ 30-150%)

CJ80305-MS2 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (213% @ 40-140%), Aroclor 1016 [2C] (175% @ 40-140%), Aroclor 1260 (232% @ 40-140%), Aroclor 1260 [2C] (221% @ 40-140%)

CJ80305-MS3 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (231% @ 40-140%), Aroclor 1016 [2C] (147% @ 40-140%), Aroclor 1260 (478% @ 40-140%), Aroclor 1260 [2C] (584% @ 40-140%)

CJ80305-MS4 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (211% @ 40-140%), Aroclor 1016 [2C] (162% @ 40-140%), Aroclor 1260 (257% @ 40-140%), Aroclor 1260 [2C] (325% @ 40-140%)

CJ80305-MSD1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (216% @ 40-140%), Aroclor 1016 [2C] (154% @ 40-140%), Aroclor 1260 (305% @ 40-140%), Aroclor 1260 [2C] (410% @ 40-140%)

CJ80305-MSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
Aroclor 1260 [2C] (39% @ 30%)

CJ80305-MSD2 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (233% @ 40-140%), Aroclor 1016 [2C] (192% @ 40-140%), Aroclor 1260 (249% @ 40-140%), Aroclor 1260 [2C] (272% @ 40-140%)

CJ80305-MSD3 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (235% @ 40-140%), Aroclor 1016 [2C] (153% @ 40-140%), Aroclor 1260 (441% @ 40-140%), Aroclor 1260 [2C] (554% @ 40-140%)

CJ80305-MSD3 **Surrogate recovery(ies) above upper control limit (S+).**
Decachlorobiphenyl (160% @ 30-150%)

CJ80305-MSD4 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (214% @ 40-140%), Aroclor 1016 [2C] (174% @ 40-140%), Aroclor 1260 (358% @ 40-140%), Aroclor 1260 [2C] (379% @ 40-140%)

**No other observations noted.**

**End of Project Narrative.**

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810120

## DATA USABILITY LINKS

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

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

## CURRENT SW-846 METHODOLOGY VERSIONS

### Analytical Methods

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

### Prep Methods

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-113-100218 3FT
Date Sampled: 10/02/18 13:20
Percent Solids: 89
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.9) | | 8082A | | 50 | 10/05/18 10:23 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (2.9) | | 8082A | | 50 | 10/05/18 10:23 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (2.9) | | 8082A | | 50 | 10/05/18 10:23 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (2.9) | | 8082A | | 50 | 10/05/18 10:23 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (2.9) | | 8082A | | 50 | 10/05/18 10:23 | C8J0138 | CJ80305 |
| **Aroclor 1254 [2C]** | **29.0** (2.9) | | 8082A | | 50 | 10/05/18 10:23 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (2.9) | | 8082A | | 50 | 10/05/18 10:23 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (2.9) | | 8082A | | 50 | 10/05/18 10:23 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (2.9) | | 8082A | | 50 | 10/05/18 10:23 | C8J0138 | CJ80305 |

| | %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-114-100218 3FT
Date Sampled: 10/02/18 13:21
Percent Solids: 89
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/05/18 10:43 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/05/18 10:43 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/05/18 10:43 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/05/18 10:43 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/05/18 10:43 | C8J0138 | CJ80305 |
| **Aroclor 1254** | **9.6** (1.1) | | 8082A | | 20 | 10/05/18 10:43 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/05/18 10:43 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/05/18 10:43 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/05/18 10:43 | C8J0138 | CJ80305 |

| | %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-116-100218 3FT
Date Sampled: 10/02/18 13:22
Percent Solids: 88
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.9) | | 8082A | | 50 | 10/05/18 11:02 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (2.9) | | 8082A | | 50 | 10/05/18 11:02 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (2.9) | | 8082A | | 50 | 10/05/18 11:02 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (2.9) | | 8082A | | 50 | 10/05/18 11:02 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (2.9) | | 8082A | | 50 | 10/05/18 11:02 | C8J0138 | CJ80305 |
| **Aroclor 1254** | **12.1** (2.9) | | 8082A | | 50 | 10/05/18 11:02 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (2.9) | | 8082A | | 50 | 10/05/18 11:02 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (2.9) | | 8082A | | 50 | 10/05/18 11:02 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (2.9) | | 8082A | | 50 | 10/05/18 11:02 | C8J0138 | CJ80305 |

| | *%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-116-100218-1 3FT
Date Sampled: 10/02/18 13:22
Percent Solids: 86
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:21 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:21 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:21 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:21 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:21 | C8J0138 | CJ80305 |
| **Aroclor 1254 [2C]** | **9.5** (1.2) | | 8082A | | 20 | 10/05/18 11:21 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:21 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:21 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:21 | C8J0138 | CJ80305 |

| | %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-117-100218 3FT
Date Sampled: 10/02/18 13:23
Percent Solids: 83
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:40 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:40 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:40 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:40 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:40 | C8J0138 | CJ80305 |
| **Aroclor 1254** | **12.3** (1.2) | | 8082A | | 20 | 10/05/18 11:40 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:40 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:40 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:40 | C8J0138 | CJ80305 |

| | %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-117-100218-1 3FT
Date Sampled: 10/02/18 13:23
Percent Solids: 83
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:59 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:59 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:59 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:59 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:59 | C8J0138 | CJ80305 |
| **Aroclor 1254** | **10.5** (1.2) | | 8082A | | 20 | 10/05/18 11:59 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:59 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:59 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/05/18 11:59 | C8J0138 | CJ80305 |

| | %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-118-100218 3FT
Date Sampled: 10/02/18 13:24
Percent Solids: 87
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:19 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:19 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:19 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:19 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:19 | C8J0138 | CJ80305 |
| **Aroclor 1254** | **11.5** (1.2) | | 8082A | | 20 | 10/05/18 12:19 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:19 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:19 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:19 | C8J0138 | CJ80305 |

| | %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-119-100218 3FT
Date Sampled: 10/02/18 13:25
Percent Solids: 88
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:38 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:38 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:38 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:38 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:38 | C8J0138 | CJ80305 |
| **Aroclor 1254** | **14.7** (1.2) | | 8082A | | 20 | 10/05/18 12:38 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:38 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:38 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/05/18 12:38 | C8J0138 | CJ80305 |

| | %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-119-100218-1 3FT
Date Sampled: 10/02/18 13:25
Percent Solids: 87
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/05/18 12:57 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/05/18 12:57 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/05/18 12:57 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/05/18 12:57 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/05/18 12:57 | C8J0138 | CJ80305 |
| **Aroclor 1254** | **16.0** (1.1) | | 8082A | | 20 | 10/05/18 12:57 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/05/18 12:57 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/05/18 12:57 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/05/18 12:57 | C8J0138 | CJ80305 |

| | %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-121-100218 3FT
Date Sampled: 10/02/18 13:26
Percent Solids: 90
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:17 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:17 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:17 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:17 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:17 | C8J0138 | CJ80305 |
| **Aroclor 1254 [2C]** | **9.5** (1.1) | | 8082A | | 20 | 10/05/18 13:17 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:17 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:17 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:17 | C8J0138 | CJ80305 |

| | %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-121-100218-1 3FT
Date Sampled: 10/02/18 13:26
Percent Solids: 90
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:36 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:36 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:36 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:36 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:36 | C8J0138 | CJ80305 |
| **Aroclor 1254** | **10.2** (1.1) | | 8082A | | 20 | 10/05/18 13:36 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:36 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:36 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:36 | C8J0138 | CJ80305 |

| | %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-122-100218 3FT
Date Sampled: 10/02/18 13:28
Percent Solids: 91
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:55 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:55 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:55 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:55 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:55 | C8J0138 | CJ80305 |
| **Aroclor 1254** | **11.2** (1.1) | | 8082A | | 20 | 10/05/18 13:55 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:55 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:55 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/05/18 13:55 | C8J0138 | CJ80305 |

| | %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-123-100218 3FT
Date Sampled: 10/02/18 13:29
Percent Solids: 89
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/05/18 14:14 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/05/18 14:14 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/05/18 14:14 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/05/18 14:14 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/05/18 14:14 | C8J0138 | CJ80305 |
| **Aroclor 1254** | **10.0** (1.1) | | 8082A | | 20 | 10/05/18 14:14 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/05/18 14:14 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/05/18 14:14 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/05/18 14:14 | C8J0138 | CJ80305 |

| | %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-124-100218 3FT
Date Sampled: 10/02/18 13:30
Percent Solids: 88
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810120
ESS Laboratory Sample ID: 1810120-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 15:35

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/05/18 14:33 | C8J0138 | CJ80305 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/05/18 14:33 | C8J0138 | CJ80305 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/05/18 14:33 | C8J0138 | CJ80305 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/05/18 14:33 | C8J0138 | CJ80305 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/05/18 14:33 | C8J0138 | CJ80305 |
| **Aroclor 1254** | **14.6** (1.2) | | 8082A | | 20 | 10/05/18 14:33 | C8J0138 | CJ80305 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/05/18 14:33 | C8J0138 | CJ80305 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/05/18 14:33 | C8J0138 | CJ80305 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/05/18 14:33 | C8J0138 | CJ80305 |

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810120

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CJ80305 - 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* | *0.0239* | | mg/kg wet | *0.02500* | | *96* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0174* | | mg/kg wet | *0.02500* | | *69* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0186* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0197* | | mg/kg wet | *0.02500* | | *79* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 78 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 77 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 78 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 74 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0226* | | mg/kg wet | *0.02500* | | *90* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0165* | | mg/kg wet | *0.02500* | | *66* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0175* | | mg/kg wet | *0.02500* | | *70* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0177* | | mg/kg wet | *0.02500* | | *71* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 85 | 40-140 | 8 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 83 | 40-140 | 8 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 84 | 40-140 | 8 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 80 | 40-140 | 8 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0246* | | mg/kg wet | *0.02500* | | *98* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0181* | | mg/kg wet | *0.02500* | | *72* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0195* | | mg/kg wet | *0.02500* | | *78* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0196* | | mg/kg wet | *0.02500* | | *78* | *30-150* | | | |
| **Matrix Spike** **Source: 1810120-03** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810120

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **8082A Polychlorinated Biphenyls (PCB)** | | | | | | | | | | |
| **Batch CJ80305 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 1.4 | 0.06 | mg/kg dry | 0.5549 | ND | 258 | 40-140 | | | MC |
| Aroclor 1016 [2C] | 0.9 | 0.06 | mg/kg dry | 0.5549 | ND | 169 | 40-140 | | | MC |
| Aroclor 1260 | 1.9 | 0.06 | mg/kg dry | 0.5549 | ND | 339 | 40-140 | | | MC |
| Aroclor 1260 [2C] | 3.5 | 0.06 | mg/kg dry | 0.5549 | ND | 639 | 40-140 | | | MC |
| *Surrogate: Decachlorobiphenyl* | *0.0758* | | mg/kg dry | *0.02775* | | *273* | *30-150* | | | *S+* |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0460* | | mg/kg dry | *0.02775* | | *166* | *30-150* | | | *S+* |
| *Surrogate: Tetrachloro-m-xylene* | *0.0291* | | mg/kg dry | *0.02775* | | *105* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0251* | | mg/kg dry | *0.02775* | | *91* | *30-150* | | | |
| **Matrix Spike** **Source: 1810120-05** | | | | | | | | | | |
| Aroclor 1016 | 1.3 | 0.06 | mg/kg dry | 0.6288 | ND | 213 | 40-140 | | | MC |
| Aroclor 1016 [2C] | 1.1 | 0.06 | mg/kg dry | 0.6288 | ND | 175 | 40-140 | | | MC |
| Aroclor 1260 | 1.5 | 0.06 | mg/kg dry | 0.6288 | ND | 232 | 40-140 | | | MC |
| Aroclor 1260 [2C] | 1.4 | 0.06 | mg/kg dry | 0.6288 | ND | 221 | 40-140 | | | MC |
| *Surrogate: Decachlorobiphenyl* | *0.0432* | | mg/kg dry | *0.03144* | | *137* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0304* | | mg/kg dry | *0.03144* | | *97* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0226* | | mg/kg dry | *0.03144* | | *72* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0210* | | mg/kg dry | *0.03144* | | *67* | *30-150* | | | |
| **Matrix Spike** **Source: 1810120-08** | | | | | | | | | | |
| Aroclor 1016 | 1.4 | 0.06 | mg/kg dry | 0.5855 | ND | 231 | 40-140 | | | MC |
| Aroclor 1016 [2C] | 0.9 | 0.06 | mg/kg dry | 0.5855 | ND | 147 | 40-140 | | | MC |
| Aroclor 1260 | 2.8 | 0.06 | mg/kg dry | 0.5855 | ND | 478 | 40-140 | | | MC |
| Aroclor 1260 [2C] | 3.4 | 0.06 | mg/kg dry | 0.5855 | ND | 584 | 40-140 | | | MC |
| *Surrogate: Decachlorobiphenyl* | *0.0382* | | mg/kg dry | *0.02928* | | *130* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0292* | | mg/kg dry | *0.02928* | | *100* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0266* | | mg/kg dry | *0.02928* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0264* | | mg/kg dry | *0.02928* | | *90* | *30-150* | | | |
| **Matrix Spike** **Source: 1810120-10** | | | | | | | | | | |
| Aroclor 1016 | 1.2 | 0.06 | mg/kg dry | 0.5690 | ND | 211 | 40-140 | | | MC |
| Aroclor 1016 [2C] | 0.9 | 0.06 | mg/kg dry | 0.5690 | ND | 162 | 40-140 | | | MC |
| Aroclor 1260 | 1.5 | 0.06 | mg/kg dry | 0.5690 | ND | 257 | 40-140 | | | MC |
| Aroclor 1260 [2C] | 1.9 | 0.06 | mg/kg dry | 0.5690 | ND | 325 | 40-140 | | | MC |
| *Surrogate: Decachlorobiphenyl* | *0.0328* | | mg/kg dry | *0.02845* | | *115* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0254* | | mg/kg dry | *0.02845* | | *89* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0259* | | mg/kg dry | *0.02845* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0254* | | mg/kg dry | *0.02845* | | *89* | *30-150* | | | |
| **Matrix Spike Dup** **Source: 1810120-03** | | | | | | | | | | |
| Aroclor 1016 | 1.3 | 0.06 | mg/kg dry | 0.5834 | ND | 216 | 40-140 | 13 | 30 | MC |
| Aroclor 1016 [2C] | 0.9 | 0.06 | mg/kg dry | 0.5834 | ND | 154 | 40-140 | 4 | 30 | MC |
| Aroclor 1260 | 1.8 | 0.06 | mg/kg dry | 0.5834 | ND | 305 | 40-140 | 5 | 30 | MC |
| Aroclor 1260 [2C] | 2.4 | 0.06 | mg/kg dry | 0.5834 | ND | 410 | 40-140 | 39 | 30 | D+, MC |
| *Surrogate: Decachlorobiphenyl* | *0.0416* | | mg/kg dry | *0.02917* | | *143* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810120

