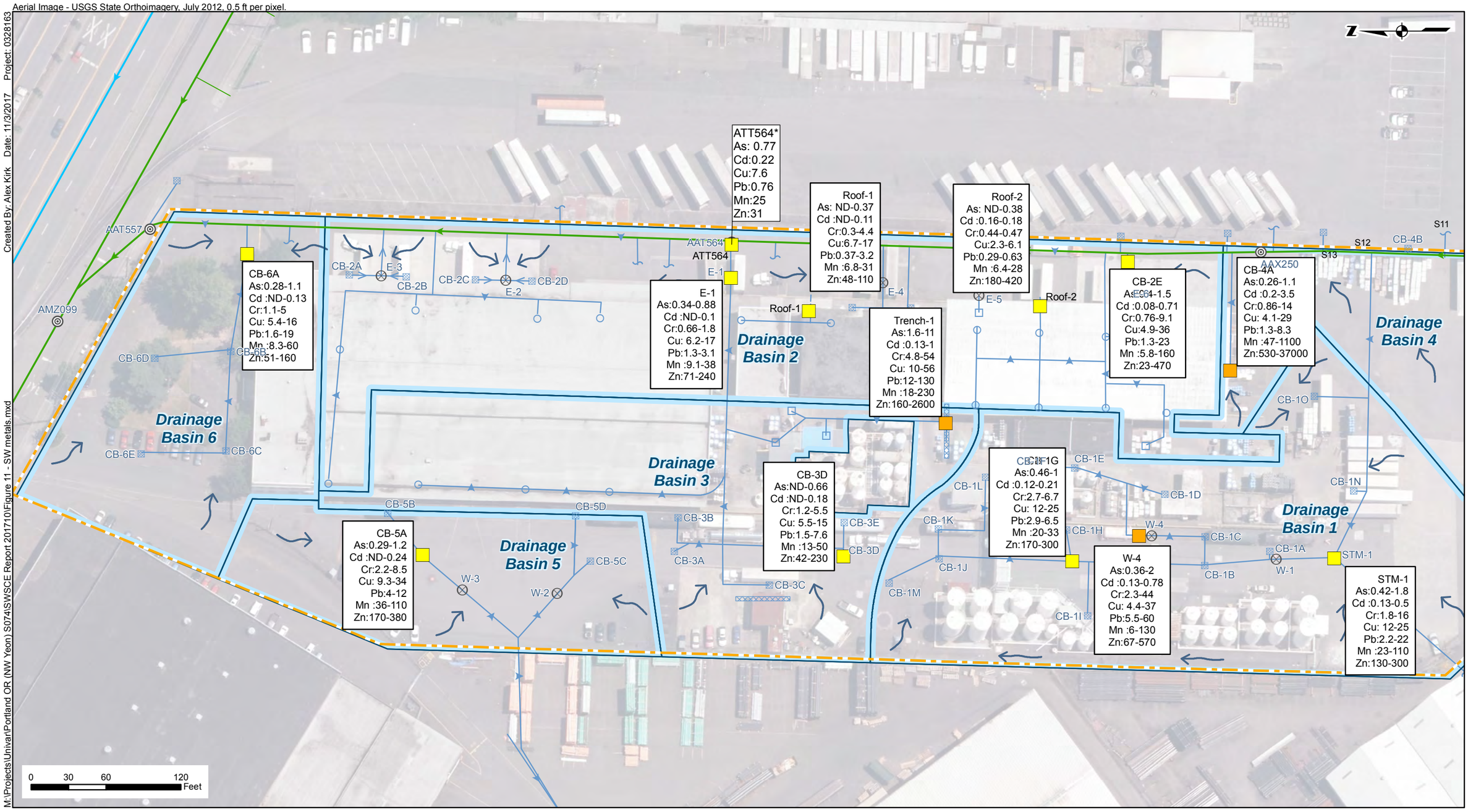


Total Metal Concentrations Exceedance Quotient

- Detected concentration is greater than 100 times the JSCS SLV
- Detected concentration is between 10 and 100 times the JSCS SLV

- Catch Basin
- Floor Drain
- Roof Drain
- SPCC Control Valve
- Storm Manhole
- Trench Drain
- Private Stormwater Pipe
- City Sanitary Sewer Pipes
- City Stormwater Pipe
- City Storm Laterals
- Generalized Surface Flow Direction
- Drainage Basin
- Approximate Univar Property Boundary

Notes:Figure
- All results given in micrograms per liter (µg/L)
- JSCS: Joint source control strategy
- ROD: Record of Decision
- CUL: Cleanup level
- SLV: Portland Harbor ROD CUL supplemented with JSCS screening level values
-- As: Arsenic, SLV = 0.018 µg/L
- Cd: Cadmium, SLV = 0.094 µg/L
- Cr: Chromium, SLV = 100 µg/L
- Cu: Copper, SLV = 2.74 µg/L
- Pb: Lea d, SLV = 0.54 µg/L
- Mn: Manganese, SLV = 100 µg/L
- Z n: Z inc, SLV = 36.5 µg/L
- All subsurface locations are approximate
* Groundwater infiltration sample results at AAT564 in June 2017 included on figure with stormwater results for comparison purposes
- Shading shown is the highest EQ of analytes listed

**Figure 11**
*Metal Concentrations in Stormwater Discharge*
*Stormwater Source Control Evaluation*
*Univar USA Inc., NW Yeon Ave*
*Portland, Oregon*

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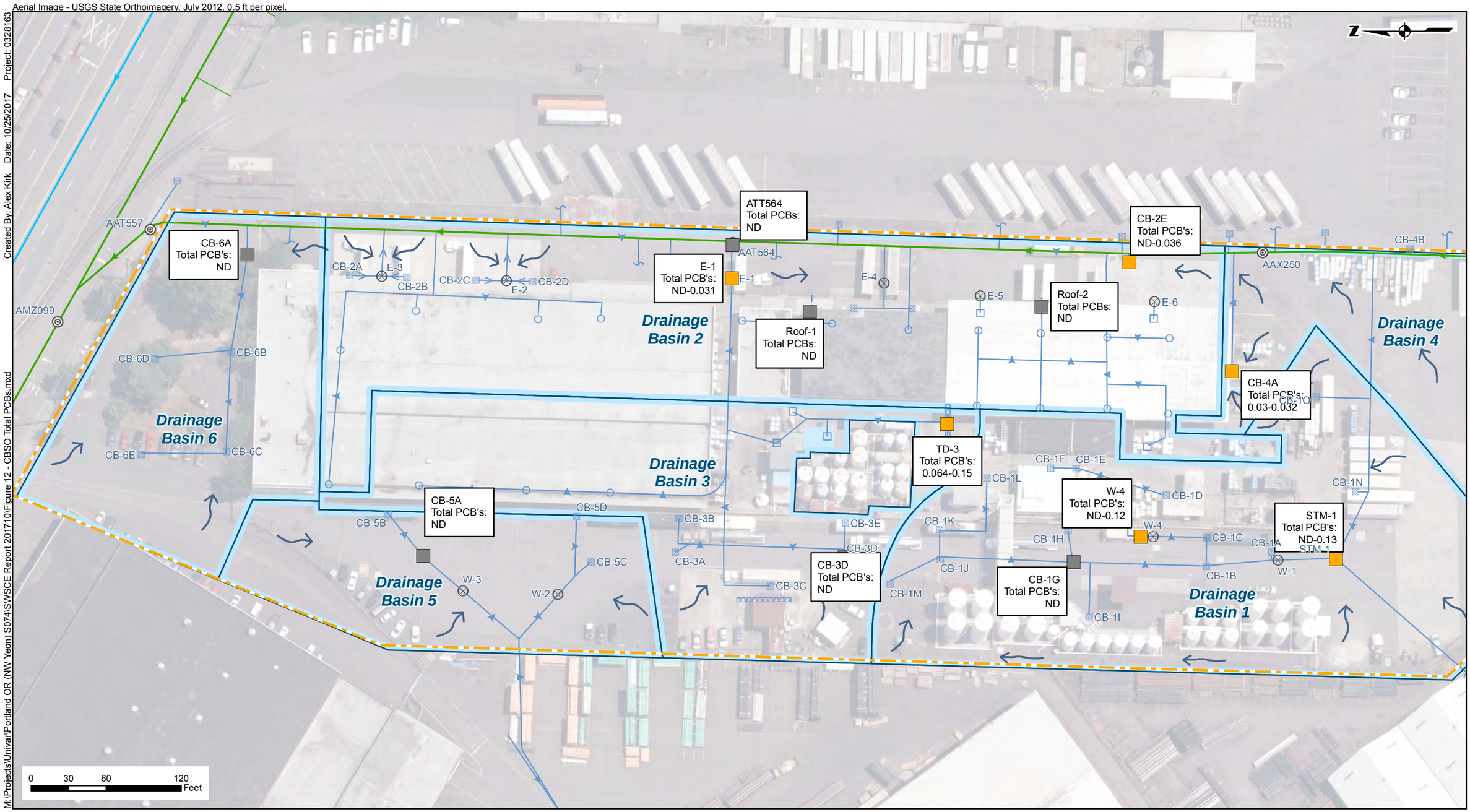


Total PCB Concentrations Exceedance Quotient

- Detected concentration is greater than 100 times the JSCS SLV
- Detected concentration is between 10 and 100 times the JSCS SLV
- Detected concentration is between 1 and 10 times the JSCS SLV
- Detected concentration is below the JSCS SLV
- Not Detected

- Catch Basin
- Floor Drain
- Roof Drain
- SPCC Control Valve
- Storm Manhole
- Trench Drain
- Private Stormwater Pipe
- City Sanitary Sewer Pipes
- City Stormwater Pipe
- City Storm Laterals
- Generalized Surface Flow Direction
- Drainage Basin
- Approximate Univar Property Boundary

Notes:
- All results given in micrograms per liter (µg/L)
- JSCS: Joint source control strategy
- ROD: Record of Decision
- CUL: Cleanup level
- SLV: Portland Harbor ROD CUL supplemented with JSCS screening level values
- Total PCBs: Total polychlorinated biphenyls, SLV = 0.0000064 µg/L
- All subsurface locations are approximate
- *Groundwater infiltration sample results at AAT564 in June 2017 included on figure with stormwater results for comparison purposes
- Shading shown is the highest EQ of analytes listed
- ND = Analyte not detected in any sample above the method detection limit

**Figure 12**

*Total PCB Concentrations in Stormwater Discharge*
*Stormwater Source Control Evaluation*
*Univar USA Inc., NW Yeon Ave*
*Portland, Oregon*

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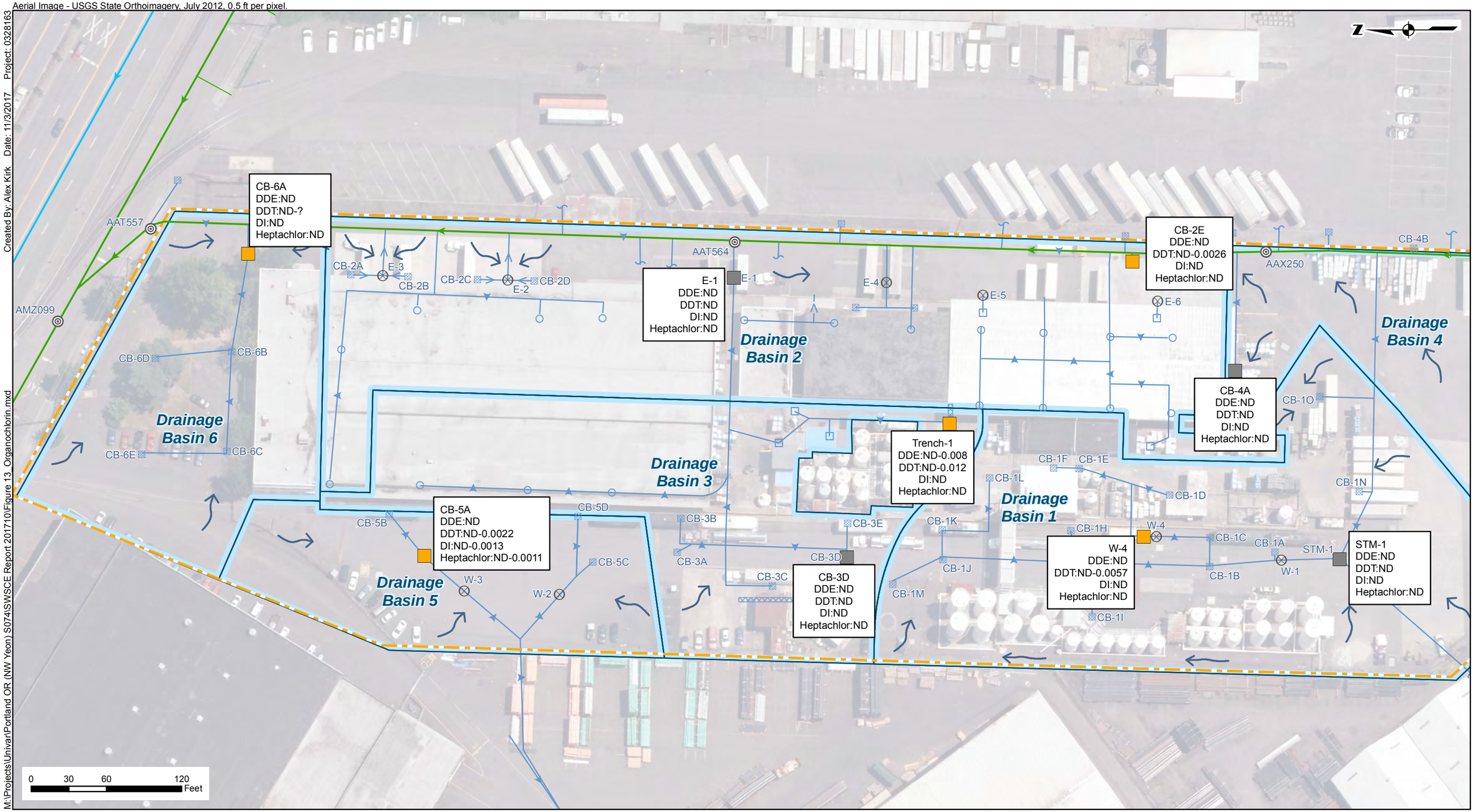
Aerial Image - USGS State Orthoimagery, July 2012, 0.5 ft per pixel.




**Total Organochlorine Pesticide Concentrations Exceedance Quotient**

- Detected concentration is greater than 100 times the JSCS SLV
- Detected concentration is between 10 and 100 times the JSCS SLV
- Detected concentration is between 1 and 10 times the JSCS SLV
- Detected concentration is below the JSCS SLV
- Not Detected

- Catch Basin
- Floor Drain
- Roof Drain
- SPCC Control Valve
- Storm Manhole
- Trench Drain
- Private Stormwater Pipe
- City Sanitary Sewer Pipes
- City Stormwater Pipe
- City Storm Laterals
- Generalized Surface Flow Direction
- Drainage Basin
- Approximate Univar Property Boundary

Notes:
- All results given in micrograms per liter (µg/L)
- JSCS: Joint source control strategy
- ROD: Record of Decision
- CUL: Cleanup level
- SLV: Portland Harbor ROD CUL supplemented with JSCS screening level values
- 4,4'-DDE, SLV = 0.000022 (µg/L)
- 4,4'-DDT, SLV = 0.000022 (µg/L)
- DI: Dieldrin, SLV = 0.0000054 (µg/L)
- Heptachlor, SLV = 0.0000039 (µg/L)
- All subsurface locations are approximate
- Shading shown is the highest EQ of analytes listed
-ND = Analyte not detected in any sample above the method detection limit

**Figure 13**
*Organochlorine Concentrations in Stormwater Discharge*
*Stormwater Source Control Evaluation*
*Univar USA Inc., NW Yeon Ave*
*Portland, Oregon*

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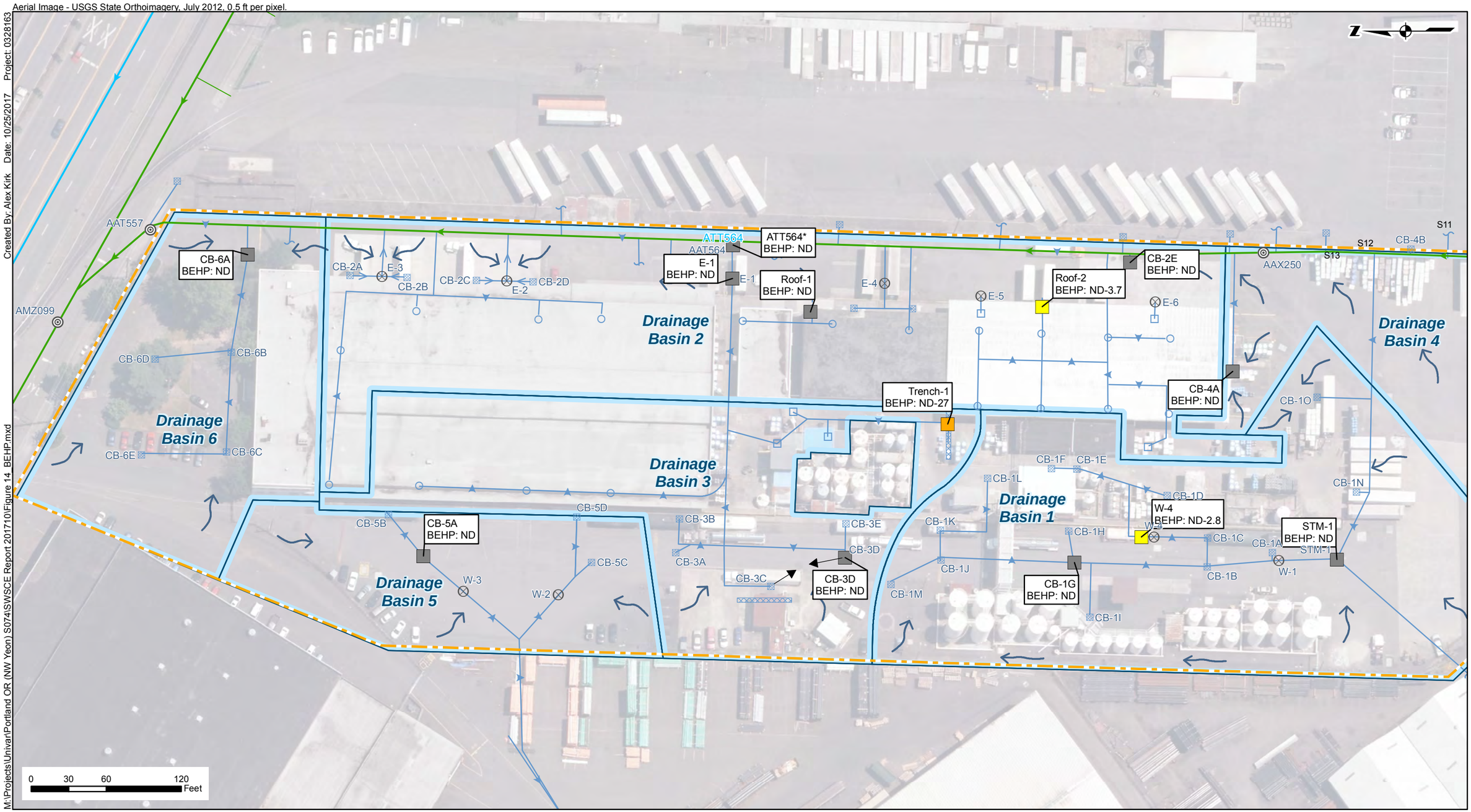
Created By: Alex Kirk Date: 11/3/2017 Project: 0328163




**Total BEHP Concentrations Exceedance Quotient**

- Detected concentration is greater than 100 times the JSCS SLV
- Detected concentration is between 10 and 100 times the JSCS SLV
- Detected concentration is between 1 and 10 times the JSCS SLV
- Detected concentration is below the JSCS SLV
- Not Detected

- Catch Basin
- Floor Drain
- Roof Drain
- SPCC Control Valve
- Storm Manhole
- Trench Drain
- Private Stormwater Pipe
- City Sanitary Sewer Pipes
- City Stormwater Pipe
- City Storm Laterals
- Generalized Surface Flow Direction
- Drainage Basin
- Approximate Univar Property Boundary

Notes:
- All results given in micrograms per liter (µg/L)
- JSCS: Joint source control strategy
- ROD: Record of Decision
- CUL: Cleanup level
- SLV: Portland Harbor ROD CUL supplemented qith JSCS screening level values
- BEHP: bis(2-Ethylhexyl)phthalate, SLV = 0.2 µg/L
- All subsurface locations are approximate
- *Groundwater infiltration sample results at AAT564 in June 2017 included on figure with stormwater results for comparison purposes
- Shading shown is the highest EQ of analytes listed
- ND = Analyte not detected in any sample above the method detection limit

**Figure 14**

*BEHP Concentrations in Stormwater Discharge*
*Stormwater Source Control Evaluation*
*Univar USA Inc., NW Yeon Ave*
*Portland, Oregon*

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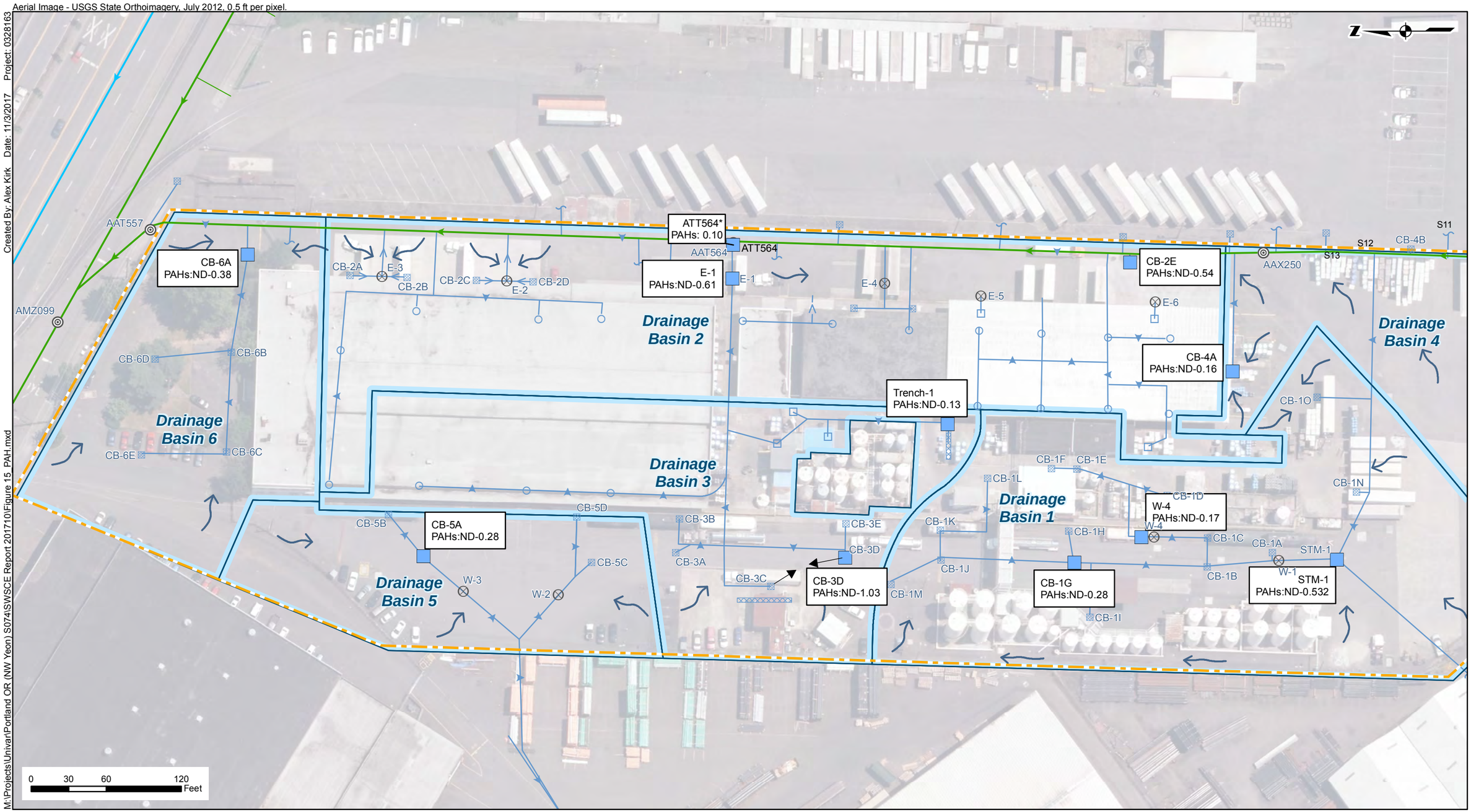


**Total PAH Concentrations Exceedance Quotient**

- Detected concentration is below the JSCS SLV
- Catch Basin
- Floor Drain
- Roof Drain
- SPCC Control Valve
- Storm Manhole
- Trench Drain
- Private Stormwater Pipe
- City Sanitary Sewer Pipes
- City Stormwater Pipe
- City Storm Laterals
- Generalized Surface Flow Direction
- Drainage Basin
- Approximate Univar Property Boundary

Notes:
- All results given in micrograms per liter (µg/L)
- SLV: Most conservative screening level value
- Total PAHs: Polycyclic Aromatic Hydrocarbons
- All subsurface locations are approximate
- *Groundwater infiltration sample results at AAT564 in June 2017 included on figure with stormwater results for comparison purposes
- ND = Analyte not detected in any sample above the method detection limit

**Figure 15**

*Total PAH Concentrations in Stormwater Discharge*
*Stormwater Source Control Evaluation*
*Univar USA Inc., NW Yeon Ave*
*Portland, Oregon*

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Aerial Image - USGS State Orthoimagery, July 2012, 0.5 ft per pixel.

Created By: Alex Kirk Date: 10/25/2017 Project: 0328163

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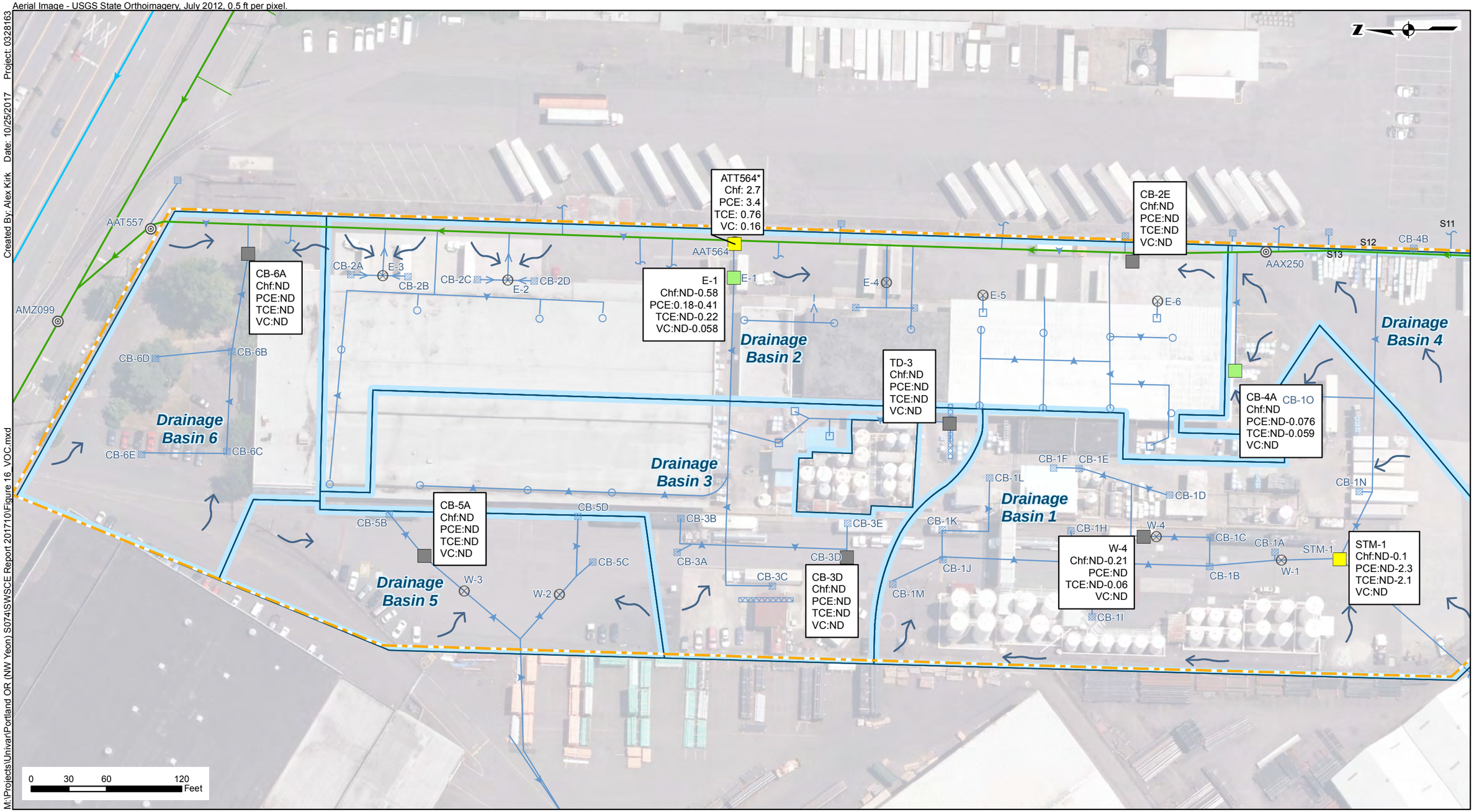


Total VOC Concentrations Exceedance Quotient

- Detected concentration is between 10 and 100 times the JSCS SLV
- Detected concentration is between 1 and 10 times the JSCS SLV
- Not Detected

- Catch Basin
- Floor Drain
- Roof Drain
- SPCC Control Valve
- Storm Manhole
- Trench Drain
- Private Stormwater Pipe
- City Sanitary Sewer Pipes
- City Stormwater Pipe
- City Storm Laterals
- Generalized Surface Flow Direction
- Drainage Basin
- Approximate Univar Property Boundary

Notes:
- All results given in micrograms per Liter (µg/L)
- JSCS: Joint source control strategy
- ROD: Record of Decision
- CUL: Cleanup level
- SLV: Portland Harbor ROD CUL supplemented with JSCS screening level values
- Chf: Chloroform, SLV = 0.17 µg/L
- PCE: Tetrachloroethene, SLV = 0.12 µg/L
- TCE: Trichloroethene, SLV = 0.17 µg/L
- VC: Vinyle Chloride, SLV = 0.015 µg/L
- All subsurface locations are approximate
- *Groundwater infiltration sample results at AAT564 in June 2017 included on figure with stormwater results for comparison purposes
- Shading shown is the highest EQ of analytes listed
- ND = Analyte not detected above the method detection limit

**Figure 16**

*Total VOC Concentrations in Stormwater Discharge*
*Stormwater Source Control Evaluation*
*Univar USA Inc., NW Yeon Ave*
*Portland, Oregon*

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**Table 5**

***Catch Basin Solids Analytical Results***
***Stormwater Source Control Evaluation***
***Univar USA Inc.***

| Constituent | Analytical Method | Unit | CAS No. | Screening Level[1] | | Background[2] DEQ 2013 Oregon Background Metals Concentrations in µg/kg | Catch Basin (CB-1G) 12/15/2015 | Catch Basin (CB-2E) 12/15/2015 | Catch Basin (CB-3CD) 12/15/2015 | Catch Basin (CB-4A) 12/15/2015 | Catch Basin (CB-5A) 12/15/2015 | Catch Basin (CB-6A) 12/15/2015 | Trench Drain (Trench-1) 12/15/2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | |
| Arsenic | EPA 6020A | µg/kg | 7440-38-2 | 3,000 | a | 8,800 | **15,000** | **4,900** | **2,700** | **13,000** | **3,200** | **1,800** j | **24,000** |
| Cadmium | EPA 6020A | µg/kg | 7440-43-9 | 510 | a | 630 | **1,100** | **1,400** | **1,100** | **2,200** | **1,200** | **1,100** | **1,800** |
| Chromium | EPA 6020A | µg/kg | 7440-47-3 | 111,000 | b | 76,000 | **200,000** J- | **75,000** J- | **70,000** J- | **86,000** J- | **44,000** J+ | **92,000** J- | **270,000** **J-** |
| Copper | EPA 6020A | µg/kg | 7440-50-8 | 359,000 | a | 34,000 | **190,000** | **88,000** | **92,000** | **87,000** | **76,000** J+ | **62,000** | **160,000** |
| Lead | EPA 6020A | µg/kg | 7439-92-1 | 196,000 | a | 79,000 | **71,000** | **86,000** | **40,000** | **110,000** | **49,000** | **38,000** | **210,000** |
| Manganese | EPA 6020A | µg/kg | 7439-96-5 | 1,100,000 | b | 1,800,000 | **450,000** J+ | **520,000** J+ | **340,000** J+ | **580,000** J+ | **360,000** | **270,000** J+ | **520,000** **J+** |
| Mercury | EPA 7471A | µg/kg | 7439-97-6 | 85 | a | 230 | **140** J- | **19** J- | **79** J- | **310** J- | **650** J- | **74** J- | **130** **J-** |
| Nickel | EPA 6020A | µg/kg | 7440-02-0 | 48,600 | b | 47,000 | **96,000** | **52,000** | **47,000** | **57,000** | **29,000** | **48,000** J | **130,000** |
| Zinc | EPA 6020A | µg/kg | 7440-66-6 | 459,000 | a | 180,000 | **900,000** | **820,000** | **500,000** | **2,000,000** | **1,000,000** | **890,000** J | **2,700,000** |
| **PCBs Aroclors** | | | | | | | | | | | | | |
| Aroclor 1016 | EPA 8082A | µg/kg | 12674-11-2 | 530 | b | -- | 0.11 U | 0.12 U | 0.09 U | 0.11 U | 0.12 U | 0.22 U | 0.1 **U** |
| Aroclor 1221 | EPA 8082A | µg/kg | 11104-28-2 | -- | | -- | 0.76 U | 0.81 U | 0.61 U | 0.75 U | 0.8 U | 1.5 U | 0.68 **U** |
| Aroclor 1232 | EPA 8082A | µg/kg | 11141-16-5 | -- | | -- | 0.49 U | 0.53 U | 0.4 U | 0.49 U | 0.52 U | 0.95 U | 0.44 **U** |
| Aroclor 1242 | EPA 8082A | µg/kg | 53469-21-9 | -- | | -- | 0.47 U | 0.5 U | 0.38 U | 0.46 U | 0.5 U | 0.9 U | 0.42 **U** |
| Aroclor 1248 | EPA 8082A | µg/kg | 12672-29-6 | 1500 | b | -- | 0.36 U | 0.38 U | 0.29 U | 0.35 U | 0.38 U | 0.69 U | 0.32 **U** |
| Aroclor 1254 | EPA 8082A | µg/kg | 11097-69-1 | 300 | b | -- | 0.2 U | 0.21 U | 0.16 U | 0.2 U | 0.21 U | 0.39 U | 3.6 **U** |
| Aroclor 1260 | EPA 8082A | µg/kg | 11096-82-5 | 200 | b | -- | 0.29 U | 0.31 U | 0.23 U | 0.29 U | 0.31 U | 0.56 U | 5.2 **U** |
| Aroclor 1262 | EPA 8082A | µg/kg | 37324-23-5 | -- | | -- | 0.43 U | 0.45 U | 0.34 U | 0.42 U | 0.45 U | 0.82 U | 7.6 **U** |
| Aroclor 1268 | EPA 8082A | µg/kg | 11100-14-4 | -- | | -- | 0.47 U | **350** J+ | 0.38 U | 0.46 U | 0.5 U | **31** | **1,200** **J+** |
| Total PCB Aroclors[3] | EPA 8082A | µg/kg | 1336-36-3 | 9 | a | -- | 0.76 U | **350** | 0.61 U | 0.75 U | 0.8 U | **31** | **1,200** |
| **Organochlorine Pesticides** | | | | | | | | | | | | | |
| 2,4'-DDD | EPA 8081B | µg/kg | 53-19-0 | 114 | a | -- | 0.67 UJ | **7.6** J+ | 0.27 UJ | **1.6** J+ | **7.4** J+ | **2.4** J- | **14** **J+** |
| 2,4'-DDE | EPA 8081B | µg/kg | 3424-82-6 | 226 | a | -- | **11** J- | **2.6** J+ | 0.27 UJ | 0.66 UJ | **1.2** J+ | **4.2** J- | **3.8** **J+** |
| 2,4'-DDT | EPA 8081B | µg/kg | 789-02-6 | 246 | a | -- | **2.1** J- | **1.4** J+ | **1.2** J+ | **2.9** J+ | **2.5** J+ | **500** J- | 0.64 **UJ** |
| 4,4'-DDD | EPA 8081B | µg/kg | 72-54-8 | 114 | a | -- | 3.6 UJ | **6.3** J+ | **3.4** J+ | 1.5 UJ | **3.9** J+ | 0.54 UJ | **18** **J+** |
| 4,4'-DDE | EPA 8081B | µg/kg | 72-55-9 | 226 | a | -- | 2.3 UJ | **7.5** J+ | **8.7** J+ | 1.3 UJ | **4.9** J+ | 3.4 UJ | **29** **J+** |
| 4,4'-DDT | EPA 8081B | µg/kg | 50-29-3 | 246 | a | -- | **3.7** J- | **9.6** J+ | **22** J+ | **21** J+ | **4.2** J+ | **110** J- | **25** **J+** |
| DDx | EPA 8081B | µg/kg | -- | 6.1 | a | | **16.8** | **35** | **35.3** | **25.5** | **24.1** | **616.6** | **89.8** |
| Aldrin | EPA 8081B | µg/kg | 309-00-2 | 2 | a | -- | **0.89** J- | **0.16** J+ | **1.5** J+ | **0.67** J+ | **0.37** J+ | **3.2** J- | **0.58** **J+** |
| alpha-Chlordane | EPA 8081B | µg/kg | 5103-71-9 | 1.4 | a | -- | 0.3 UJ | **15** J+ | **4.9** J+ | 0.3 UJ | **0.53** J+ | 0.58 UJ | **17** **J+** |
| Chlordane | EPA 8081B | µg/kg | 57-74-9 | 1.4 | a | -- | 3.1 UJ | **120** J+ | **110** J+ | 3.1 UJ | 1.7 UJ | 6 UJ | **110** **J+** |
| Dieldrin | EPA 8081B | µg/kg | 60-57-1 | 0.07 | a | -- | **1.8** J- | 0.14 UJ | **1.1** J+ | 0.26 UJ | 0.14 UJ | 0.51 UJ | **6.3** **J+** |
| Endosulfan I (Alpha) | EPA 8081B | µg/kg | 959-98-8 | -- | | -- | **11** J- | **0.3** J+ | 0.092 UJ | 0.23 UJ | **0.79** J+ | 0.44 UJ | 0.41 **UJ** |
| Endosulfan II (Beta) | EPA 8081B | µg/kg | 33213-65-9 | -- | | -- | **1.1** J- | **4.4** J+ | **0.55** J+ | **0.49** J+ | **1.7** J | **0.76** J- | 0.43 **UJ** |
| Endosulfan sulfate | EPA 8081B | µg/kg | 1031-07-8 | -- | | -- | 0.1 UJ | **0.078** J+ | **1.4** J+ | 0.1 UJ | **0.51** J+ | 0.2 UJ | 0.18 **UJ** |
| Endrin | EPA 8081B | µg/kg | 72-20-8 | 207 | b | -- | **0.84** J- | **3.5** J+ | **1.6** J+ | 0.21 UJ | **3.5** J+ | 0.41 UJ | **5.4** **J+** |
| Endrin aldehyde | EPA 8081B | µg/kg | 7421-93-4 | -- | | -- | **1.1** J- | 0.24 UJ | **14** J | **1.5** J | **42** J | **5.1** J- | **3.6** **J** |
| Endrin ketone | EPA 8081B | µg/kg | 53494-70-5 | -- | | -- | **23** J- | **70** J+ | **24** J+ | **19** J+ | **15** J+ | **6.7** J- | **280** **J+** |
| gamma-Chlordane | EPA 8081B | µg/kg | 5566-34-7 | 1.4 | a | -- | **1.7** J- | **21** J+ | **7.1** J+ | **0.92** J+ | **2.2** J+ | **4.2** J- | **11** **J+** |
| Heptachlor | EPA 8081B | µg/kg | 76-44-8 | 10 | b | -- | 0.34 UJ | **0.52** J+ | 0.14 UJ | 0.33 UJ | **0.3** J+ | 0.65 UJ | 0.6 **UJ** |
| Heptachlor epoxide | EPA 8081B | µg/kg | 1024-57-3 | 16 | b | -- | 0.087 UJ | 0.047 UJ | **8.3** J+ | 0.086 UJ | **0.35** J+ | 0.17 UJ | 0.16 **UJ** |
| Methoxychlor | EPA 8081B | µg/kg | 72-43-5 | -- | | -- | **5.6** J- | **6.9** J+ | **5.5** J+ | **2.9** J+ | **4.4** J+ | **4.9** J- | **25** **J+** |
| Toxaphene | EPA 8081B | µg/kg | 8001-35-2 | -- | | -- | 17 UJ | 9.3 UJ | 7 UJ | 17 UJ | 9.2 UJ | 34 UJ | 31 **UJ** |
| **VOCs** | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | EPA 8260C | µg/kg | 71-55-6 | -- | | -- | 0.5 U | 0.67 U | 0.55 U | 0.39 U | 0.64 U | 1.5 U | 0.61 **U** |
| 1,1-Dichloroethane | EPA 8260C | µg/kg | 75-34-3 | -- | | -- | 0.32 U | 0.43 U | **1.8** | 0.25 U | 0.41 U | 0.93 U | 0.38 **U** |
| 1,2-Dichloroethane | EPA 8260C | µg/kg | 107-06-2 | -- | | -- | **0.44** j | 0.34 U | **0.35** j | **0.29** j | **0.52** j | **1** j | **0.38** **j** |
| Benzene | EPA 8260C | µg/kg | 71-43-2 | -- | | -- | 0.5 U | 0.67 U | 0.55 U | 0.39 U | 0.64 U | 1.5 U | 0.61 **U** |
| Chloroform | EPA 8260C | µg/kg | 67-66-3 | -- | | -- | 0.5 U | 0.67 U | 0.55 U | 0.39 U | 0.64 U | 1.5 U | 0.61 **U** |
| cis-1,2-Dichloroethene | EPA 8260C | µg/kg | 156-59-2 | -- | | -- | 0.5 U | 0.67 U | **0.79** j | 0.39 U | 0.64 U | 1.5 U | 0.61 **U** |
| Ethylbenzene | EPA 8260C | µg/kg | 100-41-4 | -- | | -- | **0.97** J- | 0.9 UJ | 0.73 UJ | 0.52 UJ | 0.85 UJ | 2 UJ | 0.81 **UJ** |
| m,p-Xylenes | EPA 8260C | µg/kg | 179601-23-1 | -- | | -- | **3.9** | 0.64 U | 2.3 U | 0.26 U | 0.43 U | 0.98 U | 0.42 **U** |
| Methylene chloride | EPA 8260C | µg/kg | 75-09-2 | -- | | -- | 0.41 U | 0.54 U | 0.44 U | 0.31 U | 0.51 U | 1.2 U | 0.48 **U** |
| o-Xylene | EPA 8260C | µg/kg | 95-47-6 | -- | | -- | **2.4** J- | 0.58 UJ | **1.4** J- | 0.34 UJ | 0.56 UJ | 1.3 UJ | 0.52 **UJ** |
| Styrene | EPA 8260C | µg/kg | 100-42-5 | -- | | -- | **1.2** j | **0.54** j | 0.36 U | 0.26 U | 0.43 U | 0.98 U | **0.42** **j** |
| Tetrachloroethene | EPA 8260C | µg/kg | 127-18-4 | 500 | b | -- | **0.8** j | 0.9 U | **1.2** j | 0.52 U | 0.85 U | 2 U | 0.81 **U** |
| Toluene | EPA 8260C | µg/kg | 108-88-3 | -- | | -- | 1.2 U | **95** | 2.9 U | 0.39 U | **6.2** | **29** | 0.62 **U** |
| trans-1,2-Dichloroethene | EPA 8260C | µg/kg | 156-60-5 | -- | | -- | 0.66 U | 0.9 U | 0.73 U | 0.52 U | 0.85 U | 2 U | 0.81 **U** |
| Trichloroethene | EPA 8260C | µg/kg | 79-01-6 | 2100 | b | -- | 0.5 U | 0.67 U | **0.63** j | 0.39 U | 0.64 U | 1.5 U | 0.61 **U** |
| Xylenes | EPA 8260C | µg/kg | 1330-20-7 | -- | | -- | **6.3** | **0.64** j | **3.7** | 0.34 U | 0.56 U | 1.3 U | 0.52 **U** |
| **Phthalate Esters** | | | | | | | | | | | | | |
| Bis(2-ethylhexyl)phthalate | EPA 8270D | µg/kg | 117-81-7 | 135 | a | -- | **65,000** | **15,000** | **17,000** | **40,000** | **16,000** | **16,000** | **40,000** |
| Butylbenzylphthalate | EPA 8270D | µg/kg | 85-68-7 | -- | | -- | **13,000** | **2,600** | **590** | 370 U | **920** | **1,600** | **650** |
| Dibutyl phthalate | EPA 8270D | µg/kg | 84-74-2 | 60 | b | -- | **510** j | **1,200** | **440** j | **160** j | **430** j | **310** j | **430** **j** |
| Diethyl phthalate | EPA 8270D | µg/kg | 84-66-2 | 600 | b | -- | 35 U | 39 U | 30 U | 51 U | 74 U | 82 U | 30 **U** |
| Dimethyl phthalate | EPA 8270D | µg/kg | 131-11-3 | -- | | -- | **15,000** | **660** | **800** | **360** | **650** | **600** | **810** |
| Di-n-octyl phthalate | EPA 8270D | µg/kg | 117-84-0 | -- | | -- | **2,700** | 12 U | **2,000** | **820** j | **750** j | **1,900** j | **5,900** |
| **Polycyclic Aromatic Hydrocarbons** | | | | | | | | | | | | | |
| 2-Methylnaphthalene | EPA 8270D | µg/kg | 91-57-6 | 200 | b | -- | **22** j | **130** | **31** j | **37** j | **53** | **31** j | **32** **j** |
| Acenaphthene | EPA 8270D | µg/kg | 83-32-9 | 300 | b | -- | 11 U | **34** j | 9.1 U | 11 U | **18** j | 21 U | 10 **U** |
| Acenaphthylene | EPA 8270D | µg/kg | 208-96-8 | 200 | b | -- | **18** j | **17** j | 9.1 U | **16** j | **30** j | **28** j | **13** **j** |
| Anthracene | EPA 8270D | µg/kg | 120-12-7 | 845 | b | -- | **27** j | **70** | **15** j | **15** j | **47** j | **71** j | **19** **j** |
| Benzo(a)anthracene | EPA 8270D | µg/kg | 56-55-3 | 1050 | b | -- | **130** | **190** | **55** | **52** | **190** | **140** | **62** |
| Benzo(a)pyrene | EPA 8270D | µg/kg | 50-32-8 | 1450 | b | -- | **160** | **240** | **130** | **93** | **260** | **220** | **100** |
| Benzo(b)fluoranthene | EPA 8270D | µg/kg | 205-99-2 | -- | | -- | **340** | **510** | **280** | **180** | **570** | **560** | **240** |
| Benzo(g,h,i)perylene | EPA 8270D | µg/kg | 191-24-2 | 300 | b | -- | **210** | **200** | **120** | **81** | 12 U | **210** | **130** |
| Benzo(k)fluoranthene | EPA 8270D | µg/kg | 207-08-9 | 13000 | b | -- | **130** | **110** | **83** | **94** | **440** J- | **440** | **190** |
| Chrysene | EPA 8270D | µg/kg | 218-01-9 | 1290 | b | -- | **350** | **420** | **200** | **130** | **490** | **430** | **140** |
| Dibenzo(a,h)anthracene | EPA 8270D | µg/kg | 53-70-3 | 1300 | b | -- | 11 U | 12 U | **31** j | **31** j | 12 U | **74** j | **27** j |
| Fluoranthene | EPA 8270D | µg/kg | 206-44-0 | 2230 | b | -- | **500** | **790** | **300** | **230** | **700** J+ | **550** | **390** |
| Fluorene | EPA 8270D | µg/kg | 86-73-7 | 536 | b | -- | 11 U | **50** | 9.1 U | **19** j | **34** j | **70** j | **13** j |
| Indeno(1,2,3-cd)pyrene | EPA 8270D | µg/kg | 193-39-5 | 100 | b | -- | 11 U | **160** | **67** j | **42** j | 12 U | **150** j | **57** j |
| Naphthalene | EPA 8270D | µg/kg | 91-20-3 | 561 | b | -- | **700** | **1,700** | **24** j | **23** j | **36** j | **24** j | **34** **j** |
| Phenanthrene | EPA 8270D | µg/kg | 85-01-8 | 1170 | b | -- | **200** | **460** | **130** | **140** | **300** | **460** | **200** |
| Pyrene | EPA 8270D | µg/kg | 129-00-0 | 1520 | b | -- | **730** | **910** | **420** | **210** | **1,300** | **790** | **600** |
| Total PAHs[4] | EPA 8270D | µg/kg | -- | 23000 | a | -- | **3,517** | **5,991** | **1,886** | **1,393** | **4,468** | **4,248** | **2,247** |
| cPAHs (BaPeq) | EPA 8270D | µg/kg | -- | 12 | a | -- | **224** | **341** | **184** | **134** | **385** | **361** | **159** |

