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FINAL REMEDIAL INVESTIGATION REPORT VOLUME 7 OF 11 SITE 41 NAS PENSACOLA FL
8/17/2005
ENSAFE/ALLEN AND HOSHALL

# FINAL REMEDIAL INVESTIGATION REPORT
# SITE 41 — OPERABLE UNIT 16 — NAS PENSACOLA WETLANDS

**NAVAL AIR STATION**
**PENSACOLA, FLORIDA**

**SOUTHNAVFACENGCOM**
**CONTRACT NUMBER: N62467-89-D-0318**

**CTO-036**

**VOLUME VII OF XI**
**SECTIONS 15 — 18**

**Prepared for:**

**Comprehensive Long-Term**
**Environmental Action Navy**
**Naval Air Station**
**Pensacola, Florida**

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**August 17, 2005**
**Revised November 16, 2007**

## 15.0 REMAINING WETLANDS

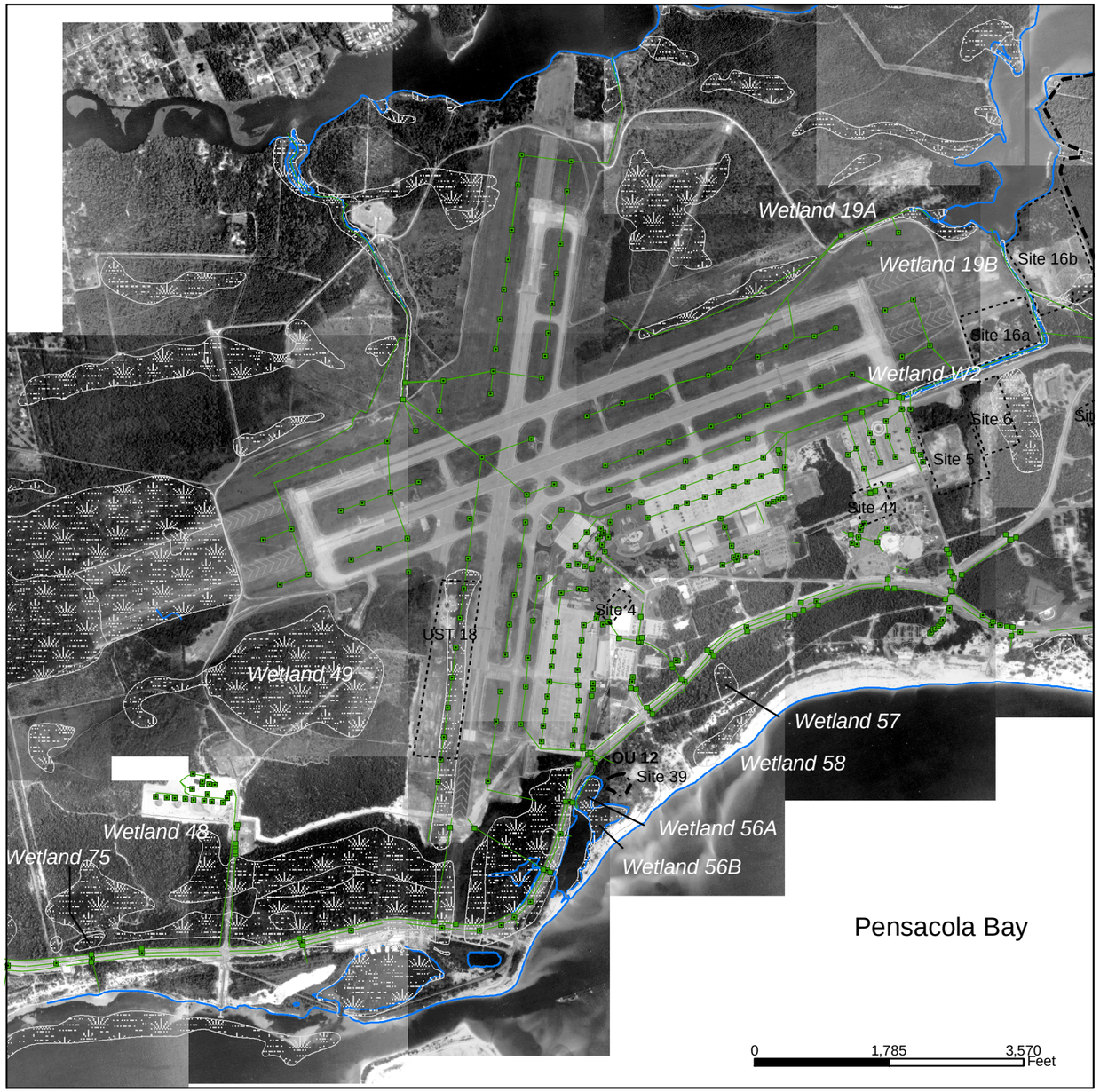
The remaining wetlands, Wetlands 19(A and B), 56, 57, 58, W2, 48, and 49 are not closely associated with an operable unit. The wetland locations are shown on Figure 15-1 (figures are located at the end of each section) and the area topography is shown on Figure 15-2. These wetlands are across the western portion of NAS Pensacola near Forrest Sherman Field. Associated IR sites include:

- Site 1 — Sanitary Landfill
- Site 4 — Army Rubble Disposal Area
- Site 5 — Borrow Pit
- Site 6 — Fort Redoubt Rubble Disposal Area
- Site 16 — Brush Disposal Area
- Site 39 (OU 12) — Oak Grove Campground

Associated petroleum sites include Site 19 (Fuel Farm Pipeline Leak), Site 37 (Sherman Field Fuel Farm Area) and UST 18 (Crash Crew Training Area). Site histories and investigation findings are presented in Sections 15.1 through 15.7 for those sites related to the individual wetlands.

The potentiometric surface in the UST 18 and Site 19 area is shown on Figure 15-3. Groundwater flow in that area is to the southeast. Soil boring, monitoring well, sediment, and surface water sampling locations are shown on Figure 15-4.

This section presents the nature and extent of contamination, ecological risk assessment, fate and transport analysis, and human health risk assessment by wetland for the remaining wetlands. To assist in the data evaluation, Figure 15-5 presents the Remaining Wetlands Total DDT for sediment, Figure 15-6 presents the Swartz TOC normalized PAHs, and Figure 15-7 presents the Mean ERM quotient categories. Figure 15-8 presents the chemistry and toxicity samples collected during Phases III and IV. To assess effects to selected measurement endpoints, such as the green heron, a food-chain model for all the remaining wetlands is presented in Section 15.8.



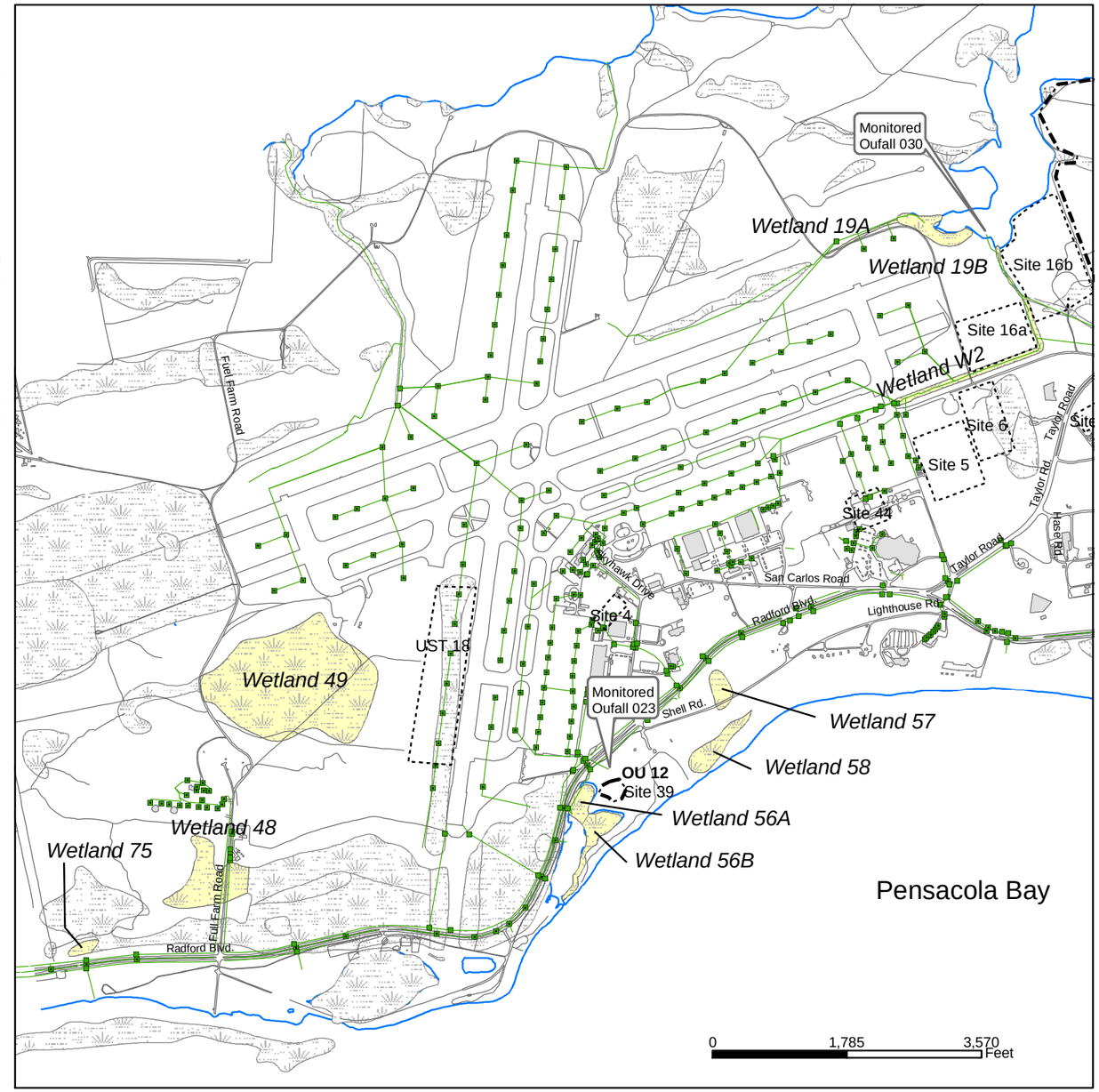




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**FIGURE 15-1**
**Miscellaneous Wetlands and Nearby Sites**

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**Legend**

- Site
- Operable Unit (OU)
- Wetland-Approximate
- Miscellaneous Wetland-Approximate
- Building
- Shoreline
- Road
- Storm water Pipe
- Storm water Inlet
- Storm water Headwall

N
W E
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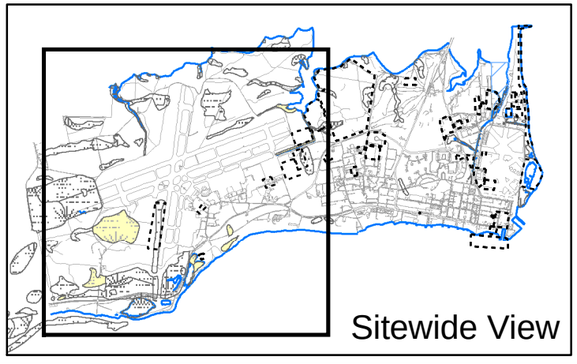

Sitewide View

Inset 1

Inset 2

Pensacola Bay

0 666 1,332 1,998 2,664 Feet

0 309 618 Feet

0 48 96 Feet

N S E W

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**FIGURE 15-2**
**Miscellaneous Wetlands**
**Study Area Topography**

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## Legend

**Sitewide Sample Locations**

- Soil
- Site 41 RI Sediment
- Site 41 RI Surface Water
- Groundwater
- Operable Unit (OU)
- Site
- Wetland-Approximate
- Misc Wetland-Approximate
- Building
- Topographic Contour(ft)
- Shoreline
- Road
- Storm water Pipe
- Storm water Inlet
- Storm water Headwall

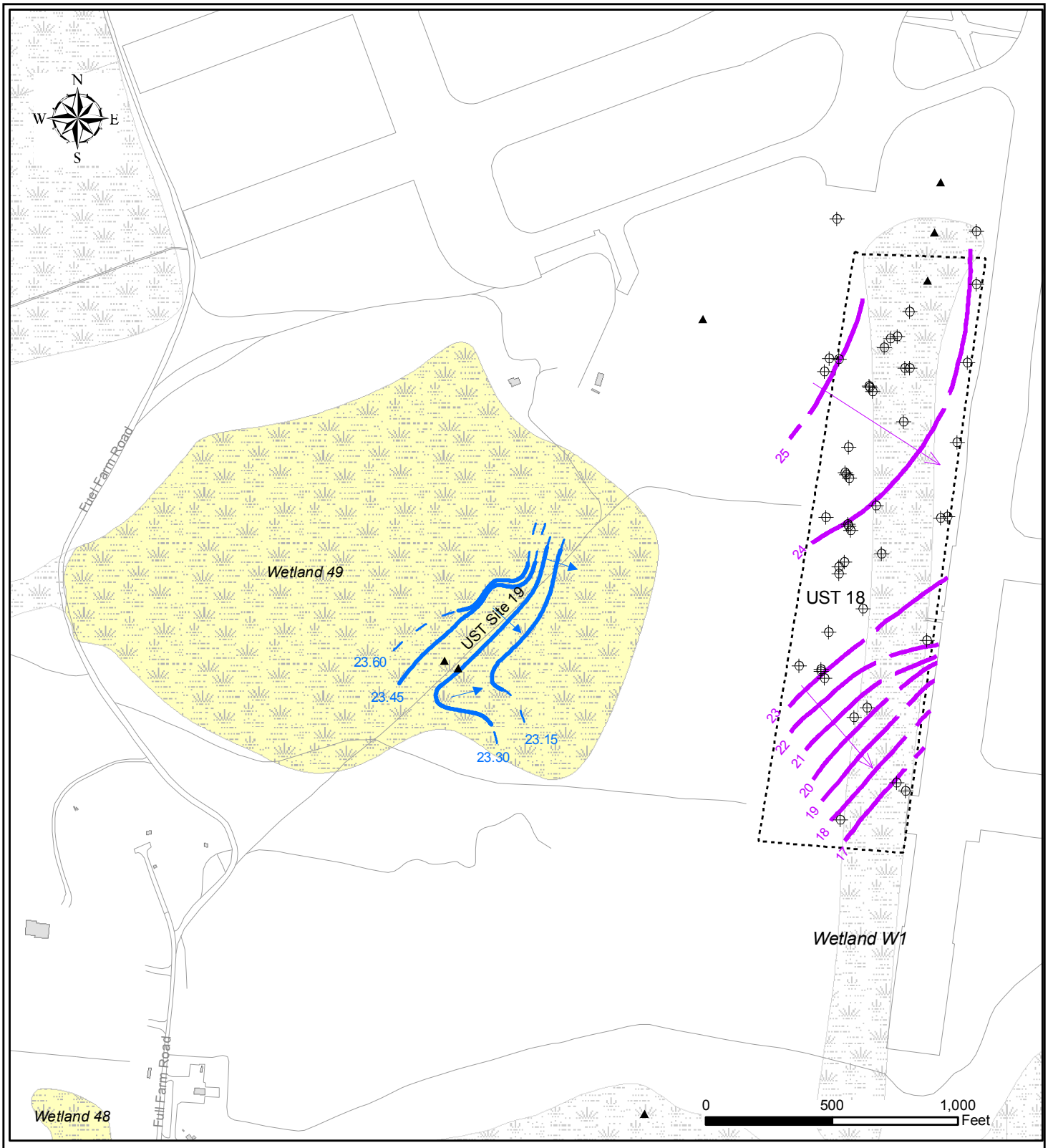


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**FIGURE 15-3**
**Miscellaneous Wetlands**
**Shallow Potentiometric Surface**

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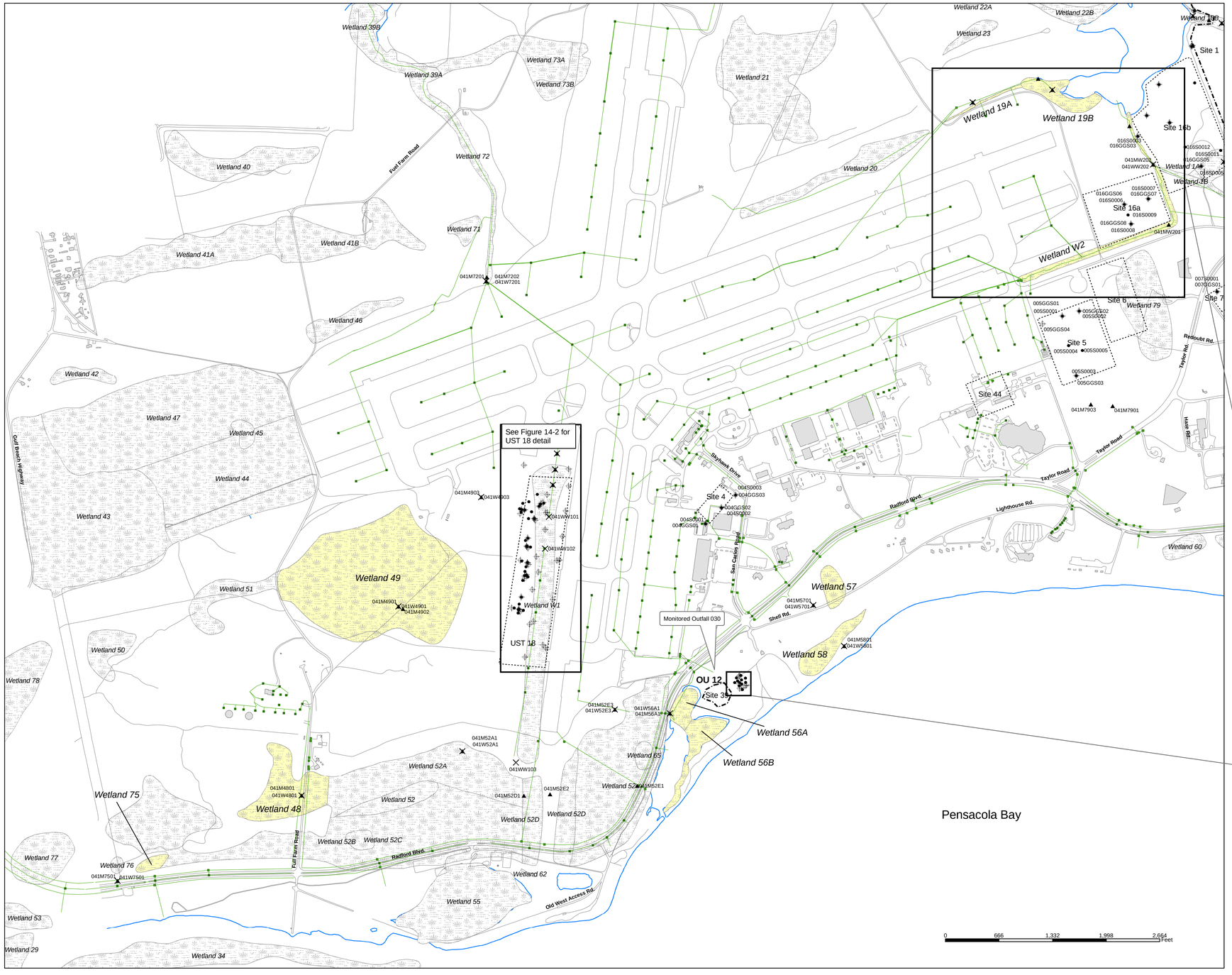
**Legend**

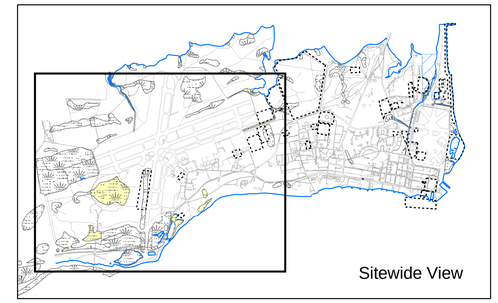
**Shallow Potentiometric Surface**
- Contour (0.15ft interval)
- Groundwater Flow Direction

**Shallow Potentiometric Surface**
- Contour (1ft interval)
- Groundwater Flow Direction

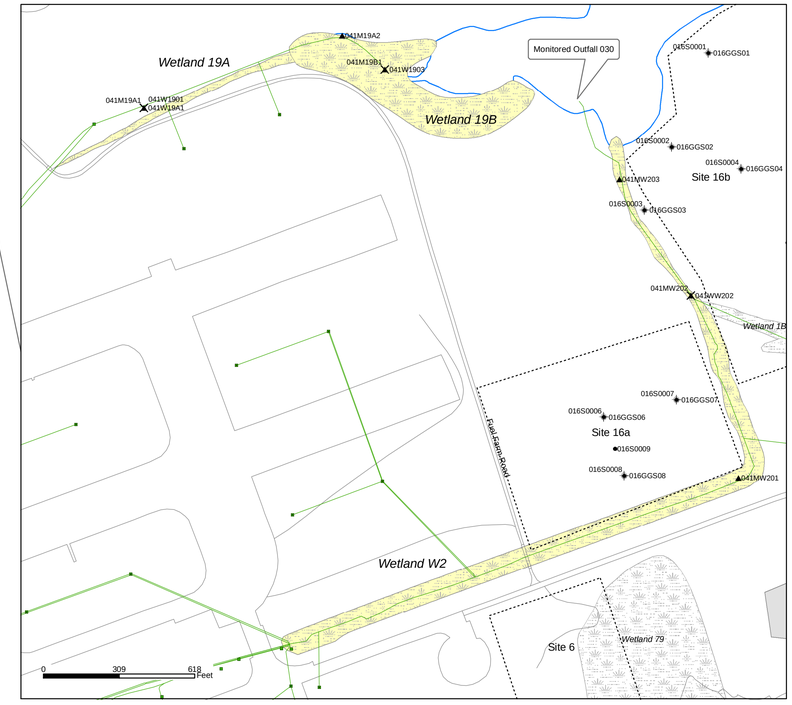
**Sitewide Sample Location**
- Sediment Sample
- Groundwater Well
- Misc Wetland-Approximate
- Wetland- Approximate
- Operable Unit (OU)
- Site
- Building
- Shoreline
- Road

Note:
Groundwater potentiometric contours are from the Site 19 Site Assessment Report Addendum, 4/10/2001.




Inset 1




Inset 2

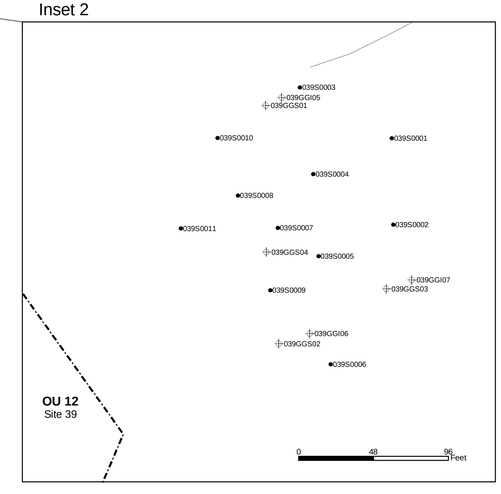



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**FIGURE 15-4**
**Miscellaneous Wetlands, Nearby Sites, and Adjacent Soil Borings and Monitoring Wells**

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## Legend

**Sitewide Sample Locations**

- Soil
- Site 41 RI Sediment
- Site 41 RI Surface Water
- Groundwater

- Operable Unit (OU)
- Site
- Wetland-Approximate
- Misc Wetland-Approximate
- Building

- Shoreline
- Road
- Storm water Pipe
- Storm water Inlet
- Storm water Headwall

N W E S

## Legend

**Site 41 RI Sediment Sample**

**Phase II Total DDT**

- 0.285 - 109.99
- 110.00(BL) - 3460.00

**Phase 2004 Total DDT**

- 0.79 - 31.50 [<110 (BL)]
- Operable Unit (OU)
- Site
- Wetland-Approximate
- Misc Wetland-Approximate
- Building
- Shoreline
- Road

Note:
BL is the total DDT basewide level.
Results units are ug/kg.
Only the miscellaneous wetlands have labels.

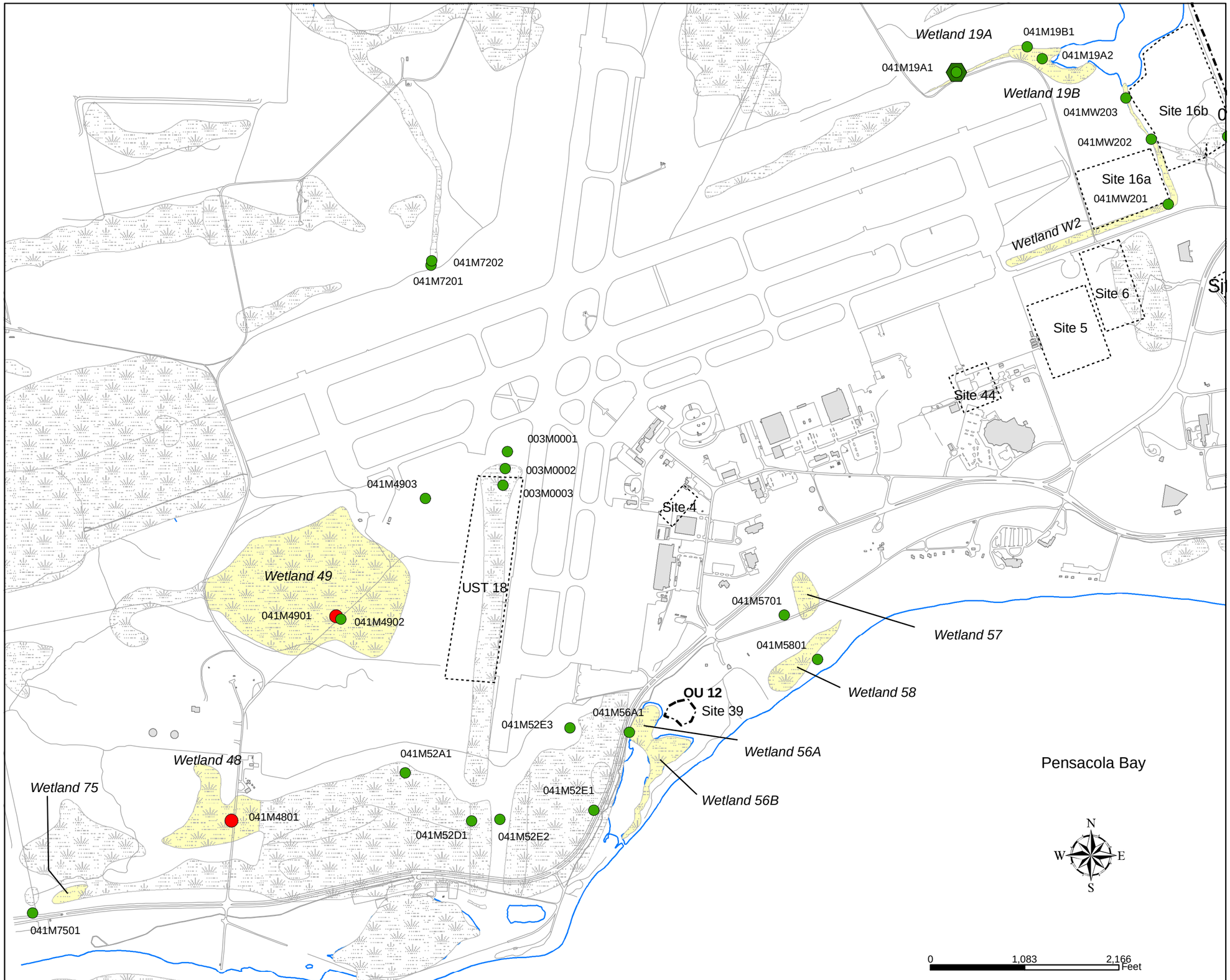


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**FIGURE 15-5**
**Miscellaneous Wetlands**
**Sediment Total DDT**

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## Legend

**Site 41 RI Sediment Sample**

**Phase II TOC Normalized Total PAHs**

- 1.94 - 289.99
- 290.00(TEC) - 1262.56

**Phase 2004 TOC Normalized Total PAHs**

- 10.40 - 174.53
- Nondetect TOC Normalized Total PAH
- Operable Unit (OU)
- Site
- Wetland-Approximate
- Misc Wetland-Approximate
- Building
- Shoreline
- Road

Note:
Only the miscellaneous wetlands have labels.
Results units are mg/kg-oc.

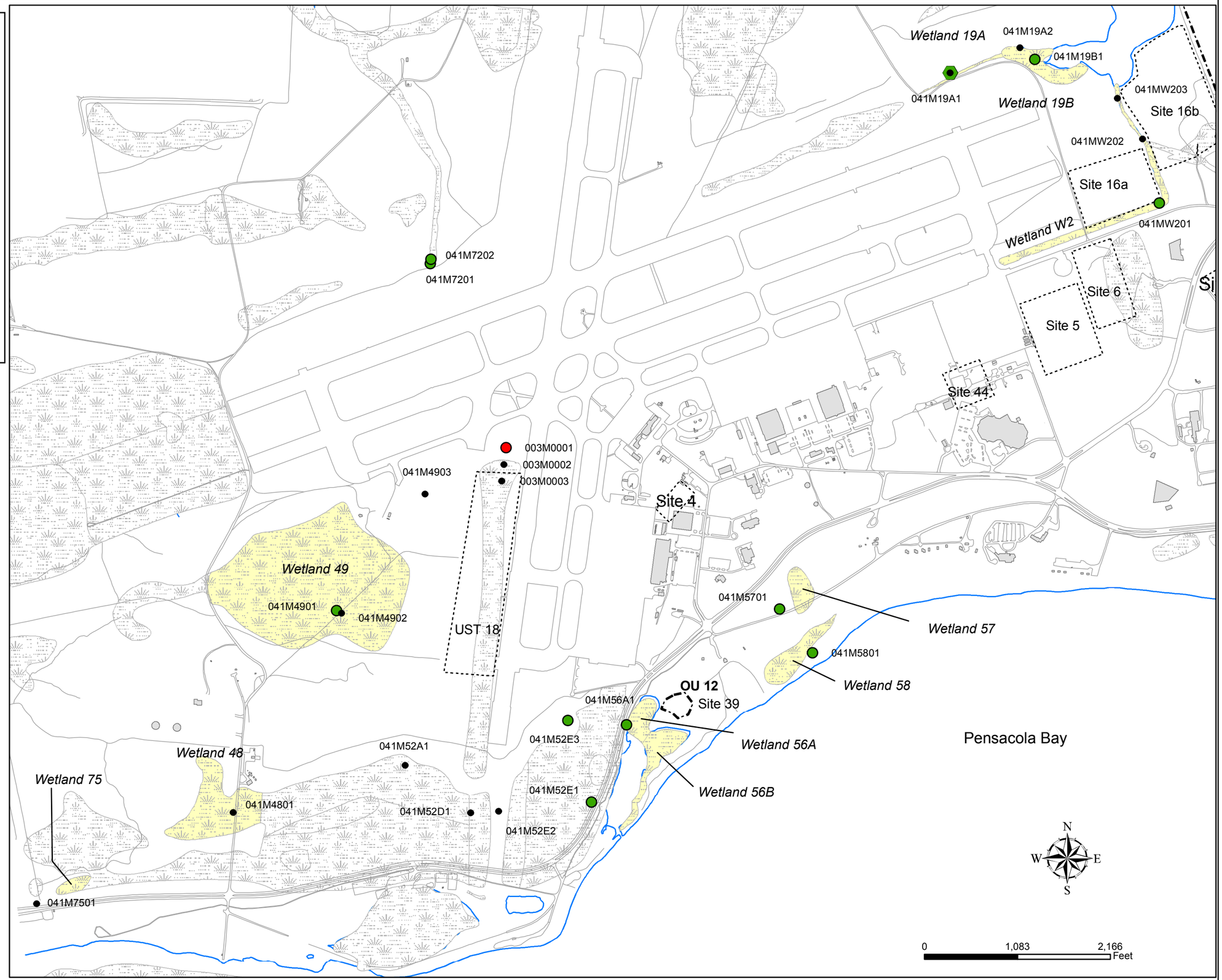


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**FIGURE 15-6**
**Miscellaneous Wetlands**
**Sediment Swartz Normalized Total PAHs**

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**NAS Pensacola, FL**

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## Legend

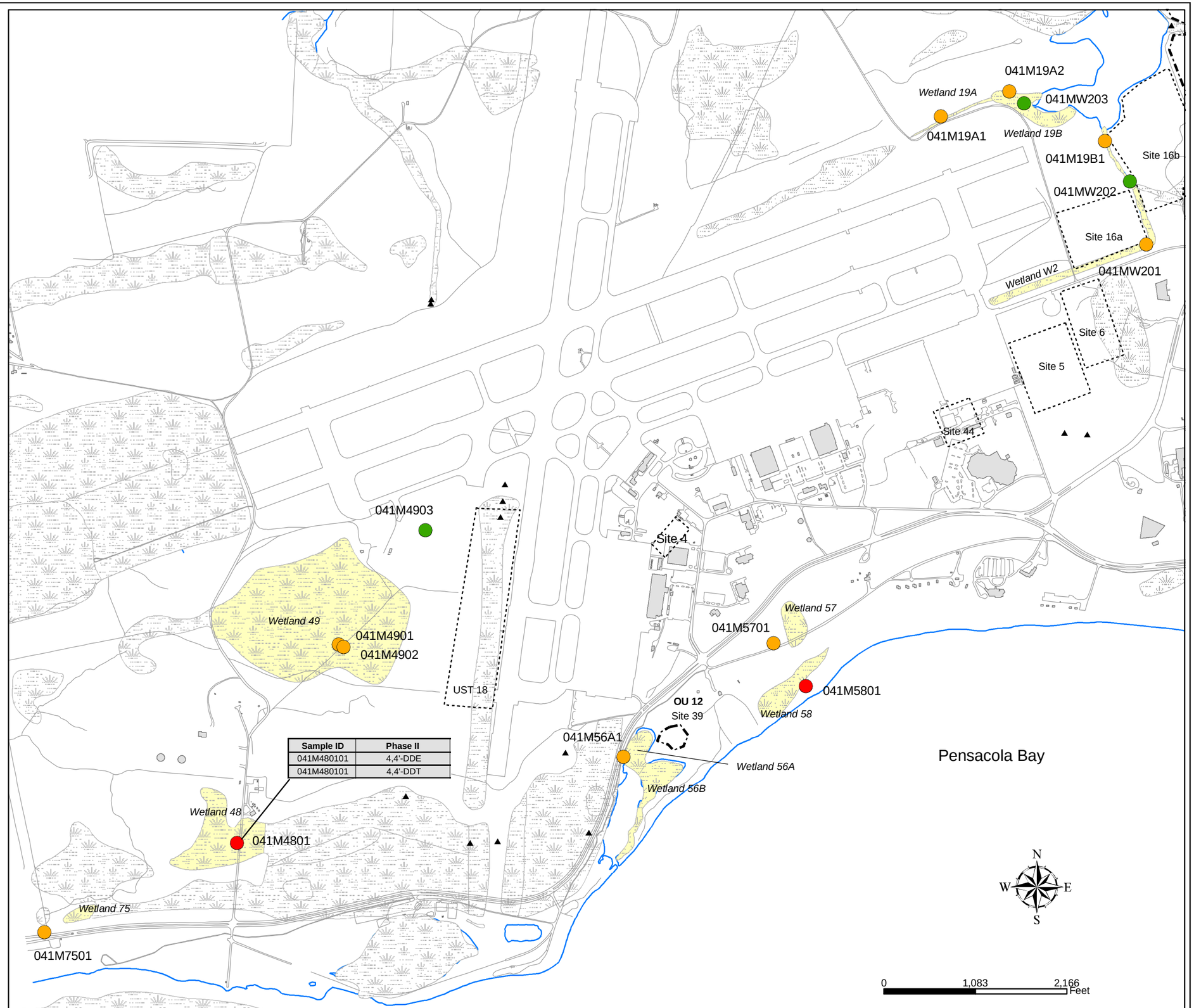
### Misc Wetland Sediment Sample with ERM Category