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CJ80305 - 3540C** | | | | | | | | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0221* | | mg/kg dry | *0.02917* | | *76* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0268* | | mg/kg dry | *0.02917* | | *92* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0248* | | mg/kg dry | *0.02917* | | *85* | *30-150* | | | |
| **Matrix Spike Dup Source: 1810120-05** | | | | | | | | | | |
| Aroclor 1016 | 1.4 | 0.06 | mg/kg dry | 0.6160 | ND | 233 | 40-140 | 7 | 30 | MC |
| Aroclor 1016 [2C] | 1.2 | 0.06 | mg/kg dry | 0.6160 | ND | 192 | 40-140 | 7 | 30 | MC |
| Aroclor 1260 | 1.5 | 0.06 | mg/kg dry | 0.6160 | ND | 249 | 40-140 | 5 | 30 | MC |
| Aroclor 1260 [2C] | 1.7 | 0.06 | mg/kg dry | 0.6160 | ND | 272 | 40-140 | 19 | 30 | MC |
| *Surrogate: Decachlorobiphenyl* | *0.0338* | | mg/kg dry | *0.03080* | | *110* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0280* | | mg/kg dry | *0.03080* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0259* | | mg/kg dry | *0.03080* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0224* | | mg/kg dry | *0.03080* | | *73* | *30-150* | | | |
| **Matrix Spike Dup Source: 1810120-08** | | | | | | | | | | |
| Aroclor 1016 | 1.4 | 0.06 | mg/kg dry | 0.5886 | ND | 235 | 40-140 | 2 | 30 | MC |
| Aroclor 1016 [2C] | 0.9 | 0.06 | mg/kg dry | 0.5886 | ND | 153 | 40-140 | 5 | 30 | MC |
| Aroclor 1260 | 2.6 | 0.06 | mg/kg dry | 0.5886 | ND | 441 | 40-140 | 7 | 30 | MC |
| Aroclor 1260 [2C] | 3.3 | 0.06 | mg/kg dry | 0.5886 | ND | 554 | 40-140 | 5 | 30 | MC |
| *Surrogate: Decachlorobiphenyl* | *0.0470* | | mg/kg dry | *0.02943* | | *160* | *30-150* | | | *S+* |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0299* | | mg/kg dry | *0.02943* | | *102* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0271* | | mg/kg dry | *0.02943* | | *92* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0264* | | mg/kg dry | *0.02943* | | *90* | *30-150* | | | |
| **Matrix Spike Dup Source: 1810120-10** | | | | | | | | | | |
| Aroclor 1016 | 1.2 | 0.06 | mg/kg dry | 0.5548 | ND | 214 | 40-140 | 1 | 30 | MC |
| Aroclor 1016 [2C] | 1.0 | 0.06 | mg/kg dry | 0.5548 | ND | 174 | 40-140 | 4 | 30 | MC |
| Aroclor 1260 | 2.0 | 0.06 | mg/kg dry | 0.5548 | ND | 358 | 40-140 | 30 | 30 | MC |
| Aroclor 1260 [2C] | 2.1 | 0.06 | mg/kg dry | 0.5548 | ND | 379 | 40-140 | 13 | 30 | MC |
| *Surrogate: Decachlorobiphenyl* | *0.0281* | | mg/kg dry | *0.02774* | | *101* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0225* | | mg/kg dry | *0.02774* | | *81* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0266* | | mg/kg dry | *0.02774* | | *96* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0252* | | mg/kg dry | *0.02774* | | *91* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810120

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810120

**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: 1810120
Date Received: 10/3/2018
Project Due Date: 10/5/2018
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: 1.5 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 | 273732 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 273731 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 273717 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 273718 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 273730 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 273729 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 273715 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 273716 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 273728 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 273727 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 273726 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 273713 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 273714 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 273725 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 273724 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 273711 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 273712 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 273723 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 273722 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 273721 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 273720 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 273719 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1810120
Date Received: 10/3/2018

**2nd Review**

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

Completed By: _____ Date & Time: 10/3/18 1656

Reviewed By: _____ Date & Time: 10/3/18 16:57

Delivered By: _____ 10/3/18 16:57

1/4

# 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 #: 1810120
Reporting Limits: see note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3163655
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 | 10/2/18 | 1320 | G | S | B-113-100218 (3') | X |
| 2 | | 1321 | | | B-114-100218 (3') | X |
| 3 | | 1322 | | | B-116-100218 (3') | X |
| 4 | | 1322 | | | B-116-100218-1 (3') | X |
| 3 | | 1322 | | | B-116-100218 (3') MS/MSD | X |
| 5 | | 1323 | | | B-117-100218 (3') | X |
| 6 | | 1323 | | | B-117-100218-1 (3') | X |
| 5 | | 1323 | | | B-117-100218 (3') MS/MSD | X |
| 7 | | 1324 | | | B-118-100218 (3') | X |

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

Laboratory Use Only
Cooler Present: ✓
Seals Intact:
Cooler Temperature: 1.5 °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) |
|---|---|---|---|
| 10/3/18 1545 | 10/3/18 15:50 | 10/3/18 16:16 | 10/3/18 1620 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |

Page 2/4

# ESS Laboratory

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

## CHAIN OF CUSTODY

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

ESS Lab #: 1810120
Reporting Limits: see note 1
Electonic Deliverables: ☑ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name: AET
Contact Person: Aaron Ting
City: Boston
State: MA
Telephone Number: 978-577-7138
FAX Number: —
Project #: 3163055
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
Zip Code: 02109
PO #: —
Email Address: ating@aeiconsultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 8 | 10/2/18 | 13:25 | | | B-119-100218 (3') | X |
| 9 | 10 2 18 | 13:25 | | | B-119-100218-1 (3') | X |
| 8 | | 13:25 | | | B-119-100218 (3') MS/MSD | X |
| 10 | | 13:26 | | | B-121-100218 (3') | X |
| 11 | | 13:26 | | | B-121-100218-1 (3') | X |
| 10 | | 13:26 | | | B-121-100218 (3') MS/MSD | X |
| 12 | | 13:28 | | | B-122-100218 (3') | X |
| 13 | | 13:29 | | | B-123-100218 (3') | X |
| 14 | ✓ | 13:30 | | | B-124-100218 (3') | X |
| | | | | | | |

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

Laboratory Use Only
Cooler Present: ✓
Seals Intact:
Cooler Temperature: 1.5 °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) |
|---|---|---|---|
| 10/3/18 1545 | 10/3/18 15:50 | 10/3/18 16:16 | 10/3/18 1620 |
| 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: 1810121**

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 4:49 pm, Oct 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: 1810121

## SAMPLE RECEIPT

The following samples were received on October 03, 2018 for the analyses specified on the enclosed Chain of Custody Record.

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1810121-01 | SW-648-100218-A 0-4FT | Soil | 8082A |
| 1810121-02 | B-459-100218-A 4FT | Soil | 8082A |
| 1810121-03 | B-460-100218-A 4FT | Soil | 8082A |
| 1810121-04 | B-559-100218-C 6POINT5FT | Soil | 8082A |
| 1810121-05 | SW-714-100218 0-4FT | Soil | 8082A |
| 1810121-06 | SW-66-100218 0-4FT | Soil | 8082A |
| 1810121-07 | SW-68-100218 0-4FT | Soil | 8082A |
| 1810121-08 | SW-72-100218 0-4FT | Soil | 8082A |
| 1810121-09 | SW-74-100218 0-4FT | Soil | 8082A |
| 1810121-10 | SW-76-100218 0-4FT | Soil | 8082A |
| 1810121-11 | SW-110-100318 0-3FT | Soil | 8082A |
| 1810121-12 | SW-115-100318 0-3FT | Soil | 8082A |
| 1810121-13 | SW-120-100318 0-3FT | Soil | 8082A |
| 1810121-14 | SW-125-100318 0-3FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810121

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1810121-02 **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%)

1810121-03 **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%)

1810121-04 **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%)

1810121-05 **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%)

1810121-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810121-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810121-10 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

**No other observations noted.**

**End of Project Narrative.**

## DATA USABILITY LINKS

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

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810121

## CURRENT SW-846 METHODOLOGY VERSIONS

**Analytical Methods**

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

**Prep Methods**

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-648-100218-A 0-4FT
Date Sampled: 10/02/18 08:15
Percent Solids: 93
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **6.2** (0.6) | | 8082A | | 10 | 10/04/18 15:19 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *105 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *100 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *75 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *81 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-459-100218-A 4FT
Date Sampled: 10/02/18 08:16
Percent Solids: 83
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **163** (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |

| | %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-460-100218-A 4FT
Date Sampled: 10/02/18 08:17
Percent Solids: 85
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **127** (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |

| | %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-559-100218-C 6POINT5FT
Date Sampled: 10/02/18 08:30
Percent Solids: 86
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **36.9** (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-714-100218 0-4FT
Date Sampled: 10/02/18 10:00
Percent Solids: 92
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **12.6** (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-66-100218 0-4FT
Date Sampled: 10/02/18 10:04
Percent Solids: 90
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **3.0** (0.3) | | 8082A | | 5 | 10/04/18 18:50 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *100 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *37 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *72 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *78 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-68-100218 0-4FT
Date Sampled: 10/02/18 10:06
Percent Solids: 87
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **6.6** (0.6) | | 8082A | | 10 | 10/04/18 19:09 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *89 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *59 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *76 %* | | *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: SW-72-100218 0-4FT
Date Sampled: 10/02/18 10:10
Percent Solids: 87
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **13.7** (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-74-100218 0-4FT
Date Sampled: 10/02/18 10:12
Percent Solids: 90
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **16.8** (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-76-100218 0-4FT
Date Sampled: 10/02/18 10:14
Percent Solids: 89
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **23.7** (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-110-100318 0-3FT
Date Sampled: 10/03/18 08:10
Percent Solids: 92
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **2.0** (0.3) | | 8082A | | 5 | 10/04/18 20:26 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *117 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *35 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *78 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-115-100318 0-3FT
Date Sampled: 10/03/18 08:20
Percent Solids: 88
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **2.4** (0.3) | | 8082A | | 5 | 10/04/18 20:45 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *90 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *60 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *75 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *81 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-120-100318 0-3FT
Date Sampled: 10/03/18 08:30
Percent Solids: 90
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **1.0** (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *99 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *74 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *86 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-125-100318 0-3FT
Date Sampled: 10/03/18 08:40
Percent Solids: 88
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **3.9** (0.3) | | 8082A | | 5 | 10/04/18 21:04 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *92 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *94 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *83 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810121

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CJ80306 - 3540C** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| Aroclor 1016 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1016 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0231* | | mg/kg wet | *0.02500* | | *93* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0218* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0163* | | mg/kg wet | *0.02500* | | *65* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0185* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 80 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 78 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 81 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0236* | | mg/kg wet | *0.02500* | | *94* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0217* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0181* | | mg/kg wet | *0.02500* | | *73* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0186* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | 10 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | 11 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 101 | 40-140 | 10 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | 10 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0258* | | mg/kg wet | *0.02500* | | *103* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0238* | | mg/kg wet | *0.02500* | | *95* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0201* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0208* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810121

**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: 1810121

**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: 1810121
Date Received: 10/3/2018
Project Due Date: 10/5/2018
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: 1.5 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 | 273754 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 273753 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 273752 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 273751 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 273750 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 273749 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 273748 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 273747 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 273746 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 273745 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 273744 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 273743 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 273742 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 273741 | 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: 10/3/18 1655
Reviewed By: Date & Time: 10/3/18 16:55

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1810121

Date Received: 10/3/2018

Delivered By: 10/3/18 16:56

1 3/4.

**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
Project #: 3163655 | Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
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

ESS Lab #: 810121
Reporting Limits: see note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 100218 | 08:15 | C | S | SW-648-100218-A (0-4') | X |
| 2 | ↓ | 08:16 | G | ↓ | B-459-100218-A (4') | X |
| 3 | | 08:17 | G | | B-460-100218-A (4') | X |
| 4 | | 08:30 | G | | B-559-100218-C (6.5') | X |
| 5 | | 10:00 | C | | SW-714-100218 (0-4') | X |
| 6 | | 10:04 | ↓ | | SW-66-100218 (0-4') | X |
| 7 | | 10:06 | | | SW-68-100218 (0-4') | X |
| 8 | | 10:10 | | | SW-72-100218 (0-4') | X |
| 9 | | 10:12 | | | SW-74-100218 (0-4') | X |
| 10 | | 10:14 | | | SW-76-100218 (0-4') | X |

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

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) |
|---|---|---|---|
| [signature] 10/3/18 1545 | 10/3/18 15:50 | 10/3/18 16:16 | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

1 4/4

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

# CHAIN OF CUSTODY

ESS Lab # 181012

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

Company Name: AEI
Contact Person: Aaron Ting
Project # 3163055
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
City: Boston
State: MA
Zip Code: 02109
PO #: —
Telephone Number: 978-573-3138
FAX Number: —
Email Address: ating@aeiconsultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (South Lot) |
|---|---|---|---|---|---|---|
| 11 | 10/03/18 | 08:10 | C | S | SW-110-100318 (0-3') | X |
| 12 | ↓ | 08:20 | ↓ | ↓ | SW-115-100318 (0-3') | X |
| 13 | | 08:30 | | | SW-120-100318 (0-3') | X |
| 14 | ↓ | 08:40 | ↓ | ↓ | SW-125-100318 (0-3') | X |

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial — 16
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: 15 °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) |
|---|---|---|---|
| 10/3/18 1545 | 10/3/18 15:50 | 10/3/18 16:16 | 10/3/18 1627 |
| 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: 1810121**

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 2:16 pm, Oct 11, 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: 1810121

## SAMPLE RECEIPT

The following samples were received on October 03, 2018 for the analyses specified on the enclosed Chain of Custody Record.

**Revision 1 October 11, 2018: This report has been revised to include Sample ID change from "B-559-100218-C 6POINT5FT" to "B-559-100218-C 6.5FT".**

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1810121-01 | SW-648-100218-A 0-4FT | Soil | 8082A |
| 1810121-02 | B-459-100218-A 4FT | Soil | 8082A |
| 1810121-03 | B-460-100218-A 4FT | Soil | 8082A |
| 1810121-04 | B-559-100218-C 6.5FT | Soil | 8082A |
| 1810121-05 | SW-714-100218 0-4FT | Soil | 8082A |
| 1810121-06 | SW-66-100218 0-4FT | Soil | 8082A |
| 1810121-07 | SW-68-100218 0-4FT | Soil | 8082A |
| 1810121-08 | SW-72-100218 0-4FT | Soil | 8082A |
| 1810121-09 | SW-74-100218 0-4FT | Soil | 8082A |
| 1810121-10 | SW-76-100218 0-4FT | Soil | 8082A |
| 1810121-11 | SW-110-100318 0-3FT | Soil | 8082A |
| 1810121-12 | SW-115-100318 0-3FT | Soil | 8082A |
| 1810121-13 | SW-120-100318 0-3FT | Soil | 8082A |
| 1810121-14 | SW-125-100318 0-3FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810121

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1810121-02 **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%)

1810121-03 **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%)

1810121-04 **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%)

1810121-05 **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%)

1810121-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810121-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810121-10 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

**No other observations noted.**

**End of Project Narrative.**

## DATA USABILITY LINKS

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

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810121

## CURRENT SW-846 METHODOLOGY VERSIONS

**Analytical Methods**

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

**Prep Methods**

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-648-100218-A 0-4FT
Date Sampled: 10/02/18 08:15
Percent Solids: 93
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **6.2** (0.6) | | 8082A | | 10 | 10/04/18 15:19 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/04/18 10:53 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *105 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *100 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *75 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *81 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-459-100218-A 4FT
Date Sampled: 10/02/18 08:16
Percent Solids: 83
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **163** (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (12.1) | | 8082A | | 200 | 10/04/18 15:38 | C8J0112 | CJ80306 |

| | %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-460-100218-A 4FT
Date Sampled: 10/02/18 08:17
Percent Solids: 85
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **127** (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (12.0) | | 8082A | | 200 | 10/04/18 15:58 | C8J0112 | CJ80306 |

| | %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-559-100218-C 6.5FT
Date Sampled: 10/02/18 08:30
Percent Solids: 86
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **36.9** (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (3.0) | | 8082A | | 50 | 10/04/18 18:12 | C8J0112 | CJ80306 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-714-100218 0-4FT
Date Sampled: 10/02/18 10:00
Percent Solids: 92
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **12.6** (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/04/18 18:31 | C8J0112 | CJ80306 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-66-100218 0-4FT
Date Sampled: 10/02/18 10:04
Percent Solids: 90
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **3.0** (0.3) | | 8082A | | 5 | 10/04/18 18:50 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:27 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *100 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *37 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *72 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *78 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-68-100218 0-4FT
Date Sampled: 10/02/18 10:06
Percent Solids: 87
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **6.6** (0.6) | | 8082A | | 10 | 10/04/18 19:09 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/04/18 12:46 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *89 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *59 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *76 %* | | *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: SW-72-100218 0-4FT
Date Sampled: 10/02/18 10:10
Percent Solids: 87
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **13.7** (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/04/18 19:28 | C8J0112 | CJ80306 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-74-100218 0-4FT
Date Sampled: 10/02/18 10:12
Percent Solids: 90
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **16.8** (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/04/18 19:47 | C8J0112 | CJ80306 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-76-100218 0-4FT
Date Sampled: 10/02/18 10:14
Percent Solids: 89
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **23.7** (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 10/04/18 20:06 | C8J0112 | CJ80306 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-110-100318 0-3FT
Date Sampled: 10/03/18 08:10
Percent Solids: 92
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **2.0** (0.3) | | 8082A | | 5 | 10/04/18 20:26 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/04/18 14:03 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *117 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *35 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *78 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-115-100318 0-3FT
Date Sampled: 10/03/18 08:20
Percent Solids: 88
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **2.4** (0.3) | | 8082A | | 5 | 10/04/18 20:45 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:22 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *90 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *60 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *75 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *81 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-120-100318 0-3FT
Date Sampled: 10/03/18 08:30
Percent Solids: 90
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **1.0** (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/04/18 14:41 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *99 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *74 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *86 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-125-100318 0-3FT
Date Sampled: 10/03/18 08:40
Percent Solids: 88
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810121
ESS Laboratory Sample ID: 1810121-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/3/18 17:39

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| **Aroclor 1254** | **3.9** (0.3) | | 8082A | | 5 | 10/04/18 21:04 | C8J0112 | CJ80306 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/04/18 15:00 | C8J0112 | CJ80306 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *92 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *79 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *94 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *83 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810121

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CJ80306 - 3540C** | | | | | | | | | | |
| **Blank** | | | | | | | | | | |
| Aroclor 1016 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1016 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1221 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1232 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1242 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1248 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1254 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1260 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1262 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 | ND | 0.05 | mg/kg wet | | | | | | | |
| Aroclor 1268 [2C] | ND | 0.05 | mg/kg wet | | | | | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0231* | | mg/kg wet | *0.02500* | | *93* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0218* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0163* | | mg/kg wet | *0.02500* | | *65* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0185* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 80 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 78 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 81 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0236* | | mg/kg wet | *0.02500* | | *94* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0217* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0181* | | mg/kg wet | *0.02500* | | *73* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0186* | | mg/kg wet | *0.02500* | | *74* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | 10 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | 11 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 101 | 40-140 | 10 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | 10 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0258* | | mg/kg wet | *0.02500* | | *103* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0238* | | mg/kg wet | *0.02500* | | *95* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0201* | | mg/kg wet | *0.02500* | | *80* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0208* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810121

**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: 1810121

**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: 1810121
Date Received: 10/3/2018
Project Due Date: 10/5/2018
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: 1.5 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 | 273754 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 273753 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 273752 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 273751 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 273750 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 273749 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 273748 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 273747 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 273746 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 273745 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 273744 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 273743 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 273742 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 273741 | 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: 10/3/18 1655
Reviewed By: Date & Time: 10/3/18 16:55

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1810121

Date Received: 10/3/2018

Delivered By: 10/3/18 16:56

1 3/4.