**Notes**

Gray shading indicates compound concentration was greater than applicable JSCS SLV and background concentration
Detected results shown in **bold**.
-- = Not applicable
j = The analyte was positively identified but was determined to be an estimated concentration by the laboratory
J = The analyte was positively identified; associated numerical value is the approximate concentration of the analyte in the sample.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
U = Compound was analyzed for, but not detected. The associated numerical value is the SQL.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.
µg/kg = micrograms per liter
CUL = Clean up level
DDx = Sum total of 2,4- and 4,4- isomers of DDE, DDD, and DDT
DEQ = Department of Environmental Quality
EPA = Environmental Protection Agency
JSCS - Joint Source Control Strategy
PAHs = Polycyclic Aromatic Hydrocarbons
cPAH (BaPeq) = carcinogenic PAHs calculated as benzo(a)pyrene equivalent
PCBs = polycyclic chlorinated biphenyls
ROD = Record of Decision
SLVs = Screening level values
VOCs = volatile organic compounds
[1] = Screening levels are Portland Harbor ROD CULs (EPA 2017) supplemeneted with the highlighted screening levels in the Portland Harbor Joint Source Control Strategy, Final, Table 3-1 Revision, July 2007
[2] = Development of Oregon Background Metals Concentrations in Soils. Technical Report. ODEQ 2013
[3] = Total PCBs is sum of PCB aroclors which were detected above the detection limit, with non-detects counted as zero. Detection limits are recorded as the highest detection limit of the individual aroclors.
[4] = Total PAHs is sum of detected PAH values, with nondetects counted as zero

**Screening Level Footnotes:**
a = Portland Harbor ROD CUL for Riverbank Soil/Sediment
b = Portland Harbor JSCS SLV

| Constituent | Analytical Method | Unit | CAS No. | Screening Level[1] | | Comparison Value[2] | Catch Basin (CB-1G) 11/22/2016 | Catch Basin (CB-1G) 3/13/2017 | Catch Basin (CB-1G) 5/11/2017 | Catch Basin (CB-1G) 6/15/2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | |
| Arsenic | EPA 6020_LL | µg/L | 7440-38-2 | 0.018 | a | 2.1 | 0.63 | 0.46 | 1 | 0.78 j |
| Cadmium | EPA 6020_LL | µg/L | 7440-43-9 | 0.094 | b | 0.5 | 0.17 | 0.21 | 0.13 j | 0.12 j |
| Chromium | EPA 6020_LL | µg/L | 7440-47-3 | 100 | a | 10 | 6.7 | 4.1 | 2.7 | 3.6 |
| Copper | EPA 6020_LL | µg/L | 7440-50-8 | 2.74 | a | 20 | 17 | 12 | 25 | 23 |
| Lead | EPA 6020_LL | µg/L | 7439-92-1 | 0.54 | b | 40 | 5 | 6.5 | 2.9 | 4.4 |
| Manganese | EPA 6020_LL | µg/L | 7439-96-5 | 100 | a | -- | 26 | 33 | 20 | 30 |
| Mercury | EPA 7041A | µg/L | 7439-97-6 | 0.77 | b | 0.2 | 0.1 U | 0.1 U | -- | 0.15 U |
| Nickel | EPA 6020_LL | µg/L | 7440-02-0 | 16 | b | 10 | 8.7 | 3.2 | 2.7 j | 3.1 |
| Zinc | EPA 6020_LL | µg/L | 7440-66-6 | 36.5 | a | 120 | 300 | 170 | 170 | 180 |
| **PCBs Aroclors** | | | | | | | | | | |
| Aroclor 1016 | EPA 8082A | µg/L | 12674-11-2 | 0.96 | b | -- | 0.0081 U | 0.0083 U | 0.0082 U | 0.009 U |
| Aroclor 1221 | EPA 8082A | µg/L | 11104-28-2 | 0.034 | b | -- | 0.014 U | 0.014 U | 0.014 U | 0.015 U |
| Aroclor 1232 | EPA 8082A | µg/L | 11141-16-5 | 0.034 | b | -- | 0.0071 U | 0.0073 U | 0.0072 U | 0.008 U |
| Aroclor 1242 | EPA 8082A | µg/L | 53469-21-9 | 0.034 | b | -- | 0.0067 U | 0.0068 U | 0.0067 U | 0.0074 U |
| Aroclor 1248 | EPA 8082A | µg/L | 12672-29-6 | 0.034 | b | -- | 0.0067 U | 0.0068 U | 0.0067 U | 0.0074 U |
| Aroclor 1254 | EPA 8082A | µg/L | 11097-69-1 | 0.033 | b | -- | 0.0071 U | 0.0073 U | 0.0072 U | 0.008 U |
| Aroclor 1260 | EPA 8082A | µg/L | 11096-82-5 | 0.034 | b | -- | 0.019 U | 0.019 U | 0.019 U | 0.021 U |
| Aroclor 1262 | EPA 8082A | µg/L | 37324-23-5 | -- | | -- | 0.0062 U | 0.0063 U | 0.0063 U | 0.0069 U |
| Aroclor 1268 | EPA 8082A | µg/L | 11100-14-4 | -- | | -- | 0.0067 U | 0.0068 U | 0.0067 U | 0.0074 U |
| Total PCBs[3] | EPA 8082A | µg/L | 1336-36-3 | 0.0000064 | a | 0.3 | 0.019 U | 0.019 U | 0.019 U | 0.021 U |
| **Organochlorine Pesticides** | | | | | | | | | | |
| 2,4'-DDD | EPA 8081A_LL | µg/L | 53-19-0 | -- | | -- | 0.0047 UJ | 0.019 U | 0.019 U | 0.022 U |
| 2,4'-DDE | EPA 8081A_LL | µg/L | 3424-82-6 | -- | | -- | 0.0047 UJ | 0.019 U | 0.019 U | 0.022 U |
| 2,4'-DDT | EPA 8081A_LL | µg/L | 789-02-6 | -- | | -- | 0.0047 UJ | 0.019 U | 0.019 U | 0.022 U |
| 4,4-DDD | EPA 8081A_LL | µg/L | 72-54-8 | 0.000031 | b | -- | 0.00095 UJ | 0.0038 U | 0.0038 U | 0.0043 U |
| 4,4'-DDE | EPA 8081A_LL | µg/L | 72-55-9 | 0.000018 | b | -- | 0.001 UJ | 0.0028 U | 0.0029 U | 0.0033 U |
| 4,4-DDT | EPA 8081A_LL | µg/L | 50-29-3 | 0.000022 | b | -- | 0.0012 J | 0.0038 U | 0.0038 U | 0.0043 U |
| DDX | EPA 8081A_LL | µg/L | 50-29-3 | 0.01 | a | -- | 0.0012 J | 0.0038 U | 0.019 U | 0.0043 U |
| Aldrin | EPA 8081A_LL | µg/L | 309-00-2 | 0.00000077 | a | -- | 0.0028 UJ | 0.0014 U | 0.0014 U | 0.0016 U |
| Chlordane | EPA 8081A_LL | µg/L | 57-74-9 | 0.000081 | a | -- | 0.022 UJ | 0.075 U | 0.077 U | 0.087 U |
| Dieldrin | EPA 8081A_LL | µg/L | 60-57-1 | 0.0000054 | b | -- | 0.00085 UJ | 0.0019 U | 0.0019 U | 0.0022 U |
| Endosulfan alpha- | EPA 8081A_LL | µg/L | 959-98-8 | 0.051 | b | -- | 0.0015 UJ | 0.0028 U | 0.0029 U | 0.0033 U |
| Endosulfan beta- | EPA 8081A_LL | µg/L | 33213-65-9 | 0.051 | b | -- | 0.00085 UJ | 0.0019 U | 0.0019 U | 0.0022 U |
| Endosulfan sulfate | EPA 8081A_LL | µg/L | 1031-07-8 | 89 | b | -- | 0.00085 UJ | 0.0028 U | 0.0029 U | 0.0033 U |
| Endrin | EPA 8081A_LL | µg/L | 72-20-8 | 0.036 | b | -- | 0.0028 UJ | 0.0019 U | 0.0019 U | 0.0022 U |
| Endrin aldehyde | EPA 8081A_LL | µg/L | 7421-93-4 | 0.03 | b | -- | 0.0074 UJ | 0.0019 U | 0.0019 U | 0.0022 U |
| Endrin ketone | EPA 8081A_LL | µg/L | 53494-70-5 | -- | | -- | 0.0028 UJ | 0.0066 U | 0.0067 U | 0.0076 U |
| Heptachlor | EPA 8081A_LL | µg/L | 76-44-8 | 0.0000079 | b | -- | 0.0028 UJ | 0.0028 U | 0.0029 U | 0.0033 U |
| Heptachlor epoxide | EPA 8081A_LL | µg/L | 1024-57-3 | 0.0000039 | b | -- | 0.00096 J | 0.0024 U | 0.0024 U | 0.0027 U |
| Methoxychlor | EPA 8081A_LL | µg/L | 72-43-5 | 0.03 | b | -- | 0.0028 UJ | 0.0033 U | 0.0033 U | 0.0038 U |
| Toxaphene | EPA 8081A_LL | µg/L | 8001-35-2 | 0.0002 | b | -- | 0.079 UJ | 0.24 U | 0.24 U | 0.27 U |
| **Volatile Organic Compounds** | | | | | | | | | | |
| 1,1- Dichloroethane | EPA 8260C_LL | µg/L | 75-34-3 | 47 | b | -- | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| 1,1,1- Trichloroethane (TCA) | EPA 8260C_LL | µg/L | 71-55-6 | 11 | b | -- | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| 1,2- Dichloroethane (EDC) | EPA 8260C_LL | µg/L | 107-06-2 | 0.73 | b | -- | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| Benzene | EPA 8260C_LL | µg/L | 71-43-2 | 1.2 | b | -- | 0.036 j | 0.087 j | 0.025 U | 0.025 U |
| Chloroform | EPA 8260C_LL | µg/L | 67-66-3 | 0.17 | b | -- | 0.03 U | 0.03 U | 0.03 U | 0.03 U |
| cis-1,2-Dichloroethlyene | EPA 8260C_LL | µg/L | 156-59-2 | 61 | b | -- | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| EthylBenzene | EPA 8260C_LL | µg/L | 100-41-4 | 7.3 | a | -- | 0.03 U | 0.036 j | 0.03 U | 0.03 U |
| m,p-Xylene | EPA 8260C_LL | µg/L | 179601-23-1 | 1.8 | b | -- | 0.05 U | 0.12 j | 0.05 U | 0.05 U |
| Methylene chloride | EPA 8260C_LL | µg/L | 75-09-2 | 8.9 | b | -- | 0.11 U | 0.11 U | 0.11 U | 0.11 U |
| o-Xylene | EPA 8260C_LL | µg/L | 95-47-6 | 13 | b | -- | 0.06 U | 0.06 U | 0.06 U | 0.06 U |
| Styrene | EPA 8260C_LL | µg/L | 100-42-5 | 100 | b | -- | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Tetrachloroethene (PCE) | EPA 8260C_LL | µg/L | 127-18-4 | 0.12 | b | -- | 0.07 U | 0.07 U | 0.07 U | 0.07 U |
| Toluene | EPA 8260C_LL | µg/L | 108-88-3 | 9.8 | b | -- | 0.03 U | 0.32 | 0.025 U | 0.025 U |
| trans-1,2-Dichloroethene | EPA 8260C_LL | µg/L | 156-60-5 | 110 | b | -- | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| Trichloroethene (TCE) | EPA 8260C_LL | µg/L | 79-01-6 | 0.17 | b | -- | 0.067 j | 0.025 U | 0.025 U | 0.025 U |
| Vinyl Chloride | EPA 8260C_LL | µg/L | 75-01-4 | 0.015 | b | -- | 0.013 U | 0.013 U | 0.013 U | 0.013 U |
| Xylenes (total) | EPA 8260C_LL | µg/L | 1330-20-7 | 200 | b | -- | 0.06 U | 0.12 j | 0.06 U | 0.06 U |
| **Phthalate Esters** | | | | | | | | | | |
| bis(2-Ethylhexyl)phthalate | EPA 8270D | µg/L | 117-81-7 | 0.2 | a | 4 | 5.6 U | 110 U | 21 U | 110 U |
| Butylbenzylphthalate | EPA 8270D | µg/L | 85-68-7 | 3 | b | -- | 0.95 U | 19 U | 7.1 U | 37 U |
| Diethylphthalate | EPA 8270D | µg/L | 84-66-2 | 3 | b | -- | 0.47 U | 9.5 U | 27 U | 140 U |
| Dimethylphthalate | EPA 8270D | µg/L | 131-11-3 | 3 | b | -- | 0.27 j | 19 j | 0.96 U | 5 U |
| Di-n-butylphthalate | EPA 8270D | µg/L | 84-74-2 | 3 | b | -- | 1.6 U | 12 U | 5.3 U | 27 U |
| Di-n-octylphthalate | EPA 8270D | µg/L | 117-84-0 | 3 | b | -- | 2.6 | 26 j | 1.7 UJ | 9 U |
| **Polycyclic Aromatic Hydrocarbons** | | | | | | | | | | |
| 2-Methylnaphthalene | EPA 8270D | µg/L | 91-57-6 | 0.2 | b | -- | 0.26 U | 1.9 U | 0.19 U | 1 U |
| Acenaphthene | EPA 8270D | µg/L | 83-32-9 | 0.2 | b | 95 | 0.23 U | 1.9 U | 0.19 U | 1 U |
| Acenaphthylene | EPA 8270D | µg/L | 208-96-8 | 0.2 | b | -- | 0.29 U | 1.9 U | 0.19 U | 1 U |
| Anthracene | EPA 8270D | µg/L | 120-12-7 | 0.2 | b | 2900 | 0.24 U | 0.95 U | 0.096 U | 0.5 U |
| Benzo(a)anthracene | EPA 8270D_SIM | µg/L | 56-55-3 | 0.0012 | a | 1 | 0.027 j | 0.57 U | 0.057 U | 0.06 U |
| Benzo(a)pyrene | EPA 8270D_SIM | µg/L | 50-32-8 | 0.00012 | a | 1 | 0.025 j | 0.57 U | 0.34 U | 0.35 U |
| Benzo(b)fluoranthene | EPA 8270D_SIM | µg/L | 205-99-2 | 0.0012 | a | 1 | 0.046 j | 0.57 U | 0.057 U | 0.06 U |
| Benzo(g,h,i)perylene | EPA 8270D_SIM | µg/L | 191-24-2 | 0.2 | b | -- | 0.083 j | 0.57 U | 0.73 U | 0.76 U |
| Benzo(k)fluoranthene | EPA 8270D_SIM | µg/L | 207-08-9 | 0.0013 | a | 1 | 0.028 U | 0.29 U | 0.12 U | 0.13 U |
| Chrysene | EPA 8270D_SIM | µg/L | 218-01-9 | 0.0013 | a | 1 | 0.069 j | 0.57 U | 0.057 U | 0.06 U |
| Dibenzo(a,h)anthracene | EPA 8270D_SIM | µg/L | 53-70-3 | 0.00012 | a | 1 | 0.014 U | 0.57 U | 0.057 U | 0.06 U |
| Fluoranthene | EPA 8270D | µg/L | 206-44-0 | 0.2 | b | 14 | 0.27 U | 1.2 U | 0.096 U | 0.5 U |
| Fluorene | EPA 8270D | µg/L | 86-73-7 | 0.2 | b | 390 | 0.26 U | 1.9 U | 0.19 U | 1 U |
| Indeno(1,2,3-cd)pyrene | EPA 8270D_SIM | µg/L | 193-39-5 | 0.0012 | a | 1 | 0.03 j | 0.57 U | 0.057 U | 0.06 U |
| Naphthalene | EPA 8270D | µg/L | 91-20-3 | 12 | a | -- | 0.21 U | 0.1 U | 0.96 U | 5 U |
| Phenanthrene | EPA 8270D | µg/L | 85-01-8 | 0.2 | b | -- | 0.26 U | 1.9 U | 0.19 U | 1 U |
| Pyrene | EPA 8270D | µg/L | 129-00-0 | 0.2 | b | 290 | 0.25 U | 1.2 U | 0.38 U | 2 U |
| Total PAHs[4] | EPA 8270D_SIM | µg/L | -- | -- | | 1 | 0.28 | 0 | 0 | 0 |
| cPAHs (BaPeq) | EPA 8270D | µg/L | -- | 0.00012 | a | | 0.03599 | 0 | 0 | 0 |
| **pH[5]** | EPA 9040 | SU | -- | -- | | | 6.5 J | 7.5 J | 6.3 J | 7.5 J |
| **pH[6]** | Field | SU | -- | -- | | -- | | 7.4 | 7.6 | 7.5 |
| **Total Suspended Solids** | EPA 2540D | µg/L | -- | -- | | -- | 43000 | 150000 | 20000 | 51000 |

| Constituent | Catch Basin (CB-2E) 11/22/2016 | Catch Basin (CB-2E) 3/13/2017 | Catch Basin (CB-2E) 5/11/2017 | Catch Basin (CB-2E) 6/15/2017 | Catch Basin (CB-3D) 3/13/2017 | Catch Basin (CB-3D) 5/11/2017 | Catch Basin (CB-3D) 6/15/2017 |
|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | |
| Arsenic | 1.5 | 0.4 | 1.4 | 1.1 | 0.58 | 0.66 j | 0.27 U |
| Cadmium | 0.71 | 0.076 j | 0.2 j | 0.11 j | 0.18 | 0.1 U | 0.1 U |
| Chromium | 9.1 | 0.76 | 9 | 2.6 | 5.5 | 2.8 | 1.2 |
| Copper | 36 | 4.9 | 20 | 7 | 15 | 14 | 5.5 |
| Lead | 23 | 1.3 | 4.2 | 3.1 | 7.6 | 3.7 | 1.5 |
| Manganese | 160 | 5.8 | 36 | 15 | 50 | 20 | 13 |
| Mercury | 0.1 U | 0.1 U | -- | 0.15 U | 0.1 U | -- | 0.15 U |
| Nickel | 7.1 | 0.67 | 2.5 j | 1.1 j | 4.5 | 2.8 j | 1.1 j |
| Zinc | 470 | 23 | 190 | 100 | 230 | 77 | 42 |
| **PCBs Aroclors** | | | | | | | |
| Aroclor 1016 | 0.0081 U | 0.0081 U | 0.0087 U | 0.0081 U | 0.0082 U | 0.0081 U | 0.0081 U |
| Aroclor 1221 | 0.014 U | 0.014 U | 0.015 U | 0.014 U | 0.014 U | 0.014 U | 0.014 U |
| Aroclor 1232 | 0.0071 U | 0.0072 U | 0.0077 U | 0.0072 U | 0.0072 U | 0.0072 U | 0.0072 U |
| Aroclor 1242 | 0.0067 U | 0.0067 U | 0.0072 U | 0.0067 U | 0.0067 U | 0.0067 U | 0.0067 U |
| Aroclor 1248 | 0.0067 U | 0.0067 U | 0.0072 U | 0.0067 U | 0.0067 U | 0.0067 U | 0.0067 U |
| Aroclor 1254 | 0.0071 U | 0.0072 U | 0.0077 U | 0.0072 U | 0.0072 U | 0.0072 U | 0.0072 U |
| Aroclor 1260 | 0.019 U | 0.019 U | 0.02 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U |
| Aroclor 1262 | 0.0062 U | 0.0062 U | 0.0067 U | 0.0062 U | 0.0062 U | 0.0062 U | 0.0062 U |
| Aroclor 1268 | 0.036 j | 0.01 j | 0.0075 j | 0.014 NJ | 0.0067 U | 0.0067 U | 0.0067 U |
| Total PCBs[3] | 0.036 j | 0.019 U | 0.02 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U |
| **Organochlorine Pesticides** | | | | | | | |
| 2,4'-DDD | 0.0047 UJ | 0.019 U | 0.019 U | 0.019 U | 0.02 U | 0.019 U | 0.019 U |
| 2,4'-DDE | 0.0047 UJ | 0.019 U | 0.019 U | 0.019 U | 0.02 U | 0.019 U | 0.019 U |
| 2,4'-DDT | 0.0047 UJ | 0.019 U | 0.019 U | 0.019 U | 0.02 U | 0.019 U | 0.019 U |
| 4,4-DDD | 0.00095 UJ | 0.0039 U | 0.0038 U | 0.0038 U | 0.0039 U | 0.0038 U | 0.0038 U |
| 4,4'-DDE | 0.001 UJ | 0.0029 U | 0.0029 U | 0.0029 U | 0.003 U | 0.0029 U | 0.0029 U |
| 4,4-DDT | 0.0026 J | 0.0039 U | 0.0038 U | 0.0038 U | 0.0039 U | 0.0038 U | 0.0038 U |
| DDX | 0.0026 J | 0.0039 U | 0.019 U | 0.0038 U | 0.0039 U | 0.019 U | 0.0038 U |
| Aldrin | 0.0028 UJ | 0.0015 U | 0.0014 U | 0.0014 U | 0.0015 U | 0.0014 U | 0.0014 U |
| Chlordane | 0.022 UJ | 0.078 U | 0.077 U | 0.076 U | 0.079 U | 0.077 U | 0.077 U |
| Dieldrin | 0.00085 UJ | 0.0019 U | 0.0019 U | 0.0019 U | 0.002 U | 0.0019 U | 0.0019 U |
| Endosulfan alpha- | 0.0015 UJ | 0.0029 U | 0.0029 U | 0.0029 U | 0.003 U | 0.0029 U | 0.0029 U |
| Endosulfan beta- | 0.00085 UJ | 0.0019 U | 0.0019 U | 0.0019 U | 0.002 U | 0.0019 U | 0.0019 U |
| Endosulfan sulfate | 0.00085 UJ | 0.0029 U | 0.0029 U | 0.0029 U | 0.003 U | 0.0029 U | 0.0029 U |
| Endrin | 0.0028 UJ | 0.0019 U | 0.0019 U | 0.0019 U | 0.002 U | 0.0019 U | 0.0019 U |
| Endrin aldehyde | 0.0074 UJ | 0.0019 U | 0.0019 U | 0.0019 U | 0.002 U | 0.0019 U | 0.0019 U |
| Endrin ketone | 0.0028 UJ | 0.0068 U | 0.0067 U | 0.0067 U | 0.0069 U | 0.0067 U | 0.0067 U |
| Heptachlor | 0.0028 UJ | 0.0029 U | 0.0029 U | 0.0029 U | 0.003 U | 0.0029 U | 0.0029 U |
| Heptachlor epoxide | 0.00085 UJ | 0.0024 U | 0.0024 U | 0.0024 U | 0.0025 U | 0.0024 U | 0.0024 U |
| Methoxychlor | 0.0028 UJ | 0.0034 U | 0.0033 U | 0.0033 U | 0.0034 U | 0.0033 U | 0.0033 U |
| Toxaphene | 0.079 UJ | 0.24 U | 0.24 U | 0.24 U | 0.25 U | 0.24 U | 0.24 U |
| **Volatile Organic Compounds** | | | | | | | |
| 1,1- Dichloroethane | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| 1,1,1- Trichloroethane (TCA) | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| 1,2- Dichloroethane (EDC) | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| Benzene | 0.044 j | 0.025 U | 0.025 U | 0.025 U | 0.091 j | 0.025 U | 0.025 U |
| Chloroform | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U |
| cis-1,2-Dichloroethlyene | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.034 j | 0.025 U |
| EthylBenzene | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U |
| m,p-Xylene | 0.05 U | 0.055 j | 0.05 U | 0.05 U | 0.051 j | 0.05 U | 0.05 U |
| Methylene chloride | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U |
| o-Xylene | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U |
| Styrene | 0.1 j | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Tetrachloroethene (PCE) | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U |
| Toluene | 0.9 | 0.13 U | 0.025 U | 0.025 U | 0.2 U | 0.038 U | 0.075 j |
| trans-1,2-Dichloroethene | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| Trichloroethene (TCE) | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| Vinyl Chloride | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U |
| Xylenes (total) | 0.06 U | 0.055 j | 0.06 U | 0.06 U | 0.051 j | 0.06 U | 0.06 U |
| **Phthalate Esters** | | | | | | | |
| bis(2-Ethylhexyl)phthalate | 11 U | 5.6 U | 11 UJ | 2.1 U | 15 U | 21 U | 100 U |
| Butylbenzylphthalate | 1.9 U | 0.95 U | 3.7 UJ | 0.71 U | 2.6 U | 7.1 U | 35 U |
| Diethylphthalate | 0.95 U | 0.48 U | 14 UJ | 2.7 U | 3.3 j | 27 U | 130 U |
| Dimethylphthalate | 0.53 U | 12 | 1 J- | 0.096 U | 15 | 0.96 U | 4.8 U |
| Di-n-butylphthalate | 3.1 U | 0.62 U | 2.7 UJ | 0.53 U | 1.7 U | 5.3 U | 26 U |
| Di-n-octylphthalate | 2.3 j | 0.86 U | 0.9 UJ | 0.17 U | 11 | 1.7 UJ | 8.6 U |
| **Polycyclic Aromatic Hydrocarbons** | | | | | | | |
| 2-Methylnaphthalene | 0.51 U | 0.095 U | 0.1 UJ | 0.019 U | 0.26 UJ | 0.19 U | 0.95 U |
| Acenaphthene | 0.46 U | 0.095 U | 0.1 UJ | 0.019 U | 0.26 U | 0.19 U | 0.95 U |
| Acenaphthylene | 0.58 U | 0.095 U | 0.1 UJ | 0.019 U | 0.26 U | 0.19 U | 0.95 U |
| Anthracene | 0.48 U | 0.048 U | 0.05 UJ | 0.0096 U | 0.13 U | 0.096 U | 0.48 U |
| Benzo(a)anthracene | 0.04 j | 0.029 U | 0.03 UJ | 0.0057 U | 0.78 U | 0.057 U | 0.057 U |
| Benzo(a)pyrene | 0.048 j | 0.029 U | 0.17 UJ | 0.034 U | 0.78 U | 0.34 U | 0.33 U |
| Benzo(b)fluoranthene | 0.1 | 0.029 U | 0.03 UJ | 0.0057 U | 0.78 U | 0.057 U | 0.057 U |
| Benzo(g,h,i)perylene | 0.16 | 0.029 U | 0.38 UJ | 0.073 U | 0.78 U | 0.73 U | 0.72 U |
| Benzo(k)fluoranthene | 0.028 U | 0.014 U | 0.065 UJ | 0.012 U | 0.39 U | 0.12 U | 0.12 U |
| Chrysene | 0.13 | 0.029 U | 0.03 UJ | 0.0057 U | 0.78 U | 0.057 U | 0.057 U |
| Dibenzo(a,h)anthracene | 0.014 U | 0.029 U | 0.03 UJ | 0.0057 U | 0.78 U | 0.057 U | 0.057 U |
| Fluoranthene | 0.54 U | 0.071 j | 0.05 UJ | 0.015 j | 0.25 j | 0.096 U | 0.48 U |
| Fluorene | 0.52 U | 0.095 U | 0.1 UJ | 0.019 U | 0.26 U | 0.19 U | 0.95 U |
| Indeno(1,2,3-cd)pyrene | 0.059 j | 0.029 U | 0.03 UJ | 0.0057 U | 0.78 U | 0.057 U | 0.057 U |
| Naphthalene | 0.42 U | 0.1 U | 0.5 UJ | 0.096 U | 0.1 U | 0.96 U | 4.8 U |
| Phenanthrene | 0.51 U | 0.095 U | 0.1 UJ | 0.019 U | 0.26 U | 0.19 U | 0.95 U |
| Pyrene | 0.5 U | 0.077 j | 0.2 UJ | 0.038 U | 0.52 j | 0.38 U | 1.9 U |
| Total PAHs[4] | 0.54 | 0.148 | 0 | 0 | 1.03 | 0 | 0 |
| cPAHs (BaPeq) | 0.0692 | 0 | 0 | 0 | 0 | 0 | 0 |
| **pH[5]** | 7.1 J | 6.6 J | 7.1 J | 7.6 J | 6.7 J | 6 J | 7 J |
| **pH[6]** | | 7.4 | 7.6 | 7.5 | 7.2 | 7.2 | 7.8 |
| **Total Suspended Solids** | 130000 | 12000 | 51000 | 32000 | 84000 | 54000 | 11000 |

| Constituent | Catch Basin (CB-4A) 11/22/2016 | Catch Basin (CB-4A) 3/13/2017 | Catch Basin (CB-4A) 5/11/2017 | Catch Basin (CB-4A) 6/15/2017 | Catch Basin (CB-5A) 11/22/2016 | Catch Basin (CB-5A) 3/13/2017 | Catch Basin (CB-5A) 5/11/2017 | Catch Basin (CB-5A) 6/15/2017 | Catch Basin (CB-6A) 11/22/2016 | Catch Basin (CB-6A) 3/13/2017 | Catch Basin (CB-6A) 5/11/2017 | Catch Basin (CB-6A) 6/15/2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | |
| Arsenic | 1.1 | 0.26 | 0.75 j | 0.56 j | 0.38 | 0.29 | 1.2 | 0.5 j | 0.28 | 0.62 | 1.1 | 0.67 j |
| Cadmium | 0.36 | 0.2 | 3.5 | 0.3 j | 0.14 | 0.23 | 0.24 j | 0.1 U | 0.086 j | 0.13 | 0.12 j | 0.1 U |
| Chromium | 14 | 1.4 | 1.7 | 0.86 | 2.8 | 2.2 | 8.5 | 3 | 1.7 | 5 | 4.7 | 1.1 |
| Copper | 29 | 4.1 | 8.9 | 4.3 | 9.4 | 9.3 | 34 | 15 | 8 | 15 | 16 | 5.4 |
| Lead | 8.3 | 2.9 | 2.6 | 1.3 | 5.6 | 4.1 | 12 | 4 | 4.3 | 19 | 6.8 | 1.6 |
| Manganese | 67 | 47 | 1100 | 48 | 37 | 37 | 110 | 36 | 37 | 54 | 60 | 8.3 |
| Mercury | 0.1 U | 0.1 U | -- | 0.15 U | 0.1 U | 0.1 U | -- | 0.15 U | 0.1 U | 0.1 U | -- | 0.15 U |
| Nickel | 11 | 1.5 | 14 | 1.2 j | 2 | 2 | 5.8 | 2.5 j | 1.3 | 2.7 | 3.2 | 0.67 j |
| Zinc | 830 | 530 | 37000 | 1100 | 220 | 170 | 380 | 170 | 82 | 120 | 160 | 51 |
| **PCBs Aroclors** | | | | | | | | | | | | |
| Aroclor 1016 | 0.0081 U | 0.0082 U | 0.0085 U | 0.0082 U | 0.0083 UJ | 0.0083 U | 0.0081 U | 0.0082 U | 0.0082 U | 0.0085 U | 0.0081 U | 0.0081 U |
| Aroclor 1221 | 0.014 U | 0.014 U | 0.014 U | 0.014 U | 0.014 UJ | 0.014 U | 0.014 U | 0.014 U | 0.014 U | 0.014 U | 0.014 U | 0.014 U |
| Aroclor 1232 | 0.0071 U | 0.0073 U | 0.0075 U | 0.0073 U | 0.0073 UJ | 0.0073 U | 0.0072 U | 0.0072 U | 0.0072 U | 0.0075 U | 0.0072 U | 0.0071 U |
| Aroclor 1242 | 0.0066 U | 0.0068 U | 0.007 U | 0.0068 U | 0.0068 UJ | 0.0068 U | 0.0067 U | 0.0068 U | 0.0068 U | 0.007 U | 0.0067 U | 0.0067 U |
| Aroclor 1248 | 0.0066 U | 0.0068 U | 0.007 U | 0.0068 U | 0.0068 UJ | 0.0068 U | 0.0067 U | 0.0068 U | 0.0068 U | 0.007 U | 0.0067 U | 0.0067 U |
| Aroclor 1254 | 0.0071 U | 0.0073 U | 0.0075 U | 0.0073 U | 0.0073 UJ | 0.0073 U | 0.0072 U | 0.0072 U | 0.0072 U | 0.0075 U | 0.0072 U | 0.0071 U |
| Aroclor 1260 | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.019 UJ | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U |
| Aroclor 1262 | 0.0062 U | 0.0063 U | 0.0065 U | 0.032 NJ | 0.0064 UJ | 0.0063 U | 0.0062 U | 0.0063 U | 0.0063 U | 0.0065 U | 0.0062 U | 0.015 NJ |
| Aroclor 1268 | 0.03 j | 0.0068 U | 0.007 U | 0.0068 U | 0.0068 UJ | 0.0068 U | 0.0067 U | 0.0068 U | 0.0068 U | 0.007 U | 0.0067 U | 0.0067 U |
| Total PCBs[3] | 0.03 j | 0.019 U | 0.019 U | 0.032 NJ | 0.019 UJ | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U |
| **Organochlorine Pesticides** | | | | | | | | | | | | |
| 2,4'-DDD | 0.0048 UJ | 0.019 U | 0.019 U | 0.019 U | 0.0049 UJ | 0.022 U | 0.019 U | 0.019 U | 0.0048 UJ | 0.02 U | 0.019 U | 0.019 U |
| 2,4'-DDE | 0.0048 UJ | 0.019 U | 0.019 U | 0.019 U | 0.0049 UJ | 0.022 U | 0.019 U | 0.019 U | 0.0048 UJ | 0.02 U | 0.019 U | 0.019 U |
| 2,4'-DDT | 0.0048 UJ | 0.019 U | 0.019 U | 0.019 U | 0.0049 UJ | 0.022 U | 0.019 U | 0.019 U | 0.0048 UJ | 0.02 U | 0.019 U | 0.019 U |
| 4,4-DDD | 0.00095 UJ | 0.0038 U | 0.0038 U | 0.0038 U | 0.00097 UJ | 0.0043 U | 0.0038 U | 0.0038 U | 0.00097 UJ | 0.0041 U | 0.0038 U | 0.0038 U |
| 4,4'-DDE | 0.001 UJ | 0.0028 U | 0.0029 U | 0.0029 U | 0.0011 UJ | 0.0033 U | 0.0029 U | 0.0029 U | 0.0011 UJ | 0.003 U | 0.0029 U | 0.0029 U |
| 4,4-DDT | 0.00086 UJ | 0.0038 U | 0.0038 U | 0.0038 U | 0.0022 J | 0.0043 U | 0.0038 U | 0.0038 U | 0.0057 J | 0.0041 U | 0.0038 U | 0.0038 U |
| DDX | 0.00086 UJ | 0.0038 U | 0.019 U | 0.0038 U | 0.0022 J | 0.0043 U | 0.019 U | 0.0038 U | 0.0057 J | 0.0041 U | 0.019 U | 0.0038 U |
| Aldrin | 0.0029 UJ | 0.0014 U | 0.0014 U | 0.0014 U | 0.0029 UJ | 0.0016 U | 0.0014 U | 0.0014 U | 0.0029 UJ | 0.0015 U | 0.0014 U | 0.0014 U |
| Chlordane | 0.022 UJ | 0.076 U | 0.077 U | 0.077 U | 0.022 UJ | 0.087 U | 0.077 U | 0.077 U | 0.022 UJ | 0.081 U | 0.077 U | 0.076 U |
| Dieldrin | 0.00086 UJ | 0.0019 U | 0.0019 U | 0.0019 U | 0.0013 J | 0.0022 U | 0.0019 U | 0.0019 U | 0.00087 UJ | 0.002 U | 0.0019 U | 0.0019 U |
| Endosulfan alpha- | 0.0015 UJ | 0.0028 U | 0.0029 U | 0.0029 U | 0.0016 UJ | 0.0033 U | 0.0029 U | 0.0029 U | 0.0015 UJ | 0.003 U | 0.0029 U | 0.0029 U |
| Endosulfan beta- | 0.00086 UJ | 0.0019 U | 0.0019 U | 0.0019 U | 0.00088 UJ | 0.0022 U | 0.0019 U | 0.0019 U | 0.00087 UJ | 0.002 U | 0.0019 U | 0.0019 U |
| Endosulfan sulfate | 0.00086 UJ | 0.0028 U | 0.0029 U | 0.0029 U | 0.00088 UJ | 0.0033 U | 0.0029 U | 0.0029 U | 0.00087 UJ | 0.003 U | 0.0029 U | 0.0029 U |
| Endrin | 0.0029 UJ | 0.0019 U | 0.0019 U | 0.0019 U | 0.0029 UJ | 0.0022 U | 0.0019 U | 0.0019 U | 0.0041 J | 0.002 U | 0.0019 U | 0.0019 U |
| Endrin aldehyde | 0.0074 UJ | 0.0019 U | 0.0019 U | 0.0019 U | 0.0076 UJ | 0.0022 U | 0.0019 U | 0.0019 U | 0.0075 UJ | 0.002 U | 0.0019 U | 0.0019 U |
| Endrin ketone | 0.0055 J | 0.0066 U | 0.0067 U | 0.0067 U | 0.0029 UJ | 0.0076 U | 0.0067 U | 0.0067 U | 0.0029 UJ | 0.0071 U | 0.0067 U | 0.0067 U |
| Heptachlor | 0.0029 UJ | 0.0028 U | 0.0029 U | 0.0029 U | 0.0029 UJ | 0.0033 U | 0.0029 U | 0.0029 U | 0.0029 UJ | 0.003 U | 0.0029 U | 0.0029 U |
| Heptachlor epoxide | 0.00086 UJ | 0.0024 U | 0.0024 U | 0.0024 U | 0.0011 J | 0.0027 U | 0.0024 U | 0.0024 U | 0.00087 UJ | 0.0025 U | 0.0024 U | 0.0024 U |
| Methoxychlor | 0.0029 UJ | 0.0033 U | 0.0033 U | 0.0033 U | 0.0029 UJ | 0.0038 U | 0.0033 U | 0.0034 U | 0.011 J | 0.0036 U | 0.0034 U | 0.0033 U |
| Toxaphene | 0.079 UJ | 0.24 U | 0.24 U | 0.24 U | 0.081 UJ | 0.27 U | 0.24 U | 0.24 U | 0.08 UJ | 0.25 U | 0.24 U | 0.24 U |
| **Volatile Organic Compounds** | | | | | | | | | | | | |
| 1,1- Dichloroethane | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| 1,1,1- Trichloroethane (TCA) | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| 1,2- Dichloroethane (EDC) | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| Benzene | 0.034 j | 0.029 j | 0.025 U | 0.025 U | 0.048 j | 0.03 j | 0.025 U | 0.025 U | 0.038 j | 0.025 U | 0.025 U | 0.025 U |
| Chloroform | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U |
| cis-1,2-Dichloroethlyene | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| EthylBenzene | 0.03 U | 0.03 U | 0.036 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.031 U | 0.03 U |
| m,p-Xylene | 0.05 U | 0.056 j | 0.05 U | 0.05 U | 0.054 j | 0.05 U | 0.05 U | 0.05 U | 0.05 U | 0.05 U | 0.05 U | 0.05 U |
| Methylene chloride | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U |
| o-Xylene | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U |
| Styrene | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Tetrachloroethene (PCE) | 0.076 j | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U |
| Toluene | 0.025 U | 0.14 U | 0.12 U | 0.042 j | 0.07 U | 0.13 U | 0.025 U | 0.025 U | 0.062 U | 0.08 U | 0.073 U | 0.05 j |
| trans-1,2-Dichloroethene | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| Trichloroethene (TCE) | 0.059 j | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| Vinyl Chloride | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U |
| Xylenes (total) | 0.06 U | 0.056 j | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U |
| **Phthalate Esters** | | | | | | | | | | | | |
| bis(2-Ethylhexyl)phthalate | 5.6 U | 5.6 U | 2.1 U | 2.1 U | 5.6 U | 120 U | 23 U | 21 U | 5.7 U | 12 U | 21 U | 2.1 U |
| Butylbenzylphthalate | 0.95 U | 1.1 j | 0.71 U | 0.71 U | 0.95 U | 21 U | 7.7 U | 7.1 U | 0.96 U | 2.1 U | 7.1 U | 0.71 U |
| Diethylphthalate | 0.47 U | 0.48 U | 2.7 U | 2.7 U | 0.48 U | 10 U | 29 U | 27 U | 0.48 U | 1 U | 27 U | 2.7 U |
| Dimethylphthalate | 0.27 U | 4.9 | 0.21 j | 0.096 U | 0.44 j | 18 j | 1 U | 0.95 U | 1.3 j | 9.2 | 0.96 U | 0.096 U |
| Di-n-butylphthalate | 1.6 U | 0.62 U | 0.53 U | 0.53 U | 1.6 U | 14 U | 5.7 U | 5.2 U | 1.6 U | 1.3 U | 5.3 U | 0.53 U |
| Di-n-octylphthalate | 2.4 | 1.7 j | 0.17 UJ | 1 | 0.32 U | 19 U | 1.9 UJ | 1.7 U | 0.33 U | 4 j | 1.7 UJ | 0.17 U |
| **Polycyclic Aromatic Hydrocarbons** | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0.26 U | 0.095 U | 0.019 U | 0.019 U | 0.26 U | 2.1 U | 0.21 U | 0.19 U | 0.26 U | 0.21 U | 0.19 U | 0.019 U |
| Acenaphthene | 0.23 U | 0.095 U | 0.019 U | 0.019 U | 0.23 U | 2.1 U | 0.21 U | 0.19 U | 0.24 U | 0.21 U | 0.19 U | 0.019 U |
| Acenaphthylene | 0.29 U | 0.095 U | 0.019 U | 0.019 U | 0.29 U | 2.1 U | 0.21 U | 0.19 U | 0.29 U | 0.21 U | 0.19 U | 0.019 U |
| Anthracene | 0.24 U | 0.048 U | 0.0096 U | 0.0096 U | 0.24 U | 1 U | 0.1 U | 0.095 U | 0.25 U | 0.1 U | 0.096 U | 0.0096 U |
| Benzo(a)anthracene | 0.019 j | 0.029 U | 0.0058 U | 0.0057 U | 0.027 j | 0.063 U | 0.063 U | 0.057 U | 0.023 j | 0.062 U | 0.057 U | 0.0058 U |
| Benzo(a)pyrene | 0.022 j | 0.029 U | 0.034 U | 0.034 U | 0.026 j | 0.063 U | 0.36 U | 0.33 U | 0.025 j | 0.062 U | 0.33 U | 0.034 U |
| Benzo(b)fluoranthene | 0.034 j | 0.029 U | 0.0058 U | 0.0057 U | 0.043 j | 0.063 U | 0.063 U | 0.057 U | 0.045 j | 0.062 U | 0.057 U | 0.0058 U |
| Benzo(g,h,i)perylene | 0.024 j | 0.029 U | 0.073 U | 0.073 U | 0.088 j | 0.11 j | 0.79 U | 0.72 U | 0.075 j | 0.062 U | 0.73 U | 0.073 U |
| Benzo(k)fluoranthene | 0.028 U | 0.014 U | 0.012 U | 0.012 U | 0.029 U | 0.031 U | 0.14 U | 0.12 U | 0.029 U | 0.031 U | 0.12 U | 0.013 U |
| Chrysene | 0.039 j | 0.029 U | 0.0058 U | 0.0057 U | 0.067 j | 0.087 j | 0.063 U | 0.057 U | 0.061 j | 0.062 U | 0.057 U | 0.0058 U |
| Dibenzo(a,h)anthracene | 0.014 U | 0.029 U | 0.0058 U | 0.0057 U | 0.014 U | 0.063 U | 0.063 U | 0.057 U | 0.014 U | 0.062 U | 0.057 U | 0.0058 U |
| Fluoranthene | 0.27 U | 0.062 U | 0.0096 U | 0.0096 U | 0.27 U | 1.4 U | 0.1 U | 0.095 U | 0.27 U | 0.19 j | 0.096 U | 0.012 j |
| Fluorene | 0.26 U | 0.095 U | 0.019 U | 0.019 U | 0.26 U | 2.1 U | 0.21 U | 0.19 U | 0.26 U | 0.21 U | 0.19 U | 0.019 U |
| Indeno(1,2,3-cd)pyrene | 0.02 j | 0.029 U | 0.0058 U | 0.0057 U | 0.024 j | 0.063 U | 0.063 U | 0.057 U | 0.028 j | 0.062 U | 0.057 U | 0.0058 U |
| Naphthalene | 0.21 U | 0.1 U | 0.096 U | 0.096 U | 0.21 U | 0.1 U | 1 U | 0.95 U | 0.21 U | 0.1 U | 0.96 U | 0.096 U |
| Phenanthrene | 0.26 U | 0.095 U | 0.019 U | 0.019 U | 0.26 U | 2.1 U | 0.21 U | 0.19 U | 0.26 U | 0.21 U | 0.19 U | 0.019 U |
| Pyrene | 0.25 U | 0.073 j | 0.038 U | 0.038 U | 0.25 U | 1.4 U | 0.42 U | 0.38 U | 0.25 U | 0.19 j | 0.38 U | 0.039 U |
| Total PAHs[4] | 0.16 | 0.073 | 0 | 0 | 0.28 | 0.20 | 0 | 0 | 0.26 | 0.38 | 0 | 0.012 |
| cPAHs (BaPeq) | 0.02969 | 0 | 0 | 0 | 0.03607 | 0.0009 | 0 | 0 | 0.0352 | 0 | 0 | 0 |
| **pH[5]** | 6.1 J | 6.5 J | 3.9 J | 4.5 J | 6.9 J | 7.6 J | 6.1 J | 6 J | 6.3 J | 7.3 J | 5.7 J | 6.6 J |
| **pH[6]** | | 6.6 | 5.3 | 7.6 | | 7.3 | 7.21 | 8.0 | | 6.9 | 7.9 | 7.6 |
| **Total Suspended Solids** | 160000 | 14000 | 34000 | 6800 | 72000 | 29000 | 280000 | 20000 | 87000 | 72000 | 11000 | 27000 |

**Notes:**

Gray shading indicates compound concentration was greater than applicable JSCS SLV
Detected results shown in **bold.**

-- = Not applicable
j = Result is detected between the method detection limit and reporting limit
J = Result is estimated
J+ = Result is estimated with
NJ = Tentatively identified and estimated - chromatogram did not resemble the standard hydrocarbon pattern
U = Analyte not detected
UJ = Result is estimated to be not detected
µg/L = micrograms per liter
CUL = Clean up level
DDx = Sum total of 2,4- and 4,4- isomers of DDE, DDD, and DDT
DEQ = Department of Environmental Quality
EPA = Environmental Protection Agency
JSCS = Joint Source Control Strategy
PAHs = Polyaromatic Hydrocarbons
cPAH (BaPeq) = carcinogenic PAHs calculated as benzo(a)pyrene equivalent
PCBs = Polychlorinated biphenyls
ROD = Record of Decision
SLVs = Screening level values
SU = standard units
VOCs = volatile organic compounds

[1] = Screening levels are Portland Harbor ROD CULs (EPA 2017) supplemeneted with the highlighted screening levels in the Portland Harbor Joint Source Control Strategy, Final, Table 3-1 Revision, July 2007
[2] = Comparison Values selected according to the strictest criterion from 1200-Z Permit Benchmarks, 1200-Z Permit Pollutant Reference Concentrations, and DEQ Guidance for Evaluating the Stormwater Pathway at Upland Sites Appendix E: Tool for Evaluating Stormwater Data
[3] = Total PCBs is sum of PCB aroclors which were detected above the detection limit, with non-detects counted as zero. Detection limits are recorded as the highest detection limit of the individual aroclors.
[4] = Total PAHs is sum of detected PAH values, with nondetects counted as zero
[5] = Laboratory measurements of pH were conducted outside of hold time and were supplemented with field pH measurements after the first stormwater sampling event in November 2016.
[6] = pH measured in the field uzing a 3-point calibrated probe at 4.0, 7.0, and 10.0 pH S.U.