**Phase II Mean ERM Quotient Category**

- 1
- 2
- 3
- Site 41 RI Sediment associated to another OU
- Site
- Operable Unit (OU)
- Misc Wetland in Site 41 RI- Approximate
- Wetland-Approximate
- Building
- Road
- Shoreline

| Table indicates parameters that exceeded the ERM for each sample phase. | | | | |
|---|---|---|---|---|
| Sample ID | Phase II | Phase III | Phase 2001 | Phase 2004 |

Note:
Sample without a parameter table do not have parameters that exceeded the ERM value.
Only the misc wetlands have labels.




| Sample ID | Phase II |
|---|---|
| 041M480101 | 4,4'-DDE |
| 041M480101 | 4,4'-DDT |

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**FIGURE 15-7**
**Miscellaneous Wetlands Sediment Sample ERM Quotient Categories and Parameters that Exceed the ERM**

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**Site 41**
**NAS Pensacola, FL**

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## Legend

**Sediment Sample**

- Chemistry only
- Chemistry and Toxicity

**Surface Water Sample**

- Total and Dissolved Metals only
- Total and Dissolved Metals and VOCs
- Chemistry only
- Chemistry and Toxicity
- Species Diversity Sample
- Fish Tissue Sample
- Proposed Surface Water Sample Not Collected
- Operable Unit (OU)
- Site
- Wetland-Approximate
- Misc Wetland-Approximate
- Building
- Shoreline
- Road

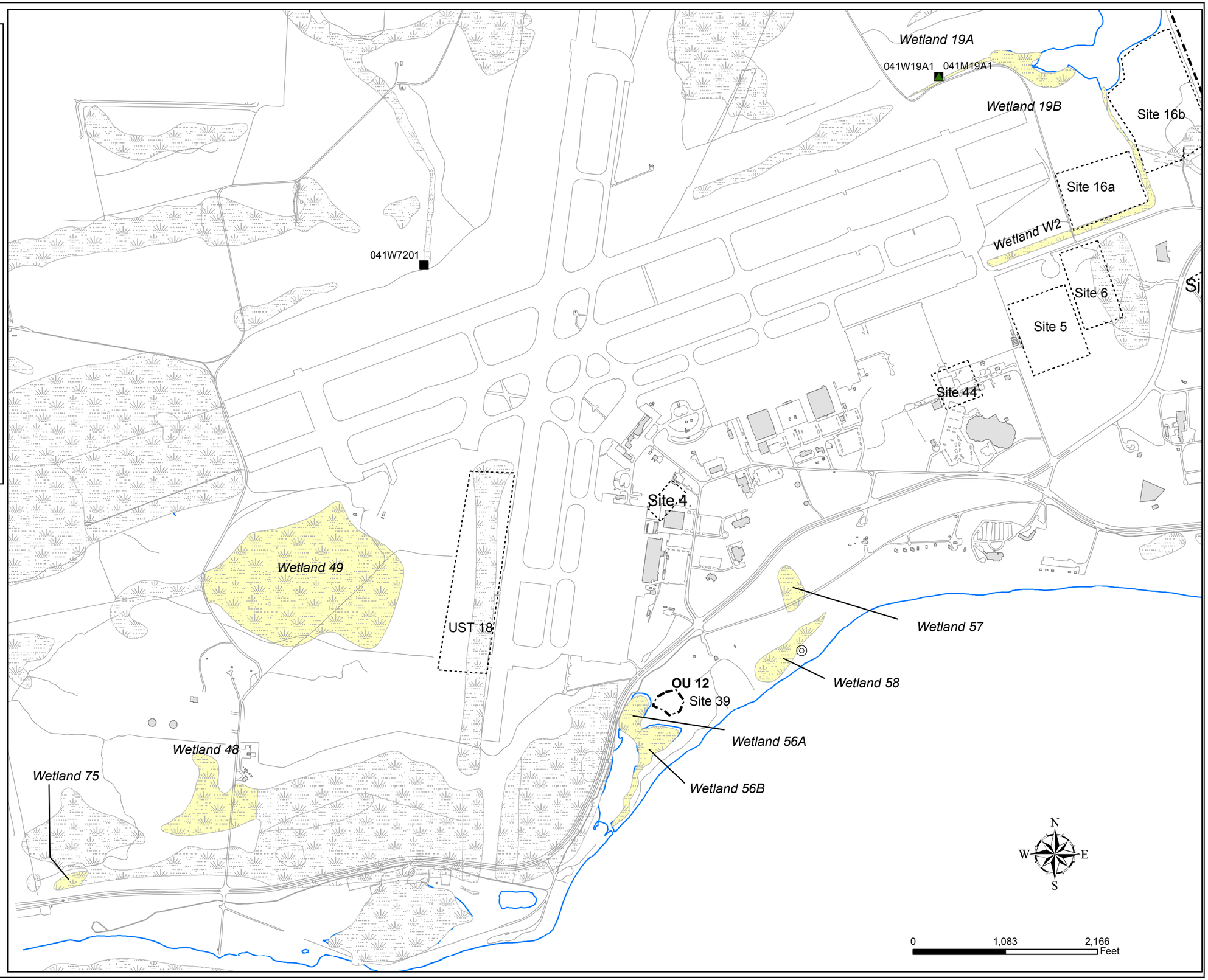


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**FIGURE 15-8**
**Miscellaneous Wetlands**
**Chemistry and Toxicity Sample Locations**

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**Site 41**
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## 15.1 Wetland 19 — Screening Level Problem Formulation

### 15.1.1 Site Description and Habitats Present at Wetland 19

Wetland 19 is at the southwest end of Redoubt Bayou, which drains to the north into Bayou Grande. The area that makes up Wetland 19 is approximately 2.2 acres in size. Wetland 19 is a confluence of the surface water drainage from Wetland 20. This system drains surface water from the northeast side of Forrest Sherman Field and flows eastward through Wetland 19 into the southwest end of Redoubt Bayou. Surface water from Wetland 19A flows over a weir before discharging into Wetland 19B (an estuarine marsh) and then into Redoubt Bayou. A grassy right-of-way area along portions of Wetland 19 is periodically mowed (Figure 15-1).

The IR site potentially affecting Wetland 19 is Site 16 (Brush Disposal Site). Site 16 has been used for disposal of brush from pruning and tree trimming from the 1960s to the present. Site 16 occupies approximately 30 acres of a sparsely vegetated, open field immediately northeast of Sherman Field. It was reportedly used between the late 1960s to 1973 for the disposal of pruning and tree-trimming refuse. However, the area may have been used for garbage incineration and ash disposal. There was no evidence of chemical usage onsite. A visual inspection showed evidence of brush and several pieces of metal onsite.

Inorganic in site soil were similar to those identified at other sites in the area. Elevated soil PAH concentrations likely originated from a source not related to site activities (E/A&H, 1997a). Detected concentrations of aluminum and iron in groundwater were below their respective reference concentrations at all locations but one for each constituent. The EPA (USEPA Region 4, 1997c) and FDEP (FDEP, 1997a) approved alternative for Site 16 was no action.

**Photograph 1 Wetland 19 — Facing Southwest**

Parsons and Pruitt (USEPA, 1991a) divided Wetland 19 into two parts, Wetland 19A and 19B. Wetland 19A is described as a palustrine emergent system, and Wetland 19B is described as an estuarine emergent system. For the current report, Wetland 19 has been separated and will be discussed separately within this section (Wetland 19A and Wetland 19B).

### 15.1.2 Wetland 19 — Sample Location Description

**Phase II Sediment Sample Location Description — Wetland 19A**

Two sediment samples were collected and analyzed for the Wetland 19A ERA. Sample locations for Wetland 19A were located in areas of the wetland described as a palustrine emergent system (Figure 15-4). Table 15-1-1 (tables are located at the end of each section) provides a physical description of the sediments collected at Wetland 19A. Sediments at Wetland 19A varied at both locations. Sample location 041M19A101 was composed of brown silt with 0.423% TOC and sample location 041M19A201 was composed of light olive brown poorly graded sand, fine with 0.0674% TOC.

**Phase IV Sediment Sample Location Description — Wetland19A**

One additional sediment sample was collected and analyzed for the Wetland 19A ERA in 2004 due to elevated concentrations detected during the Phase II investigation. The sample location (041M19A101) for Wetland 19A was located in an area of the wetland where depositional areas and groundwater seeps could occur. This sample location is centrally located within the wetland (Figure 15-4). The TOC concentration equaled 0.17%, denoting the average expected organic content for this area.

**Phase II Surface Water Sample Location Description — Wetland 19A**

One surface water sample was collected at Wetland 19A, location 041W190101 (Figure 15-4), which was collocated with sediment location 041M19A101. The surface water sample was taken during the 1996 site investigation. Table 15-1-2 provides a physical description of the surface water collected at Wetland 19A. Surface water at Wetland 19A had a pH concentration of 6.20. Specific conductivity concentration was 0.103 mS/cm. Hardness as $CaCO_3$ reported a concentration of 71.8 mg/L, and salinity was 0%. Surface water at Wetland 19A had a turbidity reading of 41 NTUs.

**Phase IV Surface Water Sample Location Description — Wetland 19A**

One surface water sample was collected in 2004 at Wetland 19A, location 041W19A102 (Figure 15-4). The surface water sample was taken during the Phase IV site investigation. Due to sampling errors, physical description of the surface water was not recorded during this phase of the investigation.

**Phase II Sediment Sample Location Description — Wetland 19B**

Wetland 19B is an estuarine emergent system. A sediment samples was collected and analyzed for the Wetland 19B ERA. Sample location for Wetland 19B was located at the point where the wetland meets Redoubt Bayou (Figure 15-4). Table 15-1-3 provides a physical description of the sediments collected at Wetland 19B. Sediment at 041M19B101 was a very dark gray poorly graded sand, fine with a trace of silt. The TOC concentration for Wetland 19B was 0.21%.

**Phase II Surface Water Sample Location Description — Wetland 19B**

One surface water sample was collected at Wetland 19B (041W190301) and collocated with sediment sample 041M19B101 collected from this wetland (Figure 15-4). Table 15-1-4 provides a physical description of the surface water collected at Wetland 19B. Surface water at Wetland 19B had a pH concentration of 5.57. Specific conductivity concentration was 0.676 ms/cm. Hardness as $CaCO_3$ reported a concentration of 193 mg/L, and salinity was 0.35%. Surface water at Wetland 19B had a turbidity reading of 19 NTUs.

### 15.1.3 Nature and Extent of Contamination

Figure 15-4 presents the Phase II and Phase IV sediment and surface water sampling locations for Wetlands 19A and 19B.

**Wetland 19A Phase II Sediment**

Table 15-1-5 presents a summary of the Phase II analytical results of the two Wetland 19A sediment samples.

**Metals** — Seventeen metals were detected during Phase II sediment sampling at Wetland 19A. Location 041M19A101 had the greatest diversity of analytes detected and the highest concentrations of each analyte detected at the wetland. This location had all 17 metals detected, seven of which exceeded their applicable freshwater reference values. These included aluminum, arsenic, barium, cobalt, iron, manganese, and vanadium. Location 041M19A201 had 14 metals detected; none of these exceeded their reference values.

**Pesticides and PCBs** — Six pesticide compounds and the PCB aroclor-1260 were detected during Phase II sediment sampling at Wetland 19A. Total DDT was calculated for each location by adding the concentrations of 4,4′-DDD, 4,4′-DDE, and 4,4′-DDT. Likewise, a basewide total DDT reference concentration was calculated using the basewide concentrations for these same constituents. None of the pesticides detected exceeded the available basewide reference values.

Both locations had three different pesticide compounds detected at relatively low concentrations. Aroclor–1260 was detected in the sample from location 041M19A201 at a low concentration.

**SVOCs** — No SVOCs were detected during Phase II sediment sampling at Wetland 19A.

**VOCs** — One VOC, chloromethane, were detected during Phase II sediment sampling at Wetland 19A at sample location 041M19A201 at a low concentration.

### Wetland 19A Phase IV Sediment

Table 15-1-6 presents a summary of the analytical results of the single Wetland 19A sediment sample collected during Phase IV investigation. Based on the Phase II analytical results, a confirmatory sample was collected in 2004 at location 041M19A101.

**Metals** — Seventeen metals were detected during sediment sampling performed during 2004 at Wetland 19A. Location 041M19A101, which exhibited elevated concentrations during Phase II, was revisited to confirm earlier results. This location had 17 metals detected; none of these exceeded their reference values. Overall, the concentrations reported during the Phase IV investigation show a remarkable decrease in concentrations. Although detected during Phase II sampling, Cobalt was not detected during this investigation. Antimony, not detected during the Phase II sampling, was detected at a low concentration during the Phase IV sampling event.

**Pesticides and PCBs** — Pesticide compounds or PCBs were not detected during the Phase IV sediment sampling performed at Wetland 19A.

**SVOCs** — Two SVOCs were detected during the recent 2004 sampling at Wetland 19A. Pentachlorophenol and phenanthrene were both detected at low concentrations in the sample from location 041M19A101. No SVOCs were reported during the Phase II sampling event.

**VOCs** — Carbon tetrachloride and chloroform were detected during the Phase IV sampling at Wetland 19A. Both were detected are relatively low concentrations. Neither compound was detected during previous sampling.

### Summary of Phase II and Phase IV Sediment Sampling Results

Metals were more common and detected at higher concentrations at location 041M19A101, near the upstream western portion of the wetland. Pesticides, although widely distributed in the wetland, were

all detected at very low concentrations. The Phase IV analytical results showed a remarkable decrease in metals detected in Wetland 19A sediments as compared to the Phase II results.

### Wetland 19A Phase II Surface Water

Table 15-1-7 presents a summary of the Phase II analytical results of the single Wetland 19A surface water sample.

**Metals** — Nineteen metals were detected in the Phase II surface water sample collected from location 041W190101 at Wetland 19A. Of these 19 detections, 16 were present at concentrations exceeding their respective fresh water reference values. These included aluminum, antimony, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, vanadium, and zinc.

**Pesticides and PCBs** — Pesticides compounds or PCBs were not detected in this surface water sample.

**SVOCs** — A single SVOC, di-n-butylphthalate, was detected in the surface water sample at a low concentration.

**VOCs** — No VOCs were detected in the Phase II surface water sample collected from Wetland 19A.

### Wetland 19A Phase IV Surface Water

Table 15-1-8 presents a summary of the analytical results of the single Wetland 19A surface water sample collected during 2004. Based on the Phase II analytical results, a confirmatory sample was collected at location 041M19A102. This sample was analyzed for metals only.

**Metals** — Eleven metals were detected in the Phase IV surface water sample collected from location 041W19A102 at Wetland 19A. Of these 11 detections, only barium and manganese were present at concentrations exceeding their respective fresh water reference values. It is important to note that all concentrations decreased significantly from the Phase II results.

### Wetland 19B Phase II Sediment

Table 15-1-9 presents a summary of the Phase II analytical results of the single Wetland 19B sediment sample.

**Metals** — Fourteen metals were detected during Phase II sediment sampling at Wetland 19B. Although location 041M19B101 had 14 analytes detected, none of these analytes were present at concentrations exceeding the estuarine reference values.

**Pesticides and PCBs** — Seven pesticide compounds and the PCB aroclor-1260 were detected during Phase II sediment sampling at Wetland 19B. Total DDT was calculated for each location by adding the concentrations of 4,4′-DDD, 4,4′-DDE, and 4,4′-DDT. Likewise, a basewide total DDT reference concentration was calculated using the basewide concentrations for these same constituents. All of the pesticides detected were at low concentrations, and none of the pesticides detected exceeded the available basewide reference values. Aroclor-1260 was also detected at a low concentration.

**SVOCs** — Two SVOCs were detected during Phase II sampling at Wetland 19B. Fluoranthene and pyrene were both detected at low concentrations in the sample from location 041M19B101.

**VOCs** — No VOCs were detected during the Phase II sediment sampling at Wetland 19B.

**Wetland 19B Phase II Surface Water**

Table 15-1-10 presents a summary of the Phase II analytical results of the single Wetland 19B surface water sample.

**Metals** — Thirteen metals were detected in the Phase II surface water sample collected from location 041W190301 at Wetland 19B. Of these 13 detections, only arsenic, iron, and manganese were present at concentrations exceeding their respective estuarine reference values.

**Organics** — There were no organic constituents detected in the Phase II surface water samples collected for the Wetland 19B investigation.

### 15.1.4 Ecological Risk Assessment

#### 15.1.4.1 Phase II Investigation Summary — Wetland 19A

**Sediment Screening — Level Risk-Exposure Estimation and Risk Calculation**

As presented in Table 15-1-11, the sediment samples were compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than 1 or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-1-12.

**Baseline Problem Formulation — Wetland 19A Sediment COPC Refinement**

During the COPC refinement, additional information was used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as preliminary COPCs. This risk assessment presents a statement of potential risk for each of the COPCs.

The COPC refinement process included:

- Comparison of maximum concentrations to RVs
- Comparison of average concentrations to SVs and RVs
- Comparison to basewide (reference) concentrations for total DDT
- Comparison of inorganic constituents to reference wetland values
- Interpretative tool for metals
- Di Toro EqP SQGs for VOCs
- Comparison to Swartz consensus values
- Mean ERM quotients
- Description of exceedances of RVs and their extent

The methods used in the COPC refinement in the Site 41 ERA process are detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-1-13. COPCs retained during the ERA process are presented in Table 15-1-14. Additionally, the tables compare: 1) average concentrations to screening and refinement values to assess potential exposure across the entire wetland, and 2) Wetland 19A concentrations to reference concentrations.

For Wetland 19A, aluminum, arsenic, barium, cobalt, iron, manganese, and vanadium exceeded their Site 41 freshwater sediment reference concentrations. Appendix K shows that arsenic and barium concentrations were below the expected natural background conditions for both normalizers; therefore, both constituents were dropped as COPCs. This interpretative tool did not address aluminum, cobalt, manganese, vanadium, or iron as being a part of the normalizing equation.

Endosulfan I and heptachlor epoxide were detected and retained as COPCs during the ERA process due to lack of screening values. The VOC chloromethane was also detected and retained through the refinement process.

Table 15-1-15 presents the Mean ERL and ERM values, the Mean ERM Quotients, and the Mean ERM Quotient Category by individual sample location. Based on this approach, both sample locations (041M19A101 and 041M19A201) were determined to be Category 2, which, according to tests

evaluated in developing this methodology, had average survival rates of approximately 80% of control sediments; however, this category also has the highest level of uncertainly. Figure 15-7 also shows the Mean ERM category for each sediment sample location at Wetland 19A.

At Wetland 19A, aluminum, barium, iron, manganese, and vanadium were detected at both sample locations. All maximum detections occurred at sample location 041M19A101.

Endosulfan I and heptachlor epoxide were detected at sample location 041M19A101, with maximum detections of 5.3 µg/kg and 26 µg/kg, respectively. No background values were available for these compounds. Total BHC had a maximum concentration of 1.36 µg/kg at sample location 041M19A101 and was not retained through the ERA process.

**Surface Water Screening — Level Risk-Estimation and Risk Calculation**

As presented in Table 15-1-16, the surface water sample was compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than one or with no screening values were carried forward to COPC refinement. A list of COPCs retained is presented in Table 15-1-17.

**Baseline Problem Formulation — Wetland 19A Surface Water COPC Refinement**

During the surface water COPC refinement, additional information was used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as COPCs.

The COPC refinement process included:

- Comparison of maximum SV concentrations to average SV concentrations
- Comparison of inorganic constituents to reference wetland values
- Description of surface water exceedances and their extent

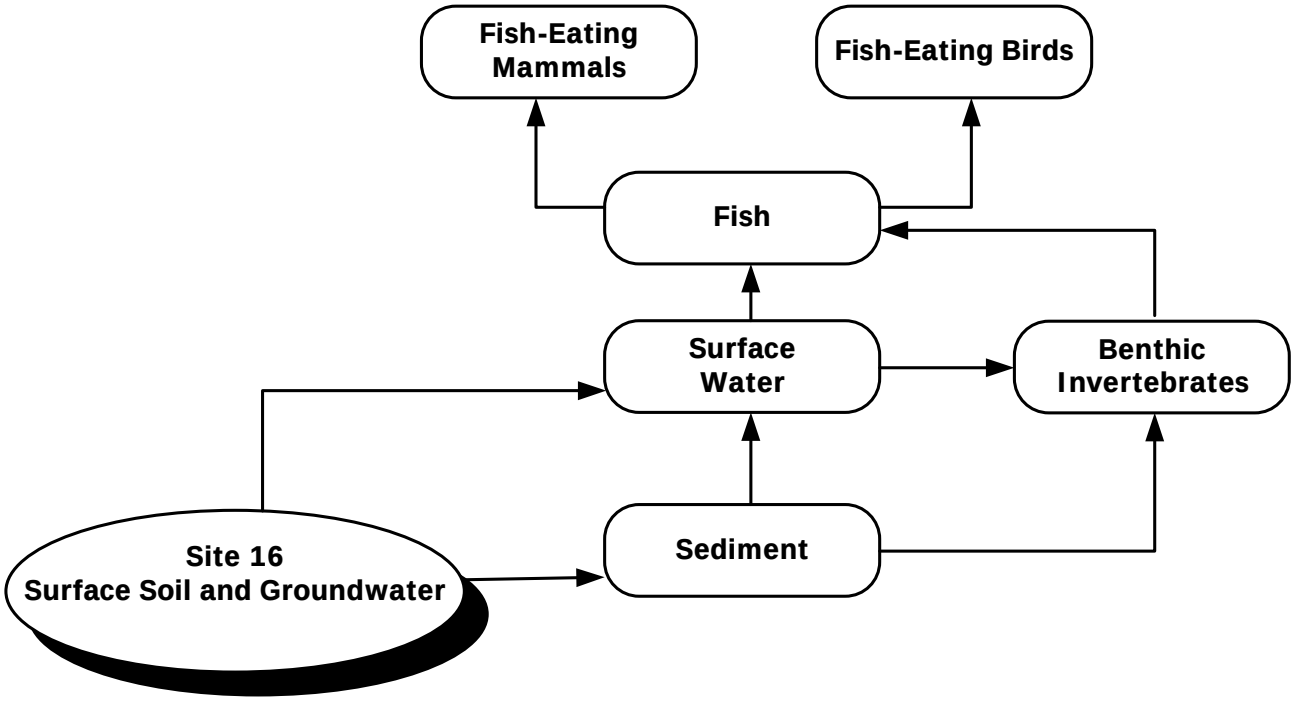
The methods used in the COPC refinement in the Site 41 ERA process are detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-1-18. Additionally, the tables compare average concentrations to screening and refinement values to assess potential exposure across the entire wetland. COPCs retained during the ERA process are presented in Table 15-1-19.

For Wetland 19A, aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, manganese, mercury, vanadium, and zinc exceeded their Site 41 freshwater reference surface water concentrations at sample location 041W190101 (Table 15-1-20). Di-n-butylphthalate was also detected at this location and retained as a COPC.

At Wetland 19A during the Phase II investigation, five of the same constituents were detected and retained in sediment and surface water samples. These constituents were aluminum, cobalt, iron, manganese, and vanadium.

The conceptual model below symbolizes which environmental habitats may be impacted by Wetland 19A Phase II constituents retained during the ERA Process.

**Wetland 19**
**Conceptual Site Model**



#### 15.1.4.2 Phase IV Investigation Summary — Wetland 19A

**Sediment Screening — Level Risk-Exposure Estimation and Risk Calculation**

As presented in Table 15-1-20, the sediment sample was compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than one or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-1-21.

**Baseline Problem Formulation — Wetland 19A Sediment COPC Refinement**

The same approach used to refine the Phase II Wetland 19A sediments (Section 15.1.4.1) was applied to the Phase IV/2004 Wetland 19A sediments.

The methods used in the COPC refinement for the Site 41 ERA process are detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-1-22. A list of retained COPCs is presented in Table 15-1-23. Additionally, the tables compare: 1) average concentrations to screening and refinement values to assess potential exposure across the entire wetland, and 2) Wetland 19A concentrations to reference concentrations.

At Wetland 19A, total DDT was below the basewide level, indicating that 4,4'-DDT and its daughter products are not a concern for this wetland. For Wetland 19A, none of the inorganic constituents exceeded their Site 41 freshwater sediment reference concentrations. Carbon tetrachloride and chloroform were detected in sediment samples at Wetland 19A. When normalized to detected TOC concentrations, VOCs did not appear to be risk drivers for Wetland 19A. There were no PAHs detected as a group at this wetland. Pentachlorophenol was detected at sample location 041M19A101, with a detection of 68 mg/kg.

Table 15-1-24 presents the Mean ERL and ERM values, the Mean ERM Quotients, and the Mean ERM Quotient Category by individual sample location. Based on this approach, the sample location (041M19A101) was determined to be Category 2, which, according to tests evaluated in developing this methodology, had average survival rates of approximately 80% of control sediments; however, this Category also has the highest level of uncertainty. Figure 15-7 also shows the Mean ERM category for each sediment sample location at Wetland 19A.

**Surface Water Screening — Level Risk-Estimation and Risk Calculation**

As presented in Table 15-1-25, the surface water sample was compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than one or

with no screening values are carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-1-26.

**Baseline Problem Formulation — Wetland 19A Surface Water COPC Refinement**

The same approach used to evaluate surface water during the Phase II (15.1.4.1) investigation was used to evaluate the Phase IV surface water.

The methods used in the COPC refinement in the Site 41 ERA process are detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-1-27. Additionally, the tables compare average concentrations to screening and refinement values to assess potential exposure across the entire wetland. COPCs retained through the ERA process are presented in Table 15-1-28.

For Wetland 19A, barium and manganese exceeded their Site 41 freshwater reference surface water concentrations at sample location 041W19A102 and were retained as COPCs (Table 15-1-28).

#### 15.1.4.3 Comparison of Phase II and IV Sample Results — Wetland 19A

Both the Phase II and IV results indicated inorganic constituents and pesticides were of greatest concern at Wetland 19A; however, concentrations dropped among constituents between the two phases. There were no sediment constituents in common retained between the phases. Barium and manganese were the only constituents retained in surface water for both sampling efforts. Barium was detected at 041W19A101 with a concentration of 300 µg/L during the Phase II sampling event; however, it decreased during the Phase IV sampling effort to a concentration of 8.5 µg/L at sample location 041W19A102. Manganese was detected a sample location 041W19A101 with a concentration of 12,700 µg/L during the Phase II sampling effort and was detected at sample location 041W19A102 with a concentration of 18 µg/L during the Phase IV sampling event.

Based on the Phase II results described above, Wetland 19 was identified as a Blue-Coded Wetland in the approved *Final RI/FS SAP Addendum* (E/A&H, 1997d), indicating that contaminants were present generally below screening values, and contaminants did not appear to be site related. Blue-Coded Wetlands were not assessed further in Phase III. However, to assess potential risks from contaminants that bioaccumulate, the results from Wetland 19 will be used in the food-chain model for the remaining wetlands presented in Section 15.8.

#### 15.1.4.4 Phase II Investigation Summary — Wetland 19B

**Sediment Screening — Level Risk-Exposure Estimation and Risk Calculation**

As presented in Table 15-1-29, the sediment samples were compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than one or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-1-30.

**Baseline Problem Formulation — Wetland 19B Sediment COPC Refinement**

The same approach used to refine Wetland 19A sediments (Section 15.1.4.1) was applied to Wetland 19B sediments.

The methods used in the COPC refinement for the Site 41 ERA process are detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-1-31. Additionally, the tables compare: 1) average concentrations to screening and refinement values to assess potential exposure across the entire wetland, and 2) Wetland 19B concentrations to reference concentrations. COPCs retained through the ERA process presented in Table 15-1-33.

For Wetland 19B, none of the constituents detected exceeded their Site 41 freshwater sediment reference concentrations. Heptachlor epoxide was detected and retained as a COPC due to a lack of screening criteria. No VOCs were detected at Wetland 19B; however, when normalized to detected TOC concentrations, PAHs did not appear to be a risk driver for this wetland.

Table 15-1-33 presents the Mean ERL and ERM values, the Mean ERM Quotients, and the Mean ERM Quotient Category by individual sample location. Figure 15-7 shows the Mean ERM Category for each sediment sample at Wetland 19B. Based on the methods and the approach detailed in Section 8, sample location 041M19B101 was determined to be Category 1, indicating the sediment at this location were considered to be nontoxic.

At Wetland 19B, a maximum concentration of 0.22 mg/kg of heptachlor epoxide was detected at sample location 041M19B101. There was no screening value for this constituent; therefore, this constituent was retained during the ERA process.

**Surface Water Screening — Level Risk-Estimation and Risk Calculation**

As presented in Table 15-1-34, the surface water sample was compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than one or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-1-35.

**Baseline Problem Formulation — Wetland 19B Surface Water COPC Refinement**

The same approach used to refine Wetland 19A surface water (Section 15.1.4.1) was applied to Wetland 19B surface water.

The methods used in the COPC refinement in the Site 41 ERA process are detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-1-36. Additionally, the tables compare average concentrations to screening and refinement values to assess potential exposure across the entire wetland. COPCs retained after refinement are presented in Table 15-1-37.

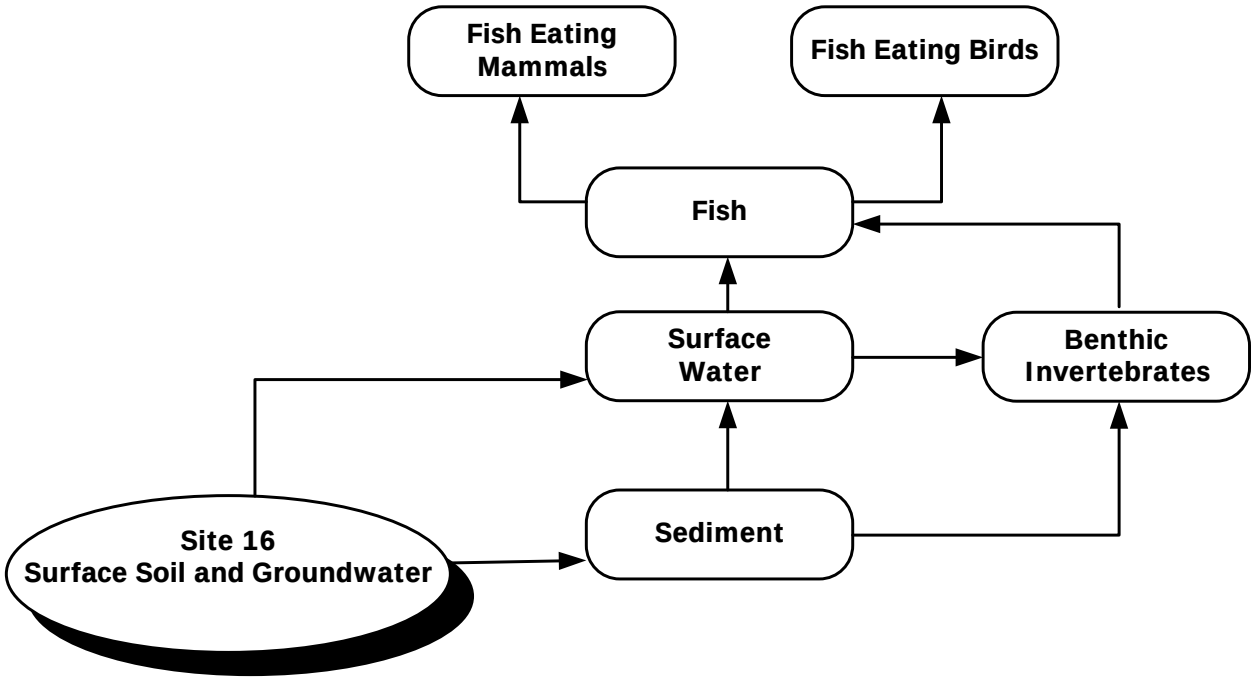
For Wetland 19B, iron and manganese exceeded their Site 41 freshwater reference concentrations (Table 15-1-37). Maximum detections of the essential nutrients calcium, magnesium, potassium, and sodium were all below reference wetland ranges and were not carried forward in the ERA Process.

At Wetland 19B, iron and manganese were detected at sample location 041W190301, with maximum concentrations of 4,030 µg/L and 26.3 µg/L, respectively. Both constituents exceeded their reference concentrations.

At Wetland 19B during the Phase II investigation, none of the same retained constituents were detected in sediment and surface water samples.

The conceptual model below symbolizes which environmental habitats may be impacted by Wetland 19B Phase II constituents retained during the ERA process.