**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
Project #: 3163655 | Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
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

ESS Lab #: 810121
Reporting Limits: see note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 100218 | 08:15 | C | S | SW-648-100218-A (0-4') | X |
| 2 | ↓ | 08:16 | G | ↓ | B-459-100218-A (4') | X |
| 3 | | 08:17 | G | | B-460-100218-A (4') | X |
| 4 | | 08:30 | G | | B-559-100218-C (6.5') | X |
| 5 | | 10:00 | C | | SW-714-100218 (0-4') | X |
| 6 | | 10:04 | ↓ | | SW-66-100218 (0-4') | X |
| 7 | | 10:06 | | | SW-68-100218 (0-4') | X |
| 8 | | 10:10 | | | SW-72-100218 (0-4') | X |
| 9 | | 10:12 | | | SW-74-100218 (0-4') | X |
| 10 | | 10:14 | | | SW-76-100218 (0-4') | X |

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

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) |
|---|---|---|---|
| [signature] 10/3/18 1545 | 10/3/18 15:50 | 10/3/18 16:16 | |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

1 4/4

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

# CHAIN OF CUSTODY

ESS Lab # 181012

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

Company Name: AEI
Contact Person: Aaron Ting
Project # 3163055
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
City: Boston
State: MA
Zip Code: 02109
PO #: —
Telephone Number: 978-573-3138
FAX Number: —
Email Address: ating@aeiconsultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCBs (South Lot) |
|---|---|---|---|---|---|---|
| 11 | 10/03/18 | 08:10 | C | S | SW-110-100318 (0-3') | X |
| 12 | ↓ | 08:20 | ↓ | ↓ | SW-115-100318 (0-3') | X |
| 13 | | 08:30 | | | SW-120-100318 (0-3') | X |
| 14 | ↓ | 08:40 | ↓ | ↓ | SW-125-100318 (0-3') | X |

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial — 16
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: 15 °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) |
|---|---|---|---|
| 10/3/18 1545 | 10/3/18 15:50 | 10/3/18 16:16 | 10/3/18 1627 |
| 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: 1810152**

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 2:48 pm, Oct 09, 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: 1810152

## SAMPLE RECEIPT

The following samples were received on October 04, 2018 for the analyses specified on the enclosed Chain of Custody Record.

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1810152-01 | B-126-100218 3ft | Soil | 8082A |
| 1810152-02 | B-127-100218 3ft | Soil | 8082A |
| 1810152-03 | B-128-100218 3ft | Soil | 8082A |
| 1810152-04 | B-129-100218 3ft | Soil | 8082A |
| 1810152-05 | B-131-100218 3ft | Soil | 8082A |
| 1810152-06 | B-132-100218 3ft | Soil | 8082A |
| 1810152-07 | B-133-100218 3ft | Soil | 8082A |
| 1810152-08 | B-134-100218 3ft | Soil | 8082A |
| 1810152-09 | B-136-100218 3ft | Soil | 8082A |
| 1810152-10 | B-136-100218-1 3ft | Soil | 8082A |
| 1810152-11 | B-137-100218 3ft | Soil | 8082A |
| 1810152-12 | B-138-100218 3ft | Soil | 8082A |
| 1810152-13 | B-139-100218 3ft | Soil | 8082A |
| 1810152-14 | B-141-100218 3ft | Soil | 8082A |
| 1810152-15 | B-141-100218-1 3ft | Soil | 8082A |
| 1810152-16 | B-142-100218 3ft | Soil | 8082A |
| 1810152-17 | B-143-100218 3ft | Soil | 8082A |
| 1810152-18 | B-144-100218 3ft | Soil | 8082A |
| 1810152-19 | SW-110-100318 0-3ft | Soil | 8082A |
| 1810152-20 | SW-111-100318 0-3ft | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810152

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1810152-02 **Surrogate recovery(ies) above upper control limit (S+).**
Decachlorobiphenyl (204% @ 30-150%)

1810152-03 **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%)

1810152-05 **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%)

1810152-06 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810152-07 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810152-08 **Surrogate recovery(ies) above upper control limit (S+).**
Decachlorobiphenyl [2C] (498% @ 30-150%)

1810152-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810152-10 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810152-11 **Surrogate recovery(ies) above upper control limit (S+).**
Decachlorobiphenyl [2C] (167% @ 30-150%)

1810152-13 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810152-14 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810152-15 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810152-16 **Surrogate recovery(ies) above upper control limit (S+).**
Decachlorobiphenyl [2C] (336% @ 30-150%)

1810152-20 **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%)

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810152

**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: 1810152

## 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-126-100218 3ft
Date Sampled: 10/02/18 13:31
Percent Solids: 89
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:32 | C8J0137 | CJ80406 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:32 | C8J0137 | CJ80406 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:32 | C8J0137 | CJ80406 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:32 | C8J0137 | CJ80406 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:32 | C8J0137 | CJ80406 |
| **Aroclor 1254 [2C]** | **8.0** (0.6) | | 8082A | | 10 | 10/06/18 15:37 | C8J0137 | CJ80406 |
| **Aroclor 1260 [2C]** | **4.2** (0.6) | | 8082A | | 10 | 10/06/18 15:37 | C8J0137 | CJ80406 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:32 | C8J0137 | CJ80406 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:32 | C8J0137 | CJ80406 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *91 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *111 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *99 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *116 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-127-100218 3ft
Date Sampled: 10/02/18 13:32
Percent Solids: 91
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:51 | C8J0137 | CJ80406 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:51 | C8J0137 | CJ80406 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:51 | C8J0137 | CJ80406 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:51 | C8J0137 | CJ80406 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:51 | C8J0137 | CJ80406 |
| **Aroclor 1254 [2C]** | **6.4** (0.6) | | 8082A | | 10 | 10/06/18 15:56 | C8J0137 | CJ80406 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:51 | C8J0137 | CJ80406 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:51 | C8J0137 | CJ80406 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:51 | C8J0137 | CJ80406 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *204 %* | *S+* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *128 %* | | *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-128-100218 3ft
Date Sampled: 10/02/18 13:33
Percent Solids: 87
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:15 | C8J0166 | CJ80406 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:15 | C8J0166 | CJ80406 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:15 | C8J0166 | CJ80406 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:15 | C8J0166 | CJ80406 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:15 | C8J0166 | CJ80406 |
| **Aroclor 1254 [2C]** | **9.4** (1.2) | | 8082A | | 20 | 10/06/18 16:15 | C8J0166 | CJ80406 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:15 | C8J0166 | CJ80406 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:15 | C8J0166 | CJ80406 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:15 | C8J0166 | CJ80406 |

| | %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-129-100218 3ft
Date Sampled: 10/02/18 13:33
Percent Solids: 95
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:41 | C8J0137 | CJ80406 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:41 | C8J0137 | CJ80406 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:41 | C8J0137 | CJ80406 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:41 | C8J0137 | CJ80406 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:41 | C8J0137 | CJ80406 |
| **Aroclor 1254 [2C]** | **1.5** (0.3) | | 8082A | | 5 | 10/06/18 16:34 | C8J0137 | CJ80406 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:41 | C8J0137 | CJ80406 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:41 | C8J0137 | CJ80406 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:41 | C8J0137 | CJ80406 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *90 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *83 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *102 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *113 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-131-100218 3ft
Date Sampled: 10/02/18 13:35
Percent Solids: 88
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:53 | C8J0166 | CJ80406 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:53 | C8J0166 | CJ80406 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:53 | C8J0166 | CJ80406 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:53 | C8J0166 | CJ80406 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:53 | C8J0166 | CJ80406 |
| **Aroclor 1254 [2C]** | **10.2** (1.2) | | 8082A | | 20 | 10/06/18 16:53 | C8J0166 | CJ80406 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:53 | C8J0166 | CJ80406 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:53 | C8J0166 | CJ80406 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/06/18 16:53 | C8J0166 | CJ80406 |

| | %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-132-100218 3ft
Date Sampled: 10/02/18 13:34
Percent Solids: 85
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.0) | | 8082A | | 50 | 10/06/18 17:12 | C8J0166 | CJ80406 |
| Aroclor 1221 | ND (3.0) | | 8082A | | 50 | 10/06/18 17:12 | C8J0166 | CJ80406 |
| Aroclor 1232 | ND (3.0) | | 8082A | | 50 | 10/06/18 17:12 | C8J0166 | CJ80406 |
| Aroclor 1242 | ND (3.0) | | 8082A | | 50 | 10/06/18 17:12 | C8J0166 | CJ80406 |
| Aroclor 1248 | ND (3.0) | | 8082A | | 50 | 10/06/18 17:12 | C8J0166 | CJ80406 |
| **Aroclor 1254 [2C]** | **21.8** (3.0) | | 8082A | | 50 | 10/06/18 17:12 | C8J0166 | CJ80406 |
| Aroclor 1260 | ND (3.0) | | 8082A | | 50 | 10/06/18 17:12 | C8J0166 | CJ80406 |
| Aroclor 1262 | ND (3.0) | | 8082A | | 50 | 10/06/18 17:12 | C8J0166 | CJ80406 |
| Aroclor 1268 | ND (3.0) | | 8082A | | 50 | 10/06/18 17:12 | C8J0166 | CJ80406 |

| | %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-133-100218 3ft
Date Sampled: 10/02/18 13:35
Percent Solids: 85
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (6.0) | | 8082A | | 100 | 10/06/18 17:31 | C8J0166 | CJ80406 |
| Aroclor 1221 | ND (6.0) | | 8082A | | 100 | 10/06/18 17:31 | C8J0166 | CJ80406 |
| Aroclor 1232 | ND (6.0) | | 8082A | | 100 | 10/06/18 17:31 | C8J0166 | CJ80406 |
| Aroclor 1242 | ND (6.0) | | 8082A | | 100 | 10/06/18 17:31 | C8J0166 | CJ80406 |
| Aroclor 1248 | ND (6.0) | | 8082A | | 100 | 10/06/18 17:31 | C8J0166 | CJ80406 |
| **Aroclor 1254 [2C]** | **50.4** (6.0) | | 8082A | | 100 | 10/06/18 17:31 | C8J0166 | CJ80406 |
| Aroclor 1260 | ND (6.0) | | 8082A | | 100 | 10/06/18 17:31 | C8J0166 | CJ80406 |
| Aroclor 1262 | ND (6.0) | | 8082A | | 100 | 10/06/18 17:31 | C8J0166 | CJ80406 |
| Aroclor 1268 | ND (6.0) | | 8082A | | 100 | 10/06/18 17:31 | C8J0166 | CJ80406 |

| | *%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-134-100218 3ft
Date Sampled: 10/02/18 13:36
Percent Solids: 89
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 12:58 | C8J0137 | CJ80406 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 12:58 | C8J0137 | CJ80406 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 12:58 | C8J0137 | CJ80406 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 12:58 | C8J0137 | CJ80406 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 12:58 | C8J0137 | CJ80406 |
| **Aroclor 1254 [2C]** | **6.9** (0.6) | | 8082A | | 10 | 10/06/18 19:45 | C8J0137 | CJ80406 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 12:58 | C8J0137 | CJ80406 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 12:58 | C8J0137 | CJ80406 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 12:58 | C8J0137 | CJ80406 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *131 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *498 %* | *S+* | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *107 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *114 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-136-100218 3ft
Date Sampled: 10/02/18 13:37
Percent Solids: 88
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:04 | C8J0166 | CJ80406 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:04 | C8J0166 | CJ80406 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:04 | C8J0166 | CJ80406 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:04 | C8J0166 | CJ80406 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:04 | C8J0166 | CJ80406 |
| **Aroclor 1254 [2C]** | **10.0** (1.2) | | 8082A | | 20 | 10/06/18 20:04 | C8J0166 | CJ80406 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:04 | C8J0166 | CJ80406 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:04 | C8J0166 | CJ80406 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:04 | C8J0166 | CJ80406 |

| | %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-136-100218-1 3ft
Date Sampled: 10/02/18 13:37
Percent Solids: 89
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:23 | C8J0166 | CJ80406 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:23 | C8J0166 | CJ80406 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:23 | C8J0166 | CJ80406 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:23 | C8J0166 | CJ80406 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:23 | C8J0166 | CJ80406 |
| **Aroclor 1254 [2C]** | **10.0** (1.2) | | 8082A | | 20 | 10/06/18 20:23 | C8J0166 | CJ80406 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:23 | C8J0166 | CJ80406 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:23 | C8J0166 | CJ80406 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/06/18 20:23 | C8J0166 | CJ80406 |

| | %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-137-100218 3ft
Date Sampled: 10/02/18 13:38
Percent Solids: 92
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/05/18 13:56 | C8J0137 | CJ80406 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/05/18 13:56 | C8J0137 | CJ80406 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/05/18 13:56 | C8J0137 | CJ80406 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/05/18 13:56 | C8J0137 | CJ80406 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/05/18 13:56 | C8J0137 | CJ80406 |
| **Aroclor 1254 [2C]** | **1.7** (0.3) | | 8082A | | 5 | 10/06/18 20:42 | C8J0137 | CJ80406 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/05/18 13:56 | C8J0137 | CJ80406 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/05/18 13:56 | C8J0137 | CJ80406 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/05/18 13:56 | C8J0137 | CJ80406 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *43 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *167 %* | *S+* | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *94 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *112 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-138-100218 3ft
Date Sampled: 10/02/18 13:39
Percent Solids: 89
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:15 | C8J0137 | CJ80406 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:15 | C8J0137 | CJ80406 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:15 | C8J0137 | CJ80406 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:15 | C8J0137 | CJ80406 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:15 | C8J0137 | CJ80406 |
| **Aroclor 1254 [2C]** | **2.0** (0.3) | | 8082A | | 5 | 10/06/18 21:01 | C8J0137 | CJ80406 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:15 | C8J0137 | CJ80406 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:15 | C8J0137 | CJ80406 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:15 | C8J0137 | CJ80406 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *133 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *112 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *104 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *119 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-139-100218 3ft
Date Sampled: 10/02/18 13:40
Percent Solids: 84
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/06/18 21:20 | C8J0166 | CJ80406 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/06/18 21:20 | C8J0166 | CJ80406 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/06/18 21:20 | C8J0166 | CJ80406 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/06/18 21:20 | C8J0166 | CJ80406 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/06/18 21:20 | C8J0166 | CJ80406 |
| **Aroclor 1254 [2C]** | **12.9** (1.2) | | 8082A | | 20 | 10/06/18 21:20 | C8J0166 | CJ80406 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/06/18 21:20 | C8J0166 | CJ80406 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/06/18 21:20 | C8J0166 | CJ80406 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/06/18 21:20 | C8J0166 | CJ80406 |