**Screening Level Footnotes:**
a = Portland Harbor ROD CUL for Surface Water
b = Portland Harbor JSCS SLV

| Constituent | Analytical Method | Unit | CAS No. | Screening Level[1] | Comparison Value[2] | SPCC Control on East Drive (E-1) | | | | Roof Drain (Roof-1) | | | Roof Drain (Roof-2) | | | Manhole on West Side (STM-1) | | | | Trench Drain (Trench-1) | | | | SPCC Control on West Dock (W-4) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 11/22/2016 | 3/13/2017 | 6/15/2017 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 |
| **Metals** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | EPA 6020_LL | µg/L | 7440-38-2 | 0.018 a | 2.1 | **0.34** | **0.44** | **0.88** j | **0.34** j | **0.24** | **0.37** | 0.27 U | 0.1 U | **0.38** j | 0.27 U | **0.8** | **0.42** | **1.8** | **1** | **1.6** | **2.8** | **5.5** | **11** | **0.36** | **2** | **1.6** | **1** |
| Cadmium | EPA 6020_LL | µg/L | 7440-43-9 | 0.094 b | 0.5 | **0.071** j | **0.073** j | **0.1** j | 0.1 U | **0.075** j | **0.11** | 0.1 U | **0.16** | **0.18** j | 0.1 U | **0.14** | **0.13** | **0.5** | **0.3** j | **0.14** | **0.13** | **0.77** | **1** | **0.13** | **0.78** | **0.29** j | **0.28** j |
| Chromium | EPA 6020_LL | µg/L | 7440-47-3 | 100 a | 10 | **1.6** | **1.8** | **1.8** | **0.66** | **0.87** | **4.4** | **0.3** j | **0.44** j | **0.47** | **0.44** | **2.3** | **1.8** | **16** | **6.7** | **4.8** | **6.7** | **20** | **54** | **2.3** | **44** | **3.3** | **7.9** |
| Copper | EPA 6020_LL | µg/L | 7440-50-8 | 2.74 a | 20 | **6.2** | **7.7** | **17** | **9.1** | **13** | **17** | **6.7** | **3.7** | **6.1** | **2.3** | **12** | **12** | **25** | **18** | **10** | **11** | **47** | **56** | **4.4** | **37** | **25** | **12** |
| Lead | EPA 6020_LL | µg/L | 7439-92-1 | 0.54 b | 40 | **2.4** | **3.1** | **3** | **1.3** | **2.5** | **3.2** | **0.37** j | **0.35** | **0.29** j | **0.63** j | **2.2** | **3.1** | **22** | **10** | **12** | **14** | **34** | **130** | **5.5** | **60** | **12** | **13** |
| Manganese | EPA 6020_LL | µg/L | 7439-96-5 | 100 a | -- | **9.7** | **16** | **38** | **9.1** | **14** | **31** | **6.8** | **28** | **25** | **6.4** | **23** | **23** | **110** | **65** | **23** | **18** | **66** | **230** | **6** | **110** | **130** | **62** |
| Mercury | EPA 7041A | µg/L | 7439-97-6 | 0.77 b | 0.2 | 0.1 U | 0.1 U | -- | 0.15 U | 0.1 U | 0.1 U | 0.15 U | 0.1 U | -- | 0.15 U | 0.1 U | 0.1 U | -- | 0.15 U | 0.1 U | 0.1 U | -- | 0.15 U | 0.1 U | 0.1 U | -- | 0.15 U |
| Nickel | EPA 6020_LL | µg/L | 7440-02-0 | 16 b | 10 | **1.2** | **1.2** | **2.1** j | **1.2** j | **1.4** | **4.4** | **0.82** j | **0.69** | **0.64** j | **0.33** j | **2.2** | **1.7** | **5.7** | **3.9** | **2.5** | **2.6** | **7** | **18** | **0.91** | **26** | **4.5** | **3.1** |
| Zinc | EPA 6020_LL | µg/L | 7440-66-6 | 36.5 a | 120 | **71** | **79** | **240** | **84** | **97** | **110** | **48** | **420** | **320** | **180** | **130** | **160** | **300** | **210** | **200** | **160** | **1600** | **2600** | **67** | **570** | **96** | **160** |
| **PCBs Aroclors** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | EPA 8082A | µg/L | 12674-11-2 | 0.96 b | -- | 0.0081 U | 0.0081 U | 0.0082 U | 0.0081 U | 0.0081 UJ | 0.0081 U | 0.0081 U | 0.0081 U | 0.0085 UJ | 0.0081 U | 0.0081 U | 0.0081 U | 0.0088 U | 0.0081 U | 0.0081 U | 0.0082 U | 0.0083 UJ | 0.0081 U | 0.0081 U | 0.0081 U | 0.0081 U | 0.0081 U |
| Aroclor 1221 | EPA 8082A | µg/L | 11104-28-2 | 0.034 b | -- | 0.014 U | 0.014 U | 0.014 U | 0.014 U | 0.014 UJ | 0.014 U | 0.014 U | 0.014 U | 0.012 UJ | 0.014 U | 0.014 U | 0.014 U | 0.015 U | 0.014 U | 0.014 U | 0.014 U | 0.014 UJ | 0.014 U | 0.014 U | 0.014 U | 0.014 U | 0.014 U |
| Aroclor 1232 | EPA 8082A | µg/L | 11141-16-5 | 0.034 b | -- | 0.0071 U | 0.0071 U | 0.0072 U | 0.0071 U | 0.0071 UJ | 0.0071 U | 0.0072 U | 0.0071 U | 0.011 UJ | 0.0072 U | 0.0071 U | 0.0072 U | 0.0078 U | 0.0072 U | 0.0071 U | 0.0072 U | 0.0073 UJ | 0.0071 U | 0.0071 U | 0.0072 U | 0.0072 U | 0.0071 U |
| Aroclor 1242 | EPA 8082A | µg/L | 53469-21-9 | 0.034 b | -- | 0.0066 U | 0.0067 U | 0.0067 U | 0.0067 U | 0.0067 UJ | 0.0067 U | 0.0067 U | 0.0067 U | 0.011 UJ | 0.0067 U | 0.0066 U | 0.0067 U | 0.0073 U | 0.0067 U | 0.0066 U | 0.0068 U | 0.0068 UJ | 0.0067 U | 0.0066 U | 0.0067 U | 0.0067 U | 0.0066 U |
| Aroclor 1248 | EPA 8082A | µg/L | 12672-29-6 | 0.034 b | -- | 0.0066 U | 0.0067 U | 0.0067 U | 0.0067 U | 0.0067 UJ | 0.0067 U | 0.0067 U | 0.0067 U | 0.0085 UJ | 0.0067 U | 0.0066 U | 0.0067 U | 0.0073 U | 0.0067 U | 0.0066 U | 0.0068 U | 0.0068 UJ | 0.0067 U | 0.0066 U | 0.0067 U | 0.0067 U | 0.0066 U |
| Aroclor 1254 | EPA 8082A | µg/L | 11097-69-1 | 0.033 b | -- | 0.0071 U | 0.0071 U | 0.0072 U | 0.0071 U | 0.0071 UJ | 0.0071 U | 0.0072 U | 0.0071 U | 0.0081 UJ | 0.0072 U | 0.0071 U | 0.0072 U | 0.0078 U | 0.0072 U | 0.0071 U | 0.0072 U | 0.0073 UJ | 0.0071 U | 0.0071 U | 0.0072 U | 0.0072 U | 0.0071 U |
| Aroclor 1260 | EPA 8082A | µg/L | 11096-82-5 | 0.034 b | -- | 0.018 U | 0.019 U | 0.019 U | 0.019 U | 0.019 UJ | 0.019 U | 0.019 U | 0.019 U | 0.011 UJ | 0.019 U | 0.018 U | 0.019 U | 0.02 U | 0.019 U | 0.018 U | 0.019 U | 0.019 UJ | 0.019 U | 0.018 U | 0.019 U | 0.019 U | 0.018 U |
| Aroclor 1262 | EPA 8082A | µg/L | 37324-23-5 | -- | -- | 0.0062 U | 0.0062 U | 0.0062 U | 0.0062 U | 0.0062 UJ | 0.0062 U | 0.0062 U | 0.0062 U | 0.013 UJ | 0.0062 U | 0.0062 U | 0.0062 U | 0.0067 U | 0.0062 U | 0.0062 U | 0.0063 U | 0.0063 UJ | 0.0062 U | 0.0062 U | 0.0062 U | 0.0062 U | 0.0062 U |
| Aroclor 1268 | EPA 8082A | µg/L | 11100-14-4 | -- | -- | **0.0076** j | **0.031** j | **0.0079** j | 0.0067 U | 0.0067 UJ | 0.0067 U | 0.0067 U | 0.0067 U | 0.01 UJ | 0.0067 U | 0.0066 U | 0.0067 U | **0.0086** j | **0.13** NJ | **0.091** j | **0.064** j | **0.15** NJ | **0.14** NJ | **0.028** j | **0.12** j | 0.0067 U | **0.034** NJ |
| Total PCBs[3] | EPA 8082A | µg/L | 1336-36-3 | 0.0000064 a | 0.3 | 0.018 U | **0.031** j | 0.019 U | 0.019 U | 0.019 UJ | 0.019 U | 0.019 U | 0.019 U | 0.011 UJ | 0.019 U | 0.018 U | 0.019 U | 0.02 U | **0.13** NJ | **0.091** j | **0.064** j | **0.15** NJ | **0.14** NJ | **0.028** j | **0.12** j | 0.019 U | **0.034** NJ |
| **Organochlorine Pesticides** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4'-DDD | EPA 8081A_LL | µg/L | 53-19-0 | -- | -- | 0.0048 UJ | 0.019 U | 0.019 U | 0.019 U | -- | -- | -- | -- | -- | -- | 0.0048 UJ | 0.019 U | 0.02 U | 0.019 U | 0.0047 UJ | 0.019 U | 0.019 U | 0.02 U | 0.0048 UJ | 0.019 U | 0.019 U | 0.019 U |
| 2,4'-DDE | EPA 8081A_LL | µg/L | 3424-82-6 | -- | -- | 0.0048 UJ | 0.019 U | 0.019 U | 0.019 U | -- | -- | -- | -- | -- | -- | 0.0048 UJ | 0.019 U | 0.02 U | 0.019 U | 0.0047 UJ | 0.019 U | 0.019 U | 0.02 U | 0.0048 UJ | 0.019 U | 0.019 U | 0.019 U |
| 2,4'-DDT | EPA 8081A_LL | µg/L | 789-02-6 | -- | -- | 0.0048 UJ | 0.019 U | 0.019 U | 0.019 U | -- | -- | -- | -- | -- | -- | 0.0048 UJ | 0.019 U | 0.02 U | 0.019 U | 0.0047 UJ | 0.019 U | 0.019 U | 0.02 U | 0.0048 UJ | 0.019 U | 0.019 U | 0.019 U |
| 4,4-DDD | EPA 8081A_LL | µg/L | 72-54-8 | 0.000031 b | -- | 0.00095 UJ | 0.0038 U | 0.0039 U | 0.0038 U | -- | -- | -- | -- | -- | -- | 0.00095 UJ | 0.0038 U | 0.004 U | 0.0038 U | 0.00095 UJ | 0.0038 U | 0.0039 U | 0.004 U | 0.00095 UJ | 0.0038 U | 0.0038 U | 0.0038 U |
| 4,4'-DDE | EPA 8081A_LL | µg/L | 72-55-9 | 0.000018 b | -- | 0.001 UJ | 0.0028 U | 0.0029 U | 0.0029 U | -- | -- | -- | -- | -- | -- | 0.001 UJ | 0.0028 U | 0.003 U | 0.0029 U | **0.0061** J | 0.0029 U | 0.0029 U | **0.008** J | 0.001 UJ | 0.0028 U | 0.0029 U | 0.0028 U |
| 4,4-DDT | EPA 8081A_LL | µg/L | 50-29-3 | 0.000022 b | -- | 0.00086 UJ | 0.0038 U | 0.0039 U | 0.0038 U | -- | -- | -- | -- | -- | -- | 0.00086 UJ | 0.0038 U | 0.004 U | 0.0038 U | **0.01** J | 0.0038 U | 0.0039 U | **0.012** | **0.0015** J | **0.0057** j | 0.0038 U | 0.0038 U |
| DDX | EPA 8081A_LL | µg/L | 50-29-3 | 0.01 a | -- | 0.00086 UJ | 0.0038 U | 0.019 U | 0.0038 U | -- | -- | -- | -- | -- | -- | 0.00086 UJ | 0.0038 U | 0.02 U | 0.0038 U | **0.01** J | 0.0038 U | 0.019 U | **0.012** | **0.0015** J | **0.0057** j | 0.019 U | 0.0038 U |
| Aldrin | EPA 8081A_LL | µg/L | 309-00-2 | 0.00000077 a | -- | 0.0029 UJ | 0.0014 U | 0.0014 U | 0.0014 U | -- | -- | -- | -- | -- | -- | 0.0029 UJ | 0.0014 U | 0.0015 U | 0.0014 U | 0.0028 UJ | 0.0014 U | 0.0015 U | 0.0015 U | 0.0029 UJ | 0.0014 U | 0.0014 U | 0.0014 U |
| Chlordane | EPA 8081A_LL | µg/L | 57-74-9 | 0.000081 a | -- | 0.022 UJ | 0.075 U | 0.077 U | 0.077 U | -- | -- | -- | -- | -- | -- | 0.022 UJ | 0.076 U | 0.081 U | 0.076 U | 0.022 UJ | 0.076 U | 0.078 U | 0.079 U | 0.022 UJ | 0.075 U | 0.077 U | 0.076 U |
| Dieldrin | EPA 8081A_LL | µg/L | 60-57-1 | 0.0000054 b | -- | 0.00086 UJ | 0.0019 U | 0.0019 U | 0.0019 U | -- | -- | -- | -- | -- | -- | 0.00086 UJ | 0.0019 U | 0.002 U | 0.0019 U | 0.00085 UJ | 0.0019 U | 0.0019 U | 0.002 U | 0.00086 UJ | 0.0019 U | 0.0019 U | 0.0019 U |
| Endosulfan alpha- | EPA 8081A_LL | µg/L | 959-98-8 | 0.051 b | -- | 0.0015 UJ | 0.0028 U | 0.0029 U | 0.0029 U | -- | -- | -- | -- | -- | -- | 0.0015 UJ | 0.0028 U | 0.003 U | 0.0029 U | 0.0015 UJ | 0.0029 U | 0.0029 U | 0.003 U | 0.0015 UJ | 0.0028 U | 0.0029 U | 0.0028 U |
| Endosulfan beta- | EPA 8081A_LL | µg/L | 33213-65-9 | 0.051 b | -- | 0.00086 UJ | 0.0019 U | 0.0019 U | 0.0019 U | -- | -- | -- | -- | -- | -- | 0.00086 UJ | 0.0019 U | 0.002 U | 0.0019 U | 0.00085 UJ | 0.0019 U | 0.0019 U | 0.002 U | 0.00086 UJ | 0.0019 U | 0.0019 U | 0.0019 U |
| Endosulfan sulfate | EPA 8081A_LL | µg/L | 1031-07-8 | 89 b | -- | 0.00086 UJ | 0.0028 U | 0.0029 U | 0.0029 U | -- | -- | -- | -- | -- | -- | 0.00086 UJ | 0.0028 U | 0.003 U | 0.0029 U | 0.00085 UJ | 0.0029 U | 0.0029 U | 0.003 U | 0.00086 UJ | 0.0028 U | 0.0029 U | 0.0028 U |
| Endrin | EPA 8081A_LL | µg/L | 72-20-8 | 0.036 b | -- | 0.0029 UJ | 0.0019 U | 0.0019 U | 0.0019 U | -- | -- | -- | -- | -- | -- | 0.0029 UJ | 0.0019 U | 0.002 U | 0.0019 U | 0.0028 UJ | 0.0019 U | 0.0019 U | 0.002 U | 0.0029 UJ | 0.0019 U | 0.0019 U | 0.0019 U |
| Endrin aldehyde | EPA 8081A_LL | µg/L | 7421-93-4 | 0.03 b | -- | 0.0074 UJ | 0.0019 U | 0.0019 U | 0.0019 U | -- | -- | -- | -- | -- | -- | 0.0074 UJ | 0.0019 U | 0.002 U | 0.0019 U | 0.0074 UJ | 0.0019 U | 0.0019 U | 0.002 U | 0.0074 UJ | 0.0019 U | 0.0019 U | 0.0019 U |
| Endrin ketone | EPA 8081A_LL | µg/L | 53494-70-5 | -- | -- | 0.0029 UJ | 0.0066 U | 0.0068 U | 0.0067 U | -- | -- | -- | -- | -- | -- | 0.0029 UJ | 0.0066 U | 0.0071 U | 0.0067 U | 0.0028 UJ | 0.0067 U | 0.0068 U | 0.0069 U | 0.0029 UJ | 0.0066 U | 0.0067 U | 0.0066 U |
| Heptachlor | EPA 8081A_LL | µg/L | 76-44-8 | 0.0000079 b | -- | 0.0029 UJ | 0.0028 U | 0.0029 U | 0.0029 U | -- | -- | -- | -- | -- | -- | 0.0029 UJ | 0.0028 U | 0.003 U | 0.0029 U | 0.0028 UJ | 0.0029 U | 0.0029 U | 0.003 U | 0.0029 UJ | 0.0028 U | 0.0029 U | 0.0028 U |
| Heptachlor epoxide | EPA 8081A_LL | µg/L | 1024-57-3 | 0.0000039 b | -- | 0.00086 UJ | 0.0024 U | 0.0024 U | 0.0024 U | -- | -- | -- | -- | -- | -- | 0.00086 UJ | 0.0024 U | 0.0025 U | 0.0024 U | 0.00085 UJ | 0.0024 U | 0.0024 U | 0.0025 U | 0.00086 UJ | 0.0024 U | 0.0024 U | 0.0024 U |
| Methoxychlor | EPA 8081A_LL | µg/L | 72-43-5 | 0.03 b | -- | 0.0029 UJ | 0.0033 U | 0.0034 U | 0.0034 U | -- | -- | -- | -- | -- | -- | 0.0029 UJ | 0.0033 U | 0.0035 U | 0.0033 U | 0.0028 UJ | 0.0033 U | 0.0034 U | 0.0035 U | 0.0029 UJ | 0.0033 U | 0.0033 U | 0.0033 U |
| Toxaphene | EPA 8081A_LL | µg/L | 8001-35-2 | 0.0002 b | -- | 0.079 UJ | 0.24 U | 0.24 U | 0.24 U | -- | -- | -- | -- | -- | -- | 0.079 UJ | 0.24 U | 0.25 U | 0.24 U | 0.079 UJ | 0.24 U | 0.24 U | 0.25 U | 0.079 UJ | 0.24 U | 0.24 U | 0.24 U |
| **Volatile Organic Compounds** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1- Dichloroethane | EPA 8260C_LL | µg/L | 75-34-3 | 47 b | -- | 0.025 U | **0.058** j | **0.2** | **0.068** j | -- | -- | -- | -- | -- | -- | **0.04** j | **0.16** j | **0.16** j | **0.03** j | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | **0.091** j | **0.025** j |
| 1,1,1- Trichloroethane (TCA) | EPA 8260C_LL | µg/L | 71-55-6 | 11 b | -- | 0.025 U | **0.12** j | **0.21** | **0.12** j | -- | -- | -- | -- | -- | -- | **0.16** j | **2.4** | **0.53** | **0.036** j | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | **0.052** j | **0.077** j | 0.025 U |
| 1,2- Dichloroethane (EDC) | EPA 8260C_LL | µg/L | 107-06-2 | 0.73 b | -- | 0.025 U | 0.025 U | 0.025 U | 0.025 U | -- | -- | -- | -- | -- | -- | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| Benzene | EPA 8260C_LL | µg/L | 71-43-2 | 1.2 b | -- | **0.042** j | **0.03** j | 0.025 U | 0.025 U | -- | -- | -- | -- | -- | -- | **0.031** j | **0.04** j | 0.025 U | 0.025 U | **0.046** j | 0.025 U | **0.062** j | **0.048** j | **0.036** j | 0.025 U | 0.025 U | 0.025 U |
| Chloroform | EPA 8260C_LL | µg/L | 67-66-3 | 0.17 b | -- | **0.24** | **0.14** j | **0.36** | **0.58** | -- | -- | -- | -- | -- | -- | **0.1** j | 0.03 U | **0.043** j | **0.047** j | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | **0.21** | **0.034** j |
| cis-1,2-Dichloroethlyene | EPA 8260C_LL | µg/L | 156-59-2 | 61 b | -- | **0.069** j | 0.025 U | **0.45** | **0.16** j | -- | -- | -- | -- | -- | -- | **0.12** j | **1.6** | **0.69** | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| EthylBenzene | EPA 8260C_LL | µg/L | 100-41-4 | 7.3 a | -- | 0.03 U | 0.03 U | 0.03 U | 0.03 U | -- | -- | -- | -- | -- | -- | 0.03 U | 0.03 U | 0.051 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.03 U | 0.06 U | 0.03 U |
| m,p-Xylene | EPA 8260C_LL | µg/L | 179601-23-1 | 1.8 b | -- | 0.05 U | **0.059** j | 0.05 U | 0.05 U | -- | -- | -- | -- | -- | -- | 0.05 U | **0.077** j | **0.07** j | 0.05 U | 0.05 U | **0.064** j | 0.05 U | 0.05 U | 0.05 U | 0.05 U | **0.18** j | **0.1** j |
| Methylene chloride | EPA 8260C_LL | µg/L | 75-09-2 | 8.9 b | -- | 0.11 U | 0.11 U | 0.11 U | 0.11 U | -- | -- | -- | -- | -- | -- | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U |
| o-Xylene | EPA 8260C_LL | µg/L | 95-47-6 | 13 b | -- | 0.06 U | 0.06 U | 0.06 U | 0.06 U | -- | -- | -- | -- | -- | -- | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | 0.06 U | **0.12** j | 0.06 U |
| Styrene | EPA 8260C_LL | µg/L | 100-42-5 | 100 b | -- | 0.1 U | 0.1 U | 0.1 U | 0.1 U | -- | -- | -- | -- | -- | -- | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Tetrachloroethene (PCE) | EPA 8260C_LL | µg/L | 127-18-4 | 0.12 b | -- | **0.32** j | **0.34** j | **0.18** j | **0.41** j | -- | -- | -- | -- | -- | -- | **0.51** | **2.3** | **0.52** | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U |
| Toluene | EPA 8260C_LL | µg/L | 108-88-3 | 9.8 b | -- | 0.032 U | 0.11 U | 0.028 U | 0.025 U | -- | -- | -- | -- | -- | -- | 0.055 U | 0.2 U | 0.12 U | **0.39** | 0.078 U | 0.025 U | 0.059 U | **0.079** j | 0.063 U | 0.082 U | 0.12 U | **0.79** |
| trans-1,2-Dichloroethene | EPA 8260C_LL | µg/L | 156-60-5 | 110 b | -- | 0.025 U | 0.025 U | 0.025 U | 0.025 U | -- | -- | -- | -- | -- | -- | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U | 0.025 U |
| Trichloroethene (TCE) | EPA 8260C_LL | µg/L | 79-01-6 | 0.17 b | -- | **0.18** j | **0.22** | **0.12** j | **0.047** j | -- | -- | -- | -- | -- | -- | **0.29** | **2.1** | **0.44** | **0.03** j | 0.025 U | 0.025 U | 0.025 U | 0.025 U | **0.061** j | 0.025 U | 0.025 U | 0.025 U |
| Vinyl Chloride | EPA 8260C_LL | µg/L | 75-01-4 | 0.015 b | -- | 0.013 U | 0.013 U | **0.058** | **0.018** j | -- | -- | -- | -- | -- | -- | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U | 0.013 U |
| Xylenes (total) | EPA 8260C_LL | µg/L | 1330-20-7 | 200 b | -- | 0.06 U | **0.059** j | 0.06 U | 0.06 U | -- | -- | -- | -- | -- | -- | 0.06 U | **0.077** j | **0.07** j | 0.06 U | 0.06 U | **0.064** j | 0.06 U | 0.06 U | 0.06 U | 0.06 U | **0.3** j | **0.1** j |
| **Phthalate Esters** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl)phthalate | EPA 8270D | µg/L | 117-81-7 | 0.2 a | 4 | 1.1 U | 11 U | 11 UJ | 12 U | -- | 11 U | 10 U | **2** j | **3.7** J | 2.8 U | 5.6 U | 11 U | 12 UJ | 10 U | **1.4** j | 11 U | 21 U | **27** J+ | **2.8** j | 11 U | 13 UJ | 11 U |
| Butylbenzylphthalate | EPA 8270D | µg/L | 85-68-7 | 3 b | -- | 0.19 U | 1.9 U | 3.6 UJ | 3.6 U | -- | 1.9 U | 3.5 U | **0.53** j | 0.72 U | 0.71 U | 0.95 U | 1.9 U | 3.9 UJ | 3.5 U | **0.21** j | 1.9 U | 7.2 U | 8.4 U | **0.21** j | 1.9 U | 4.4 UJ | 3.7 U |
| Diethylphthalate | EPA 8270D | µg/L | 84-66-2 | 3 b | -- | 0.095 U | 0.95 U | 14 UJ | 14 U | -- | 0.95 U | 13 U | **0.16** j | 2.7 U | 2.7 U | 0.47 U | 0.95 U | 15 UJ | 13 U | 0.095 U | 0.97 U | 28 U | 32 U | 0.095 U | 0.95 U | 17 UJ | 14 U |
| Dimethylphthalate | EPA 8270D | µg/L | 131-11-3 | 3 b | -- | **0.3** j | **11** | 0.49 UJ | 0.48 U | -- | **17** | 0.48 U | **42** | **0.47** j | 0.096 U | 0.27 U | **11** | 0.53 UJ | 0.48 U | **0.26** j | **16** | 0.98 U | 1.1 U | **0.15** j | 0.95 U | 0.59 UJ | 0.49 U |
| Di-n-butylphthalate | EPA 8270D | µg/L | 84-74-2 | 3 b | -- | **0.66** j | **2.5** j | 2.7 UJ | 2.6 U | -- | 1.2 U | 2.6 U | **0.31** j | 0.53 U | 0.53 U | 1.6 U | 1.2 U | 2.9 UJ | 2.6 U | **2** | **5.1** | 5.4 U | 6.2 U | **0.35** j | 1.2 U | 3.3 UJ | 2.7 U |
| Di-n-octylphthalate | EPA 8270D | µg/L | 117-84-0 | 3 b | -- | **0.2** j | **2.1** j | 0.88 UJ | 0.86 U | -- | 1.7 U | 0.86 U | 0.17 U | 0.17 UJ | 0.17 U | **0.56** j | **2.1** j | 0.96 UJ | 0.86 U | **0.6** | **6.2** | 1.8 UJ | 2 U | **0.14** j | 1.7 U | 1.1 UJ | 0.89 U |
| **Polycyclic Aromatic Hydrocarbons** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | EPA 8270D | µg/L | 91-57-6 | 0.2 b | -- | 0.051 U | 0.19 U | 0.097 UJ | 0.096 U | -- | -- | -- | -- | -- | -- | 0.26 U | 0.19 U | 0.11 UJ | 0.095 U | 0.051 U | 0.19 U | 0.2 U | 0.23 U | 0.051 U | 0.19 U | 0.12 UJ | 0.099 U |
| Acenaphthene | EPA 8270D | µg/L | 83-32-9 | 0.2 b | 95 | 0.046 U | 0.19 U | 0.097 UJ | 0.096 U | -- | -- | -- | -- | -- | -- | 0.23 U | 0.19 U | 0.11 UJ | 0.095 U | 0.047 U | 0.19 U | 0.2 U | 0.23 U | 0.046 U | 0.19 U | 0.12 UJ | 0.099 U |
| Acenaphthylene | EPA 8270D | µg/L | 208-96-8 | 0.2 b | -- | 0.058 U | 0.19 U | 0.097 UJ | 0.096 U | -- | -- | -- | -- | -- | -- | 0.29 U | 0.19 U | 0.11 UJ | 0.095 U | 0.058 U | 0.19 U | 0.2 U | 0.23 U | 0.058 U | 0.19 U | 0.12 UJ | 0.099 U |
| Anthracene | EPA 8270D | µg/L | 120-12-7 | 0.2 b | 2900 | 0.048 U | **0.19** j | 0.049 UJ | 0.048 U | -- | -- | -- | -- | -- | -- | 0.24 U | 0.095 U | 0.053 UJ | 0.048 U | 0.048 U | 0.097 U | 0.098 U | 0.11 U | 0.048 U | 0.095 U | 0.059 UJ | 0.049 U |
| Benzo(a)anthracene | EPA 8270D_SIM | µg/L | 56-55-3 | 0.0012 a | 1 | **0.0039** j | 0.057 U | 0.029 UJ | 0.029 U | -- | -- | -- | -- | -- | -- | 0.019 U | 0.057 U | 0.032 UJ | 0.029 U | **0.0057** j | 0.058 U | 0.059 U | 0.068 U | 0.0038 U | 0.057 U | 0.035 UJ | 0.03 U |
| Benzo(a)pyrene | EPA 8270D_SIM | µg/L | 50-32-8 | 0.00012 a | 1 | **0.0035** j | 0.057 U | 0.17 UJ | 0.17 U | -- | -- | -- | -- | -- | -- | 0.014 U | 0.057 U | 0.19 UJ | 0.17 U | **0.0045** j | 0.058 U | 0.34 U | 0.39 U | 0.0028 U | 0.057 U | 0.21 UJ | 0.17 U |
| Benzo(b)fluoranthene | EPA 8270D_SIM | µg/L | 205-99-2 | 0.0012 a | 1 | **0.0067** j | 0.057 U | 0.029 UJ | 0.029 U | -- | -- | -- | -- | -- | -- | 0.014 U | 0.057 U | 0.032 UJ | 0.029 U | **0.0081** j | 0.058 U | 0.059 U | 0.068 U | 0.0028 U | 0.057 U | 0.035 UJ | 0.03 U |
| Benzo(g,h,i)perylene | EPA 8270D_SIM | µg/L | 191-24-2 | 0.2 b | -- | **0.0056** j | 0.057 U | 0.37 UJ | 0.36 U | -- | -- | -- | -- | -- | -- | **0.019** j | **0.062** j | 0.4 UJ | 0.36 U | **0.014** j | 0.058 U | 0.74 U | 0.86 U | **0.0034** j | 0.057 U | 0.45 UJ | 0.38 U |
| Benzo(k)fluoranthene | EPA 8270D_SIM | µg/L | 207-08-9 | 0.0013 a | 1 | 0.0057 U | 0.029 U | 0.063 UJ | 0.062 U | -- | -- | -- | -- | -- | -- | 0.028 U | 0.029 U | 0.069 UJ | 0.062 U | 0.0057 U | 0.029 U | 0.13 U | 0.15 U | 0.0057 U | 0.029 U | 0.077 UJ | 0.064 U |
| Chrysene | EPA 8270D_SIM | µg/L | 218-01-9 | 0.0013 a | 1 | **0.011** j | 0.057 U | 0.029 UJ | 0.029 U | -- | -- | -- | -- | -- | -- | 0.028 U | 0.057 U | 0.032 UJ | 0.029 U | **0.014** j | 0.058 U | 0.059 U | 0.068 U | 0.0057 U | 0.057 U | 0.035 UJ | 0.03 U |
| Dibenzo(a,h)anthracene | EPA 8270D_SIM | µg/L | 53-70-3 | 0.00012 a | 1 | 0.0028 U | 0.057 U | 0.029 UJ | 0.029 U | -- | -- | -- | -- | -- | -- | 0.014 U | 0.057 U | 0.032 UJ | 0.029 U | 0.0028 U | 0.058 U | 0.059 U | 0.068 U | 0.0028 U | 0.057 U | 0.035 UJ | 0.03 U |
| Fluoranthene | EPA 8270D | µg/L | 206-44-0 | 0.2 b | 14 | 0.054 U | **0.2** j | 0.049 UJ | 0.048 U | -- | -- | -- | -- | -- | -- | 0.27 U | **0.2** j | 0.053 UJ | 0.048 U | 0.054 U | 0.13 U | 0.098 U | **0.13** j | 0.054 U | 0.12 U | 0.059 UJ | 0.049 U |
| Fluorene | EPA 8270D | µg/L | 86-73-7 | 0.2 b | 390 | 0.052 U | 0.19 U | 0.097 UJ | 0.096 U | -- | -- | -- | -- | -- | -- | 0.26 U | 0.19 U | 0.11 UJ | 0.095 U | 0.052 U | 0.19 U | 0.2 U | 0.23 U | 0.052 U | 0.19 U | 0.12 UJ | 0.099 U |
| Indeno(1,2,3-cd)pyrene | EPA 8270D_SIM | µg/L | 193-39-5 | 0.0012 a | 1 | 0.0038 U | 0.057 U | 0.029 UJ | 0.029 U | -- | -- | -- | -- | -- | -- | 0.019 U | 0.057 U | 0.032 UJ | 0.029 U | **0.0041** j | 0.058 U | 0.059 U | 0.068 U | 0.0038 U | 0.057 U | 0.035 UJ | 0.03 U |
| Naphthalene | EPA 8270D | µg/L | 91-20-3 | 12 a | -- | 0.042 U | 0.1 U | 0.49 UJ | 0.48 U | -- | -- | -- | -- | -- | -- | 0.21 U | 0.1 U | 0.53 UJ | 0.48 U | 0.042 U | 0.1 U | 0.98 U | 1.1 U | 0.042 U | 0.1 U | 0.59 UJ | 0.49 U |
| Phenanthrene | EPA 8270D | µg/L | 85-01-8 | 0.2 b | -- | 0.051 U | 0.19 U | 0.097 UJ | 0.096 U | -- | -- | -- | -- | -- | -- | 0.26 U | 0.19 U | 0.11 UJ | 0.095 U | 0.051 U | 0.19 U | 0.2 U | 0.23 U | 0.051 U | 0.19 U | 0.12 UJ | 0.099 U |
| Pyrene | EPA 8270D | µg/L | 129-00-0 | 0.2 b | 290 | 0.05 U | **0.22** j | 0.19 UJ | 0.19 U | -- | -- | -- | -- | -- | -- | 0.25 U | **0.27** j | 0.21 UJ | 0.19 U | **0.057** j | 0.13 U | 0.39 U | 0.45 U | 0.05 U | **0.17** j | 0.24 UJ | 0.2 U |
| Total PAHs[4] | EPA 8270D_SIM | µg/L | -- | -- | 1 | **0.031** | **0.61** | **0** | **0** | -- | -- | -- | -- | -- | -- | **0.019** | **0.53** | **0** | **0** | **0.11** | **0** | **0** | **0.13** | **0.0034** | **0.17** | **0** | **0** |
| cPAHs (BaPeq) | EPA 8270D | µg/L | -- | 0.00012 a | | **0.0047** | **0** | **0** | **0** | -- | -- | -- | -- | -- | -- | **0** | **0.00** | **0** | **0** | **0.0064** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **pH[5]** | EPA 9040 | SU | -- | -- | | **6.9** J | **7.1** J | **5.9** J | **6.4** J | **6.3** J | **6.7** J | **6.4** J | **6.7** J | | **6.2** J | **6.9** J | **7.5** J | **6.4** J | **7.2** J | **7.6** J | **7.8** J | **6.6** J | **7.2** J | **7.1** J | **7.3** J | **7.6** J | **8.7** J |
| **pH[6]** | Field | SU | -- | -- | -- | | **7.6** | | **6.8** | | **6.6** | **6.1** | **6.5** | **7.1** | **7.5** | | **7.1** | | **8.1** | | **7.8** | **7.4** | **7.5** | | **7.7** | **8.7** | **7.8** |
| **Total Suspended Solids** | EPA 2540D | µg/L | -- | -- | -- | 18000 | 15000 | 12000 | 2000 U | 15000 | 6800 | 2000 U | 6800 | 13,000 J | 5200 | 49000 | 17000 | 14000 | 83000 | 83000 | 31000 | 830000 | 1000000 | 7200 | 53000 | 12000 | 15000 |

**Notes:**

Gray shading indicates compound concentration was greater than applicable JSCS SL'
Detected results shown in **bold.**

-- = Not applicable
j = Result is detected between the method detection limit and reporting limit
J = Result is estimated
J+ = Result is estimated with
NJ = Tentatively identified and estimated - chromatogram did not resemble the standard hydrocarbon pattern
U = Analyte not detected
UJ = Result is estimated to be not detected
µg/L = micrograms per liter
CUL = Clean up level
DDx = Sum total of 2,4- and 4,4- isomers of DDE, DDD, and DDT
DEQ = Department of Environmental Quality
EPA = Environmental Protection Agency
JSCS = Joint Source Control Strategy
PAHs = Polyaromatic Hydrocarbons
cPAH (BaPeq) = carcinogenic PAHs calculated as benzo(a)pyrene equivalent
PCBs = Polychlorinated biphenyls
ROD = Record of Decision
SLVs = Screening level values
SU = standard units
VOCs = volatile organic compounds
[1] = Screening levels are Portland Harbor ROD CULs (EPA 2017) supplemeneted with the highlighted screening levels in
[2] = Comparison Values selected according to the strictest criterion from 1200-Z Permit Benchmarks, 1200-Z Permit Pollut
[3] = Total PCBs is sum of PCB aroclors which were detected above the detection limit, with non-detects counted as zero. I
[4] = Total PAHs is sum of detected PAH values, with nondetects counted as zero
[5] = Laboratory measurements of pH were conducted outside of hold time and were supplemented with field pH measur
[6] = pH measured in the field uzing a 3-point calibrated probe at 4.0, 7.0, and 10.0 pH S.U.

**Screening Level Footnotes:**
a = Portland Harbor ROD CUL for Riverbank Soil/Sediment
b = Portland Harbor JSCS SLV

**Table 7**

*Groundwater Infiltration Sample Results*
*Stormwater Source Control Evaluation*
*Univar USA Inc.*

| Constituent | Analytical Method | Unit | CAS No. | Screening Level[1] | | Comparison Value[2] | Manhole (ATT564) 6/7/2017 | |
|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | |
| Arsenic | EPA 6020_LL | µg/L | 7440-38-2 | 0.018 | a | 2 | **0.77** | j |
| Cadmium | EPA 6020_LL | µg/L | 7440-43-9 | 0.091 | a | 0.5 | **0.22** | j |
| Chromium | EPA 6020_LL | µg/L | 7440-47-3 | 11 | a | 10 | **2.9** | |
| Copper | EPA 6020_LL | µg/L | 7440-50-8 | 2.74 | a | 20 | **7.6** | |
| Lead | EPA 6020_LL | µg/L | 7439-92-1 | 0.54 | a | 40 | **0.76** | j |
| Manganese | EPA 6020_LL | µg/L | 7439-96-5 | 430 | a | -- | **25** | |
| Mercury | EPA 7470A | µg/L | 7439-97-6 | 0.77 | b | 0.2 | 0.15 | U |
| Nickel | EPA 6020_LL | µg/L | 7440-02-0 | 16 | b | 10 | **2.9** | j |
| Zinc | EPA 6020_LL | µg/L | 7440-66-6 | 36.5 | a | 120 | **31** | |
| **PCBs** | | | | | | | | |
| Aroclor 1016 | EPA 8082A | µg/L | 12674-11-2 | 0.96 | b | -- | 0.0081 | U |
| Aroclor 1221 | EPA 8082A | µg/L | 11104-28-2 | 0.034 | b | -- | 0.014 | U |
| Aroclor 1232 | EPA 8082A | µg/L | 11141-16-5 | 0.034 | b | -- | 0.0072 | U |
| Aroclor 1242 | EPA 8082A | µg/L | 53469-21-9 | 0.034 | b | -- | 0.0067 | U |
| Aroclor 1248 | EPA 8082A | µg/L | 12672-29-6 | 0.034 | b | -- | 0.0067 | U |
| Aroclor 1254 | EPA 8082A | µg/L | 11097-69-1 | 0.033 | b | -- | 0.0072 | U |
| Aroclor 1260 | EPA 8082A | µg/L | 11096-82-5 | 0.034 | b | -- | 0.019 | U |
| Aroclor 1262 | EPA 8082A | µg/L | 37324-23-5 | -- | | -- | 0.0062 | U |
| Aroclor 1268 | EPA 8082A | µg/L | 11100-14-4 | -- | | -- | 0.0067 | U |
| Total PCBs[2] | EPA 8082A | µg/L | 1336-36-3 | 0.014 | a | 0.3 | 0.019 | U |
| **VOCs** | | | | | | | | |
| 1,1- Dichloroethane | EPA 8260C_LL | µg/L | 75-34-3 | 47 | b | -- | **1.4** | |
| 1,1,1- Trichloroethane (TCA) | EPA 8260C_LL | µg/L | 71-55-6 | 11 | b | -- | **0.85** | |
| 1,2- Dichloroethane (EDC) | EPA 8260C_LL | µg/L | 107-06-2 | 0.73 | b | -- | 0.025 | U |
| Benzene | EPA 8260C_LL | µg/L | 71-43-2 | 0.44 | a | -- | 0.025 | U |
| Chloroform | EPA 8260C_LL | µg/L | 67-66-3 | 0.17 | b | -- | **2.7** | |
| cis-1,2-Dichloroethlyene | EPA 8260C_LL | µg/L | 156-59-2 | 9.9 | a | -- | **2.9** | |
| EthylBenzene | EPA 8260C_LL | µg/L | 100-41-4 | 7.3 | a | -- | 0.030 | U |
| m,p-Xylene | EPA 8260C_LL | µg/L | 179601-23-1 | 1.8 | b | -- | 0.050 | U |
| Methylene chloride | EPA 8260C_LL | µg/L | 75-09-2 | 8.9 | b | -- | 0.11 | U |
| o-Xylene | EPA 8260C_LL | µg/L | 95-47-6 | 13 | b | -- | 0.060 | U |
| Styrene | EPA 8260C_LL | µg/L | 100-42-5 | 100 | b | -- | 0.10 | U |
| Tetrachloroethene (PCE) | EPA 8260C_LL | µg/L | 127-18-4 | 0.24 | a | -- | **3.4** | |
| Toluene | EPA 8260C_LL | µg/L | 108-88-3 | 9.8 | a | -- | 0.025 | U |
| trans-1,2-Dichloroethene | EPA 8260C_LL | µg/L | 156-60-5 | 110 | b | -- | 0.025 | U |
| Trichloroethene (TCE) | EPA 8260C_LL | µg/L | 79-01-6 | 0.6 | a | -- | **0.76** | |
| Vinyl Chloride | EPA 8260C_LL | µg/L | 75-01-4 | 0.022 | a | -- | **0.16** | |
| Xylenes (total) | EPA 8260C_LL | µg/L | 1330-20-7 | 13 | a | -- | 0.060 | U |
| **Phthalate Esters** | | | | | | | | |
| bis(2-Ethylhexyl)phthalate | EPA 8270D | µg/L | 117-81-7 | 2.2 | b | 4 | 2.3 | U |
| Butylbenzylphthalate | EPA 8270D | µg/L | 85-68-7 | 3 | b | -- | 10 | U |
| Diethylphthalate | EPA 8270D | µg/L | 84-66-2 | 3 | b | -- | 2.9 | U |
| Dimethylphthalate | EPA 8270D | µg/L | 131-11-3 | 3 | b | -- | 0.10 | U |
| Di-n-butylphthalate | EPA 8270D | µg/L | 84-74-2 | 3 | b | -- | 0.57 | U |
| Di-n-octylphthalate | EPA 8270D | µg/L | 117-84-0 | 3 | b | -- | 0.19 | U |
| **PAHs** | | | | | | | | |
| 2-Methylnaphthalene | EPA 8270D | µg/L | 91-57-6 | 0.2 | b | -- | 0.021 | U |
| Acenaphthene | EPA 8270D | µg/L | 83-32-9 | 23 | a | 95 | 0.021 | U |
| Acenaphthylene | EPA 8270D | µg/L | 208-96-8 | 0.2 | b | -- | 0.021 | U |
| Anthracene | EPA 8270D | µg/L | 120-12-7 | 0.73 | a | 2900 | 0.010 | U |
| Benzo(a)anthracene | EPA 8270D_SIM | µg/L | 56-55-3 | 0.0012 | a | 1 | 0.0062 | U |
| Benzo(a)pyrene | EPA 8270D_SIM | µg/L | 50-32-8 | 0.00012 | a | 1 | 0.036 | U |
| Benzo(b)fluoranthene | EPA 8270D_SIM | µg/L | 205-99-2 | 0.0012 | a | 1 | 0.0062 | U |
| Benzo(g,h,i)perylene | EPA 8270D_SIM | µg/L | 191-24-2 | 0.2 | b | -- | 0.079 | U |
| Benzo(k)fluoranthene | EPA 8270D_SIM | µg/L | 207-08-9 | 0.0013 | a | 1 | 0.013 | U |
| Chrysene | EPA 8270D_SIM | µg/L | 218-01-9 | 0.0013 | a | 1 | 0.0062 | U |
| Dibenzo(a,h)anthracene | EPA 8270D_SIM | µg/L | 53-70-3 | 0.00012 | a | 1 | 0.0062 | U |
| Fluoranthene | EPA 8270D | µg/L | 206-44-0 | 0.2 | b | 14 | **0.020** | j |
| Fluorene | EPA 8270D | µg/L | 86-73-7 | 0.2 | b | 390 | **0.024** | j |
| Indeno(1,2,3-cd)pyrene | EPA 8270D_SIM | µg/L | 193-39-5 | 0.0012 | a | 1 | 0.0062 | U |
| Naphthalene | EPA 8270D | µg/L | 91-20-3 | 12 | a | -- | 0.10 | U |
| Phenanthrene | EPA 8270D | µg/L | 85-01-8 | 0.2 | b | -- | **0.056** | j |
| Pyrene | EPA 8270D | µg/L | 129-00-0 | 0.2 | b | 290 | 0.041 | U |
| Total PAHs[3] | EPA 8270D | µg/L | -- | 0.2 | b | 1 | **0.10** | j |
| cPAHs (BaPeq) | EPA 8270D | µg/L | -- | 0.00012 | a | -- | 0 | |

**Notes:**

Gray shading indicates compound concentration was greater than applicable JSCS SLV

Detected results shown in **bold.**

-- = Not applicable
j = Result is detected between the method detection limit and reporting limit
U = Analyte not detected
µg/L = Micrograms per liter
CUL = Clean up level
DDx = Sum total of 2,4- and 4,4- isomers of DDE, DDD, and DDT
DEQ = Department of Environmental Quality
EPA - Environmental Protection Agency
JSCS - Joint Source Control Strategy
PAHs - Polyaromatic Hydrocarbons
cPAH (BaPeq) = carcinogenic PAHs calculated as benzo(a)pyrene equivalent
PCBs = Polychlorinated biphenyls
ROD = Record of Decision
SLVs = Screening level values
VOCs = volatile organic compounds
[1] = Screening levels are Portland Harbor ROD CULs (EPA 2017) supplemented with the highlighted screening levels in the Portland Harbor Joint Source Control Strategy, Final,
[3] = Geomean is the geometric mean of detected values, with one-half of the MDL for nondetects used in the calculation
[2] = Total PCBs is sum of PCB aroclors which were detected above the detection limit, with non-detects counted as zero. Detection limits are recorded as the highest detection limi
[3] = Total PAHs is sum of detected PAH values, with nondetects counted as zero