**Wetland 19**
**Conceptual Site Model**




Based on the Phase II results described above, Wetland 19 was identified as a Blue-coded wetland in the approved *Final RI/FS SAP Addendum* (E/A&H, 1997d), indicating that contaminants were present generally below screening values, and contaminants did not appear to be site related. Blue-coded wetlands were not assessed further in Phase III. However, to assess potential risks from contaminants that bioaccumulate, the results from Wetland 19 will be used in the food-chain model for the remaining wetlands presented in Section 15.8.

### 15.1.5 Wetland 19 — Human Health Risk Assessment

Wetland 19 is described in Section 15.1.1, and the HHRA is summarized below.

#### 15.1.5.1 Site Data

Section 15.1.3 summarizes the nature and extent of contamination for this wetland. Surface water and sediment data were collected at Wetland 19A and 19B during Phases II and IV of the RI. Sediment and surface water data for Wetland 19A are summarized in Tables 15-1-5 and 15-1-7 (Phase II data), and Tables 15-1-6 and 15-1-8 (Phase IV data). Sediment and surface water data for Wetland 19B are summarized in Tables 15-1-9 and 15-1-10 (Phase II data).

#### 15.1.5.2 Conceptual Site Model

As described in Section 15.1.1, Wetland 19 is suspected of being impacted by Site 16, the Brush Disposal Area. Site 16 occupies approximately 30 acres of a sparsely vegetated, open field immediately northeast of Sherman Field. Because Wetland 19 is located in a restricted area of the base, the wetland is only accessible to Navy personnel, and fishing would not occur in this area.

Wetland 19A is intermittently flooded; therefore, contact with sediment and surface water is possible. Samples collected during the Phase IV sediment investigation at Wetland 19A are submerged year-round; therefore, there is no human exposure assessment. Wetland 19B is continually inundated. Therefore, in accordance with USEPA Region IV Supplemental Guidance to RAGS Bulletins (2000) described in Section 9, sediment exposure was not assessed for Wetland 19B, because it is assumed to be an insignificant exposure pathway. Contact with surface water while wading would be an exposure scenario.

The following scenarios and exposure pathways were evaluated for this wetland:

**Wetland 19A**

| Scenario | Medium | Ingestion | Dermal |
|---|---|---|---|
| Maintenance | Surface water | √ | √ |
| | Sediment | √ | √ |

**Wetland 19B**

| Scenario | Medium | Ingestion | Dermal |
|---|---|---|---|
| Maintenance | Surface water | √ | √ |

#### 15.1.5.3 Risk Characterization

**Wetland 19A**

The adult maintenance worker scenario for surface water and sediment were assessed for this wetland as described in Section 9.

**Wetland 19B**

The adult maintenance worker scenario for surface water was assessed for this wetland as described in Section 9.

**Wetland 19A**

**Phase II Data**

***Maintenance Worker***

As shown in Tables 15-1-38 through 15-1-40, sediment ingestion and dermal contact risk estimates for maintenance workers exceed the FDEP risk threshold of 1E-6 for arsenic. Hazard indices were below 1.0.

As shown in Tables 15-1-41 through 15-1-43, surface water dermal contact risk estimates for maintenance workers exceeds the FDEP risk threshold of 1E-6 for arsenic. Hazard indices were below 1.0.

**Summary of Wetland 19A Phase II Risk Estimates**

| Scenario | Medium | Hazard Index | Risk |
|---|---|---|---|
| Maintenance | Sediment | 2.70E-02 | 3.82E-06 |
| | Surface water | 4.11E-01 | 1.93E-05 |

Based on Phase II data, arsenic was identified as COCs for Wetland 19A.

**Wetland 19A**

**Phase IV Data**

***Maintenance Worker***

As shown in Tables 15-1-44 through 15-1-46, surface water ingestion and dermal contact risk estimates for maintenance workers were below the FDEP risk threshold. Hazard indices were below 1.0.

**Summary of Wetland 19A Phase IV Risk Estimates**

| Scenario | Medium | Hazard Index | Risk |
|---|---|---|---|
| Maintenance | Surface water | 4.27E-03 | N/A |

Based on Phase IV data, no COCs for Wetland 19A were identified.

**Wetland 19B**

**Phase II Data**

***Maintenance Worker***

As shown in Tables 15-1-47 through 15-1-49, surface water ingestion and dermal contact risk estimates for maintenance workers were below the FDEP risk threshold. Hazard indices were below 1.0.

**Summary of Wetland 19B Phase II Risk Estimates**

| Scenario | Medium | Hazard Index | Risk |
|---|---|---|---|
| Maintenance | Surface water | 2.85E-03 | N/A |

Based on Phase II data, no COCs for Wetland 19B were identified.

**Wetland 19 HHRA COC Summary**

The following parameter was determined to be a COC in the HHRA for Wetland 19:

- Arsenic

### 15.1.6 Wetland 19A/19B — Complex Fate and Transport Analysis

Because these wetlands are contiguous, they were evaluated as a single complex. There are no borings or wells proximal to these wetlands; therefore, only the sediment/surface water transport pathways were completed.

Three sediment and two surface water samples were collected from this wetland complex and were used to evaluate the transport pathways. The wetland flows from the southwest to the northeast and empties into Bayou Grande.

***Surface Water/Sediment Transport within the Wetlands:***

To evaluate these pathways in the Wetland 19A/19B complex, upgradient sediment sample location 041M19A1 (sampled during Phase II) was compared to downgradient sediment locations 041M19A2 and 041M19B1 (sampled during Phase II). To evaluate the surface water pathway, upgradient surface water location 041W1901 was compared to downgradient surface water location 014W1903 (sampled during Phase II).

**Wetland 19A**

**Surface Water** — Evaluation of upgradient/downgradient Wetland 19 locations 041W1901 and 041W1903 indicated a decrease in detected inorganic parameters (19 metals and one organic versus 13 metals and zero organics, respectively). For metals, 10 parameters decreased in concentration and three constituents increased. Decreases were attributed to saltwater flushing of the system by Bayou Grande tidal currents (magnesium, potassium, and sodium, associated with saltwater,

exhibited significant increases). The only organic detected in the upgradient location was a phthalate and may be a laboratory artifact.

**Sediment** — Evaluation of Wetland 19 upgradient location 041M19A1 and downgradient location 041M19A2 indicated 17 metals and three organics detected in the upgradient location versus 14 metals and five organics in the downgradient location. TOC exhibited a marked decrease downgradient. For the metals, all 14 parameters in the downgradient location exhibited a decrease. For the organics, five compounds were present in 041M19A1 that were not detected in 041M19A2.

Evaluation of upgradient 041M19A2 with downgradient 041M19B1 indicates an increase in organic detections (14 metals and five organics at 041M19A2 versus 14 metals and 10 organics at 041M19B1). TOC exhibited an increase downgradient. For metals, all 14 parameters exhibited slight increases downgradient. For organics, six compounds were present at 041M19B1 that were not detected at 041M19A2. Of the four organics detected at both locations, all compounds exhibited a slight increase. The organics detected consisted of pesticides and BAP equivalents, all indicative of runoff from this area of Forrest Sherman Field.

**Table 15-1-1**
**Wetland 19A Phase II**
**Sediment Physical Parameters**

| Parameters | 041M19A101 | 041M19A201 |
|---|---|---|
| TOC (%) | 0.423 | 0.0674 |
| Percent Solids (%) | 15.9 | 76.9 |
| Grain Size Analysis (percent of composition[1]) | | |
| Medium Sand | 2 | 37 |
| Fine Sand | 10 | 62 |
| Silt and Clay | 88 | 1 |
| Description | Brown Silt | Light Olive Brown Poorly Graded Sand, Fine |

***Note:***

[1] = Derived from sieve analyses.

**Table 15-1-2**
**Wetland 19A Phase II**
**Surface Water Physical Parameters**

| Parameters | 041W190101 |
|---|---|
| Hardness as CaCO3 (mg/L) | 71.8 |
| pH | 6.2 |
| Specific Conductivity (mS/cm) | 0.103 |
| Turbidity (NTU) | 41 |
| Salinity (%) | 0 |

***Notes:***
mg/L = Milligrams per liter
pH = Hydrogen ion content
MS/cm = Millisiemens per centimeter
NTU = Nephelometric turbidity units
% = Percent

**Table 15-1-3**
**Wetland 19B Phase II**
**Sediment Physical Parameters**

| Parameter | 041M19B101 |
|---|---|
| TOC (mg/kg) | 0.21 |
| Percent Solids (%) | 76.2 |
| Grain Size Analysis (percent of composition[1]) | |
| Medium Sand | 17 |
| Fine Sand | 79 |
| Silt and Clay | 4 |
| Description | Very Dark Gray Poorly Graded Sand, Fine, Trace of Silt |

***Note:***
[1]= Derived from sieve analyses.

**Table 15-1-4**
**Wetland 19B Phase II**
**Surface Water Physical Parameters**

| Parameter | 041W190301 |
|---|---|
| Hardness as CaCO3 (mg/L) | 193 |
| pH | 5.57 |
| Specific Conductivity (mS/cm) | 0.676 |
| Turbidity (NTU) | 19 |
| Salinity (%) | 0.35 |

***Notes:***
mg/L = Milligrams per liter
pH = Hydrogen ion content
MS/cm = Millisiemens per centimeter
NTU = Nephelometric turbidity units
% = Percent

**Table 15-1-5**
**Wetland 19A Phase II**
**Sediment Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections | | Range of Detections | | Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| | | | Number Detected | Number Analyzed | Minimum Detection | Maximum Detection | | |
| **Metals (mg/kg)** | | | | | | | | |
| Aluminum | 13,610.0 | 1 | 2 | 2 | 494.0 | 18,900.0 | 9,700.0 | 041M19A101 |
| Arsenic | 6.620 | 1 | 2 | 2 | 0.170 | 15.70 | 7.940 | 041M19A101 |
| Barium | 14.0 | 1 | 2 | 2 | 0.580 | 30.20 | 15.40 | 041M19A101 |
| Beryllium | 0.840 | 0 | 1 | 2 | 0.480 | 0.480 | 0.258 | 041M19A101 |
| Calcium | 10,756.670 | 0 | 2 | 2 | 47.50 | 1,720.0 | 884.0 | 041M19A101 |
| Chromium | 39.370 | 0 | 2 | 2 | 1.20 | 16.50 | 8.850 | 041M19A101 |
| Cobalt | 2.80 | 1 | 1 | 2 | 3.40 | 3.40 | 1.730 | 041M19A101 |
| Copper | 19.50 | 0 | 2 | 2 | 0.780 | 10.70 | 5.740 | 041M19A101 |
| Iron | 11,911.670 | 1 | 2 | 2 | 545.0 | 16,800.0 | 8,670.0 | 041M19A101 |
| Lead | 82.470 | 0 | 2 | 2 | 1.20 | 16.20 | 8.70 | 041M19A101 |
| Magnesium | 7,513.330 | 0 | 2 | 2 | 30.10 | 572.0 | 301.0 | 041M19A101 |
| Manganese | 37.970 | 1 | 2 | 2 | 1.30 | 169.0 | 85.20 | 041M19A101 |
| Nickel | 9.280 | 0 | 1 | 2 | 7.0 | 7.0 | 3.650 | 041M19A101 |
| Potassium | 1,628.670 | 0 | 2 | 2 | 17.50 | 463.0 | 240.0 | 041M19A101 |
| Sodium | 18,993.330 | 0 | 2 | 2 | 18.60 | 137.0 | 77.80 | 041M19A101 |
| Vanadium | 28.670 | 1 | 2 | 2 | 0.990 | 35.40 | 18.20 | 041M19A101 |
| Zinc | 36.730 | 0 | 2 | 2 | 1.40 | 30.60 | 16.0 | 041M19A101 |
| **Pesticides and PCBs (µg/kg)** | | | | | | | | |
| Aroclor-1260 | N/A | 0 | 1 | 2 | 1.10 | 1.10 | 4.050 | 041M19A201 |
| Total PCBs | N/A | 0 | 1 | 2 | 8.350 | 8.350 | 31.90 | 041M19A201 |
| Dieldrin | N/A | 0 | 1 | 2 | 0.20 | 0.20 | 0.450 | 041M19A201 |
| Endosulfan I | N/A | 0 | 1 | 2 | 5.30 | 5.30 | 2.670 | 041M19A101 |
| Heptachlor epoxide | N/A | 0 | 1 | 2 | 26.0 | 26.0 | 13.0 | 041M19A101 |
| gamma-Chlordane | N/A | 0 | 1 | 2 | 1.30 | 1.30 | 0.675 | 041M19A101 |
| Total Chlordane | N/A | 0 | 1 | 2 | 1.640 | 1.640 | 0.870 | 041M19A101 |
| delta-BHC | N/A | 0 | 1 | 2 | 0.110 | 0.110 | 0.225 | 041M19A201 |
| Total BHC | N/A | 0 | 1 | 2 | 0.260 | 0.260 | 0.810 | 041M19A201 |
| 4,4'-DDE | 40.0 | 0 | 1 | 2 | 0.550 | 0.550 | 0.625 | 041M19A201 |
| Total DDT | 110.0 | 0 | 1 | 2 | 0.760 | 0.760 | 1.430 | 041M19A201 |
| **VOCs (µg/kg)** | | | | | | | | |
| Chloromethane | N/A | 0 | 1 | 2 | 2.0 | 2.0 | 2.0 | 041M19A201 |

***Notes:***
µg/kg = micrograms per kilogram
mg/kg = milligram per kilogram
N/A = Not Applicable

**Table 15-1-6**
**Wetland 19A Phase IV**
**Sediment Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | |
| Aluminum | 13,610.0 | 0 | 1 | 1 | 910.0 | 910.0 | 910.0 | 041M19A101 |
| Antimony | 4.430 | 0 | 1 | 1 | 1.10 | 1.10 | 1.10 | 041M19A101 |
| Arsenic | 6.620 | 0 | 1 | 1 | 0.560 | 0.560 | 0.560 | 041M19A101 |
| Barium | 14.0 | 0 | 1 | 1 | 0.990 | 0.990 | 0.990 | 041M19A101 |
| Beryllium | 0.840 | 0 | 1 | 1 | 0.036 | 0.036 | 0.036 | 041M19A101 |
| Calcium | 10,756.670 | 0 | 1 | 1 | 50.0 | 50.0 | 50.0 | 041M19A101 |
| Chromium | 39.370 | 0 | 1 | 1 | 0.950 | 0.950 | 0.950 | 041M19A101 |
| Copper | 19.50 | 0 | 1 | 1 | 0.470 | 0.470 | 0.470 | 041M19A101 |
| Iron | 11,911.670 | 0 | 1 | 1 | 540.0 | 540.0 | 540.0 | 041M19A101 |
| Lead | 82.470 | 0 | 1 | 1 | 1.50 | 1.50 | 1.50 | 041M19A101 |
| Magnesium | 7,513.330 | 0 | 1 | 1 | 27.0 | 27.0 | 27.0 | 041M19A101 |
| Manganese | 37.970 | 0 | 1 | 1 | 1.60 | 1.60 | 1.60 | 041M19A101 |
| Nickel | 9.280 | 0 | 1 | 1 | 0.260 | 0.260 | 0.260 | 041M19A101 |
| Potassium | 1,628.670 | 0 | 1 | 1 | 21.0 | 21.0 | 21.0 | 041M19A101 |
| Sodium | 18,993.330 | 0 | 1 | 1 | 3.50 | 3.50 | 3.50 | 041M19A101 |
| Vanadium | 28.670 | 0 | 1 | 1 | 1.50 | 1.50 | 1.50 | 041M19A101 |
| Zinc | 36.730 | 0 | 1 | 1 | 1.30 | 1.30 | 1.30 | 041M19A101 |
| **PAHs (µg/kg)** | | | | | | | | |
| Phenanthrene | N/A | 0 | 1 | 1 | 5.60 | 5.60 | 5.60 | 041M19A101 |
| Total PAHs | N/A | 0 | 1 | 1 | 32.70 | 32.70 | 32.70 | 041M19A101 |
| **SVOCs (µg/kg)** | | | | | | | | |
| Pentachlorophenol | N/A | 0 | 1 | 1 | 68.0 | 68.0 | 68.0 | 041M19A101 |
| **VOCs (µg/kg)** | | | | | | | | |
| Carbon tetrachloride | N/A | 0 | 1 | 1 | 2.30 | 2.30 | 2.30 | 041M19A101 |
| Chloroform | N/A | 0 | 1 | 1 | 3.40 | 3.40 | 3.40 | 041M19A101 |

***Notes:***
µg/kg = micrograms per kilogram
mg/kg = milligram per kilogram
N/A = Not Applicable

**Table 15-1-7**
**Wetland 19A Phase II**
**Surface Water Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Range of Detections: Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | |
| Aluminum | 1,090.25 | 1 | 1 | 1 | 111,000.0 | 111,000.0 | 111,000.0 | 041W190101 |
| Antimony | 4.0 | 1 | 1 | 1 | 19.2 | 19.2 | 19.2 | 041W190101 |
| Arsenic | 2.7 | 1 | 1 | 1 | 268.0 | 268.0 | 268.0 | 041W190101 |
| Barium | 3.68 | 1 | 1 | 1 | 300.0 | 300.0 | 300.0 | 041W190101 |
| Beryllium | 1.0 | 1 | 1 | 1 | 4.0 | 4.0 | 4.0 | 041W190101 |
| Calcium | 7,675.0 | 1 | 1 | 1 | 21,200.0 | 21,200.0 | 21,200.0 | 041W190101 |
| Chromium | 8.0 | 1 | 1 | 1 | 99.5 | 99.5 | 99.5 | 041W190101 |
| Cobalt | 3.0 | 1 | 1 | 1 | 38.5 | 38.5 | 38.5 | 041W190101 |
| Copper | 4.0 | 1 | 1 | 1 | 41.9 | 41.9 | 41.9 | 041W190101 |
| Iron | 2,360.0 | 1 | 1 | 1 | 332,000.0 | 332,000.0 | 332,000.0 | 041W190101 |
| Lead | 3.2 | 1 | 1 | 1 | 86.9 | 86.9 | 86.9 | 041W190101 |
| Magnesium | 20,260.0 | 0 | 1 | 1 | 4,570.0 | 4,570.0 | 4,570.0 | 041W190101 |
| Manganese | 13.2 | 1 | 1 | 1 | 12,700.0 | 12,700.0 | 12,700.0 | 041W190101 |
| Mercury | 0.13 | 1 | 1 | 1 | 0.6 | 0.6 | 0.6 | 041W190101 |
| Nickel | 12.0 | 1 | 1 | 1 | 25.8 | 25.8 | 25.8 | 041W190101 |
| Potassium | 6,995.0 | 0 | 1 | 1 | 2,720.0 | 2,720.0 | 2,720.0 | 041W190101 |
| Sodium | 182,200.0 | 0 | 1 | 1 | 4,730.0 | 4,730.0 | 4,730.0 | 041W190101 |
| Vanadium | 4.7 | 1 | 1 | 1 | 277.0 | 277.0 | 277.0 | 041W190101 |
| Zinc | 5.53 | 1 | 1 | 1 | 204.0 | 204.0 | 204.0 | 041W190101 |
| **SVOCs (µg/L)** | | | | | | | | |
| Di-n-butylphthalate | N/A | 0 | 1 | 1 | 28.0 | 28.0 | 28.0 | 041W190101 |

***Notes:***
µg/L = micrograms per liter
N/A = Not Applicable

**Table 15-1-8**
**Wetland 19A Phase IV**
**Surface Water Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Range of Detections: Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | |
| Aluminum | 1,090.25 | 0 | 1 | 1 | 330.0 | 330.0 | 330.0 | 041W19A102 |
| Barium | 3.68 | 1 | 1 | 1 | 8.5 | 8.5 | 8.5 | 041W19A102 |
| Beryllium | 1.0 | 0 | 1 | 1 | 0.74 | 0.74 | 0.74 | 041W19A102 |
| Calcium | 7,675.0 | 0 | 1 | 1 | 6,400.0 | 6,400.0 | 6,400.0 | 041W19A102 |
| Iron | 2,360.0 | 0 | 1 | 1 | 1,000.0 | 1,000.0 | 1,000.0 | 041W19A102 |
| Magnesium | 20,260.0 | 0 | 1 | 1 | 1,100.0 | 1,100.0 | 1,100.0 | 041W19A102 |
| Manganese | 13.2 | 1 | 1 | 1 | 18.0 | 18.0 | 18.0 | 041W19A102 |
| Potassium | 6,995.0 | 0 | 1 | 1 | 780.0 | 780.0 | 780.0 | 041W19A102 |
| Sodium | 182,200.0 | 0 | 1 | 1 | 5,800.0 | 5,800.0 | 5,800.0 | 041W19A102 |
| Vanadium | 4.7 | 0 | 1 | 1 | 3.0 | 3.0 | 3.0 | 041W19A102 |
| Zinc | 5.53 | 0 | 1 | 1 | 1.6 | 1.6 | 1.6 | 041W19A102 |

***Notes:***
µg/L = micrograms per liter
N/A = Not Applicable

**Table 15-1-9**
**Wetland 19B**
**Phase II Sediment Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Range of Detections: Average Detection | Range of Detections: Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | |
| Aluminum | 4,274 | 0 | 1 | 1 | 976.0 | 976.0 | 976.0 | 041M19B101 |
| Arsenic | 2.14 | 0 | 1 | 1 | 0.830 | 0.830 | 0.830 | 041M19B101 |
| Barium | 3.84 | 0 | 1 | 1 | 0.760 | 0.760 | 0.760 | 041M19B101 |
| Calcium | 1,978.8 | 0 | 1 | 1 | 151.0 | 151.0 | 151.0 | 041M19B101 |
| Chromium | 13.1 | 0 | 1 | 1 | 3.0 | 3.0 | 3.0 | 041M19B101 |
| Copper | 8.44 | 0 | 1 | 1 | 1.60 | 1.60 | 1.60 | 041M19B101 |
| Iron | 2,684.4 | 0 | 1 | 1 | 1,840.0 | 1,840.0 | 1,840.0 | 041M19B101 |
| Lead | 21.04 | 0 | 1 | 1 | 3.80 | 3.80 | 3.80 | 041M19B101 |
| Magnesium | 2,943.6 | 0 | 1 | 1 | 270.0 | 270.0 | 270.0 | 041M19B101 |
| Manganese | 9.81 | 0 | 1 | 1 | 3.40 | 3.40 | 3.40 | 041M19B101 |
| Potassium | 899.72 | 0 | 1 | 1 | 88.90 | 88.90 | 88.90 | 041M19B101 |
| Sodium | 11,439.6 | 0 | 1 | 1 | 805.0 | 805.0 | 805.0 | 041M19B101 |
| Vanadium | 8.59 | 0 | 1 | 1 | 2.50 | 2.50 | 2.50 | 041M19B101 |
| Zinc | 14.36 | 0 | 1 | 1 | 4.80 | 4.80 | 4.80 | 041M19B101 |
| **PAHs (µg/kg)** | | | | | | | | |
| Fluoranthene | N/A | 0 | 1 | 1 | 28.0 | 28.0 | 28.0 | 041M19B101 |
| Pyrene | N/A | 0 | 1 | 1 | 28.0 | 28.0 | 28.0 | 041M19B101 |
| Total PAHs | N/A | 0 | 1 | 1 | 270.50 | 270.50 | 271.0 | 041M19B101 |
| **Pesticides and PCBs (µg/kg)** | | | | | | | | |
| Aroclor-1260 | N/A | 0 | 1 | 1 | 4.20 | 4.20 | 4.20 | 041M19B101 |
| Total PCBs | N/A | 0 | 1 | 1 | 11.80 | 11.80 | 11.80 | 041M19B101 |
| Dieldrin | N/A | 0 | 1 | 1 | 0.210 | 0.210 | 0.210 | 041M19B101 |
| Heptachlor epoxide | N/A | 0 | 1 | 1 | 0.220 | 0.220 | 0.220 | 041M19B101 |
| Endrin | N/A | 0 | 1 | 1 | 0.270 | 0.270 | 0.270 | 041M19B101 |
| Total Endrin | N/A | 0 | 1 | 1 | 0.490 | 0.490 | 0.490 | 041M19B101 |
| delta-BHC | N/A | 0 | 1 | 1 | 0.310 | 0.310 | 0.310 | 041M19B101 |
| Total BHC | N/A | 0 | 1 | 1 | 0.475 | 0.475 | 0.475 | 041M19B101 |
| 4,4'-DDD | 50. | 0 | 1 | 1 | 0.710 | 0.710 | 0.710 | 041M19B101 |
| 4,4'-DDE | 40. | 0 | 1 | 1 | 1.20 | 1.20 | 1.20 | 041M19B101 |
| 4,4'-DDT | 20. | 0 | 1 | 1 | 0.340 | 0.340 | 0.340 | 041M19B101 |
| Total DDT | 110. | 0 | 1 | 1 | 2.250 | 2.250 | 2.250 | 041M19B101 |

***Notes:***
µg/kg = micrograms per kilogram
mg/kg = milligram per kilogram
N/A = Not Applicable

**Table 15-1-10**
**Wetland 19B Phase II**
**Surface Water Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Range of Detections: Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | |
| Aluminum | 2,927.50 | 0 | 1 | 1 | 2,140 | 2,140 | 2,140 | 041W190301 |
| Antimony | 4.15 | 0 | 1 | 1 | 2 | 2 | 2 | 041W190301 |
| Arsenic | 3.60 | 1 | 1 | 1 | 4.8 | 4.8 | 4.8 | 041W190301 |
| Barium | 9.43 | 0 | 1 | 1 | 7.4 | 7.4 | 7.4 | 041W190301 |
| Calcium | 76,800.00 | 0 | 1 | 1 | 17,200 | 17,200 | 17,200 | 041W190301 |
| Iron | 1,352.00 | 1 | 1 | 1 | 4,030 | 4,030 | 4,030 | 041W190301 |
| Lead | 13.75 | 0 | 1 | 1 | 5.6 | 5.6 | 5.6 | 041W190301 |
| Magnesium | 243,650.00 | 0 | 1 | 1 | 36,400 | 36,400 | 36,400 | 041W190301 |
| Manganese | 12.15 | 1 | 1 | 1 | 26.3 | 26.3 | 26.3 | 041W190301 |
| Potassium | 81,250.00 | 0 | 1 | 1 | 11,400 | 11,400 | 11,400 | 041W190301 |
| Sodium | 1,952,000.00 | 0 | 1 | 1 | 291,000 | 291,000 | 291,000 | 041W190301 |
| Vanadium | 6.69 | 0 | 1 | 1 | 4.4 | 4.4 | 4.4 | 041W190301 |
| Zinc | 12.88 | 0 | 1 | 1 | 7.1 | 7.1 | 7.1 | 041W190301 |

***Notes:***
µg/L = micrograms per liter
N/A = Not Applicable

**Table 15-1-11**
**Wetland 19A Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | |
| Aluminum | 2 | 2 | | | 494 | 18,900 | 041M19A101 | 18,900 | | | N/A | | Yes | No SV |
| Antimony | 0 | 2 | 0.335 | 0.335 | | | ND | 0.335 | UJ | 12 | 2 | 0.03 | No | Max SQL< SV |
| **Arsenic** | **2** | **2** | | | **0.17** | **15.7** | **041M19A101** | **15.7** | | **7.24** | **1, 2** | **2.17** | **Yes** | **Max Detect > SV** |
| Barium | 2 | 2 | | | 0.58 | 30.2 | 041M19A101 | 30.2 | J | | N/A | | Yes | No SV |
| Beryllium | 1 | 2 | 0.035 | 0.035 | 0.48 | 0.48 | 041M19A101 | 0.48 | J | | N/A | | Yes | No SV |
| Cadmium | 0 | 2 | 0.105 | 0.455 | | | ND | 0.455 | U | 0.676 | 1 | 0.67 | No | Max SQL< SV |
| Calcium | 2 | 2 | | | 47.5 | 1,720 | 041M19A101 | 1,720 | | | N/A | | Yes | No SV |
| Chromium | 2 | 2 | | | 1.2 | 16.5 | 041M19A101 | 16.5 | | 52.3 | 1, 2 | 0.32 | No | Max Detect < SV |
| Cobalt | 1 | 2 | 0.065 | 0.065 | 3.4 | 3.4 | 041M19A101 | 3.4 | J | | N/A | | Yes | No SV |
| Copper | 2 | 2 | | | 0.78 | 10.7 | 041M19A101 | 10.7 | | 18.7 | 1, 2 | 0.57 | No | Max Detect < SV |
| Cyanide (CN) | 0 | 2 | 0.325 | 1.55 | | | ND | 1.55 | U | | N/A | | Yes | No SV |
| Iron | 2 | 2 | | | 545 | 16,800 | 041M19A101 | 16,800 | | | N/A | | Yes | No SV |
| Lead | 2 | 2 | | | 1.2 | 16.2 | 041M19A101 | 16.2 | | 30.2 | 1, 2 | 0.54 | No | Max Detect < SV |
| Magnesium | 2 | 2 | | | 30.1 | 572 | 041M19A101 | 572 | J | | N/A | | Yes | No SV |
| Manganese | 2 | 2 | | | 1.3 | 169 | 041M19A101 | 169 | | | N/A | | Yes | No SV |
| Mercury | 0 | 2 | 0.025 | 0.135 | | | ND | 0.135 | U | 0.13 | 1, 2 | 1.04 | Yes | Max SQL > SV |
| Nickel | 1 | 2 | 0.3 | 0.3 | 7 | 7 | 041M19A101 | 7 | J | 15.9 | 1, 2 | 0.44 | No | Max Detect < SV |
| Potassium | 2 | 2 | | | 17.5 | 463 | 041M19A101 | 463 | J | | N/A | | Yes | No SV |
| Selenium | 0 | 2 | 0.135 | 0.65 | | | ND | 0.65 | UJ | | N/A | | Yes | No SV |
| Silver | 0 | 2 | 0.165 | 0.85 | | | ND | 0.85 | U | 0.733 | 1 | 1.16 | Yes | Max SQL > SV |
| Sodium | 2 | 2 | | | 18.6 | 137 | 041M19A101 | 137 | J | | N/A | | Yes | No SV |
| Thallium | 0 | 2 | 0.135 | 0.65 | | | ND | 0.65 | U | | N/A | | Yes | No SV |
| Vanadium | 2 | 2 | | | 0.99 | 35.4 | 041M19A101 | 35.4 | | | N/A | | Yes | No SV |
| Zinc | 2 | 2 | | | 1.4 | 30.6 | 041M19A101 | 30.6 | | 124 | 1, 2 | 0.25 | No | Max Detect < SV |
| **PAHs (µg/kg)** | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 2 | 20 | 135 | | | ND | 135 | U | 20.2 | 1 | 6.68 | Yes | Max SQL > SV |
| Acenaphthene | 0 | 2 | 10 | 65 | | | ND | 65 | U | 6.71 | 1 | 9.69 | Yes | Max SQL > SV |
| Acenaphthylene | 0 | 2 | 20 | 135 | | | ND | 135 | U | 5.87 | 1 | 23 | Yes | Max SQL > SV |
| Anthracene | 0 | 2 | 20 | 135 | | | ND | 135 | U | 46.9 | 1 | 2.88 | Yes | Max SQL > SV |
| Benzo(a)anthracene | 0 | 2 | 20 | 135 | | | ND | 135 | U | 74.8 | 1 | 1.8 | Yes | Max SQL > SV |
| Benzo(a)pyrene | 0 | 2 | 20 | 135 | | | ND | 135 | U | 88.8 | 1 | 1.52 | Yes | Max SQL > SV |
| Chrysene | 0 | 2 | 20 | 135 | | | ND | 135 | U | 108 | 1 | 1.25 | Yes | Max SQL > SV |
| Dibenz(a,h)anthracene | 0 | 2 | 20 | 135 | | | ND | 135 | U | 6.22 | 1 | 21.7 | Yes | Max SQL > SV |
| Fluoranthene | 0 | 2 | 20 | 135 | | | ND | 135 | U | 113 | 1 | 1.19 | Yes | Max SQL > SV |
| Fluorene | 0 | 2 | 10 | 65 | | | ND | 65 | U | 21.2 | 1 | 3.07 | Yes | Max SQL > SV |
| Naphthalene | 0 | 2 | 20 | 135 | | | ND | 135 | U | 34.6 | 1 | 3.9 | Yes | Max SQL > SV |
| Phenanthrene | 0 | 2 | 20 | 135 | | | ND | 135 | U | 86.7 | 1 | 1.56 | Yes | Max SQL > SV |
| Pyrene | 0 | 2 | 20 | 135 | | | ND | 135 | U | 153 | 1 | 0.88 | No | Max SQL< SV |
| Total PAHs | 0 | 2 | 240 | 1,620 | | | ND | 1,620 | U | 1684 | 1, 2 | 0.96 | No | Max SQL< SV |
| TOC Normalized PAHs | 0 | 2 | 356.08 | 381.8 | | | ND | 381.8 | U | 290 | 3 | 1.32 | Yes | Max SQL > SV |
| **PCBs (µg/kg)** | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 2 | 1.05 | 7 | | | ND | 7 | U | 21.6 | N/A | 0.32 | No | Max SQL< SV |
| Aroclor-1221 | 0 | 2 | 2 | 13.5 | | | ND | 13.5 | U | 67 | 2 | 0.20 | No | Max SQL< SV |
| Aroclor-1232 | 0 | 2 | 1.05 | 7 | | | ND | 7 | U | 21.6 | N/A | 0.32 | No | Max SQL< SV |
| Aroclor-1242 | 0 | 2 | 1.05 | 7 | | | ND | 7 | U | 21.6 | N/A | 0.32 | No | Max SQL< SV |
| Aroclor-1248 | 0 | 2 | 1.05 | 7 | | | ND | 7 | U | 21.6 | N/A | 0.32 | No | Max SQL< SV |
| Aroclor-1254 | 0 | 2 | 1.05 | 7 | | | ND | 7 | U | 21.6 | N/A | 0.32 | No | Max SQL< SV |
| Aroclor-1260 | 1 | 2 | 7 | 7 | 1.1 | 1.1 | 041M19A201 | 1.1 | J | 21.6 | N/A | 0.05 | No | Max Detect < SV |
| Total PCBs | 1 | 2 | 55.5 | 55.5 | 8.35 | 8.35 | 041M19A201 | 8.35 | | 21.6 | 1 | 0.39 | No | Max Detect < SV |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | |
| Aldrin | 0 | 2 | 0.05 | 0.34 | | | ND | 0.34 | U | | N/A | | Yes | No SV |
| Dieldrin | 1 | 2 | 0.7 | 0.7 | 0.2 | 0.2 | 041M19A201 | 0.2 | J | 0.716 | 1 | 0.28 | No | Max Detect < SV |
| Endosulfan I | 1 | 2 | 0.05 | 0.05 | 5.3 | 5.3 | 041M19A101 | 5.3 | J | | N/A | | Yes | No SV |
| Endosulfan II | 0 | 2 | 0.105 | 0.7 | | | ND | 0.7 | U | | N/A | | Yes | No SV |
| Endosulfan sulfate | 0 | 2 | 0.105 | 0.7 | | | ND | 0.7 | U | | N/A | | Yes | No SV |
| Heptachlor | 0 | 2 | 0.05 | 0.34 | | | ND | 0.34 | U | | N/A | | Yes | No SV |
| Heptachlor epoxide | 1 | 2 | 0.05 | 0.05 | 26 | 26 | 041M19A101 | 26 | DJ | | N/A | | Yes | No SV |
| Methoxychlor | 0 | 2 | 0.5 | 3.4 | | | ND | 3.4 | U | | N/A | | Yes | No SV |
| Toxaphene | 0 | 2 | 10.5 | 70 | | | ND | 70 | U | | N/A | | Yes | No SV |
| alpha-Chlordane | 0 | 2 | 0.05 | 0.34 | | | ND | 0.34 | U | 1.7 | 1 | 0.2 | No | Max SQL< SV |
| gamma-Chlordane | 1 | 2 | 0.05 | 0.05 | 1.3 | 1.3 | 041M19A101 | 1.3 | J | 1.7 | 1 | 0.77 | No | Max Detect < SV |
| Total Chlordane | 1 | 2 | 0.1 | 0.1 | 1.64 | 1.64 | 041M19A101 | 1.64 | | 1.7 | 1 | 0.97 | No | Max Detect < SV |
| Endrin | 0 | 2 | 0.105 | 0.7 | | | ND | 0.7 | U | 3.3 | 2 | 0.21 | No | Max SQL< SV |
| Endrin aldehyde | 0 | 2 | 0.105 | 0.7 | | | ND | 0.7 | U | 3.3 | 2 | 0.21 | No | Max SQL< SV |
| Endrin ketone | 0 | 2 | 0.105 | 0.7 | | | ND | 0.7 | U | 3.3 | 2 | 0.21 | No | Max SQL< SV |
| Total Endrin | 0 | 2 | 0.315 | 2.1 | | | ND | 2.1 | U | 3.3 | 2 | 0.64 | No | Max SQL< SV |
| alpha-BHC | 0 | 2 | 0.05 | 0.34 | | | ND | 0.34 | UJ | | N/A | | Yes | No SV |
| beta-BHC | 0 | 2 | 0.05 | 0.34 | | | ND | 0.34 | U | 0.32 | N/A | 1.06 | Yes | Max SQL > SV |
| delta-BHC | 1 | 2 | 0.34 | 0.34 | 0.11 | 0.11 | 041M19A201 | 0.11 | J | 0.32 | N/A | 0.34 | No | Max Detect < SV |
| gamma-BHC (Lindane) | 0 | 2 | 0.05 | 0.34 | | | ND | 0.34 | U | 0.32 | 1 | 1.06 | Yes | Max SQL > SV |
| Total BHC | 1 | 2 | 1.36 | 1.36 | 0.26 | 0.26 | 041M19A201 | 0.26 | | 0.32 | 2 | 0.81 | No | Max Detect < SV |
| 4,4'-DDD | 0 | 2 | 0.105 | 0.7 | | | ND | 0.7 | U | 1.22 | 1 | 0.57 | No | Max SQL< SV |
| 4,4'-DDE | 1 | 2 | 0.7 | 0.7 | 0.55 | 0.55 | 041M19A201 | 0.55 | | 2.07 | 1 | 0.27 | No | Max Detect < SV |
| 4,4'-DDT | 0 | 2 | 0.105 | 0.7 | | | ND | 0.7 | U | 1.19 | 1 | 0.59 | No | Max SQL< SV |
| Total DDT | 1 | 2 | 2.1 | 2.1 | 0.76 | 0.76 | 041M19A201 | 0.76 | | 3.3 | 2 | 0.23 | No | Max Detect < SV |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 2 | 490 | 3,300 | | | ND | 3,300 | U | | N/A | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 2 | 490 | 3,300 | | | ND | 3,300 | UJ | | N/A | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 2-Chlorophenol | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 2 | 490 | 3,300 | | | ND | 3,300 | UJ | | N/A | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 2-Nitroaniline | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 2-Nitrophenol | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 3-Nitroaniline | 0 | 2 | 490 | 3,300 | | | ND | 3,300 | U | | N/A | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 4-Chloroaniline | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| 4-Nitroaniline | 0 | 2 | 490 | 3,300 | | | ND | 3,300 | U | | N/A | | Yes | No SV |
| 4-Nitrophenol | 0 | 2 | 490 | 3,300 | | | ND | 3,300 | U | | N/A | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 2 | 20 | 135 | | | ND | 135 | U | | N/A | | Yes | No SV |
| Benzo(g,h,i)perylene | 0 | 2 | 20 | 135 | | | ND | 135 | U | | N/A | | Yes | No SV |
| Benzo(k)fluoranthene | 0 | 2 | 20 | 135 | | | ND | 135 | U | | N/A | | Yes | No SV |
| bis(2-Chloroethoxy)methane | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 2 | 20 | 135 | | | ND | 135 | U | | N/A | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 2 | 200 | 1,350 | | | ND | 1350 | U | 182 | 1, 2 | 7.42 | Yes | Max SQL > SV |
| Butylbenzylphthalate | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | 182 | 1, 2 | 7.42 | Yes | Max SQL > SV |
| Carbazole | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| Dibenzofuran | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| Diethylphthalate | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | 182 | 1, 2 | 7.42 | Yes | Max SQL > SV |
| Dimethylphthalate | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | 182 | 1, 2 | 7.42 | Yes | Max SQL > SV |
| Di-n-butylphthalate | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | 182 | 1, 2 | 7.42 | Yes | Max SQL > SV |
| Di-n-octylphthalate | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | 182 | 1, 2 | 7.42 | Yes | Max SQL > SV |
| Hexachlorobenzene | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| Hexachlorobutadiene | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |

**Table 15-1-11**
**Wetland 19A Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/kg) - cont.** | | | | | | | | | | | | | | |
| Hexachloroethane | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 2 | 20 | 135 | | | ND | 135 | U | | N/A | | Yes | No SV |
| Isophorone | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| Nitrobenzene | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 2 | 20 | 135 | | | ND | 135 | U | | N/A | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| Pentachlorophenol | 0 | 2 | 490 | 3,300 | | | ND | 3,300 | U | | N/A | | Yes | No SV |
| Phenol | 0 | 2 | 200 | 1,350 | | | ND | 1,350 | U | | N/A | | Yes | No SV |
| **VOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| 1,1,2,2-Tetrachloroethane | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethane | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethene (total) | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| 2-Butanone (MEK) | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| 2-Hexanone | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Acetone | 0 | 2 | 6 | 125 | | | ND | 125 | U | | N/A | | Yes | No SV |
| Benzene | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Bromodichloromethane | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Bromoform | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Bromomethane | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Carbon disulfide | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Carbon tetrachloride | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Chlorobenzene | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Chloroethane | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Chloroform | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Chloromethane | 1 | 2 | 38.5 | 38.5 | 2 | 2 | 041M19A201 | 2 | J | | N/A | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Dibromochloromethane | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Ethylbenzene | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Methylene chloride | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Styrene | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Tetrachloroethene | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Toluene | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Trichloroethene | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |
| Vinyl chloride | 0 | 2 | 2 | 11.5 | | | ND | 11.5 | U | | N/A | | Yes | No SV |
| Xylene (Total) | 0 | 2 | 6 | 38.5 | | | ND | 38.5 | U | | N/A | | Yes | No SV |

***Notes:***

Sources for Screening Values:
SV = Screening Value
1 = USEPA Region 4 Screening Value. Detailed explanation for SVs provided in Section 8.0.
2 = FDEP Threshold effects level

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available.
U or ND = Not Detected at or above the SQL
J = Estimated value
SHQ = Screening Hazard Quotient

D = Diluted Result
mg/kg = milligrams per kilograms
µg/kg = micrograms per kilograms
mg/kg oc = milligrams per kilograms - organic carbon
UJ = Not detected. SQL is estimated.
Parameters in bold were detected and exceeded screening values.

**Table 15-1-12**
**Wetland 19A Phase II**
**Sediment COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | Endosulfan I | None | Chloromethane |
| Arsenic | Heptachlor epoxide | | |
| Barium | | | |
| Beryllium | | | |
| Calcium | | | |
| Cobalt | | | |
| Iron | | | |
| Magnesium | | | |
| Manganese | | | |
| Potassium | | | |
| Sodium | | | |
| Vanadium | | | |
| | | **Not Detected Parameters** | |
| Cyanide (CN) | Aldrin | 1,2,4-Trichlorobenzene | 1,1,1-Trichloroethane |
| Mercury | alpha-BHC | 1,2-Dichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Selenium | beta-BHC | 1,3-Dichlorobenzene | 1,1,2-Trichloroethane |
| Thallium | Endosulfan II | 1,4-Dichlorobenzene | 1,1-Dichloroethane |
| Silver | Endosulfan sulfate | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1-Dichloroethene |
| | gamma-BHC | 2,4,5-Trichlorophenol | 1,2-Dichloroethane |
| | Heptachlor | 2,4,6-Trichlorophenol | 1,2-Dichloroethene (total) |
| | Methoxychlor | 2,4-Dichlorophenol | 1,2-Dichloropropane |
| | Toxaphene | 2,4-Dimethylphenol | 2-Butanone (MEK) |
| | | 2,4-Dinitrophenol | 2-Hexanone |
| | | 2,4-Dinitrotoluene | 4-Methyl-2-Pentanone (MIBK) |
| | | 2,6-Dinitrotoluene | Acetone |
| | | 2-Chloronaphthalene | Benzene |
| | | 2-Chlorophenol | Bromodichloromethane |
| | | 2-Methyl-4,6-Dinitrophenol | Bromoform |
| | | 2-Methylnaphthalene | Bromomethane |
| | | 2-Methylphenol (o-Cresol) | Carbon disulfide |
| | | 2-Nitroaniline | Carbon tetrachloride |
| | | 2-Nitrophenol | Chlorobenzene |
| | | 3,3'-Dichlorobenzidine | Chloroethane |
| | | 3-Nitroaniline | Chloroform |
| | | 4-Bromophenyl-phenylether | cis-1,3-Dichloropropene |
| | | 4-Chloro-3-methylphenol | Dibromochloromethane |
| | | 4-Chloroaniline | Ethylbenzene |
| | | 4-Chlorophenylphenyl ether | Methylene chloride |
| | | 4-Methylphenol (p-Cresol) | Styrene |
| | | 4-Nitroaniline | Tetrachloroethene |
| | | 4-Nitrophenol | Toluene |
| | | Acenaphthene | trans-1,3-Dichloropropene |
| | | Acenaphthylene | Trichloroethene |
| | | Anthracene | Vinyl chloride |
| | | Benzo(a)anthracene | Xylene (Total) |
| | | Benzo(a)pyrene | |
| | | Benzo(b)fluoranthene | |
| | | Benzo(g,h,i)perylene | |
| | | Benzo(k)fluoranthene | |
| | | bis(2-Chloroethoxy)methane | |
| | | bis(2-Chloroethyl)ether | |
| | | bis(2-Ethylhexyl)phthalate (BEHP) | |
| | | Butylbenzylphthalate | |
| | | Carbazole | |
| | | Chrysene | |
| | | Dibenz(a,h)anthracene | |
| | | Dibenzofuran | |
| | | Diethylphthalate | |
| | | Dimethylphthalate | |
| | | Di-n-butylphthalate | |
| | | Di-n-octylphthalate | |
| | | Fluoranthene | |
| | | Fluorene | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Indeno(1,2,3-cd)pyrene | |
| | | Isophorone | |
| | | Naphthalene | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenanthrene | |
| | | Phenol | |
| | | TOC-Normalized PAHs | |

**Table 15-1-13**
**Wetland 19A Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 2 | 2 | | | | 9,700 | 494 | 18,900 | 18,900 | | 041M19A101 | | | NA | | | | | 0 | 13,610 | 1 | Yes |
| Arsenic | 2 | 2 | | | | 7.94 | 0.17 | 15.7 | 15.7 | | 041M19A101 | 7.24 | 41.6 | PEL | 2.17 | 1.1 | 0.38 | 0.19 | 0 | 6.62 | 1 | No |
| Barium | 2 | 2 | | | | 15.4 | 0.58 | 30.2 | 30.2 | J | 041M19A101 | | | NA | | | | | 0 | 14 | 1 | Yes |
| Beryllium | 1 | 2 | 0.035 | 0.035 | 0.035 | 0.258 | 0.48 | 0.48 | 0.48 | J | 041M19A101 | | | NA | | | | | 0 | 0.84 | 0 | No |
| Calcium | 2 | 2 | | | | 884 | 47.5 | 1,720 | 1,720 | | 041M19A101 | | | NA | | | | | 0 | 10,756.67 | 0 | No |
| Cobalt | 1 | 2 | 0.065 | 0.065 | 0.065 | 1.73 | 3.4 | 3.4 | 3.4 | J | 041M19A101 | | | NA | | | | | 0 | 2.8 | 1 | Yes |
| Cyanide (CN) | 0 | 2 | 0.938 | 0.325 | 1.55 | 0.938 | | | 1.55 | U | ND | | | NA | | | | | 0 | 5.22 | 0 | No |
| Iron | 2 | 2 | | | | 8,670 | 545 | 16,800 | 16,800 | | 041M19A101 | | | NA | | | | | 0 | 11,911.67 | 1 | Yes |
| Magnesium | 2 | 2 | | | | 301 | 30.1 | 572 | 572 | J | 041M19A101 | | | NA | | | | | 0 | 7,513.33 | 0 | No |
| Manganese | 2 | 2 | | | | 85.2 | 1.3 | 169 | 169 | | 041M19A101 | | | NA | | | | | 0 | 37.97 | 1 | Yes |
| Mercury | 0 | 2 | 0.08 | 0.025 | 0.135 | 0.08 | | | 0.135 | U | ND | 0.13 | 0.696 | PEL | 1.04 | 0.62 | 0.19 | 0.11 | 0 | 0.55 | 0 | No |
| Potassium | 2 | 2 | | | | 240 | 17.5 | 463 | 463 | J | 041M19A101 | | | NA | | | | | 0 | 1,628.67 | 0 | No |
| Selenium | 0 | 2 | 0.393 | 0.135 | 0.65 | 0.393 | | | 0.65 | UJ | ND | | | NA | | | | | 0 | 3.45 | 0 | No |
| Silver | 0 | 2 | 0.51 | 0.165 | 0.85 | 0.51 | | | 0.85 | U | ND | 0.73 | 1.77 | PEL | 1.16 | 0.70 | 0.48 | 0.29 | 0 | 2.1 | 0 | No |
| Sodium | 2 | 2 | | | | 77.8 | 18.6 | 137 | 137 | J | 041M19A101 | | | NA | | | | | 0 | 18,993.33 | 0 | No |
| Thallium | 0 | 2 | 0.393 | 0.135 | 0.65 | 0.393 | | | 0.65 | U | ND | | | NA | | | | | 0 | 1.57 | 0 | No |
| Vanadium | 2 | 2 | | | | 18.2 | 0.99 | 35.4 | 35.4 | | 041M19A101 | | | NA | | | | | 0 | 28.67 | 1 | Yes |
| **PAHs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | 20.2 | 201 | PEL | 6.68 | 3.84 | 0.67 | 0.39 | 0 | | 0 | No |
| Acenaphthene | 0 | 2 | 37.5 | 10 | 65 | 37.5 | | | 65 | U | ND | 6.71 | 88.9 | PEL | 9.69 | 5.59 | 0.73 | 0.42 | 0 | | 0 | No |
| Acenaphthylene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | 5.87 | 128 | PEL | 23 | 13.2 | 1.05 | 0.61 | 1 | | 0 | No |
| Anthracene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | 46.9 | 245 | PEL | 2.88 | 1.65 | 0.55 | 0.32 | 0 | | 0 | No |
| Benzo(a)anthracene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | 74.8 | 693 | PEL | 1.80 | 1.04 | 0.19 | 0.11 | 0 | | 0 | No |
| Benzo(a)pyrene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | 88.8 | 763 | PEL | 1.52 | 0.87 | 0.18 | 0.10 | 0 | | 0 | No |
| Chrysene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | 108 | 846 | PEL | 1.25 | 0.72 | 0.16 | 0.09 | 0 | | 0 | No |
| Dibenz(a,h)anthracene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | 6.22 | 135 | PEL | 21.7 | 12.5 | 1 | 0.57 | 1 | | 0 | No |
| Fluoranthene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | 113 | 1494 | PEL | 1.19 | 0.69 | 0.09 | 0.05 | 0 | | 0 | No |
| Fluorene | 0 | 2 | 37.5 | 10 | 65 | 37.5 | | | 65 | U | ND | 21.2 | 144 | PEL | 3.07 | 1.77 | 0.45 | 0.26 | 0 | | 0 | No |
| Naphthalene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | 34.6 | 391 | PEL | 3.90 | 2.24 | 0.35 | 0.20 | 0 | | 0 | No |
| Phenanthrene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | 86.7 | 544 | PEL | 1.56 | 0.89 | 0.25 | 0.14 | 0 | | 0 | No |
| Pyrene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | 153 | 1398 | PEL | 0.88 | 0.51 | 0.10 | 0.06 | 0 | | 0 | No |
| Total PAHs | 0 | 2 | 927.5 | 240 | 1,620 | 927.5 | | | 1620 | U | ND | 1684 | 16770 | PEL | 0.96 | 0.55 | 0.10 | 0.06 | 0 | | 0 | No |
| TOC Normalized PAHs | 0 | 2 | 368.94 | 356.08 | 381.8 | 368.94 | | | 381.8 | U | ND | 290 | 1,800 | MEC | 1.32 | 1.27 | 0.21 | 0.21 | 0 | | 0 | No |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 2 | 0.195 | 0.05 | 0.34 | 0.195 | | | 0.34 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Endosulfan I | 1 | 2 | 0.05 | 0.05 | 0.05 | 2.67 | 5.3 | 5.3 | 5.3 | J | 041M19A101 | | | NA | | | | | 0 | | 0 | Yes |
| Endosulfan II | 0 | 2 | 0.403 | 0.105 | 0.7 | 0.403 | | | 0.7 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Endosulfan sulfate | 0 | 2 | 0.403 | 0.105 | 0.7 | 0.403 | | | 0.7 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Heptachlor | 0 | 2 | 0.195 | 0.05 | 0.34 | 0.195 | | | 0.34 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Heptachlor epoxide | 1 | 2 | 0.05 | 0.05 | 0.05 | 13 | 26 | 26 | 26 | DJ | 041M19A101 | | | NA | | | | | 0 | | 0 | Yes |
| Methoxychlor | 0 | 2 | 1.95 | 0.5 | 3.4 | 1.95 | | | 3.4 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Toxaphene | 0 | 2 | 40.3 | 10.5 | 70 | 40.3 | | | 70 | U | ND | | | NA | | | | | 0 | | 0 | No |
| alpha-BHC | 0 | 2 | 0.195 | 0.05 | 0.34 | 0.195 | | | 0.34 | UJ | ND | | 0.99 | PEL | | | 0.34 | 0.20 | 0 | | 0 | No |
| beta-BHC | 0 | 2 | 0.195 | 0.05 | 0.34 | 0.195 | | | 0.34 | U | ND | 0.32 | 0.99 | PEL | 1.06 | 0.61 | 0.34 | 0.20 | 0 | | 0 | No |
| gamma-BHC (Lindane) | 0 | 2 | 0.195 | 0.05 | 0.34 | 0.195 | | | 0.34 | U | ND | 0.32 | 0.99 | PEL | 1.06 | 0.61 | 0.34 | 0.20 | 0 | | 0 | No |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 1,2-Dichlorobenzene | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 1,3-Dichlorobenzene | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 1,4-Dichlorobenzene | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,4,5-Trichlorophenol | 0 | 2 | 1,900 | 490 | 3,300 | 1,900 | | | 3,300 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,4,6-Trichlorophenol | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,4-Dichlorophenol | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,4-Dimethylphenol | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,4-Dinitrophenol | 0 | 2 | 1,900 | 490 | 3,300 | 1,900 | | | 3,300 | UJ | ND | | | NA | | | | | 0 | | 0 | No |
| 2,4-Dinitrotoluene | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,6-Dinitrotoluene | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Chloronaphthalene | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Chlorophenol | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Methyl-4,6-Dinitrophenol | 0 | 2 | 1,900 | 490 | 3,300 | 1,900 | | | 3,300 | UJ | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Methylphenol (o-Cresol) | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Nitroaniline | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Nitrophenol | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 3,3'-Dichlorobenzidine | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 3-Nitroaniline | 0 | 2 | 1,900 | 490 | 3,300 | 1,900 | | | 3,300 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Bromophenyl-phenylether | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Chloro-3-methylphenol | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Chloroaniline | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Chlorophenylphenyl ether | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Methylphenol (p-Cresol) | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Nitroaniline | 0 | 2 | 1,900 | 490 | 3,300 | 1,900 | | | 3,300 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Nitrophenol | 0 | 2 | 1,900 | 490 | 3,300 | 1,900 | | | 3,300 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Benzo(b)fluoranthene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Benzo(g,h,i)perylene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Benzo(k)fluoranthene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | | | NA | | | | | 0 | | 0 | No |
| bis(2-Chloroethoxy)methane | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| bis(2-Chloroethyl)ether | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | | | NA | | | | | 0 | | 0 | No |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | 182 | 2,647 | PEL | 7.42 | 4.26 | 0.51 | 0.29 | 0 | | 0 | No |
| Butylbenzylphthalate | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | 182 | 2,647 | PEL | 7.42 | 4.26 | 0.51 | 0.29 | 0 | | 0 | No |
| Carbazole | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Dibenzofuran | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Diethylphthalate | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | 182 | 2,647 | PEL | 7.42 | 4.26 | 0.51 | 0.29 | 0 | | 0 | No |

**Table 15-1-13**
**Wetland 19A Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result HQ | SV | Average Result SV HQ | Maximum Result HQ | RV | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/kg) - cont.** | | | | | | | | | | | | | | | | | | | | | | | | |
| Dimethylphthalate | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | 182 | 2,647 | PEL | 7.42 | | 4.26 | 0.51 | | 0.29 | 0 | | 0 | No |
| Di-n-butylphthalate | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | 182 | 2,647 | PEL | 7.42 | | 4.26 | 0.51 | | 0.29 | 0 | | 0 | No |
| Di-n-octylphthalate | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | 182 | 2,647 | PEL | 7.42 | | 4.26 | 0.51 | | 0.29 | 0 | | 0 | No |
| Hexachlorobenzene | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Hexachlorobutadiene | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Hexachlorocyclopentadiene | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Hexachloroethane | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Indeno(1,2,3-cd)pyrene | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Isophorone | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Nitrobenzene | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| N-Nitroso-di-n-propylamine | 0 | 2 | 77.5 | 20 | 135 | 77.5 | | | 135 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| N-Nitrosodiphenylamine | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Pentachlorophenol | 0 | 2 | 1,900 | 490 | 3,300 | 1,900 | | | 3,300 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Phenol | 0 | 2 | 775 | 200 | 1,350 | 775 | | | 1,350 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| **VOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| 1,1,2,2-Tetrachloroethane | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| 1,1,2-Trichloroethane | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| 1,1-Dichloroethane | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| 1,1-Dichloroethene | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| 1,2-Dichloroethane | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| 1,2-Dichloroethene (total) | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| 1,2-Dichloropropane | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| 2-Butanone (MEK) | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| 2-Hexanone | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Acetone | 0 | 2 | 65.5 | 6 | 125 | 65.5 | | | 125 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Benzene | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Bromodichloromethane | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Bromoform | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Bromomethane | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Carbon disulfide | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Carbon tetrachloride | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Chlorobenzene | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Chloroethane | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Chloroform | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Chloromethane | 1 | 2 | 38.5 | 38.5 | 38.5 | 20.3 | 2 | 2 | 2 | J | 041M19A201 | | | NA | | | | | | | 0 | | 0 | Yes |
| cis-1,3-Dichloropropene | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Dibromochloromethane | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Ethylbenzene | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Methylene chloride | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Styrene | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Tetrachloroethene | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Toluene | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| trans-1,3-Dichloropropene | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Trichloroethene | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Vinyl chloride | 0 | 2 | 6.75 | 2 | 11.5 | 6.75 | | | 11.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |
| Xylene (Total) | 0 | 2 | 22.3 | 6 | 38.5 | 22.3 | | | 38.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No |

***Notes:***

Sources for Refinement Values (RVs):
PEL = FDEP Probable Effects Level
MEC = Swartz Midrange Effect Concentration

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
PEL = Probable effects level.
N/R = No refinement value available.
N/A = Not applicable.
Average result calculations include summing detections and one half the detection limits for not detected pa
As a result, some average detections may exceed the maximum detections

**Table 15-1-14**
**Wetland 19A Phase II**
**Sediment COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | **Detected Parameters** | | |
| Aluminum | Endosulfan I | None | None |
| Barium | Heptachlor epoxide | | |
| Cobalt | | | |
| Iron | | | |
| Manganese | | | |
| Vanadium | | | |

| Rationale |
| --- |
| |
| EPC > RC and no RV |
| EPC > RC, but < RV |
| EPC > RC and no RV |
| EPC < RC |
| EPC < RC |
| EPC > RC and no RV |
| Parameter Not Detected |
| EPC > RC and no RV |
| EPC < RC |
| EPC > RC and no RV |
| Parameter Not Detected |
| EPC < RC |
| Parameter Not Detected |
| Parameter Not Detected |
| EPC < RC |
| Parameter Not Detected |
| EPC > RC and no RV |
| |
| Parameter Not Detected |
| Parameter Not Detected |
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| Parameter Not Detected |
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| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
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| Parameter Not Detected |
| |
| Parameter Not Detected |
| No SV, no RV, and no RC |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| No SV, no RV, and no RC |
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| Parameter Not Detected |
| No SV, no RV, and no RC |
| Parameter Not Detected |
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| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
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| Parameter Not Detected |
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| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |

rameters.

**Table 15-1-15**
**Wetland 19A Phase II**
**Mean ERM Quotient**

| Sample ID | Sample Date | Units | Result | VQUAL | Parameter | ERL | ERM | ERM Quotient |
|---|---|---|---|---|---|---|---|---|
| 041M19A101 | 1/16/1996 | mg/kg | 15.7 | | Arsenic | 8.2 | 70 | 0.22 |
| 041M19A101 | 1/16/1996 | mg/kg | 0.455 | U | Cadmium | 1.2 | 9.6 | 0.05 |
| 041M19A101 | 1/16/1996 | mg/kg | 16.5 | | Chromium | 81 | 370 | 0.04 |
| 041M19A101 | 1/16/1996 | mg/kg | 10.7 | | Copper | 34 | 270 | 0.04 |
| 041M19A101 | 1/16/1996 | mg/kg | 16.2 | | Lead | 46.7 | 218 | 0.07 |
| 041M19A101 | 1/16/1996 | mg/kg | 0.135 | U | Mercury | 0.15 | 0.71 | 0.19 |
| 041M19A101 | 1/16/1996 | mg/kg | 7 | J | Nickel | 20.9 | 51.6 | 0.14 |
| 041M19A101 | 1/16/1996 | mg/kg | 0.85 | U | Silver | 1 | 3.7 | 0.23 |
| 041M19A101 | 1/16/1996 | mg/kg | 30.6 | | Zinc | 150 | 410 | 0.07 |
| 041M19A101 | 1/16/1996 | µg/kg | 0.7 | U | 4,4'-DDE | 2.2 | 27 | 0.03 |
| 041M19A101 | 1/16/1996 | µg/kg | 0.7 | U | 4,4'-DDT | 1.58 | 46.1 | 0.02 |
| 041M19A101 | 1/16/1996 | µg/kg | 55.5 | U | Total PCBs | 22.7 | 180 | 0.31 |
| 041M19A101 | 1/16/1996 | µg/kg | 135 | U | 2-Methylnaphthalene | 70 | 670 | 0.20 |
| 041M19A101 | 1/16/1996 | µg/kg | 65 | U | Acenaphthene | 16 | 500 | 0.13 |
| 041M19A101 | 1/16/1996 | µg/kg | 135 | U | Acenaphthylene | 44 | 640 | 0.21 |
| 041M19A101 | 1/16/1996 | µg/kg | 135 | U | Anthracene | 85.3 | 1,100 | 0.12 |
| 041M19A101 | 1/16/1996 | µg/kg | 135 | U | Benzo(a)anthracene | 261 | 1,600 | 0.08 |
| 041M19A101 | 1/16/1996 | µg/kg | 135 | U | Benzo(a)pyrene | 430 | 1,600 | 0.08 |
| 041M19A101 | 1/16/1996 | µg/kg | 135 | U | Chrysene | 384 | 2,800 | 0.05 |
| 041M19A101 | 1/16/1996 | µg/kg | 135 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.52 |
| 041M19A101 | 1/16/1996 | µg/kg | 135 | U | Fluoranthene | 600 | 5,100 | 0.03 |
| 041M19A101 | 1/16/1996 | µg/kg | 65 | U | Fluorene | 19 | 540 | 0.12 |
| 041M19A101 | 1/16/1996 | µg/kg | 135 | U | Naphthalene | 160 | 2,100 | 0.06 |
| 041M19A101 | 1/16/1996 | µg/kg | 135 | U | Phenanthrene | 240 | 1,500 | 0.09 |
| 041M19A101 | 1/16/1996 | µg/kg | 135 | U | Pyrene | 665 | 2,600 | 0.05 |
| 041M19A101 | 1/16/1996 | | | | ERM Quotient Sum | | | 3.16 |
| 041M19A101 | 1/16/1996 | | | | Mean ERM Quotient | | | 0.13 |
| 041M19A101 | 1/16/1996 | | | | Mean ERM Quotient without ND | | | 0.02 |
| 041M19A101 | 1/16/1996 | | | | Mean ERM Quotient Category | | | 2 |
| 041M19A201 | 1/16/1996 | mg/kg | 0.17 | J | Arsenic | 8.2 | 70 | 0.00 |
| 041M19A201 | 1/16/1996 | mg/kg | 0.105 | U | Cadmium | 1.2 | 9.6 | 0.01 |
| 041M19A201 | 1/16/1996 | mg/kg | 1.2 | | Chromium | 81 | 370 | 0.00 |
| 041M19A201 | 1/16/1996 | mg/kg | 0.78 | J | Copper | 34 | 270 | 0.00 |
| 041M19A201 | 1/16/1996 | mg/kg | 1.2 | | Lead | 46.7 | 218 | 0.01 |
| 041M19A201 | 1/16/1996 | mg/kg | 0.025 | U | Mercury | 0.15 | 0.71 | 0.04 |
| 041M19A201 | 1/16/1996 | mg/kg | 0.3 | U | Nickel | 20.9 | 51.6 | 0.01 |
| 041M19A201 | 1/16/1996 | mg/kg | 0.165 | U | Silver | 1 | 3.7 | 0.04 |
| 041M19A201 | 1/16/1996 | mg/kg | 1.4 | | Zinc | 150 | 410 | 0.00 |
| 041M19A201 | 1/16/1996 | µg/kg | 0.55 | | 4,4'-DDE | 2.2 | 27 | 0.02 |
| 041M19A201 | 1/16/1996 | µg/kg | 0.105 | U | 4,4'-DDT | 1.58 | 46.1 | 0.00 |
| 041M19A201 | 1/16/1996 | µg/kg | 8.35 | | Total PCBs | 22.7 | 180 | 0.05 |
| 041M19A201 | 1/16/1996 | µg/kg | 20 | U | 2-Methylnaphthalene | 70 | 670 | 0.03 |
| 041M19A201 | 1/16/1996 | µg/kg | 10 | U | Acenaphthene | 16 | 500 | 0.02 |
| 041M19A201 | 1/16/1996 | µg/kg | 20 | U | Acenaphthylene | 44 | 640 | 0.03 |
| 041M19A201 | 1/16/1996 | µg/kg | 20 | U | Anthracene | 85.3 | 1,100 | 0.02 |
| 041M19A201 | 1/16/1996 | µg/kg | 20 | U | Benzo(a)anthracene | 261 | 1,600 | 0.01 |
| 041M19A201 | 1/16/1996 | µg/kg | 20 | U | Benzo(a)pyrene | 430 | 1,600 | 0.01 |
| 041M19A201 | 1/16/1996 | µg/kg | 20 | U | Chrysene | 384 | 2,800 | 0.01 |
| 041M19A201 | 1/16/1996 | µg/kg | 20 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.08 |
| 041M19A201 | 1/16/1996 | µg/kg | 20 | U | Fluoranthene | 600 | 5,100 | 0.00 |
| 041M19A201 | 1/16/1996 | µg/kg | 10 | U | Fluorene | 19 | 540 | 0.02 |
| 041M19A201 | 1/16/1996 | µg/kg | 20 | U | Naphthalene | 160 | 2,100 | 0.01 |
| 041M19A201 | 1/16/1996 | µg/kg | 20 | U | Phenanthrene | 240 | 1,500 | 0.01 |
| 041M19A201 | 1/16/1996 | µg/kg | 20 | U | Pyrene | 665 | 2,600 | 0.01 |
| 041M19A201 | 1/16/1996 | | | | ERM Quotient Sum | | | 0.44 |
| 041M19A201 | 1/16/1996 | | | | Mean ERM Quotient | | | 0.02 |
| 041M19A201 | 1/16/1996 | | | | Mean ERM Quotient without ND | | | 0.00 |
| 041M19A201 | 1/16/1996 | | | | Mean ERM Quotient Category | | | 1 |

***Notes:***
ERL = Effects Range Low
ERM = Effects Range Median
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
U = not detected at or above the SQL (value in table is 1/2 reported value)
J = estimated value
Shaded cells indicate constituent exceeds ERL.
**Shaded and bold cells indicate constituent exceeds ERM.**