| | %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-141-100218 3ft
Date Sampled: 10/02/18 13:41
Percent Solids: 85
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.0) | | 8082A | | 50 | 10/06/18 21:39 | C8J0166 | CJ80406 |
| Aroclor 1221 | ND (3.0) | | 8082A | | 50 | 10/06/18 21:39 | C8J0166 | CJ80406 |
| Aroclor 1232 | ND (3.0) | | 8082A | | 50 | 10/06/18 21:39 | C8J0166 | CJ80406 |
| Aroclor 1242 | ND (3.0) | | 8082A | | 50 | 10/06/18 21:39 | C8J0166 | CJ80406 |
| Aroclor 1248 | ND (3.0) | | 8082A | | 50 | 10/06/18 21:39 | C8J0166 | CJ80406 |
| **Aroclor 1254 [2C]** | **21.9** (3.0) | | 8082A | | 50 | 10/06/18 21:39 | C8J0166 | CJ80406 |
| Aroclor 1260 | ND (3.0) | | 8082A | | 50 | 10/06/18 21:39 | C8J0166 | CJ80406 |
| Aroclor 1262 | ND (3.0) | | 8082A | | 50 | 10/06/18 21:39 | C8J0166 | CJ80406 |
| Aroclor 1268 | ND (3.0) | | 8082A | | 50 | 10/06/18 21:39 | C8J0166 | CJ80406 |

| | %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-141-100218-1 3ft
Date Sampled: 10/02/18 13:41
Percent Solids: 86
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.9) | | 8082A | | 50 | 10/06/18 21:58 | C8J0166 | CJ80406 |
| Aroclor 1221 | ND (2.9) | | 8082A | | 50 | 10/06/18 21:58 | C8J0166 | CJ80406 |
| Aroclor 1232 | ND (2.9) | | 8082A | | 50 | 10/06/18 21:58 | C8J0166 | CJ80406 |
| Aroclor 1242 | ND (2.9) | | 8082A | | 50 | 10/06/18 21:58 | C8J0166 | CJ80406 |
| Aroclor 1248 | ND (2.9) | | 8082A | | 50 | 10/06/18 21:58 | C8J0166 | CJ80406 |
| **Aroclor 1254 [2C]** | **24.3** (2.9) | | 8082A | | 50 | 10/06/18 21:58 | C8J0166 | CJ80406 |
| Aroclor 1260 | ND (2.9) | | 8082A | | 50 | 10/06/18 21:58 | C8J0166 | CJ80406 |
| Aroclor 1262 | ND (2.9) | | 8082A | | 50 | 10/06/18 21:58 | C8J0166 | CJ80406 |
| Aroclor 1268 | ND (2.9) | | 8082A | | 50 | 10/06/18 21:58 | C8J0166 | CJ80406 |

| | %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-142-100218 3ft
Date Sampled: 10/02/18 13:42
Percent Solids: 91
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:31 | C8J0137 | CJ80406 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:31 | C8J0137 | CJ80406 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:31 | C8J0137 | CJ80406 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:31 | C8J0137 | CJ80406 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:31 | C8J0137 | CJ80406 |
| **Aroclor 1254 [2C]** | **2.6** (0.3) | | 8082A | | 5 | 10/06/18 22:17 | C8J0137 | CJ80406 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:31 | C8J0137 | CJ80406 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:31 | C8J0137 | CJ80406 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:31 | C8J0137 | CJ80406 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *84 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *336 %* | *S+* | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *117 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-143-100218 3ft
Date Sampled: 10/02/18 13:43
Percent Solids: 90
Initial Volume: 20.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:19 | C8J0137 | CJ80406 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:19 | C8J0137 | CJ80406 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:19 | C8J0137 | CJ80406 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:19 | C8J0137 | CJ80406 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:19 | C8J0137 | CJ80406 |
| **Aroclor 1254 [2C]** | **4.2** (0.5) | | 8082A | | 10 | 10/06/18 22:37 | C8J0137 | CJ80406 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:19 | C8J0137 | CJ80406 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:19 | C8J0137 | CJ80406 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:19 | C8J0137 | CJ80406 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *91 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *111 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *101 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *121 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-144-100218 3ft
Date Sampled: 10/02/18 13:44
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:38 | C8J0137 | CJ80406 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:38 | C8J0137 | CJ80406 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:38 | C8J0137 | CJ80406 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:38 | C8J0137 | CJ80406 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:38 | C8J0137 | CJ80406 |
| **Aroclor 1254 [2C]** | **2.7** (0.3) | | 8082A | | 5 | 10/06/18 22:56 | C8J0137 | CJ80406 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:38 | C8J0137 | CJ80406 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:38 | C8J0137 | CJ80406 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:38 | C8J0137 | CJ80406 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *142 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *139 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *98 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *117 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-110-100318 0-3ft
Date Sampled: 10/03/18 08:12
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:57 | C8J0137 | CJ80406 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:57 | C8J0137 | CJ80406 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:57 | C8J0137 | CJ80406 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:57 | C8J0137 | CJ80406 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:57 | C8J0137 | CJ80406 |
| **Aroclor 1254 [2C]** | **6.6** (0.6) | | 8082A | | 10 | 10/06/18 23:15 | C8J0137 | CJ80406 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:57 | C8J0137 | CJ80406 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:57 | C8J0137 | CJ80406 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:57 | C8J0137 | CJ80406 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *125 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *129 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *107 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *121 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-111-100318 0-3ft
Date Sampled: 10/03/18 08:14
Percent Solids: 83
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810152
ESS Laboratory Sample ID: 1810152-20
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 16:38

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (3.0) | | 8082A | | 50 | 10/06/18 23:34 | C8J0166 | CJ80406 |
| Aroclor 1221 | ND (3.0) | | 8082A | | 50 | 10/06/18 23:34 | C8J0166 | CJ80406 |
| Aroclor 1232 | ND (3.0) | | 8082A | | 50 | 10/06/18 23:34 | C8J0166 | CJ80406 |
| Aroclor 1242 | ND (3.0) | | 8082A | | 50 | 10/06/18 23:34 | C8J0166 | CJ80406 |
| Aroclor 1248 | ND (3.0) | | 8082A | | 50 | 10/06/18 23:34 | C8J0166 | CJ80406 |
| **Aroclor 1254 [2C]** | **25.4** (3.0) | | 8082A | | 50 | 10/06/18 23:34 | C8J0166 | CJ80406 |
| Aroclor 1260 | ND (3.0) | | 8082A | | 50 | 10/06/18 23:34 | C8J0166 | CJ80406 |
| Aroclor 1262 | ND (3.0) | | 8082A | | 50 | 10/06/18 23:34 | C8J0166 | CJ80406 |
| Aroclor 1268 | ND (3.0) | | 8082A | | 50 | 10/06/18 23:34 | C8J0166 | CJ80406 |

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810152

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CJ80406 - 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* | *0.0224* | | mg/kg wet | *0.02500* | | *90* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0263* | | mg/kg wet | *0.02500* | | *105* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0234* | | mg/kg wet | *0.02500* | | *93* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0284* | | mg/kg wet | *0.02500* | | *114* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 81 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 87 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0213* | | mg/kg wet | *0.02500* | | *85* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0252* | | mg/kg wet | *0.02500* | | *101* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0229* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0248* | | mg/kg wet | *0.02500* | | *99* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 4 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 96 | 40-140 | 4 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 84 | 40-140 | 3 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | 5 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0218* | | mg/kg wet | *0.02500* | | *87* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0257* | | mg/kg wet | *0.02500* | | *103* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0239* | | mg/kg wet | *0.02500* | | *96* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0258* | | mg/kg wet | *0.02500* | | *103* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810152

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810152

**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: 1810152
Date Received: 10/4/2018
Project Due Date: 10/9/2018
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: 3.3 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 274127 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 274126 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 274125 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 274124 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 274123 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 274122 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 274121 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 274120 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 274119 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 274118 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 274117 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 274116 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 274115 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 274114 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 274113 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 274112 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 274111 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 274110 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 274109 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 20 | 274108 | 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: 1810152
Date Received: 10/4/2018

Are all necessary stickers attached? Yes / No

Completed By: Date & Time: 10/4/18 16:16

Reviewed By: Date & Time: 10/4/18 1618

Delivered By: 10/4/18 1616

1/5

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

# CHAIN OF CUSTODY

ESS Lab # 1810152

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

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

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BASF Cranston |

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

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

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

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCB (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 10-2-18 | 1331 | G | S | B-126-100218(3') | X |
| 2 | | 1332 | | | B-127-100218(3') | X |
| 3 | | 1333 | | | B-128-100218(3') | X |
| 4 | | 1334 | | | B-129-100218(3') | X |
| 5 | | 1335 | | | B-131-100218(3') | X |
| 6 | | 1334 | | | B-132-100218(3') | X |
| 7 | | 1335 | | | B-133-100218(3') | X |
| 8 | | ~~1336~~ 1336 | | | B-134-100218(3') | X |
| 9 | | ~~1337~~ 1337 | | | B-136-100218(3') | X |
| 10 | | ~~1338~~ 1337 | | | B-136-100218-1(3') | X |

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

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 3.3 °C

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 10/4/18 15:15 | 10/4/18 15:16 | 10/4/18 15:29 | 10/4/18 1530 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

2/5

**ESS Laboratory**
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www.esslaboratory.com

# CHAIN OF CUSTODY

ESS Lab # 1810152

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

Company Name: AEI
Contact Person: Aaron Ting
Project #: 363655
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
City: Boston
State: MA
Zip Code: 02109
PO #: —
Telephone Number: 978-572-7138
FAX Number: —
Email Address: ating@aeiconsultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCB (Soxhlet) |
|---|---|---|---|---|---|---|
| 11 | 10-2-18 | 1338 | G | S | B-137-100218(3') | X |
| 12 | | 1339 | G | S | B-138-100218(3') | X |
| 13 | | 1340 | G | S | B-139-100218(3') | X |
| 14 | | 1341 | G | S | B-141-100218(3') | X |
| 15 | | 1341 | G | S | B-141-100218-1(3') | X |
| 16 | | 1342 | G | S | B-142-100218(3') | X |
| 17 | | 1343 | G | S | B-143-100218(3') | X |
| 18 | | 1344 | G | S | B-144-100218(3') | X |
| 19 | 10-3-18 | 0812 | C | S | SW-110-100318(0-3') | X |
| 20 | | 0814 | C | S | SW-111-100318(0-3') | X |
| Container Type: | AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial | | | | | AG |
| Container Volume: | 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other* | | | | | 9 |
| Preservation Code: | 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other* | | | | | 1 |
| | | | | | Number of Containers per Sample: | 1 |

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 3.7 °C

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 10/4/18 1515 | 10/4/18 15:16 | 10/4/18 15:27 | 10/4/18 1530 |
| 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: 1810153**

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

Laurel Stoddard
Laboratory Director

**REVIEWED**
**By ESS Laboratory at 1:41 pm, Oct 09, 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: 1810153

## SAMPLE RECEIPT

The following samples were received on October 04, 2018 for the analyses specified on the enclosed Chain of Custody Record.

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1810153-01 | SW-113-100318 0-3FT | Soil | 8082A |
| 1810153-02 | SW-114-100318 0-3FT | Soil | 8082A |
| 1810153-03 | SW-120-100318 0-3FT | Soil | 8082A |
| 1810153-04 | SW-122-100318 0-3FT | Soil | 8082A |
| 1810153-05 | SW-122-100318-1 0-3FT | Soil | 8082A |
| 1810153-06 | SW-123-100318 0-3FT | Soil | 8082A |
| 1810153-07 | SW-123-100318-1 0-3FT | Soil | 8082A |
| 1810153-08 | SW-128-100318 0-3FT | Soil | 8082A |
| 1810153-09 | B-404-100418 0 POINT 5FT | Soil | 8082A |
| 1810153-10 | B-405-100418 1FT | Soil | 8082A |
| 1810153-11 | B-406-100418 1FT | Soil | 8082A |
| 1810153-12 | B-407-100418 1FT | Soil | 8082A |
| 1810153-13 | B-394-100418 1FT | Soil | 8082A |
| 1810153-14 | B-395-100418 1FT | Soil | 8082A |
| 1810153-15 | B-384-100418 1FT | Soil | 8082A |
| 1810153-16 | B-373-100418 1FT | Soil | 8082A |
| 1810153-17 | B-362-100418 1FT | Soil | 8082A |
| 1810153-18 | B-361-100418 1FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810153

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1810153-01 **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%)

1810153-05 **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%)

CJ80407-MS1 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1016 (149% @ 40-140%), Aroclor 1016 [2C] (155% @ 40-140%), Aroclor 1260 (491% @ 40-140%), Aroclor 1260 [2C] (447% @ 40-140%)

CJ80407-MS2 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1016 (150% @ 40-140%), Aroclor 1016 [2C] (149% @ 40-140%), Aroclor 1260 (286% @ 40-140%), Aroclor 1260 [2C] (327% @ 40-140%)

CJ80407-MSD1 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1260 (238% @ 40-140%), Aroclor 1260 [2C] (249% @ 40-140%)

CJ80407-MSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
Aroclor 1260 (68% @ 30%), Aroclor 1260 [2C] (55% @ 30%)

CJ80407-MSD2 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1016 (147% @ 40-140%), Aroclor 1016 [2C] (150% @ 40-140%), Aroclor 1260 (293% @ 40-140%), Aroclor 1260 [2C] (347% @ 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: 1810153

## CURRENT SW-846 METHODOLOGY VERSIONS

**Analytical Methods**

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

**Prep Methods**

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-113-100318 0-3FT
Date Sampled: 10/03/18 08:16
Percent Solids: 87
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **13.9** (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-114-100318 0-3FT
Date Sampled: 10/03/18 08:18
Percent Solids: 90
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **4.9** (0.6) | | 8082A | | 10 | 10/06/18 0:49 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *97 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *45 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *64 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *69 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-120-100318 0-3FT
Date Sampled: 10/03/18 08:30
Percent Solids: 92
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **1.0** (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *123 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *64 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *91 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-122-100318 0-3FT
Date Sampled: 10/03/18 08:34
Percent Solids: 84
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **5.1** (0.3) | | 8082A | | 5 | 10/06/18 3:03 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *109 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *95 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *97 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-122-100318-1 0-3FT
Date Sampled: 10/03/18 08:34
Percent Solids: 87
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **11.7** (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-123-100318 0-3FT
Date Sampled: 10/03/18 08:36
Percent Solids: 88
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **8.5** (0.6) | | 8082A | | 10 | 10/06/18 3:41 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *119 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *60 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *86 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-123-100318-1 0-3FT
Date Sampled: 10/03/18 08:36
Percent Solids: 89
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **6.5** (0.6) | | 8082A | | 10 | 10/06/18 4:00 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *118 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *55 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *87 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-128-100318 0-3FT
Date Sampled: 10/03/18 08:46
Percent Solids: 87
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **6.7** (0.6) | | 8082A | | 10 | 10/06/18 4:19 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *108 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *56 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *71 %* | | *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-404-100418 0 POINT 5FT
Date Sampled: 10/04/18 09:21
Percent Solids: 96
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |
| **Aroclor 1242** | **1.9** (0.5) | | 8082A | | 10 | 10/06/18 4:38 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **2.6** (0.5) | | 8082A | | 10 | 10/06/18 4:38 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *83 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *77 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-405-100418 1FT
Date Sampled: 10/04/18 09:22
Percent Solids: 83
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| **Aroclor 1242 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **0.5** (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *72 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *73 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *59 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *68 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-406-100418 1FT
Date Sampled: 10/04/18 09:24
Percent Solids: 88
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *54 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *49 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *36 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *43 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-407-100418 1FT
Date Sampled: 10/04/18 09:25
Percent Solids: 88
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *73 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *66 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *53 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *63 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-394-100418 1FT
Date Sampled: 10/04/18 09:28
Percent Solids: 87
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| **Aroclor 1242 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **0.2** (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *85 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *75 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *64 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *75 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-395-100418 1FT
Date Sampled: 10/04/18 09:29
Percent Solids: 90
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1254 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *51 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *42 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *36 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *45 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-384-100418 1FT
Date Sampled: 10/04/18 09:30
Percent Solids: 88
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *84 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *65 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *82 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-373-100418 1FT
Date Sampled: 10/04/18 09:40
Percent Solids: 88
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *96 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *92 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-362-100418 1FT
Date Sampled: 10/04/18 09:43
Percent Solids: 97
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **0.8** (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *114 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *100 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *101 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-361-100418 1FT
Date Sampled: 10/04/18 09:44
Percent Solids: 93
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **0.8** (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *119 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *90 %* | | *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