**Screening Level Footnotes:**
a = Portland Harbor ROD CUL for Groundwater
b = Portland Harbor JSCS SLV

**Table 8**

*Catch Basin Solids Exceedance Quotients*
*Stormwater Source Control Evaluation*
*Univar USA Inc.*

| Constituent | Analytical Method | Unit | CAS No. | Screening Level[1] | | Catch Basin (CB-1G) | Catch Basin (CB-2E) | Catch Basin (CB-3CD) | Catch Basin (CB-4A) | Catch Basin (CB-5A) | Catch Basin (CB-6A) | Trench Drain (Trench-1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 12/15/2015 | 12/15/2015 | 12/15/2015 | 12/15/2015 | 12/15/2015 | 12/15/2015 | 12/15/2015 |
| **Metals** | | | | | | | | | | | | |
| Arsenic | EPA 6020A | -- | 7440-38-2 | 3,000 | a | **5.0** | **1.6** | 0.9 | **4.3** | **1.1** | 0.6 | **8.0** |
| Cadmium | EPA 6020A | -- | 7440-43-9 | 510 | a | **2.2** | **2.7** | **2.2** | **4.3** | **2.4** | **2.2** | **3.5** |
| Chromium | EPA 6020A | -- | 7440-47-3 | 111,000 | b | **1.8** | 0.7 | 0.6 | 0.8 | 0.4 | 0.8 | **2.4** |
| Copper | EPA 6020A | -- | 7440-50-8 | 359,000 | a | 0.5 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.4 |
| Lead | EPA 6020A | -- | 7439-92-1 | 196,000 | a | 0.4 | 0.4 | 0.2 | 0.6 | 0.3 | 0.2 | **1.1** |
| Manganese | EPA 6020A | -- | 7439-96-5 | 1,100,000 | b | 0.4 | 0.5 | 0.3 | 0.5 | 0.3 | 0.2 | 0.5 |
| Mercury | EPA 7471A | -- | 7439-97-6 | 85 | a | **1.6** | 0.2 | 0.9 | **3.6** | **7.6** | 0.9 | **1.5** |
| Nickel | EPA 6020A | -- | 7440-02-0 | 48,600 | b | **2.0** | **1.1** | 1.0 | **1.2** | 0.6 | 1.0 | **2.7** |
| Zinc | EPA 6020A | -- | 7440-66-6 | 459,000 | a | **2.0** | **1.8** | **1.1** | **4.4** | **2.2** | **1.9** | **5.9** |
| **PCBs Aroclors** | | | | | | | | | | | | |
| Aroclor 1016 | EPA 8082A | -- | 12674-11-2 | 530 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1221 | EPA 8082A | -- | 11104-28-2 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1232 | EPA 8082A | -- | 11141-16-5 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1242 | EPA 8082A | -- | 53469-21-9 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1248 | EPA 8082A | -- | 12672-29-6 | 1500 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1254 | EPA 8082A | -- | 11097-69-1 | 300 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1260 | EPA 8082A | -- | 11096-82-5 | 200 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1262 | EPA 8082A | -- | 37324-23-5 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1268 | EPA 8082A | -- | 11100-14-4 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total PCB Aroclors[2] | EPA 8082A | -- | 1336-36-3 | 9 | a | 0.0 | **39** | 0.0 | 0.0 | 0.0 | **3.4** | **133** |
| **Organochlorine Pesticides** | | | | | | | | | | | | |
| 2,4'-DDD | EPA 8081B | -- | 53-19-0 | 114 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2,4'-DDE | EPA 8081B | -- | 3424-82-6 | 226 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2,4'-DDT | EPA 8081B | -- | 789-02-6 | 246 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4,4'-DDD | EPA 8081B | -- | 72-54-8 | 114 | a | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 |
| 4,4'-DDE | EPA 8081B | -- | 72-55-9 | 226 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| 4,4'-DDT | EPA 8081B | -- | 50-29-3 | 246 | a | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0 | 0.1 |
| DDX | EPA 8081B | -- | -- | 6.1 | a | **2.8** | **5.7** | **5.8** | **4.2** | **4.0** | **101** | **14.7** |
| Aldrin | EPA 8081B | -- | 309-00-2 | 2 | a | 0.4 | 0.1 | 0.8 | 0.3 | 0.2 | **1.6** | 0.3 |
| alpha-Chlordane | EPA 8081B | -- | 5103-71-9 | 1.4 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Chlordane | EPA 8081B | -- | 57-74-9 | 1.4 | a | 0.0 | **86** | **79** | 0.0 | 0.0 | 0.0 | **79** |
| Dieldrin | EPA 8081B | -- | 60-57-1 | 0.07 | a | **26** | 0.0 | **16** | 0.0 | 0.0 | 0.0 | **90** |
| Endosulfan I (Alpha) | EPA 8081B | -- | 959-98-8 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endosulfan II (Beta) | EPA 8081B | -- | 33213-65-9 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endosulfan sulfate | EPA 8081B | -- | 1031-07-8 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endrin | EPA 8081B | -- | 72-20-8 | 207 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endrin aldehyde | EPA 8081B | -- | 7421-93-4 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endrin ketone | EPA 8081B | -- | 53494-70-5 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| gamma-Chlordane | EPA 8081B | -- | 5566-34-7 | 1.4 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Heptachlor | EPA 8081B | -- | 76-44-8 | 10 | b | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Heptachlor epoxide | EPA 8081B | -- | 1024-57-3 | 16 | b | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| Methoxychlor | EPA 8081B | -- | 72-43-5 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Toxaphene | EPA 8081B | -- | 8001-35-2 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **VOCs** | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | EPA 8260C | -- | 71-55-6 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1,1-Dichloroethane | EPA 8260C | -- | 75-34-3 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1,2-Dichloroethane | EPA 8260C | -- | 107-06-2 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Benzene | EPA 8260C | -- | 71-43-2 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Chloroform | EPA 8260C | -- | 67-66-3 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| cis-1,2-Dichloroethene | EPA 8260C | -- | 156-59-2 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Ethylbenzene | EPA 8260C | -- | 100-41-4 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| m,p-Xylenes | EPA 8260C | -- | 179601-23-1 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Methylene chloride | EPA 8260C | -- | 75-09-2 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| o-Xylene | EPA 8260C | -- | 95-47-6 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Styrene | EPA 8260C | -- | 100-42-5 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Tetrachloroethene | EPA 8260C | -- | 127-18-4 | 500 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Toluene | EPA 8260C | -- | 108-88-3 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| trans-1,2-Dichloroethene | EPA 8260C | -- | 156-60-5 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Trichloroethene | EPA 8260C | -- | 79-01-6 | 2100 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Xylenes | EPA 8260C | -- | 1330-20-7 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Phthalate Esters** | | | | | | | | | | | | |
| Bis(2-ethylhexyl)phthalate | EPA 8270D | -- | 117-81-7 | 135 | a | **481** | **111.1** | **125.9** | **296** | **118.5** | **118.5** | **296** |
| Butylbenzylphthalate | EPA 8270D | -- | 85-68-7 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Dibutyl phthalate | EPA 8270D | -- | 84-74-2 | 60 | b | **8.5** | **20.0** | **7.3** | **2.7** | **7.2** | **5.2** | **7.2** |
| Diethyl phthalate | EPA 8270D | -- | 84-66-2 | 600 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Dimethyl phthalate | EPA 8270D | -- | 131-11-3 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Di-n-octyl phthalate | EPA 8270D | -- | 117-84-0 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Polycyclic Aromatic Hydrocarbons** | | | | | | | | | | | | |
| 2-Methylnaphthalene | EPA 8270D | -- | 91-57-6 | 200 | b | 0.1 | 0.7 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 |
| Acenaphthene | EPA 8270D | -- | 83-32-9 | 300 | b | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| Acenaphthylene | EPA 8270D | -- | 208-96-8 | 200 | b | 0.1 | 0.1 | 0.0 | 0.1 | 0.2 | 0.1 | 0.1 |
| Anthracene | EPA 8270D | -- | 120-12-7 | 845 | b | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| Benzo(a)anthracene | EPA 8270D | -- | 56-55-3 | 1050 | b | 0.1 | 0.2 | 0.1 | 0.0 | 0.2 | 0.1 | 0.1 |
| Benzo(a)pyrene | EPA 8270D | -- | 50-32-8 | 1450 | b | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.1 |
| Benzo(b)fluoranthene | EPA 8270D | -- | 205-99-2 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Benzo(g,h,i)perylene | EPA 8270D | -- | 191-24-2 | 300 | b | 0.7 | 0.7 | 0.4 | 0.3 | 0.0 | 0.7 | 0.4 |
| Benzo(k)fluoranthene | EPA 8270D | -- | 207-08-9 | 13000 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Chrysene | EPA 8270D | -- | 218-01-9 | 1290 | b | 0.3 | 0.3 | 0.2 | 0.1 | 0.4 | 0.3 | 0.1 |
| Dibenzo(a,h)anthracene | EPA 8270D | -- | 53-70-3 | 1300 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| Fluoranthene | EPA 8270D | -- | 206-44-0 | 2230 | b | 0.2 | 0.4 | 0.1 | 0.1 | 0.3 | 0.2 | 0.2 |
| Fluorene | EPA 8270D | -- | 86-73-7 | 536 | b | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| Indeno(1,2,3-cd)pyrene | EPA 8270D | -- | 193-39-5 | 100 | b | 0.0 | **1.6** | 0.7 | 0.4 | 0.0 | **1.5** | 0.6 |
| Naphthalene | EPA 8270D | -- | 91-20-3 | 561 | b | **1.2** | **3.0** | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 |
| Phenanthrene | EPA 8270D | -- | 85-01-8 | 1170 | b | 0.2 | 0.4 | 0.1 | 0.1 | 0.3 | 0.4 | 0.2 |
| Pyrene | EPA 8270D | -- | 129-00-0 | 1520 | b | 0.5 | 0.6 | 0.3 | 0.1 | 0.9 | 0.5 | 0.4 |
| Total PAHs[3] | EPA 8270D | -- | -- | 23000 | a | 0.2 | 0.3 | 0.1 | 0.1 | 0.2 | 0.2 | 0.1 |
| cPAHs (BaPeq) | EPA 8270D | -- | -- | 12 | a | **18.6** | **28.4** | **15.3** | **11.2** | **32.1** | **30.1** | **13.3** |

**Notes**

Indicates result concentration exceeds SLV by a factor between 1 and 10
Indicates result concentration exceeds SLV by a factor between 10 and 100
Indicates result concentration exceeds SLV by a factor greater than 100

Detected results shown in **bold**.
-- = Not applicable
j = The analyte was positively identified but was determined to be an estimated concentration by the laboratory
J = The analyte was positively identified; associated numerical value is the approximate concentration of the analyte in the sample.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
U = Compound was analyzed for, but not detected. The associated numerical value is the SQL.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.
µg/kg = micrograms per liter
CUL = Clean up level
DDx = Sum total of 2,4- and 4,4- isomers of DDE, DDD, and DDT
DEQ = Department of Environmental Quality
EPA - Environmental Protection Agency
JSCS - Joint Source Control Strategy
PAHs = Polycyclic Aromatic Hydrocarbons
cPAH (BaPeq) = carcinogenic PAHs calculated as benzo(a)pyrene equivalent
PCBs = polycyclic chlorinated biphenyls
ROD = Record of Decision
SLVs = Screening level values
VOCs = volatile organic compounds
[1] = Screening levels (µg/kg) are Portland Harbor ROD CULs (EPA 2017) supplemeneted with the highlighted screening levels in the Portland Harbor Joint Source Control Strategy, Final, Table 3-1 Revision, July 2007
[2]= Total PCBs is sum of PCB aroclors which were detected above the detection limit, with non-detects counted as zero. Detection limits are recorded as the highest detection limit of the individual aroclors.
[3] = Total PAHs is sum of detected PAH values, with nondetects counted as zero

**Screening Level Footnotes:**
a = Portland Harbor ROD CUL for Riverbank Soil/Sediment
b = Portland Harbor JSCS SLV

| Constituent | Analytical Method | Unit | CAS No. | Screening Level[1] | Catch Basin (CB-1G) | | | | Catch Basin (CB-2E) | | | | Catch Basin (CB-3D) | | | Catch Basin (CB-4A) | | | | Catch Basin (CB-5A) | | | | Catch Basin (CB-6A) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 |
| **Metals** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | EPA 6020_LL | -- | 7440-38-2 | 0.018 a | 35.0 | 25.6 | 55.6 | 43.3 | 83 | 22.2 | 77.8 | 61.1 | 32.2 | 36.7 | 0.0 | 61.1 | 14.4 | 41.7 | 31.1 | 21.1 | 16.1 | 66.7 | 27.8 | 15.6 | 34.4 | 61.1 | 37.2 |
| Cadmium | EPA 6020_LL | -- | 7440-43-9 | 0.094 b | 1.8 | 2.2 | 1.4 | 1.3 | 7.6 | 0.8 | 2.1 | 1.2 | 1.9 | 0.0 | 0.0 | 3.8 | 2.1 | 37.2 | 3.2 | 1.5 | 2.4 | 2.6 | 0.0 | 0.9 | 1.4 | 1.3 | 0.0 |
| Chromium | EPA 6020_LL | -- | 7440-47-3 | 100 a | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| Copper | EPA 6020_LL | -- | 7440-50-8 | 2.74 a | 6.2 | 4.4 | 9.1 | 8.4 | 13.1 | 1.8 | 7.3 | 2.6 | 5.5 | 5.1 | 2.0 | 10.6 | 1.5 | 3.2 | 1.6 | 3.4 | 3.4 | 12.4 | 5.5 | 2.9 | 5.5 | 5.8 | 2.0 |
| Lead | EPA 6020_LL | -- | 7439-92-1 | 0.54 b | 9.3 | 12.0 | 5.4 | 8.1 | 42.6 | 2.4 | 7.8 | 5.7 | 14.1 | 6.9 | 2.8 | 15.4 | 5.4 | 4.8 | 2.4 | 10.4 | 7.6 | 22.2 | 7.4 | 8.0 | 35.2 | 12.6 | 3.0 |
| Manganese | EPA 6020_LL | -- | 7439-96-5 | 100 a | 0.3 | 0.3 | 0.2 | 0.3 | 1.6 | 0.1 | 0.4 | 0.2 | 0.5 | 0.2 | 0.1 | 0.7 | 0.5 | 11 | 0.5 | 0.4 | 0.4 | 1.1 | 0.4 | 0.4 | 0.5 | 0.6 | 0.1 |
| Mercury | EPA 7041A | -- | 7439-97-6 | 0.77 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Nickel | EPA 6020_LL | -- | 7440-02-0 | 16 b | 0.5 | 0.2 | 0.2 | 0.2 | 0.4 | 0.0 | 0.2 | 0.1 | 0.3 | 0.2 | 0.1 | 0.7 | 0.1 | 0.9 | 0.1 | 0.1 | 0.1 | 0.4 | 0.2 | 0.1 | 0.2 | 0.2 | 0.0 |
| Zinc | EPA 6020_LL | -- | 7440-66-6 | 36.5 a | 8.2 | 4.7 | 4.7 | 4.9 | 12.9 | 0.6 | 5.2 | 2.7 | 6.3 | 2.1 | 1.2 | 22.7 | 14.5 | 1014 | 30.1 | 6.0 | 4.7 | 10.4 | 4.7 | 2.2 | 3.3 | 4.4 | 1.4 |
| **PCBs Aroclors** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | EPA 8082A | -- | 12674-11-2 | 0.96 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1221 | EPA 8082A | -- | 11104-28-2 | 0.034 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1232 | EPA 8082A | -- | 11141-16-5 | 0.034 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1242 | EPA 8082A | -- | 53469-21-9 | 0.034 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1248 | EPA 8082A | -- | 12672-29-6 | 0.034 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1254 | EPA 8082A | -- | 11097-69-1 | 0.033 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1260 | EPA 8082A | -- | 11096-82-5 | 0.034 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1262 | EPA 8082A | -- | 37324-23-5 | -- | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1268 | EPA 8082A | -- | 11100-14-4 | -- | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total PCBs[2] | EPA 8082A | -- | 1336-36-3 | 0.0000064 a | 0.0 | 0.0 | 0.0 | 0.0 | 5625 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4688 | 0.0 | 0.0 | 5000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Organochlorine Pesticides** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4'-DDD | EPA 8081A_LL | -- | 53-19-0 | -- | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2,4'-DDE | EPA 8081A_LL | -- | 3424-82-6 | -- | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2,4'-DDT | EPA 8081A_LL | -- | 789-02-6 | -- | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4,4-DDD | EPA 8081A_LL | -- | 72-54-8 | 0.000031 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4,4'-DDE | EPA 8081A_LL | -- | 72-55-9 | 0.000018 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4,4-DDT | EPA 8081A_LL | -- | 50-29-3 | 0.000022 b | 54.5 | 0.0 | 0.0 | 0.0 | 118 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100 | 0.0 | 0.0 | 0.0 | 259 | 0.0 | 0.0 | 0.0 |
| DDx | EPA 8081A_LL | -- | 50-29-3 | 0.01 a | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 |
| Aldrin | EPA 8081A_LL | -- | 309-00-2 | 0.00000077 a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Chlordane | EPA 8081A_LL | -- | 57-74-9 | 0.000081 a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Dieldrin | EPA 8081A_LL | -- | 60-57-1 | 0.0000054 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 241 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endosulfan alpha- | EPA 8081A_LL | -- | 959-98-8 | 0.051 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endosulfan beta- | EPA 8081A_LL | -- | 33213-65-9 | 0.051 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endosulfan sulfate | EPA 8081A_LL | -- | 1031-07-8 | 89 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endrin | EPA 8081A_LL | -- | 72-20-8 | 0.036 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Endrin aldehyde | EPA 8081A_LL | -- | 7421-93-4 | 0.03 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endrin ketone | EPA 8081A_LL | -- | 53494-70-5 | -- | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Heptachlor | EPA 8081A_LL | -- | 76-44-8 | 0.0000079 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Heptachlor epoxide | EPA 8081A_LL | -- | 1024-57-3 | 0.0000039 b | 246 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 282 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Methoxychlor | EPA 8081A_LL | -- | 72-43-5 | 0.03 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 |
| Toxaphene | EPA 8081A_LL | -- | 8001-35-2 | 0.0002 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Volatile Organic Compounds** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1- Dichloroethane | EPA 8260C_LL | -- | 75-34-3 | 47 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1,1,1- Trichloroethane (TCA) | EPA 8260C_LL | -- | 71-55-6 | 11 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1,2- Dichloroethane (EDC) | EPA 8260C_LL | -- | 107-06-2 | 0.73 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Benzene | EPA 8260C_LL | -- | 71-43-2 | 1.2 b | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Chloroform | EPA 8260C_LL | -- | 67-66-3 | 0.17 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| cis-1,2-Dichloroethlyene | EPA 8260C_LL | -- | 156-59-2 | 61 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EthylBenzene | EPA 8260C_LL | -- | 100-41-4 | 7.3 a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| m,p-Xylene | EPA 8260C_LL | -- | 179601-23-1 | 1.8 b | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Methylene chloride | EPA 8260C_LL | -- | 75-09-2 | 8.9 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| o-Xylene | EPA 8260C_LL | -- | 95-47-6 | 13 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Styrene | EPA 8260C_LL | -- | 100-42-5 | 100 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Tetrachloroethene (PCE) | EPA 8260C_LL | -- | 127-18-4 | 0.12 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Toluene | EPA 8260C_LL | -- | 108-88-3 | 9.8 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| trans-1,2-Dichloroethene | EPA 8260C_LL | -- | 156-60-5 | 110 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Trichloroethene (TCE) | EPA 8260C_LL | -- | 79-01-6 | 0.17 b | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Vinyl Chloride | EPA 8260C_LL | -- | 75-01-4 | 0.015 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Xylenes (total) | EPA 8260C_LL | -- | 1330-20-7 | 200 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Phthalate Esters** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl)phthalate | EPA 8270D | -- | 117-81-7 | 0.2 a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Butylbenzylphthalate | EPA 8270D | -- | 85-68-7 | 3 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Diethylphthalate | EPA 8270D | -- | 84-66-2 | 3 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Dimethylphthalate | EPA 8270D | -- | 131-11-3 | 3 b | 0.1 | 6.3 | 0.0 | 0.0 | 0.0 | 4.0 | 0.3 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.1 | 0.0 | 0.1 | 6.0 | 0.0 | 0.0 | 0.4 | 3.1 | 0.0 | 0.0 |
| Di-n-butylphthalate | EPA 8270D | -- | 84-74-2 | 3 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Di-n-octylphthalate | EPA 8270D | -- | 117-84-0 | 3 b | 0.9 | 8.7 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 | 0.8 | 0.6 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 |
| **Polycyclic Aromatic Hydrocarbons** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | EPA 8270D | -- | 91-57-6 | 0.2 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Acenaphthene | EPA 8270D | -- | 83-32-9 | 0.2 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Acenaphthylene | EPA 8270D | -- | 208-96-8 | 0.2 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Anthracene | EPA 8270D | -- | 120-12-7 | 0.2 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Benzo(a)anthracene | EPA 8270D_SIM | -- | 56-55-3 | 0.0012 a | 22.5 | 0.0 | 0.0 | 0.0 | 33.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.8 | 0.0 | 0.0 | 0.0 | 22.5 | 0.0 | 0.0 | 0.0 | 19.2 | 0.0 | 0.0 | 0.0 |
| Benzo(a)pyrene | EPA 8270D_SIM | -- | 50-32-8 | 0.00012 a | 208 | 0.0 | 0.0 | 0.0 | 400 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 183 | 0.0 | 0.0 | 0.0 | 217 | 0.0 | 0.0 | 0.0 | 208 | 0.0 | 0.0 | 0.0 |
| Benzo(b)fluoranthene | EPA 8270D_SIM | -- | 205-99-2 | 0.0012 a | 38.3 | 0.0 | 0.0 | 0.0 | 83.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 28.3 | 0.0 | 0.0 | 0.0 | 35.8 | 0.0 | 0.0 | 0.0 | 37.5 | 0.0 | 0.0 | 0.0 |
| Benzo(g,h,i)perylene | EPA 8270D_SIM | -- | 191-24-2 | 0.2 b | 0.4 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.4 | 0.6 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 |
| Benzo(k)fluoranthene | EPA 8270D_SIM | -- | 207-08-9 | 0.0013 a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Chrysene | EPA 8270D_SIM | -- | 218-01-9 | 0.0013 a | 53.1 | 0.0 | 0.0 | 0.0 | 100 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 30.0 | 0.0 | 0.0 | 0.0 | 51.5 | 66.9 | 0.0 | 0.0 | 46.9 | 0.0 | 0.0 | 0.0 |
| Dibenzo(a,h)anthracene | EPA 8270D_SIM | -- | 53-70-3 | 0.00012 a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Fluoranthene | EPA 8270D | -- | 206-44-0 | 0.2 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.1 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.1 |
| Fluorene | EPA 8270D | -- | 86-73-7 | 0.2 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Indeno(1,2,3-cd)pyrene | EPA 8270D_SIM | -- | 193-39-5 | 0.0012 a | 25.0 | 0.0 | 0.0 | 0.0 | 49.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 23.3 | 0.0 | 0.0 | 0.0 |
| Naphthalene | EPA 8270D | -- | 91-20-3 | 12 a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Phenanthrene | EPA 8270D | -- | 85-01-8 | 0.2 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Pyrene | EPA 8270D | -- | 129-00-0 | 0.2 b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 2.6 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| Total PAHs[3] | EPA 8270D_SIM | -- | -- | -- | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| cPAHs (BaPeq) | EPA 8270D_SIM | -- | -- | 0.00012 a | 300 | 0.0 | 0.0 | 0.0 | 577 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 247 | 0.0 | 0.0 | 0.0 | 301 | 7.3 | 0.0 | 0.0 | 293 | 0.0 | 0.0 | 0.0 |
| **pH** | EPA 9040 | -- | | -- | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Total Suspended Solids** | EPA 2540D | -- | | -- | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

**Notes:**

Indicates result concentration exceeds SLV by a factor between 1 and 10 (green)
Indicates result concentration exceeds SLV by a factor between 10 and 100 (yellow)
Indicates result concentration exceeds SLV by a factor greater than 100 (orange)

Detected results shown in **bold.**

-- = Not applicable
j = Result is detected between the method detection limit and reporting limit
J = Result is estimated
U = Analyte not detected
UJ = Result is estimated to be not detected
μg/L = Micrograms per liter
DDx = Sum total of 2,4- and 4,4- isomers of DDE, DDD, and DDT
DEQ - Department of Environmental Quality
EPA - Environmental Protection Agency
JSCS - Joint Source Control Strategy
PAHs - Polyaromatic Hydrocarbons
cPAH (BaPeq) = carcinogenic PAHs calculated as benzo(a)pyrene equivalent
PCBs = Polychlorinated biphenyls
ROD = Record of Decision
SLVs = Screening level values
SU = standard units
VOCs = volatile organic compounds
[1] = Screening levels (μg/L) are Portland Harbor ROD CULs (EPA 2017) supplemeneted with the highlighted screening levels in the Portland Harbor Joint Source Control Strategy, Final, Table 3-1 Revision, July 2007
[2] = Total PCBs is sum of PCB aroclors which were detected above the detection limit, with non-detects counted as zero. Detection limits are recorded as the highest detection limit of the individual aroclors.
[3] = Total PAHs is sum of detected PAH values, with nondetects counted as zero

**Screening Level Footnotes:**
a = Portland Harbor ROD CUL for Surface Water
b = Portland Harbor JSCS SLV

| Constituent | Analytical Method | Unit | CAS No. | Screening Level[1] | | SPCC Control on East Drive (E-1) | | | | Roof Drain (Roof-1) | | | | Roof Drain (Roof-2) | | | Manhole on West Side (STM-1) | | | | Trench Drain (Trench-1) | | | | SPCC Control on West Dock (W-4) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 | 11/22/2016 | 3/13/2017 | 5/11/2017 | 6/15/2017 |
| **Metals** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | EPA 6020_LL | -- | 7440-38-2 | 0.018 | a | 18.9 | 24.4 | 48.9 | 18.9 | 13.3 | 20.6 | 0.0 | 0.0 | 0.0 | 21.1 | 0.0 | 44.4 | 23.3 | 100 | 55.6 | 89 | 156 | 306 | 611 | 20.0 | 111 | 89 | 55.6 |
| Cadmium | EPA 6020_LL | -- | 7440-43-9 | 0.094 | b | 0.8 | 0.8 | 1.1 | 0.0 | 0.8 | 1.2 | 0.0 | 0.0 | 1.7 | 1.9 | 0.0 | 1.5 | 1.4 | 5.3 | 3.2 | 1.5 | 1.4 | 8.2 | 10.6 | 1.4 | 8.3 | 3.1 | 3.0 |
| Chromium | EPA 6020_LL | -- | 7440-47-3 | 100 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.1 | 0.0 | 0.1 | 0.2 | 0.5 | 0.0 | 0.4 | 0.0 | 0.1 |
| Copper | EPA 6020_LL | -- | 7440-50-8 | 2.74 | a | 2.3 | 2.8 | 6.2 | 3.3 | 4.7 | 6.2 | 0.0 | 2.4 | 1.4 | 2.2 | 0.8 | 4.4 | 4.4 | 9.1 | 6.6 | 3.6 | 4.0 | 17.2 | 20.4 | 1.6 | 13.5 | 9.1 | 4.4 |
| Lead | EPA 6020_LL | -- | 7439-92-1 | 0.54 | b | 4.4 | 5.7 | 5.6 | 2.4 | 4.6 | 5.9 | 0.0 | 0.7 | 0.6 | 0.5 | 1.2 | 4.1 | 5.7 | 40.7 | 18.5 | 22.2 | 25.9 | 63.0 | 241 | 10.2 | 111 | 22.2 | 24.1 |
| Manganese | EPA 6020_LL | -- | 7439-96-5 | 100 | a | 0.1 | 0.2 | 0.4 | 0.1 | 0.1 | 0.3 | 0.0 | 0.1 | 0.3 | 0.3 | 0.1 | 0.2 | 0.2 | 1.1 | 0.7 | 0.2 | 0.2 | 0.7 | 2.3 | 0.1 | 1.1 | 1.3 | 0.6 |
| Mercury | EPA 7041A | -- | 7439-97-6 | 0.77 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Nickel | EPA 6020_LL | -- | 7440-02-0 | 16 | b | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.4 | 0.2 | 0.2 | 0.2 | 0.4 | 1.1 | 0.1 | 1.6 | 0.3 | 0.2 |
| Zinc | EPA 6020_LL | -- | 7440-66-6 | 36.5 | a | 1.9 | 2.2 | 6.6 | 2.3 | 2.7 | 3.0 | 0.0 | 1.3 | 11.5 | 8.8 | 4.9 | 3.6 | 4.4 | 8.2 | 5.8 | 5.5 | 4.4 | 43.8 | 71.2 | 1.8 | 15.6 | 2.6 | 4.4 |
| **PCBs Aroclors** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | EPA 8082A | -- | 12674-11-2 | 0.96 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1221 | EPA 8082A | -- | 11104-28-2 | 0.034 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1232 | EPA 8082A | -- | 11141-16-5 | 0.034 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1242 | EPA 8082A | -- | 53469-21-9 | 0.034 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1248 | EPA 8082A | -- | 12672-29-6 | 0.034 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1254 | EPA 8082A | -- | 11097-69-1 | 0.033 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1260 | EPA 8082A | -- | 11096-82-5 | 0.034 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1262 | EPA 8082A | -- | 37324-23-5 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Aroclor 1268 | EPA 8082A | -- | 11100-14-4 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total PCBs[2] | EPA 8082A | -- | 1336-36-3 | 0.0000064 | a | 0.0 | 4844 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20313 | 14219 | 10000 | 23438 | 21875 | 4375 | 18750 | 0.0 | 5313 |
| **Organochlorine Pesticides** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4'-DDD | EPA 8081A_LL | -- | 53-19-0 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2,4'-DDE | EPA 8081A_LL | -- | 3424-82-6 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2,4'-DDT | EPA 8081A_LL | -- | 789-02-6 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4,4-DDD | EPA 8081A_LL | -- | 72-54-8 | 0.000031 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4,4'-DDE | EPA 8081A_LL | -- | 72-55-9 | 0.000018 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 339 | 0.0 | 0.0 | 444 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4,4-DDT | EPA 8081A_LL | -- | 50-29-3 | 0.000022 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 455 | 0.0 | 0.0 | 545 | 68.2 | 259 | 0.0 | 0.0 |
| DDx | EPA 8081A_LL | -- | 50-29-3 | 0.01 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.2 | 0.2 | 0.6 | 0.0 | 0.0 |
| Aldrin | EPA 8081A_LL | -- | 309-00-2 | 0.00000077 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Chlordane | EPA 8081A_LL | -- | 57-74-9 | 0.000081 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Dieldrin | EPA 8081A_LL | -- | 60-57-1 | 0.0000054 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endosulfan alpha- | EPA 8081A_LL | -- | 959-98-8 | 0.051 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endosulfan beta- | EPA 8081A_LL | -- | 33213-65-9 | 0.051 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endosulfan sulfate | EPA 8081A_LL | -- | 1031-07-8 | 89 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endrin | EPA 8081A_LL | -- | 72-20-8 | 0.036 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endrin aldehyde | EPA 8081A_LL | -- | 7421-93-4 | 0.03 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Endrin ketone | EPA 8081A_LL | -- | 53494-70-5 | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Heptachlor | EPA 8081A_LL | -- | 76-44-8 | 0.0000079 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Heptachlor epoxide | EPA 8081A_LL | -- | 1024-57-3 | 0.0000039 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Methoxychlor | EPA 8081A_LL | -- | 72-43-5 | 0.03 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Toxaphene | EPA 8081A_LL | -- | 8001-35-2 | 0.0002 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Volatile Organic Compounds** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1- Dichloroethane | EPA 8260C_LL | -- | 75-34-3 | 47 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1,1,1- Trichloroethane (TCA) | EPA 8260C_LL | -- | 71-55-6 | 11 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1,2- Dichloroethane (EDC) | EPA 8260C_LL | -- | 107-06-2 | 0.73 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Benzene | EPA 8260C_LL | -- | 71-43-2 | 1.2 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Chloroform | EPA 8260C_LL | -- | 67-66-3 | 0.17 | b | 1.4 | 0.8 | 2.1 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.2 |
| cis-1,2-Dichloroethlyene | EPA 8260C_LL | -- | 156-59-2 | 61 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EthylBenzene | EPA 8260C_LL | -- | 100-41-4 | 7.3 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| m,p-Xylene | EPA 8260C_LL | -- | 179601-23-1 | 1.8 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |
| Methylene chloride | EPA 8260C_LL | -- | 75-09-2 | 8.9 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| o-Xylene | EPA 8260C_LL | -- | 95-47-6 | 13 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Styrene | EPA 8260C_LL | -- | 100-42-5 | 100 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Tetrachloroethene (PCE) | EPA 8260C_LL | -- | 127-18-4 | 0.12 | b | 2.7 | 2.8 | 1.5 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 19.2 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Toluene | EPA 8260C_LL | -- | 108-88-3 | 9.8 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| trans-1,2-Dichloroethene | EPA 8260C_LL | -- | 156-60-5 | 110 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Trichloroethene (TCE) | EPA 8260C_LL | -- | 79-01-6 | 0.17 | b | 1.1 | 1.3 | 0.7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 12.4 | 2.6 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 |
| Vinyl Chloride | EPA 8260C_LL | -- | 75-01-4 | 0.015 | b | 0.0 | 0.0 | 3.9 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Xylenes (total) | EPA 8260C_LL | -- | 1330-20-7 | 200 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Phthalate Esters** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl)phthalate | EPA 8270D | -- | 117-81-7 | 0.2 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 18.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.0 | 0.0 | 0.0 | 135 | 14.0 | 0.0 | 0.0 | 0.0 |
| Butylbenzylphthalate | EPA 8270D | -- | 85-68-7 | 3 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Diethylphthalate | EPA 8270D | -- | 84-66-2 | 3 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Dimethylphthalate | EPA 8270D | -- | 131-11-3 | 3 | b | 0.1 | 3.7 | 0.0 | 0.0 | 0.0 | 5.7 | 0.6 | 0.0 | 14.0 | 0.2 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 | 0.1 | 5.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Di-n-butylphthalate | EPA 8270D | -- | 84-74-2 | 3 | b | 0.2 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 1.7 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Di-n-octylphthalate | EPA 8270D | -- | 117-84-0 | 3 | b | 0.1 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.7 | 0.0 | 0.0 | 0.2 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Polycyclic Aromatic Hydrocarbons** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | EPA 8270D | -- | 91-57-6 | 0.2 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Acenaphthene | EPA 8270D | -- | 83-32-9 | 0.2 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Acenaphthylene | EPA 8270D | -- | 208-96-8 | 0.2 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Anthracene | EPA 8270D | -- | 120-12-7 | 0.2 | b | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Benzo(a)anthracene | EPA 8270D_SIM | -- | 56-55-3 | 0.0012 | a | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Benzo(a)pyrene | EPA 8270D_SIM | -- | 50-32-8 | 0.00012 | a | 29.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 37.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Benzo(b)fluoranthene | EPA 8270D_SIM | -- | 205-99-2 | 0.0012 | a | 5.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Benzo(g,h,i)perylene | EPA 8270D_SIM | -- | 191-24-2 | 0.2 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Benzo(k)fluoranthene | EPA 8270D_SIM | -- | 207-08-9 | 0.0013 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Chrysene | EPA 8270D_SIM | -- | 218-01-9 | 0.0013 | a | 8.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Dibenzo(a,h)anthracene | EPA 8270D_SIM | -- | 53-70-3 | 0.00012 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Fluoranthene | EPA 8270D | -- | 206-44-0 | 0.2 | b | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 |
| Fluorene | EPA 8270D | -- | 86-73-7 | 0.2 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Indeno(1,2,3-cd)pyrene | EPA 8270D_SIM | -- | 193-39-5 | 0.0012 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Naphthalene | EPA 8270D | -- | 91-20-3 | 12 | a | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Phenanthrene | EPA 8270D | -- | 85-01-8 | 0.2 | b | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Pyrene | EPA 8270D | -- | 129-00-0 | 0.2 | b | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 |
| Total PAHs[3] | EPA 8270D_SIM | -- | -- | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| cPAHs (BaPeq) | EPA 8270D_SIM | -- | -- | 0.00012 | a | 38.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 53.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **pH** | EPA 9040 | -- | | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Total Suspended Solids** | EPA 2540D | -- | | -- | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

**Notes:**

[green] Indicates result concentration exceeds SLV by a factor between 1 and
[yellow] Indicates result concentration exceeds SLV by a factor between 10 and
[orange] Indicates result concentration exceeds SLV by a factor greater than 10

Detected results shown in **bold.**

-- = Not applicable
j = Result is detected between the method detection limit and reporting limit
J = Result is estimated
U = Analyte not detected
UJ = Result is estimated to be not detected
µg/L = Micrograms per liter
DDx = Sum total of 2,4- and 4,4- isomers of DDE, DDD, and DDT
DEQ - Department of Environmental Quality
EPA - Environmental Protection Agency
JSCS - Joint Source Control Strategy
PAHs - Polyaromatic Hydrocarbons
cPAH (BaPeq) = carcinogenic PAHs calculated as benzo(a)pyrene equivalent
PCBs = Polychlorinated biphenyls
ROD = Record of Decision
SLVs = Screening level values
SU = standard units
VOCs = volatile organic compounds
[1] = Screening levels (µg/L) are Portland Harbor ROD CULs (EPA 2017) supplemeneted with the highligl
[2] = Total PCBs is sum of PCB aroclors which were detected above the detection limit, with non-detects co
[3] = Total PAHs is sum of detected PAH values, with nondetects counted as zero

**Screening Level Footnotes:**
a = Portland Harbor ROD CUL for Surface Water
b = Portland Harbor JSCS SLV

# APPENDIX B PHOTOGRAPH LOG

Photo 1: Plastic containers and galvanized siding (painted) in DB-1 that drain to W-4.

Photo 2: Treated wood column (painted) in DB-1 that drains to W-4.

Photo 3: Treated wood panel and galvanized siding in DB-3 that drains to Trench-1.

Photo 4: Pavement paint / caulking DB-3 that drains to Trench-1.

Photo 5: Plastic drum wrap, IBC tote galvanized metal, and soil in DB-4 that drains to CB-4a.

Photo 6: Old batteries not under cover in DB 4..

Photo 7: DB1-1: IBC tote, plastic bottom, south of paint shed. (BEHP)

Photo 8: DB1-1: IBC tote, plastic bottom, south of paint shed.

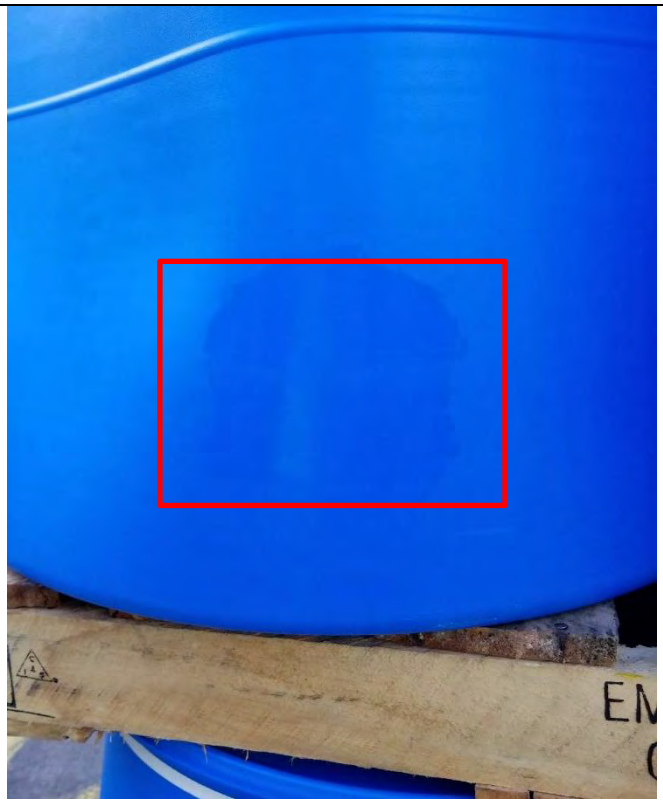

Photo 9: DB1-2: Plastic 55-gal drum, south of paint shed. (BEHP)

Photo 10: DB1-2: Plastic 55-gal drum, south of paint shed.

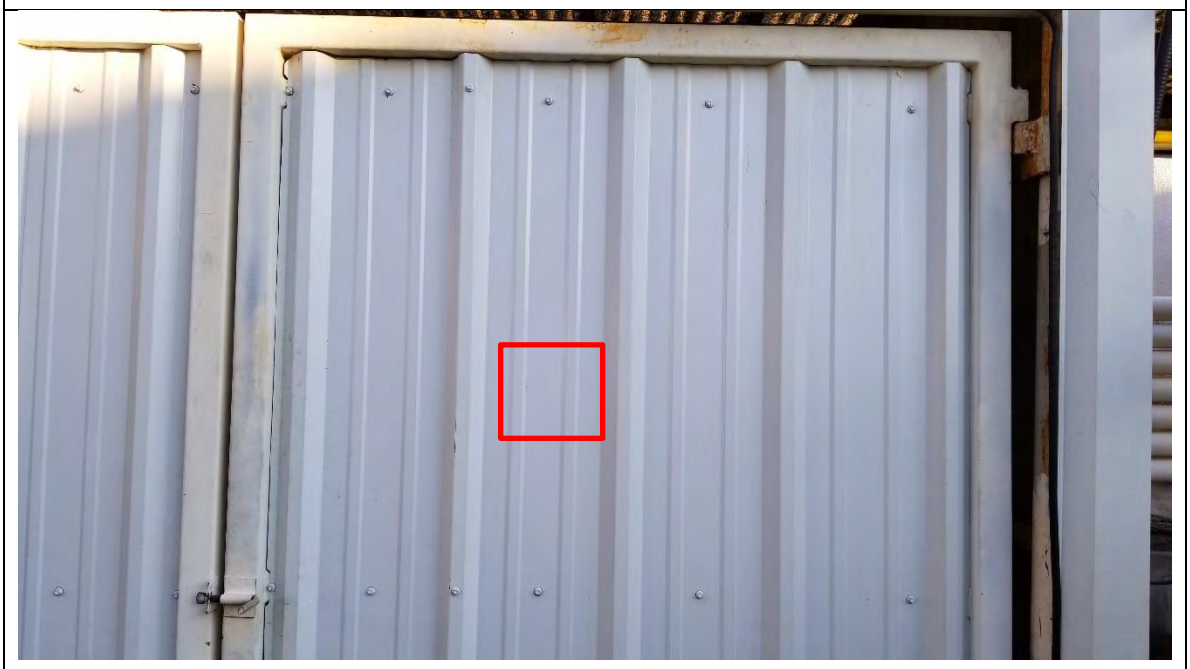

Photo 11: DB1-3: Painted, galvanized metal siding, west of Trench 1. (Metals)

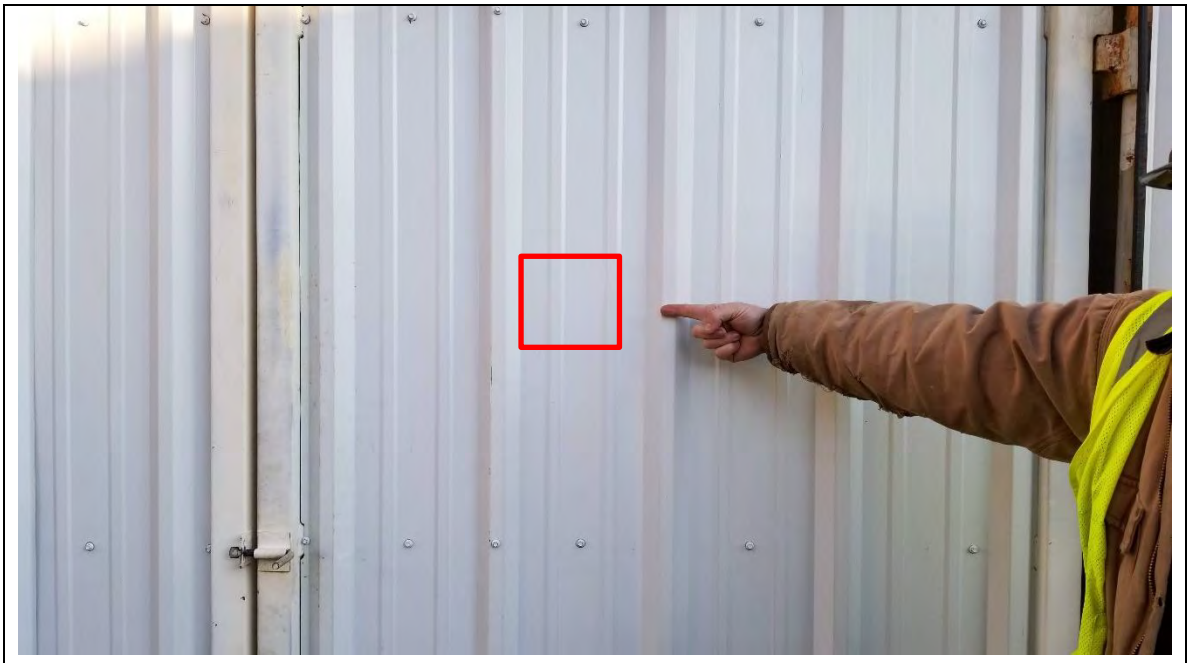

Photo 12: DB1-3: Painted, galvanized metal siding, west of Trench 1.

Photo 13: DB1-4: Painted, treated wood column, NW corner of paint shed. (Metals)

Photo 14: DB1-4A: Painted, treated wood column, NW corner of paint shed. Material suspected to contain PCBs identified for source trace sampling.

Photo 15: DB1-5: South side of Paint Shed, outer wall. Material suspected to contain PCBs identified for source trace sampling.

Photo 16: DB1-5: South side of Paint Shed, outer wall.

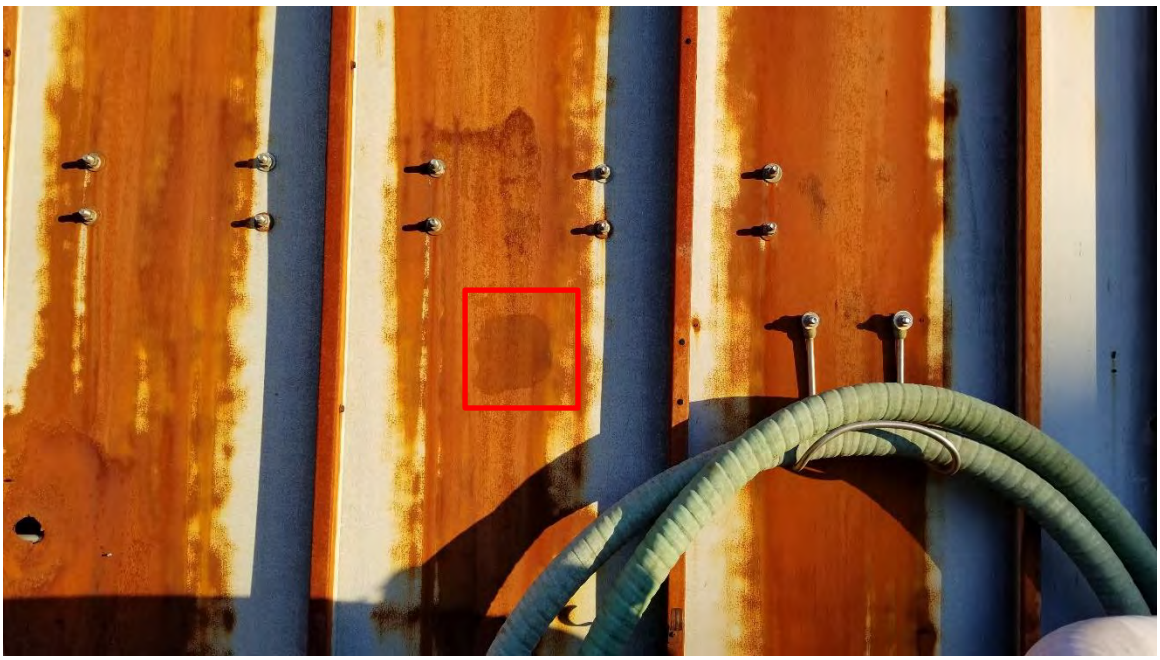

Photo 17: DB3-1: Unpainted, galvanized metal siding. (Metals)

Photo 18: DB3-1: South side of tool shed, west side of facility.

Photo 19: DB3-2: Unpainted, treated wood siding. (Metals)

Photo 20: DB3-2: West side of Cotton Shed, above Trench 1.

Photo 21: DB3-3A: Paint/sealant on concrete. (Metals)

Photo 22: DB3-3A: NW corner of paint shed. (Metals)

Photo 23: DB3-3B: Paint/sealant on concrete. Material suspected to contain PCBs identified for source trace sampling.

Photo 24: DB3-3B: NW corner of paint shed.

Photo 25: DB3-4: Unpainted, galvanized metal siding.

Photo 26: DB3-4: West side of Cotton Shed, above Trench 1.

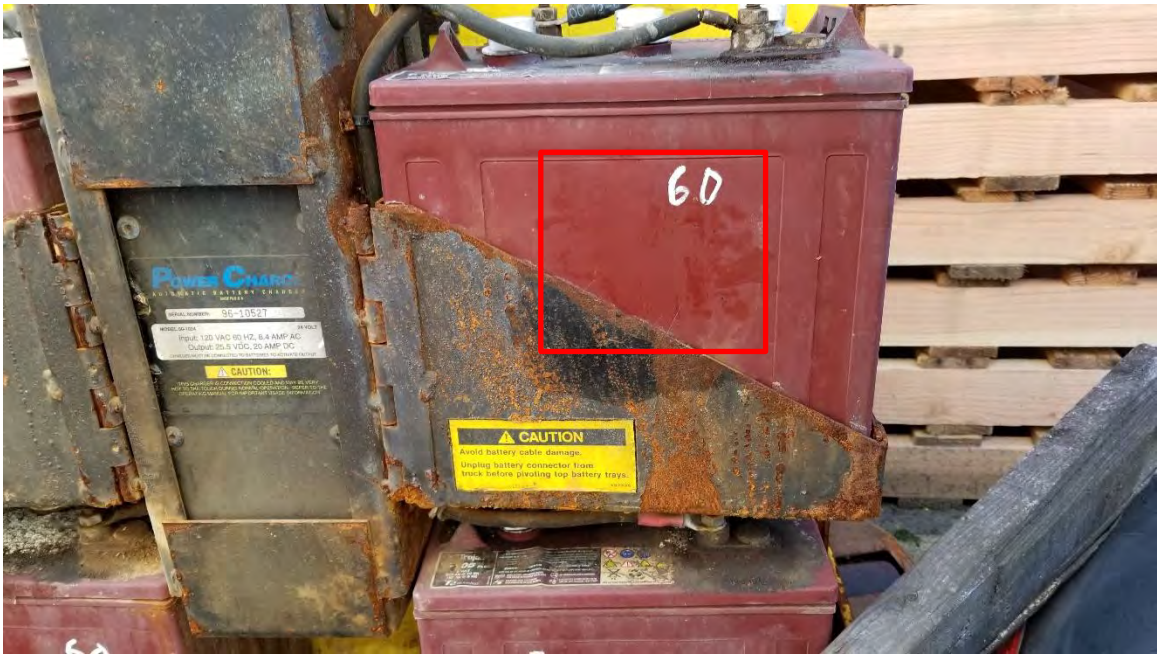


Photo 27: DB4-1: Pallet jack batteries. (Metals)

Photo 28: DB4-1: East of CB-4A, south side of facility.

Photo 29: DB4-2: Plastic pallet wrap. (BEHP)

Photo 30: DB4-2: West side of CB-4A, south side of facility.

Photo 31: DB4-3: IBC tote galvanized metal. (Metals)

Photo 32: DB4-3: West of CB-4A, south side of facility.

Photo 33: CB-4A Solids sample. SW of CB-4A. (Metals)

# APPENDIX C PCB SIDING REMOVAL MEMORANDUM

ERM

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**Memo**

| | |
|---|---|
| **To** | Laura Castrilli |
| **From** | Dylan Stankus, PE<br>Brendan Robinson, PE<br>David P. Edwards, RG |
| **Date** | 29 September 2020 |
| **Reference** | Univar Solutions, Portland, NW Yeon Facility |
| **Subject** | Removal of Building Materials Containing PCBs |

ERM-West, Inc. (ERM) has prepared this memorandum on behalf of Univar Solutions USA Inc. (Univar Solutions) to document the assessment, removal, and disposal of building materials (i.e., siding) containing polychlorinated biphenyls (PCBs) for the property located at 3950 NW Yeon Avenue in Portland, Oregon (the "Property") (Figure 1). This memorandum is being submitted in accordance with the email request received from the United States Environmental Protection Agency (USEPA) on 13 November 2019 requiring that Univar Solutions implement an abatement plan to remove and properly dispose of building siding materials containing PCBs at the Property.