**Table 15-1-16**
**Wetland 19A Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | |
| **Aluminum** | **1** | **1** | | | | **111,000** | **111,000** | **111,000** | **041W190101** | **111,000** | | **13** | **FDEP** | **8,540** | **Yes** | **Max Detect > SV** |
| Antimony | 1 | 1 | | | | 19.2 | 19.2 | 19.2 | 041W190101 | 19.2 | J | 160 | EPA | 0.12 | No | Max Detect < SV |
| **Arsenic** | **1** | **1** | | | | **268** | **268** | **268** | **041W190101** | **268** | | **50** | **FDEP** | **5.36** | **Yes** | **Max Detect > SV** |
| Barium | 1 | 1 | | | | 300 | 300 | 300 | 041W190101 | 300 | | | NA | | Yes | No SV |
| **Beryllium** | **1** | **1** | | | | **4** | **4** | **4** | **041W190101** | **4** | **J** | **0.13** | **FDEP** | **30.8** | **Yes** | **Max Detect > SV** |
| Cadmium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 0.66 | EPA | 1.52 | Yes | Max SQL > SV |
| Calcium | 1 | 1 | | | | 21,200 | 21,200 | 21,200 | 041W190101 | 21,200 | | | NA | | Yes | No SV |
| **Chromium** | **1** | **1** | | | | **99.5** | **99.5** | **99.5** | **041W190101** | **99.5** | | **11** | **EPA** | **9.05** | **Yes** | **Max Detect > SV** |
| Cobalt | 1 | 1 | | | | 38.5 | 38.5 | 38.5 | 041W190101 | 38.5 | J | | NA | | Yes | No SV |
| **Copper** | **1** | **1** | | | | **41.9** | **41.9** | **41.9** | **041W190101** | **41.9** | | **6.54** | **EPA** | **6.41** | **Yes** | **Max Detect > SV** |
| Cyanide (CN) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 5.2 | EPA | 0.48 | No | Max SQL< SV |
| Iron | 1 | 1 | | | | 332,000 | 332,000 | 332,000 | 041W190101 | 332,000 | | | NA | | Yes | No SV |
| **Lead** | **1** | **1** | | | | **86.9** | **86.9** | **86.9** | **041W190101** | **86.9** | | **1.32** | **EPA** | **65.8** | **Yes** | **Max Detect > SV** |
| Magnesium | 1 | 1 | | | | 4,570 | 4,570 | 4,570 | 041W190101 | 4,570 | J | | NA | | Yes | No SV |
| Manganese | 1 | 1 | | | | 12,700 | 12,700 | 12,700 | 041W190101 | 12,700 | | | NA | | Yes | No SV |
| **Mercury** | **1** | **1** | | | | **0.59** | **0.59** | **0.59** | **041W190101** | **0.59** | | **0.012** | **EPA** | **49.2** | **Yes** | **Max Detect > SV** |
| Nickel | 1 | 1 | | | | 25.8 | 25.8 | 25.8 | 041W190101 | 25.8 | J | 87.71 | EPA | 0.29 | No | Max Detect < SV |
| Potassium | 1 | 1 | | | | 2,720 | 2,720 | 2,720 | 041W190101 | 2,720 | J | | NA | | Yes | No SV |
| Selenium | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 5 | EPA | 0.4 | No | Max SQL< SV |
| Silver | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.012 | EPA | 208 | Yes | Max SQL > SV |
| Sodium | 1 | 1 | | | | 4,730 | 4,730 | 4,730 | 041W190101 | 4,730 | J | | NA | | Yes | No SV |
| Thallium | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 4 | EPA | 0.5 | No | Max SQL< SV |
| Vanadium | 1 | 1 | | | | 277 | 277 | 277 | 041W190101 | 277 | | | NA | | Yes | No SV |
| **Zinc** | **1** | **1** | | | | **204** | **204** | **204** | **041W190101** | **204** | | **58.91** | **EPA** | **3.46** | **Yes** | **Max Detect > SV** |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endosulfan I | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.056 | EPA | 0.45 | No | Max SQL< SV |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0038 | EPA | 6.58 | Yes | Max SQL > SV |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.00004 | FDEP | 625 | Yes | Max SQL > SV |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | U | | NA | | Yes | No SV |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0043 | EPA | 11.6 | Yes | Max SQL > SV |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0023 | EPA | 21.7 | Yes | Max SQL > SV |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| gamma-BHC (Lindane) | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.08 | EPA | 0.31 | No | Max SQL< SV |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | Yes | No SV |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0003 | FDEP | 167 | Yes | Max SQL > SV |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0002 | FDEP | 250 | Yes | Max SQL > SV |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.00059 | FDEP | 84.7 | Yes | Max SQL > SV |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.014 | EPA | 35.7 | Yes | Max SQL > SV |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | Yes | No SV |

**Table 15-1-16**
**Wetland 19A Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PCBs (µg/L) - cont.** | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 43.8 | EPA | 0.06 | No | Max SQL< SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.3 | EPA | 8.33 | Yes | Max SQL > SV |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| **Di-n-butylphthalate** | **1** | **1** | | | | **28** | **28** | **28** | **041W190101** | **28** | | **9.4** | **EPA** | **2.98** | **Yes** | **Max Detect > SV** |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |

**Table 15-1-16**
**Wetland 19A Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAHs (µg/L) - cont.** | | | | | | | | | | | | | | | | |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Naphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 26 | FDEP | 0.02 | No | Max SQL< SV |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Total PAH | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | Yes | No SV |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 270 | FDEP | 0.00 | No | Max SQL< SV |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3.2 | FDEP | 0.16 | No | Max SQL< SV |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 15.8 | EPA | 0.03 | No | Max SQL< SV |
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3 | FDEP | 0.17 | No | Max SQL< SV |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Benzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 53 | EPA | 0.01 | No | Max SQL< SV |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 17 | FDEP | 0.03 | No | Max SQL< SV |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chloroform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 289 | EPA | 0.00 | No | Max SQL< SV |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Ethylbenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 453 | EPA | 0.00 | No | Max SQL< SV |
| Methylene chloride | 0 | 1 | 1.5 | 1.5 | 1.5 | 1.5 | | | ND | 1.5 | U | 1,580 | FDEP | 0.00 | No | Max SQL< SV |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Toluene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 175 | EPA | 0.00 | No | Max SQL< SV |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
N/R = No refinement value available.
N/A = Not Applicable.

Average result calculations include summing detections and one half the detection limits for not detected parameters. As a result, some average detections may exceed the maximum detections.
Parameters in bold were detected and exceeded the screening value.

**Table 15-1-17**
**Wetland 19A Phase II**
**Surface Water COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | None | Di-n-butylphthalate | None |
| Arsenic | | | |
| Barium | | | |
| Beryllium | | | |
| Calcium | | | |
| Chromium | | | |
| Cobalt | | | |
| Copper | | | |
| Iron | | | |
| Lead | | | |
| Magnesium | | | |
| Manganese | | | |
| Mercury | | | |
| Potassium | | | |
| Sodium | | | |
| Vanadium | | | |
| Zinc | | | |
| | | **Not Detected Parameters** | |
| Cadmium | Aldrin | 1,2,4-Trichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Silver | Dieldrin | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1,2-Trichloroethane |
| | Endosulfan II | 2,4,5-Trichlorophenol | 1,1-Dichloroethane |
| | Endosulfan sulfate | 2,4,6-Trichlorophenol | 1,2-Dibromo-3-Chloropropane |
| | Heptachlor | 2,4-Dichlorophenol | 1,2-Dibromoethane |
| | Heptachlor epoxide | 2,4-Dimethylphenol | 1,2-Dichloroethane |
| | Methoxychlor | 2,4-Dinitrophenol | 1,2-Dichloropropane |
| | Toxaphene | 2,4-Dinitrotoluene | 1,3-Dichlorobenzene |
| | alpha-Chlordane | 2,6-Dinitrotoluene | 2-Hexanone |
| | gamma-Chlordane | 2-Chloronaphthalene | 4-Methyl-2-Pentanone (MIBK) |
| | Total Chlordane | 2-Methyl-4,6-Dinitrophenol | Bromochloromethane |
| | Endrin | 2-Methylphenol (o-Cresol) | Bromodichloromethane |
| | Endrin aldehyde | 2-Nitroaniline | Bromoform |
| | Endrin ketone | 2-Nitrophenol | Bromomethane |
| | Total Endrin | 3,3'-Dichlorobenzidine | Carbon disulfide |
| | alpha-BHC | 3-Nitroaniline | Carbon tetrachloride |
| | beta-BHC | 4-Bromophenyl-phenylether | Chloroethane |
| | delta-BHC | 4-Chloro-3-methylphenol | Chloromethane |
| | Total BHC | 4-Chloroaniline | cis-1,2-Dichloroethene |
| | 4,4'-DDD | 4-Chlorophenylphenyl ether | cis-1,3-Dichloropropene |
| | 4,4'-DDE | 4-Methylphenol (p-Cresol) | Dibromochloromethane |
| | 4,4'-DDT | 4-Nitroaniline | Styrene |
| | Total DDT | 4-Nitrophenol | Tetrachloroethene |
| | Aroclor-1016 | Benzo(b)fluoranthene | trans-1,2-Dichloroethene |
| | Aroclor-1221 | Benzo(g,h,i)perylene | trans-1,3-Dichloropropene |
| | Aroclor-1232 | Benzo(k)fluoranthene | Trichloroethene |
| | Aroclor-1242 | bis(2-Chloroethoxy)methane | Vinyl chloride |
| | Aroclor-1248 | bis(2-Chloroethyl)ether | Xylene (Total) |
| | Aroclor-1254 | bis(2-Ethylhexyl)phthalate (BEHP) | |
| | Aroclor-1260 | Butylbenzylphthalate | |
| | Total PCBs | Dibenzofuran | |
| | | Diethylphthalate | |
| | | Dimethylphthalate | |
| | | Di-n-octylphthalate | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Indeno(1,2,3-cd)pyrene | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |
| | | 2-Methylnaphthalene | |
| | | Acenaphthene | |
| | | Acenaphthylene | |
| | | Anthracene | |
| | | Benzo(a)anthracene | |
| | | Benzo(a)pyrene | |
| | | Chrysene | |
| | | Dibenz(a,h)anthracene | |
| | | Fluoranthene | |
| | | Fluorene | |
| | | Phenanthrene | |
| | | Pyrene | |
| | | Total PAHs | |

**Table 15-1-18**
**Wetland 19A Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | | | | |
| **Aluminum** | **1** | **1** | | | | **111,000** | **111,000** | **111,000** | **041W190101** | **111,000** | | **13** | **FDEP** | **8,538.46** | **8,540** | **1,090** | **1** | **Yes** | **Max Result > Ref. Conc.** |
| **Arsenic** | **1** | **1** | | | | **268** | **268** | **268** | **041W190101** | **268** | | **50** | **FDEP** | **5.36** | **5.36** | **2.7** | **1** | **Yes** | **Max Result > Ref. Conc.** |
| Barium | 1 | 1 | | | | 300 | 300 | 300 | 041W190101 | 300 | | | NA | | | 3.67 | 1 | Yes | Max Result > Ref. Conc. |
| **Beryllium** | **1** | **1** | | | | **4** | **4** | **4** | **041W190101** | **4** | **J** | **0.13** | **FDEP** | **31** | **30.8** | **1** | **1** | **Yes** | **Max Result > Ref. Conc.** |
| Cadmium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 0.66 | EPA | 2 | 1.52 | 3 | 0 | No | Max SQL < Ref. Conc. |
| Calcium | 1 | 1 | | | | 21,200 | 21,200 | 21,200 | 041W190101 | 21,200 | | | NA | | | 7,680 | 1 | No | Essential Nutrient |
| **Chromium** | **1** | **1** | | | | **99.5** | **99.5** | **99.5** | **041W190101** | **99.5** | | **11** | **EPA** | **9.05** | **9.05** | **8** | **1** | **Yes** | **Max Result > Ref. Conc.** |
| Cobalt | 1 | 1 | | | | 38.5 | 38.5 | 38.5 | 041W190101 | 38.5 | J | | NA | | | 3 | 1 | Yes | Max Result > Ref. Conc. |
| **Copper** | **1** | **1** | | | | **41.9** | **41.9** | **41.9** | **041W190101** | **41.9** | | **6.54** | **EPA** | **6.41** | **6.41** | **4** | **1** | **Yes** | **Max Result > Ref. Conc.** |
| Iron | 1 | 1 | | | | 332,000 | 332,000 | 332,000 | 041W190101 | 332,000 | | | NA | | | 2,360 | 1 | Yes | Max Result > Ref. Conc. |
| **Lead** | **1** | **1** | | | | **86.9** | **86.9** | **86.9** | **041W190101** | **86.9** | | **1.32** | **EPA** | **66** | **65.8** | **3.2** | **1** | **Yes** | **Max Result > Ref. Conc.** |
| Magnesium | 1 | 1 | | | | 4,570 | 4,570 | 4,570 | 041W190101 | 4,570 | J | | NA | | | 20,300 | 0 | No | Max Result < Ref. Conc. |
| Manganese | 1 | 1 | | | | 12,700 | 12,700 | 12,700 | 041W190101 | 12,700 | | | NA | | | 13.2 | 1 | Yes | Max Result > Ref. Conc. |
| **Mercury** | **1** | **1** | | | | **0.59** | **0.59** | **0.59** | **041W190101** | **0.59** | | **0.012** | **EPA** | **49.17** | **49.2** | **0.13** | **1** | **Yes** | **Max Result > Ref. Conc.** |
| Potassium | 1 | 1 | | | | 2,720 | 2,720 | 2,720 | 041W190101 | 2,720 | J | | NA | | | 7,000 | 0 | No | Max Result < Ref. Conc. |
| Silver | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.012 | EPA | 208.33 | 208 | 4 | 0 | No | Max SQL < Ref. Conc. |
| Sodium | 1 | 1 | | | | 4,730 | 4,730 | 4,730 | 041W190101 | 4,730 | J | | NA | | | 182,000 | 0 | No | Max Result < Ref. Conc. |
| Vanadium | 1 | 1 | | | | 277 | 277 | 277 | 041W190101 | 277 | | | NA | | | 4.7 | 1 | Yes | Max Result > Ref. Conc. |
| **Zinc** | **1** | **1** | | | | **204** | **204** | **204** | **041W190101** | **204** | | **58.91** | **EPA** | **3.46** | **3.46** | **5.53** | **1** | **Yes** | **Max Result > Ref. Conc.** |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter not Detected |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter not Detected |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter not Detected |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter not Detected |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0038 | EPA | 7 | 6.58 | | 0 | No | Parameter not Detected |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.00004 | FDEP | 625 | 625 | | 0 | No | Parameter not Detected |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | U | | NA | | | | 0 | No | Parameter not Detected |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter not Detected |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter not Detected |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0043 | EPA | 12 | 11.6 | | 0 | No | Parameter not Detected |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter not Detected |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter not Detected |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0023 | EPA | 22 | 21.7 | | 0 | No | Parameter not Detected |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | No | Parameter not Detected |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter not Detected |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter not Detected |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter not Detected |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | | | 0 | No | Parameter not Detected |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0003 | FDEP | 167 | 167 | | 0 | No | Parameter not Detected |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0002 | FDEP | 250 | 250 | | 0 | No | Parameter not Detected |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.00059 | FDEP | 85 | 84.7 | | 0 | No | Parameter not Detected |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | No | Parameter not Detected |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | | 0 | No | Parameter not Detected |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.014 | EPA | 36 | 35.7 | | 0 | No | Parameter not Detected |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | | | 0 | No | Parameter not Detected |
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter not Detected |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter not Detected |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter not Detected |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |

**Table 15-1-18**
**Wetland 19A Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | | | | |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.3 | EPA | 8.33 | 8.33 | | 0 | No | Parameter not Detected |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| **Di-n-butylphthalate** | **1** | **1** | | | | **28** | **28** | **28** | **041W190101** | **28** | | **9.4** | **EPA** | **3** | **2.98** | | **0** | **Yes** | **Max Result > SV** |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Total PAH | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter not Detected |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
UJ = Not detected. SQL is estimated.
D = Diluted Result
J = Estimated Value

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
PEL = Probable effects level.
N/R = No refinement value available.

N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters.
As a result, some average detections may exceed the Max detections
Parameters in bold were detected and exceeded Ref. Conc.s.

**Table 15-1-19**
**Wetland 19A Phase II**
**Surface Water COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | None | Di-n-butylphthalate | None |
| Arsenic | | | |
| Barium | | | |
| Beryllium | | | |
| Chromium | | | |
| Cobalt | | | |
| Copper | | | |
| Iron | | | |
| Lead | | | |
| Manganese | | | |
| Mercury | | | |
| Vanadium | | | |
| Zinc | | | |

**Table 15-1-20**
**Wetland 19A Phase IV**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | 910 | 910 | 041M19A101 | 910 | | | N/A | | Yes | No SV |
| Antimony | 1 | 1 | | | 1.1 | 1.1 | 041M19A101 | 1.1 | I | 12 | 2 | 0.09 | No | Max Detect < SV |
| Arsenic | 1 | 1 | | | 0.56 | 0.56 | 041M19A101 | 0.56 | I | 7.24 | 1, 2 | 0.08 | No | Max Detect < SV |
| Barium | 1 | 1 | | | 0.99 | 0.99 | 041M19A101 | 0.99 | I | | N/A | | Yes | No SV |
| Beryllium | 1 | 1 | | | 0.036 | 0.036 | 041M19A101 | 0.036 | I | | N/A | | Yes | No SV |
| Cadmium | 0 | 1 | 0.0335 | 0.0335 | | | ND | 0.0335 | U | 0.676 | 1 | 0.05 | No | Max SQL< SV |
| Calcium | 1 | 1 | | | 50 | 50 | 041M19A101 | 50 | I | | N/A | | Yes | No SV |
| Chromium | 1 | 1 | | | 0.95 | 0.95 | 041M19A101 | 0.95 | I | 52.3 | 1, 2 | 0.02 | No | Max Detect < SV |
| Cobalt | 0 | 1 | 0.065 | 0.065 | | | ND | 0.065 | U | | N/A | | Yes | No SV |
| Copper | 1 | 1 | | | 0.47 | 0.47 | 041M19A101 | 0.47 | I | 18.7 | 1, 2 | 0.03 | No | Max Detect < SV |
| Iron | 1 | 1 | | | 540 | 540 | 041M19A101 | 540 | | | N/A | | Yes | No SV |
| Lead | 1 | 1 | | | 1.5 | 1.5 | 041M19A101 | 1.5 | | 30.2 | 1, 2 | 0.05 | No | Max Detect < SV |
| Magnesium | 1 | 1 | | | 27 | 27 | 041M19A101 | 27 | I | | N/A | | Yes | No SV |
| Manganese | 1 | 1 | | | 1.6 | 1.6 | 041M19A101 | 1.6 | | | N/A | | Yes | No SV |
| Mercury | 0 | 1 | 0.0024 | 0.0024 | | | ND | 0.0024 | U | 0.13 | 1, 2 | 0.02 | No | Max SQL< SV |
| Nickel | 1 | 1 | | | 0.26 | 0.26 | 041M19A101 | 0.26 | I | 15.9 | 1, 2 | 0.02 | No | Max Detect < SV |
| Potassium | 1 | 1 | | | 21 | 21 | 041M19A101 | 21 | I | | N/A | | Yes | No SV |
| Selenium | 0 | 1 | 0.295 | 0.295 | | | ND | 0.295 | U | | N/A | | Yes | No SV |
| Silver | 0 | 1 | 0.06 | 0.06 | | | ND | 0.06 | U | 0.733 | 1 | 0.08 | No | Max SQL< SV |
| Sodium | 1 | 1 | | | 3.5 | 3.5 | 041M19A101 | 3.5 | I | | N/A | | Yes | No SV |
| Thallium | 0 | 1 | 0.425 | 0.425 | | | ND | 0.425 | U | | N/A | | Yes | No SV |
| Vanadium | 1 | 1 | | | 1.5 | 1.5 | 041M19A101 | 1.5 | | | N/A | | Yes | No SV |
| Zinc | 1 | 1 | | | 1.3 | 1.3 | 041M19A101 | 1.3 | I | 124 | 1, 2 | 0.01 | No | Max Detect < SV |
| **PAHs (µg/kg)** | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 1.4 | 1.4 | | | ND | 1.4 | U | 20.2 | 1 | 0.07 | No | Max SQL< SV |
| Acenaphthene | 0 | 1 | 2.35 | 2.35 | | | ND | 2.35 | U | 6.71 | 1 | 0.35 | No | Max SQL< SV |
| Acenaphthylene | 0 | 1 | 2.25 | 2.25 | | | ND | 2.25 | U | 5.87 | 1 | 0.38 | No | Max SQL< SV |
| Anthracene | 0 | 1 | 2.5 | 2.5 | | | ND | 2.5 | U | 46.9 | 1 | 0.05 | No | Max SQL< SV |
| Benzo(a)anthracene | 0 | 1 | 2 | 2 | | | ND | 2 | U | 74.8 | 1 | 0.03 | No | Max SQL< SV |
| Benzo(a)pyrene | 0 | 1 | 2.35 | 2.35 | | | ND | 2.35 | U | 88.8 | 1 | 0.03 | No | Max SQL< SV |
| Chrysene | 0 | 1 | 2.65 | 2.65 | | | ND | 2.65 | U | 108 | 1 | 0.02 | No | Max SQL< SV |
| Dibenz(a,h)anthracene | 0 | 1 | 2.3 | 2.3 | | | ND | 2.3 | U | 6.22 | 1 | 0.37 | No | Max SQL< SV |
| Fluoranthene | 0 | 1 | 2.25 | 2.25 | | | ND | 2.25 | U | 113 | 1 | 0.02 | No | Max SQL< SV |
| Fluorene | 0 | 1 | 2.05 | 2.05 | | | ND | 2.05 | U | 21.2 | 1 | 0.10 | No | Max SQL< SV |
| Naphthalene | 0 | 1 | 1.85 | 1.85 | | | ND | 1.85 | U | 34.6 | 1 | 0.05 | No | Max SQL< SV |
| Phenanthrene | 1 | 1 | | | 5.6 | 5.6 | 041M19A101 | 5.6 | I | 86.7 | 1 | 0.06 | No | Max Detect < SV |
| Pyrene | 0 | 1 | 3.15 | 3.15 | | | ND | 3.15 | U | 153 | 1 | 0.02 | No | Max SQL< SV |
| Total PAHs | 1 | 1 | | | 32.7 | 32.7 | 041M19A101 | 32.7 | | 1,684 | 1, 2 | 0.019 | No | Max Detect < SV |
| TOC Normalized PAHs | 1 | 1 | | | 19.24 | 19.24 | 041M19A101 | 19.24 | | 290 | 3 | 0.066 | No | Max Detect < SV |
| **PCBs (µg/kg)** | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 2.55 | 2.55 | | | ND | 2.55 | U | 21.6 | N/A | 0.12 | No | Max SQL< SV |
| Aroclor-1221 | 0 | 1 | 11 | 11 | | | ND | 11 | U | 67 | 2 | 0.16 | No | Max SQL< SV |
| Aroclor-1232 | 0 | 1 | 4.4 | 4.4 | | | ND | 4.4 | U | 21.6 | N/A | 0.20 | No | Max SQL< SV |
| Aroclor-1242 | 0 | 1 | 4.4 | 4.4 | | | ND | 4.4 | U | 21.6 | N/A | 0.20 | No | Max SQL< SV |
| Aroclor-1248 | 0 | 1 | 4.3 | 4.3 | | | ND | 4.3 | U | 21.6 | N/A | 0.20 | No | Max SQL< SV |
| Aroclor-1254 | 0 | 1 | 4.4 | 4.4 | | | ND | 4.4 | U | 21.6 | N/A | 0.20 | No | Max SQL< SV |
| Aroclor-1260 | 0 | 1 | 2.9 | 2.9 | | | ND | 2.9 | U | 21.6 | N/A | 0.13 | No | Max SQL< SV |
| Total PCBs | 0 | 1 | 34 | 34 | | | ND | 34 | U | 21.6 | 1 | 1.57 | Yes | Max SQL > SV |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.07 | 0.07 | | | ND | 0.07 | U | | N/A | | Yes | No SV |
| Dieldrin | 0 | 1 | 0.205 | 0.205 | | | ND | 0.205 | U | 0.716 | 1 | 0.29 | No | Max SQL< SV |
| Endosulfan I | 0 | 1 | 0.11 | 0.11 | | | ND | 0.11 | U | | N/A | | Yes | No SV |
| Endosulfan II | 0 | 1 | 0.145 | 0.145 | | | ND | 0.145 | U | | N/A | | Yes | No SV |
| Endosulfan sulfate | 0 | 1 | 0.29 | 0.29 | | | ND | 0.29 | U | | N/A | | Yes | No SV |
| Heptachlor | 0 | 1 | 0.185 | 0.185 | | | ND | 0.185 | U | | N/A | | Yes | No SV |
| Heptachlor epoxide | 0 | 1 | 0.11 | 0.11 | | | ND | 0.11 | U | | N/A | | Yes | No SV |
| Methoxychlor | 0 | 1 | 0.13 | 0.13 | | | ND | 0.13 | U | | N/A | | Yes | No SV |
| Toxaphene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | | N/A | | Yes | No SV |
| alpha-Chlordane | 0 | 1 | 0.07 | 0.07 | | | ND | 0.07 | U | 1.7 | 1 | 0.04 | No | Max SQL< SV |
| gamma-Chlordane | 0 | 1 | 0.085 | 0.085 | | | ND | 0.085 | U | 1.7 | 1 | 0.05 | No | Max SQL< SV |
| Total Chlordane | 0 | 1 | 0.155 | 0.155 | | | ND | 0.155 | U | 1.7 | 1 | 0.09 | No | Max SQL< SV |
| Endrin | 0 | 1 | 0.28 | 0.28 | | | ND | 0.28 | U | 3.3 | 2 | 0.08 | No | Max SQL< SV |
| Endrin aldehyde | 0 | 1 | 0.205 | 0.205 | | | ND | 0.205 | U | 3.3 | 2 | 0.06 | No | Max SQL< SV |
| Endrin ketone | 0 | 1 | 0.25 | 0.25 | | | ND | 0.25 | U | 3.3 | 2 | 0.08 | No | Max SQL< SV |
| Total Endrin | 0 | 1 | 0.735 | 0.735 | | | ND | 0.735 | U | 3.3 | 2 | 0.22 | No | Max SQL< SV |
| alpha-BHC | 0 | 1 | 0.16 | 0.16 | | | ND | 0.16 | U | | N/A | | Yes | No SV |
| beta-BHC | 0 | 1 | 0.19 | 0.19 | | | ND | 0.19 | U | 0.32 | N/A | 0.59 | No | Max SQL< SV |
| delta-BHC | 0 | 1 | 0.08 | 0.08 | | | ND | 0.08 | U | 0.32 | N/A | 0.25 | No | Max SQL< SV |
| gamma-BHC (Lindane) | 0 | 1 | 0.1 | 0.1 | | | ND | 0.1 | U | 0.32 | 1 | 0.31 | No | Max SQL< SV |
| Total BHC | 0 | 1 | 0.53 | 0.53 | | | ND | 0.53 | U | 0.32 | 2 | 1.66 | Yes | Max SQL > SV |
| 4,4'-DDD | 0 | 1 | 0.23 | 0.23 | | | ND | 0.23 | U | 1.22 | 1 | 0.19 | No | Max SQL< SV |
| 4,4'-DDE | 0 | 1 | 0.355 | 0.355 | | | ND | 0.355 | U | 2.07 | 1 | 0.17 | No | Max SQL< SV |
| 4,4'-DDT | 0 | 1 | 0.205 | 0.205 | | | ND | 0.205 | U | 1.19 | 1 | 0.17 | No | Max SQL< SV |
| Total DDT | 0 | 1 | 0.79 | 0.79 | | | ND | 0.79 | U | 3.3 | 2 | 0.24 | No | Max SQL< SV |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 25 | 25 | | | ND | 25 | U | | N/A | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 1 | 15 | 15 | | | ND | 15 | U | | N/A | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 1 | 15 | 15 | | | ND | 15 | U | | N/A | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 1 | 16 | 16 | | | ND | 16 | U | | N/A | | Yes | No SV |
| 1-Methyl naphthalene | 0 | 1 | 0.9 | 0.9 | | | ND | 0.9 | U | | | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 21 | 21 | | | ND | 21 | U | | N/A | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 1 | 20.5 | 20.5 | | | ND | 20.5 | U | | N/A | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 1 | 21 | 21 | | | ND | 21 | U | | N/A | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 1 | 19 | 19 | | | ND | 19 | U | | N/A | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 1 | 18.5 | 18.5 | | | ND | 18.5 | U | | N/A | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 1 | 225 | 225 | | | ND | 225 | U | | N/A | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 1 | 14.5 | 14.5 | | | ND | 14.5 | U | | N/A | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 1 | 19 | 19 | | | ND | 19 | U | | N/A | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 1 | 24.5 | 24.5 | | | ND | 24.5 | U | | N/A | | Yes | No SV |
| 2-Chlorophenol | 0 | 1 | 27 | 27 | | | ND | 27 | U | | N/A | | Yes | No SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 20.5 | 20.5 | | | ND | 20.5 | U | | N/A | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 30 | 30 | | | ND | 30 | U | | N/A | | Yes | No SV |
| 2-Nitroaniline | 0 | 1 | 16.5 | 16.5 | | | ND | 16.5 | U | | N/A | | Yes | No SV |
| 2-Nitrophenol | 0 | 1 | 17 | 17 | | | ND | 17 | U | | N/A | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 1 | 17 | 17 | | | ND | 17 | U | | N/A | | Yes | No SV |
| 3-Methylphenol/4-Methylphenol | 0 | 1 | 26.5 | 26.5 | | | ND | 26.5 | U | | | | Yes | No SV |
| 3-Nitroaniline | 0 | 1 | 19.5 | 19.5 | | | ND | 19.5 | U | | N/A | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 1 | 19.5 | 19.5 | | | ND | 19.5 | U | | N/A | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 1 | 26.5 | 26.5 | | | ND | 26.5 | U | | N/A | | Yes | No SV |
| 4-Chloroaniline | 0 | 1 | 19 | 19 | | | ND | 19 | U | | N/A | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 1 | 17 | 17 | | | ND | 17 | U | | N/A | | Yes | No SV |
| 4-Nitroaniline | 0 | 1 | 17 | 17 | | | ND | 17 | U | | N/A | | Yes | No SV |
| 4-Nitrophenol | 0 | 1 | 16.5 | 16.5 | | | ND | 16.5 | U | | N/A | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 1 | 2.5 | 2.5 | | | ND | 2.5 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| Benzo(g,h,i)perylene | 0 | 1 | 1.6 | 1.6 | | | ND | 1.6 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| Benzo(k)fluoranthene | 0 | 1 | 2.6 | 2.6 | | | ND | 2.6 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| bis(2-Chloroethoxy)methane | 0 | 1 | 21 | 21 | | | ND | 21 | U | | N/A | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 1 | 24.5 | 24.5 | | | ND | 24.5 | U | | N/A | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 29 | 29 | | | ND | 29 | U | 182 | 1, 2 | 0.16 | No | Max SQL< SV |
| Butylbenzylphthalate | 0 | 1 | 21 | 21 | | | ND | 21 | U | 182 | 1, 2 | 0.12 | No | Max SQL< SV |
| Carbazole | 0 | 1 | 19.5 | 19.5 | | | ND | 19.5 | U | | N/A | | Yes | No SV |
| Dibenzofuran | 0 | 1 | 22.5 | 22.5 | | | ND | 22.5 | U | | N/A | | Yes | No SV |
| Diethylphthalate | 0 | 1 | 23 | 23 | | | ND | 23 | U | 182 | 1, 2 | 0.13 | No | Max SQL< SV |
| Dimethylphthalate | 0 | 1 | 23 | 23 | | | ND | 23 | U | 182 | 1, 2 | 0.13 | No | Max SQL< SV |
| Di-n-butylphthalate | 0 | 1 | 25.5 | 25.5 | | | ND | 25.5 | U | 182 | 1, 2 | 0.14 | No | Max SQL< SV |
| Di-n-octylphthalate | 0 | 1 | 21 | 21 | | | ND | 21 | U | 182 | 1, 2 | 0.12 | No | Max SQL< SV |
| Hexachlorobenzene | 0 | 1 | 25 | 25 | | | ND | 25 | U | | N/A | | Yes | No SV |
| Hexachlorobutadiene | 0 | 1 | 18 | 18 | | | ND | 18 | U | | N/A | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 1 | 180 | 180 | | | ND | 180 | U | | N/A | | Yes | No SV |
| Hexachloroethane | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 1.7 | 1.7 | | | ND | 1.7 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| Isophorone | 0 | 1 | 17 | 17 | | | ND | 17 | U | | N/A | | Yes | No SV |
| Nitrobenzene | 0 | 1 | 20.5 | 20.5 | | | ND | 20.5 | U | | N/A | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 1 | 19.5 | 19.5 | | | ND | 19.5 | U | | N/A | | Yes | No SV |

**Table 15-1-20**
**Wetland 19A Phase IV**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/kg) - cont.** | | | | | | | | | | | | | | |
| N-Nitrosodiphenylamine | 0 | 1 | 19.5 | 19.5 | | | ND | 19.5 | U | | N/A | | Yes | No SV |
| Pentachlorophenol | 1 | 1 | | | 68 | 68 | 041M19A101 | 68 | J | | N/A | | Yes | No SV |
| Phenol | 0 | 1 | 27 | 27 | | | ND | 27 | U | | N/A | | Yes | No SV |
| **VOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 0.5 | 0.5 | | | ND | 0.5 | U | | N/A | | Yes | No SV |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 1.25 | 1.25 | | | ND | 1.25 | U | | N/A | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 1 | 1.1 | 1.1 | | | ND | 1.1 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 1 | 0.6 | 0.6 | | | ND | 0.6 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 1 | 1.05 | 1.05 | | | ND | 1.05 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethane | 0 | 1 | 0.95 | 0.95 | | | ND | 0.95 | U | | N/A | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 1 | 0.75 | 0.75 | | | ND | 0.75 | U | | N/A | | Yes | No SV |
| 2-Butanone (MEK) | 0 | 1 | 2.9 | 2.9 | | | ND | 2.9 | U | | N/A | | Yes | No SV |
| 2-Hexanone | 0 | 1 | 3.15 | 3.15 | | | ND | 3.15 | U | | N/A | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 3.1 | 3.1 | | | ND | 3.1 | U | | N/A | | Yes | No SV |
| Acetone | 0 | 1 | 4.95 | 4.95 | | | ND | 4.95 | U | | N/A | | Yes | No SV |
| Benzene | 0 | 1 | 0.7 | 0.7 | | | ND | 0.7 | U | | N/A | | Yes | No SV |
| Bromodichloromethane | 0 | 1 | 0.8 | 0.8 | | | ND | 0.8 | U | | N/A | | Yes | No SV |
| Bromoform | 0 | 1 | 1.05 | 1.05 | | | ND | 1.05 | U | | N/A | | Yes | No SV |
| Bromomethane | 0 | 1 | 2.1 | 2.1 | | | ND | 2.1 | U | | N/A | | Yes | No SV |
| Carbon disulfide | 0 | 1 | 1.25 | 1.25 | | | ND | 1.25 | U | | N/A | | Yes | No SV |
| Carbon tetrachloride | 1 | 1 | | | 2.3 | 2.3 | 041M19A101 | 2.3 | I | | N/A | | Yes | No SV |
| Chlorobenzene | 0 | 1 | 0.8 | 0.8 | | | ND | 0.8 | U | | N/A | | Yes | No SV |
| Chloroethane | 0 | 1 | 1.05 | 1.05 | | | ND | 1.05 | U | | N/A | | Yes | No SV |
| Chloroform | 1 | 1 | | | 3.4 | 3.4 | 041M19A101 | 3.4 | I | | N/A | | Yes | No SV |
| Chloromethane | 0 | 1 | 0.85 | 0.85 | | | ND | 0.85 | U | | N/A | | Yes | No SV |
| cis-1,2-Dichloroethene | 0 | 1 | 0.7 | 0.7 | | | ND | 0.7 | U | | | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 1 | 0.75 | 0.75 | | | ND | 0.75 | U | | N/A | | Yes | No SV |
| Dibromochloromethane | 0 | 1 | 0.85 | 0.85 | | | ND | 0.85 | U | | N/A | | Yes | No SV |
| Ethylbenzene | 0 | 1 | 0.6 | 0.6 | | | ND | 0.6 | U | | N/A | | Yes | No SV |
| Methylene chloride | 0 | 1 | 1.5 | 1.5 | | | ND | 1.5 | U | | N/A | | Yes | No SV |
| Styrene | 0 | 1 | 0.7 | 0.7 | | | ND | 0.7 | U | | N/A | | Yes | No SV |
| Tetrachloroethene | 0 | 1 | 0.95 | 0.95 | | | ND | 0.95 | U | | N/A | | Yes | No SV |
| Toluene | 0 | 1 | 1.1 | 1.1 | | | ND | 1.1 | U | | N/A | | Yes | No SV |
| trans-1,2-Dichloroethene | 0 | 1 | 0.75 | 0.75 | | | ND | 0.75 | U | | | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 1 | 1 | 1 | | | ND | 1 | U | | N/A | | Yes | No SV |
| Trichloroethene | 0 | 1 | 0.7 | 0.7 | | | ND | 0.7 | U | | N/A | | Yes | No SV |
| Vinyl chloride | 0 | 1 | 0.85 | 0.85 | | | ND | 0.85 | U | | N/A | | Yes | No SV |
| Xylene (Total) | 0 | 1 | 1.85 | 1.85 | | | ND | 1.85 | U | | N/A | | Yes | No SV |

***Notes:***

Sources for Screening Values:
SV = Screening Value
1 = USEPA Region 4 Screening Value. Detailed explanation for SVs provided in Section 8.0.
2 = FDEP Threshold effects level

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available.
U or ND = Not Detected at or above the SQL
J = Estimated value
SHQ = Screening Hazard Quotient

D = Diluted Result
mg/kg = milligrams per kilograms
µg/kg = micrograms per kilograms
mg/kg oc = milligrams per kilograms - organic carbon
UJ = Not detected. SQL is estimated.
Parameters in bold were detected and exceeded screening values.