ESS Laboratory Work Order: 1810153

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CJ80407 - 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* | *0.0275* | | mg/kg wet | *0.02500* | | *110* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0255* | | mg/kg wet | *0.02500* | | *102* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0210* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0228* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 86 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 85 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 99 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0287* | | mg/kg wet | *0.02500* | | *115* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0263* | | mg/kg wet | *0.02500* | | *105* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0221* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0229* | | mg/kg wet | *0.02500* | | *92* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 89 | 40-140 | 4 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | 3 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 102 | 40-140 | 3 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 3 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0292* | | mg/kg wet | *0.02500* | | *117* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0267* | | mg/kg wet | *0.02500* | | *107* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0223* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0232* | | mg/kg wet | *0.02500* | | *93* | *30-150* | | | |
| **Matrix Spike** **Source: 1810153-04** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810153

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **8082A Polychlorinated Biphenyls (PCB)** | | | | | | | | | | |
| **Batch CJ80407 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.9 | 0.06 | mg/kg dry | 0.5942 | ND | 149 | 40-140 | | | M+ |
| Aroclor 1016 [2C] | 0.9 | 0.06 | mg/kg dry | 0.5942 | ND | 155 | 40-140 | | | M+ |
| Aroclor 1260 | 2.9 | 0.06 | mg/kg dry | 0.5942 | ND | 491 | 40-140 | | | M+ |
| Aroclor 1260 [2C] | 2.7 | 0.06 | mg/kg dry | 0.5942 | ND | 447 | 40-140 | | | M+ |
| *Surrogate: Decachlorobiphenyl* | *0.0423* | | mg/kg dry | *0.02971* | | *143* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0326* | | mg/kg dry | *0.02971* | | *110* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0294* | | mg/kg dry | *0.02971* | | *99* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0307* | | mg/kg dry | *0.02971* | | *103* | *30-150* | | | |
| **Matrix Spike** **Source: 1810153-06** | | | | | | | | | | |
| Aroclor 1016 | 0.9 | 0.06 | mg/kg dry | 0.5952 | ND | 150 | 40-140 | | | M+ |
| Aroclor 1016 [2C] | 0.9 | 0.06 | mg/kg dry | 0.5952 | ND | 149 | 40-140 | | | M+ |
| Aroclor 1260 | 1.7 | 0.06 | mg/kg dry | 0.5952 | ND | 286 | 40-140 | | | M+ |
| Aroclor 1260 [2C] | 1.9 | 0.06 | mg/kg dry | 0.5952 | ND | 327 | 40-140 | | | M+ |
| *Surrogate: Decachlorobiphenyl* | *0.0360* | | mg/kg dry | *0.02976* | | *121* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0192* | | mg/kg dry | *0.02976* | | *64* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0268* | | mg/kg dry | *0.02976* | | *90* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0278* | | mg/kg dry | *0.02976* | | *93* | *30-150* | | | |
| **Matrix Spike Dup** **Source: 1810153-04** | | | | | | | | | | |
| Aroclor 1016 | 0.7 | 0.06 | mg/kg dry | 0.6032 | ND | 112 | 40-140 | 27 | 30 | |
| Aroclor 1016 [2C] | 0.8 | 0.06 | mg/kg dry | 0.6032 | ND | 133 | 40-140 | 14 | 30 | |
| Aroclor 1260 | 1.4 | 0.06 | mg/kg dry | 0.6032 | ND | 238 | 40-140 | 68 | 30 | D+, M+ |
| Aroclor 1260 [2C] | 1.5 | 0.06 | mg/kg dry | 0.6032 | ND | 249 | 40-140 | 55 | 30 | D+, M+ |
| *Surrogate: Decachlorobiphenyl* | *0.0350* | | mg/kg dry | *0.03016* | | *116* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0133* | | mg/kg dry | *0.03016* | | *44* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0262* | | mg/kg dry | *0.03016* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0280* | | mg/kg dry | *0.03016* | | *93* | *30-150* | | | |
| **Matrix Spike Dup** **Source: 1810153-06** | | | | | | | | | | |
| Aroclor 1016 | 0.8 | 0.06 | mg/kg dry | 0.5656 | ND | 147 | 40-140 | 7 | 30 | M+ |
| Aroclor 1016 [2C] | 0.8 | 0.06 | mg/kg dry | 0.5656 | ND | 150 | 40-140 | 4 | 30 | M+ |
| Aroclor 1260 | 1.7 | 0.06 | mg/kg dry | 0.5656 | ND | 293 | 40-140 | 3 | 30 | M+ |
| Aroclor 1260 [2C] | 2.0 | 0.06 | mg/kg dry | 0.5656 | ND | 347 | 40-140 | 0.9 | 30 | M+ |
| *Surrogate: Decachlorobiphenyl* | *0.0334* | | mg/kg dry | *0.02828* | | *118* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0210* | | mg/kg dry | *0.02828* | | *74* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0266* | | mg/kg dry | *0.02828* | | *94* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0275* | | mg/kg dry | *0.02828* | | *97* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810153

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810153

**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: 1810153
Date Received: 10/4/2018
Project Due Date: 10/9/2018
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: 3.3 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 274147 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 274146 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 274145 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 274144 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 274150 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 274151 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 274143 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 274142 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 274148 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 274149 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 274141 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 274140 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 274139 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 274138 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 274137 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 274136 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 274135 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 274134 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 274133 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 274132 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 274131 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 274130 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1810153
Date Received: 10/4/2018

**2nd Review**

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

Completed By: _____ Date & Time: 10/4/18 1652

Reviewed By: _____ Date & Time: 10/4/18 1623

Delivered By: _____ 10/4/18 1623

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 # 1810153

Turn Time Rush 48hr

Regulatory State RI

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

Reporting Limits See note 1

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

| | |
|---|---|
| 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: PCB (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 10-3-18 | 0816 | C | S | SW-113-100318 (0-3') | X |
| 2 | ↓ | 0818 | ↓ | ↓ | SW-114-100318 (0-3') | X |
| 3 | 10-3-18 | 0830 | C | S | SW-120-100318 (0-3') | X |
| 4 | | 0834 | | | SW-122-100318 (0-3') | X |
| 5 | | 0834 | | | SW-122-100318-1 (0-3') | X |
| 9 | | 0834 | | | SW-122-100318-ms/msd (0-3') | X |
| 6 | | 0836 | | | SW-123-100318 (0-3') | X |
| 7 | | 0836 | | | SW-123-100318-1 (0-3') | X |
| 8 | | 0836 | | | SW-123-100318-ms/msd (0-3') | X |
| | | 0846 | | | SW-128-100318 (0-3') | X |

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

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

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

**Number of Containers per Sample:** 1

**Laboratory Use Only**

Cooler Present: ✓

Seals Intact: —

Cooler Temperature: Ice 3.5 °C

Sampled by: ATing

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

note 1: see project QAPP

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 10/4/18 1515 | 10/4/18 15:16 | 10/4/18 15:27 | 10/4/18 1531 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

4/5

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

# CHAIN OF CUSTODY

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

ESS Lab # K610183
Reporting Limits see note 1
Electonic Deliverables ☐Limit Checker ☐Standard Excel ☐Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 363655
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
City: Boston
State: MA
Zip Code: 02109
PO #: —
Telephone Number: 978-572-7138
FAX Number: —
Email Address: ating@aeiconsultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCB (Soxhlet) |
|---|---|---|---|---|---|---|
| 9 | 10/4/18 | 0921 ✓ | G | S | B-404-100418 (0.5') ✓ | X |
| 10 | ✓ | 0922 ✓ | | | B-405-100418 (1') ✓ | X |
| 11 | ✓ | 0924 ✓ | | | B-406-100418 (1') ✓ | X |
| 12 | ✓ | 0925 ✓ | | | B-407-100418 (1') ✓ | X |
| 13 | ✓ | 0928 ✓ | | | B-394-100418 (1') ✓ | X |
| 14 | ✓ | 0929 ✓ | | | B-395-100418 (1') ✓ | X |
| 15 | ✓ | 0930 ✓ | | | B-384-100418 (1') ✓ | X |
| 16 | ✓ | 0940 ✓ | | | B-373-100418 (1') ✓ | X |
| 17 | ✓ | 0943 ✓ | | | B-362-100418 (1') ✓ | X |
| 18 | ✓ | 0944 ✓ | | | B-361-100418 (1') ✓ | X |

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

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 3.3 °C

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 10/4/18 1515 | 10/4/18 15:46 | 10/4/18 1528 | 10/4/18 1532 |
| 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: 1810153**

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 2:19 pm, Oct 11, 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: 1810153

## SAMPLE RECEIPT

The following samples were received on October 04, 2018 for the analyses specified on the enclosed Chain of Custody Record.

**Revision 1 (date): This report has been revised to include Sample ID change for 1810153-09 from "B-404-100418 0 POINT 5FT" to "B-404-100418 0.5FT".**

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1810153-01 | SW-113-100318 0-3FT | Soil | 8082A |
| 1810153-02 | SW-114-100318 0-3FT | Soil | 8082A |
| 1810153-03 | SW-120-100318 0-3FT | Soil | 8082A |
| 1810153-04 | SW-122-100318 0-3FT | Soil | 8082A |
| 1810153-05 | SW-122-100318-1 0-3FT | Soil | 8082A |
| 1810153-06 | SW-123-100318 0-3FT | Soil | 8082A |
| 1810153-07 | SW-123-100318-1 0-3FT | Soil | 8082A |
| 1810153-08 | SW-128-100318 0-3FT | Soil | 8082A |
| 1810153-09 | B-404-100418 0.5FT | Soil | 8082A |
| 1810153-10 | B-405-100418 1FT | Soil | 8082A |
| 1810153-11 | B-406-100418 1FT | Soil | 8082A |
| 1810153-12 | B-407-100418 1FT | Soil | 8082A |
| 1810153-13 | B-394-100418 1FT | Soil | 8082A |
| 1810153-14 | B-395-100418 1FT | Soil | 8082A |
| 1810153-15 | B-384-100418 1FT | Soil | 8082A |
| 1810153-16 | B-373-100418 1FT | Soil | 8082A |
| 1810153-17 | B-362-100418 1FT | Soil | 8082A |
| 1810153-18 | B-361-100418 1FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810153

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1810153-01 **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%)

1810153-05 **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%)

CJ80407-MS1 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1016 (149% @ 40-140%), Aroclor 1016 [2C] (155% @ 40-140%), Aroclor 1260 (491% @ 40-140%), Aroclor 1260 [2C] (447% @ 40-140%)

CJ80407-MS2 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1016 (150% @ 40-140%), Aroclor 1016 [2C] (149% @ 40-140%), Aroclor 1260 (286% @ 40-140%), Aroclor 1260 [2C] (327% @ 40-140%)

CJ80407-MSD1 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1260 (238% @ 40-140%), Aroclor 1260 [2C] (249% @ 40-140%)

CJ80407-MSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
Aroclor 1260 (68% @ 30%), Aroclor 1260 [2C] (55% @ 30%)

CJ80407-MSD2 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1016 (147% @ 40-140%), Aroclor 1016 [2C] (150% @ 40-140%), Aroclor 1260 (293% @ 40-140%), Aroclor 1260 [2C] (347% @ 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: 1810153

## CURRENT SW-846 METHODOLOGY VERSIONS

**Analytical Methods**

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

**Prep Methods**

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-113-100318 0-3FT
Date Sampled: 10/03/18 08:16
Percent Solids: 87
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **13.9** (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/06/18 0:30 | C8J0139 | CJ80407 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-114-100318 0-3FT
Date Sampled: 10/03/18 08:18
Percent Solids: 90
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **4.9** (0.6) | | 8082A | | 10 | 10/06/18 0:49 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 10:53 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *97 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *45 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *64 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *69 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-120-100318 0-3FT
Date Sampled: 10/03/18 08:30
Percent Solids: 92
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **1.0** (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/05/18 11:12 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *123 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *64 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *91 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-122-100318 0-3FT
Date Sampled: 10/03/18 08:34
Percent Solids: 84
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **5.1** (0.3) | | 8082A | | 5 | 10/06/18 3:03 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 11:46 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *109 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *95 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *97 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-122-100318-1 0-3FT
Date Sampled: 10/03/18 08:34
Percent Solids: 87
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **11.7** (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (1.2) | | 8082A | | 20 | 10/06/18 3:22 | C8J0139 | CJ80407 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-123-100318 0-3FT
Date Sampled: 10/03/18 08:36
Percent Solids: 88
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **8.5** (0.6) | | 8082A | | 10 | 10/06/18 3:41 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 14:49 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *119 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *60 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *86 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-123-100318-1 0-3FT
Date Sampled: 10/03/18 08:36
Percent Solids: 89
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **6.5** (0.6) | | 8082A | | 10 | 10/06/18 4:00 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:09 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *118 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *55 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *80 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *87 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-128-100318 0-3FT
Date Sampled: 10/03/18 08:46
Percent Solids: 87
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **6.7** (0.6) | | 8082A | | 10 | 10/06/18 4:19 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 15:28 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *108 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *56 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *71 %* | | *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-404-100418 0.5FT
Date Sampled: 10/04/18 09:21
Percent Solids: 96
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |
| **Aroclor 1242** | **1.9** (0.5) | | 8082A | | 10 | 10/06/18 4:38 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **2.6** (0.5) | | 8082A | | 10 | 10/06/18 4:38 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/05/18 15:47 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *83 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *77 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-405-100418 1FT
Date Sampled: 10/04/18 09:22
Percent Solids: 83
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| **Aroclor 1242 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **0.5** (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 16:06 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *72 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *73 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *59 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *68 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-406-100418 1FT
Date Sampled: 10/04/18 09:24
Percent Solids: 88
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 18:45 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *54 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *49 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *36 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *43 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-407-100418 1FT
Date Sampled: 10/04/18 09:25
Percent Solids: 88
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:05 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *73 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *66 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *53 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *63 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-394-100418 1FT
Date Sampled: 10/04/18 09:28
Percent Solids: 87
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| **Aroclor 1242 [2C]** | **0.2** (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **0.2** (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 19:24 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *85 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *75 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *64 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *75 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-395-100418 1FT
Date Sampled: 10/04/18 09:29
Percent Solids: 90
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1254 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/05/18 19:43 | C8J0139 | CJ80407 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *51 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *42 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *36 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *45 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-384-100418 1FT
Date Sampled: 10/04/18 09:30
Percent Solids: 88
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:02 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *84 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *65 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *82 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-373-100418 1FT
Date Sampled: 10/04/18 09:40
Percent Solids: 88
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/05/18 20:21 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *96 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *92 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-362-100418 1FT
Date Sampled: 10/04/18 09:43
Percent Solids: 97
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **0.8** (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:40 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *114 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *100 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *91 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *101 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-361-100418 1FT
Date Sampled: 10/04/18 09:44
Percent Solids: 93
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810153
ESS Laboratory Sample ID: 1810153-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/4/18 17:13

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| **Aroclor 1254** | **0.8** (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/05/18 20:59 | C8J0139 | CJ80407 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *119 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *90 %* | | *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

ESS Laboratory Work Order: 1810153

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CJ80407 - 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* | *0.0275* | | mg/kg wet | *0.02500* | | *110* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0255* | | mg/kg wet | *0.02500* | | *102* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0210* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0228* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 86 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 85 | 40-140 | | | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 99 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0287* | | mg/kg wet | *0.02500* | | *115* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0263* | | mg/kg wet | *0.02500* | | *105* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0221* | | mg/kg wet | *0.02500* | | *88* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0229* | | mg/kg wet | *0.02500* | | *92* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 89 | 40-140 | 4 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | 3 | 30 | |
| Aroclor 1260 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 102 | 40-140 | 3 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | 3 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0292* | | mg/kg wet | *0.02500* | | *117* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0267* | | mg/kg wet | *0.02500* | | *107* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0223* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0232* | | mg/kg wet | *0.02500* | | *93* | *30-150* | | | |
| **Matrix Spike** **Source: 1810153-04** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810153