## 1 BACKGROUND

In order to evaluate and control potential adverse impacts to the Willamette River from industrial properties throughout Portland, the Oregon Department of Environmental Quality (ODEQ) and USEPA developed and jointly administer the Portland Harbor Joint Source Control Strategy (JSCS).[1] Individual upland property owners are required to identify, evaluate, and control sources of contamination that may reach the Willamette River consistent with the JSCS. The JSCS is a guidance document that represents a framework to identify, prioritize, and implement source control measures at upland sites within the Portland Harbor Superfund Site.

Between 2015 and 2017, Univar Solutions completed a Stormwater Source Control Evaluation[2] (SWSCE) under ODEQ oversight and using ODEQ's guidance[3] (ODEQ 2010) to evaluate the stormwater pathway. SWSCE activities were performed in accordance with the SWSCE Work Plan[4] and the JSCS.

As part of the SWSCE Work Plan, ERM collected solids samples from six catch basins and one trench drain on 15 December 2015. PCBs were detected in catch basin solids at CB-2E, CB-6A,

[1] ODEQ and USEPA. 2005. *Portland Harbor Joint Source Control Strategy*. Updated July 2007.

[2] ERM. 2017. *Final Stormwater Source Control Evaluation.* November 2017.

[3] ODEQ. 2010. *Guidance for Evaluating the Stormwater Pathway at Upland Sites*. October 2010.

[4] ERM. 2015. *Stormwater Source Control Evaluation Work Plan*. December 2015.



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and Trench-1 samples; PCBs were not detected in any other locations (Table 1 and Figure 2). The concentrations of Total PCBs in catch basin solids were in the flat part of the rank-order curve for catch basin solids at industrial sites with the exception of the two sample results from Trench-1 and CB-2E. Additionally, the concentration of Total PCBs in the catch basin solids was generally more than an order of magnitude lower than the Total PCB concentrations observed in sediment samples from the main channel of the Willamette River located near the City of Portland-owned Outfall 18. Based on the magnitude of the detection of PCBs in catch basin solids samples from CB-2E and Trench-1, source tracing was proposed in these drainage basins in the SWSCE.

ERM prepared a Stormwater Source Control Measure Work Plan[5] (SWSCM Work Plan) in 2018 to identify potential contaminant sources and implement targeted stormwater source control measures (SWSCMs), if necessary, for select contaminants of concern. Univar Solutions began implementing the activities described in the SWSCM Work Plan in December 2018 and expects to complete the activities the end of 2020. The activities include:

- Conduct a drainage basin survey to identify potential sources to locations identified in the SWSCE and confirm source tracing sample locations.
- Conduct targeted stormwater solids sampling and surface wipe sampling for source tracing.
- Evaluate best management practices (BMPs) and proposed SWSCMs based on source tracing results.
- Implement BMPs and proposed SWSCMs.
- Conduct performance monitoring.
- Complete an effectiveness evaluation.

From the source tracing activities completed in early 2019, ERM and Univar Solutions determined the source of PCBs (Aroclor 1268) in the catch basins solid sample Trench-1 to be siding used for fire protection at the adjacent paint shed building. In November 2019, based on these results, USEPA required removal of the PCB-containing siding.

The remainder of this memorandum documents the source tracing activities for PCBs (i.e., Aroclor 1268) and implementation of BMPs and SWSCMs (e.g., removal of PCB-containing building materials) in accordance with the SWSCM Work Plan.

## 2 PCB SOURCE TRACING

ERM completed source tracing for PCBs in Drainage Basins 1 and 3 to investigate PCBs detected in the trench drain (i.e., Trench-1) solids in accordance with the SWSCM Work Plan. These activities included:

[5] ERM. 2018. *Final Stormwater Source Control Measure Work Plan.* October 2018.

- A drainage basin survey to identify potential sources of Aroclor 1268; and
- Targeted surface wipe and material sampling to assess the presence of Aroclor 1268 in potential sources identified in the drainage basin survey.

## 2.1 Drainage Basin Survey

The purpose of the drainage basin survey was to evaluate operations, equipment, and building materials at the Property that may be contributing to contaminants in catch basin solids and stormwater discharge.

ERM conducted an onsite survey on 16 October 2018 to evaluate potential source materials for PCBs (Aroclor 1268) within Drainage Basins 1 and 3. Results from the drainage basin survey were used to identify building and facility materials for source tracing sampling.

ERM identified the following materials for source tracing sampling for Aroclor 1268 due to proximity to the Trench-1 location:

- Weathered siding on the paint shed in Drainage Basin 1 (DB-1);
- Treated wood column in DB-1;
- Weathered floor paint/sealant used on surrounding pavement in DB-3; and
- Window glaze in DB-3.

ERM observed the weathering of each of these materials to be resulting in particulates within the Trench-1 drainage area.

## 2.2 Wipe Samples

On 31 January 2019, ERM collected surface wipe samples from the locations identified in the drainage basin survey (Figure 3). Aroclor 1268 was detected at a concentration of 1,200 micrograms per sample in the wipe collected from the paint shed siding (no other PCB aroclors were detected). Aroclor 1268 was not detected in any of the other samples (i.e., treated wood in DB-1, floor paint/sealant in DB-3, and window glaze in DB-3). The laboratory report is included in Attachment B.

Due to the magnitude of Aroclor 1268 detected in the wipe sample, ERM recommended collecting samples of the paint shed siding material to confirm wipe sample results and profile the material for disposal.

## 2.3 Material Samples

On 27 November 2019, ERM collected material samples of the paint shed siding. Due to the similarity in material composition, ERM also collected samples from the south cotton shed siding during the same sampling event.

ERM removed approximately 1-inch squares of siding from the inner and outer siding surface on the east paint shed wall and the outer siding surface of the south cotton shed wall using wet

methods (i.e., lightly spraying surface with water before sampling to prevent creation of airborne particles) (Figure 3). Field staff placed duct tape over areas where siding was removed (i.e., sample locations) to prevent potentially friable material from breaking loose.

Aroclor 1268 was detected in each of the samples above the Toxic Substances Control Act limit of 50 parts per million (Table 2). There were no other PCB aroclors detected in the samples. The laboratory report and validation memorandum are included in Attachment B. These results were used to inform the extent of siding removal and disposal process.

### 2.4 Asbestos Survey

Univar Solutions conducted surveys of asbestos-containing materials for select areas at the Property. These surveys identified asbestos in the same building materials that were found to contain PCBs (i.e., paint shed and cotton shed siding). No additional asbestos testing was completed.

## 3 SOURCE CONTROL MEASURES

Based on the results of source tracing activities, Univar Solutions identified and implemented BMPs and SWSCMs to control the identified PCBs (Aroclor 1268) in building materials at the Property.

### 3.1 Solids Filtration at Trench-1

PCBs in stormwater samples at the Property generally corresponded with the samples with the highest concentrations of Total Suspended Solids. In response to these findings, the drainage basin survey observations, and SWSCE catch basin solids results, Univar Solutions installed a drain filter in Trench-1 to help mitigate impacts to stormwater from potential PCB-containing solids. The solids filter device in Trench-1 contains four layers of thermo-polypropylene-based filter material with progressively smaller pore spaces that target solids particles.

### 3.2 Siding Removal

The PCB siding removal and disposal was performed from 30 January 2020 through 25 March 2020 by U.S. Ecology, Inc. (Ecology) contractor of Boise, Idaho. The areas of siding removal are shown on Figure 3. Prior to beginning the removal, the contractor established a work area 25 feet around the removal location with caution tape, asbestos abatement tape, danger tape, and signage. After the work zone was established, poly sheeting was secured on the ground directly under the siding. The abatement work was completed using wet methods to reduce the potential of airborne hazards. After removal, the siding was double wrapped, sealed in 6-millimeter poly sheeting, and labeled per federal abatement regulations before being placed into a 20-yard roll-off box (Attachment A).

Asbestos perimeter and personal air monitoring was conducted during the removal. The removal did not involve activities (i.e., hot cutting or grinding) that would create airborne PCB particles, and thus PCB monitoring was not necessary.

Workers wore Level C personal protective gear including disposable coveralls, protective disposable gloves, half face air purifying respirators with P100 cartridges, and eye and head protection. A decontamination area was established for all personnel in the work zone.

## 3.3 Stormwater Line Jetting

On 28 August through 4 September 2020, NRC/US Ecology hydro-jetted the stormwater lines and catch basins surrounding the PCB removal work area to address possible residual PCB solids in the Univar-owned stormwater conveyance system (Figure 4).

A vacuum truck was stationed at a point on the stormwater line downgradient of the jetting location to capture/extract the jetting water generated from these activities. Lines were blocked off with pillow or spill prevention, control, and countermeasure valves to prevent wastewater from making it past the extraction point. Approximate volumes of water used and captured during the line jetting are presented in Table 3. The trench filter cleaning was included as part of the stormwater line cleaning process.

A final stormwater performance monitoring sampling event was conducted on 23 September 2020. The sampling was performed in accordance with the SWSCM Work Plan and the results of that sampling will be used to assess removal of the PCB source material. The sampling results and an assessment of the PCB source removal activities will be presented in an effectiveness evaluation.

# 4 WASTE MANAGEMENT AND DISPOSAL

## 4.1 Siding

Ecology (USEPA Identification No. CAR000030114) stored the siding waste that was generated from the removal activities in a lined roll-off box and transported it to Ecology landfill (USEPA Identification No. IDD073114654) located in Grandview, Idaho, where it was received on 25 March 2020. The siding waste was ultimately disposed of on 25 March 2020. Waste disposal documentation of the PCB siding, including waste manifests and certificates of disposal, is included in Attachment C.

## 4.2 Line Jetting Wastewater

Ecology (USEPA Identification No. CAR000030114) collected the line jetting wastewater with a vacuum truck and transported it to Hillsboro Landfill located in Hillsboro, Oregon, on 28 August, 31 August, and 4 September 2020. Waste disposal documentation of the line jetting wastewater is included in Attachment C.

# 5 CONCLUSIONS

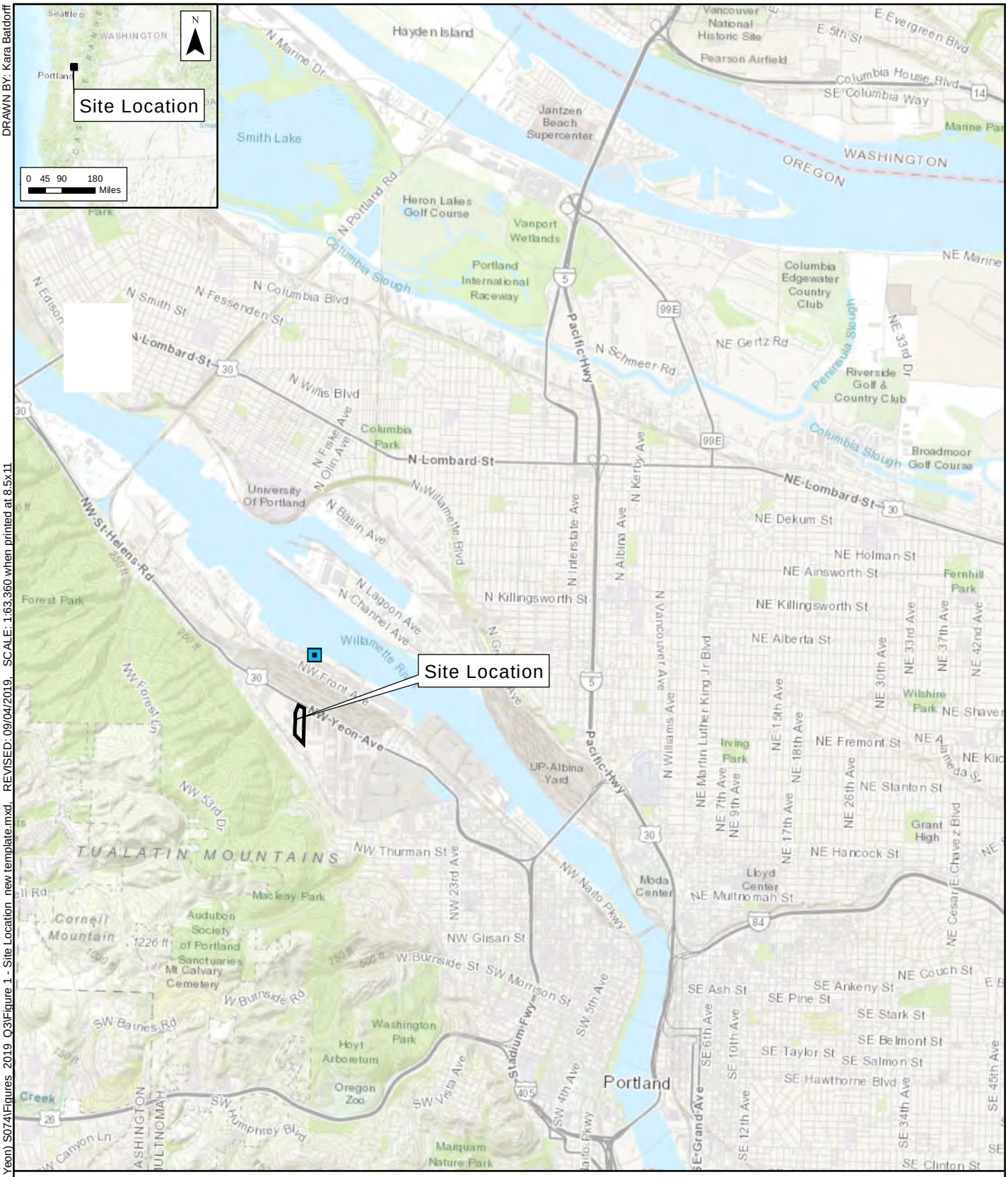
The PCB siding on the paint shed and cotton shed were removed, the surrounding area was appropriately protected (i.e., poly sheeting) during the removal process, removal was performed using techniques known to not create airborne particles, and stormwater conveyance structures in the impacted area were cleaned. The PCB siding and wastewater for the cleaning the stormwater conveyance structures were properly containerized and disposed of offsite at approved landfills. A final stormwater performance monitoring sampling event was conducted on 23 September 2020. The sampling was performed in accordance with the SWSCM Work Plan and the results of that

sampling will be used to assess removal of the PCB source material. The sampling results and an assessment of the PCB source removal activities will be presented in an effectiveness evaluation.

Attachments:

| | |
|---|---|
| Figure 1 | Site Location Map |
| Figure 2 | Site Drainage Plan Map |
| Figure 3 | Targeted SWSCM Activities |
| Figure 4 | Stormwater Line Cleaning Locations |
| Table 1 | Catch Basin Solids Results |
| Table 2 | PCB Siding Verification Results |
| Table 3 | Line Jetting Wastewater Calculations |
| Attachment A | Photo Log |
| Attachment B | Laboratory Data and Validation Memorandum |
| Attachment C | Siding and Stormwater Manifests |

## FIGURES




**Legend**

- Outfall 18
- Approximate Univar Property Boundary

N

0 1 2

Miles

**Figure 1**
**Site Location Map**
Univar Solutions USA Inc.
NW Yeon Ave
Portland, Oregon

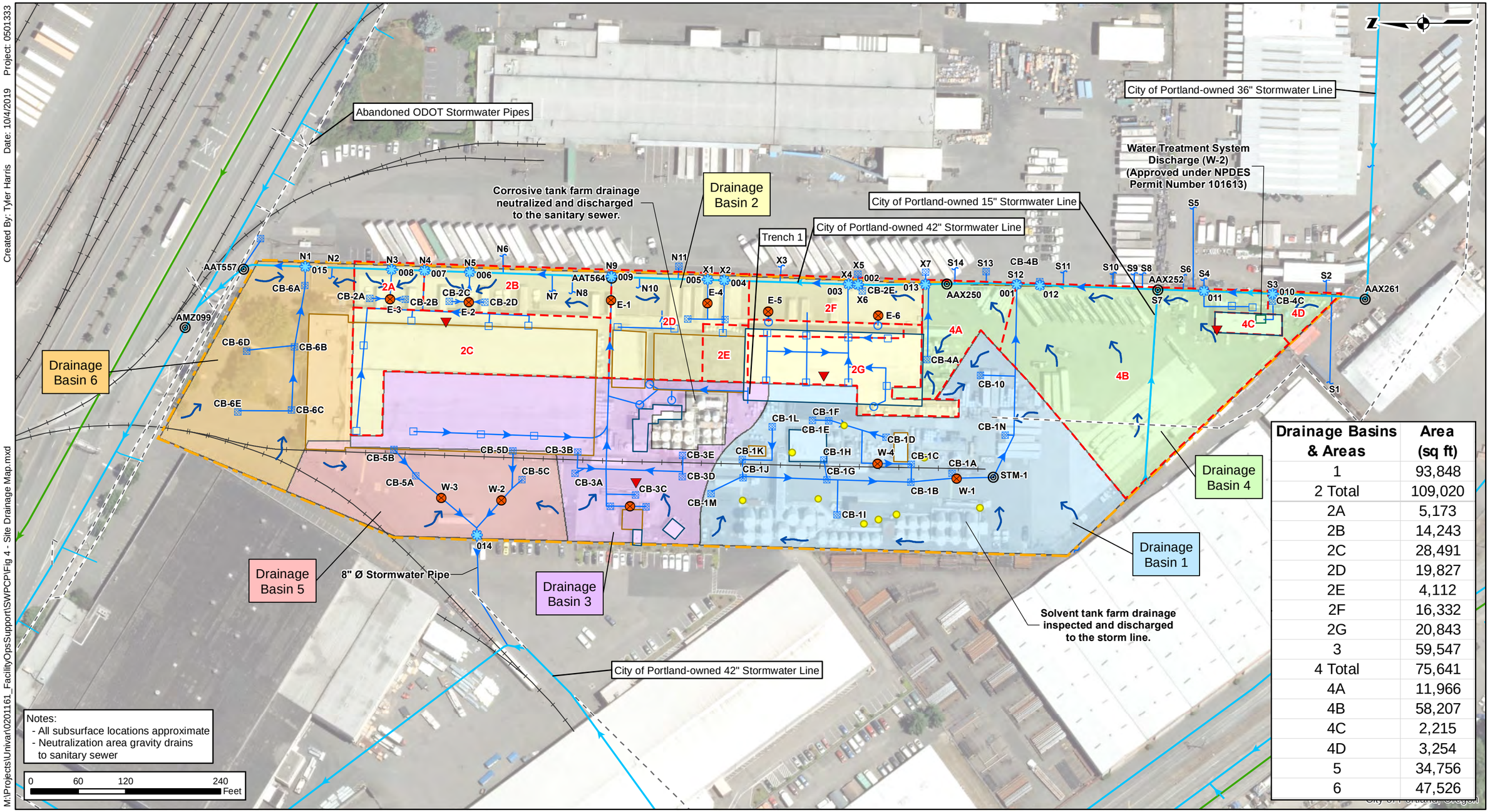
Environmental Resources Management
www.erm.com
ERM

Source: Esri - World Topoographic Map; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

DRAWN BY: Kara Batdorff

M:\Projects\Univar\Portland OR (NW Yeon) S074\Figures 2019 Q3\Figure 1 - Site Location new template.mxd, REVISED: 09/04/2019, SCALE: 1:63,360 when printed at 8.5x11

Project: 0501333
Date: 10/4/2019
Created By: Tyler Harris
M:\Projects\Univar\0201161_FacilityOpsSupport\SWPCP\Fig 4 - Site Drainage Map.mxd




| Drainage Basins & Areas | Area (sq ft) |
|---|---|
| 1 | 93,848 |
| 2 Total | 109,020 |
| 2A | 5,173 |
| 2B | 14,243 |
| 2C | 28,491 |
| 2D | 19,827 |
| 2E | 4,112 |
| 2F | 16,332 |
| 2G | 20,843 |
| 3 | 59,547 |
| 4 Total | 75,641 |
| 4A | 11,966 |
| 4B | 58,207 |
| 4C | 2,215 |
| 4D | 3,254 |
| 5 | 34,756 |
| 6 | 47,526 |

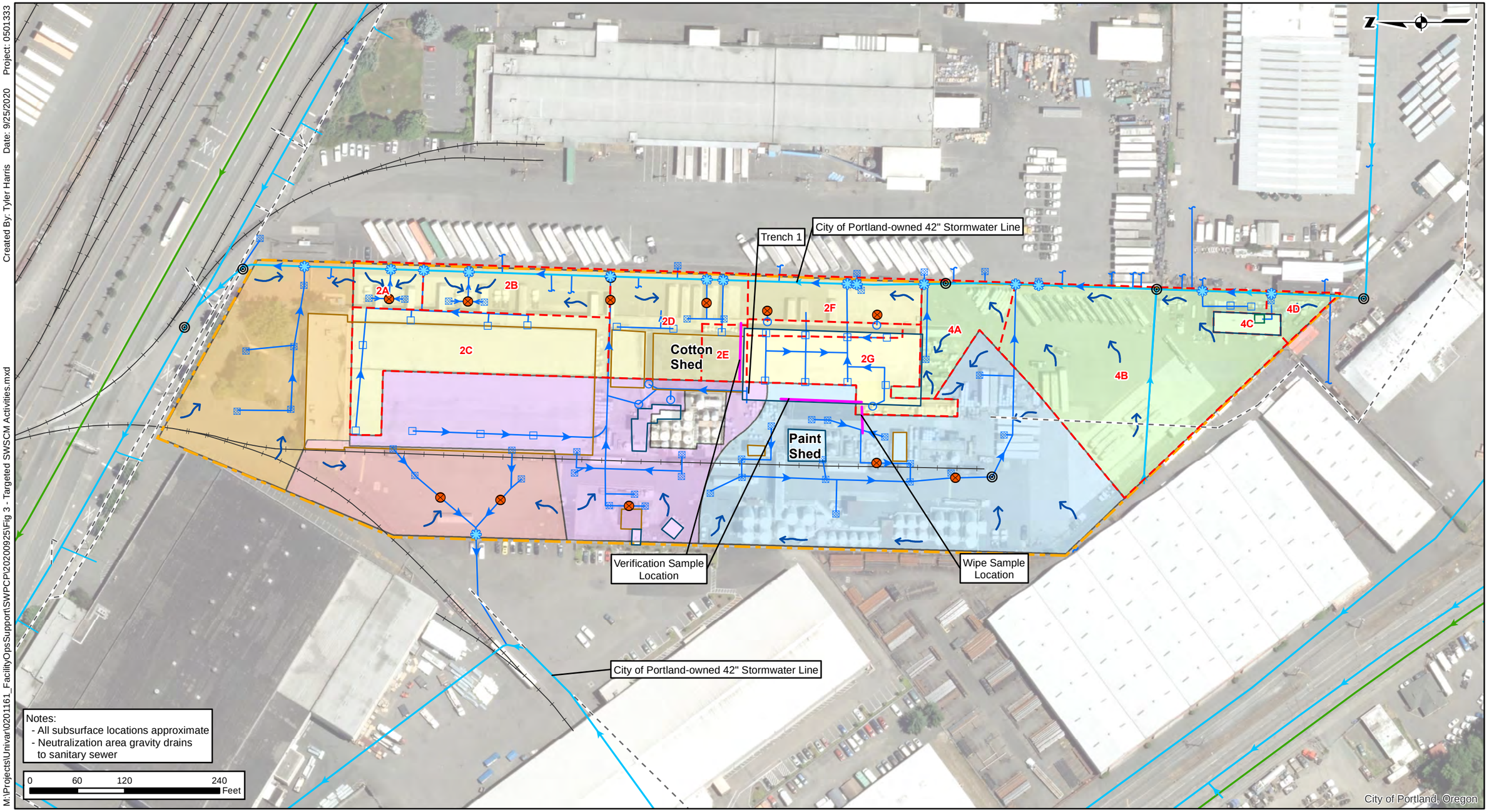
Aerial Image - City of Portland, 2017 - 0.5 ft per pixel.

**Legend**

- Catch Basin
- Floor Drain
- Roof Drain
- Discharge Point
- SPCC Control Valve
- Storm Manhole
- Secondary Containment Discharge Location
- Spill Kit
- Railroad Track
- Approximate Univar Property Boundary
- Drainage Basin 1
- Drainage Basin 2
- Drainage Basin 3
- Drainage Basin 4
- Drainage Basin 5
- Drainage Basin 6
- Drainage Area
- Corrugated Metal Roof
- Tar or Asphalt Shingle
- City Sanitary Sewer Pipes
- City Stormwater Pipe
- City Stormwater Laterals
- Abandoned Sewer Pipes
- Private Stormwater Pipe
- Generalized Surface Flow Direction

**Figure 2**
*Site Drainage Plan Map*
*Univar Solutions USA Inc.,*
*NW Yeon Ave*
*Portland, Oregon*

Environmental Resources Management
1050 SW 6th Ave, Suite 1650
Portland, Oregon 97204




Aerial Image - City of Portland, 2017 - 0.5 ft per pixel.

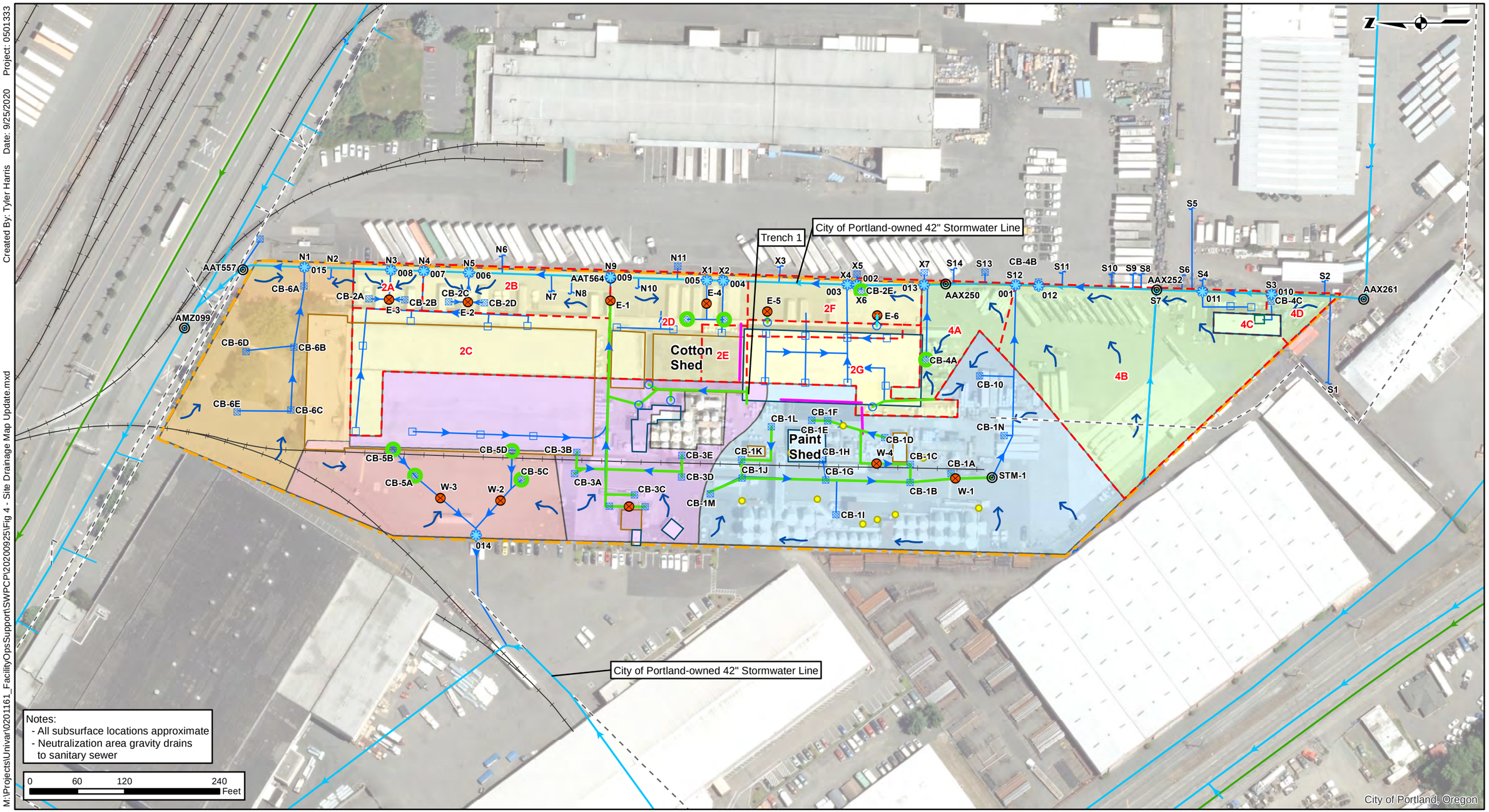
**Legend**

- Catch Basin
- Floor Drain
- Roof Drain
- Discharge Point
- SPCC Control Valve
- Storm Manhole
- Railroad Track
- Approximate Univar Property Boundary
- Drainage Basin 1
- Drainage Basin 2
- Drainage Basin 3
- Drainage Basin 4
- Drainage Basin 5
- Drainage Basin 6
- Drainage Area
- Corrugated Metal Roof
- Tar or Asphalt Shingle Roof
- City Sanitary Sewer Pipes
- City Stormwater Pipe
- City Stormwater Laterals
- Abandoned Sewer Pipes
- Private Stormwater Pipe
- Generalized Surface Flow Direction
- PCB Composite Siding

**Figure 3**
*Targeted SWSCM Activities*
*Univar USA Inc., NW Yeon Ave*
*Portland, Oregon*

Environmental Resources Management
1050 SW 6th Ave, Suite 1650
Portland, Oregon 97204

M:\Projects\Univar\0201161_FacilityOpsSupport\SWPCP\20200925\Fig 3 - Targeted SWSCM Activities.mxd
Created By: Tyler Harris Date: 9/25/2020 Project: 0501333




Notes:
- All subsurface locations approximate
- Neutralization area gravity drains to sanitary sewer

0 60 120 240 Feet

Aerial Image - City of Portland, 2017 - 0.5 ft per pixel.

**Legend**

- Catch Basin
- Floor Drain
- Roof Drain
- Discharge Point
- SPCC Control Valve
- Storm Manhole
- Catch Basins Jetted where Line Jetting Requires Collection in COP-owned 42", main
- Railroad Track
- Approximate Univar Property Boundary
- Drainage Basin 1
- Drainage Basin 2
- Drainage Basin 3
- Drainage Basin 4
- Drainage Basin 5
- Drainage Basin 6
- Drainage Area
- Corrugated Metal Roof
- Tar or Asphalt Shingle Roof
- City Sanitary Sewer Pipes
- City Stormwater Pipe
- City Stormwater Laterals
- Abandoned Sewer Pipes
- Private Stormwater Pipe
- Generalized Surface Flow Direction
- PCB Composite Siding
- Jetted Stormwater Line and Catch Basins

**Figure 4**

*Stormwater Line Cleaning Locations*
*Univar USA Inc., NW Yeon Ave*
*Portland, Oregon*

Environmental Resources Management
1050 SW 6th Ave, Suite 1650
Portland, Oregon 97204

M:\Projects\Univar\0201161_FacilityOpsSupport\SWPCP\20200925\Fig 4 - Site Drainage Map Update.mxd
Created By: Tyler Harris Date: 9/25/2020 Project: 0501333

# TABLES

**Table 1**
***Catch Basin Solids Results - 2015***
***Univar Solutions USA Inc.***
***3950 NW Yeon Avenue***

| Constituent | Analytical Method | Unit | CAS No. | Screening Level[1] | | Catch Basin (CB-1G) | Catch Basin (CB-2E) | Catch Basin (CB-3CD) | Catch Basin (CB-4A) | Catch Basin (CB-5A) | Catch Basin (CB-6A) | Trench Drain (Trench-1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 12/15/2015 | 12/15/2015 | 12/15/2015 | 12/15/2015 | 12/15/2015 | 12/15/2015 | 12/15/2015 |
| **PCBs Aroclors** | | | | | | | | | | | | |
| Aroclor 1016 | EPA 8082A | µg/kg | 12674-11-2 | 530 | b | 0.11 U | 0.12 U | 0.09 U | 0.11 U | 0.12 U | 0.22 U | 0.1 **U** |
| Aroclor 1221 | EPA 8082A | µg/kg | 11104-28-2 | -- | | 0.76 U | 0.81 U | 0.61 U | 0.75 U | 0.8 U | 1.5 U | 0.68 **U** |
| Aroclor 1232 | EPA 8082A | µg/kg | 11141-16-5 | -- | | 0.49 U | 0.53 U | 0.4 U | 0.49 U | 0.52 U | 0.95 U | 0.44 **U** |
| Aroclor 1242 | EPA 8082A | µg/kg | 53469-21-9 | -- | | 0.47 U | 0.5 U | 0.38 U | 0.46 U | 0.5 U | 0.9 U | 0.42 **U** |
| Aroclor 1248 | EPA 8082A | µg/kg | 12672-29-6 | 1500 | b | 0.36 U | 0.38 U | 0.29 U | 0.35 U | 0.38 U | 0.69 U | 0.32 **U** |
| Aroclor 1254 | EPA 8082A | µg/kg | 11097-69-1 | 300 | b | 0.2 U | 0.21 U | 0.16 U | 0.2 U | 0.21 U | 0.39 U | 3.6 **U** |
| Aroclor 1260 | EPA 8082A | µg/kg | 11096-82-5 | 200 | b | 0.29 U | 0.31 U | 0.23 U | 0.29 U | 0.31 U | 0.56 U | 5.2 **U** |
| Aroclor 1262 | EPA 8082A | µg/kg | 37324-23-5 | -- | | 0.43 U | 0.45 U | 0.34 U | 0.42 U | 0.45 U | 0.82 U | 7.6 **U** |
| Aroclor 1268 | EPA 8082A | µg/kg | 11100-14-4 | -- | | 0.47 U | **350** J+ | 0.38 U | 0.46 U | 0.5 U | **31** | **1,200** **J+** |
| Total PCB Aroclors[2] | EPA 8082A | µg/kg | 1336-36-3 | 9 | a | 0.76 U | **350** | 0.61 U | 0.75 U | 0.8 U | **31** | **1,200** |

*Notes:*
*Gray shading indicates compound concentration was greater than applicable Joint Source Control Strategy SLV and background concentration.*
*Detected results shown in* ***bold****.*
*-- = Not applicable*
*J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits.*
*U = Compound was analyzed for, but not detected. The associated numerical value is the SQL.*
*µg/kg = micrograms per kilogram*
*CUL = cleanup level*
*SLVs = screening level values*
*[1] = Screening levels are Portland Harbor Record of Decision (ROD) CULs (USEPA 2017) supplemented with the highlighted screening levels in the Portland Harbor Joint Source Control Strategy, Final, Table 3-1 Revision, July 2007.*
*[2] = Total PCBs is sum of PCB aroclors, which were detected above the detection limit, with non-detects counted as zero. Detection limits are recorded as the highest detection limit of the individual aroclors.*

*Screening Level Footnotes:*
*a = Portland Harbor ROD CUL for Riverbank Soil/Sediment*

**Table 2**
***PCB Siding Verification Results - November 2019***
***Univar Solutions USA Inc.***
***3950 NW Yeon Avenue***

| Location | Sample ID | Aroclor 1268 (µg/kg) | Parts per Million Equivalent |
|---|---|---|---|
| Cotton Shed | Cottonshed_20191127 | 54,300,000.00 | 54300.00 |
| Paint Shed | 1Paintshed_20191127 | 27,700,000.00 | 27700.00 |
| Paint Shed | 2Paintshed_20191127 | 20,800,000.00 | 20800.00 |

*Notes:*
*µg/kg = micrograms per kilogram*

**Table 3**
***Line Jetting Wastewater Calculations***
***Univar Solutions USA Inc.***
***3950 NW Yeon Avenue***

| Location | Estimated Water Usage (Gallons) | | |
|---|---|---|---|
| | Pressure Washer | Line Jetter | Total |
| **8/27/2020** | | | |
| CB-4A | 10 | -- | 10 |
| E6 | | 100 | 100 |
| CB-2E | 30 | -- | 30 |
| E4 (1) | 10 | -- | 10 |
| E4 (2) | 10 | -- | 10 |
| CB-3E | 10 | 120 | 130 |
| CB-3D | 10 | -- | 10 |
| CB-5D | 20 | -- | 20 |
| CB-5C | 10 | -- | 10 |
| CB-5A | 10 | -- | 10 |
| CB-5B | 10 | -- | 10 |
| | | Total Used | 350 |
| | | Total Disposed | 400 |
| **8/28/2020** | | | |
| STM @ DB3 | | 1000 | 1000 |
| STM @ DB3 | | 780 | 780 |
| STM @ DB3 | | 30 | 30 |
| STM @ DB3 | 10 | 40 | 50 |
| CB-3A | 10 | -- | 10 |
| CB-3B | 10 | -- | 10 |
| CB-3C | 20 | -- | 20 |
| CB-3F | 10 | -- | 10 |
| CB-3G | 10 | -- | 10 |
| | | Total Used | 1920 |
| | | Total Disposed | 2760 |
| **8/31/2020** | | | |
| CB-1J | 10 | -- | 10 |
| CB-1K | 10 | 30 | 40 |
| CB-1M | 10 | -- | 10 |
| CB-1G | 10 | 40 | 50 |
| CB-1H | 10 | -- | 10 |
| CB-1I | 10 | -- | 10 |
| CB-1B | 10 | -- | 10 |
| CB-1C | 10 | 40 | 50 |

**Table 3**
***Line Jetting Wastewater Calculations***
***Univar Solutions USA Inc.***
***3950 NW Yeon Avenue***

| Location | Estimated Water Usage (Gallons) | | |
|---|---|---|---|
| | Pressure Washer | Line Jetter | Total |
| CB-1A | 10 | -- | 10 |
| STM-1 | | 450 | 450 |
| SOUTH RAMP | 10 | 40 | 50 |
| CB-1E | 10 | 40 | 50 |
| CB-1F | 10 | -- | 10 |
| CB-1L | 10 | -- | 10 |
| CB-1D | 10 | -- | 10 |
| TRENCH | 50 | -- | 50 |
| | | Total Used | 830 |
| | | Total Disposed | 1276 |
| **9/4/2020** | | | |
| TRENCH | 375 | 110 | 485 |
| FLOOR 1 | 125 | 60 | 185 |
| FLOOR 2 | 125 | 30 | 155 |
| STM @ DB3 | N/A | 220 | 220 |
| | | Total Used | 1045 |
| | | Total Disposed | 1084 |

***Notes:***

*Volumes were approximated from tank levels, run time, and professional judgement.*

*Difference in total used and total disposed is volume of water that was present in catch basins at time of cleaning.*

*-- = Cleaning action not used for location*

## ATTACHMENT A PHOTO LOG

Photo 1: Proposed wipe sample location

Photo 2: Paint shed work

Photo 3: Paint shed work

Photo 4: Paint shed work

Photo 5: Cotton shed after

Photo 6: Paint shed

# ATTACHMENT B LABORATORY DATA AND VALIDATION MEMORANDUM

February 28, 2019 Service Request No:K1900914

Allie Miles
ERM
1001 SW 5th Avenue, Suite 1010
Portland, OR 97204

**Laboratory Results for: Yeon SW Source**

Dear Allie,

Enclosed are the results of the sample(s) submitted to our laboratory February 01, 2019
For your reference, these analyses have been assigned our service request number **K1900914.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

**ALS Group USA, Corp. dba ALS Environmental**

Kelley Lovejoy

Kelley Lovejoy
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

# Narrative Documents

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

**Client:** ERM West, Inc
**Project:** Yeon SW Source
**Sample Matrix:** Soil, Wipe

**Service Request:** K1900914
**Date Received:** 02/01/2019

## CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

**Sample Receipt:**

Fifteen wipe samples and one soil sample were received for analysis at ALS Environmental on 02/01/2019. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

**Semivolatiles by GC/MS:**

Method 8270D, Low Level Semivolatile Organic Compounds by GC/MS 02/27/2019: The detection limit was elevated for Bis(2-ethylhexyl) Phthalate in sample(s) DB4. The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components. The sample was heterogenous containing grass roots, and rocks. The resulting extract was highly colored which indicated the need to perform a dilution prior to injection into the instrument. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution.

Method 8270D, 02/27/2019:The matrix spike recoveries (MS/DMS) of Bis(2-ethylhexyl) Phthalate for sample DB4 were outside control criteria because of matrix interference. The chromatogram indicated the presence of non-target background components that prevented adequate resolution of the target analytes. As a result, accurate quantitation was not possible. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

**Semivoa GC:**

Method 8082A, Polychlorinated Biphenyls (PCBs) 2/19/19: The matrix spike recovery of 1260 for sample DB4 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential high bias in this matrix. No further corrective action was appropriate.

Method 8082A, Polychlorinated Biphenyls (PCBs) 2/19/19: The recovery of Decachlorobiphenyl in sample DB3-3B was outside the control limits listed in the results summary. The limits are default values temporarily in use until sufficient data points are generated to calculate statistical control limits. Based on the method and historic data, the recoveries observed were in the range expected for this procedure. No further corrective action was taken.

Method 8082A, Polychlorinated Biphenyls (PCBs) 2/19/19: Insufficient sample volume was received to perform a Matrix Spike/Matrix Spike Duplicate (MS/MSD). A Laboratory Control Sample/Duplicate Laboratory Control Sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for these samples.

Method 8082A, Polychlorinated Biphenyls (PCBs) 2/19/19: The control criteria were exceeded for the following surrogate in sample DB1-5 due to Aroclor interference: Decachlorobiphenyl. The sample contained a large concentration of Aroclor 1268, and Decachlorobiphenyl is a major constituent of this Aroclor. Since the Aroclor concentration was higher than the amount of surrogate spiked, accurate quantitation was not possible. Data is flagged to indicate the interference. No further corrective action was appropriate.

Approved by Kelley Lovejoy Date 02/28/2019

**Metals:**

Method 6020A, 02/12/2019: The Relative Percent Difference (RPD) for the replicate analysis of Cadmium and Lead in sample DB4 was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Method 6020A, 02/12/2019: The matrix spike recovery of Lead for sample DB4 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was appropriate.