**Table 15-1-21**
**Wetland 19A Phase IV**
**Sediment COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | None | Pentachlorophenol | Carbon tetrachloride |
| Barium | | | Chloroform |
| Beryllium | | | |
| Calcium | | | |
| Iron | | | |
| Magnesium | | | |
| Manganese | | | |
| Potassium | | | |
| Sodium | | | |
| Vanadium | | | |
| | | **Not Detected Parameters** | |
| Cobalt | Aldrin | 1,2,4-Trichlorobenzene | 1,1,1-Trichloroethane |
| Selenium | alpha-BHC | 1,2-Dichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Thallium | Endosulfan I | 1,3-Dichlorobenzene | 1,1,2-Trichloroethane |
| | Endosulfan II | 1,4-Dichlorobenzene | 1,1-Dichloroethane |
| | Endosulfan sulfate | 1-Methyl naphthalene | 1,1-Dichloroethene |
| | Heptachlor | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,2-Dichloroethane |
| | Heptachlor epoxide | 2,4,5-Trichlorophenol | 1,2-Dichloropropane |
| | Methoxychlor | 2,4,6-Trichlorophenol | 2-Butanone (MEK) |
| | Total BHC | 2,4-Dichlorophenol | 2-Hexanone |
| | Toxaphene | 2,4-Dimethylphenol | 4-Methyl-2-Pentanone (MIBK) |
| | Total PCBs | 2,4-Dinitrophenol | Acetone |
| | | 2,4-Dinitrotoluene | Benzene |
| | | 2,6-Dinitrotoluene | Bromodichloromethane |
| | | 2-Chloronaphthalene | Bromoform |
| | | 2-Chlorophenol | Bromomethane |
| | | 2-Methyl-4,6-Dinitrophenol | Carbon disulfide |
| | | 2-Methylphenol (o-Cresol) | Chlorobenzene |
| | | 2-Nitroaniline | Chloroethane |
| | | 2-Nitrophenol | Chloromethane |
| | | 3,3'-Dichlorobenzidine | cis-1,2-Dichloroethene |
| | | 3-Methylphenol/4-Methylphenol | cis-1,3-Dichloropropene |
| | | 3-Nitroaniline | Dibromochloromethane |
| | | 4-Bromophenyl-phenylether | Ethylbenzene |
| | | 4-Chloro-3-methylphenol | Methylene chloride |
| | | 4-Chloroaniline | Styrene |
| | | 4-Chlorophenylphenyl ether | Tetrachloroethene |
| | | 4-Nitroaniline | Toluene |
| | | 4-Nitrophenol | trans-1,2-Dichloroethene |
| | | bis(2-Chloroethoxy)methane | trans-1,3-Dichloropropene |
| | | bis(2-Chloroethyl)ether | Trichloroethene |
| | | Carbazole | Vinyl chloride |
| | | Dibenzofuran | Xylene (Total) |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Phenol | |

**Table 15-1-22**
**Wetland 19A Phase IV**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | | 910 | 910 | 910 | 910 | | 041M19A101 | | | NA | | | | | 0 | 13,610 | 0 | No | EPC < RC |
| Barium | 1 | 1 | | | | 0.99 | 0.99 | 0.99 | 0.99 | I | 041M19A101 | | | NA | | | | | 0 | 14 | 0 | No | EPC < RC |
| Beryllium | 1 | 1 | | | | 0.036 | 0.036 | 0.036 | 0.04 | I | 041M19A101 | | | NA | | | | | 0 | 0.84 | 0 | No | EPC < RC |
| Calcium | 1 | 1 | | | | 50 | 50 | 50 | 50 | I | 041M19A101 | | | NA | | | | | 0 | 10,756.67 | 0 | No | EPC < RC |
| Cobalt | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | 0.07 | U | ND | | | NA | | | | | 0 | 2.8 | 0 | No | Parameter Not Detected |
| Iron | 1 | 1 | | | | 540 | 540 | 540 | 540 | | 041M19A101 | | | NA | | | | | 0 | 11,911.67 | 0 | No | EPC < RC |
| Magnesium | 1 | 1 | | | | 27 | 27 | 27 | 27 | I | 041M19A101 | | | NA | | | | | 0 | 7,513.33 | 0 | No | EPC < RC |
| Manganese | 1 | 1 | | | | 1.6 | 1.6 | 1.6 | 1.6 | | 041M19A101 | | | NA | | | | | 0 | 37.97 | 0 | No | EPC < RC |
| Potassium | 1 | 1 | | | | 21 | 21 | 21 | 21 | I | 041M19A101 | | | NA | | | | | 0 | 1,628.67 | 0 | No | EPC < RC |
| Selenium | 0 | 1 | 0.295 | 0.295 | 0.295 | 0.295 | | | 0.3 | U | ND | | | NA | | | | | 0 | 3.45 | 0 | No | Parameter Not Detected |
| Sodium | 1 | 1 | | | | 3.5 | 3.5 | 3.5 | 3.5 | I | 041M19A101 | | | NA | | | | | 0 | 18,993.33 | 0 | No | EPC < RC |
| Thallium | 0 | 1 | 0.425 | 0.425 | 0.425 | 0.425 | | | 0.43 | U | ND | | | NA | | | | | 0 | 1.57 | 0 | No | Parameter Not Detected |
| Vanadium | 1 | 1 | | | | 1.5 | 1.5 | 1.5 | 1.5 | | 041M19A101 | | | NA | | | | | 0 | 28.67 | 0 | No | EPC < RC |
| **PCBs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 2.55 | 2.55 | 2.55 | 2.55 | | | 2.55 | U | ND | 21.6 | 189 | PEL | 0.12 | 0.12 | 0.01 | 0.01 | 0 | | 0 | No | EPC < RC |
| Aroclor-1221 | 0 | 1 | 11 | 11 | 11 | 11 | | | 11 | U | ND | 67 | 189 | PEL | 0.16 | 0.16 | 0.06 | 0.06 | 0 | | 0 | No | EPC < RC |
| Aroclor-1232 | 0 | 1 | 4.4 | 4.4 | 4.4 | 4.4 | | | 4.4 | U | ND | 21.6 | 189 | PEL | 0.20 | 0.20 | 0.02 | 0.02 | 0 | | 0 | No | EPC < RC |
| Aroclor-1242 | 0 | 1 | 4.4 | 4.4 | 4.4 | 4.4 | | | 4.4 | U | ND | 21.6 | 189 | PEL | 0.20 | 0.20 | 0.02 | 0.02 | 0 | | 0 | No | EPC < RC |
| Aroclor-1248 | 0 | 1 | 4.3 | 4.3 | 4.3 | 4.3 | | | 4.3 | U | ND | 21.6 | 189 | PEL | 0.20 | 0.20 | 0.02 | 0.02 | 0 | | 0 | No | EPC < RC |
| Aroclor-1254 | 0 | 1 | 4.4 | 4.4 | 4.4 | 4.4 | | | 4.4 | U | ND | 21.6 | 189 | PEL | 0.20 | 0.20 | 0.02 | 0.02 | 0 | | 0 | No | EPC < RC |
| Aroclor-1260 | 0 | 1 | 2.9 | 2.9 | 2.9 | 2.9 | | | 2.9 | U | ND | 21.6 | 189 | PEL | 0.13 | 0.13 | 0.02 | 0.02 | 0 | | 0 | No | EPC < RC |
| Total PCBs | 0 | 1 | 34 | 34 | 34 | 34 | | | 34 | U | ND | 21.6 | 189 | PEL | 1.57 | 1.57 | 0.18 | 0.18 | 0 | | 0 | No | EPC < RC |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.07 | 0.07 | 0.07 | 0.07 | | | 0.07 | U | | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan I | 0 | 1 | 0.11 | 0.11 | 0.11 | 0.11 | | | 0.11 | U | | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan II | 0 | 1 | 0.145 | 0.145 | 0.145 | 0.145 | | | 0.15 | U | | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan sulfate | 0 | 1 | 0.29 | 0.29 | 0.29 | 0.29 | | | 0.29 | U | | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor | 0 | 1 | 0.185 | 0.185 | 0.185 | 0.185 | | | 0.19 | U | | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor epoxide | 0 | 1 | 0.11 | 0.11 | 0.11 | 0.11 | | | 0.11 | U | | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Methoxychlor | 0 | 1 | 0.13 | 0.13 | 0.13 | 0.13 | | | 0.13 | U | | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toxaphene | 0 | 1 | 21.5 | 21.5 | 21.5 | 21.5 | | | 21.5 | U | | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| alpha-BHC | 0 | 1 | 0.16 | 0.16 | 0.16 | 0.16 | | | 0.16 | U | | | 0.99 | PEL | | | 0.16 | 0.16 | 0 | | 0 | No | Parameter Not Detected |
| beta-BHC | 0 | 1 | 0.19 | 0.19 | 0.19 | 0.19 | | | 0.19 | U | | 0.32 | 0.99 | PEL | 0.59 | 0.59 | 0.19 | 0.19 | 0 | | 0 | No | Parameter Not Detected |
| delta-BHC | 0 | 1 | 0.08 | 0.08 | 0.08 | 0.08 | | | 0.08 | U | | 0.32 | 0.99 | PEL | 0.25 | 0.25 | 0.08 | 0.08 | 0 | | 0 | No | Parameter Not Detected |
| gamma-BHC (Lindane) | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | 0.1 | U | | 0.32 | 0.99 | PEL | 0.31 | 0.31 | 0.10 | 0.10 | 0 | | 0 | No | Parameter Not Detected |
| Total BHC | 0 | 1 | 0.53 | 0.53 | 0.53 | 0.53 | | | 0.53 | U | | 0.32 | 0.99 | PEL | 1.66 | 1.66 | 0.54 | 0.54 | 0 | | 0 | No | Parameter Not Detected |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 25 | 25 | 25 | 25 | | | 25 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichlorobenzene | 0 | 1 | 15 | 15 | 15 | 15 | | | 15 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 15 | 15 | 15 | 15 | | | 15 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,4-Dichlorobenzene | 0 | 1 | 16 | 16 | 16 | 16 | | | 16 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1-Methyl naphthalene | 0 | 1 | 0.9 | 0.9 | 0.9 | 0.9 | | | 0.9 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 21 | 21 | 21 | 21 | | | 21 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,5-Trichlorophenol | 0 | 1 | 20.5 | 20.5 | 20.5 | 20.5 | | | 20.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,6-Trichlorophenol | 0 | 1 | 21 | 21 | 21 | 21 | | | 21 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dichlorophenol | 0 | 1 | 19 | 19 | 19 | 19 | | | 19 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dimethylphenol | 0 | 1 | 18.5 | 18.5 | 18.5 | 18.5 | | | 18.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrophenol | 0 | 1 | 225 | 225 | 225 | 225 | | | 225 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrotoluene | 0 | 1 | 14.5 | 14.5 | 14.5 | 14.5 | | | 14.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,6-Dinitrotoluene | 0 | 1 | 19 | 19 | 19 | 19 | | | 19 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chloronaphthalene | 0 | 1 | 24.5 | 24.5 | 24.5 | 24.5 | | | 24.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chlorophenol | 0 | 1 | 27 | 27 | 27 | 27 | | | 27 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 20.5 | 20.5 | 20.5 | 20.5 | | | 20.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 30 | 30 | 30 | 30 | | | 30 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitroaniline | 0 | 1 | 16.5 | 16.5 | 16.5 | 16.5 | | | 16.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitrophenol | 0 | 1 | 17 | 17 | 17 | 17 | | | 17 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3,3'-Dichlorobenzidine | 0 | 1 | 17 | 17 | 17 | 17 | | | 17 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3-Methylphenol/4-Methylphenol | 0 | 1 | 26.5 | 26.5 | 26.5 | 26.5 | | | 26.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3-Nitroaniline | 0 | 1 | 19.5 | 19.5 | 19.5 | 19.5 | | | 19.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Bromophenyl-phenylether | 0 | 1 | 19.5 | 19.5 | 19.5 | 19.5 | | | 19.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chloro-3-methylphenol | 0 | 1 | 26.5 | 26.5 | 26.5 | 26.5 | | | 26.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chloroaniline | 0 | 1 | 19 | 19 | 19 | 19 | | | 19 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chlorophenylphenyl ether | 0 | 1 | 17 | 17 | 17 | 17 | | | 17 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitroaniline | 0 | 1 | 17 | 17 | 17 | 17 | | | 17 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitrophenol | 0 | 1 | 16.5 | 16.5 | 16.5 | 16.5 | | | 16.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethoxy)methane | 0 | 1 | 21 | 21 | 21 | 21 | | | 21 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethyl)ether | 0 | 1 | 24.5 | 24.5 | 24.5 | 24.5 | | | 24.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbazole | 0 | 1 | 19.5 | 19.5 | 19.5 | 19.5 | | | 19.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dibenzofuran | 0 | 1 | 22.5 | 22.5 | 22.5 | 22.5 | | | 22.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobenzene | 0 | 1 | 25 | 25 | 25 | 25 | | | 25 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobutadiene | 0 | 1 | 18 | 18 | 18 | 18 | | | 18 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorocyclopentadiene | 0 | 1 | 180 | 180 | 180 | 180 | | | 180 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachloroethane | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Isophorone | 0 | 1 | 17 | 17 | 17 | 17 | | | 17 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Nitrobenzene | 0 | 1 | 20.5 | 20.5 | 20.5 | 20.5 | | | 20.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitroso-di-n-propylamine | 0 | 1 | 19.5 | 19.5 | 19.5 | 19.5 | | | 19.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitrosodiphenylamine | 0 | 1 | 19.5 | 19.5 | 19.5 | 19.5 | | | 19.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Pentachlorophenol | 1 | 1 | | | | 68 | 68 | 68 | 68 | J | 041M19A101 | | | NA | | | | | 0 | | 0 | Yes | No SV, no RV, and no RC |
| Phenol | 0 | 1 | 27 | 27 | 27 | 27 | | | 27 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| **VOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | 0.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 1.25 | 1.25 | 1.25 | 1.25 | | | 1.25 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2-Trichloroethane | 0 | 1 | 1.1 | 1.1 | 1.1 | 1.1 | | | 1.1 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethane | 0 | 1 | 0.6 | 0.6 | 0.6 | 0.6 | | | 0.6 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethene | 0 | 1 | 1.05 | 1.05 | 1.05 | 1.05 | | | 1.05 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethane | 0 | 1 | 0.95 | 0.95 | 0.95 | 0.95 | | | 0.95 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloropropane | 0 | 1 | 0.75 | 0.75 | 0.75 | 0.75 | | | 0.75 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Butanone (MEK) | 0 | 1 | 2.9 | 2.9 | 2.9 | 2.9 | | | 2.9 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |

**Table 15-1-22**
**Wetland 19A Phase IV**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCs (µg/kg) - cont.** | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Hexanone | 0 | 1 | 3.15 | 3.15 | 3.15 | 3.15 | | | 3.15 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 3.1 | 3.1 | 3.1 | 3.1 | | | 3.1 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Acetone | 0 | 1 | 4.95 | 4.95 | 4.95 | 4.95 | | | 4.95 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Benzene | 0 | 1 | 0.7 | 0.7 | 0.7 | 0.7 | | | 0.7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromodichloromethane | 0 | 1 | 0.8 | 0.8 | 0.8 | 0.8 | | | 0.8 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromoform | 0 | 1 | 1.05 | 1.05 | 1.05 | 1.05 | | | 1.05 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromomethane | 0 | 1 | 2.1 | 2.1 | 2.1 | 2.1 | | | 2.1 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon disulfide | 0 | 1 | 1.25 | 1.25 | 1.25 | 1.25 | | | 1.25 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon tetrachloride | 1 | 1 | | | | 2.3 | 2.3 | 2.3 | 2.3 | I | 041M19A101 | | | NA | | | | | 0 | | 0 | Yes | No SV, no RV, and no RC |
| Chlorobenzene | 0 | 1 | 0.8 | 0.8 | 0.8 | 0.8 | | | 0.8 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroethane | 0 | 1 | 1.05 | 1.05 | 1.05 | 1.05 | | | 1.05 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroform | 1 | 1 | | | | 3.4 | 3.4 | 3.4 | 3.4 | I | 041M19A101 | | | NA | | | | | 0 | | 0 | Yes | No SV, no RV, and no RC |
| Chloromethane | 0 | 1 | 0.85 | 0.85 | 0.85 | 0.85 | | | 0.85 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| cis-1,2-Dichloroethene | 0 | 1 | 0.7 | 0.7 | 0.7 | 0.7 | | | 0.7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| cis-1,3-Dichloropropene | 0 | 1 | 0.75 | 0.75 | 0.75 | 0.75 | | | 0.75 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dibromochloromethane | 0 | 1 | 0.85 | 0.85 | 0.85 | 0.85 | | | 0.85 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Ethylbenzene | 0 | 1 | 0.6 | 0.6 | 0.6 | 0.6 | | | 0.6 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Methylene chloride | 0 | 1 | 1.5 | 1.5 | 1.5 | 1.5 | | | 1.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Styrene | 0 | 1 | 0.7 | 0.7 | 0.7 | 0.7 | | | 0.7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Tetrachloroethene | 0 | 1 | 0.95 | 0.95 | 0.95 | 0.95 | | | 0.95 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toluene | 0 | 1 | 1.1 | 1.1 | 1.1 | 1.1 | | | 1.1 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| trans-1,2-Dichloroethene | 0 | 1 | 0.75 | 0.75 | 0.75 | 0.75 | | | 0.75 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| trans-1,3-Dichloropropene | 0 | 1 | 1 | 1 | 1 | 1 | | | 1 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Trichloroethene | 0 | 1 | 0.7 | 0.7 | 0.7 | 0.7 | | | 0.7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Vinyl chloride | 0 | 1 | 0.85 | 0.85 | 0.85 | 0.85 | | | 0.85 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Xylene (Total) | 0 | 1 | 1.85 | 1.85 | 1.85 | 1.85 | | | 1.85 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |

**Notes:**

Sources for Refinement Values (RVs):
PEL = FDEP Probable Effects Level
MEC = Swartz Midrange Effect Concentration

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
Parameters in bold were detected and exceeded screening values.

J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8)
HQ = Hazard Quotient.
PEL = Probable effects level.

N/R = No refinement value available.
N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters.
As a result, some average detections may exceed the maximum detections
NAS Pensacola basewide levels used as reference values for 4,4'-DDT, 4,4'-DDD, 4,4'-DDE and total DDT.

**Table 15-1-23**
**Wetland 19A Phase IV**
**Sediment COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| None | None | Pentachlorophenol | None |

**Table 15-1-24**
**Wetland 19A Phase IV**
**Mean ERM Quotient**

| Sample ID | Sample Date | Units | Result | VQUAL | Parameter | ERL | ERM | ERM Quotient |
|---|---|---|---|---|---|---|---|---|
| 041M19A101 | 4/8/2004 | UG/KG | 1.4 | U | 2-Methylnaphthalene | 70 | 670 | 0.00 |
| 041M19A101 | 4/8/2004 | UG/KG | 2.35 | U | Acenaphthene | 16 | 500 | 0.00 |
| 041M19A101 | 4/8/2004 | UG/KG | 2.25 | U | Acenaphthylene | 44 | 640 | 0.00 |
| 041M19A101 | 4/8/2004 | UG/KG | 2.5 | U | Anthracene | 85.3 | 1,100 | 0.00 |
| 041M19A101 | 4/8/2004 | UG/KG | 2 | U | Benzo(a)anthracene | 261 | 1,600 | 0.00 |
| 041M19A101 | 4/8/2004 | UG/KG | 2.35 | U | Benzo(a)pyrene | 430 | 1,600 | 0.00 |
| 041M19A101 | 4/8/2004 | UG/KG | 2.65 | U | Chrysene | 384 | 2,800 | 0.00 |
| 041M19A101 | 4/8/2004 | UG/KG | 2.3 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.01 |
| 041M19A101 | 4/8/2004 | UG/KG | 2.25 | U | Fluoranthene | 600 | 5,100 | 0.00 |
| 041M19A101 | 4/8/2004 | UG/KG | 2.05 | U | Fluorene | 19 | 540 | 0.00 |
| 041M19A101 | 4/8/2004 | UG/KG | 1.85 | U | Naphthalene | 160 | 2,100 | 0.00 |
| 041M19A101 | 4/8/2004 | UG/KG | 5.6 | I | Phenanthrene | 240 | 1,500 | 0.00 |
| 041M19A101 | 4/8/2004 | UG/KG | 3.15 | U | Pyrene | 665 | 2,600 | 0.00 |
| 041M19A101 | 4/8/2004 | UG/KG | 0.355 | U | 4,4'-DDE | 2.2 | 27 | 0.01 |
| 041M19A101 | 4/8/2004 | UG/KG | 0.205 | U | 4,4'-DDT | 1.58 | 46.1 | 0.00 |
| 041M19A101 | 4/8/2004 | MG/KG | 0.56 | I | Arsenic | 8.2 | 70 | 0.01 |
| 041M19A101 | 4/8/2004 | MG/KG | 0.0335 | U | Cadmium | 1.2 | 9.6 | 0.00 |
| 041M19A101 | 4/8/2004 | MG/KG | 0.95 | I | Chromium | 81 | 370 | 0.00 |
| 041M19A101 | 4/8/2004 | MG/KG | 0.47 | I | Copper | 34 | 270 | 0.00 |
| 041M19A101 | 4/8/2004 | MG/KG | 1.5 | | Lead | 46.7 | 218 | 0.01 |
| 041M19A101 | 4/8/2004 | MG/KG | 0.0024 | U | Mercury | 0.15 | 0.71 | 0.00 |
| 041M19A101 | 4/8/2004 | MG/KG | 0.26 | I | Nickel | 20.9 | 51.6 | 0.01 |
| 041M19A101 | 4/8/2004 | MG/KG | 0.06 | U | Silver | 1 | 3.7 | 0.02 |
| 041M19A101 | 4/8/2004 | MG/KG | 1.3 | I | Zinc | 150 | 410 | 0.00 |
| 041M19A101 | 4/8/2004 | | | | ERM Quotient Sum | | | 0.29 |
| 041M19A101 | 4/8/2004 | | | | Mean ERM Quotient | | | 0.01 |
| 041M19A101 | 4/8/2004 | | | | Mean ERM Quotient without ND | | | 0.00 |
| 041M19A101 | 4/8/2004 | | | | Mean ERM Quotient Category | | | 2 |

***Notes:***
ERL = Effects Range Low
ERM = Effects Range Median
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
U = not detected at or above the SQL (value in table is 1/2 reported value)
J = estimated value
Shaded cells indicate constituent exceeds ERL.
**Shaded and bold cells indicate constituent exceeds ERM.**

**Table 15-1-25**
**Wetland 19A Phase IV**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement ? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | |
| **Aluminum** | **1** | **1** | | | | **330** | **330** | **330** | **041W19A102** | **330** | | **13** | **FDEP** | **25.4** | **Yes** | **Max Detect > SV** |
| Antimony | 0 | 1 | 1.95 | 1.95 | 1.95 | 1.95 | | | ND | 1.95 | U | 160 | EPA | 0.01 | No | Max SQL< SV |
| Arsenic | 0 | 1 | 1.65 | 1.65 | 1.65 | 1.65 | | | ND | 1.65 | U | 50 | FDEP | 0.03 | No | Max SQL< SV |
| Barium | 1 | 1 | | | | 8.5 | 8.5 | 8.5 | 041W19A102 | 8.5 | I | | NA | | Yes | No SV |
| **Beryllium** | **1** | **1** | | | | **0.74** | **0.74** | **0.74** | **041W19A102** | **0.74** | **I** | **0.13** | **FDEP** | **5.69** | **Yes** | **Max Detect > SV** |
| Cadmium | 0 | 1 | 0.3 | 0.3 | 0.3 | 0.3 | | | ND | 0.3 | U | 0.66 | EPA | 0.46 | No | Max SQL< SV |
| Calcium | 1 | 1 | | | | 6400 | 6,400 | 6,400 | 041W19A102 | 6,400 | | | NA | | Yes | No SV |
| Chromium | 0 | 1 | 0.7 | 0.7 | 0.7 | 0.7 | | | ND | 0.7 | U | 11 | EPA | 0.06 | No | Max SQL< SV |
| Cobalt | 0 | 1 | 0.6 | 0.6 | 0.6 | 0.6 | | | ND | 0.6 | U | | NA | | Yes | No SV |
| Copper | 0 | 1 | 0.3 | 0.3 | 0.3 | 0.3 | | | ND | 0.3 | U | 6.54 | EPA | 0.05 | No | Max SQL< SV |
| Iron | 1 | 1 | | | | 1000 | 1,000 | 1,000 | 041W19A102 | 1,000 | | | NA | | Yes | No SV |
| Lead | 0 | 1 | 0.95 | 0.95 | 0.95 | 0.95 | | | ND | 0.95 | U | 1.32 | EPA | 0.72 | No | Max SQL< SV |
| Magnesium | 1 | 1 | | | | 1100 | 1,100 | 1,100 | 041W19A102 | 1,100 | | | NA | | Yes | No SV |
| Manganese | 1 | 1 | | | | 18 | 18 | 18 | 041W19A102 | 18 | | | NA | | Yes | No SV |
| Mercury | 0 | 1 | 0.039 | 0.039 | 0.039 | 0.039 | | | ND | 0.039 | U | 0.012 | EPA | 3.25 | Yes | Max SQL > SV |
| Nickel | 0 | 1 | 0.75 | 0.75 | 0.75 | 0.75 | | | ND | 0.75 | U | 87.71 | EPA | 0.01 | No | Max SQL< SV |
| Potassium | 1 | 1 | | | | 780 | 780 | 780 | 041W19A102 | 780 | I | | NA | | Yes | No SV |
| Selenium | 0 | 1 | 2.65 | 2.65 | 2.65 | 2.65 | | | ND | 2.65 | U | 5 | EPA | 0.53 | No | Max SQL< SV |
| Silver | 0 | 1 | 0.55 | 0.55 | 0.55 | 0.55 | | | ND | 0.55 | U | 0.012 | EPA | 45.8 | Yes | Max SQL > SV |
| Sodium | 1 | 1 | | | | 5800 | 5,800 | 5,800 | 041W19A102 | 5,800 | | | NA | | Yes | No SV |
| Thallium | 0 | 1 | 3.8 | 3.8 | 3.8 | 3.8 | | | ND | 3.8 | U | 4 | EPA | 0.95 | No | Max SQL< SV |
| Vanadium | 1 | 1 | | | | 3 | 3 | 3 | 041W19A102 | 3 | I | | NA | | Yes | No SV |
| Zinc | 1 | 1 | | | | 1.6 | 1.6 | 1.6 | 041W19A102 | 1.6 | I | 58.91 | EPA | 0.03 | No | Max Detect < SV |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
N/R = No refinement value available.
N/A = Not Applicable.

Average result calculations include summing detections and one half the detection limits for not detected parameters. As a result, some average detections may exceed the maximum detections.
Parameters in bold were detected and exceeded the screening value.

**Table 15-1-26**
**Wetland 19A Phase IV**
**Surface Water COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | Not Analyzed | Not Analyzed | Not Analyzed |
| Barium | | | |
| Beryllium | | | |
| Calcium | | | |
| Iron | | | |
| Magnesium | | | |
| Manganese | | | |
| Potassium | | | |
| Sodium | | | |
| Vanadium | | | |
| | | **Not Detected Parameters** | |
| Cobalt | Not Analyzed | Not Analyzed | Not Analyzed |
| Mercury | | | |
| Silver | | | |

**Table 15-1-27**
**Wetland 19A Phase IV**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Number Analyzed | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | | | | | |
| **Aluminum** | **1** | **1** | | | | **330** | **330** | **330** | **041W19A102** | **330** | | **13** | **FDEP** | **25.38** | **25.4** | **1,090** | **0** | **1** | **No** | **Max Result < Ref. Conc.** |
| Barium | 1 | 1 | | | | 8.5 | 8.5 | 8.5 | 041W19A102 | 8.5 | I | | NA | | | 3.67 | 1 | 1 | Yes | Max Result > Ref. Conc. |
| **Beryllium** | **1** | **1** | | | | **0.74** | **0.74** | **0.74** | **041W19A102** | **0.74** | **I** | **0.13** | **FDEP** | **6** | **5.69** | **1** | **0** | **1** | **No** | **Max Result < Ref. Conc.** |
| Calcium | 1 | 1 | | | | 6,400 | 6,400 | 6,400 | 041W19A102 | 6,400 | | | NA | | | 7,680 | 0 | 1 | No | Max Result < Ref. Conc. |
| Cobalt | 0 | 1 | 0.6 | 0.6 | 0.6 | 0.6 | | | ND | 0.6 | U | | NA | | | 3 | 0 | 1 | No | Max Result < Ref. Conc. |
| Iron | 1 | 1 | | | | 1,000 | 1,000 | 1,000 | 041W19A102 | 1,000 | | | NA | | | 2,360 | 0 | 1 | No | Max Result < Ref. Conc. |
| Magnesium | 1 | 1 | | | | 1,100 | 1,100 | 1,100 | 041W19A102 | 1,100 | | | NA | | | 20,300 | 0 | 1 | No | Max Result < Ref. Conc. |
| Manganese | 1 | 1 | | | | 18 | 18 | 18 | 041W19A102 | 18 | | | NA | | | 13.2 | 1 | 1 | Yes | Max Result > Ref. Conc. |
| Mercury | 0 | 1 | 0.039 | 0.039 | 0.039 | 0.039 | | | ND | 0.039 | U | 0.012 | EPA | 3.25 | 3.25 | 0.13 | 0 | 1 | No | Max Result < Ref. Conc. |
| Potassium | 1 | 1 | | | | 780 | 780 | 780 | 041W19A102 | 780 | I | | NA | | | 7,000 | 0 | 1 | No | Max Result < Ref. Conc. |
| Silver | 0 | 1 | 0.55 | 0.55 | 0.55 | 0.55 | | | ND | 0.55 | U | 0.012 | EPA | 46 | 45.8 | 4 | 0 | 1 | No | Max Result < Ref. Conc. |
| Sodium | 1 | 1 | | | | 5,800 | 5,800 | 5,800 | 041W19A102 | 5,800 | | | NA | | | 182,000 | 0 | 1 | No | Max Result < Ref. Conc. |
| Vanadium | 1 | 1 | | | | 3 | 3 | 3 | 041W19A102 | 3 | I | | NA | | | 4.7 | 0 | 1 | No | Max Result < Ref. Conc. |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
UJ = Not detected. SQL is estimated.
D = Diluted Result
J = Estimated Value

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
PEL = Probable effects level.
N/R = No refinement value available.

N/A = Not Applicable.
Average result calculations include summing detections and one half the detect
parameters. As a result, some average detections may exceed the Max detecti
Parameters in bold were detected and exceeded Ref. Conc.s.