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **8082A Polychlorinated Biphenyls (PCB)** | | | | | | | | | | |
| **Batch CJ80407 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.9 | 0.06 | mg/kg dry | 0.5942 | ND | 149 | 40-140 | | | M+ |
| Aroclor 1016 [2C] | 0.9 | 0.06 | mg/kg dry | 0.5942 | ND | 155 | 40-140 | | | M+ |
| Aroclor 1260 | 2.9 | 0.06 | mg/kg dry | 0.5942 | ND | 491 | 40-140 | | | M+ |
| Aroclor 1260 [2C] | 2.7 | 0.06 | mg/kg dry | 0.5942 | ND | 447 | 40-140 | | | M+ |
| *Surrogate: Decachlorobiphenyl* | *0.0423* | | mg/kg dry | *0.02971* | | *143* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0326* | | mg/kg dry | *0.02971* | | *110* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0294* | | mg/kg dry | *0.02971* | | *99* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0307* | | mg/kg dry | *0.02971* | | *103* | *30-150* | | | |
| **Matrix Spike** **Source: 1810153-06** | | | | | | | | | | |
| Aroclor 1016 | 0.9 | 0.06 | mg/kg dry | 0.5952 | ND | 150 | 40-140 | | | M+ |
| Aroclor 1016 [2C] | 0.9 | 0.06 | mg/kg dry | 0.5952 | ND | 149 | 40-140 | | | M+ |
| Aroclor 1260 | 1.7 | 0.06 | mg/kg dry | 0.5952 | ND | 286 | 40-140 | | | M+ |
| Aroclor 1260 [2C] | 1.9 | 0.06 | mg/kg dry | 0.5952 | ND | 327 | 40-140 | | | M+ |
| *Surrogate: Decachlorobiphenyl* | *0.0360* | | mg/kg dry | *0.02976* | | *121* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0192* | | mg/kg dry | *0.02976* | | *64* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0268* | | mg/kg dry | *0.02976* | | *90* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0278* | | mg/kg dry | *0.02976* | | *93* | *30-150* | | | |
| **Matrix Spike Dup** **Source: 1810153-04** | | | | | | | | | | |
| Aroclor 1016 | 0.7 | 0.06 | mg/kg dry | 0.6032 | ND | 112 | 40-140 | 27 | 30 | |
| Aroclor 1016 [2C] | 0.8 | 0.06 | mg/kg dry | 0.6032 | ND | 133 | 40-140 | 14 | 30 | |
| Aroclor 1260 | 1.4 | 0.06 | mg/kg dry | 0.6032 | ND | 238 | 40-140 | 68 | 30 | D+, M+ |
| Aroclor 1260 [2C] | 1.5 | 0.06 | mg/kg dry | 0.6032 | ND | 249 | 40-140 | 55 | 30 | D+, M+ |
| *Surrogate: Decachlorobiphenyl* | *0.0350* | | mg/kg dry | *0.03016* | | *116* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0133* | | mg/kg dry | *0.03016* | | *44* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0262* | | mg/kg dry | *0.03016* | | *87* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0280* | | mg/kg dry | *0.03016* | | *93* | *30-150* | | | |
| **Matrix Spike Dup** **Source: 1810153-06** | | | | | | | | | | |
| Aroclor 1016 | 0.8 | 0.06 | mg/kg dry | 0.5656 | ND | 147 | 40-140 | 7 | 30 | M+ |
| Aroclor 1016 [2C] | 0.8 | 0.06 | mg/kg dry | 0.5656 | ND | 150 | 40-140 | 4 | 30 | M+ |
| Aroclor 1260 | 1.7 | 0.06 | mg/kg dry | 0.5656 | ND | 293 | 40-140 | 3 | 30 | M+ |
| Aroclor 1260 [2C] | 2.0 | 0.06 | mg/kg dry | 0.5656 | ND | 347 | 40-140 | 0.9 | 30 | M+ |
| *Surrogate: Decachlorobiphenyl* | *0.0334* | | mg/kg dry | *0.02828* | | *118* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0210* | | mg/kg dry | *0.02828* | | *74* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0266* | | mg/kg dry | *0.02828* | | *94* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0275* | | mg/kg dry | *0.02828* | | *97* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810153

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810153

**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: 1810153
Date Received: 10/4/2018
Project Due Date: 10/9/2018
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: 3.3 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 274147 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 274146 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 274145 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 274144 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 274150 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 274151 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 274143 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 274142 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 274148 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 274149 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 274141 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 274140 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 274139 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 274138 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 274137 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 274136 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 274135 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 274134 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 274133 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 274132 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 274131 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 274130 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1810153
Date Received: 10/4/2018

**2nd Review**

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

Completed By: _____ Date & Time: 10/4/18 1652

Reviewed By: _____ Date & Time: 10/4/18 1623

Delivered By: _____ 10/4/18 1623

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 # 1810153

Turn Time Rush 48hr

Regulatory State RI

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

Reporting Limits See note 1

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

| | |
|---|---|
| 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: PCB (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 10-3-18 | 0816 | C | S | SW-113-100318 (0-3') | X |
| 2 | ↓ | 0818 | ↓ | ↓ | SW-114-100318 (0-3') | X |
| 3 | 10-3-18 | 0830 | C | S | SW-120-100318 (0-3') | X |
| 4 | | 0834 | | | SW-122-100318 (0-3') | X |
| 5 | | 0834 | | | SW-122-100318-1 (0-3') | X |
| 9 | | 0834 | | | SW-122-100318-ms/msd (0-3') | X |
| 6 | | 0836 | | | SW-123-100318 (0-3') | X |
| 7 | | 0836 | | | SW-123-100318-1 (0-3') | X |
| 8 | | 0836 | | | SW-123-100318-ms/msd (0-3') | X |
| | | 0846 | | | SW-128-100318 (0-3') | X |

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

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

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

**Number of Containers per Sample:** 1

**Laboratory Use Only**

Cooler Present: ✓

Seals Intact: —

Cooler Temperature: Ice 3.5 °C

Sampled by: ATing

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

note 1: see project QAPP

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 10/4/18 1515 | 10/4/18 15:16 | 10/4/18 15:27 | 10/4/18 1531 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

4/5

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

# CHAIN OF CUSTODY

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

ESS Lab # K610183
Reporting Limits see note 1
Electonic Deliverables ☐Limit Checker ☐Standard Excel ☐Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 363655
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
City: Boston
State: MA
Zip Code: 02109
PO #: —
Telephone Number: 978-572-7138
FAX Number: —
Email Address: ating@aeiconsultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCB (Soxhlet) |
|---|---|---|---|---|---|---|
| 9 | 10/4/18 | 0921 ✓ | G | S | B-404-100418 (0.5') ✓ | X |
| 10 | ✓ | 0922 ✓ | | | B-405-100418 (1') ✓ | X |
| 11 | ✓ | 0924 ✓ | | | B-406-100418 (1') ✓ | X |
| 12 | ✓ | 0925 ✓ | | | B-407-100418 (1') ✓ | X |
| 13 | ✓ | 0928 ✓ | | | B-394-100418 (1') ✓ | X |
| 14 | ✓ | 0929 ✓ | | | B-395-100418 (1') ✓ | X |
| 15 | ✓ | 0930 ✓ | | | B-384-100418 (1') ✓ | X |
| 16 | ✓ | 0940 ✓ | | | B-373-100418 (1') ✓ | X |
| 17 | ✓ | 0943 ✓ | | | B-362-100418 (1') ✓ | X |
| 18 | ✓ | 0944 ✓ | | | B-361-100418 (1') ✓ | X |

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

**Laboratory Use Only**
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 3.3 °C

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 10/4/18 1515 | 10/4/18 15:46 | 10/4/18 1528 | 10/4/18 1532 |
| 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: 1810213**

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 3:15 pm, Oct 10, 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: 1810213

## SAMPLE RECEIPT

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

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1810213-01 | B-944-100318 2FT | Soil | 8082A |
| 1810213-02 | B-945-100318 2FT | Soil | 8082A |
| 1810213-03 | B-946-100318 2FT | Soil | 8082A |
| 1810213-04 | SW-693-092518-A 0-3FT | Soil | 8082A |
| 1810213-05 | SW-311-100518 0-3FT | Soil | 8082A |
| 1810213-06 | SW-313-100518 0-3FT | Soil | 8082A |
| 1810213-07 | SW-315-100518 0-3FT | Soil | 8082A |
| 1810213-08 | SW-317-100518 0-3FT | Soil | 8082A |
| 1810213-09 | SW-319-100518 0-3FT | Soil | 8082A |
| 1810213-10 | SW-321-100518 0-3FT | Soil | 8082A |
| 1810213-11 | SW-323-100518 0-3FT | Soil | 8082A |
| 1810213-12 | SW-325-100518 0-3FT | Soil | 8082A |
| 1810213-13 | SW-295-100518 0-3FT | Soil | 8082A |
| 1810213-14 | SW-297-100518 0-3FT | Soil | 8082A |
| 1810213-15 | SW-299-100518 0-3FT | Soil | 8082A |
| 1810213-16 | SW-301-100518 0-3FT | Soil | 8082A |
| 1810213-17 | SW-303-100518 0-3FT | Soil | 8082A |
| 1810213-18 | SW-305-100518 0-3FT | Soil | 8082A |
| 1810213-19 | SW-307-100518 0-3FT | Soil | 8082A |
| 1810213-20 | SW-309-100518 0-3FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810213

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1810213-01 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (1440% @ 30-150%), Tetrachloro-m-xylene (1320% @ 30-150%)

1810213-02 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (167% @ 30-150%)

1810213-04 **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%)

1810213-05 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (289% @ 30-150%)

1810213-06 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (183% @ 30-150%)

1810213-12 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810213-14 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810213-15 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (241% @ 30-150%)

1810213-16 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (173% @ 30-150%)

1810213-17 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (286% @ 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: 1810213

## 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-944-100318 2FT
Date Sampled: 10/03/18 13:34
Percent Solids: 91
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0206 | CJ80601 |
| **Aroclor 1254** | **10.3** (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0206 | CJ80601 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *1440 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *117 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *1320 %* | *SM* | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *73 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-945-100318 2FT
Date Sampled: 10/03/18 13:36
Percent Solids: 91
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:28 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:28 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:28 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:28 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:28 | C8J0206 | CJ80601 |
| **Aroclor 1254** | **0.3** (0.06) | | 8082A | | 1 | 10/10/18 2:28 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:28 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:28 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:28 | C8J0206 | CJ80601 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *167 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *110 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *104 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *118 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-946-100318 2FT
Date Sampled: 10/03/18 13:36
Percent Solids: 92
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.5) | | 8082A | | 10 | 10/09/18 14:54 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.5) | | 8082A | | 10 | 10/09/18 14:54 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.5) | | 8082A | | 10 | 10/09/18 14:54 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.5) | | 8082A | | 10 | 10/09/18 14:54 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.5) | | 8082A | | 10 | 10/09/18 14:54 | C8J0206 | CJ80601 |
| **Aroclor 1254** | **2.0** (0.5) | | 8082A | | 10 | 10/09/18 14:54 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.5) | | 8082A | | 10 | 10/09/18 14:54 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.5) | | 8082A | | 10 | 10/09/18 14:54 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.5) | | 8082A | | 10 | 10/09/18 14:54 | C8J0206 | CJ80601 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *135 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *113 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *53 %* | | *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: SW-693-092518-A 0-3FT
Date Sampled: 09/25/18 10:48
Percent Solids: 89
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:05 | C8J0207 | CJ80601 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:05 | C8J0207 | CJ80601 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:05 | C8J0207 | CJ80601 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:05 | C8J0207 | CJ80601 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:05 | C8J0207 | CJ80601 |
| **Aroclor 1254** | **25.6** (2.8) | | 8082A | | 50 | 10/10/18 9:05 | C8J0207 | CJ80601 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:05 | C8J0207 | CJ80601 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:05 | C8J0207 | CJ80601 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:05 | C8J0207 | CJ80601 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-311-100518 0-3FT
Date Sampled: 10/05/18 13:57
Percent Solids: 93
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.5) | | 8082A | | 10 | 10/09/18 15:33 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.5) | | 8082A | | 10 | 10/09/18 15:33 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.5) | | 8082A | | 10 | 10/09/18 15:33 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.5) | | 8082A | | 10 | 10/09/18 15:33 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.5) | | 8082A | | 10 | 10/09/18 15:33 | C8J0206 | CJ80601 |
| **Aroclor 1254** | **4.6** (0.5) | | 8082A | | 10 | 10/09/18 15:33 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.5) | | 8082A | | 10 | 10/09/18 15:33 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.5) | | 8082A | | 10 | 10/09/18 15:33 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.5) | | 8082A | | 10 | 10/09/18 15:33 | C8J0206 | CJ80601 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *289 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *106 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *82 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *95 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-313-100518 0-3FT
Date Sampled: 10/05/18 13:58
Percent Solids: 87
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:52 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:52 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:52 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:52 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:52 | C8J0206 | CJ80601 |
| **Aroclor 1254** | **4.5** (0.6) | | 8082A | | 10 | 10/09/18 15:52 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:52 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:52 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:52 | C8J0206 | CJ80601 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *183 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *74 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *86 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-315-100518 0-3FT
Date Sampled: 10/05/18 13:59
Percent Solids: 93
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:12 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:12 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:12 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:12 | C8J0206 | CJ80601 |
| **Aroclor 1248 [2C]** | **3.2** (0.5) | | 8082A | | 10 | 10/09/18 16:12 | C8J0206 | CJ80601 |
| **Aroclor 1254 [2C]** | **2.6** (0.5) | | 8082A | | 10 | 10/09/18 16:12 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:12 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:12 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:12 | C8J0206 | CJ80601 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *131 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *107 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *86 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *103 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-317-100518 0-3FT
Date Sampled: 10/05/18 14:00
Percent Solids: 91
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:31 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:31 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:31 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:31 | C8J0206 | CJ80601 |
| **Aroclor 1248 [2C]** | **2.0** (0.5) | | 8082A | | 10 | 10/09/18 16:31 | C8J0206 | CJ80601 |
| **Aroclor 1254 [2C]** | **1.7** (0.5) | | 8082A | | 10 | 10/09/18 16:31 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:31 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:31 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:31 | C8J0206 | CJ80601 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *146 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *108 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *90 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *107 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-319-100518 0-3FT
Date Sampled: 10/05/18 14:01
Percent Solids: 96
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:50 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:50 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:50 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:50 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:50 | C8J0206 | CJ80601 |
| **Aroclor 1254** | **2.8** (0.5) | | 8082A | | 10 | 10/09/18 16:50 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:50 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:50 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.5) | | 8082A | | 10 | 10/09/18 16:50 | C8J0206 | CJ80601 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *142 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *103 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *102 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-321-100518 0-3FT
Date Sampled: 10/05/18 14:03
Percent Solids: 90
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:09 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:09 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:09 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:09 | C8J0206 | CJ80601 |
| **Aroclor 1248 [2C]** | **3.7** (0.6) | | 8082A | | 10 | 10/09/18 17:09 | C8J0206 | CJ80601 |
| **Aroclor 1254** | **2.9** (0.6) | | 8082A | | 10 | 10/09/18 17:09 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:09 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:09 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:09 | C8J0206 | CJ80601 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *133 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *99 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *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: SW-323-100518 0-3FT
Date Sampled: 10/05/18 14:04
Percent Solids: 93
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:29 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:29 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:29 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:29 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:29 | C8J0206 | CJ80601 |
| **Aroclor 1254** | **4.7** (0.5) | | 8082A | | 10 | 10/09/18 17:29 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:29 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:29 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:29 | C8J0206 | CJ80601 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *129 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *102 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *92 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *98 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-325-100518 0-3FT
Date Sampled: 10/05/18 14:05
Percent Solids: 95
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (1.1) | | 8082A | | 20 | 10/10/18 9:24 | C8J0207 | CJ80601 |
| Aroclor 1221 | ND (1.1) | | 8082A | | 20 | 10/10/18 9:24 | C8J0207 | CJ80601 |
| Aroclor 1232 | ND (1.1) | | 8082A | | 20 | 10/10/18 9:24 | C8J0207 | CJ80601 |
| Aroclor 1242 | ND (1.1) | | 8082A | | 20 | 10/10/18 9:24 | C8J0207 | CJ80601 |
| Aroclor 1248 | ND (1.1) | | 8082A | | 20 | 10/10/18 9:24 | C8J0207 | CJ80601 |
| **Aroclor 1254** | **14.2** (1.1) | | 8082A | | 20 | 10/10/18 9:24 | C8J0207 | CJ80601 |
| Aroclor 1260 | ND (1.1) | | 8082A | | 20 | 10/10/18 9:24 | C8J0207 | CJ80601 |
| Aroclor 1262 | ND (1.1) | | 8082A | | 20 | 10/10/18 9:24 | C8J0207 | CJ80601 |
| Aroclor 1268 | ND (1.1) | | 8082A | | 20 | 10/10/18 9:24 | C8J0207 | CJ80601 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-295-100518 0-3FT
Date Sampled: 10/05/18 14:06
Percent Solids: 92
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:07 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:07 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:07 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:07 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:07 | C8J0206 | CJ80601 |
| **Aroclor 1254 [2C]** | **10.2** (0.6) | | 8082A | | 10 | 10/09/18 18:07 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:07 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:07 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:07 | C8J0206 | CJ80601 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *149 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *122 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *98 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-297-100518 0-3FT
Date Sampled: 10/05/18 14:07
Percent Solids: 93
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:44 | C8J0207 | CJ80601 |
| Aroclor 1221 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:44 | C8J0207 | CJ80601 |
| Aroclor 1232 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:44 | C8J0207 | CJ80601 |
| Aroclor 1242 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:44 | C8J0207 | CJ80601 |
| Aroclor 1248 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:44 | C8J0207 | CJ80601 |
| **Aroclor 1254** | **17.7** (2.8) | | 8082A | | 50 | 10/10/18 9:44 | C8J0207 | CJ80601 |
| Aroclor 1260 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:44 | C8J0207 | CJ80601 |
| Aroclor 1262 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:44 | C8J0207 | CJ80601 |
| Aroclor 1268 | ND (2.8) | | 8082A | | 50 | 10/10/18 9:44 | C8J0207 | CJ80601 |