Approved by Kelley Lovejoy Date 02/28/2019

## SAMPLE DETECTION SUMMARY

| CLIENT ID: DB1-1 | Lab ID: K1900914-001 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Bis(2-ethylhexyl) Phthalate | 0.24 | J | 0.18 | 2.0 | UG/WIPE | 8270D |

| CLIENT ID: DB1-2 | Lab ID: K1900914-002 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Bis(2-ethylhexyl) Phthalate | 0.23 | J | 0.18 | 2.0 | UG/WIPE | 8270D |

| CLIENT ID: DB1-3 | Lab ID: K1900914-003 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 0.26 | J | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.014 | J | 0.005 | 0.020 | ug | 6020A |
| Lead | 0.384 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 81.5 | | 0.10 | 0.50 | ug | 6020A |

| CLIENT ID: DB1-4 | Lab ID: K1900914-004 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 0.07 | J | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.242 | | 0.005 | 0.020 | ug | 6020A |
| Lead | 44.3 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 134 | | 0.10 | 0.50 | ug | 6020A |

| CLIENT ID: DB3-1 | Lab ID: K1900914-005 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 1.34 | | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.259 | | 0.005 | 0.020 | ug | 6020A |
| Lead | 23.1 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 1760 | | 0.5 | 2.5 | ug | 6020A |

| CLIENT ID: DB3-2 | Lab ID: K1900914-006 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 1370 | | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.365 | | 0.005 | 0.020 | ug | 6020A |
| Lead | 5.04 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 262 | | 0.10 | 0.50 | ug | 6020A |

| CLIENT ID: DB3-3A | Lab ID: K1900914-007 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 1.22 | | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 1.44 | | 0.005 | 0.020 | ug | 6020A |
| Lead | 834 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 1700 | | 0.5 | 2.5 | ug | 6020A |

| CLIENT ID: DB3-4 | Lab ID: K1900914-009 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 0.40 | J | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.029 | | 0.005 | 0.020 | ug | 6020A |

## SAMPLE DETECTION SUMMARY

| CLIENT ID: DB3-4 | Lab ID: K1900914-009 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Lead | 1.57 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 1690 | | 0.5 | 2.5 | ug | 6020A |

| CLIENT ID: DB1-5 | Lab ID: K1900914-012 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Aroclor 1268 | 1200 | D | 200 | 200 | UG/SAMPLE | 8082A |

| CLIENT ID: DB4-1 | Lab ID: K1900914-013 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 1.05 | | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.108 | | 0.005 | 0.020 | ug | 6020A |
| Lead | 91.5 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 209 | | 0.10 | 0.50 | ug | 6020A |

| CLIENT ID: DB4-3 | Lab ID: K1900914-015 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 0.34 | J | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.012 | J | 0.005 | 0.020 | ug | 6020A |
| Lead | 1.01 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 1030 | | 0.10 | 0.50 | ug | 6020A |

| CLIENT ID: DB4 | Lab ID: K1900914-016 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 2.97 | | 0.04 | 0.31 | mg/Kg | 6020A |
| Cadmium | 0.463 | | 0.003 | 0.012 | mg/Kg | 6020A |
| Lead | 59.1 | | 0.003 | 0.031 | mg/Kg | 6020A |
| Zinc | 283 | | 0.06 | 0.31 | mg/Kg | 6020A |
| Bis(2-ethylhexyl) Phthalate | 950 | J | 150 | 1600 | ug/Kg | 8270D |
| Solids, Total | 85.5 | | | | Percent | 160.3 Modified |
| Aroclor 1254 | 46 | | 2.9 | 10 | UG/KG | 8082A |
| Aroclor 1268 | 64 | | 2.9 | 10 | UG/KG | 8082A |

# Sample Receipt Information

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

**Client:** ERM West, Inc **Service Request:**K1900914
**Project:** Yeon SW Source/0487089.04

## SAMPLE CROSS-REFERENCE

| SAMPLE # | CLIENT SAMPLE ID | DATE | TIME |
|---|---|---|---|
| K1900914-003 | DB1-3 | 1/31/2019 | 0834 |
| K1900914-004 | DB1-4 | 1/31/2019 | 0838 |
| K1900914-005 | DB3-1 | 1/31/2019 | 0816 |
| K1900914-006 | DB3-2 | 1/31/2019 | 0901 |
| K1900914-007 | DB3-3A | 1/31/2019 | 0841 |
| K1900914-009 | DB3-4 | 1/31/2019 | 0858 |
| K1900914-013 | DB4-1 | 1/31/2019 | 0912 |
| K1900914-015 | DB4-3 | 1/31/2019 | 0916 |
| K1900914-016 | DB4 | 1/31/2019 | 0931 |

ALS Environmental

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

# CHAIN OF CUSTODY
# 96649

001, 002

SR# 1/1900914

COC Set____of____

COC#_____



Project Name: Yeon SW Source
Project Number: 0487089.04
Project Manager: Dylan Stankus
Company: ERM West
Address: 1050 SW 6th Ave Suite 1650 Portland OR
Phone #: 503-488-5282
email: dylan.stankus@erm.com
Sampler Signature: [signature]
Sampler Printed Name: Rita Cooper

| CLIENT SAMPLE ID | LABID | SAMPLING Date | SAMPLING Time | Matrix | NUMBER OF CONTAINERS | 14D 8082A / PCB | 14D 8270D / SVO LL | 180D 6020A / Metals T | 999D 160.3 Modified / TS | 1 | 2 | 3 | 4 | 5 | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. DB1-1 | | 1/31 | 0851 | wipe | 1 | | X | | | | | | | | |
| 2. DB1-2 | | 1/31 | 0849 | | 1 | | X | | | | | | | | |
| 3. DB1-3 | | 1/31 | 0834 | | 1 | | | X | | | | | | | |
| 4. DB1-4 | | 1/31 | 0838 | | 1 | | | X | | | | | | | |
| 5. DB3-1 | | 1/31 | 0816 | | 1 | | | X | | | | | | | |
| 6. DB3-2 | | 1/31 | 0901 | | 1 | | | X | | | | | | | |
| 7. DB3-3A | | 1/31 | 0841 | | 1 | | | X | | | | | | | |
| 8. DB3-3B | | 1/31 | 0842 | | 1 | X | | | | | | | | | |
| 9. DB3-4 | | 1/31 | 0858 | | 1 | | | X | | | | | | | |
| 10. DB3-5 | | 1/31 | 1050 | | 1 | X | | | | | | | | | |

## Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. CLP Like Summary (no raw data)
___ IV. Data Validation Report
___ V. EDD

## Invoice Information

P.O.#_____
Bill To:_____

## Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al (As) Sb Ba Be B Ca (Cd) Co Cr Cu Fe (Pb) Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V (Zn) Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

| Relinquished By: | Received By: | Relinquished By: | Received By: | Relinquished By: | Received By: |
|---|---|---|---|---|---|
| Signature [signature] | Signature [signature] | Signature | Signature | Signature | Signature |
| Printed Name Lon McVicker | Printed Name ALSK | Printed Name | Printed Name | Printed Name | Printed Name |
| Firm WDNC | Firm 2-1-19 1000 | Firm | Firm | Firm | Firm |
| Date/Time 1-31-19/1430 | Date/Time | Date/Time | Date/Time | Date/Time | Date/Time |

ALS Environmental

# CHAIN OF CUSTODY

# 96648

003

SR# K1900914

COC Set_____of_____

COC#_____



1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Yeon SW Source
Project Number: 0487089.04
Project Manager: Dylan Stankus
Company: ERM West
Address: 1050 SW 6th Ave Suite 1650 Portland OR
Phone #: 503-486-5282
email: dylan.stankus@erm.com
Sampler Signature:
Sampler Printed Name: Lita Cooper

| CLIENT SAMPLE ID | LABID | SAMPLING Date | SAMPLING Time | Matrix | NUMBER OF CONTAINERS | 8081B / Pest OC ULL (7D) | 8082A / PCB (7D) | 8270D / PAH SIM (7D) | 8270D / SVO LL (7D) | SM 2540 D / TSS (7D) | 8260C / VOC FP (14D) | 6020A / Metals T (180D) | 1 | 2 | 3 | 4 | 5 | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. DB1-4A | | 1/31 | 0955 | wipe | | | X | | | | | | | | | | | |
| 2. DB1-5 | | 1/31 | 1005 | | | | X | | | | | | | | | | | |
| 3. DB4-1 | | 1/31 | 0912 | | | | | | | | | X | | | | | | |
| 4. DB4-2 | | 1/31 | 0914 | | | | | | X | | | | | | | | | |
| 5. DB4-3 | | 1/31 | 0916 | | | | | | | | | X | | | | | | |
| 6. | | | | | | | | | | | | | | | | | | |
| 7. | | | | | | | | | | | | | | | | | | |
| 8. | | | | | | | | | | | | | | | | | | |
| 9. | | | | | | | | | | | | | | | | | | |
| 10. | | | | | | | | | | | | | | | | | | |

## Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. CLP Like Summary (no raw data)
___ IV. Data Validation Report
___ V. EDD

## Invoice Information

P.O.#_____
Bill To:_____

## Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al (As) Sb Ba Be B Ca (Cd) Co Cr Cu Fe (Pb) Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V (Zn) Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

| Relinquished By: | Received By: | Relinquished By: | Received By: | Relinquished By: | Received By: |
|---|---|---|---|---|---|
| Signature | Signature | Signature | Signature | Signature | Signature |
| Printed Name: Lon McVicker | Printed Name: ALS-K | Printed Name | Printed Name | Printed Name | Printed Name |
| Firm: WDNC | Firm: 2-1-19 1000 | Firm | Firm | Firm | Firm |
| Date/Time: 1-31-19 / 1430 | Date/Time | Date/Time | Date/Time | Date/Time | Date/Time |

PC

# Cooler Receipt and Preservation Form

Client ERM West Service Request *K19* 00914

Received: 2-1-19 Opened: 2-1-19 By: JSP Unloaded: 2-1-19 By: JSP

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2 Top Front

   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

| Raw Cooler Temp | Corrected. Cooler Temp | Raw Temp Blank | Corrected Temp Blank | Corr. Factor | Thermometer ID | Cooler/COC ID NA | Tracking Number NA | Filed |
|---|---|---|---|---|---|---|---|---|
| 14.8 | 15.0 | 14.4 | 14.6 | +0.2 | 323 | 96649 | 7852 5334 5300 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA Y N

   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was C12/Res negative? NA Y N

| Sample ID on Bottle | Sample ID on COC | Identified by: |
|---|---|---|
| | | |
| | | |
| | | |

| Sample ID | Bottle Count Bottle Type | Out of Temp | Head-space | Broke | pH | Reagent | Volume added | Reagent Lot Number | Initials | Time |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

***Notes, Discrepancies, & Resolutions:***

Received Sample "DB4" Not on CoC 1-31-19 0931 All Analysis Listed on Label

7/25/16 *Page* ____ *of* ____

# Miscellaneous Forms

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

## Inorganic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| E | The result is an estimate amount because the value exceeded the instrument calibration range. |
| J | The result is an estimated value. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.<br>*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |
| H | The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory. |

## Metals Data Qualifiers

| | |
|---|---|
| # | The control limit criteria is not applicable. See case narrative. |
| J | The result is an estimated value. |
| E | The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample. |
| M | The duplicate injection precision was not met. |
| N | The Matrix Spike sample recovery is not within control limits. See case narrative. |
| S | The reported value was determined by the Method of Standard Additions (MSA). |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.<br>*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| W | The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| + | The correlation coefficient for the MSA is less than 0.995. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Organic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| A | A tentatively identified compound, a suspected aldol-condensation product. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| C | The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data. |
| D | The reported result is from a dilution. |
| E | The result is an estimated value. |
| J | The result is an estimated value. |
| N | The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed. |
| P | The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.<br>*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Additional Petroleum Hydrocarbon Specific Qualifiers

| | |
|---|---|
| F | The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard. |
| L | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard. |
| H | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard. |
| O | The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard. |
| Y | The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard. |
| Z | The chromatographic fingerprint does not resemble a petroleum product. |

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso**
**State Certifications, Accreditations, and Licenses**

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEH | http://dec.alaska.gov/eh/lab/cs/csapproval.htm | UST-040 |
| Arizona DHS | http://www.azdhs.gov/lab/license/env.htm | AZ0339 |
| Arkansas - DEQ | http://www.adeq.state.ar.us/techsvs/labcert.htm | 88-0637 |
| California DHS (ELAP) | http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx | 2795 |
| DOD ELAP | http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm | L16-58-R4 |
| Florida DOH | http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm | E87412 |
| Hawaii DOH | http://health.hawaii.gov/ | - |
| ISO 17025 | http://www.pjlabs.com/ | L16-57 |
| Louisiana DEQ | http://www.deq.louisiana.gov/page/la-lab-accreditation | 03016 |
| Maine DHS | http://www.maine.gov/dhhs/ | WA01276 |
| Minnesota DOH | http://www.health.state.mn.us/accreditation | 053-999-457 |
| Nevada DEP | http://ndep.nv.gov/bsdw/labservice.htm | WA01276 |
| New Jersey DEP | http://www.nj.gov/dep/enforcement/oqa.html | WA005 |
| New York - DOH | https://www.wadsworth.org/regulatory/elap | 12060 |
| North Carolina DEQ | https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification | 605 |
| Oklahoma DEQ | http://www.deq.state.ok.us/CSDnew/labcert.htm | 9801 |
| Oregon – DEQ (NELAP) | http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | WA100010 |
| South Carolina DHEC | http://www.scdhec.gov/environment/EnvironmentalLabCertification/ | 61002 |
| Texas CEQ | http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html | T104704427 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C544 |
| Wyoming (EPA Region 8) | https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water- | - |
| Kelso Laboratory Website | www.alsglobal.com | NA |

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

## Acronyms

| | |
|---|---|
| ASTM | American Society for Testing and Materials |
| A2LA | American Association for Laboratory Accreditation |
| CARB | California Air Resources Board |
| CAS Number | Chemical Abstract Service registry Number |
| CFC | Chlorofluorocarbon |
| CFU | Colony-Forming Unit |
| DEC | Department of Environmental Conservation |
| DEQ | Department of Environmental Quality |
| DHS | Department of Health Services |
| DOE | Department of Ecology |
| DOH | Department of Health |
| EPA | U. S. Environmental Protection Agency |
| ELAP | Environmental Laboratory Accreditation Program |
| GC | Gas Chromatography |
| GC/MS | Gas Chromatography/Mass Spectrometry |
| LOD | Limit of Detection |
| LOQ | Limit of Quantitation |
| LUFT | Leaking Underground Fuel Tank |
| M | Modified |
| MCL | Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA. |
| MDL | Method Detection Limit |
| MPN | Most Probable Number |
| MRL | Method Reporting Limit |
| NA | Not Applicable |
| NC | Not Calculated |
| NCASI | National Council of the Paper Industry for Air and Stream Improvement |
| ND | Not Detected |
| NIOSH | National Institute for Occupational Safety and Health |
| PQL | Practical Quantitation Limit |
| RCRA | Resource Conservation and Recovery Act |
| SIM | Selected Ion Monitoring |
| TPH | Total Petroleum Hydrocarbons |
| tr | Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL. |

# Sample Results

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

# Semivolatile Organic Compounds by GC/MS

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 08:51 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB1-1 | **Units:** | UG/WIPE |
| **Lab Code:** | K1900914-001 | **Basis:** | Wet |

## Semivolatile Organic Compounds by GC/MS

**Analysis Method:** 8270D
**Prep Method:** EPA 3541

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Bis(2-ethylhexyl) Phthalate | **0.24** **J** | 2.0 | 0.18 | 1 | 02/26/19 23:19 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Terphenyl-d14 | 77 | 30 - 102 | 02/26/19 23:19 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 08:49 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB1-2 | **Units:** | UG/WIPE |
| **Lab Code:** | K1900914-002 | **Basis:** | Wet |

## Semivolatile Organic Compounds by GC/MS

**Analysis Method:** 8270D
**Prep Method:** EPA 3541

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Bis(2-ethylhexyl) Phthalate | **0.23** **J** | 2.0 | 0.18 | 1 | 02/26/19 23:47 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Terphenyl-d14 | 69 | 30 - 102 | 02/26/19 23:47 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 09:14 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB4-2 | **Units:** | UG/WIPE |
| **Lab Code:** | K1900914-014 | **Basis:** | Wet |

## Semivolatile Organic Compounds by GC/MS

**Analysis Method:** 8270D
**Prep Method:** EPA 3541

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Bis(2-ethylhexyl) Phthalate | ND U | 2.0 | 0.18 | 1 | 02/27/19 00:16 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Terphenyl-d14 | 61 | 30 - 102 | 02/27/19 00:16 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 09:31 |
| **Sample Matrix:** | Soil | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB4 | **Units:** | ug/Kg |
| **Lab Code:** | K1900914-016 | **Basis:** | Dry |

**Low Level Semivolatile Organic Compounds by GC/MS**

**Analysis Method:** 8270D
**Prep Method:** EPA 3541

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Bis(2-ethylhexyl) Phthalate | **950** **J** | 1600 | 150 | 10 | 02/27/19 02:37 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| p-Terphenyl-d14 | 84 | 30 - 102 | 02/27/19 02:37 | |

# Semivolatile Organic Compounds by GC

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 08:42 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB3-3B | **Units:** | UG/SAMPLE |
| **Lab Code:** | K1900914-008 | **Basis:** | Wet |

## Polychlorinated Biphenyls (PCBs)

**Analysis Method:** 8082A
**Prep Method:** EPA 3546

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1221 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1232 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1242 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1248 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1254 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1260 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1262 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1268 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Decachlorobiphenyl | 47 D | 70 - 130 | 02/06/19 20:26 | * |

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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 10:50 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB3-5 | **Units:** | UG/SAMPLE |
| **Lab Code:** | K1900914-010 | **Basis:** | Wet |

## Polychlorinated Biphenyls (PCBs)

**Analysis Method:** 8082A
**Prep Method:** EPA 3546

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1221 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1232 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1242 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1248 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1254 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1260 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1262 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1268 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Decachlorobiphenyl | 78 D | 70 - 130 | 02/06/19 20:57 | |

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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 09:55 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB1-4A | **Units:** | UG/SAMPLE |
| **Lab Code:** | K1900914-011 | **Basis:** | Wet |

## Polychlorinated Biphenyls (PCBs)

**Analysis Method:** 8082A
**Prep Method:** EPA 3546

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1221 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1232 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1242 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1248 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1254 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1260 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1262 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1268 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Decachlorobiphenyl | 76 D | 70 - 130 | 02/06/19 21:28 | |

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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 10:05 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB1-5 | **Units:** | UG/SAMPLE |
| **Lab Code:** | K1900914-012 | **Basis:** | Wet |

## Polychlorinated Biphenyls (PCBs)

**Analysis Method:** 8082A
**Prep Method:** EPA 3546

| Analyte Name | Result | | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND | U | 200 | 200 | 2000 | 02/19/19 11:42 | 2/5/19 | |
| Aroclor 1221 | ND | U | 200 | 200 | 2000 | 02/19/19 11:42 | 2/5/19 | |
| Aroclor 1232 | ND | U | 200 | 200 | 2000 | 02/19/19 11:42 | 2/5/19 | |
| Aroclor 1242 | ND | U | 200 | 200 | 2000 | 02/19/19 11:42 | 2/5/19 | |
| Aroclor 1248 | ND | U | 200 | 200 | 2000 | 02/19/19 11:42 | 2/5/19 | |
| Aroclor 1254 | ND | U | 200 | 200 | 2000 | 02/19/19 11:42 | 2/5/19 | |
| Aroclor 1260 | ND | U | 200 | 200 | 2000 | 02/19/19 11:42 | 2/5/19 | |
| Aroclor 1262 | ND | U | 200 | 200 | 2000 | 02/19/19 11:42 | 2/5/19 | |
| Aroclor 1268 | **1200** | **D** | 200 | 200 | 2000 | 02/19/19 11:42 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Decachlorobiphenyl | 83120 D | 70 - 130 | 02/19/19 11:42 | # |

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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 09:31 |
| **Sample Matrix:** | Soil | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB4 | **Units:** | UG/KG |
| **Lab Code:** | K1900914-016 | **Basis:** | Wet |

## Polychlorinated Biphenyls (PCBs)

**Analysis Method:** 8082A
**Prep Method:** EPA 3546

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND U | 10 | 2.9 | 1 | 02/06/19 16:16 | 2/5/19 | |
| Aroclor 1221 | ND U | 17 | 2.9 | 1 | 02/06/19 16:16 | 2/5/19 | |
| Aroclor 1232 | ND U | 10 | 2.9 | 1 | 02/06/19 16:16 | 2/5/19 | |
| Aroclor 1242 | ND U | 10 | 2.9 | 1 | 02/06/19 16:16 | 2/5/19 | |
| Aroclor 1248 | ND U | 10 | 2.9 | 1 | 02/06/19 16:16 | 2/5/19 | |
| Aroclor 1254 | **46** | 10 | 2.9 | 1 | 02/06/19 16:16 | 2/5/19 | |
| Aroclor 1260 | ND U | 10 | 2.9 | 1 | 02/06/19 16:16 | 2/5/19 | |
| Aroclor 1262 | ND U | 10 | 2.9 | 1 | 02/06/19 16:16 | 2/5/19 | |
| Aroclor 1268 | **64** | 10 | 2.9 | 1 | 02/06/19 16:16 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Decachlorobiphenyl | 98 | 70 - 130 | 02/06/19 16:16 | |

# Metals

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**ALS Group USA, Corp.**
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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 08:34 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB1-3 | **Basis:** | NA |
| **Lab Code:** | K1900914-003 | | |

## Total Metals

| Analyte Name | Analysis Method | Result | | Units | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 6020A | **0.26** | **J** | ug | 0.50 | 0.06 | 5 | 02/12/19 16:07 | 02/05/19 | |
| Cadmium | 6020A | **0.014** | **J** | ug | 0.020 | 0.005 | 5 | 02/12/19 16:07 | 02/05/19 | |
| Lead | 6020A | **0.384** | | ug | 0.050 | 0.005 | 5 | 02/12/19 16:07 | 02/05/19 | |
| Zinc | 6020A | **81.5** | | ug | 0.50 | 0.10 | 5 | 02/12/19 16:07 | 02/05/19 | |

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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 08:38 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB1-4 | **Basis:** | NA |
| **Lab Code:** | K1900914-004 | | |

## Total Metals

| Analyte Name | Analysis Method | Result | Units | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 6020A | **0.07** | ug | 0.50 | 0.06 | 5 | 02/12/19 16:17 | 02/05/19 | J |
| Cadmium | 6020A | **0.242** | ug | 0.020 | 0.005 | 5 | 02/12/19 16:17 | 02/05/19 | |
| Lead | 6020A | **44.3** | ug | 0.050 | 0.005 | 5 | 02/12/19 16:17 | 02/05/19 | |
| Zinc | 6020A | **134** | ug | 0.50 | 0.10 | 5 | 02/12/19 16:17 | 02/05/19 | |

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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 08:16 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB3-1 | **Basis:** | NA |
| **Lab Code:** | K1900914-005 | | |

## Total Metals

| Analyte Name | Analysis Method | Result | Units | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 6020A | **1.34** | ug | 0.50 | 0.06 | 5 | 02/12/19 16:20 | 02/05/19 | |
| Cadmium | 6020A | **0.259** | ug | 0.020 | 0.005 | 5 | 02/12/19 16:20 | 02/05/19 | |
| Lead | 6020A | **23.1** | ug | 0.050 | 0.005 | 5 | 02/12/19 16:20 | 02/05/19 | |
| Zinc | 6020A | **1760** | ug | 2.5 | 0.5 | 25 | 02/12/19 16:50 | 02/05/19 | |

**ALS Group USA, Corp.**
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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 09:01 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB3-2 | **Basis:** | NA |
| **Lab Code:** | K1900914-006 | | |

## Total Metals

| Analyte Name | Analysis Method | Result | Units | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 6020A | **1370** | ug | 0.50 | 0.06 | 5 | 02/12/19 16:24 | 02/05/19 | |
| Cadmium | 6020A | **0.365** | ug | 0.020 | 0.005 | 5 | 02/12/19 16:24 | 02/05/19 | |
| Lead | 6020A | **5.04** | ug | 0.050 | 0.005 | 5 | 02/12/19 16:24 | 02/05/19 | |
| Zinc | 6020A | **262** | ug | 0.50 | 0.10 | 5 | 02/12/19 16:24 | 02/05/19 | |

**ALS Group USA, Corp.**
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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 08:41 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB3-3A | **Basis:** | NA |
| **Lab Code:** | K1900914-007 | | |

## Total Metals

| Analyte Name | Analysis Method | Result | Units | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 6020A | **1.22** | ug | 0.50 | 0.06 | 5 | 02/12/19 16:27 | 02/05/19 | |
| Cadmium | 6020A | **1.44** | ug | 0.020 | 0.005 | 5 | 02/12/19 16:27 | 02/05/19 | |
| Lead | 6020A | **834** | ug | 0.050 | 0.005 | 5 | 02/12/19 16:27 | 02/05/19 | |
| Zinc | 6020A | **1700** | ug | 2.5 | 0.5 | 25 | 02/12/19 16:53 | 02/05/19 | |

**ALS Group USA, Corp.**
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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 08:58 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB3-4 | **Basis:** | NA |
| **Lab Code:** | K1900914-009 | | |

## Total Metals

| Analyte Name | Analysis Method | Result | Units | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 6020A | **0.40** | ug | 0.50 | 0.06 | 5 | 02/12/19 16:40 | 02/05/19 | J |
| Cadmium | 6020A | **0.029** | ug | 0.020 | 0.005 | 5 | 02/12/19 16:40 | 02/05/19 | |
| Lead | 6020A | **1.57** | ug | 0.050 | 0.005 | 5 | 02/12/19 16:40 | 02/05/19 | |
| Zinc | 6020A | **1690** | ug | 2.5 | 0.5 | 25 | 02/12/19 17:26 | 02/05/19 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 09:12 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB4-1 | **Basis:** | NA |
| **Lab Code:** | K1900914-013 | | |

## Total Metals

| Analyte Name | Analysis Method | Result | Units | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 6020A | **1.05** | ug | 0.50 | 0.06 | 5 | 02/12/19 16:43 | 02/05/19 | |
| Cadmium | 6020A | **0.108** | ug | 0.020 | 0.005 | 5 | 02/12/19 16:43 | 02/05/19 | |
| Lead | 6020A | **91.5** | ug | 0.050 | 0.005 | 5 | 02/12/19 16:43 | 02/05/19 | |
| Zinc | 6020A | **209** | ug | 0.50 | 0.10 | 5 | 02/12/19 16:43 | 02/05/19 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 09:16 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB4-3 | **Basis:** | NA |
| **Lab Code:** | K1900914-015 | | |

## Total Metals

| Analyte Name | Analysis Method | Result | | Units | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 6020A | **0.34** | **J** | ug | 0.50 | 0.06 | 5 | 02/12/19 16:47 | 02/05/19 | |
| Cadmium | 6020A | **0.012** | **J** | ug | 0.020 | 0.005 | 5 | 02/12/19 16:47 | 02/05/19 | |
| Lead | 6020A | **1.01** | | ug | 0.050 | 0.005 | 5 | 02/12/19 16:47 | 02/05/19 | |
| Zinc | 6020A | **1030** | | ug | 0.50 | 0.10 | 5 | 02/12/19 16:47 | 02/05/19 | |

**ALS Group USA, Corp.**
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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 09:31 |
| **Sample Matrix:** | Soil | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB4 | **Basis:** | Dry |
| **Lab Code:** | K1900914-016 | | |

## Total Metals

| Analyte Name | Analysis Method | Result | Units | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 6020A | **2.97** | mg/Kg | 0.31 | 0.04 | 5 | 02/12/19 17:03 | 02/04/19 | |
| Cadmium | 6020A | **0.463** | mg/Kg | 0.012 | 0.003 | 5 | 02/12/19 17:03 | 02/04/19 | |
| Lead | 6020A | **59.1** | mg/Kg | 0.031 | 0.003 | 5 | 02/12/19 17:03 | 02/04/19 | |
| Zinc | 6020A | **283** | mg/Kg | 0.31 | 0.06 | 5 | 02/12/19 17:03 | 02/04/19 | |

# General Chemistry

**ALS Environmental—Kelso Laboratory**
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**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 09:31 |
| **Sample Matrix:** | Soil | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB4 | **Basis:** | As Received |
| **Lab Code:** | K1900914-016 | | |

## Inorganic Parameters

| Analyte Name | Analysis Method | Result | Units | MRL | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|
| Solids, Total | 160.3 Modified | **85.5** | Percent | - | - | 1 | 02/04/19 12:51 | |

# QC Summary Forms

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
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# Semivolatile Organic Compounds by GC/MS

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

**Client:** ERM West, Inc **Service Request:** K1900914
**Project:** Yeon SW Source/0487089.04
**Sample Matrix:** Wipe

## SURROGATE RECOVERY SUMMARY
## Semivolatile Organic Compounds by GC/MS

**Analysis Method:** 8270D
**Extraction Method:** EPA 3541

| Sample Name | Lab Code | Terphenyl-d14 30 - 102 | p-Terphenyl-d14 30 - 102 |
|---|---|---|---|
| DB1-1 | K1900914-001 | 77 | |
| DB1-2 | K1900914-002 | 69 | |
| DB4-2 | K1900914-014 | 61 | |
| Lab Control Sample | KWG1900944-1 | 76 | |
| Duplicate Lab Control Sample | KWG1900944-2 | 80 | |
| Method Blank | KWG1900944-3 | 81 | |

**Client:** ERM West, Inc **Service Request:** K1900914
**Project:** Yeon SW Source/0487089.04
**Sample Matrix:** Soil

## SURROGATE RECOVERY SUMMARY
## Low Level Semivolatile Organic Compounds by GC/MS

**Analysis Method:** 8270D
**Extraction Method:** EPA 3541

| Sample Name | Lab Code | Terphenyl-d14 | p-Terphenyl-d14 |
|---|---|---|---|
| | | | 30 - 102 |
| DB4 | K1900914-016 | | 84 |
| DB4 MS | KQ1901464-01 | | 87 |
| DB4 DMS | KQ1901464-02 | | 65 |
| Lab Control Sample | KQ1901464-03 | | 71 |
| Method Blank | KQ1901464-04 | | 79 |

**ALS Group USA, Corp.**
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QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 |
| **Sample Matrix:** | Soil | **Date Received:** | 02/01/19 |
| | | **Date Analyzed:** | 02/27/19 |
| | | **Date Extracted:** | 02/5/19 |

**Duplicate Matrix Spike Summary**
**Low Level Semivolatile Organic Compounds by GC/MS**

| | | | |
|---|---|---|---|
| **Sample Name:** | DB4 | **Units:** | ug/Kg |
| **Lab Code:** | K1900914-016 | **Basis:** | Dry |
| **Analysis Method:** | 8270D | | |
| **Prep Method:** | EPA 3541 | | |

| | | **Matrix Spike** KQ1901464-01 | | | | **Duplicate Matrix Spike** KQ1901464-02 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte Name** | **Sample Result** | **Result** | **Spike Amount** | **% Rec** | **Result** | **Spike Amount** | **% Rec** | **% Rec Limits** | **RPD** | **RPD Limit** |
| Bis(2-ethylhexyl) Phthalate | 950 J | 864 J | 255 | -35 * | 914 J | 183 | -22 # | 23-123 | 6 | 40 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**ALS Group USA, Corp.**
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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | NA |
| **Sample Matrix:** | Soil | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Units:** | ug/Kg |
| **Lab Code:** | KQ1901464-04 | **Basis:** | Dry |

**Low Level Semivolatile Organic Compounds by GC/MS**

**Analysis Method:** 8270D
**Prep Method:** EPA 3541

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Bis(2-ethylhexyl) Phthalate | ND U | 63 | 8.9 | 1 | 02/27/19 00:44 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| p-Terphenyl-d14 | 79 | 30 - 102 | 02/27/19 00:44 | |

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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | NA |
| **Sample Matrix:** | Wipe | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Units:** | UG/WIPE |
| **Lab Code:** | KWG1900944-3 | **Basis:** | Wet |

## Semivolatile Organic Compounds by GC/MS

**Analysis Method:** 8270D
**Prep Method:** EPA 3541

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Bis(2-ethylhexyl) Phthalate | ND U | 2.0 | 0.18 | 1 | 02/26/19 21:54 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Terphenyl-d14 | 81 | 30 - 102 | 02/26/19 21:54 | |

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QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Analyzed:** | 02/27/19 |
| **Sample Matrix:** | Soil | **Date Extracted:** | 02/05/19 |

## Lab Control Sample Summary
## Low Level Semivolatile Organic Compounds by GC/MS

| | | | |
|---|---|---|---|
| **Analysis Method:** | 8270D | **Units:** | ug/Kg |
| **Prep Method:** | EPA 3541 | **Basis:** | Dry |
| | | **Analysis Lot:** | 626584 |

**Lab Control Sample**
**KQ1901464-03**

| Analyte Name | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|
| Bis(2-ethylhexyl) Phthalate | 233 | 250 | 93 | 39-113 |

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QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Analyzed:** | 02/26/19 |
| **Sample Matrix:** | Wipe | **Date Extracted:** | 02/05/19 |

## Duplicate Lab Control Sample Summary
## Semivolatile Organic Compounds by GC/MS

| | | | |
|---|---|---|---|
| **Analysis Method:** | 8270D | **Units:** | UG/WIPE |
| **Prep Method:** | EPA 3541 | **Basis:** | Wet |
| | | **Analysis Lot:** | KWG1900945 |

| | Lab Control Sample KWG1900944-1 | | | Duplicate Lab Control Sample KWG1900944-2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte Name** | **Result** | **Spike Amount** | **% Rec** | **Result** | **Spike Amount** | **% Rec** | **% Rec Limits** | **RPD** | **RPD Limit** |
| Bis(2-ethylhexyl) Phthalate | 4.95 | 5.00 | 99 | 4.90 | 5.00 | 98 | 39-113 | 1 | 40 |

# Semivolatile Organic Compounds by GC

**ALS Environmental—Kelso Laboratory**
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www.alsglobal.com

**Client:** ERM West, Inc **Service Request:** K1900914
**Project:** Yeon SW Source/0487089.04
**Sample Matrix:** Wipe

## SURROGATE RECOVERY SUMMARY
## Polychlorinated Biphenyls (PCBs)

**Analysis Method:** 8082A
**Extraction Method:** EPA 3546

| Sample Name | Lab Code | Decachlorobiphenyl 70 - 130 |
|---|---|---|
| DB3-3B | K1900914-008 | 47 D * |
| DB3-5 | K1900914-010 | 78 D |
| DB1-4A | K1900914-011 | 76 D |
| DB1-5 | K1900914-012 | 83120 D # |
| Lab Control Sample | KWG1900621-1 | 80 D |
| Duplicate Lab Control Sample | KWG1900621-2 | 83 D |
| Method Blank | KWG1900621-3 | 86 D |

**Client:** ERM West, Inc **Service Request:** K1900914
**Project:** Yeon SW Source/0487089.04
**Sample Matrix:** Soil

## SURROGATE RECOVERY SUMMARY
## Polychlorinated Biphenyls (PCBs)

**Analysis Method:** 8082A
**Extraction Method:** EPA 3546

| Sample Name | Lab Code | Decachlorobiphenyl 70 - 130 |
|---|---|---|
| DB4 | K1900914-016 | 98 |
| DB4 MS | KWG1900617-1 | 90 |
| DB4 DMS | KWG1900617-2 | 94 |
| Lab Control Sample | KWG1900617-3 | 80 |
| Method Blank | KWG1900617-4 | 82 |

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QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 |
| **Sample Matrix:** | Soil | **Date Received:** | 02/01/19 |
| | | **Date Analyzed:** | 02/6/19 |
| | | **Date Extracted:** | 02/5/19 |

**Duplicate Matrix Spike Summary**
**Polychlorinated Biphenyls (PCBs)**

| | | | |
|---|---|---|---|
| **Sample Name:** | DB4 | **Units:** | UG/KG |
| **Lab Code:** | K1900914-016 | **Basis:** | Wet |
| **Analysis Method:** | 8082A | | |
| **Prep Method:** | EPA 3546 | | |

| | | **Matrix Spike** KWG1900617-1 | | | **Duplicate Matrix Spike** KWG1900617-2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte Name** | **Sample Result** | **Result** | **Spike Amount** | **% Rec** | **Result** | **Spike Amount** | **% Rec** | **% Rec Limits** | **RPD** | **RPD Limit** |
| Aroclor 1016 | ND U | 92.2 | 86.5 | 107 | 80.7 | 80.6 | 100 | 70-130 | 13 | 40 |
| Aroclor 1260 | ND U | 135 | 86.5 | 156 * | 133 | 80.6 | 166 * | 70-130 | 1 | 40 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | NA |
| **Sample Matrix:** | Soil | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Units:** | UG/KG |
| **Lab Code:** | KWG1900617-4 | **Basis:** | Wet |

## Polychlorinated Biphenyls (PCBs)

**Analysis Method:** 8082A
**Prep Method:** EPA 3546

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND U | 10 | 2.9 | 1 | 02/06/19 15:13 | 2/5/19 | |
| Aroclor 1221 | ND U | 17 | 2.9 | 1 | 02/06/19 15:13 | 2/5/19 | |
| Aroclor 1232 | ND U | 10 | 2.9 | 1 | 02/06/19 15:13 | 2/5/19 | |
| Aroclor 1242 | ND U | 10 | 2.9 | 1 | 02/06/19 15:13 | 2/5/19 | |
| Aroclor 1248 | ND U | 10 | 2.9 | 1 | 02/06/19 15:13 | 2/5/19 | |
| Aroclor 1254 | ND U | 10 | 2.9 | 1 | 02/06/19 15:13 | 2/5/19 | |
| Aroclor 1260 | ND U | 10 | 2.9 | 1 | 02/06/19 15:13 | 2/5/19 | |
| Aroclor 1262 | ND U | 10 | 2.9 | 1 | 02/06/19 15:13 | 2/5/19 | |
| Aroclor 1268 | ND U | 10 | 2.9 | 1 | 02/06/19 15:13 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Decachlorobiphenyl | 82 | 70 - 130 | 02/06/19 15:13 | |

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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | NA |
| **Sample Matrix:** | Wipe | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Units:** | UG/SAMPLE |
| **Lab Code:** | KWG1900621-3 | **Basis:** | Wet |

## Polychlorinated Biphenyls (PCBs)

**Analysis Method:** 8082A
**Prep Method:** EPA 3546

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND U | 0.050 | 0.050 | 1 | 02/07/19 17:05 | 2/5/19 | |
| Aroclor 1221 | ND U | 0.10 | 0.10 | 1 | 02/07/19 17:05 | 2/5/19 | |
| Aroclor 1232 | ND U | 0.10 | 0.10 | 1 | 02/07/19 17:05 | 2/5/19 | |
| Aroclor 1242 | ND U | 0.10 | 0.10 | 1 | 02/07/19 17:05 | 2/5/19 | |
| Aroclor 1248 | ND U | 0.10 | 0.10 | 1 | 02/07/19 17:05 | 2/5/19 | |
| Aroclor 1254 | ND U | 0.10 | 0.10 | 1 | 02/07/19 17:05 | 2/5/19 | |
| Aroclor 1260 | ND U | 0.050 | 0.050 | 1 | 02/07/19 17:05 | 2/5/19 | |
| Aroclor 1262 | ND U | 0.10 | 0.10 | 1 | 02/07/19 17:05 | 2/5/19 | |
| Aroclor 1268 | ND U | 0.10 | 0.10 | 1 | 02/07/19 17:05 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Decachlorobiphenyl | 86 D | 70 - 130 | 02/06/19 18:52 | |

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QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Analyzed:** | 02/06/19 |
| **Sample Matrix:** | Soil | **Date Extracted:** | 02/05/19 |

## Lab Control Sample Summary
## Polychlorinated Biphenyls (PCBs)

| | | | |
|---|---|---|---|
| **Analysis Method:** | 8082A | **Units:** | UG/KG |
| **Prep Method:** | EPA 3546 | **Basis:** | Wet |
| | | **Analysis Lot:** | KWG1900692 |

### Lab Control Sample
### KWG1900617-3

| Analyte Name | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|
| Aroclor 1016 | 75.8 | 100 | 76 | 70-130 |
| Aroclor 1260 | 84.9 | 100 | 85 | 70-130 |

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QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Analyzed:** | 02/07/19 |
| **Sample Matrix:** | Wipe | **Date Extracted:** | 02/05/19 |

## Duplicate Lab Control Sample Summary
## Polychlorinated Biphenyls (PCBs)

| | | | |
|---|---|---|---|
| **Analysis Method:** | 8082A | **Units:** | UG/SAMPLE |
| **Prep Method:** | EPA 3546 | **Basis:** | Wet |
| | | **Analysis Lot:** | KWG1900755 |

| | **Lab Control Sample KWG1900621-1** | | | **Duplicate Lab Control Sample KWG1900621-2** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte Name** | **Result** | **Spike Amount** | **% Rec** | **Result** | **Spike Amount** | **% Rec** | **% Rec Limits** | **RPD** | **RPD Limit** |
| Aroclor 1016 | 0.101 | 0.100 | 101 | 0.0910 | 0.100 | 91 | 70-130 | 10 | 40 |
| Aroclor 1260 | 0.111 | 0.100 | 111 | 0.102 | 0.100 | 102 | 70-130 | 9 | 40 |

# Metals

**ALS Environmental—Kelso Laboratory**
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**ALS Group USA, Corp.**
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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | NA |
| **Sample Matrix:** | Soil | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Basis:** | Dry |
| **Lab Code:** | KQ1901460-03 | | |

## Total Metals

| Analyte Name | Analysis Method | Result | | Units | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 6020A | ND | U | mg/Kg | 0.5 | 0.06 | 5 | 02/12/19 16:57 | 02/04/19 | |
| Cadmium | 6020A | ND | U | mg/Kg | 0.020 | 0.005 | 5 | 02/12/19 16:57 | 02/04/19 | |
| Lead | 6020A | **0.016** | **J** | mg/Kg | 0.05 | 0.005 | 5 | 02/12/19 16:57 | 02/04/19 | |
| Zinc | 6020A | **0.58** | | mg/Kg | 0.5 | 0.10 | 5 | 02/12/19 16:57 | 02/04/19 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | NA |
| **Sample Matrix:** | Wipe | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Basis:** | NA |
| **Lab Code:** | KQ1901505-01 | | |

## Total Metals

| Analyte Name | Analysis Method | Result | | Units | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 6020A | ND | U | ug | 0.5 | 0.06 | 5 | 02/12/19 15:58 | 02/05/19 | |
| Cadmium | 6020A | ND | U | ug | 0.020 | 0.005 | 5 | 02/12/19 15:58 | 02/05/19 | |
| Lead | 6020A | **0.010** | **J** | ug | 0.05 | 0.005 | 5 | 02/12/19 15:58 | 02/05/19 | |
| Zinc | 6020A | **0.24** | **J** | ug | 0.5 | 0.10 | 5 | 02/12/19 15:58 | 02/05/19 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 |
| **Sample Matrix:** | Soil | **Date Received:** | 02/01/19 |
| | | **Date Analyzed:** | 02/12/19 |
| | | **Date Extracted:** | 02/4/19 |

## Matrix Spike Summary
## Total Metals

| | | | |
|---|---|---|---|
| **Sample Name:** | DB4 | **Units:** | mg/Kg |
| **Lab Code:** | K1900914-016 | **Basis:** | Dry |
| **Analysis Method:** | 6020A | | |
| **Prep Method:** | EPA 3050B | | |

### Matrix Spike
KQ1901460-02

| Analyte Name | Sample Result | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Arsenic | 2.97 | 66.2 | 66.4 | 95 | 75-125 |
| Cadmium | 0.463 | 7.32 | 6.64 | 103 | 75-125 |
| Lead | 59.1 | 151 | 66.4 | 139 N | 75-125 |
| Zinc | 283 | 380 | 66.4 | 147 # | 75-125 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**ALS Group USA, Corp.**

**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 |
| **Sample Matrix:** | Soil | **Date Received:** | 02/01/19 |
| | | **Date Analyzed:** | 02/12/19 |

## Replicate Sample Summary
## Total Metals

| | | | |
|---|---|---|---|
| **Sample Name:** | DB4 | **Units:** | mg/Kg |
| **Lab Code:** | K1900914-016 | **Basis:** | Dry |

| Analyte Name | Analysis Method | MRL | MDL | Sample Result | Duplicate Sample KQ1901460-01 Result | Average | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 6020A | 0.31 | 0.04 | 2.97 | 3.55 | 3.26 | 18 | 20 |
| Cadmium | 6020A | 0.012 | 0.003 | 0.463 | 0.656 | 0.560 | 34 * | 20 |
| Lead | 6020A | 0.031 | 0.003 | 59.1 | 89.2 | 74.2 | 41 * | 20 |
| Zinc | 6020A | 0.31 | 0.06 | 283 | 309 | 296 | 9 | 20 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Analyzed:** | 02/12/19 |
| **Sample Matrix:** | Soil | | |

## Lab Control Sample Summary
## Total Metals

**Units:**mg/Kg
**Basis:**Dry

**Lab Control Sample**
KQ1901460-04

| Analyte Name | Analytical Method | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Arsenic | 6020A | 150 | 161 | 93 | 66-122 |
| Cadmium | 6020A | 202 | 225 | 90 | 70-117 |
| Lead | 6020A | 101 | 111 | 91 | 71-129 |
| Zinc | 6020A | 173 | 207 | 83 | 67-125 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ERM West, Inc
**Project:** Yeon SW Source/0487089.04
**Sample Matrix:** Wipe

**Service Request:** K1900914
**Date Analyzed:** 02/12/19

## Duplicate Lab Control Sample Summary
## Total Metals

**Units:**ug
**Basis:**NA

| | | | Lab Control Sample | | Duplicate Lab Control Sample | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | KQ1901505-02 | | KQ1901505-03 | | | | | |
| **Analyte Name** | **Analytical Method** | **Result** | **Spike Amount** | **% Rec** | **Result** | **Spike Amount** | **% Rec** | **% Rec Limits** | **RPD** | **RPD Limit** |
| Arsenic | 6020A | 98.4 | 100 | 98 | 96.3 | 100 | 96 | 80-120 | 2 | 20 |
| Cadmium | 6020A | 10.5 | 10.0 | 105 | 10.1 | 10.0 | 101 | 80-120 | 4 | 20 |
| Lead | 6020A | 101 | 100 | 101 | 99.5 | 100 | 99 | 80-120 | 1 | 20 |
| Zinc | 6020A | 97.3 | 100 | 97 | 94.3 | 100 | 94 | 80-120 | 3 | 20 |

ERM

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**Memo**

| | |
|---|---|
| **To** | Dylan Stankus |
| **From** | Rachel James |
| **Date** | 01 May 2019 |
| **Reference** | 0487089 |
| **Subject** | Revised Data Review of Univar Yeon Wipe and Soil Samples Collected January 31, 2019: ALS Environmental Data Package K1900914. |

The data quality was assessed and any necessary qualifiers were applied following the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*, January 2017 and *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*, January 2017.

***REVISION***

This memorandum was revised to remove the incorrectly applied J+ qualifier from the Aroclor 1260 result for sample DB4. The result was non-detected and was unaffected by the high MS/MSD recoveries.

***CHAIN-OF-CUSTODY DISCREPANCIES***

The laboratory received sample DB-4, but it was not listed on the chain of custody. The laboratory logged the sample in with the analyses indicated on the container label.

***HOLDING TIME AND PRESERVATION EVALUATION***

The samples were prepared and analyzed within the method-prescribed time period from the date of collection. The sample shipment was received at the laboratory above the method-prescribed temperature preservation requirements of less than 6°C at 14.6°C. The laboratory sample receipt form does not indicate that the samples were stored on ice. All results for methods 8270D and 8082A were qualified as estimates (J/UJ) due to the lack of thermal preservation. The exceeded preservation requirement is summarized in Table 1.

***BLANK EVALUATION***

The method blank sample results were nondetected for each of the target analytes with several exceptions. Results within ten times the blank concentration and greater than the reporting limit, as adjusted for dilution, were qualified as estimated with a high bias (J+). Results greater than ten times the blank concentration, as adjusted for dilution, were not qualified. The blank detections and associated data are presented in Table 2.



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***BLANK SPIKE EVALUATION***

The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) recoveries and RPDs were within the laboratory's limits of acceptance. The LCS recoveries and RPDs indicate acceptable laboratory accuracy and precision.

***MATRIX SPIKE EVALUATION***

The matrix spike (MS)/matrix spike duplicate (MSD) recoveries and RPDs were within laboratory limits of acceptance with several exceptions. bis(2-Ethylhexyl)phthalate, Aroclor 1260, lead, and zinc were recovered outside laboratory control limits in spiked sample DB4. The bis(2-ethylhexyl)phthalate and zinc parent sample results were not qualified as they were greater than four times the spike concentration and the Aroclor 1260 result was not qualified as it was non-detected and associated with high recoveries. The lead parent sample result was qualified as an estimate with a high bias (J+) due to the high MS/MSD recoveries. The outliers and associated qualifications can be found in Table 3.

***SURROGATE SPIKE EVALUATION***

The surrogate recoveries were within acceptable limits with two exceptions. PCB surrogate decachlorobiphenyl was recovered outside laboratory limits in two samples. Results were not qualified in sample DB1-5 as the dilution factor was greater than ten. The non-detected results in sample DB3-3B were qualified as estimates (UJ) due to the low surrogate recovery. Surrogate spikes outside control limits and associated data are provided in Table 4.

***LABORATORY DUPLICATE EVALUATION***

The laboratory prepared sample DB4 as a laboratory duplicate for metals analysis. The RPDs between the primary sample and the duplicate were within laboratory control limits, with the exceptions noted on Table 5. The primary results for cadmium and lead were qualified as estimates (J). The detections in the primary and duplicate sample were greater than five times the detection limit and the RPD was above the laboratory control limit.

***FIELD DUPLICATE EVALUATION***

No field duplicates were submitted.

***OVERALL ASSESSMENT***

None of the data required rejection. All of the data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically defensible documents.

***Table 1***
***Samples with Exceeded Preservation Requirements***
***January 2019 Wipe Samples***
***Univar USA, Inc.***
***Portland, Oregon***

| Lab Package | Sample ID | Method | Preservation Condition | Limits | ERM Qualifier |
|---|---|---|---|---|---|
| | | | | | |
| K1900914 | All | 8270D<br>8082A | Cooler temp = 14.6°C | 0 - 6°C | J/UJ |
| | | | | | |

Lab package reviewed: K1900914

*Notes:*
*°C = Degrees Celsius*
*J/UJ = Detected results are estimated; nondetected results are estimated at the report limit*

***Table 2***
***Blank and Associated Suspect Sample Detections***
***January 2019 Wipe Samples***
***Univar USA, Inc.***
***Portland, Oregon***

| Lab Package | Blank ID | Associated Sample | Detected Compound | Reported Concentration | Report Limit | Units | ERM Qualifier |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| K1900914 | MB KQ1901460-03 | -- | Lead | 0.016 | 0.050 | mg/kg | -- |
| | | -- | Zinc | 0.58 | 0.50 | mg/kg | -- |
| | MB KQ1901505-01 | See below | Lead | 0.010 | 0.050 | µg/sample | -- |
| | | -- | Zinc | 0.24 | 0.50 | µg/sample | -- |
| | -- | DB1-3 | Lead | 0.384 | 0.050 | µg/sample | J+ |
| | | | | | | | |

Lab package reviewed: K1900914

*Notes:*
*MB = Method blank*
*mg/kg = Milligrams per kilogram*
*J+ = Detected results are estimated with a high bias*
*µg = Micrograms*

***Table 3***
***Spike Recoveries Outside of Acceptable Limits***
***January 2019 Wipe Samples***
***Univar USA, Inc.***
***Portland, Oregon***

| Lab Package | Spike Sample ID | Associated Sample | Compound | Recovery (%) | Limit (%) | RPD | RPD Limit | Result | Units | ERM Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| MS/MSD | | | | | | | | | | |
| | | | | | | | | | | |
| K1900914 | DB4 MS/MSD | DB4 | Bis(2-ethylhexyl) Phthalate | -35/-22 | 23-123 | 6 | 40 | 4X | -- | -- |
| | | | Aroclor 1260 | 156/166 | 70-130 | 1 | 40 | ND | µg/kg | -- |
| | | | Lead | 139 | 75-125 | -- | -- | 59.1 | mg/kg | J+ |
| | | | Zinc | 147 | 75-125 | -- | -- | 4X | -- | -- |
| | | | | | | | | | | |

Lab package reviewed: K1900914

*Notes:*

*4X = The unspiked sample result was greater than four times the spike concentration*

*J+ = Detected results are estimated with a high bias*

*mg/kg = Milligrams per kilogram*

*MS/MSD - Matrix spike/matrix spike duplicate*

*ND = Not detected*

*RPD = Relative percent difference*

*µg/kg = Micrograms per kilogram*

***Table 4***
***Surrogate Recovery Results out of Acceptable Limits***
***January 2019 Wipe Samples***
***Univar USA, Inc.***
***Portland, Oregon***

| Lab Package | Sample ID | Method | Surrogate | Recovery (%) | Limit (%) | Affected Compound | Dilution Factor | ERM Qualifier |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| K1900914 | DB3-3B | 8082A | Decachlorobiphenyl | 47 | 70-130 | All | 1 | UJ |
| | DB1-5 | 8082A | Decachlorobiphenyl | 83120 | 70-130 | -- | 2000 | -- |
| | | | | | | | | |

Lab package reviewed: K1900914

*Notes:*

*UJ = Nondetected, estimated report limit*

***Table 5***
***Lab Duplicate Results and Calculated Relative Percent Differences***
***January 2019 Wipe Samples***
***Univar USA, Inc.***
***Portland, Oregon***

| Lab Package | Sample ID | Compound | Concentration | | Report Limit | Units | RPD | ERM Qualifier |
|---|---|---|---|---|---|---|---|---|
| | | | Sample | Duplicate | | | | |
| | | | | | | | | |
| K1900914 | DB4 | Cadmium | 0.463 | 0.656 | 0.012 | mg/kg | 34 | J |
| | | Lead | 59.1 | 89.2 | 0.031 | mg/kg | 41 | J |
| | | | | | | | | |

Lab package reviewed: K1900914

*Notes:*
*J = Estimated detected result*
*mg/kg = Milligrams per kilogram*
*RPD = Relative percent difference*

**Pace Analytical Services, LLC**
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December 03, 2019

Dylan Stankus
ERM
1050 SW 6th Avenue
Suite 1650
Portland, OR 97204

RE: Project: Asbestos Univar Portland
Pace Project No.: 10501031

Dear Dylan Stankus:
Enclosed are the analytical results for sample(s) received by the laboratory on November 30, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Melody Kieneker, ERM



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# CERTIFICATIONS

Project: Asbestos Univar Portland
Pace Project No.: 10501031

**Pace Analytical Services Minneapolis**

A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Massachusetts DWP Certification #: via MN 027-053-137
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01



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## SAMPLE SUMMARY

Project: Asbestos Univar Portland
Pace Project No.: 10501031

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **10501031001** | **CottonShed_20191127** | Solid | 11/27/19 12:55 | 11/30/19 09:25 |
| **10501031002** | **1 PaintShed_20191127** | Solid | 11/27/19 13:05 | 11/30/19 09:25 |
| **10501031003** | **2 PaintShed_20191127** | Solid | 11/27/19 13:15 | 11/30/19 09:25 |



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## SAMPLE ANALYTE COUNT

Project: Asbestos Univar Portland
Pace Project No.: 10501031

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **10501031001** | **CottonShed_20191127** | EPA 8082A | JVM | 11 | PASI-M |
| **10501031002** | **1 PaintShed_20191127** | EPA 8082A | JVM | 11 | PASI-M |
| **10501031003** | **2 PaintShed_20191127** | EPA 8082A | JVM | 11 | PASI-M |



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# PROJECT NARRATIVE

Project: Asbestos Univar Portland
Pace Project No.: 10501031

**Method:** **EPA 8082A**
**Description:** 8082A GCS PCB
**Client:** ERM_Univar
**Date:** December 03, 2019

**General Information:**
3 samples were analyzed for EPA 8082A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**
The samples were prepared in accordance with EPA 3550 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits with any exceptions noted below.