**Table 15-1-28**
**Wetland 19A Phase IV**
**Surface Water COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Barium<br>Manganese | Not Analyzed | Not Analyzed | Not Analyzed |

**Table 15-1-29**
**Wetland 19B Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | 976 | 976 | 041M19B101 | 976 | | | N/A | | Yes |
| Antimony | 0 | 1 | 0.07 | 0.07 | | | ND | 0.07 | UJ | 12 | 2 | 0.01 | No |
| Arsenic | 1 | 1 | | | 0.83 | 0.83 | 041M19B101 | 0.83 | | 7.24 | 1, 2 | 0.12 | No |
| Barium | 1 | 1 | | | 0.76 | 0.76 | 041M19B101 | 0.76 | J | | N/A | | Yes |
| Beryllium | 0 | 1 | 0.035 | 0.035 | | | ND | 0.035 | U | | N/A | | Yes |
| Cadmium | 0 | 1 | 0.07 | 0.07 | | | ND | 0.07 | U | 0.676 | 1 | 0.10 | No |
| Calcium | 1 | 1 | | | 151 | 151 | 041M19B101 | 151 | J | | N/A | | Yes |
| Chromium | 1 | 1 | | | 3 | 3 | 041M19B101 | 3 | | 52.3 | 1, 2 | 0.06 | No |
| Cobalt | 0 | 1 | 0.07 | 0.07 | | | ND | 0.07 | U | | N/A | | Yes |
| Copper | 1 | 1 | | | 1.6 | 1.6 | 041M19B101 | 1.6 | J | 18.7 | 1, 2 | 0.09 | No |
| Cyanide (CN) | 0 | 1 | 0.325 | 0.325 | | | ND | 0.325 | U | | N/A | | Yes |
| Iron | 1 | 1 | | | 1,840 | 1,840 | 041M19B101 | 1840 | | | N/A | | Yes |
| Lead | 1 | 1 | | | 3.8 | 3.8 | 041M19B101 | 3.8 | | 30.2 | 1, 2 | 0.13 | No |
| Magnesium | 1 | 1 | | | 270 | 270 | 041M19B101 | 270 | J | | N/A | | Yes |
| Manganese | 1 | 1 | | | 3.4 | 3.4 | 041M19B101 | 3.4 | | | N/A | | Yes |
| Mercury | 0 | 1 | 0.03 | 0.03 | | | ND | 0.03 | U | 0.13 | 1, 2 | 0.23 | No |
| Nickel | 0 | 1 | 0.315 | 0.315 | | | ND | 0.315 | U | 15.9 | 1, 2 | 0.02 | No |
| Potassium | 1 | 1 | | | 88.9 | 88.9 | 041M19B101 | 88.9 | J | | N/A | | Yes |
| Selenium | 0 | 1 | 0.14 | 0.14 | | | ND | 0.14 | UJ | | N/A | | Yes |
| Silver | 0 | 1 | 0.175 | 0.175 | | | ND | 0.175 | U | 0.733 | 1 | 0.24 | No |
| Sodium | 1 | 1 | | | 805 | 805 | 041M19B101 | 805 | | | N/A | | Yes |
| Thallium | 0 | 1 | 0.14 | 0.14 | | | ND | 0.14 | U | | N/A | | Yes |
| Vanadium | 1 | 1 | | | 2.5 | 2.5 | 041M19B101 | 2.5 | J | | N/A | | Yes |
| Zinc | 1 | 1 | | | 4.8 | 4.8 | 041M19B101 | 4.8 | | 124 | 1, 2 | 0.04 | No |
| **PAHs (µg/kg)** | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | 20.2 | 1 | 1.06 | No |
| Acenaphthene | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | 6.71 | 1 | 1.56 | No |
| Acenaphthylene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | 5.87 | 1 | 3.66 | No |
| Anthracene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | 46.9 | 1 | 0.46 | No |
| Benzo(a)anthracene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | 74.8 | 1 | 0.29 | No |
| Benzo(a)pyrene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | 88.8 | 1 | 0.24 | No |
| Chrysene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | 108 | 1 | 0.20 | No |
| Dibenz(a,h)anthracene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | 6.22 | 1 | 3.46 | No |
| Fluoranthene | 1 | 1 | | | 28 | 28 | 041M19B101 | 28 | J | 113 | 1 | 0.25 | No |
| Fluorene | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | 21.2 | 1 | 0.50 | No |
| Naphthalene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | 34.6 | 1 | 0.62 | No |
| Phenanthrene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | 86.7 | 1 | 0.25 | No |
| Pyrene | 1 | 1 | | | 28 | 28 | 041M19B101 | 28 | J | 153 | 1 | 0.18 | No |
| Total PAHs | 1 | 1 | | | 271 | 271 | 041M19B101 | 271 | | 1,684 | 1, 2 | 0.16 | No |
| TOC Normalized PAHs | 1 | 1 | | | 128.81 | 128.81 | 041M19B101 | 128.81 | | 290 | 3 | 0.44 | No |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 1.1 | 1.1 | | | ND | 1.1 | U | 21.6 | N/A | 0.05 | No |
| Aroclor-1221 | 0 | 1 | 2.1 | 2.1 | | | ND | 2.1 | U | 67 | 2 | 0.03 | No |
| Aroclor-1232 | 0 | 1 | 1.1 | 1.1 | | | ND | 1.1 | U | 21.6 | N/A | 0.05 | No |
| Aroclor-1242 | 0 | 1 | 1.1 | 1.1 | | | ND | 1.1 | U | 21.6 | N/A | 0.05 | No |
| Aroclor-1248 | 0 | 1 | 1.1 | 1.1 | | | ND | 1.1 | U | 21.6 | N/A | 0.05 | No |
| Aroclor-1254 | 0 | 1 | 1.1 | 1.1 | | | ND | 1.1 | U | 21.6 | N/A | 0.05 | No |
| Aroclor-1260 | 1 | 1 | | | 4.2 | 4.2 | 041M19B101 | 4.2 | J | 21.6 | N/A | 0.19 | No |
| Total PCBs | 1 | 1 | | | 11.8 | 11.8 | 041M19B101 | 11.8 | | 21.6 | 1 | 0.55 | No |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.055 | 0.055 | | | ND | 0.055 | U | | N/A | | Yes |
| Dieldrin | 1 | 1 | | | 0.21 | 0.21 | 041M19B101 | 0.21 | J | 0.716 | 1 | 0.29 | No |
| Endosulfan I | 0 | 1 | 0.055 | 0.055 | | | ND | 0.055 | U | | N/A | | Yes |
| Endosulfan II | 0 | 1 | 0.11 | 0.11 | | | ND | 0.11 | U | | N/A | | Yes |
| Endosulfan sulfate | 0 | 1 | 0.11 | 0.11 | | | ND | 0.11 | U | | N/A | | Yes |
| Heptachlor | 0 | 1 | 0.055 | 0.055 | | | ND | 0.055 | U | | N/A | | Yes |
| Heptachlor epoxide | 1 | 1 | | | 0.22 | 0.22 | 041M19B101 | 0.22 | J | | N/A | | Yes |
| Methoxychlor | 0 | 1 | 0.55 | 0.55 | | | ND | 0.55 | U | | N/A | | Yes |
| Toxaphene | 0 | 1 | 11 | 11 | | | ND | 11 | U | | N/A | | Yes |
| alpha-Chlordane | 0 | 1 | 0.055 | 0.055 | | | ND | 0.055 | U | 1.7 | 1 | 0.03 | No |
| gamma-Chlordane | 0 | 1 | 0.055 | 0.055 | | | ND | 0.055 | U | 1.7 | 1 | 0.03 | No |
| Total Chlordane | 0 | 1 | 0.11 | 0.11 | | | ND | 0.11 | U | 1.7 | 1 | 0.06 | No |
| Endrin | 1 | 1 | | | 0.27 | 0.27 | 041M19B101 | 0.27 | J | 3.3 | 2 | 0.08 | No |
| Endrin aldehyde | 0 | 1 | 0.11 | 0.11 | | | ND | 0.11 | U | 3.3 | 2 | 0.03 | No |
| Endrin ketone | 0 | 1 | 0.11 | 0.11 | | | ND | 0.11 | U | 3.3 | 2 | 0.03 | No |
| Total Endrin | 1 | 1 | | | 0.49 | 0.49 | 041M19B101 | 0.49 | | 3.3 | 2 | 0.15 | No |
| alpha-BHC | 0 | 1 | 0.055 | 0.055 | | | ND | 0.055 | UJ | | N/A | | Yes |
| beta-BHC | 0 | 1 | 0.055 | 0.055 | | | ND | 0.055 | U | 0.32 | N/A | 0.17 | No |
| delta-BHC | 1 | 1 | | | 0.31 | 0.31 | 041M19B101 | 0.31 | J | 0.32 | N/A | 0.97 | No |
| gamma-BHC (Lindane) | 0 | 1 | 0.055 | 0.055 | | | ND | 0.055 | U | 0.32 | 1 | 0.17 | No |
| **Total BHC** | **1** | **1** | | | **0.475** | **0.475** | **041M19B101** | **0.475** | | **0.32** | **2** | **1.48** | **Yes** |
| 4,4'-DDD | 1 | 1 | | | 0.71 | 0.71 | 041M19B101 | 0.71 | | 1.22 | 1 | 0.58 | No |
| 4,4'-DDE | 1 | 1 | | | 1.2 | 1.2 | 041M19B101 | 1.2 | | 2.07 | 1 | 0.58 | No |
| 4,4'-DDT | 1 | 1 | | | 0.34 | 0.34 | 041M19B101 | 0.34 | J | 1.19 | 1 | 0.29 | No |
| Total DDT | 1 | 1 | | | 2.25 | 2.25 | 041M19B101 | 2.25 | | 3.3 | 2 | 0.68 | No |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 1,2-Dichlorobenzene | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 1,3-Dichlorobenzene | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 1,4-Dichlorobenzene | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 2,4,5-Trichlorophenol | 0 | 1 | 500 | 500 | | | ND | 500 | U | | N/A | | Yes |
| 2,4,6-Trichlorophenol | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 2,4-Dichlorophenol | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 2,4-Dimethylphenol | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 2,4-Dinitrophenol | 0 | 1 | 500 | 500 | | | ND | 500 | UJ | | N/A | | Yes |
| 2,4-Dinitrotoluene | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 2,6-Dinitrotoluene | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 2-Chloronaphthalene | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 2-Chlorophenol | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 500 | 500 | | | ND | 500 | UJ | | N/A | | Yes |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 2-Nitroaniline | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 2-Nitrophenol | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 3,3'-Dichlorobenzidine | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 3-Nitroaniline | 0 | 1 | 500 | 500 | | | ND | 500 | U | | N/A | | Yes |
| 4-Bromophenyl-phenylether | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 4-Chloro-3-methylphenol | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 4-Chloroaniline | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 4-Chlorophenylphenyl ether | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| 4-Nitroaniline | 0 | 1 | 500 | 500 | | | ND | 500 | U | | N/A | | Yes |
| 4-Nitrophenol | 0 | 1 | 500 | 500 | | | ND | 500 | U | | N/A | | Yes |
| Benzo(b)fluoranthene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | | N/A | | No |
| Benzo(g,h,i)perylene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | | N/A | | No |
| Benzo(k)fluoranthene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | | N/A | | No |
| bis(2-Chloroethoxy)methane | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| bis(2-Chloroethyl)ether | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | | N/A | | Yes |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 215 | 215 | | | ND | 215 | U | 182 | 1, 2 | 1.18 | Yes |
| Butylbenzylphthalate | 0 | 1 | 215 | 215 | | | ND | 215 | U | 182 | 1, 2 | 1.18 | Yes |
| Carbazole | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |

**Table 15-1-29**
**Wetland 19B Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/kg) - cont.** | | | | | | | | | | | | | |
| Dibenzofuran | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| Diethylphthalate | 0 | 1 | 215 | 215 | | | ND | 215 | U | 182 | 1, 2 | 1.18 | Yes |
| Dimethylphthalate | 0 | 1 | 215 | 215 | | | ND | 215 | U | 182 | 1, 2 | 1.18 | Yes |
| Di-n-butylphthalate | 0 | 1 | 215 | 215 | | | ND | 215 | U | 182 | 1, 2 | 1.18 | Yes |
| Di-n-octylphthalate | 0 | 1 | 215 | 215 | | | ND | 215 | U | 182 | 1, 2 | 1.18 | Yes |
| Hexachlorobenzene | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| Hexachlorobutadiene | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| Hexachlorocyclopentadiene | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| Hexachloroethane | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | | N/A | | No |
| Isophorone | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| Nitrobenzene | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| N-Nitroso-di-n-propylamine | 0 | 1 | 21.5 | 21.5 | | | ND | 21.5 | U | | N/A | | Yes |
| N-Nitrosodiphenylamine | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| Pentachlorophenol | 0 | 1 | 500 | 500 | | | ND | 500 | U | | N/A | | Yes |
| Phenol | 0 | 1 | 215 | 215 | | | ND | 215 | U | | N/A | | Yes |
| **VOCs (µg/kg)** | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| 1,1,2-Trichloroethane | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| 1,1-Dichloroethane | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| 1,1-Dichloroethene | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| 1,2-Dichloroethane | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| 1,2-Dichloroethene (total) | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| 1,2-Dichloropropane | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| 2-Butanone (MEK) | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| 2-Hexanone | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Acetone | 0 | 1 | 11.5 | 11.5 | | | ND | 11.5 | U | | N/A | | Yes |
| Benzene | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Bromodichloromethane | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Bromoform | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Bromomethane | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Carbon disulfide | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Carbon tetrachloride | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Chlorobenzene | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Chloroethane | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Chloroform | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Chloromethane | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| cis-1,3-Dichloropropene | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Dibromochloromethane | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Ethylbenzene | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Methylene chloride | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Styrene | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Tetrachloroethene | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Toluene | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| trans-1,3-Dichloropropene | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Trichloroethene | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |
| Vinyl chloride | 0 | 1 | 2 | 2 | | | ND | 2 | U | | N/A | | Yes |
| Xylene (Total) | 0 | 1 | 6.5 | 6.5 | | | ND | 6.5 | U | | N/A | | Yes |

***Notes:***

Sources for Screening Values:
SV = Screening Value
1 = USEPA Region 4 Screening Value. Detailed explanation for SVs provided in Section 8.0.
2 = FDEP Threshold effects level

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available.
U or ND = Not Detected at or above the SQL
J = Estimated value
SHQ = Screening Hazard Quotient

D = Diluted Result
mg/kg = milligrams per kilograms
µg/kg = micrograms per kilograms
mg/kg oc = milligrams per kilograms - organic ca
UJ = Not detected. SQL is estimated.
Parameters in bold were detected and exceeded s

| Rationale |
| --- |
| No SV |
| Max SQL< SV |
| Max Detect < SV |
| No SV |
| No SV |
| Max SQL< SV |
| No SV |
| Max Detect < SV |
| No SV |
| Max Detect < SV |
| No SV |
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| Max Detect < SV |
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| Max SQL< SV |
| Max SQL< SV |
| No SV |
| No SV |
| Max SQL< SV |
| No SV |
| No SV |
| No SV |
| Max Detect < SV |
| TOC Normalized PAHs<TEC |
| TOC Normalized PAHs<TEC |
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| Rationale |
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rbon

screening values.

**Table 15-1-30**
**Wetland 19B Phase II**
**Sediment COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | Heptachlor epoxide | None | None |
| Barium | Total BHC | | |
| Calcium | | | |
| Iron | | | |
| Magnesium | | | |
| Manganese | | | |
| Potassium | | | |
| Sodium | | | |
| Vanadium | | | |
| | | **Not Detected Parameters** | |
| Beryllium | Aldrin | 1,2,4-Trichlorobenzene | 1,1,1-Trichloroethane |
| Cobalt | alpha-BHC | 1,2-Dichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Cyanide (CN) | Endosulfan I | 1,3-Dichlorobenzene | 1,1,2-Trichloroethane |
| Selenium | Endosulfan II | 1,4-Dichlorobenzene | 1,1-Dichloroethane |
| Thallium | Endosulfan sulfate | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1-Dichloroethene |
| | Heptachlor | 2,4,5-Trichlorophenol | 1,2-Dichloroethane |
| | Methoxychlor | 2,4,6-Trichlorophenol | 1,2-Dichloroethene (total) |
| | Toxaphene | 2,4-Dichlorophenol | 1,2-Dichloropropane |
| | | 2,4-Dimethylphenol | 2-Butanone (MEK) |
| | | 2,4-Dinitrophenol | 2-Hexanone |
| | | 2,4-Dinitrotoluene | 4-Methyl-2-Pentanone (MIBK) |
| | | 2,6-Dinitrotoluene | Acetone |
| | | 2-Chloronaphthalene | Benzene |
| | | 2-Chlorophenol | Bromodichloromethane |
| | | 2-Methyl-4,6-Dinitrophenol | Bromoform |
| | | 2-Methylphenol (o-Cresol) | Bromomethane |
| | | 2-Nitroaniline | Carbon disulfide |
| | | 2-Nitrophenol | Carbon tetrachloride |
| | | 3,3'-Dichlorobenzidine | Chlorobenzene |
| | | 3-Nitroaniline | Chloroethane |
| | | 4-Bromophenyl-phenylether | Chloroform |
| | | 4-Chloro-3-methylphenol | Chloromethane |
| | | 4-Chloroaniline | cis-1,3-Dichloropropene |
| | | 4-Chlorophenylphenyl ether | Dibromochloromethane |
| | | 4-Methylphenol (p-Cresol) | Ethylbenzene |
| | | 4-Nitroaniline | Methylene chloride |
| | | 4-Nitrophenol | Styrene |
| | | bis(2-Chloroethoxy)methane | Tetrachloroethene |
| | | bis(2-Chloroethyl)ether | Toluene |
| | | bis(2-Ethylhexyl)phthalate (BEHP) | trans-1,3-Dichloropropene |
| | | Butylbenzylphthalate | Trichloroethene |
| | | Carbazole | Vinyl chloride |
| | | Dibenzofuran | Xylene (Total) |
| | | Diethylphthalate | |
| | | Dimethylphthalate | |
| | | Di-n-butylphthalate | |
| | | Di-n-octylphthalate | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |

**Table 15-1-31**
**Wetland 19B Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | | 976 | 976 | 976 | 976 | | 041M19B101 | | | NA | | | | | 0 | 4,274 | 0 | No | EPC < RC |
| Barium | 1 | 1 | | | | 0.76 | 0.76 | 0.76 | 0.76 | J | 041M19B101 | | | NA | | | | | 0 | 3.84 | 0 | No | EPC < RC |
| Beryllium | 0 | 1 | 0.035 | 0.035 | 0.035 | 0.035 | | | 0.035 | U | ND | | | NA | | | | | 0 | 0.13 | 0 | No | Parameter Not Detected |
| Calcium | 1 | 1 | | | | 151 | 151 | 151 | 151 | J | 041M19B101 | | | NA | | | | | 0 | 1,978.80 | 0 | No | EPC < RC |
| Cobalt | 0 | 1 | 0.07 | 0.07 | 0.07 | 0.07 | | | 0.07 | U | ND | | | NA | | | | | 0 | 0.91 | 0 | No | Parameter Not Detected |
| Cyanide (CN) | 0 | 1 | 0.325 | 0.325 | 0.325 | 0.325 | | | 0.325 | U | ND | | | NA | | | | | 0 | 1.29 | 0 | No | Parameter Not Detected |
| Iron | 1 | 1 | | | | 1,840 | 1,840 | 1,840 | 1,840 | | 041M19B101 | | | NA | | | | | 0 | 2,684.40 | 0 | No | EPC < RC |
| Magnesium | 1 | 1 | | | | 270 | 270 | 270 | 270 | J | 041M19B101 | | | NA | | | | | 0 | 2,943.60 | 0 | No | EPC < RC |
| Manganese | 1 | 1 | | | | 3.4 | 3.4 | 3.4 | 3.4 | | 041M19B101 | | | NA | | | | | 0 | 9.81 | 0 | No | EPC < RC |
| Potassium | 1 | 1 | | | | 88.9 | 88.9 | 88.9 | 88.9 | J | 041M19B101 | | | NA | | | | | 0 | 899.72 | 0 | No | EPC < RC |
| Selenium | 0 | 1 | 0.14 | 0.14 | 0.14 | 0.14 | | | 0.14 | UJ | ND | | | NA | | | | | 0 | 0.66 | 0 | No | Parameter Not Detected |
| Sodium | 1 | 1 | | | | 805 | 805 | 805 | 805 | | 041M19B101 | | | NA | | | | | 0 | 11,439.60 | 0 | No | EPC < RC |
| Thallium | 0 | 1 | 0.14 | 0.14 | 0.14 | 0.14 | | | 0.14 | U | ND | | | NA | | | | | 0 | 0.39 | 0 | No | Parameter Not Detected |
| Vanadium | 1 | 1 | | | | 2.5 | 2.5 | 2.5 | 2.5 | J | 041M19B101 | | | NA | | | | | 0 | 8.59 | 0 | No | EPC < RC |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.055 | 0.055 | 0.055 | 0.055 | | | 0.055 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan I | 0 | 1 | 0.055 | 0.055 | 0.055 | 0.055 | | | 0.055 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan II | 0 | 1 | 0.11 | 0.11 | 0.11 | 0.11 | | | 0.11 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan sulfate | 0 | 1 | 0.11 | 0.11 | 0.11 | 0.11 | | | 0.11 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor | 0 | 1 | 0.055 | 0.055 | 0.055 | 0.055 | | | 0.055 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor epoxide | 1 | 1 | | | | 0.22 | 0.22 | 0.22 | 0.22 | J | 041M19B101 | | | NA | | | | | 0 | | 0 | Yes | No SV, no RV, and no RC |
| Methoxychlor | 0 | 1 | 0.55 | 0.55 | 0.55 | 0.55 | | | 0.55 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toxaphene | 0 | 1 | 11 | 11 | 11 | 11 | | | 11 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| alpha-BHC | 0 | 1 | 0.055 | 0.055 | 0.055 | 0.055 | | | 0.055 | UJ | ND | | 0.99 | PEL | | | 0.06 | 0.06 | 0 | | 0 | No | Parameter Not Detected |
| beta-BHC | 0 | 1 | 0.055 | 0.055 | 0.055 | 0.055 | | | 0.055 | U | | 0.32 | 0.99 | PEL | 0.17 | 0.17 | 0.06 | 0.06 | 0 | | 0 | No | SV and RV HQ < 1 |
| delta-BHC | 1 | 1 | | | | 0.31 | 0.31 | 0.31 | 0.31 | J | 041M19B101 | 0.32 | 0.99 | PEL | 0.97 | 0.97 | 0.31 | 0.31 | 0 | | 0 | No | SV and RV HQ < 1 |
| gamma-BHC (Lindane) | 0 | 1 | 0.055 | 0.055 | 0.055 | 0.055 | | | 0.055 | U | | 0.32 | 0.99 | PEL | 0.17 | 0.17 | 0.06 | 0.06 | 0 | | 0 | No | SV and RV HQ < 1 |
| Total BHC | 1 | 1 | | | | 0.475 | 0.475 | 0.475 | 0.475 | | 041M19B101 | 0.32 | 0.99 | PEL | 1.48 | 1.48 | 0.48 | 0.48 | 0 | | 0 | No | RV HQ <1 and no RC |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichlorobenzene | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,4-Dichlorobenzene | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,5-Trichlorophenol | 0 | 1 | 500 | 500 | 500 | 500 | | | 500 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,6-Trichlorophenol | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dichlorophenol | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dimethylphenol | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrophenol | 0 | 1 | 500 | 500 | 500 | 500 | | | 500 | UJ | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrotoluene | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,6-Dinitrotoluene | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chloronaphthalene | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chlorophenol | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 500 | 500 | 500 | 500 | | | 500 | UJ | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitroaniline | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitrophenol | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3,3'-Dichlorobenzidine | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3-Nitroaniline | 0 | 1 | 500 | 500 | 500 | 500 | | | 500 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Bromophenyl-phenylether | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chloro-3-methylphenol | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chloroaniline | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chlorophenylphenyl ether | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitroaniline | 0 | 1 | 500 | 500 | 500 | 500 | | | 500 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitrophenol | 0 | 1 | 500 | 500 | 500 | 500 | | | 500 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethoxy)methane | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethyl)ether | 0 | 1 | 21.5 | 21.5 | 21.5 | 21.5 | | | 21.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | 182 | 2,647 | PEL | 1.18 | 1.18 | 0.08 | 0.08 | 0 | | 0 | No | Parameter Not Detected |
| Butylbenzylphthalate | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | 182 | 2,647 | PEL | 1.18 | 1.18 | 0.08 | 0.08 | 0 | | 0 | No | Parameter Not Detected |
| Carbazole | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dibenzofuran | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Diethylphthalate | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | 182 | 2,647 | PEL | 1.18 | 1.18 | 0.08 | 0.08 | 0 | | 0 | No | Parameter Not Detected |
| Dimethylphthalate | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | 182 | 2,647 | PEL | 1.18 | 1.18 | 0.08 | 0.08 | 0 | | 0 | No | Parameter Not Detected |
| Di-n-butylphthalate | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | 182 | 2,647 | PEL | 1.18 | 1.18 | 0.08 | 0.08 | 0 | | 0 | No | Parameter Not Detected |
| Di-n-octylphthalate | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | 182 | 2,647 | PEL | 1.18 | 1.18 | 0.08 | 0.08 | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobenzene | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobutadiene | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorocyclopentadiene | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachloroethane | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Isophorone | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Nitrobenzene | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitroso-di-n-propylamine | 0 | 1 | 21.5 | 21.5 | 21.5 | 21.5 | | | 21.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitrosodiphenylamine | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Pentachlorophenol | 0 | 1 | 500 | 500 | 500 | 500 | | | 500 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Phenol | 0 | 1 | 215 | 215 | 215 | 215 | | | 215 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| **VOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |

**Table 15-1-31**
**Wetland 19B Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2-Trichloroethane | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethane | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethene | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethane | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethene (total) | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| **VOCs (µg/kg) - cont.** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloropropane | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Butanone (MEK) | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Hexanone | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Acetone | 0 | 1 | 11.5 | 11.5 | 11.5 | 11.5 | | | 11.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Benzene | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromodichloromethane | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromoform | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromomethane | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon disulfide | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon tetrachloride | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chlorobenzene | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroethane | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroform | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloromethane | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| cis-1,3-Dichloropropene | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dibromochloromethane | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Ethylbenzene | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Methylene chloride | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Styrene | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Tetrachloroethene | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toluene | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| trans-1,3-Dichloropropene | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Trichloroethene | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Vinyl chloride | 0 | 1 | 2 | 2 | 2 | 2 | | | 2 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Xylene (Total) | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | 6.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |

***Notes:***

Sources for Refinement Values (RVs):
PEL = FDEP Probable Effects Level
MEC = Swartz Midrange Effect Concentration

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result
Parameters in bold were detected and exceeded screening values.

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
PEL = Probable effects level.
N/R = No refinement value available.
N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters.
As a result, some average detections may exceed the maximum detections
NAS Pensacola basewide levels used as reference values for 4,4'-DDT, 4,4'-DDD, 4,4'-DDE and total DDT.

**Table 15-1-32**
**Wetland 19B Phase II**
**Sediment COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| **Detected Parameters** | | | |
| None | Heptachlor epoxide | None | None |

**Table 15-1-33**
**Wetland 19B Phase II**
**Mean ERM Quotient**

| Sample ID | Sample Date | Units | Result | VQUAL | Parameter | ERL | ERM | ERM Quotient |
|---|---|---|---|---|---|---|---|---|
| 041M19B101 | 1/16/1996 | mg/kg | 0.83 | | Arsenic | 8.2 | 70 | 0.01 |
| 041M19B101 | 1/16/1996 | mg/kg | 0.07 | U | Cadmium | 1.2 | 9.6 | 0.01 |
| 041M19B101 | 1/16/1996 | mg/kg | 3 | | Chromium | 81 | 370 | 0.01 |
| 041M19B101 | 1/16/1996 | mg/kg | 1.6 | J | Copper | 34 | 270 | 0.01 |
| 041M19B101 | 1/16/1996 | mg/kg | 3.8 | | Lead | 46.7 | 218 | 0.02 |
| 041M19B101 | 1/16/1996 | mg/kg | 0.03 | U | Mercury | 0.15 | 0.71 | 0.04 |
| 041M19B101 | 1/16/1996 | mg/kg | 0.315 | U | Nickel | 20.9 | 51.6 | 0.01 |
| 041M19B101 | 1/16/1996 | mg/kg | 0.175 | U | Silver | 1 | 3.7 | 0.05 |
| 041M19B101 | 1/16/1996 | mg/kg | 4.8 | | Zinc | 150 | 410 | 0.01 |
| 041M19B101 | 1/16/1996 | µg/kg | 1.2 | | 4,4'-DDE | 2.2 | 27 | 0.04 |
| 041M19B101 | 1/16/1996 | µg/kg | 0.34 | J | 4,4'-DDT | 1.58 | 46.1 | 0.01 |
| 041M19B101 | 1/16/1996 | µg/kg | 11.8 | | Total PCBs | 22.7 | 180 | 0.07 |
| 041M19B101 | 1/16/1996 | µg/kg | 21.5 | U | 2-Methylnaphthalene | 70 | 670 | 0.03 |
| 041M19B101 | 1/16/1996 | µg/kg | 10.5 | U | Acenaphthene | 16 | 500 | 0.02 |
| 041M19B101 | 1/16/1996 | µg/kg | 21.5 | U | Acenaphthylene | 44 | 640 | 0.03 |
| 041M19B101 | 1/16/1996 | µg/kg | 21.5 | U | Anthracene | 85.3 | 1,100 | 0.02 |
| 041M19B101 | 1/16/1996 | µg/kg | 21.5 | U | Benzo(a)anthracene | 261 | 1,600 | 0.01 |
| 041M19B101 | 1/16/1996 | µg/kg | 21.5 | U | Benzo(a)pyrene | 430 | 1,600 | 0.01 |
| 041M19B101 | 1/16/1996 | µg/kg | 21.5 | U | Chrysene | 384 | 2,800 | 0.01 |
| 041M19B101 | 1/16/1996 | µg/kg | 21.5 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.08 |
| 041M19B101 | 1/16/1996 | µg/kg | 28 | J | Fluoranthene | 600 | 5,100 | 0.01 |
| 041M19B101 | 1/16/1996 | µg/kg | 10.5 | U | Fluorene | 19 | 540 | 0.02 |
| 041M19B101 | 1/16/1996 | µg/kg | 21.5 | U | Naphthalene | 160 | 2,100 | 0.01 |
| 041M19B101 | 1/16/1996 | µg/kg | 21.5 | U | Phenanthrene | 240 | 1,500 | 0.01 |
| 041M19B101 | 1/16/1996 | µg/kg | 28 | J | Pyrene | 665 | 2,600 | 0.01 |
| 041M19B101 | 1/16/1996 | | | | ERM Quotient Sum | | | 0.56 |
| 041M19B101 | 1/16/1996 | | | | Mean ERM Quotient | | | 0.02 |
| 041M19B101 | 1/16/1996 | | | | Mean ERM Quotient without ND | | | 0.01 |
| 041M19B101 | 1/16/1996 | | | | Mean ERM Quotient Category | | | 1 |

***Notes:***
ERL = Effects Range Low
ERM = Effects Range Median
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
U = not detected at or above the SQL (value in table is 1/2 reported value)
J = estimated value
Shaded cells indicate constituent exceeds ERL.
**Shaded and bold cells indicate constituent exceeds ERM.**

**Table 15-1-34**
**Wetland 19B Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | | 2,140 | 2,140 | 2,140 | 041W190301 | 2,140 | | | NA | | Yes | No SV |
| Antimony | 1 | 1 | | | | 2 | 2 | 2 | 041W190301 | 2 | J | | NA | | Yes | No SV |
| Arsenic | 1 | 1 | | | | 4.8 | 4.8 | 4.8 | 041W190301 | 4.8 | J | 36 | EPA | 0.13 | No | Max Detect < SV |
| Barium | 1 | 1 | | | | 7.4 | 7.4 | 7.4 | 041W190301 | 7.4 | J | | NA | | Yes | No SV |
| Beryllium | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Cadmium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 9.3 | EPA | 0.11 | No | Max SQL< SV |
| Calcium | 1 | 1 | | | | 17,200 | 17,200 | 17,200 | 041W190301 | 17,200 | | | NA | | Yes | No SV |
| Chromium | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 50 | EPA | 0.05 | No | Max SQL< SV |
| Cobalt | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Copper | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 2.9 | EPA | 0.69 | No | Max SQL< SV |
| Cyanide (CN) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 1 | EPA | 2.5 | Yes | Max SQL > SV |
| Iron | 1 | 1 | | | | 4,030 | 4,030 | 4,030 | 041W190301 | 4,030 | | | NA | | Yes | No SV |
| Lead | 1 | 1 | | | | 5.6 | 5.6 | 5.6 | 041W190301 | 5.6 | | 8.5 | EPA | 0.66 | No | Max Detect < SV |
| Magnesium | 1 | 1 | | | | 36,400 | 36,400 | 36,400 | 041W190301 | 36,400 | | | NA | | Yes | No SV |
| Manganese | 1 | 1 | | | | 26.3 | 26.3 | 26.3 | 041W190301 | 26.3 | | | NA | | Yes | No SV |
| Mercury | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.025 | EPA | 2.6 | Yes | Max SQL > SV |
| Nickel | 0 | 1 | 4.5 | 4.5 | 4.5 | 4.5 | | | ND | 4.5 | U | 8.3 | EPA | 0.54 | No | Max SQL< SV |
| Potassium | 1 | 1 | | | | 11,400 | 11,400 | 11,400 | 041W190301 | 11,400 | | | NA | | Yes | No SV |
| Selenium | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 71 | EPA | 0.03 | No | Max SQL< SV |
| Silver | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.23 | EPA | 10.9 | Yes | Max SQL > SV |
| Sodium | 1 | 1 | | | | 291,000 | 291,000 | 291,000 | 041W190301 | 291,000 | | | NA | | Yes | No SV |
| Thallium | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 6.3 | FDEP | 0.32 | No | Max SQL< SV |
| Vanadium | 1 | 1 | | | | 4.4 | 4.4 | 4.4 | 041W190301 | 4.4 | J | | NA | | Yes | No SV |
| Zinc | 1 | 1 | | | | 7.1 | 7.1 | 7.1 | 041W190301 | 7.1 | J | 86 | EPA | 0.08 | No | Max Detect < SV |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endosulfan I | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0087 | EPA | 2.87 | Yes | Max SQL > SV |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0036 | EPA | 6.94 | Yes | Max SQL > SV |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.00004 | FDEP | 625 | Yes | Max SQL > SV |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | U | | NA | | Yes | No SV |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.004 | EPA | 12.5 | Yes | Max SQL > SV |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0023 | EPA | 21.7 | Yes | Max SQL > SV |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.005 | FDEP | 5 | Yes | Max SQL > SV |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| gamma-BHC (Lindane) | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.016 | EPA | 1.56 | Yes | Max SQL > SV |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | Yes | No SV |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0003 | FDEP | 167 | Yes | Max SQL > SV |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0002 | FDEP | 250 | Yes | Max SQL > SV |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.00059 | FDEP | 84.7 | Yes | Max SQL > SV |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.014 | FDEP | 35.7 | Yes | Max SQL > SV |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | Yes | No SV |

**Table 15-1-34**
**Wetland 19B Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Di-n-butylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 3.4 | EPA | 0.74 | No | Max SQL< SV |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Naphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 23.5 | EPA | 0.02 | No | Max SQL< SV |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Total PAH | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | Yes | No SV |

**Table 15-1-34**
**Wetland 19B Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 270 | FDEP | 0.00 | No | Max SQL< SV |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3.2 | FDEP | 0.16 | No | Max SQL< SV |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 19.7 | EPA | 0.03 | No | Max SQL< SV |
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3 | FDEP | 0.17 | No | Max SQL< SV |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Benzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 71.28 | FDEP | 0.01 | No | Max SQL< SV |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 17 | FDEP | 0.03 | No | Max SQL< SV |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chloroform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 470.8 | FDEP | 0.00 | No | Max SQL< SV |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Ethylbenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 4.3 | EPA | 0.12 | No | Max SQL< SV |
| Methylene chloride | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 1,580 | FDEP | 0.00 | No | Max SQL< SV |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Toluene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 37 | EPA | 0.01 | No | Max SQL< SV |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
N/R = No refinement value available.
N/A = Not Applicable.