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-299-100518 0-3FT
Date Sampled: 10/05/18 14:09
Percent Solids: 94
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:46 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:46 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:46 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:46 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:46 | C8J0206 | CJ80601 |
| **Aroclor 1254 [2C]** | **8.3** (0.5) | | 8082A | | 10 | 10/09/18 18:46 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:46 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:46 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:46 | C8J0206 | CJ80601 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *241 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *113 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *95 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-301-100518 0-3FT
Date Sampled: 10/05/18 14:10
Percent Solids: 90
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:05 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:05 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:05 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:05 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:05 | C8J0206 | CJ80601 |
| **Aroclor 1254** | **8.4** (0.6) | | 8082A | | 10 | 10/09/18 19:05 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:05 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:05 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:05 | C8J0206 | CJ80601 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *173 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *122 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *77 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *91 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-303-100518 0-3FT
Date Sampled: 10/05/18 14:12
Percent Solids: 91
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:24 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:24 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:24 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:24 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:24 | C8J0206 | CJ80601 |
| **Aroclor 1254 [2C]** | **4.2** (0.6) | | 8082A | | 10 | 10/09/18 19:24 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:24 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:24 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:24 | C8J0206 | CJ80601 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *286 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *97 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *95 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-305-100518 0-3FT
Date Sampled: 10/05/18 14:13
Percent Solids: 93
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.5) | | 8082A | | 10 | 10/09/18 21:59 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.5) | | 8082A | | 10 | 10/09/18 21:59 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.5) | | 8082A | | 10 | 10/09/18 21:59 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.5) | | 8082A | | 10 | 10/09/18 21:59 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.5) | | 8082A | | 10 | 10/09/18 21:59 | C8J0206 | CJ80601 |
| **Aroclor 1254 [2C]** | **1.4** (0.5) | | 8082A | | 10 | 10/09/18 21:59 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.5) | | 8082A | | 10 | 10/09/18 21:59 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.5) | | 8082A | | 10 | 10/09/18 21:59 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.5) | | 8082A | | 10 | 10/09/18 21:59 | C8J0206 | CJ80601 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *138 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *114 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *104 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-307-100518 0-3FT
Date Sampled: 10/05/18 14:15
Percent Solids: 93
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:18 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:18 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:18 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:18 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:18 | C8J0206 | CJ80601 |
| **Aroclor 1254** | **0.7** (0.5) | | 8082A | | 10 | 10/09/18 22:18 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:18 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:18 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:18 | C8J0206 | CJ80601 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *141 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *105 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *85 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *106 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-309-100518 0-3FT
Date Sampled: 10/05/18 14:17
Percent Solids: 93
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810213
ESS Laboratory Sample ID: 1810213-20
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:37 | C8J0206 | CJ80601 |
| Aroclor 1221 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:37 | C8J0206 | CJ80601 |
| Aroclor 1232 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:37 | C8J0206 | CJ80601 |
| Aroclor 1242 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:37 | C8J0206 | CJ80601 |
| Aroclor 1248 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:37 | C8J0206 | CJ80601 |
| **Aroclor 1254 [2C]** | **6.8** (0.5) | | 8082A | | 10 | 10/09/18 22:37 | C8J0206 | CJ80601 |
| Aroclor 1260 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:37 | C8J0206 | CJ80601 |
| Aroclor 1262 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:37 | C8J0206 | CJ80601 |
| Aroclor 1268 | ND (0.5) | | 8082A | | 10 | 10/09/18 22:37 | C8J0206 | CJ80601 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *139 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *104 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *82 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *102 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810213

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CJ80601 - 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* | *0.0272* | | mg/kg wet | *0.02500* | | *109* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0211* | | mg/kg wet | *0.02500* | | *84* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0225* | | mg/kg wet | *0.02500* | | *90* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0250* | | mg/kg wet | *0.02500* | | *100* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 92 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0291* | | mg/kg wet | *0.02500* | | *116* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0227* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0239* | | 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 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | 0.3 | 30 | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 93 | 40-140 | 0.3 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | 0.5 | 30 | |
| Aroclor 1260 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 90 | 40-140 | 0.7 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0286* | | mg/kg wet | *0.02500* | | *114* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0223* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0238* | | mg/kg wet | *0.02500* | | *95* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0255* | | mg/kg wet | *0.02500* | | *102* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810213

**Notes and Definitions**

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810213

**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: 1810213
Date Received: 10/5/2018
Project Due Date: 10/10/2018
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: 5.8 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 274807 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 274806 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 274805 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 274804 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 274803 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 274802 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 274801 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 274800 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 274799 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 274798 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 274797 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 274796 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 274795 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 274794 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 274793 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 274792 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 274791 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 274790 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 274789 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 20 | 274788 | 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: 1810213
Date Received: 10/5/2018

Are all necessary stickers attached? Yes No

Completed By: Date & Time: 10/5/18 1619

Reviewed By: Date & Time: 10/5/18 1718

Delivered By: 10/5/18 1718

1 3/4

**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 # 1810213

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

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

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BASF Cranston |

Contact Person: Aaron Ting
Address:

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

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

Analysis: PCB (Soxhlet)

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCB (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 10-3-18 | 1334 | G | S | B-944-100318(2') | X |
| 2 | ↓ | 1336 | ↓ | ↓ | B-945-100318(2') | X |
| 3 | ↓ | 1336 | ↓ | ↓ | B-946-100318(2') | X |
| 4 | 9-25-18 | 1048 | C | S | SW-693-D92518-A(0-3') | X |
| 5 | 10-5-18 | 1357 | ↓ | ↓ | SW-311-100518(0-3') | X |
| 6 | ↓ | 1358 | ↓ | ↓ | SW-313-100518(0-3') | X |
| 7 | ↓ | 1359 | ↓ | ↓ | SW-315-100518(0-3') | X |
| 8 | ↓ | 1400 | ↓ | ↓ | SW-317-100518(0-3') | X |
| 9 | ↓ | 1401 | ↓ | ↓ | SW-319-100518(0-3') | X |
| 10 | ↓ | 1403 | ↓ | ↓ | SW-321-100518(0-3') | X |

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

**Laboratory Use Only**
Cooler Present: Y
Seals Intact: N/A
Cooler Temperature: 5-8 °C

Sampled by: ATing

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 10/5/18 1500 | 10/5/18 1500 | 10/5/18 1513 | 10/5/18 1517 |
| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
| | | | |

1 4/4

**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 #: 1810213
Reporting Limits: See note 1
Electonic Deliverables: ☐Limit Checker ☐Standard Excel ☐Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 363655
Project Name: BASF Cranston
Address:
City: Boston
State: MA
Zip Code: 02109
PO #: —
Telephone Number: 978-572-7138
FAX Number: —
Email Address: ating@aeiconsultants.com

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCB (Soxhlet) |
|---|---|---|---|---|---|---|
| 11 | 10-5-18 | 1404 | C | S | SW-323-100518 (0-3') | X |
| 12 | ↓ | 1405 | ↓ | ↓ | SW-325-100518 (0-3') | X |
| 13 | | 1406 | | | SW-295-100518 (0-3') | X |
| 14 | | 1407 | | | SW-297-100518 (0-3') | X |
| 15 | | 1409 | | | SW-299-100518 (0-3') | X |
| 16 | | 1410 | | | SW-301-100518 (0-3') | X |
| 17 | | 1412 | | | SW-303-100518 (0-3') | X |
| 18 | | 1413 | | | SW-305-100518 (0-3') | X |
| 19 | | 1415 | | | SW-307-100518 (0-3') | X |
| 20 | ↓ | 1417 | ↓ | ↓ | SW-309-100518 (0-3') | X |

**Container Type:** AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial: AG
**Container Volume:** 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*: 4
**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: not
Cooler Temperature: 5.7 °C

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 10/5/18 1500 | 10/5/18 1500 | 10/5/18 1513 | 10/5/18 1517 |
| 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: 1810214**

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 3:17 pm, Oct 10, 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: 1810214

## SAMPLE RECEIPT

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

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1810214-01 | B-923-100318 2FT | Solid | 8082A |
| 1810214-02 | B-924-100318 2FT | Solid | 8082A |
| 1810214-03 | B-925-100318 2FT | Solid | 8082A |
| 1810214-04 | B-927-100318 2FT | Solid | 8082A |
| 1810214-05 | B-928-100318 2FT | Solid | 8082A |
| 1810214-06 | B-929-100318 2FT | Solid | 8082A |
| 1810214-07 | B-931-100318 2FT | Solid | 8082A |
| 1810214-08 | B-932-100318 2FT | Solid | 8082A |
| 1810214-09 | B-933-100318 2FT | Solid | 8082A |
| 1810214-10 | B-935-100318 2FT | Solid | 8082A |
| 1810214-11 | B-936-100318 2FT | Solid | 8082A |
| 1810214-12 | B-937-100318 2FT | Solid | 8082A |
| 1810214-13 | B-938-100318 2FT | Solid | 8082A |
| 1810214-14 | B-939-100318 2FT | Solid | 8082A |
| 1810214-15 | B-940-100318 2FT | Solid | 8082A |
| 1810214-16 | B-941-100318 2FT | Solid | 8082A |
| 1810214-17 | B-941-100318-1 2FT | Solid | 8082A |
| 1810214-18 | B-942-100318 2FT | Solid | 8082A |
| 1810214-19 | B-943-100318 2FT | Solid | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810214

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1810214-02 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (% @ 30-150%)

1810214-04 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl [2C] (190% @ 30-150%)

1810214-05 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (3020% @ 30-150%), Tetrachloro-m-xylene [2C] (293% @ 30-150%)

1810214-06 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (2800% @ 30-150%)

1810214-07 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (664% @ 30-150%)

1810214-08 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (1190% @ 30-150%)

1810214-09 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (634% @ 30-150%)

1810214-11 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Tetrachloro-m-xylene [2C] (394% @ 30-150%)

1810214-12 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (633% @ 30-150%)

1810214-14 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (2160% @ 30-150%)

1810214-15 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (1240% @ 30-150%)

1810214-16 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (217% @ 30-150%)

CJ80603-MS1 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1260 (267% @ 40-140%), Aroclor 1260 [2C] (312% @ 40-140%)

CJ80603-MSD1 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1260 (343% @ 40-140%), Aroclor 1260 [2C] (350% @ 40-140%)

**No other observations noted.**

**End of Project Narrative.**

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810214

## DATA USABILITY LINKS

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

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

## CURRENT SW-846 METHODOLOGY VERSIONS

### Analytical Methods

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

### Prep Methods

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

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

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-923-100318 2FT
Date Sampled: 10/03/18 11:10
Percent Solids: 90
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-01
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0208 | CJ80603 |
| **Aroclor 1254** | **8.3** (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:18 | C8J0208 | CJ80603 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *97 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *109 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *73 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *76 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-924-100318 2FT
Date Sampled: 10/03/18 11:14
Percent Solids: 91
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-02
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:35 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:35 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:35 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:35 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:35 | C8J0208 | CJ80603 |
| **Aroclor 1254** | **7.6** (0.6) | | 8082A | | 10 | 10/09/18 14:35 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:35 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:35 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:35 | C8J0208 | CJ80603 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *%* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *122 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *66 %* | | *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-925-100318 2FT
Date Sampled: 10/03/18 11:18
Percent Solids: 85
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-03
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:54 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:54 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:54 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:54 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:54 | C8J0208 | CJ80603 |
| **Aroclor 1254 [2C]** | **2.6** (0.6) | | 8082A | | 10 | 10/09/18 14:54 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:54 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:54 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 14:54 | C8J0208 | CJ80603 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *69 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *119 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *115 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-927-100318 2FT
Date Sampled: 10/03/18 11:26
Percent Solids: 90
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-04
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:14 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:14 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:14 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:14 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:14 | C8J0208 | CJ80603 |
| **Aroclor 1254** | **6.5** (0.6) | | 8082A | | 10 | 10/09/18 15:14 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:14 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:14 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 15:14 | C8J0208 | CJ80603 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *83 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *190 %* | *SM* | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *107 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-928-100318 2FT
Date Sampled: 10/03/18 11:30
Percent Solids: 91
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-05
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/10/18 1:05 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/10/18 1:05 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/10/18 1:05 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/10/18 1:05 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/10/18 1:05 | C8J0208 | CJ80603 |
| Aroclor 1254 | ND (0.05) | | 8082A | | 1 | 10/10/18 1:05 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/10/18 1:05 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/10/18 1:05 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/10/18 1:05 | C8J0208 | CJ80603 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *3020 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *149 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *89 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *293 %* | *SM* | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-929-100318 2FT
Date Sampled: 10/03/18 11:32
Percent Solids: 87
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-06
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:24 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:24 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:24 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:24 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:24 | C8J0208 | CJ80603 |
| **Aroclor 1254** | **0.9** (0.06) | | 8082A | | 1 | 10/10/18 1:24 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:24 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:24 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:24 | C8J0208 | CJ80603 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *2800 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *105 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *99 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *95 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-931-100318 2FT
Date Sampled: 10/03/18 12:26
Percent Solids: 89
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-07
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:44 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:44 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:44 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:44 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:44 | C8J0208 | CJ80603 |
| Aroclor 1254 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:44 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:44 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:44 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/10/18 1:44 | C8J0208 | CJ80603 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *664 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *58 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *97 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *112 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-932-100318 2FT
Date Sampled: 10/03/18 12:28
Percent Solids: 92
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-08
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 16:30 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 16:30 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 16:30 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 16:30 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 16:30 | C8J0208 | CJ80603 |
| **Aroclor 1254 [2C]** | **4.5** (0.6) | | 8082A | | 10 | 10/09/18 16:30 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 16:30 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 16:30 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 16:30 | C8J0208 | CJ80603 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *1190 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *110 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *61 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *109 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-933-100318 2FT
Date Sampled: 10/03/18 12:30
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-09
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:22 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:22 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:22 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:22 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:22 | C8J0208 | CJ80603 |
| **Aroclor 1254** | **0.4** (0.06) | | 8082A | | 1 | 10/10/18 2:22 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:22 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:22 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.06) | | 8082A | | 1 | 10/10/18 2:22 | C8J0208 | CJ80603 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *634 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *54 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *97 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *116 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-935-100318 2FT
Date Sampled: 10/03/18 12:34
Percent Solids: 92
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-10
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.05) | | 8082A | | 1 | 10/10/18 9:47 | C8J0209 | CJ80603 |
| Aroclor 1221 | ND (0.05) | | 8082A | | 1 | 10/10/18 9:47 | C8J0209 | CJ80603 |
| Aroclor 1232 | ND (0.05) | | 8082A | | 1 | 10/10/18 9:47 | C8J0209 | CJ80603 |
| Aroclor 1242 | ND (0.05) | | 8082A | | 1 | 10/10/18 9:47 | C8J0209 | CJ80603 |
| Aroclor 1248 | ND (0.05) | | 8082A | | 1 | 10/10/18 9:47 | C8J0209 | CJ80603 |
| Aroclor 1254 [2C] | ND (0.05) | | 8082A | | 1 | 10/10/18 9:47 | C8J0209 | CJ80603 |
| Aroclor 1260 | ND (0.05) | | 8082A | | 1 | 10/10/18 9:47 | C8J0209 | CJ80603 |
| Aroclor 1262 | ND (0.05) | | 8082A | | 1 | 10/10/18 9:47 | C8J0209 | CJ80603 |
| Aroclor 1268 | ND (0.05) | | 8082A | | 1 | 10/10/18 9:47 | C8J0209 | CJ80603 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *89 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *104 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *99 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *112 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-936-100318 2FT
Date Sampled: 10/03/18 13:36
Percent Solids: 90
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-11
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:28 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:28 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:28 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:28 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:28 | C8J0208 | CJ80603 |
| **Aroclor 1254 [2C]** | **6.5** (0.6) | | 8082A | | 10 | 10/09/18 17:28 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:28 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:28 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 17:28 | C8J0208 | CJ80603 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *42 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *37 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *71 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *394 %* | *SM* | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-937-100318 2FT
Date Sampled: 10/03/18 12:38
Percent Solids: 91
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-12
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:47 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:47 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:47 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:47 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:47 | C8J0208 | CJ80603 |
| **Aroclor 1254** | **3.3** (0.5) | | 8082A | | 10 | 10/09/18 17:47 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:47 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:47 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.5) | | 8082A | | 10 | 10/09/18 17:47 | C8J0208 | CJ80603 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *633 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *83 %* | | *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-938-100318 2FT
Date Sampled: 10/03/18 12:40
Percent Solids: 91
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-13
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:06 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:06 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:06 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:06 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:06 | C8J0208 | CJ80603 |
| **Aroclor 1254** | **2.1** (0.6) | | 8082A | | 10 | 10/09/18 18:06 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:06 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:06 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:06 | C8J0208 | CJ80603 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *60 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *40 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *90 %* | | *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-939-100318 2FT
Date Sampled: 10/03/18 13:24
Percent Solids: 90
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-14
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:25 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:25 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:25 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:25 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:25 | C8J0208 | CJ80603 |
| **Aroclor 1254 [2C]** | **6.4** (0.6) | | 8082A | | 10 | 10/09/18 18:25 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:25 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:25 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 18:25 | C8J0208 | CJ80603 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *2160 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *145 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *94 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *113 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-940-100318 2FT
Date Sampled: 10/03/18 13:26
Percent Solids: 91
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-15
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:44 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:44 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:44 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:44 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:44 | C8J0208 | CJ80603 |
| **Aroclor 1254 [2C]** | **3.8** (0.5) | | 8082A | | 10 | 10/09/18 18:44 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:44 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:44 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.5) | | 8082A | | 10 | 10/09/18 18:44 | C8J0208 | CJ80603 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *1240 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *84 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *74 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *138 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-941-100318 2FT
Date Sampled: 10/03/18 13:28
Percent Solids: 90
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-16
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:03 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:03 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:03 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:03 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:03 | C8J0208 | CJ80603 |
| **Aroclor 1254 [2C]** | **4.7** (0.6) | | 8082A | | 10 | 10/09/18 19:03 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:03 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:03 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:03 | C8J0208 | CJ80603 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *217 %* | *SM* | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *54 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *78 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *81 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-941-100318-1 2FT
Date Sampled: 10/03/18 13:28
Percent Solids: 88
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-17
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:22 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:22 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:22 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:22 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:22 | C8J0208 | CJ80603 |
| **Aroclor 1254 [2C]** | **5.6** (0.6) | | 8082A | | 10 | 10/09/18 19:22 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:22 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:22 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 19:22 | C8J0208 | CJ80603 |