QC Batch: 647492

S4: Surrogate recovery not evaluated against control limits due to sample dilution.

- 1 PaintShed_20191127 (Lab ID: 10501031002)
  - Decachlorobiphenyl (S)
  - Tetrachloro-m-xylene (S)
- 2 PaintShed_20191127 (Lab ID: 10501031003)
  - Decachlorobiphenyl (S)
  - Tetrachloro-m-xylene (S)
- CottonShed_20191127 (Lab ID: 10501031001)
  - Decachlorobiphenyl (S)
  - Tetrachloro-m-xylene (S)

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 647492

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**



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# PROJECT NARRATIVE

Project: Asbestos Univar Portland
Pace Project No.: 10501031

**Method:** **EPA 8082A**
**Description:** 8082A GCS PCB
**Client:** ERM_Univar
**Date:** December 03, 2019

This data package has been reviewed for quality and completeness and is approved for release.



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# ANALYTICAL RESULTS

Project: Asbestos Univar Portland
Pace Project No.: 10501031

**Sample: CottonShed_20191127** **Lab ID: 10501031001** Collected: 11/27/19 12:55 Received: 11/30/19 09:25 Matrix: Solid

***Results reported on a "wet-weight" basis***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8082A GCS PCB** | Analytical Method: EPA 8082A Preparation Method: EPA 3550 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | ug/kg | 5960000 | 10000 | 11/30/19 14:09 | 12/03/19 12:56 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | ug/kg | 5960000 | 10000 | 11/30/19 14:09 | 12/03/19 12:56 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | ug/kg | 5960000 | 10000 | 11/30/19 14:09 | 12/03/19 12:56 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | ug/kg | 5960000 | 10000 | 11/30/19 14:09 | 12/03/19 12:56 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | ug/kg | 5960000 | 10000 | 11/30/19 14:09 | 12/03/19 12:56 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | ug/kg | 5960000 | 10000 | 11/30/19 14:09 | 12/03/19 12:56 | 11097-69-1 | |
| PCB-1260 (Aroclor 1260) | ND | ug/kg | 5960000 | 10000 | 11/30/19 14:09 | 12/03/19 12:56 | 11096-82-5 | |
| PCB-1262 (Aroclor 1262) | ND | ug/kg | 5960000 | 10000 | 11/30/19 14:09 | 12/03/19 12:56 | 37324-23-5 | |
| PCB-1268 (Aroclor 1268) | **54300000** | ug/kg | 5960000 | 10000 | 11/30/19 14:09 | 12/03/19 12:56 | 11100-14-4 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 0 | %. | 57-125 | 10000 | 11/30/19 14:09 | 12/03/19 12:56 | 877-09-8 | S4 |
| Decachlorobiphenyl (S) | 0 | %. | 49-125 | 10000 | 11/30/19 14:09 | 12/03/19 12:56 | 2051-24-3 | S4 |

**Sample: 1 PaintShed_20191127** **Lab ID: 10501031002** Collected: 11/27/19 13:05 Received: 11/30/19 09:25 Matrix: Solid

***Results reported on a "wet-weight" basis***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8082A GCS PCB** | Analytical Method: EPA 8082A Preparation Method: EPA 3550 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | ug/kg | 5560000 | 10000 | 11/30/19 14:09 | 12/03/19 13:42 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | ug/kg | 5560000 | 10000 | 11/30/19 14:09 | 12/03/19 13:42 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | ug/kg | 5560000 | 10000 | 11/30/19 14:09 | 12/03/19 13:42 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | ug/kg | 5560000 | 10000 | 11/30/19 14:09 | 12/03/19 13:42 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | ug/kg | 5560000 | 10000 | 11/30/19 14:09 | 12/03/19 13:42 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | ug/kg | 5560000 | 10000 | 11/30/19 14:09 | 12/03/19 13:42 | 11097-69-1 | |
| PCB-1260 (Aroclor 1260) | ND | ug/kg | 5560000 | 10000 | 11/30/19 14:09 | 12/03/19 13:42 | 11096-82-5 | |
| PCB-1262 (Aroclor 1262) | ND | ug/kg | 5560000 | 10000 | 11/30/19 14:09 | 12/03/19 13:42 | 37324-23-5 | |
| PCB-1268 (Aroclor 1268) | **27700000** | ug/kg | 5560000 | 10000 | 11/30/19 14:09 | 12/03/19 13:42 | 11100-14-4 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 0 | %. | 57-125 | 10000 | 11/30/19 14:09 | 12/03/19 13:42 | 877-09-8 | S4 |
| Decachlorobiphenyl (S) | 0 | %. | 49-125 | 10000 | 11/30/19 14:09 | 12/03/19 13:42 | 2051-24-3 | S4 |

**Sample: 2 PaintShed_20191127** **Lab ID: 10501031003** Collected: 11/27/19 13:15 Received: 11/30/19 09:25 Matrix: Solid

***Results reported on a "wet-weight" basis***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8082A GCS PCB** | Analytical Method: EPA 8082A Preparation Method: EPA 3550 | | | | | | | |
| PCB-1016 (Aroclor 1016) | ND | ug/kg | 4110000 | 10000 | 11/30/19 14:09 | 12/03/19 14:27 | 12674-11-2 | |
| PCB-1221 (Aroclor 1221) | ND | ug/kg | 4110000 | 10000 | 11/30/19 14:09 | 12/03/19 14:27 | 11104-28-2 | |
| PCB-1232 (Aroclor 1232) | ND | ug/kg | 4110000 | 10000 | 11/30/19 14:09 | 12/03/19 14:27 | 11141-16-5 | |
| PCB-1242 (Aroclor 1242) | ND | ug/kg | 4110000 | 10000 | 11/30/19 14:09 | 12/03/19 14:27 | 53469-21-9 | |
| PCB-1248 (Aroclor 1248) | ND | ug/kg | 4110000 | 10000 | 11/30/19 14:09 | 12/03/19 14:27 | 12672-29-6 | |
| PCB-1254 (Aroclor 1254) | ND | ug/kg | 4110000 | 10000 | 11/30/19 14:09 | 12/03/19 14:27 | 11097-69-1 | |



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# ANALYTICAL RESULTS

Project: Asbestos Univar Portland
Pace Project No.: 10501031

**Sample: 2 PaintShed_20191127** **Lab ID: 10501031003** Collected: 11/27/19 13:15 Received: 11/30/19 09:25 Matrix: Solid

***Results reported on a "wet-weight" basis***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8082A GCS PCB** | Analytical Method: EPA 8082A Preparation Method: EPA 3550 | | | | | | | |
| PCB-1260 (Aroclor 1260) | ND | ug/kg | 4110000 | 10000 | 11/30/19 14:09 | 12/03/19 14:27 | 11096-82-5 | |
| PCB-1262 (Aroclor 1262) | ND | ug/kg | 4110000 | 10000 | 11/30/19 14:09 | 12/03/19 14:27 | 37324-23-5 | |
| PCB-1268 (Aroclor 1268) | **20800000** | ug/kg | 4110000 | 10000 | 11/30/19 14:09 | 12/03/19 14:27 | 11100-14-4 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 0 | %. | 57-125 | 10000 | 11/30/19 14:09 | 12/03/19 14:27 | 877-09-8 | S4 |
| Decachlorobiphenyl (S) | 0 | %. | 49-125 | 10000 | 11/30/19 14:09 | 12/03/19 14:27 | 2051-24-3 | S4 |



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# QUALITY CONTROL DATA

Project: Asbestos Univar Portland
Pace Project No.: 10501031

QC Batch: 647492 | Analysis Method: EPA 8082A
QC Batch Method: EPA 3550 | Analysis Description: 8082A GCS PCB
Associated Lab Samples: 10501031001, 10501031002, 10501031003

METHOD BLANK: 3484401 | Matrix: Solid
Associated Lab Samples: 10501031001, 10501031002, 10501031003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| PCB-1016 (Aroclor 1016) | ug/kg | ND | 33.0 | 12/03/19 11:24 | |
| PCB-1221 (Aroclor 1221) | ug/kg | ND | 33.0 | 12/03/19 11:24 | |
| PCB-1232 (Aroclor 1232) | ug/kg | ND | 33.0 | 12/03/19 11:24 | |
| PCB-1242 (Aroclor 1242) | ug/kg | ND | 33.0 | 12/03/19 11:24 | |
| PCB-1248 (Aroclor 1248) | ug/kg | ND | 33.0 | 12/03/19 11:24 | |
| PCB-1254 (Aroclor 1254) | ug/kg | ND | 33.0 | 12/03/19 11:24 | |
| PCB-1260 (Aroclor 1260) | ug/kg | ND | 33.0 | 12/03/19 11:24 | |
| PCB-1262 (Aroclor 1262) | ug/kg | ND | 33.0 | 12/03/19 11:24 | |
| PCB-1268 (Aroclor 1268) | ug/kg | ND | 33.0 | 12/03/19 11:24 | |
| Decachlorobiphenyl (S) | %. | 91 | 49-125 | 12/03/19 11:24 | |
| Tetrachloro-m-xylene (S) | %. | 89 | 57-125 | 12/03/19 11:24 | |

LABORATORY CONTROL SAMPLE & LCSD: 3484402 3484408

| Parameter | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| PCB-1016 (Aroclor 1016) | ug/kg | 667 | 583 | 589 | 87 | 88 | 69-125 | 1 | 20 | |
| PCB-1260 (Aroclor 1260) | ug/kg | 667 | 586 | 593 | 88 | 89 | 63-125 | 1 | 20 | |
| Decachlorobiphenyl (S) | %. | | | | 97 | 99 | 49-125 | | | |
| Tetrachloro-m-xylene (S) | %. | | | | 93 | 94 | 57-125 | | | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**



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# QUALIFIERS

Project: Asbestos Univar Portland
Pace Project No.: 10501031

## DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

## WORKORDER QUALIFIERS

WO: 10501031

[1] The samples were received outside of required temperature range. Analysis was completed upon client approval.

## BATCH QUALIFIERS

Batch: 647511

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

## ANALYTE QUALIFIERS

S4 Surrogate recovery not evaluated against control limits due to sample dilution.



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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Asbestos Univar Portland
Pace Project No.: 10501031

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **10501031001** | **CottonShed_20191127** | EPA 3550 | 647492 | EPA 8082A | 647511 |
| **10501031002** | **1 PaintShed_20191127** | EPA 3550 | 647492 | EPA 8082A | 647511 |
| **10501031003** | **2 PaintShed_20191127** | EPA 3550 | 647492 | EPA 8082A | 647511 |



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# CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

WO#: 10501031

10501031

Company: ERM

Billing Information: ERM

Address: 1050 SW 6th ave Ste 1650 Portland OR

Report To: DYLAN.STANKUS@ERM.com → DYLAN STANKUS

Email To:

Copy To: MELODY.KIENEKER@ERM.com

Site Collection Info/Address: Univar YCOM

Customer Project Name/Number: ASBESTOS Univar Portland

State: OR County/City: Time Zone Collected: [ ]PT [ ]MT [ ]CT [ ]ET

Phone: Email: (425) 753-0765

Site/Facility ID #:

Compliance Monitoring? [ ] Yes [X] No

Collected By (print): Melody Kieneker

Purchase Order #: Quote #: 00069294

DW PWS ID #: DW Location Code:

Collected By (signature):

Turnaround Date Required: 24HR TAT

Immediately Packed on Ice: [X] Yes [ ] No

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:

Rush: [ ] Same Day [X] Next Day 24HR [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [X] No

Analysis:

LAB Number or

Container Preservative Type **

Lab Project Manager: Jennifer Gross

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses: EPA 8082 PCBs (U)

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

| Customer Sample ID | Matrix * | Comp / Grab | Collected (or Composite Start) Date | Collected (or Composite Start) Time | Composite End Date | Composite End Time | Res Cl | # of Ctns | EPA 8082 PCBs (U) | Lab Sample # / Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| cottonShed_20191127 | solid | grab | 11/27/19 | 1255 | | | | 1 | X | Samples in small plastic bag. Analyze full contents of bag |
| 1PaintShed_20191127 | Solid | | | 1305 | | | | 1 | X | |
| 2PaintShed_20191127 | solid | | | 1315 | | | | 1 | X | |

Lab Profile/Line:

Lab Sample Receipt Checklist:
- Custody Seals Present/Intact Y N NA
- Custody Signatures Present Y N NA
- Collector Signature Present Y N NA
- Bottles Intact Y N NA
- Correct Bottles Y N NA
- Sufficient Volume Y N NA
- Samples Received on Ice Y N NA
- VOA - Headspace Acceptable Y N NA
- USDA Regulated Soils Y N NA
- Samples in Holding Time Y N NA
- Residual Chlorine Present Y N NA
- Cl Strips:
- Sample pH Acceptable Y N NA
- pH Strips:
- Sulfide Present Y N NA
- Lead Acetate Strips:

LAB USE ONLY:
Lab Sample # / Comments:

Unpreserved samples on wet ice

Customer Remarks / Special Conditions / Possible Hazards: Suspect/ asbestos containing material/tile, assume asbestos

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #:

Samples received via: FEDEX UPS Client Courier Pace Courier

LAB Sample Temperature Info:
- Temp Blank Received: Y N NA
- Therm ID#:
- Cooler 1 Temp Upon Receipt: oC
- Cooler 1 Therm Corr. Factor: oC
- Cooler 1 Corrected Temp: 4.9 oC
- Comments:

| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: |
|---|---|---|---|
| Melody Kieneker ERM | 11/29/19 1335 | PACE | 11-30-19 925 |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: |

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: of:

| Pace Analytical® | Document Name: **Sample Condition Upon Receipt Form** | Document Revised: 14Nov2019 Page 1 of 1 |
|---|---|---|
| | Document No.: **F-MN-L-213-rev.30** | Pace Analytical Services - **Minneapolis** |

**Sample Condition Upon Receipt**

**Client Name:** ERM

**Project #:** WO#: 10501031
PM: JMG Due Date: 12/03/19
CLIENT: ERM_Univar

**Courier:** [X] Fed Ex [ ] UPS [ ] USPS [ ] Client [ ] Pace [ ] SpeeDee [ ] Commercial **See Exceptions** [ ]

**Tracking Number:** 7784 1308 1310

**Custody Seal on Cooler/Box Present?** [ ] Yes [X] No **Seals Intact?** [ ] Yes [X] No **Biological Tissue Frozen?** [ ] Yes [ ] No [X] N/A

**Packing Material:** [X] ~~Bubble Wrap~~ [ ] Bubble Bags [ ] None [X] Other: Paper **Temp Blank?** [ ] Yes [X] No

MM 11.30.19

**Thermometer:** [ ] T1(0461) [X] T2(1336) [ ] T3(0459) [ ] T4(0254) [ ] T5(0489) **Type of Ice:** [X] Wet [ ] Blue [ ] None [ ] Dry [ ] Melted

**Note: Each West Virginia Sample must have temp taken (no temp blanks)**

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** _____ °C

**Correction Factor:** +0.1 **Cooler Temp Corrected w/temp blank :** _____ °C

**Average Corrected Temp (no temp blank only):** [X] **See Exceptions** [ ] **1 Container** 14.9 °C

**USDA Regulated Soil:** ([X] N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** MM 11.30.19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? [ ] Yes [X] No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? [ ] Yes [ ] No

**If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.**

| | | | | COMMENTS: |
|---|---|---|---|---|
| Chain of Custody Present and Filled Out? | [X] Yes | [ ] No | | 1. |
| Chain of Custody Relinquished? | [X] Yes | [ ] No | | 2. |
| Sampler Name and/or Signature on COC? | [X] Yes | [ ] No | [ ] N/A | 3. |
| Samples Arrived within Hold Time? | [X] Yes | [ ] No | | 4. |
| **Short Hold Time Analysis (<72 hr)?** | [ ] Yes | [X] No | | 5. [ ] Fecal Coliform [ ] HPC [ ] Total Coliform/E coli [ ] BOD/cBOD [ ] Hex Chrome [ ] Turbidity [ ] Nitrate [ ] Nitrite [ ] Orthophos [ ] Other_____ |
| **Rush Turn Around Time Requested?** | [X] Yes | [ ] No | | 6. |
| Sufficient Volume? | [X] Yes | [ ] No | | 7. |
| Correct Containers Used? | [X] Yes | [ ] No | | 8. |
| -Pace Containers Used? | [ ] Yes | [X] No | | |
| Containers Intact? | [X] Yes | [ ] No | | 9. |
| Field Filtered Volume Received for Dissolved Tests? | [ ] Yes | [ ] No | [X] N/A | 10. Is sediment visible in the dissolved container? [ ] Yes [ ] No |
| Is sufficient information available to reconcile the samples to the COC? | [X] Yes | [ ] No | | 11. **If no, write ID/ Date/Time on Container Below:** **See Exception** [ ] |
| Matrix: [ ] Water [ ] Soil [ ] Oil [X] Other Wood Siding - JMG 120119 | | | | |
| All containers needing acid/base preservation have been checked? | [ ] Yes | [ ] No | [X] N/A | 12. Sample # |
| All containers needing preservation are found to be in compliance with EPA recommendation? ($HNO_3$, $H_2SO_4$, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide) | [ ] Yes | [ ] No | [X] N/A | [ ] NaOH [ ] $HNO_3$ [ ] $H_2SO_4$ [ ] Zinc Acetate |
| Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS | [ ] Yes | [ ] No | [X] N/A | Positive for Res. Chlorine? [ ] Yes [ ] No **pH Paper Lot#** **See Exception** [ ] |
| | | | | Res. Chlorine / 0-6 Roll / 0-6 Strip / 0-14 Strip |
| Extra labels present on soil VOA or WIDRO containers? | [ ] Yes | [ ] No | [X] N/A | 13. **See Exception** [ ] |
| Headspace in VOA Vials (greater than 6mm)? | [ ] Yes | [ ] No | [X] N/A | |
| Trip Blank Present? | [ ] Yes | [ ] No | [X] N/A | 14. |
| Trip Blank Custody Seals Present? | [ ] Yes | [ ] No | [X] N/A | Pace Trip Blank Lot # (if purchased): _____ |

**CLIENT NOTIFICATION/RESOLUTION** **Field Data Required?** [ ] Yes [ ] No

Person Contacted: Dylan Stankus Date/Time: 112719 10:45 - Phone

Comments/Resolution: Okay to proceed over temperature.

**Project Manager Review:** Jenni Gross **Date:** 120119

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: _____

| Pace Analytical® | Document Name: **SCUR Exception Form – Coolers Above 6°C** | Document Revised: 08Apr2019 Page 1 of 1 |
|---|---|---|
| | Document No.: **F-MN-C-298-Rev.02** | Issuing Authority: Pace Minnesota Quality Office |

**During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius**

**SCUR Exceptions:** **Workorder #:**

| Out of Temp Sample IDs | Container Type | # of Containers |
|---|---|---|
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**PM Notified?** ☐Yes ☐No

If yes, indicate who was contacted/date/time.
If no, indicate reason why.

**Multiple Cooler Project?** ☐Yes ☐No
If you answered yes, fill out information to the left.

**No Temp Blank**

| Read Temp | Corrected Temp | Average Temp |
|---|---|---|
| 15.5 | 15.6 | 14.9 |
| 14.5 | 14.6 | |
| 14.6 | 14.7 | |
| | | |

| Tracking Number/Temperature | |
|---|---|
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**Other Issues**

| Issue Type: Sample ID | Container Type | # of Containers |
|---|---|---|
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## pH Adjustment Log for Preserved Samples

| Sample ID | Type of Preserv. | pH Upon Receipt | Date Adjusted | Time Adjusted | Amount Added (mL) | Lot # Added | pH After | In Compliance after addition? | Initials |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | ☐Yes ☐No | |
| | | | | | | | | ☐Yes ☐No | |
| | | | | | | | | ☐Yes ☐No | |
| | | | | | | | | ☐Yes ☐No | |

ERM

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Suite 1650
Portland, OR 97204

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Fax: (503) 488-5124

www.erm.com

**Memorandum**

| | |
|---|---|
| **To** | Dylan Stankus |
| **From** | Rachel James and Jane Whitsett |
| **Date** | 11 December 2019 |
| **Reference** | 0514539 |
| **Subject** | Data Review of Univar Yeon Wood Siding Samples, November 2019: Pace Analytical Data Package 10501031. |

The data quality was assessed and any necessary qualifiers were applied following the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*, January 2017 and *USEPA Method 8082A Polychlorinated Biphenyls (PCBs) By Gas Chromatography*, February 2007.

***PRESERVATION EVALUATION***

The sample shipment was received at 14.9°C, which was above the temperature preservation requirement of less than or equal to 6°C. The samples were in transit for less than 24 hours and the laboratory noted that wet ice was present in the cooler. ERM was notified of the temperature exceedance and advised Pace to proceed with analysis. The results have been qualified as estimates (J/UJ) due to the temperature exceedance and are displayed in Table 1.

***HOLDING TIME EVALUATION***

The samples were prepared within the 14 day holding time and analyzed within the 40 day holding time.

***INITIAL CALIBRATION***

The laboratory performed five-point calibrations for Aroclors 1016 and 1260 and one-point calibrations for Aroclors 1221, 1232, 1242, 1248, 1254, 1262, and 1268 as required by the method. The retention time windows were correctly calculated as ± 0.07 minutes of the initial calibration standard mean retention times. The percent relative standard deviation (%RSD) of the calibration factors were less than the method requirement of 20% for Aroclors 1016 and 1260. Although the referenced EPA Method 8082A does not specifically require it, National Functional Guidelines states that if any other Aroclor is identified in a project sample, the laboratory must confirm its identification and quantitation using a valid five-point calibration. Aroclor 1268 was detected in all three project samples and the laboratory did not perform a five-point calibration for Aroclor 1268. All Aroclor 1268 results have been qualified as estimates (J) due to the lack of a valid five-point calibration and are displayed in Table 2.



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***CONTINUING CALIBRATION VERIFICATION EVALUATION***

The laboratory performed an opening continuing calibration verification (CCV) and a closing CCV with each 12-hour analytical sequence for Aroclors 1016 and 1260. The retention times were within the windows determined during initial calibration and the percent differences for the calibration factors were within the method requirement of 20%. Although the referenced EPA Method 8082A does not specifically require it, National Functional Guidelines states that if any other Aroclor is identified in a project sample, the laboratory must analyze a mid-point initial calibration standard for that Aroclor as part of the opening and closing CCV. All Aroclor 1268 results have been qualified as estimates (J) due to the lack of opening and closing CCVs and are displayed in Table 3.

***BLANK EVALUATION***

The method blank sample results were nondetected for each of the target analytes. No data were qualified on the basis of the blank evaluation. The blank results indicate that no contaminants were introduced to the samples during processing or analysis in the laboratory.

***BLANK SPIKE EVALUATION***

The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) recoveries and relative percent differences (RPDs) were within the laboratory's limits of acceptance. The LCS recoveries and RPDs indicate acceptable laboratory accuracy and precision.

***MATRIX SPIKE EVALUATION***

The laboratory stated that a matrix spike and matrix spike duplicate was not performed due to insufficient sample volume; therefore, it is not possible to determine accuracy and precision in the specific project matrix.

***SURROGATE SPIKE EVALUATION***

The surrogate recoveries were diluted out (0% recovery) for all three project samples due to the dilution factor of 10,000. No qualifications were necessary. The surrogate recoveries are displayed in Table 4.

***TARGET ANALYTE IDENTIFICATION***

Based on review of chromatograms for each sample and Aroclors 1260 and 1268 calibration standards the Aroclors in each sample are primarily Aroclor 1268 plus a lesser amount of Aroclor 1260. Aroclors 1260 and 1268 have very similar PCB compositions such that there are PCB compounds common to both Aroclors. The review was conducted on samples that were analysed at a dilution factor of 10,000. At this dilution factor there are two peaks in all of the sample chromatograms that are in Aroclor 1260 only, four peaks that are in Aroclors 1260 and 1268 and three peaks that are in Aroclor 1268 only. This data indicates that the samples are a mixture of Aroclors 1260 and 1268. Refer to Attachment 1 as an example of the Aroclor peak identification assessment.

***CONFIRMATION EVALUATION***

The laboratory confirmed the accuracy of detected results using a secondary analytical column. The relative percent difference between reported results was 5.6% or less, indicating acceptable accuracy.

***RESULT RECALCULATION***

All result recalculations agreed with reported results. The calculations are displayed in Table 5.

***OVERALL ASSESSMENT***

All results are considered estimated (J/UJ) due to the high receipt temperature. Additionally, the detected Aroclor 1268 results are considered estimated (J) due to the lack of a valid five-point initial calibration for Aroclor 1268 and the lack of opening and closing CCVs. Analysis of each sample using a five-point calibration for Aroclor 1268 would yield more accurate results. Additionally, analysis of each sample at a lower dilution would allow for better identification and quantification of Aroclor 1260.

***Table 1***
***Samples with Exceeded Preservation Requirements***
***Wood Siding Samples Collected at Univar NW Yeon Facility November 27, 2019***
***Univar USA, Inc.***
***Portland, Oregon***

| Lab Package | Sample ID | Method | Preservation Condition | Limits | ERM Qualifier |
|---|---|---|---|---|---|
| | | | | | |
| 10501031 | CottonShed_20191127 | 8082A | Cooler temperature at receipt = 14.9°C | ≤ 6°C | J/UJ |
| | 1 PaintShed_20191127 | | | | |
| | 2 PaintShed_20191127 | | | | |
| | | | | | |

Lab package reviewed: 10501031

*Notes:*
*°C = Degrees Celsius*
*J/UJ = Detected results are estimated; nondetected results are estimated at the report limit*

***Table 2***
***Initial Calibration Exceedances***
***Wood Siding Samples Collected at Univar NW Yeon Facility November 27, 2019***
***Univar USA, Inc.***
***Portland, Oregon***

| Lab Package | Compound | Calibration Exceedance | Associated Sample | Reported Concentration | Units | ERM Qualifier |
|---|---|---|---|---|---|---|
| | | | | | | |
| 10501031 | Aroclor 1268 | Five-point calibration not performed | CottonShed_20191127 | 54300000 | µg/kg | J |
| | | | 1 PaintShed_20191127 | 27700000 | µg/kg | J |
| | | | 2 PaintShed_20191127 | 20800000 | µg/kg | J |
| | | | | | | |

Lab package reviewed: 10501031

*Notes:*
*J = Estimated detected result*
*µg/kg = Micrograms per kilogram*

***Table 3***
***Calibration Verification Recoveries Outside of Acceptable Limits***
***Wood Siding Samples Collected at Univar NW Yeon Facility November 27, 2019***
***Univar USA, Inc.***
***Portland, Oregon***

| Lab Package | CCV Sample ID | Compound | CCV Recovery (%) | CCV Limits (%) | Associated Sample | Reported Concentration | Units | ERM Qualifier |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| 10501031 | CCV not present | Aroclor 1268 | NR | NR | CottonShed_20191127 | 54300000 | µg/kg | J |
| | | | | | 1 PaintShed_20191127 | 27700000 | µg/kg | J |
| | | | | | 2 PaintShed_20191127 | 20800000 | µg/kg | J |
| | | | | | | | | |

Lab package reviewed: 10501031

*Notes:*
*CCV = Continuing calibration verification*
*J = Estimated detected result*
*NR = Not reported*
*µg/kg = Micrograms per kilogram*

***Table 4***
***Surrogate Recovery Results out of Acceptable Limits***
***Wood Siding Samples Collected at Univar NW Yeon Facility November 27, 2019***
***Univar USA, Inc.***
***Portland, Oregon***

| Lab Package | Sample ID | Method | Surrogate | Recovery (%) | Limit (%) | Affected Compound | Dilution Factor | ERM Qualifier |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| 10501031 | CottonShed_20191127 | 8082A | Tetrachloro-m-xylene | 0 | 57-125 | None for qualification | 10,000 | -- |
| | | | Decachlorobiphenyl | 0 | 49-125 | | | |
| | 1 PaintShed_20191127 | 8082A | Tetrachloro-m-xylene | 0 | 57-125 | None for qualification | 10,000 | -- |
| | | | Decachlorobiphenyl | 0 | 49-125 | | | |
| | 2 PaintShed_20191127 | 8082A | Tetrachloro-m-xylene | 0 | 57-125 | None for qualification | 10,000 | -- |
| | | | Decachlorobiphenyl | 0 | 49-125 | | | |
| | | | | | | | | |

Lab package reviewed: 10501031

***Table 5***
***Result Recalculations***
***Wood Siding Samples Collected at Univar NW Yeon Facility November 27, 2019***
***Univar USA, Inc.***
***Portland, Oregon***

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SDG | 10501031 | Peak 1 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 200464880 / 236386860 | x | 10000 | x | 10000 / 1 x 1.66 | = | 51086586 | **Data Package Page Numbers** | |
| Sample ID | CottonShed_20191127 | | | | | | | | | | | | | | | | | Sample Result Forms | 9, 21 |
| Lab ID | 10501031001 | | | | | | | | | | | | | | | | | Sample Raw Data | 34 |
| Analyte | Aroclor 1268 | Peak 2 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 207162761 / 216047633 | x | 10000 | x | 10000 / 1 x 1.66 | = | 57763578 | ICAL Summary | 96 |
| Reported Result (µg/kg) | 54300000 | | | | | | | | | | | | | | | | | Prep | 532 |
| | | Peak 3 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 65575258 / 176872497 | x | 10000 | x | 10000 / 1 x 1.66 | = | 22334262 | | |
| | | Peak 4 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 134155229 / 76797226 | x | 10000 | x | 10000 / 1 x 1.66 | = | 105233492 | | |
| | | Peak 5 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 338945590 / 582439456 | x | 10000 | x | 10000 / 1 x 1.66 | = | 35056706 | Reported Result (µg/kg) | 54300000 |
| | | | **Final Conc (µg/kg)** | **=** | **Average of Peaks 1 - 5** | **=** | **54294925** | | | | | | | | | | | Calculated Result (µg/kg) | 54294925 |
| | | | | | | | | | | | | | | | | | | Verifies? | TRUE |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SDG | 10501031 | Peak 1 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 33496555 / 60822416.5 | x | 10000 | x | 10000 / 1 x 1.78 | = | 30939727 | **Data Package Page Numbers** | |
| Sample ID | 1 PaintShed_20191127 | | | | | | | | | | | | | | | | | Sample Result Forms | 9, 39 |
| Lab ID | 10501031002 | | | | | | | | | | | | | | | | | Sample Raw Data | 44 |
| Analyte | Aroclor 1268 | Peak 2 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 131220848 / 272377792 | x | 10000 | x | 10000 / 1 x 1.78 | = | 27065194 | ICAL Summary | 89 |
| Reported Result (µg/kg) | 27700000 | | | | | | | | | | | | | | | | | Prep | 532 |
| | | Peak 3 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 38542199 / 219626470 | x | 10000 | x | 10000 / 1 x 1.78 | = | 9858976 | | |
| | | Peak 4 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 91113389 / 91152269.5 | x | 10000 | x | 10000 / 1 x 1.78 | = | 56155812 | | |
| | | Peak 5 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 176096000 / 687118726 | x | 10000 | x | 10000 / 1 x 1.78 | = | 14397852 | Reported Result (µg/kg) | 27700000 |
| | | | **Final Conc (µg/kg)** | **=** | **Average of Peaks 1 - 5** | **=** | **27683512** | | | | | | | | | | | Calculated Result (µg/kg) | 27683512 |
| | | | | | | | | | | | | | | | | | | Verifies? | TRUE |

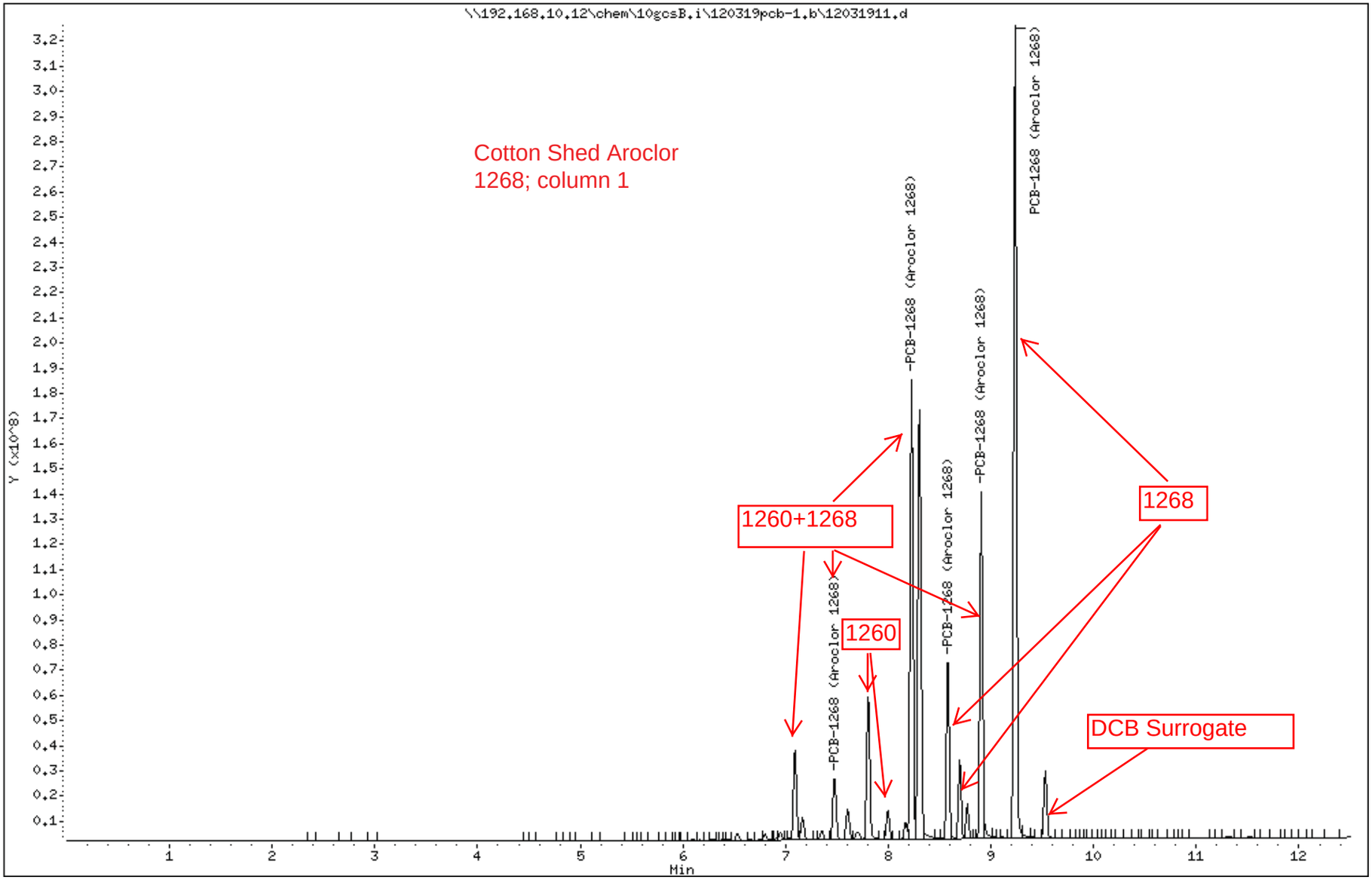
| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SDG | 10501031 | Peak 1 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 117199863 / 236386860 | x | 10000 | x | 10000 / 1 x 2.41 | = | 20572484 | **Data Package Page Numbers** | |
| Sample ID | 2 PaintShed_20191127 | | | | | | | | | | | | | | | | | Sample Result Forms | 9-10, 58 |
| Lab ID | 10501031003 | | | | | | | | | | | | | | | | | Sample Raw Data | 70 |
| Analyte | Aroclor 1268 | Peak 2 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 119682608 / 216047633 | x | 10000 | x | 10000 / 1 x 2.41 | = | 22986058 | ICAL Summary | 96 |
| Reported Result (µg/kg) | 20800000 | | | | | | | | | | | | | | | | | Prep | 532 |
| | | Peak 3 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 34657900 / 176872497 | x | 10000 | x | 10000 / 1 x 2.41 | = | 8130643 | | |
| | | Peak 4 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 75939392 / 76797226 | x | 10000 | x | 10000 / 1 x 2.41 | = | 41030286 | | |
| | | Peak 5 | Concentration (µg/kg) | = | Analtye Area / RF | x | Dilution Factor | x | Final extract volume (µL) / Volume injected (µL) x Mass of sample extracted (g) | = | 156024149 / 582439456 | x | 10000 | x | 10000 / 1 x 2.41 | = | 11115372 | Reported Result (µg/kg) | 20800000 |
| | | | **Final Conc (µg/kg)** | **=** | **Average of Peaks 1 - 5** | **=** | **20766968** | | | | | | | | | | | Calculated Result (µg/kg) | 20766968 |
| | | | | | | | | | | | | | | | | | | Verifies? | TRUE |

***Attachment 1***
***CottonShed_20191127 Aroclor Peak Identification***

Data File: \\192.168.10.12\chem\10gcsB.i\120319pcb-1.b\12031911.d
Date : 03-DEC-2019 12:56
Client ID: CottonShed_20191127
Sample Info: 10501031001X10000,
Volume Injected (uL): 1.0
Column phase: CLP Pest UST375845H

Instrument: 10gcsB.i
Operator: JVM
Column diameter: 0.32

Page 6



# ATTACHMENT C SIDING AND STORMWATER MANIFESTS

562 10yrs 2003250077G 41040# 1.832kg

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

**UNIFORM HAZARDOUS WASTE MANIFEST**

1. Generator ID Number: ORD009237398
2. Page 1 of 1
3. Emergency Response Phone: 800-899-4677
4. Manifest Tracking Number: 011398613 JJK

5. Generator's Name and Mailing Address: UNIVAR USA INC, 3950 NW YEON AVE, PORTLAND, OR 97210 Att: LESLIE BENSON
Generator's Site Address (if different than mailing address)
Generator's Phone: 253-214-7377

6. Transporter 1 Company Name: NRC Environmental — U.S. EPA ID Number: CAD 000 3014

7. Transporter 2 Company Name — U.S. EPA ID Number:

8. Designated Facility Name and Site Address: US Ecology, 20400 Lemley Road, Grandview, ID 83624 — U.S. EPA ID Number: IDD073114654
Facility's Phone: 208-834-2275

| 9a. HM | 9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit Wt./Vol. | 13. Waste Codes |
|---|---|---|---|---|---|---|
| X | 1. RQ, UN3432, Polychlorinated Biphenyls, solid, 9, PG II | 001 | CM | 4,400 | K | |
| | 2. | | | | | |
| | 3. | | | | | |
| | 4. | | | | | |

14. Special Handling Instructions and Additional Information
1) US Ecology Profile # 50384-D NRC PO/Job # 148874

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Rick Smith — Signature: [signature] — Month 03 Day 24 Year 2020

**INT'L**

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

**TRANSPORTER**

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Reverardo Mosqueda — Signature: [signature] — Month 03 Day 24 Year 20
Transporter 2 Printed/Typed Name — Signature — Month Day Year

**DESIGNATED FACILITY**

18. Discrepancy
18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
DRIVER RELEASED PENDING RESOLUTION. ACTUAL RECEIVED 1832kg. 3-25-2020
Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H132 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Milo Ottaway — Signature: Ottaway — Month 3 Day 25 Year 2020

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. **DESIGNATED FACILITY TO GENERATOR**

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator ID Number

2. Page 1 of 01

3. Emergency Response Phone

4. Waste Tracking Number [illegible]

GENERATOR

5. Generator's Name and Mailing Address
UNIVAC 3950 NW VIEW
PDX, OR. 97210

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name
NRC/W.S. FOODY

U.S. EPA ID Number
CAD000630114

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
WILSONVILLE WASTE MANAGEMENT 3205 SE MINTER BRIDGE RD. WILSONVILLE, OR. 97123

U.S. EPA ID Number

Facility's Phone:

| | 9. Waste Shipping Name and Description | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit Wt./Vol. | |
|---|---|---|---|---|---|---|
| | 1. [illegible] | 01 | TT | 1500 | GL | |
| | 2. | | | | | |
| | 3. | | | | | |
| | 4. | | | | | |

13. Special Handling Instructions and Additional Information
TRUCK # 22257
[illegible]

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name [illegible] Signature [illegible] Month Day Year

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name LEON ST [illegible] Signature [illegible] Month 2 Day 25 Year [illegible]

Transporter 2 Printed/Typed Name Signature Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name Signature Month Day Year

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator ID Number

2. Page 1 of 1

3. Emergency Response Phone 800 424 4NRC

4. Waste Tracking Number B3126[illegible]-02

5. Generator's Name and Mailing Address: INNOVARE SOLUTIONS 3150 NORTH [illegible] PAUL OK 74110

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name: NRC / UC Ecology

U.S. EPA ID Number: CAR000[illegible]014

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address: HILL DRIVE LANDFILL 3150 SW MINTER BRIDGE HILLSBORO OR

U.S. EPA ID Number

Facility's Phone:

| | 9. Waste Shipping Name and Description | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit Wt./Vol. | |
|---|---|---|---|---|---|---|
| 1. | CATCH BASIN DEBRIS NOT DOT REGULATED | 1 | TT | 500 | GAL | |
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |

13. Special Handling Instructions and Additional Information

Profile # [illegible] OK Job # [illegible] Tank # [illegible]

**14. GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name | Signature | Month | Day | Year

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Kenny Kirkland | Signature: KKirkland | Month: 8 | Day: 29 | Year: 20

Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) | U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) | Month | Day | Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name | Signature | Month | Day | Year

GENERATOR | INT'L | TRANSPORTER | DESIGNATED FACILITY

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

**4. Waste Tracking Number**

5. Generator's Name and Mailing Address

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

U.S. EPA ID Number

Facility's Phone:

| | 9. Waste Shipping Name and Description | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit Wt./Vol. | |
|---|---|---|---|---|---|---|
| | 1. | | | | | |
| | 2. | | | | | |
| | 3. | | | | | |
| | 4. | | | | | |

13. Special Handling Instructions and Additional Information

**14. GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name | Signature | Month | Day | Year

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name | Signature | Month | Day | Year

Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) | Month | Day | Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name | Signature | Month | Day | Year

GENERATOR

INT'L

TRANSPORTER

DESIGNATED FACILITY

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator ID Number

2. Page 1 of 01

3. Emergency Response Phone

4. Waste Tracking Number

5. Generator's Name and Mailing Address

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

U.S. EPA ID Number

Facility's Phone:

| | 9. Waste Shipping Name and Description | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit Wt./Vol. | |
|---|---|---|---|---|---|---|
| 1. | | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name | Signature | Month | Day | Year

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name | Signature | Month | Day | Year

Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) | Month | Day | Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name | Signature | Month | Day | Year

GENERATOR | INT'L | TRANSPORTER | DESIGNATED FACILITY

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator ID Number

2. Page 1 of 01

3. Emergency Response Phone 800 899 4NRC

4. Waste Tracking Number 82720-001

5. Generator's Name and Mailing Address
United Solutions 3950 NW Yeon Portland OR 97210

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name
NRC / US Ecology

U.S. EPA ID Number CHR000030114

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Hillsboro Landfill 3256 Minter Bridge Rd Hillsboro, OR

U.S. EPA ID Number

Facility's Phone:

| | 9. Waste Shipping Name and Description | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit Wt./Vol. | |
|---|---|---|---|---|---|---|
| 1. | NOT DOT REGULATED CATCH BASIN WATER | 01 | TT | ~~350~~ 350 | GAL | |
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |

13. Special Handling Instructions and Additional Information
Truck 2256
Pallets 123624 OR

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Leslie Benson for United Solutions

Signature: [signature]

Month 08 Day 27 Year 20

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Kevin Kirkland

Signature: [signature]

Month 8 Day 27 Year 20

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

Month Day Year

GENERATOR

INT'L

TRANSPORTER

DESIGNATED FACILITY

169-BLC-O 5 11977 (Rev. 9/09)

GENERATOR'S/SHIPPER'S INITIAL COPY

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator ID Number

2. Page 1 of 01

3. Emergency Response Phone

4. Waste Tracking Number 904[illegible]

5. Generator's Name and Mailing Address
UNWAC 3950 NW YEON
PORTLAND, OR. 97210

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name
NVC LOGISTICS

U.S. EPA ID Number CAR000030114

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
WASTE MANAGEMENT HILLSBORO LANDFILL
3205 SE MINTER BRIDGE RD.
HILLSBORO, OR. 97123

U.S. EPA ID Number

Facility's Phone:

| 9. Waste Shipping Name and Description | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit Wt./Vol. | |
|---|---|---|---|---|---|
| 1. CAUSTIC SODA WASTE NON DOT REGULATED | 01 | TT | 1500 | GL | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |

13. Special Handling Instructions and Additional Information
TRUCK # [illegible]
JOB # 1[illegible]
PROFILE # 133624CK

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name

Signature

Month Day Year

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name
LEON SERVICE

Signature

Month 9 Day 4 Year 20

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

Month Day Year

GENERATOR

INT'L

TRANSPORTER

DESIGNATED FACILITY

169-BLS-C 6 10497 (Rev. 9/09)

GENERATOR'S/SHIPPER'S INITIAL COPY

# TSCA CERTIFICATE OF DISPOSAL

**March 28,2020**

UNIVAR USA INC.
3950 NW YEON AVENUE
PORTLAND, OR 97210

This is to certify that waste as defined on Waste Manifest number **011398613JJK** was received by U.S. Ecology, Inc., on **03/25/2020** .The waste(s) were subsequently managed as required by U.S. Ecology's Part B and/or TSCA permits where applicable and disposed of on **03/25/2020** in accordance with permits and laws regulating this facility.

**Customer Manifest#:**

**State Manifest #:** 011398613JJK

**Page/Ln:** 1/1

**Material:** 1 ROLL-OFF

**Process:** Direct Landfill

**Management Code:** H132 Landfill or surface impoundment that will be closed as landfill

**Facility:** US ECOLOGY IDAHO, INC.
20400 LEMLEY ROAD
GRAND VIEW, ID 83624
EPA ID: IDD073114654

**Waste Stream #:** 50384-0

**Customer:** NRC ENVIRONMENTAL SERVICES, INC.

*Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations [18 U.S.C. 1001 and 15 U.S.C. 2615], I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true,accurate, and complete.*

**Printed Name:** CORIAN SCHMITZ

**Signature:** Corian Schmitz

**Title:** RECEIVING CLERK

# APPENDIX D FILTER MEDIA SPECIFICATION SHEETS

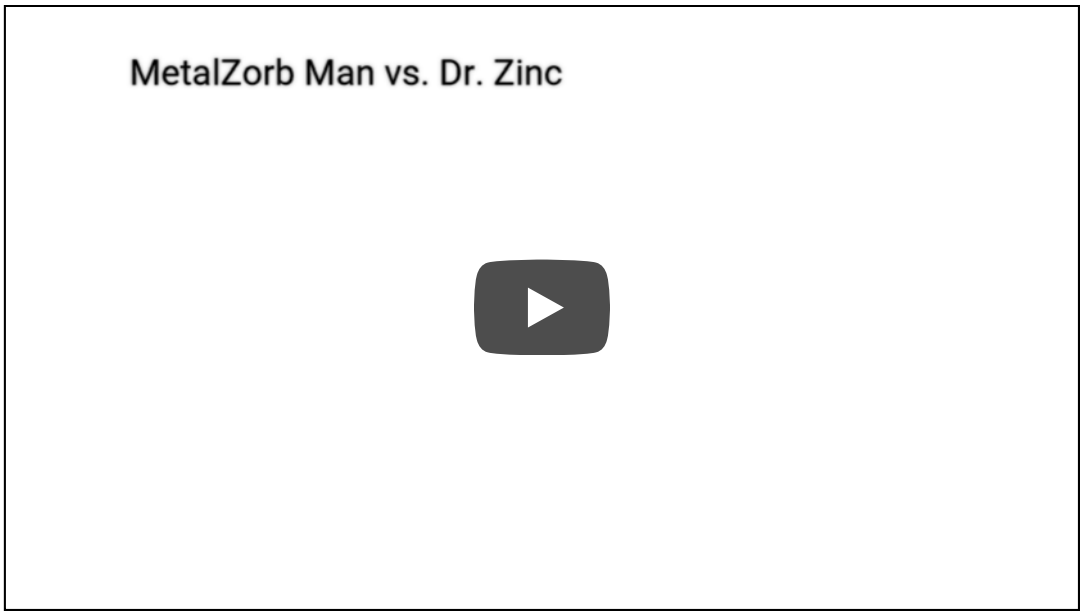
Select Page

# METALZORB® METALS REMOVAL MEDIA

MetalZorb® is a high capacity sponge filtration medium that effectively reduces, removes and recovers dissolved heavy metals, including lead, mercury, zinc and gold, found in stormwater and industrial process water discharge. With low impedance to flow, **no** backwash required, very high capacity and light in weight, this product is ideal for passive and in situ applications and helps achieve regulatory compliance.

Dissolved metals are absorbed in the media, preventing the captured metallic ions from leaching out. Whether the application is capturing dissolved heavy metals from non-point source pollution or reclaiming valuable metals from mining operations, MetalZorb gets the job done.

This product is available exclusively from CleanWay® Environmental Partners. To learn more, check out our MetalZorb FAQs or read our Case Studies.