| | *%Recovery* | *Qualifier* | *Limits* |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *75 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *69 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *81 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *127 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-942-100318 2FT
Date Sampled: 10/03/18 13:30
Percent Solids: 87
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-18
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 21:55 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 21:55 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 21:55 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 21:55 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 21:55 | C8J0208 | CJ80603 |
| **Aroclor 1254 [2C]** | **1.4** (0.6) | | 8082A | | 10 | 10/09/18 21:55 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 21:55 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 21:55 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 21:55 | C8J0208 | CJ80603 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *136 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *124 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *114 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *128 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-943-100318 2FT
Date Sampled: 10/03/18 13:32
Percent Solids: 91
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810214
ESS Laboratory Sample ID: 1810214-19
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/6/18 16:00

## 8082A Polychlorinated Biphenyls (PCB)

| Analyte | Results (MRL) | MDL | Method | Limit | DF | Analyzed | Sequence | Batch |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND (0.6) | | 8082A | | 10 | 10/09/18 22:14 | C8J0208 | CJ80603 |
| Aroclor 1221 | ND (0.6) | | 8082A | | 10 | 10/09/18 22:14 | C8J0208 | CJ80603 |
| Aroclor 1232 | ND (0.6) | | 8082A | | 10 | 10/09/18 22:14 | C8J0208 | CJ80603 |
| Aroclor 1242 | ND (0.6) | | 8082A | | 10 | 10/09/18 22:14 | C8J0208 | CJ80603 |
| Aroclor 1248 | ND (0.6) | | 8082A | | 10 | 10/09/18 22:14 | C8J0208 | CJ80603 |
| **Aroclor 1254** | **3.4** (0.6) | | 8082A | | 10 | 10/09/18 22:14 | C8J0208 | CJ80603 |
| Aroclor 1260 | ND (0.6) | | 8082A | | 10 | 10/09/18 22:14 | C8J0208 | CJ80603 |
| Aroclor 1262 | ND (0.6) | | 8082A | | 10 | 10/09/18 22:14 | C8J0208 | CJ80603 |
| Aroclor 1268 | ND (0.6) | | 8082A | | 10 | 10/09/18 22:14 | C8J0208 | CJ80603 |

| | %Recovery | Qualifier | Limits |
|---|---|---|---|
| *Surrogate: Decachlorobiphenyl* | *48 %* | | *30-150* |
| *Surrogate: Decachlorobiphenyl [2C]* | *88 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene* | *68 %* | | *30-150* |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *80 %* | | *30-150* |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810214

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CJ80603 - 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* | *0.0206* | | mg/kg wet | *0.02500* | | *82* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0251* | | mg/kg wet | *0.02500* | | *100* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0214* | | mg/kg wet | *0.02500* | | *86* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0264* | | mg/kg wet | *0.02500* | | *105* | *30-150* | | | |
| **LCS** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 85 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.5 | 0.05 | mg/kg wet | 0.5000 | | 91 | 40-140 | | | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 79 | 40-140 | | | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 88 | 40-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *0.0207* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0254* | | mg/kg wet | *0.02500* | | *102* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0227* | | mg/kg wet | *0.02500* | | *91* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0248* | | mg/kg wet | *0.02500* | | *99* | *30-150* | | | |
| **LCS Dup** | | | | | | | | | | |
| Aroclor 1016 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 78 | 40-140 | 9 | 30 | |
| Aroclor 1016 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 84 | 40-140 | 9 | 30 | |
| Aroclor 1260 | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 72 | 40-140 | 10 | 30 | |
| Aroclor 1260 [2C] | 0.4 | 0.05 | mg/kg wet | 0.5000 | | 79 | 40-140 | 11 | 30 | |
| *Surrogate: Decachlorobiphenyl* | *0.0189* | | mg/kg wet | *0.02500* | | *76* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0231* | | mg/kg wet | *0.02500* | | *92* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0207* | | mg/kg wet | *0.02500* | | *83* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0224* | | mg/kg wet | *0.02500* | | *89* | *30-150* | | | |
| **Matrix Spike** **Source: 1810214-16** | | | | | | | | | | |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810214

# Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 8082A Polychlorinated Biphenyls (PCB) | | | | | | | | | | |
| **Batch CJ80603 - 3540C** | | | | | | | | | | |
| Aroclor 1016 | 0.7 | 0.06 | mg/kg dry | 0.5712 | ND | 120 | 40-140 | | | |
| Aroclor 1016 [2C] | 0.6 | 0.06 | mg/kg dry | 0.5712 | ND | 98 | 40-140 | | | |
| Aroclor 1260 | 1.5 | 0.06 | mg/kg dry | 0.5712 | ND | 267 | 40-140 | | | M+ |
| Aroclor 1260 [2C] | 1.8 | 0.06 | mg/kg dry | 0.5712 | ND | 312 | 40-140 | | | M+ |
| *Surrogate: Decachlorobiphenyl* | *0.0248* | | mg/kg dry | *0.02856* | | *87* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0141* | | mg/kg dry | *0.02856* | | *49* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0308* | | mg/kg dry | *0.02856* | | *108* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0314* | | mg/kg dry | *0.02856* | | *110* | *30-150* | | | |
| **Matrix Spike Dup Source: 1810214-16** | | | | | | | | | | |
| Aroclor 1016 | 0.5 | 0.06 | mg/kg dry | 0.5771 | ND | 95 | 40-140 | 22 | 30 | |
| Aroclor 1016 [2C] | 0.6 | 0.06 | mg/kg dry | 0.5771 | ND | 101 | 40-140 | 4 | 30 | |
| Aroclor 1260 | 2.0 | 0.06 | mg/kg dry | 0.5771 | ND | 343 | 40-140 | 26 | 30 | M+ |
| Aroclor 1260 [2C] | 2.0 | 0.06 | mg/kg dry | 0.5771 | ND | 350 | 40-140 | 12 | 30 | M+ |
| *Surrogate: Decachlorobiphenyl* | *0.0214* | | mg/kg dry | *0.02886* | | *74* | *30-150* | | | |
| *Surrogate: Decachlorobiphenyl [2C]* | *0.0295* | | mg/kg dry | *0.02886* | | *102* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.0259* | | mg/kg dry | *0.02886* | | *90* | *30-150* | | | |
| *Surrogate: Tetrachloro-m-xylene [2C]* | *0.0278* | | mg/kg dry | *0.02886* | | *96* | *30-150* | | | |

*CERTIFICATE OF ANALYSIS*

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810214

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

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810214

**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: 1810214
Date Received: 10/5/2018
Project Due Date: 10/10/2018
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: 5.8 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** (Yes) No / NA
10. Were any analyses received outside of hold time? Yes / (No)

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

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

Sample Receiving Notes:

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

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---|---|---|---|---|---|---|---|
| 01 | 274827 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 02 | 274826 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 03 | 274825 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 04 | 274824 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 05 | 274823 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 06 | 274822 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 07 | 274821 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 08 | 274820 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 09 | 274819 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 10 | 274818 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 11 | 274817 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 12 | 274816 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 13 | 274815 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 14 | 274814 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 15 | 274813 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 274812 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 274828 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 16 | 274829 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 17 | 274811 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 18 | 274810 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |
| 19 | 274809 | Yes | NA | Yes | 4 oz. Jar - Unpres | NP | |

**2nd Review**

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1810214
Date Received: 10/5/2018

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

Completed By: _____ Date & Time: 10/5/18 1619
Reviewed By: _____ Date & Time: 10/5/18 1710
Delivered By: _____ 10/5/18 1710

1/14

# 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 # 1810214

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

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

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BASF Cranston |

Contact Person: Aaron Ting
Address:

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

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

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | Analysis: PCB (Soxhlet) |
|---|---|---|---|---|---|---|
| 1 | 10-3-18 | 1110 | G | S | B-923-100318 (2') | X |
| 2 | ↓ | 1114 | ↓ | ↓ | B-924-100318 (2') | X |
| 3 | | 1118 | | | B-925-100318 (2') | X |
| 4 | | 1126 | | | B-927-100318 (2') | X |
| 5 | | 1130 | | | B-928-100318 (2') | X |
| 6 | | 1132 | | | B-929-100318 (2') | X |
| 7 | | 1226 | | | B-931-100318 (2') | X |
| 8 | | 1228 | | | B-932-100318 (2') | X |
| 9 | | 1230 | | | B-933-100318 (2') | X |
| 10 | ↓ | 1234 | ↓ | ↓ | B-935-100318 (2') | X |

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

**Laboratory Use Only**
Cooler Present: yes
Seals Intact: not
Cooler Temperature: 5.8 °C lac

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

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| 10/5/18 1500 | 10/5/18 1500 | 10/5/18 1513 | 10/5/18 1516 |
| **Relinquished by: (Signature, Date & Time)** | **Received By: (Signature, Date & Time)** | **Relinquished By: (Signature, Date & Time)** | **Received By: (Signature, Date & Time)** |
| | | | |

2/4

**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 # | 1810214 |
| Turn Time | Rush 48hr |
| Regulatory State | RI |
| Reporting Limits | See note 1 |
| Is this project for any of the following?: | ○CT RCP ○MA MCP ○RGP |
| Electonic Deliverables | ☐Limit Checker ☐Standard Excel ☐Other (Please Specify →) |

| Company Name | Project # | Project Name |
|---|---|---|
| AEI | 363655 | BASF Cranston |
| **Contact Person** | **Address** | |
| Aaron Ting | | |

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

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

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | PCB (soxhlet) |
|---|---|---|---|---|---|---|
| 11 | 10-3-18 | 1236 | G | S | B-936-100318 (2') | X |
| 12 | ↓ | 1238 | ↓ | ↓ | B-937-100318 (2') | X |
| 13 | | 1240 | | | B-938-100318 (2') | X |
| 14 | | 1324 | | | B-939-100318 (2') | X |
| 15 | | 1326 | | | B-940-100318 (2') | X |
| 16 | | 1328 | | | B-941-100318 (2') | X |
| 17 | | 1328 | | | B-941-100318-1 (2') | X |
| 16 | | 1328 | | | B-941-100318-ms/msd (2') | X |
| 18 | | 1330 | | | B-942-100318 (2') | X |
| 19 | ↓ | 1332 | ↓ | ↓ | B-943-100318 (2') | X |

Analysis

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

**Laboratory Use Only**

Cooler Present: Yes
Seals Intact: N/A
Cooler Temperature: 5.8 °C

Sampled by: ATing

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

note 1: see project QAPP

| Relinquished by: (Signature, Date & Time) | Received By: (Signature, Date & Time) | Relinquished By: (Signature, Date & Time) | Received By: (Signature, Date & Time) |
|---|---|---|---|
| [signature] 10/5/18 1500 | [signature] 10/5/18 1500 | [signature] 10/5/18 1513 | [signature] 10/5/18 1516 |
| **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: 1810256**

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

Laurel Stoddard
Laboratory Director

**REVIEWED**
**By ESS Laboratory at 5:57 pm, Oct 11, 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: 1810256

## SAMPLE RECEIPT

The following samples were received on October 09, 2018 for the analyses specified on the enclosed Chain of Custody Record.

| Lab Number | Sample Name | Matrix | Analysis |
|---|---|---|---|
| 1810256-01 | SW-364-100818 0-4 | Soil | 8082A |
| 1810256-02 | SW-687-100818 0-4 | Soil | 8082A |
| 1810256-03 | SW-331-100818 0-4 | Soil | 8082A |
| 1810256-04 | SW-333-100818 0-4 | Soil | 8082A |
| 1810256-05 | SW-335-100818 0-4 | Soil | 8082A |
| 1810256-06 | SW-337-100818 0-4 | Soil | 8082A |
| 1810256-07 | SW-344-100818 0-4 | Soil | 8082A |
| 1810256-08 | SW-346-100818 0-4 | Soil | 8082A |
| 1810256-09 | SW-348-100818 0-4 | Soil | 8082A |
| 1810256-10 | SW-352-100818 0-4 | Soil | 8082A |
| 1810256-11 | SW-354-100818 0-4 | Soil | 8082A |
| 1810256-12 | B-350-100818 1FT | Solid | 8082A |
| 1810256-13 | B-363-100818 1FT | Solid | 8082A |
| 1810256-14 | B-374-100818 1FT | Solid | 8082A |
| 1810256-15 | B-385-100818 1FT | Solid | 8082A |
| 1810256-16 | B-412-100818 4FT | Solid | 8082A |
| 1810256-17 | B-382-100818 4FT | Soil | 8082A |
| 1810256-18 | B-371-100818 4FT | Soil | 8082A |
| 1810256-19 | B-360-100818 4FT | Soil | 8082A |

*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1810256

## PROJECT NARRATIVE

**8082A Polychlorinated Biphenyls (PCB)**

1810256-02 **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%)

1810256-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810256-10 **Surrogate recovery(ies) above upper control limit (S+).**
Decachlorobiphenyl [2C] (221% @ 30-150%)

1810256-18 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810256-19 **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: 1810256

## 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.