HEAVY METALS REMOVAL TECHNICAL INFO

FAQ'S

CASE STUDIES

METALZORB PROPERTIES

METALZORB SDS

ABSORPTION VS. ADSORPTION

CAPACITY CALCULATOR

ORDER OF AFFINITY

DISPOSAL CONSIDERATIONS

CLEANWAY FILTRATION OPTIONS

EPA SUPERFUND INNOVATIVE TECHNOLOGY EVALUATION REPORT EPA/540/R-94/522

METALZORB PRODUCT BRIEF

## HOW IT WORKS

MetalZorb sponge cubes, available by the cubic foot, can fill a filter vessel or filtration insert, sized for the flow volume at each location. When confined in a filtration insert, they offer little impedance to water flowing through the unit and are not clogged by suspended solids. Sponge media can be compacted into Absorption Booms, as standalone treatment or in a treatment train. Effective ground water remediation can also be achieved by vertically positioning Absorption Booms filled with MetalZorb at the gate of a barrier wall funnel system.

To ensure ongoing efficacy, MetalZorb sponge product should be periodically retrieved and replaced with fresh sponge. Learn more about disposal considerations.

## FEATURES

- No backwash required, alleviating the problems associated with disposal of dirty backwash water or regenerant chemicals
- High capacity / non-leaching
- Rapid absorption and low impedance to flow
- Lightweight
- Targets dissolved heavy metals including zinc, copper, lead and more
- Wide variety of metals removed regardless of most other water chemistry factors (pH, temp, total dissolved solids)
- Ideal for passive and in situ applications
- Non-toxic, biodegradable, organic polymer
- Can achieve 90% reduction in as little as 20 seconds
- Available in two types for specific applications
- Customized media blends address site-specific pollutants and water quality requirements

Installation & Maintenance

Contact Us

Request a Quote

MetalZorb® Quote Request

## BENEFITS

- Highly effective absorptive sponge prevents release of captured pollutants
- Economically provides water remediation
- Lightweight sponge means lowers disposal cost
- Metal-saturated sponge may be easily disposed as solid waste
- Several simple disposal considerations
- Improved water quality to help meet discharge requirements
- Permanent absorption means no leaching or metal loss
- Recover / reclaim valuable metals from sites like mine tailing ponds and manufacturing facilities while improving water quality

## ABOUT METALZORB AND FORAGER SPONGE

In 2008, CleanWay Environmental Partners acquired the FORAGER® Sponge product developed by Dynaphore for the effective removal of metals from water. CleanWay changed the name from FORAGER Sponge to MetalZorb®. Since the technology acquisition, CleanWay continued the product development of MetalZorb, incorporating enhancements in performance, production and expanding the application of the metals removal technology. The FORAGER Sponge product is now available exclusively from CleanWay under the name

MetalZorb. FORAGER Sponge performance was proven in EPA Superfund Innovative Technology Evaluation Report EPA/540/R-94/522.

## METALZORB APPLICATIONS

- Groundwater remediation
- Gold recovery
- Landfill leachate treatment
- Use as pre-treatment, in a treatment train or for final polishing
- Highly effective in passive & in situ applications, remote locations or anywhere with unattended gravity flow
- Can be deployed in new installations of CleanWay catch basin filtration systems
- Replaces other manufacturers' BMPs by replacing existing media
- Flexible, portable Absorption Booms
- Custom fabricated pressure or gravity fed systems that address site-specific pollutants
- **Your site** or any site that needs to capture metals from runoff

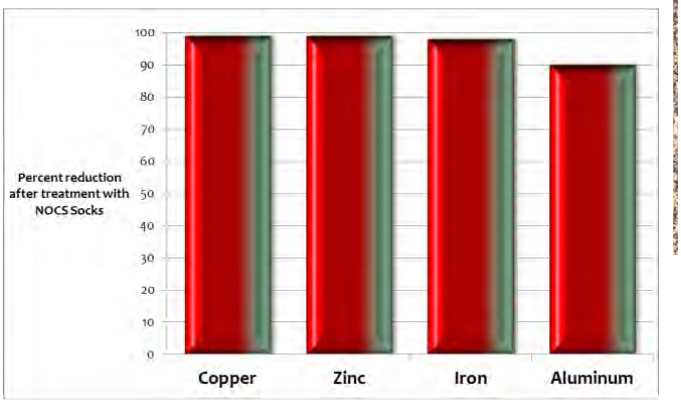
Copyright © 2020 CleanWay USA - All Rights Reserved | **Privacy Policy**

# NOCS Socks

*Erosion Control with Metal Reduction*

Booms for parking lots, outdoor storage areas, driveways…anywhere you need stormwater treatment that includes heavy metal reduction!

Each NOCS Sock (*pronounced Knox Sock*) uses a blend of zeolite and granular peat to remove dissolved metals and capture sediment every day, every rain event, every year. The booms consist of a durable, polypropylene geotextile that contains a 70/30 mix of zeolite and peat. The granular material hugs the ground to prevent channeling and requires minimal staking. The booms are proven in lab tests to reduce copper, zinc, iron and aluminum by up to 99 percent.




Custom lengths available in:

| Diameter | Price per linear foot |
|---|---|
| 6 inch | $16 |
| 8 inch | $20 |
| Shipping not included. | |

NORTH OF ORDINARY
CUSTOM SERVICES

Providing employment opportunities for people with disabilities

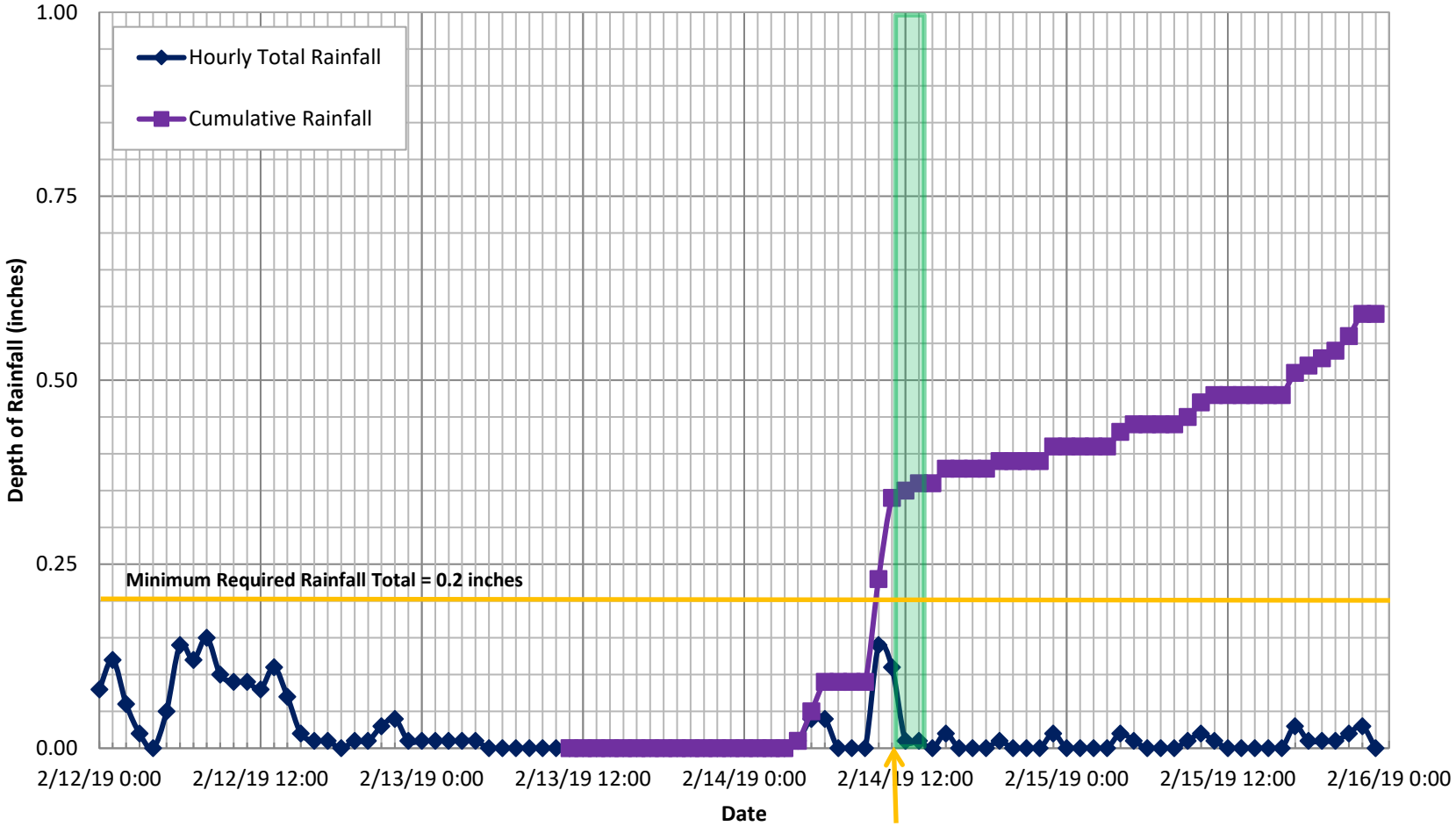
Contact our product specialist with technical questions or to order NOCS Socks.

Peggy Jones
pjones@north-ordinary.com
218-851-3172

Revised 04.07.20

# APPENDIX E HYDROGRAPHS

# Figure C1- Stormwater Sampling Hydrographs
## 14 February 2019




**Notes:**

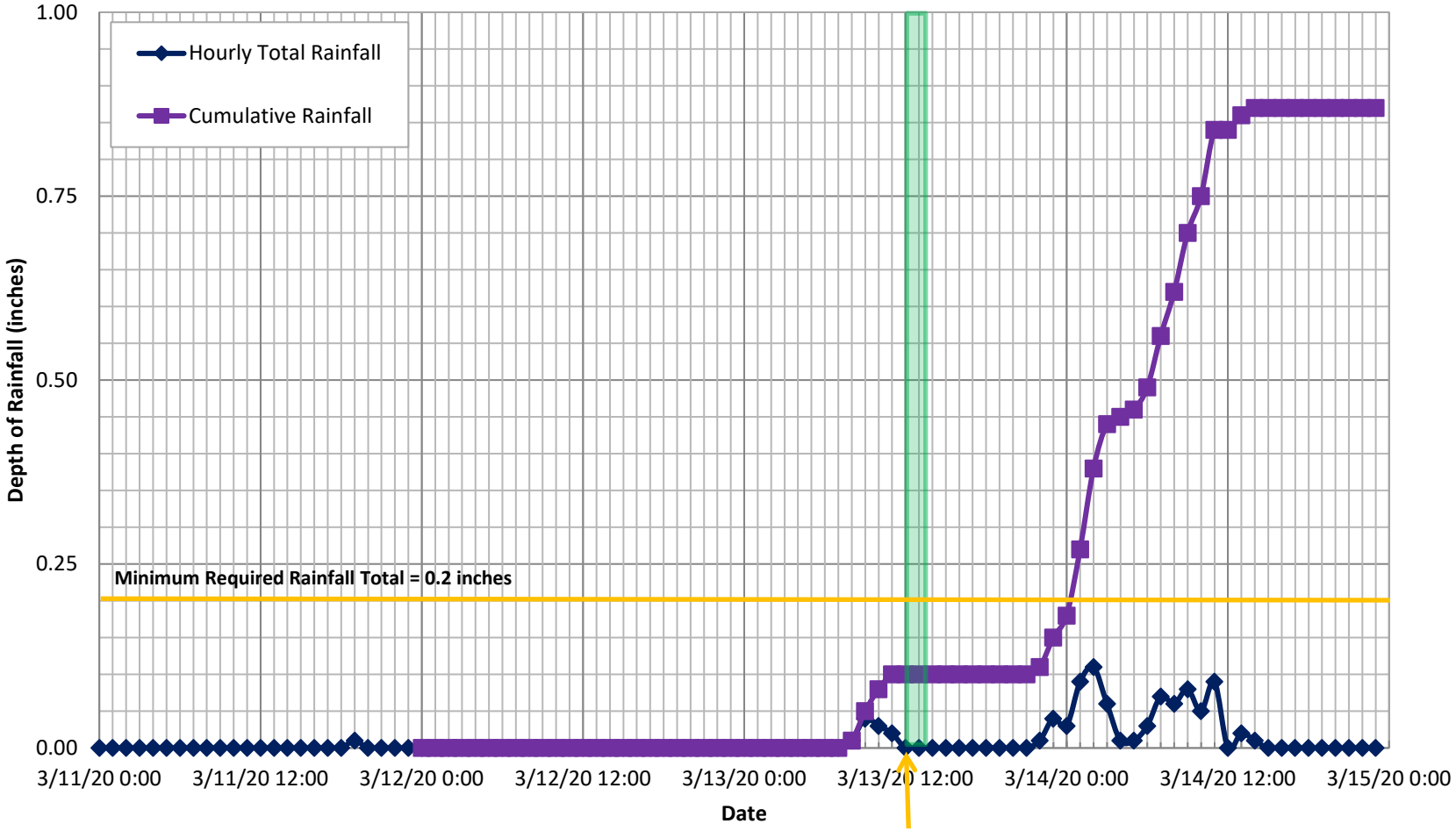
1 - Stormwater samples collected between 11:10 and 13:20. Sample collection period indicated by green box.

2 - First discharge observation (Roof-1) noted at 11:10 as indicated by golden arrow.

3 - Antecedent dry period prior to storm event > 24 hours.

4 - Total sample duration < 3 hours from start of discharge. Sample duration of 2 hours and 10 minutes.

# Figure C2 - Stormwater Sampling Hydrographs
## 13 March 2020




**Notes:**

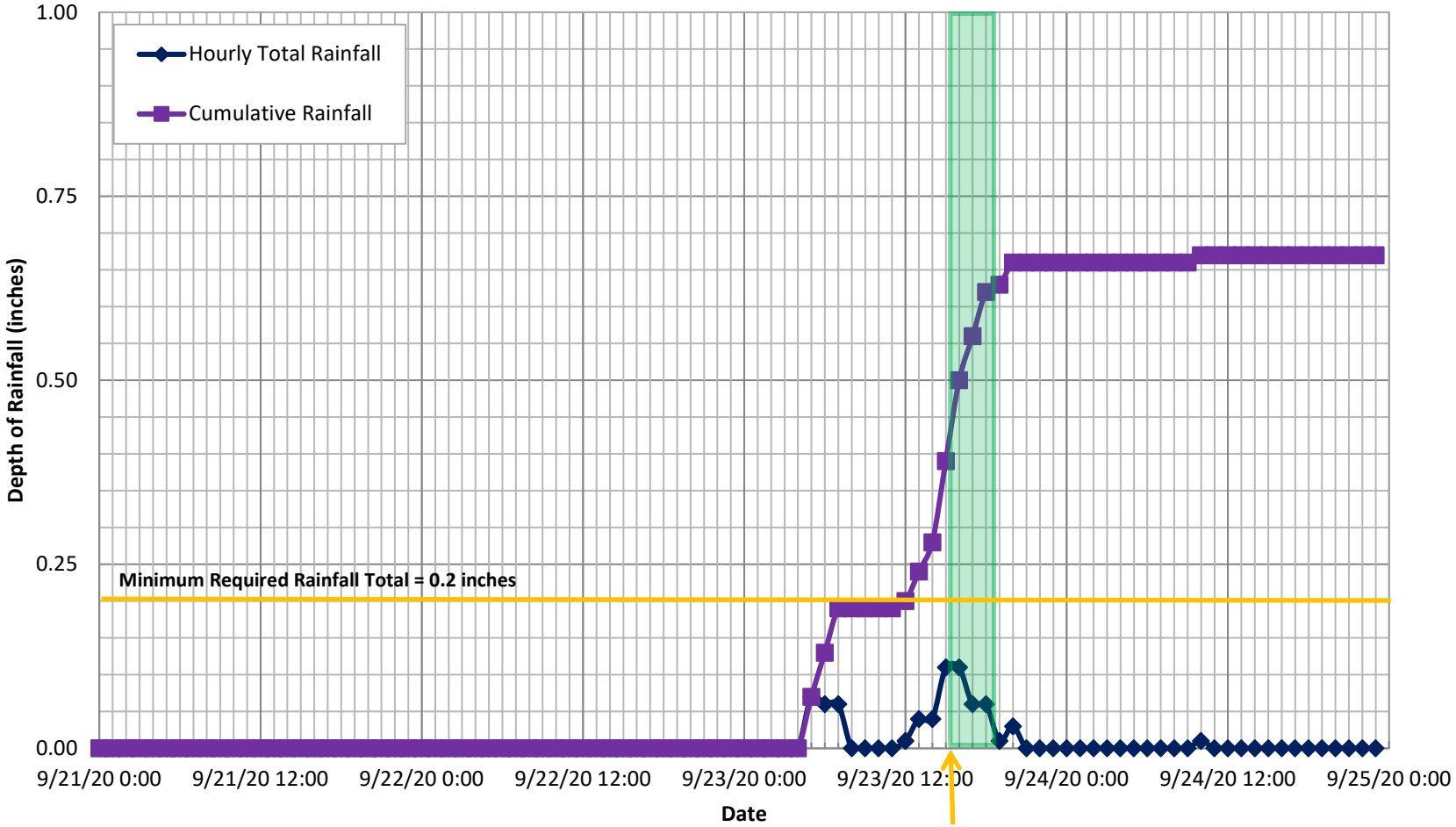
1 - Stormwater samples collected between 12:00 and 13:30. Sample collection period indicated by green box.

2 - First discharge observation (Roof-1) noted at 12:00 as indicated by golden arrow.

3 - Antecedent dry period prior to storm event > 24 hours.

4 - Total sample duration < 3 hours from start of discharge. Sample duration of 1 hours and 30 minutes.

# Figure C3 - Stormwater Sampling Hydrographs
## 23 September 2020



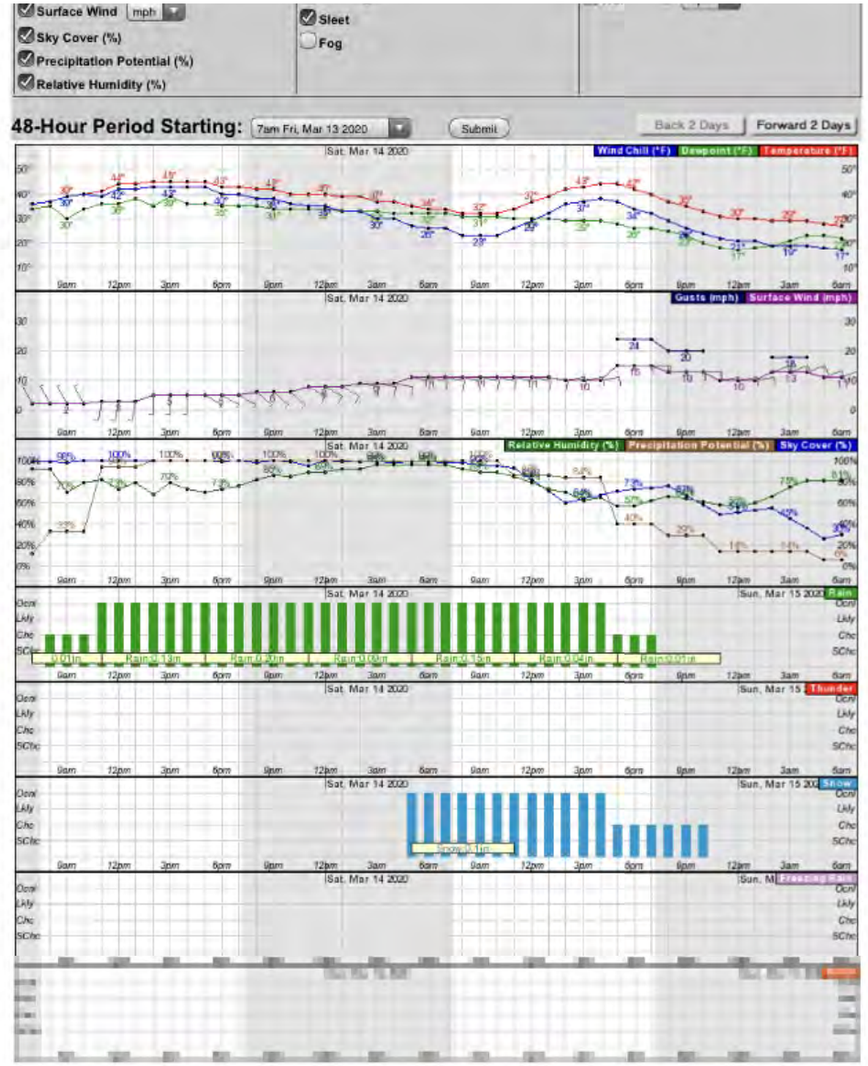

**Notes:**

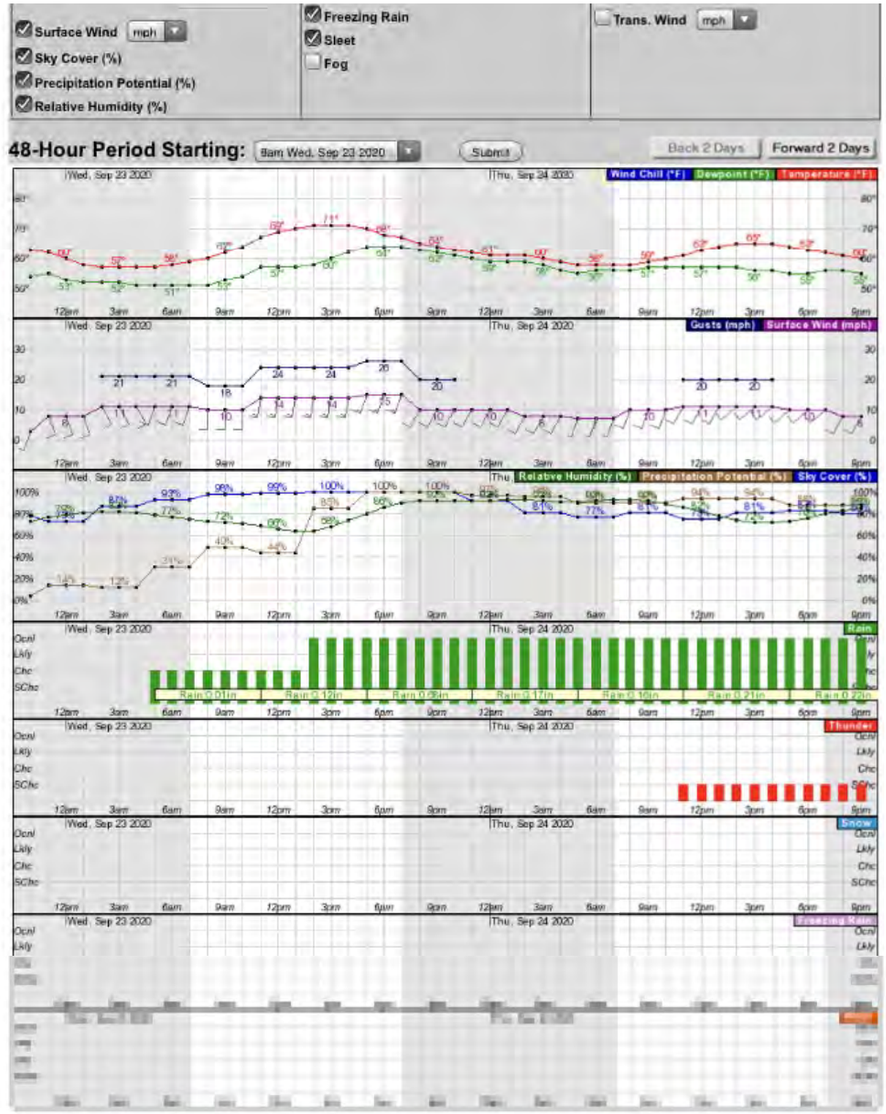
1 - Stormwater samples collected between 15:15 and 18:40. Sample collection period indicated by green box.

2 - First discharge observation (Roof-1) noted at 15:15 as indicated by golden arrow.

3 - Antecedent dry period prior to storm event > 24 hours.

4 - Total sample duration > 3 hours from start of discharge. Sample duration of 3 hours and 25 minutes.


Surface Wind mph
Sky Cover (%)
Precipitation Potential (%)
Relative Humidity (%)
Sleet
Fog
48-Hour Period Starting: 7am Fri, Mar 13 2020
Submit
Back 2 Days
Forward 2 Days
Wind Chill (°F)
Dewpoint (°F)
Temperature (°F)
Gusts (mph)
Surface Wind (mph)
Relative Humidity (%)
Precipitation Potential (%)
Sky Cover (%)
Rain
Thunder
Snow
Sat, Mar 14 2020
Sun, Mar 15 2020


Surface Wind mph
Sky Cover (%)
Precipitation Potential (%)
Relative Humidity (%)
Freezing Rain
Sleet
Fog
Trans. Wind mph
48-Hour Period Starting:
8am Wed, Sep 23 2020
Submit
Back 2 Days
Forward 2 Days
Wed, Sep 23 2020
Thu, Sep 24 2020
Wind Chill (°F)
Dewpoint (°F)
Temperature (°F)
Gusts (mph)
Surface Wind (mph)
Relative Humidity (%)
Precipitation Potential (%)
Sky Cover (%)
Rain
Thunder
Snow
Freezing Rain

# APPENDIX F LABORATORY ANALYTICAL REPORTS AND DATA VALIDATION MEMORANDA

# APPENDIX F – LABORATORY ANALYTICAL DATA REPORTS AND DATA VALIDATION MEMORANDA

**<Provided in electronic format only>**

## Laboratory Analytical Data Reports

| Number | Lab ID | Report Reference |
|---|---|---|
| 01 | K1900914 | 31 January 2019 Wipe and Soil Samples |
| 02 | K1901412 | 14 February 2019 Stormwater Samples |
| 03 | K2002352 | 16 March 2020 Stormwater Samples |
| 04 | K2008424 | 23 September 2020 Stormwater Samples |
| 05 | K2011774 | 11 December 2020 Stormwater Samples |
| 06 | K2101542 | 18 February 2021 Stormwater Samples |

## Data Validation Memoranda

01 May 2019 Revised Data Review of Univar Yeon Wipe and Soil Samples Collected January 31, 2019: ALS Environmental Data Package K1900914. ERM.

29 April 2019  Data Review of Univar Yeon Stormwater Samples Collected February 14, 2019: ALS Environmental Data Package K1901412. ERM.

16 April 2020 Data Review of Univar NW Yeon Stormwater Samples Collected 13 March 2020: ALS Data Package K2002352. ERM.

19 October 2020 Data Review of Univar NW Yeon Stormwater Samples Collected 23 September 2020: ALS Data Package K2008424. ERM.

12 January 2021 Data Review of Univar NW Yeon Stormwater Samples Collected 11 December 2020: ALS Data Package K2011774. ERM.

2 March 2021 Data Review of Univar NW Yeon Stormwater Samples Collected in February 2021: ALS Environmental data package K2101542. ERM.

February 28, 2019 Service Request No:K1900914

Allie Miles
ERM
1001 SW 5th Avenue, Suite 1010
Portland, OR 97204

**Laboratory Results for: Yeon SW Source**

Dear Allie,

Enclosed are the results of the sample(s) submitted to our laboratory February 01, 2019
For your reference, these analyses have been assigned our service request number **K1900914.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

**ALS Group USA, Corp. dba ALS Environmental**

Kelley Lovejoy

Kelley Lovejoy
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

# Narrative Documents

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

**Client:** ERM West, Inc
**Project:** Yeon SW Source
**Sample Matrix:** Soil, Wipe

**Service Request:** K1900914
**Date Received:** 02/01/2019

## CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

**Sample Receipt:**

Fifteen wipe samples and one soil sample were received for analysis at ALS Environmental on 02/01/2019. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

**Semivolatiles by GC/MS:**

Method 8270D, Low Level Semivolatile Organic Compounds by GC/MS 02/27/2019: The detection limit was elevated for Bis(2-ethylhexyl) Phthalate in sample(s) DB4. The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components. The sample was heterogenous containing grass roots, and rocks. The resulting extract was highly colored which indicated the need to perform a dilution prior to injection into the instrument. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution.

Method 8270D, 02/27/2019:The matrix spike recoveries (MS/DMS) of Bis(2-ethylhexyl) Phthalate for sample DB4 were outside control criteria because of matrix interference. The chromatogram indicated the presence of non-target background components that prevented adequate resolution of the target analytes. As a result, accurate quantitation was not possible. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

**Semivoa GC:**

Method 8082A, Polychlorinated Biphenyls (PCBs) 2/19/19: The matrix spike recovery of 1260 for sample DB4 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential high bias in this matrix. No further corrective action was appropriate.

Method 8082A, Polychlorinated Biphenyls (PCBs) 2/19/19: The recovery of Decachlorobiphenyl in sample DB3-3B was outside the control limits listed in the results summary. The limits are default values temporarily in use until sufficient data points are generated to calculate statistical control limits. Based on the method and historic data, the recoveries observed were in the range expected for this procedure. No further corrective action was taken.

Method 8082A, Polychlorinated Biphenyls (PCBs) 2/19/19: Insufficient sample volume was received to perform a Matrix Spike/Matrix Spike Duplicate (MS/MSD). A Laboratory Control Sample/Duplicate Laboratory Control Sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for these samples.

Method 8082A, Polychlorinated Biphenyls (PCBs) 2/19/19: The control criteria were exceeded for the following surrogate in sample DB1-5 due to Aroclor interference: Decachlorobiphenyl. The sample contained a large concentration of Aroclor 1268, and Decachlorobiphenyl is a major constituent of this Aroclor. Since the Aroclor concentration was higher than the amount of surrogate spiked, accurate quantitation was not possible. Data is flagged to indicate the interference. No further corrective action was appropriate.

Approved by Kelley Lovejoy Date 02/28/2019

**Metals:**

Method 6020A, 02/12/2019: The Relative Percent Difference (RPD) for the replicate analysis of Cadmium and Lead in sample DB4 was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Method 6020A, 02/12/2019: The matrix spike recovery of Lead for sample DB4 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was appropriate.

Approved by Kelley Lovejoy Date 02/28/2019

## SAMPLE DETECTION SUMMARY

| CLIENT ID: DB1-1 | Lab ID: K1900914-001 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Bis(2-ethylhexyl) Phthalate | 0.24 | J | 0.18 | 2.0 | UG/WIPE | 8270D |

| CLIENT ID: DB1-2 | Lab ID: K1900914-002 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Bis(2-ethylhexyl) Phthalate | 0.23 | J | 0.18 | 2.0 | UG/WIPE | 8270D |

| CLIENT ID: DB1-3 | Lab ID: K1900914-003 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 0.26 | J | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.014 | J | 0.005 | 0.020 | ug | 6020A |
| Lead | 0.384 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 81.5 | | 0.10 | 0.50 | ug | 6020A |

| CLIENT ID: DB1-4 | Lab ID: K1900914-004 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 0.07 | J | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.242 | | 0.005 | 0.020 | ug | 6020A |
| Lead | 44.3 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 134 | | 0.10 | 0.50 | ug | 6020A |

| CLIENT ID: DB3-1 | Lab ID: K1900914-005 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 1.34 | | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.259 | | 0.005 | 0.020 | ug | 6020A |
| Lead | 23.1 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 1760 | | 0.5 | 2.5 | ug | 6020A |

| CLIENT ID: DB3-2 | Lab ID: K1900914-006 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 1370 | | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.365 | | 0.005 | 0.020 | ug | 6020A |
| Lead | 5.04 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 262 | | 0.10 | 0.50 | ug | 6020A |

| CLIENT ID: DB3-3A | Lab ID: K1900914-007 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 1.22 | | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 1.44 | | 0.005 | 0.020 | ug | 6020A |
| Lead | 834 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 1700 | | 0.5 | 2.5 | ug | 6020A |

| CLIENT ID: DB3-4 | Lab ID: K1900914-009 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 0.40 | J | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.029 | | 0.005 | 0.020 | ug | 6020A |

## SAMPLE DETECTION SUMMARY

| CLIENT ID: DB3-4 | Lab ID: K1900914-009 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Lead | 1.57 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 1690 | | 0.5 | 2.5 | ug | 6020A |

| CLIENT ID: DB1-5 | Lab ID: K1900914-012 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Aroclor 1268 | 1200 | D | 200 | 200 | UG/SAMPLE | 8082A |

| CLIENT ID: DB4-1 | Lab ID: K1900914-013 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 1.05 | | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.108 | | 0.005 | 0.020 | ug | 6020A |
| Lead | 91.5 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 209 | | 0.10 | 0.50 | ug | 6020A |

| CLIENT ID: DB4-3 | Lab ID: K1900914-015 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 0.34 | J | 0.06 | 0.50 | ug | 6020A |
| Cadmium | 0.012 | J | 0.005 | 0.020 | ug | 6020A |
| Lead | 1.01 | | 0.005 | 0.050 | ug | 6020A |
| Zinc | 1030 | | 0.10 | 0.50 | ug | 6020A |

| CLIENT ID: DB4 | Lab ID: K1900914-016 | | | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Arsenic | 2.97 | | 0.04 | 0.31 | mg/Kg | 6020A |
| Cadmium | 0.463 | | 0.003 | 0.012 | mg/Kg | 6020A |
| Lead | 59.1 | | 0.003 | 0.031 | mg/Kg | 6020A |
| Zinc | 283 | | 0.06 | 0.31 | mg/Kg | 6020A |
| Bis(2-ethylhexyl) Phthalate | 950 | J | 150 | 1600 | ug/Kg | 8270D |
| Solids, Total | 85.5 | | | | Percent | 160.3 Modified |
| Aroclor 1254 | 46 | | 2.9 | 10 | UG/KG | 8082A |
| Aroclor 1268 | 64 | | 2.9 | 10 | UG/KG | 8082A |

# Sample Receipt Information

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

**Client:** ERM West, Inc **Service Request:**K1900914
**Project:** Yeon SW Source/0487089.04

## SAMPLE CROSS-REFERENCE

| SAMPLE # | CLIENT SAMPLE ID | DATE | TIME |
|---|---|---|---|
| K1900914-003 | DB1-3 | 1/31/2019 | 0834 |
| K1900914-004 | DB1-4 | 1/31/2019 | 0838 |
| K1900914-005 | DB3-1 | 1/31/2019 | 0816 |
| K1900914-006 | DB3-2 | 1/31/2019 | 0901 |
| K1900914-007 | DB3-3A | 1/31/2019 | 0841 |
| K1900914-009 | DB3-4 | 1/31/2019 | 0858 |
| K1900914-013 | DB4-1 | 1/31/2019 | 0912 |
| K1900914-015 | DB4-3 | 1/31/2019 | 0916 |
| K1900914-016 | DB4 | 1/31/2019 | 0931 |

ALS Environmental

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

# CHAIN OF CUSTODY
# 96649

001, 002

SR# 1/1900914

COC Set____of____

COC#_____



Project Name: Yeon SW Source
Project Number: 0487089.04
Project Manager: Dylan Stankus
Company: ERM West
Address: 1050 SW 6th Ave Suite 1650 Portland OR
Phone #: 503-488-5282
email: dylan.stankus@erm.com
Sampler Signature: [signature]
Sampler Printed Name: Rita Cooper

| CLIENT SAMPLE ID | LABID | SAMPLING Date | SAMPLING Time | Matrix | NUMBER OF CONTAINERS | 14D 8082A / PCB | 14D 8270D / SVO LL | 180D 6020A / Metals T | 999D 160.3 Modified / TS | 1 | 2 | 3 | 4 | 5 | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. DB1-1 | | 1/31 | 0851 | wipe | 1 | | X | | | | | | | | |
| 2. DB1-2 | | 1/31 | 0849 | | 1 | | X | | | | | | | | |
| 3. DB1-3 | | 1/31 | 0834 | | 1 | | | X | | | | | | | |
| 4. DB1-4 | | 1/31 | 0838 | | 1 | | | X | | | | | | | |
| 5. DB3-1 | | 1/31 | 0816 | | 1 | | | X | | | | | | | |
| 6. DB3-2 | | 1/31 | 0901 | | 1 | | | X | | | | | | | |
| 7. DB3-3A | | 1/31 | 0841 | | 1 | | | X | | | | | | | |
| 8. DB3-3B | | 1/31 | 0842 | | 1 | X | | | | | | | | | |
| 9. DB3-4 | | 1/31 | 0858 | | 1 | | | X | | | | | | | |
| 10. DB3-5 | | 1/31 | 1050 | | 1 | X | | | | | | | | | |

## Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. CLP Like Summary (no raw data)
___ IV. Data Validation Report
___ V. EDD

## Invoice Information

P.O.#_____
Bill To:_____

## Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al (As) Sb Ba Be B Ca (Cd) Co Cr Cu Fe (Pb) Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V (Zn) Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

| Relinquished By: | Received By: | Relinquished By: | Received By: | Relinquished By: | Received By: |
|---|---|---|---|---|---|
| Signature [signature] | Signature [signature] | Signature | Signature | Signature | Signature |
| Printed Name Lon McVicker | Printed Name ALSK | Printed Name | Printed Name | Printed Name | Printed Name |
| Firm WDNC | Firm 2-1-19 1000 | Firm | Firm | Firm | Firm |
| Date/Time 1-31-19/1430 | Date/Time | Date/Time | Date/Time | Date/Time | Date/Time |

ALS Environmental

# CHAIN OF CUSTODY

# 96648

003

SR# K1900914

COC Set_____of_____

COC#_____



1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Yeon SW Source
Project Number: 0487089.04
Project Manager: Dylan Stankus
Company: ERM West
Address: 1050 SW 6th Ave Suite 1650 Portland OR
Phone #: 503-486-5282
email: dylan.stankus@erm.com
Sampler Signature:
Sampler Printed Name: Lita Cooper

| CLIENT SAMPLE ID | LABID | SAMPLING Date | SAMPLING Time | Matrix | NUMBER OF CONTAINERS | 8081B / Pest OC ULL (7D) | 8082A / PCB (7D) | 8270D / PAH SIM (7D) | 8270D / SVO LL (7D) | SM 2540 D / TSS (7D) | 8260C / VOC FP (14D) | 6020A / Metals T (180D) | 1 | 2 | 3 | 4 | 5 | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. DB1-4A | | 1/31 | 0955 | wipe | | | X | | | | | | | | | | | |
| 2. DB1-5 | | 1/31 | 1005 | | | | X | | | | | | | | | | | |
| 3. DB4-1 | | 1/31 | 0912 | | | | | | | | | X | | | | | | |
| 4. DB4-2 | | 1/31 | 0914 | | | | | | X | | | | | | | | | |
| 5. DB4-3 | | 1/31 | 0916 | | | | | | | | | X | | | | | | |
| 6. | | | | | | | | | | | | | | | | | | |
| 7. | | | | | | | | | | | | | | | | | | |
| 8. | | | | | | | | | | | | | | | | | | |
| 9. | | | | | | | | | | | | | | | | | | |
| 10. | | | | | | | | | | | | | | | | | | |

## Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. CLP Like Summary (no raw data)
___ IV. Data Validation Report
___ V. EDD

## Invoice Information

P.O.#_____
Bill To:_____

## Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al (As) Sb Ba Be B Ca (Cd) Co Cr Cu Fe (Pb) Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V (Zn) Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

| Relinquished By: | Received By: | Relinquished By: | Received By: | Relinquished By: | Received By: |
|---|---|---|---|---|---|
| Signature | Signature | Signature | Signature | Signature | Signature |
| Printed Name: Lon McVicker | Printed Name: ALS-K | Printed Name | Printed Name | Printed Name | Printed Name |
| Firm: WDNC | Firm: 2-1-19 1000 | Firm | Firm | Firm | Firm |
| Date/Time: 1-31-19 / 1430 | Date/Time | Date/Time | Date/Time | Date/Time | Date/Time |

PC

# Cooler Receipt and Preservation Form

Client ERM West Service Request *K19* 00914

Received: 2-1-19 Opened: 2-1-19 By: JSP Unloaded: 2-1-19 By: JSP

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2 Top Front

   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

| Raw Cooler Temp | Corrected. Cooler Temp | Raw Temp Blank | Corrected Temp Blank | Corr. Factor | Thermometer ID | Cooler/COC ID NA | Tracking Number NA | Filed |
|---|---|---|---|---|---|---|---|---|
| 14.8 | 15.0 | 14.4 | 14.6 | +0.2 | 323 | 96649 | 7852 5334 5300 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA Y N

   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was C12/Res negative? NA Y N

| Sample ID on Bottle | Sample ID on COC | Identified by: |
|---|---|---|
| | | |
| | | |
| | | |

| Sample ID | Bottle Count Bottle Type | Out of Temp | Head-space | Broke | pH | Reagent | Volume added | Reagent Lot Number | Initials | Time |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

***Notes, Discrepancies, & Resolutions:***

Received Sample "DB4" Not on CoC 1-31-19 0931 All Analysis Listed on Label

7/25/16 *Page* ____ *of* ____

# Miscellaneous Forms

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

## Inorganic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| E | The result is an estimate amount because the value exceeded the instrument calibration range. |
| J | The result is an estimated value. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.<br>*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |
| H | The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory. |

## Metals Data Qualifiers

| | |
|---|---|
| # | The control limit criteria is not applicable. See case narrative. |
| J | The result is an estimated value. |
| E | The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample. |
| M | The duplicate injection precision was not met. |
| N | The Matrix Spike sample recovery is not within control limits. See case narrative. |
| S | The reported value was determined by the Method of Standard Additions (MSA). |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.<br>*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| W | The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| + | The correlation coefficient for the MSA is less than 0.995. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Organic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| A | A tentatively identified compound, a suspected aldol-condensation product. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| C | The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data. |
| D | The reported result is from a dilution. |
| E | The result is an estimated value. |
| J | The result is an estimated value. |
| N | The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed. |
| P | The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.<br>*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Additional Petroleum Hydrocarbon Specific Qualifiers

| | |
|---|---|
| F | The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard. |
| L | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard. |
| H | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard. |
| O | The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard. |
| Y | The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard. |
| Z | The chromatographic fingerprint does not resemble a petroleum product. |

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso**
**State Certifications, Accreditations, and Licenses**

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEH | http://dec.alaska.gov/eh/lab/cs/csapproval.htm | UST-040 |
| Arizona DHS | http://www.azdhs.gov/lab/license/env.htm | AZ0339 |
| Arkansas - DEQ | http://www.adeq.state.ar.us/techsvs/labcert.htm | 88-0637 |
| California DHS (ELAP) | http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx | 2795 |
| DOD ELAP | http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm | L16-58-R4 |
| Florida DOH | http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm | E87412 |
| Hawaii DOH | http://health.hawaii.gov/ | - |
| ISO 17025 | http://www.pjlabs.com/ | L16-57 |
| Louisiana DEQ | http://www.deq.louisiana.gov/page/la-lab-accreditation | 03016 |
| Maine DHS | http://www.maine.gov/dhhs/ | WA01276 |
| Minnesota DOH | http://www.health.state.mn.us/accreditation | 053-999-457 |
| Nevada DEP | http://ndep.nv.gov/bsdw/labservice.htm | WA01276 |
| New Jersey DEP | http://www.nj.gov/dep/enforcement/oqa.html | WA005 |
| New York - DOH | https://www.wadsworth.org/regulatory/elap | 12060 |
| North Carolina DEQ | https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification | 605 |
| Oklahoma DEQ | http://www.deq.state.ok.us/CSDnew/labcert.htm | 9801 |
| Oregon – DEQ (NELAP) | http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | WA100010 |
| South Carolina DHEC | http://www.scdhec.gov/environment/EnvironmentalLabCertification/ | 61002 |
| Texas CEQ | http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html | T104704427 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C544 |
| Wyoming (EPA Region 8) | https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water- | - |
| Kelso Laboratory Website | www.alsglobal.com | NA |

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

## Acronyms

| | |
|---|---|
| ASTM | American Society for Testing and Materials |
| A2LA | American Association for Laboratory Accreditation |
| CARB | California Air Resources Board |
| CAS Number | Chemical Abstract Service registry Number |
| CFC | Chlorofluorocarbon |
| CFU | Colony-Forming Unit |
| DEC | Department of Environmental Conservation |
| DEQ | Department of Environmental Quality |
| DHS | Department of Health Services |
| DOE | Department of Ecology |
| DOH | Department of Health |
| EPA | U. S. Environmental Protection Agency |
| ELAP | Environmental Laboratory Accreditation Program |
| GC | Gas Chromatography |
| GC/MS | Gas Chromatography/Mass Spectrometry |
| LOD | Limit of Detection |
| LOQ | Limit of Quantitation |
| LUFT | Leaking Underground Fuel Tank |
| M | Modified |
| MCL | Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA. |
| MDL | Method Detection Limit |
| MPN | Most Probable Number |
| MRL | Method Reporting Limit |
| NA | Not Applicable |
| NC | Not Calculated |
| NCASI | National Council of the Paper Industry for Air and Stream Improvement |
| ND | Not Detected |
| NIOSH | National Institute for Occupational Safety and Health |
| PQL | Practical Quantitation Limit |
| RCRA | Resource Conservation and Recovery Act |
| SIM | Selected Ion Monitoring |
| TPH | Total Petroleum Hydrocarbons |
| tr | Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL. |

# Sample Results

**ALS Environmental—Kelso Laboratory**
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# Semivolatile Organic Compounds by GC/MS

**ALS Environmental—Kelso Laboratory**
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www.alsglobal.com

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 08:51 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB1-1 | **Units:** | UG/WIPE |
| **Lab Code:** | K1900914-001 | **Basis:** | Wet |

## Semivolatile Organic Compounds by GC/MS

**Analysis Method:** 8270D
**Prep Method:** EPA 3541

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Bis(2-ethylhexyl) Phthalate | **0.24** **J** | 2.0 | 0.18 | 1 | 02/26/19 23:19 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Terphenyl-d14 | 77 | 30 - 102 | 02/26/19 23:19 | |

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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 08:49 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB1-2 | **Units:** | UG/WIPE |
| **Lab Code:** | K1900914-002 | **Basis:** | Wet |

## Semivolatile Organic Compounds by GC/MS

**Analysis Method:** 8270D
**Prep Method:** EPA 3541

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Bis(2-ethylhexyl) Phthalate | **0.23** **J** | 2.0 | 0.18 | 1 | 02/26/19 23:47 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Terphenyl-d14 | 69 | 30 - 102 | 02/26/19 23:47 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 09:14 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB4-2 | **Units:** | UG/WIPE |
| **Lab Code:** | K1900914-014 | **Basis:** | Wet |

## Semivolatile Organic Compounds by GC/MS

**Analysis Method:** 8270D
**Prep Method:** EPA 3541

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Bis(2-ethylhexyl) Phthalate | ND U | 2.0 | 0.18 | 1 | 02/27/19 00:16 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Terphenyl-d14 | 61 | 30 - 102 | 02/27/19 00:16 | |

**ALS Group USA, Corp.**
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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 09:31 |
| **Sample Matrix:** | Soil | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB4 | **Units:** | ug/Kg |
| **Lab Code:** | K1900914-016 | **Basis:** | Dry |

**Low Level Semivolatile Organic Compounds by GC/MS**

**Analysis Method:** 8270D
**Prep Method:** EPA 3541

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Bis(2-ethylhexyl) Phthalate | **950** **J** | 1600 | 150 | 10 | 02/27/19 02:37 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| p-Terphenyl-d14 | 84 | 30 - 102 | 02/27/19 02:37 | |

# Semivolatile Organic Compounds by GC

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www.alsglobal.com

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 08:42 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB3-3B | **Units:** | UG/SAMPLE |
| **Lab Code:** | K1900914-008 | **Basis:** | Wet |

## Polychlorinated Biphenyls (PCBs)

**Analysis Method:** 8082A
**Prep Method:** EPA 3546

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1221 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1232 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1242 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1248 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1254 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1260 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1262 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |
| Aroclor 1268 | ND U | 0.10 | 0.10 | 1 | 02/07/19 18:39 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Decachlorobiphenyl | 47 D | 70 - 130 | 02/06/19 20:26 | * |

**ALS Group USA, Corp.**
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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 10:50 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB3-5 | **Units:** | UG/SAMPLE |
| **Lab Code:** | K1900914-010 | **Basis:** | Wet |

## Polychlorinated Biphenyls (PCBs)

**Analysis Method:** 8082A
**Prep Method:** EPA 3546

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1221 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1232 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1242 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1248 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1254 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1260 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1262 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |
| Aroclor 1268 | ND U | 0.10 | 0.10 | 1 | 02/13/19 15:52 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Decachlorobiphenyl | 78 D | 70 - 130 | 02/06/19 20:57 | |

**ALS Group USA, Corp.**
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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ERM West, Inc | **Service Request:** | K1900914 |
| **Project:** | Yeon SW Source/0487089.04 | **Date Collected:** | 01/31/19 09:55 |
| **Sample Matrix:** | Wipe | **Date Received:** | 02/01/19 10:00 |
| **Sample Name:** | DB1-4A | **Units:** | UG/SAMPLE |
| **Lab Code:** | K1900914-011 | **Basis:** | Wet |

## Polychlorinated Biphenyls (PCBs)

**Analysis Method:** 8082A
**Prep Method:** EPA 3546

| Analyte Name | Result | MRL | MDL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1221 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1232 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1242 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1248 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1254 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1260 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1262 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |
| Aroclor 1268 | ND U | 0.10 | 0.10 | 1 | 02/15/19 12:06 | 2/5/19 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Decachlorobiphenyl | 76 D | 70 - 130 | 02/06/19 21:28 | |