Average result calculations include summing detections and one half the detection limits for not detected parameters. As a result, some average detections may exceed the maximum detections.
Parameters in bold were detected and exceeded the screening value.

**Table 15-1-35**
**Wetland 19B Phase II**
**Surface Water COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | None | None | None |
| Antimony | | | |
| Barium | | | |
| Calcium | | | |
| Iron | | | |
| Magnesium | | | |
| Manganese | | | |
| Potassium | | | |
| Sodium | | | |
| Vanadium | | | |
| | | **Not Detected Parameters** | |
| Beryllium | Aldrin | 1,2,4-Trichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Cobalt | Dieldrin | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1,2-Trichloroethane |
| Cyanide (CN) | Endosulfan I | 2,4,5-Trichlorophenol | 1,1-Dichloroethane |
| Mercury | Endosulfan II | 2,4,6-Trichlorophenol | 1,2-Dibromo-3-Chloropropane |
| Silver | Endosulfan sulfate | 2,4-Dichlorophenol | 1,2-Dibromoethane |
| | Heptachlor | 2,4-Dimethylphenol | 1,2-Dichloroethane |
| | Heptachlor epoxide | 2,4-Dinitrophenol | 1,2-Dichloropropane |
| | Methoxychlor | 2,4-Dinitrotoluene | 1,3-Dichlorobenzene |
| | Toxaphene | 2,6-Dinitrotoluene | 2-Hexanone |
| | alpha-Chlordane | 2-Chloronaphthalene | 4-Methyl-2-Pentanone (MIBK) |
| | gamma-Chlordane | 2-Chlorophenol | Bromochloromethane |
| | Total Chlordane | 2-Methyl-4,6-Dinitrophenol | Bromodichloromethane |
| | Endrin | 2-Methylphenol (o-Cresol) | Bromoform |
| | Endrin aldehyde | 2-Nitroaniline | Bromomethane |
| | Endrin ketone | 2-Nitrophenol | Carbon disulfide |
| | Total Endrin | 3,3'-Dichlorobenzidine | Carbon tetrachloride |
| | alpha-BHC | 3-Nitroaniline | Chloroethane |
| | beta-BHC | 4-Bromophenyl-phenylether | Chloromethane |
| | delta-BHC | 4-Chloro-3-methylphenol | cis-1,2-Dichloroethene |
| | gamma-BHC (Lindane) | 4-Chloroaniline | cis-1,3-Dichloropropene |
| | Total BHC | 4-Chlorophenylphenyl ether | Dibromochloromethane |
| | 4,4'-DDD | 4-Methylphenol (p-Cresol) | Styrene |
| | 4,4'-DDE | 4-Nitroaniline | Tetrachloroethene |
| | 4,4'-DDT | 4-Nitrophenol | trans-1,2-Dichloroethene |
| | Total DDT | Benzo(b)fluoranthene | trans-1,3-Dichloropropene |
| | Aroclor-1016 | Benzo(g,h,i)perylene | Trichloroethene |
| | Aroclor-1221 | Benzo(k)fluoranthene | Vinyl chloride |
| | Aroclor-1232 | bis(2-Chloroethoxy)methane | Xylene (Total) |
| | Aroclor-1242 | bis(2-Chloroethyl)ether | |
| | Aroclor-1248 | bis(2-Ethylhexyl)phthalate (BEHP) | |
| | Aroclor-1254 | Butylbenzylphthalate | |
| | Aroclor-1260 | Dibenzofuran | |
| | Total PCBs | Diethylphthalate | |
| | | Dimethylphthalate | |
| | | Di-n-octylphthalate | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Indeno(1,2,3-cd)pyrene | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |
| | | 2-Methylnaphthalene | |
| | | Acenaphthene | |
| | | Acenaphthylene | |
| | | Anthracene | |
| | | Benzo(a)anthracene | |
| | | Benzo(a)pyrene | |
| | | Chrysene | |
| | | Dibenz(a,h)anthracene | |
| | | Fluoranthene | |
| | | Fluorene | |
| | | Phenanthrene | |
| | | Pyrene | |
| | | Total PAHs | |

**Table 15-1-36**
**Wetland 19B Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Number Analyzed | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | | 2,140 | 2,140 | 2,140 | 041W190301 | 2,140 | | | NA | | | 2,930 | 0 | 1 | No | Max Result < Ref. Conc. |
| Antimony | 1 | 1 | | | | 2 | 2 | 2 | 041W190301 | 2 | J | | NA | | | 4.15 | 0 | 1 | No | Max Result < Ref. Conc. |
| Barium | 1 | 1 | | | | 7.4 | 7.4 | 7.4 | 041W190301 | 7.4 | J | | NA | | | 9.43 | 0 | 1 | No | Max Result < Ref. Conc. |
| Beryllium | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | 0.82 | 0 | 1 | No | Max Result < Ref. Conc. |
| Calcium | 1 | 1 | | | | 17,200 | 17,200 | 17,200 | 041W190301 | 17,200 | | | NA | | | 76,800 | 0 | 1 | No | Max Result < Ref. Conc. |
| Cobalt | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | 2.38 | 0 | 1 | No | Max Result < Ref. Conc. |
| Cyanide (CN) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 1 | EPA | 2.5 | 2.5 | 4.1 | 0 | 1 | No | Max Result < Ref. Conc. |
| Iron | 1 | 1 | | | | 4,030 | 4,030 | 4,030 | 041W190301 | 4,030 | | | NA | | | 1,350 | 1 | 1 | Yes | Max Result > Ref. Conc. |
| Magnesium | 1 | 1 | | | | 36,400 | 36,400 | 36,400 | 041W190301 | 36,400 | | | NA | | | 244,000 | 0 | 1 | No | Max Result < Ref. Conc. |
| Manganese | 1 | 1 | | | | 26.3 | 26.3 | 26.3 | 041W190301 | 26.3 | | | NA | | | 12.2 | 1 | 1 | Yes | Max Result > Ref. Conc. |
| Mercury | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.025 | EPA | 2.6 | 2.6 | 0.21 | 0 | 1 | No | Max Result < Ref. Conc. |
| Potassium | 1 | 1 | | | | 11,400 | 11,400 | 11,400 | 041W190301 | 11,400 | | | NA | | | 81,300 | 0 | 1 | No | Max Result < Ref. Conc. |
| Silver | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.23 | EPA | 11 | 10.9 | 3.01 | 0 | 1 | No | Max Result < Ref. Conc. |
| Sodium | 1 | 1 | | | | 291,000 | 291,000 | 291,000 | 041W190301 | 291,000 | | | NA | | | 1,950,000 | 0 | 1 | No | Max Result < Ref. Conc. |
| Vanadium | 1 | 1 | | | | 4.4 | 4.4 | 4.4 | 041W190301 | 4.4 | J | | NA | | | 6.69 | 0 | 1 | No | Max Result < Ref. Conc. |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Endosulfan I | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0087 | EPA | 3 | 2.87 | | 0 | 1 | No | Parameter not Detected |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0036 | EPA | 7 | 6.94 | | 0 | 1 | No | Parameter not Detected |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.00004 | FDEP | 625 | 625 | | 0 | 1 | No | Parameter not Detected |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.004 | EPA | 12.5 | 12.5 | | 0 | 1 | No | Parameter not Detected |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0023 | EPA | 22 | 21.7 | | 0 | 1 | No | Parameter not Detected |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.005 | FDEP | 5 | 5 | | 0 | 1 | No | Parameter not Detected |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| gamma-BHC (Lindane) | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.016 | EPA | 2 | 1.56 | | 0 | 1 | No | Parameter not Detected |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0003 | FDEP | 167 | 167 | | 0 | 1 | No | Parameter not Detected |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0002 | FDEP | 250 | 250 | | 0 | 1 | No | Parameter not Detected |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.00059 | FDEP | 85 | 84.7 | | 0 | 1 | No | Parameter not Detected |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.014 | FDEP | 36 | 35.7 | | 0 | 1 | No | Parameter not Detected |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-ch | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2-Chlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |

**Table 15-1-36**
**Wetland 19B Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Number Analyzed | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | | | | | |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Naphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 23.5 | EPA | 0.02 | 0.02 | | 0 | 1 | No | Parameter not Detected |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Total PAH | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |

**Table 15-1-36**
**Wetland 19B Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Number Analyzed | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | | | | | |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter not Detected |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL

UJ = Not detected. SQL is estimated.
D = Diluted Result
J = Estimated Value

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8)
RV = Refinement value (detailed explanation of RVs provided in Section 8)
PEL = Probable effects level.
N/R = No refinement value available.

N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters.
As a result, some average detections may exceed the Max detections
Parameters in bold were detected and exceeded Ref. Conc.s

**Table 15-1-37**
**Wetland 19B Phase II**
**Surface Water COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Iron<br>Manganese | None | None | None |

**Table 15-1-38**
**Wetland 19A Phase II**
**Sediment Dermal Exposure Dose-Child Trespasser and Adult Maintenance Worker**

| CAS Number | Chemical | | Minimum Concentration (mg/kg) | Min. Qual. | Maximum Concentration (mg/kg) | Max. Qual. | Units | Location of Max.Conc. | Detection Frequency | Range of Detection Limits | Mean | $ABS_{sd}$ | $ABS_{sd}$ Source | $DA_{event}$: Child Trespasser | $DA_{event}$: Adult Maintenance Worker | $DAD_{sd}$ (mg/kg-day): Child Trespasser | $DAD_{sd}$ (mg/kg-day): Adult Maintenance Worker |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429905 | Aluminum | N | 4.9E+02 | = | 1.9E+04 | = | MG/KG | 041M19A101 | 2 / 2 | NAV | 9.7E+03 | 1.0E-03 | 3 | N/A | 1.89E-06 | N/A | 4.00E-05 |
| 7440382 | Arsenic | C | 1.7E-01 | J | 1.6E+01 | = | MG/KG | 041M19A101 | 2 / 2 | NAV | 7.9E+00 | 3.0E-02 | 2 | N/A | 4.71E-08 | N/A | 3.56E-07 |
| 7440393 | Barium | N | 5.8E-01 | J | 3.0E+01 | J | MG/KG | 041M19A101 | 2 / 2 | NAV | 1.5E+01 | 1.0E-03 | 3 | N/A | 3.02E-09 | N/A | 6.39E-08 |
| 7440417 | Beryllium | N | N/A | N/A | 4.8E-01 | J | MG/KG | 041M19A101 | 1 / 2 | N/A / 7.0E-02 | 2.6E-01 | 1.0E-03 | 3 | N/A | 4.80E-11 | N/A | 1.02E-09 |
| 7440484 | Cobalt | C | N/A | N/A | 3.4E+00 | J | MG/KG | 041M19A101 | 1 / 2 | N/A / 1.3E-01 | 1.7E+00 | 1.0E-03 | 3 | N/A | 3.40E-10 | N/A | 2.57E-09 |
| 7439896 | Iron | N | 5.5E+02 | = | 1.7E+04 | = | MG/KG | 041M19A101 | 2 / 2 | NAV | 8.7E+03 | 1.0E-03 | 3 | N/A | 1.68E-06 | N/A | 3.56E-05 |
| 7439965 | Manganese | N | 1.3E+00 | = | 1.7E+02 | = | MG/KG | 041M19A101 | 2 / 2 | NAV | 8.5E+01 | 1.0E-03 | 3 | N/A | 1.69E-08 | N/A | 3.58E-07 |
| 7440622 | Vanadium | N | 9.9E-01 | J | 3.5E+01 | = | MG/KG | 041M19A101 | 2 / 2 | NAV | 1.8E+01 | 1.0E-03 | 3 | N/A | 3.54E-09 | N/A | 7.49E-08 |
| 72559 | 4,4'-DDE | C | N/A | N/A | 5.5E-04 | = | MG/KG | 041M19A201 | 1 / 2 | N/A / 1.4E-03 | 6.3E-04 | 3.0E-02 | 1 | N/A | 1.65E-12 | N/A | 1.25E-11 |
| 11096825 | Aroclor-1260 | C | N/A | N/A | 1.1E-03 | J | MG/KG | 041M19A201 | 1 / 2 | N/A / 1.4E-02 | 4.1E-03 | 1.4E-02 | 3 | N/A | 1.52E-12 | N/A | 1.15E-11 |
| 319868 | delta-BHC | C | N/A | N/A | 1.1E-04 | J | MG/KG | 041M19A201 | 1 / 2 | N/A / 6.8E-04 | 2.3E-04 | 4.0E-02 | 2 | N/A | 4.40E-13 | N/A | 3.33E-12 |
| 60571 | Dieldrin | C | N/A | N/A | 2.0E-04 | J | MG/KG | 041M19A201 | 1 / 2 | N/A / 1.4E-03 | 4.5E-04 | 1.0E-01 | 2 | N/A | 2.00E-12 | N/A | 1.51E-11 |
| 115297 | Endosulfan I | N | N/A | N/A | 5.3E-03 | J | MG/KG | 041M19A101 | 1 / 2 | N/A / 1.0E-04 | 2.7E-03 | 1.0E-01 | 2 | N/A | 5.30E-11 | N/A | 1.12E-09 |
| 57749 | gamma-Chlordane | C | N/A | N/A | 1.3E-03 | J | MG/KG | 041M19A101 | 1 / 2 | N/A / 1.0E-04 | 6.8E-04 | 4.0E-02 | 2 | N/A | 5.20E-12 | N/A | 3.93E-11 |
| 1024573 | Heptachlor epoxide | C | N/A | N/A | 2.6E-02 | DJ | MG/KG | 041M19A101 | 1 / 2 | N/A / 1.0E-04 | 1.3E-02 | 1.0E-01 | 2 | N/A | 2.60E-10 | N/A | 1.97E-09 |
| 74873 | Chloromethane | C | N/A | N/A | 2.0E-03 | J | MG/KG | 041M19A201 | 1 / 2 | N/A / 7.7E-02 | 2.0E-02 | 1.0E-02 | 3 | N/A | 2.00E-12 | N/A | 1.51E-11 |

***Notes:***

Equation for sediment risk:

$$DAD_{sd} = \frac{DA_{event} \times EV \times ED \times EF \times SA}{BW \times AT}$$

Where:

$DAD_{sd}$ = Dermal Absorbed Dose-soil contact (mg/kg-day).
$DA_{event}$ = Dermal absorbed dose per event (mg/cm2-event)
SA = Skin surface area available for contact (cm2).
EV = Event frequency (events/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr
carcinogenic effects AT = 70 yr x 365 dy/yr.

Equation for $DA_{event}$ for sediment contact:

$$DA_{event} = C_{sd} \times CF \times AF \times ABS_d$$

Where:

$C_{sd}$ = Chemical concentration in sediment (mg/kg).
CF = Conversion factor ($10^{-6}$ kg/mg).
AF = Adherence factor of sediment to soil (mg/cm2-event).
0.2 (children playing in wet soil) 0.1 (construction worker)
$AB_{sd}$ = Dermal absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1;
(2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.

Exposure Parameters:

EV = 1 event per day (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
EF = 52 dys/yr (child trespasser/adult maintenance worker).
SA = 5,000 cm2(child trespasser); 10,400 cm2 (adult maintenance worker).
Source: Tables 6-6 and 6-8 Exposure Factors Handbook.
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).

**Table 15-1-39**
**Wetland 19A Phase II**
**Sediment Dermal Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum Concentration (mg/kg) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | ABSGI | ABSGI Source | Dermal RfD (mg/kg-day) | Dermal SF (mg/kg-day)-1 | Child Trespasser Dermal Hazard Quotient | Child Trespasser Dermal Cancer Risk | Maintenance Worker Dermal Hazard Quotient | Maintenance Worker Dermal Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sediment Dermal Risk | Aluminum | N | 1.9E+04 | 1.0E+00 | N/A | 1.0E-01 | 2 | 1.0E-01 | N/A | N/A | N/A | 4.0E-04 | N/A |
| | Arsenic | C | 1.6E+01 | 3.0E-04 | 1.5E+00 | 4.1E-01 | 3 | 1.2E-04 | 3.7E+00 | N/A | N/A | 2.9E-03 | **1.3E-06** |
| | Barium | N | 3.0E+01 | 7.0E-02 | N/A | 7.0E-02 | 1, 3 | 4.9E-03 | N/A | N/A | N/A | 1.3E-05 | N/A |
| | Beryllium | N | 4.8E-01 | 2.0E-03 | N/A | 7.0E-03 | 1 | 1.4E-05 | N/A | N/A | N/A | 7.3E-05 | N/A |
| | Cobalt | C | 3.4E+00 | 2.0E-02 | N/A | 8.0E-01 | 3 | 1.6E-02 | N/A | N/A | N/A | 1.6E-07 | N/A |
| | Iron | N | 1.7E+04 | 3.0E-01 | N/A | 1.5E-01 | 3 | 4.5E-02 | N/A | N/A | N/A | 7.9E-04 | N/A |
| | Manganese | N | 1.7E+02 | 2.4E-02 | N/A | 4.0E-02 | 1, 3 | 9.6E-04 | N/A | N/A | N/A | 3.7E-04 | N/A |
| | Vanadium | N | 3.5E+01 | 7.0E-03 | N/A | 2.6E-02 | 1 | 1.8E-04 | N/A | N/A | N/A | 4.1E-04 | N/A |
| | 4,4'-DDE | C | 5.5E-04 | N/A | 3.4E-01 | 3.0E-02 | 2 | N/A | 1.1E+01 | N/A | N/A | N/A | 1.4E-10 |
| | Aroclor-1260 | C | 1.1E-03 | N/A | 2.0E+00 | 1.4E-01 | 2 | N/A | 1.4E+01 | N/A | N/A | N/A | 1.6E-10 |
| | delta-BHC | C | 1.1E-04 | 5.0E-04 | 6.3E+00 | 1.4E-02 | 3 | 7.1E-06 | 4.4E+02 | N/A | N/A | 4.7E-07 | 1.5E-09 |
| | Dieldrin | C | 2.0E-04 | 5.0E-05 | 1.6E+01 | 5.0E-01 | 3 | 2.5E-05 | 3.2E+01 | N/A | N/A | 6.0E-07 | 4.8E-10 |
| | Endosulfan I | N | 5.3E-03 | 6.0E-03 | N/A | 5.0E-01 | 3 | 3.0E-03 | N/A | N/A | N/A | 3.7E-07 | N/A |
| | gamma-Chlordane | C | 1.3E-03 | 5.0E-04 | 3.5E-01 | 8.0E-01 | 1 | 4.0E-04 | 4.4E-01 | N/A | N/A | 9.8E-08 | 1.7E-11 |
| | Heptachlor epoxide | C | 2.6E-02 | 5.0E-04 | 4.5E+00 | 1.1E-02 | 3 | 5.6E-06 | 4.0E+02 | N/A | N/A | 3.5E-04 | 7.9E-07 |
| | Chloromethane | C | 2.0E-03 | N/A | 1.3E-02 | 8.0E-01 | 3 | N/A | 1.6E-02 | N/A | N/A | N/A | 2.5E-13 |

***Notes:***

Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
ABSGI = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.
Dermal RfD = Dermal reference dose-sources: (1) RAIS value; (2) adjusted for ABSGI.
Dermal SF = Dermal slope factor-sources: (1) RAIS value; (2) adjusted for ABSGI.

Equations for Dermal Reference Dose and Dermal Slope Factor, surface water risk

$$RfD_{dermal} = RfD_{oral} \times ABS_{GI}$$

$$SF_{dermal} = \frac{RfD_{oral}}{ABS_{GI}}$$

Where:
RfDdermal = Dermal reference dose.
RFDoral = Oral reference dose.
ABSGI = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.

Risk calculation equation, cancer:

$$Risk = DAD_{sw} \times SF_{dermal}$$

Risk calculation equation, noncancer:

$$Hazard\ Quotient = \frac{DAD_{sw}}{RfD_{dermal}}$$

**Table 15-1-40**
**Wetland 19A Phase II**
**Sediment Incidental Ingestion Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum Concentration (mg/kg) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | Child Trespasser Ingestion Hazard Quotient | Child Trespasser Ingestion Cancer Risk | Maintenance Worker Ingestion Hazard Quotient | Maintenance Worker Ingestion Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|
| Sediment Incidental Ingestion | Aluminum | N | 1.9E+04 | 1.0E+00 | N/A | N/A | N/A | 3.85E-03 | N/A |
| | Arsenic | C | 1.6E+01 | 3.0E-04 | 1.5E+00 | N/A | N/A | 3.80E-03 | **1.71E-06** |
| | Barium | N | 3.0E+01 | 7.0E-02 | N/A | N/A | N/A | 8.78E-05 | N/A |
| | Beryllium | N | 4.8E-01 | 2.0E-03 | N/A | N/A | N/A | 4.88E-05 | N/A |
| | Cobalt | C | 3.4E+00 | 2.0E-02 | N/A | N/A | N/A | 1.24E-05 | N/A |
| | Iron | N | 1.7E+04 | 3.0E-01 | N/A | N/A | N/A | 1.14E-02 | N/A |
| | Manganese | N | 1.7E+02 | 2.4E-02 | N/A | N/A | N/A | 1.43E-03 | N/A |
| | Vanadium | N | 3.5E+01 | 7.0E-03 | N/A | N/A | N/A | 1.03E-03 | N/A |
| | 4,4'-DDE | C | 5.5E-04 | N/A | 3.4E-01 | N/A | N/A | N/A | 1.36E-11 |
| | Aroclor-1260 | C | 1.1E-03 | N/A | 2.0E+00 | N/A | N/A | N/A | 1.60E-10 |
| | delta-BHC | C | 1.1E-04 | 5.0E-04 | 6.3E+00 | N/A | N/A | 1.60E-08 | 5.04E-11 |
| | Dieldrin | C | 2.0E-04 | 5.0E-05 | 1.6E+01 | N/A | N/A | 2.91E-07 | 2.33E-10 |
| | Endosulfan I | N | 5.3E-03 | 6.0E-03 | N/A | N/A | N/A | 1.80E-07 | N/A |
| | gamma-Chlordane | C | 1.3E-03 | 5.0E-04 | 3.5E-01 | N/A | N/A | 1.89E-07 | 3.31E-11 |
| | Heptachlor epoxide | C | 2.6E-02 | 5.0E-04 | 4.5E+00 | N/A | N/A | 3.78E-06 | 8.50E-09 |
| | Chloromethane | C | 2.0E-03 | N/A | 1.3E-02 | N/A | N/A | N/A | 1.89E-12 |

***Notes:***
Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
CDI = chronic daily intake (mg/kg-day)

$$Risk = CDI \times SF_{oral}$$

Equation for Chronic Daily Intake, sediment risk:

$$CDI = \frac{EPC_{sd} \times IR_{sd} \times EF \times ED \times CF}{BW \times AT}$$

$$Hazard\ Quotient = \frac{CDI}{RfD_{oral}}$$

Where:
CDI = Chronic daily intake (mg/kg-day).
EPCsd = Exposure point concentration in sediment (mg/kg).
IRsd = Incidental ingestion rate for sediment (mg/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
CF = Conversion factor (1E-6 kg/mg).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr.
carcinogenic effects AT = 70 yr x 365 dy/yr.

= Oral reference dose.
= Oral slope factor.

Exposure Parameters:
IRsd = 100 mg/day for age groups greater than 6-years old.
EF = 52 dys/yr (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).

**Table 15-1-41**
**Wetland 19A Phase II**
**Surface Water Dermal Absorbed Dose-Child Trespasser and Adult Maintenance Worker**

| CAS Number | Chemical | | Minimum Concentration (µg/L) | Min. Qual. | Maximum Concentration (µg/L) | Max. Qual. | Units | Location of Max.Conc. | Detection Frequency | Range of Detection Limits | Mean | Maximum concentration ($mg/cm^3$) | $K_p$ | $DA_{event}$ | $DAD_{sw}$ (mg/kg-day): Child Trespasser | $DAD_{sw}$ (mg/kg-day): Adult Maintenance Worker |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429905 | Aluminum | N | N/A | N/A | 1.1E+05 | = | UG/L | 041W190101 | 1 / 1 | NAV | 1.1E+05 | 1.1E-01 | 1.0E-03 | 2.89E-04 | N/A | 6.11E-03 |
| 7440382 | Arsenic | C | N/A | N/A | 2.7E+02 | = | UG/L | 041W190101 | 1 / 1 | NAV | 2.7E+02 | 2.7E-04 | 1.0E-03 | 6.97E-07 | N/A | 5.27E-06 |
| 7440393 | Barium | N | N/A | N/A | 3.0E+02 | = | UG/L | 041W190101 | 1 / 1 | NAV | 3.0E+02 | 3.0E-04 | 1.0E-03 | 7.80E-07 | N/A | 1.65E-05 |
| 7440417 | Beryllium | N | N/A | N/A | 4.0E+00 | J | UG/L | 041W190101 | 1 / 1 | NAV | 4.0E+00 | 4.0E-06 | 1.0E-03 | 1.04E-08 | N/A | 2.20E-07 |
| 7440473 | Chromium | N | N/A | N/A | 1.0E+02 | = | UG/L | 041W190101 | 1 / 1 | NAV | 1.0E+02 | 1.0E-04 | 1.0E-03 | 2.59E-07 | N/A | 5.48E-06 |
| 7440484 | Cobalt | C | N/A | N/A | 3.9E+01 | J | UG/L | 041W190101 | 1 / 1 | NAV | 3.9E+01 | 3.9E-05 | 1.2E-03 | 1.20E-07 | N/A | 9.08E-07 |
| 7440508 | Copper | N | N/A | N/A | 4.2E+01 | = | UG/L | 041W190101 | 1 / 1 | NAV | 4.2E+01 | 4.2E-05 | 1.0E-03 | 1.09E-07 | N/A | 2.31E-06 |
| 7439896 | Iron | N | N/A | N/A | 3.3E+05 | = | UG/L | 041W190101 | 1 / 1 | NAV | 3.3E+05 | 3.3E-01 | 2.5E-04 | 2.16E-04 | N/A | 4.57E-03 |
| 7439921 | Lead | N | N/A | N/A | 8.7E+01 | = | UG/L | 041W190101 | 1 / 1 | NAV | 8.7E+01 | 8.7E-05 | 3.4E-04 | 7.68E-08 | N/A | 1.63E-06 |
| 7439965 | Manganese | N | N/A | N/A | 1.3E+04 | = | UG/L | 041W190101 | 1 / 1 | NAV | 1.3E+04 | 1.3E-02 | 1.0E-03 | 3.30E-05 | N/A | 6.99E-04 |
| 7487947 | Mercury | N | N/A | N/A | 5.9E-01 | = | UG/L | 041W190101 | 1 / 1 | NAV | 5.9E-01 | 5.9E-07 | 1.0E-03 | 1.53E-09 | N/A | 3.25E-08 |
| 7440622 | Vanadium | N | N/A | N/A | 2.8E+02 | = | UG/L | 041W190101 | 1 / 1 | NAV | 2.8E+02 | 2.8E-04 | 1.0E-03 | 7.20E-07 | N/A | 1.52E-05 |
| 7440666 | Zinc | N | N/A | N/A | 2.0E+02 | = | UG/L | 041W190101 | 1 / 1 | NAV | 2.0E+02 | 2.0E-04 | 6.0E-04 | 3.18E-07 | N/A | 6.74E-06 |
| 84742 | Di-n-butylphthalate | N | N/A | N/A | 2.8E+01 | = | UG/L | 041W190101 | 1 / 1 | NAV | 2.8E+01 | 2.8E-05 | 2.4E-02 | 6.89E-06 | N/A | 1.46E-04 |

***Notes:***

Equation for Dermal Absorbed Dose, surface water risk:

$$DAD_{sw} = \frac{DA_{event} \times EV \times ED \times EF \times SA}{BW \times AT}$$

Where:

$DAD_{sw}$ = Dermal absorbed dose-water contact (mg/kg-day).
$DA_{event}$ = Dermal absorbed dose per event (mg/cm2-event).
SA = Skin surface area available for contact (cm2).
EV = Event frequency (events/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr carcinogenic effects AT = 70 yr x 365 dy/yr.

Equation for DAevent for inorganics:

$$DA_{event} = K_p \times C_w \times t_{event}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: RAGS Part E, Exhibit B-3 or Exhibit B-4
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).

Equation for DAevent for organics:

$$DA_{event} = FA \times K_p \times C_w \left[ \frac{t_{event}}{1+B} + 2\tau_{event} \left( \frac{1+3B+3B^2}{(1+B)^2} \right) \right]$$

Where:

FA = Fraction absorbed water (dimensionless). From RAGS Part E, Exhibit B-4.
Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E, Exhibit B-4.
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).
$t_{event}$ = Lag time per event (hr/event). From RAGS Part E, Exhibit B-4.
B = Dimensionless ratio of the permeability coefficient of a compound, calculated using the equation below:

$$B = \frac{K_p \sqrt{MW}}{2.6}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E.
MW = Molecular weight

Exposure Parameters:

EV = 1 event per day (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
EF = 52 dys/yr (child trespasser/adult maintenance worker).
SA = 5,000 cm2(child trespasser); 10,400 cm2 (adult maintenance worker).
Source: Tables 6-6 and 6-8 Exposure Factors Handbook.
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).
$t_{event}$ = 2.6 hrs/dy (child trespasser/adult maintenance worker).

**Table 15-1-42**
**Wetland 19A Phase II**
**Surface Water Dermal Exposure Risk-Child Tresspasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum concentration ($mg/cm^3$) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | $ABS_{GI}$ | $ABS_{GI}$ Source | Dermal RfD (mg/kg-day) | Dermal SF (mg/kg-day)-1 | Child Trespasser: Dermal Hazard Quotient | Child Trespasser: Dermal Cancer Risk | Maintenance Worker: Dermal Hazard Quotient | Maintenance Worker: Dermal Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW Dermal Risk | Aluminum | N | 1.1E-01 | 1.0E+00 | N/A | 1.0E-01 | 2 | 1.0E-01 | N/A | N/A | N/A | 6.1E-02 | N/A |
| | Arsenic | C | 2.7E-04 | 3.0E-04 | 1.5E+00 | 4.1E-01 | 2 | 1.2E-04 | 3.7E+00 | N/A | N/A | 4.3E-02 | **1.9E-05** |
| | Barium | N | 3.0E-04 | 7.0E-02 | N/A | 7.0E-02 | 1, 2 | 4.9E-03 | N/A | N/A | N/A | 3.4E-03 | N/A |
| | Beryllium | N | 4.0E-06 | 2.0E-03 | N/A | 7.0E-03 | 1 | 1.4E-05 | N/A | N/A | N/A | 1.6E-02 | N/A |
| | Chromium | N | 1.0E-04 | 3.0E-03 | N/A | 2.5E-02 | 1 | 7.5E-05 | N/A | N/A | N/A | 7.3E-02 | N/A |
| | Cobalt | C | 3.9E-05 | 2.0E-02 | N/A | 8.0E-01 | 3 | 1.6E-02 | N/A | N/A | N/A | 5.7E-05 | N/A |
| | Copper | N | 4.2E-05 | 4.0E-02 | N/A | 3.0E-01 | 3 | 1.2E-02 | N/A | N/A | N/A | 1.9E-04 | N/A |
| | Iron | N | 3.3E-01 | N/A | N/A | 1.5E-01 | 3 | N/A | N/A | N/A | N/A | N/A | N/A |
| | Lead | N | 8.7E-05 | N/A | N/A | 1.5E-01 | 3 | N/A | N/A | N/A | N/A | N/A | N/A |
| | Manganese | N | 1.3E-02 | 1.4E-01 | N/A | 4.0E-02 | 1 | 5.6E-03 | N/A | N/A | N/A | 1.2E-01 | N/A |
| | Mercury | N | 5.9E-07 | 3.0E-04 | N/A | 7.0E-02 | 1 | 2.1E-05 | N/A | N/A | N/A | 1.5E-03 | N/A |
| | Vanadium | N | 2.8E-04 | 7.0E-03 | N/A | 2.6E-02 | 1 | 1.8E-04 | N/A | N/A | N/A | 8.4E-02 | N/A |
| | Zinc | N | 2.0E-04 | 3.0E-01 | N/A | 2.0E-01 | 2, 4 | 6.0E-02 | N/A | N/A | N/A | 1.1E-04 | N/A |
| | Di-n-butylphthalate | N | 2.8E-05 | 1.0E-01 | N/A | 3.1E-01 | 3 | 3.1E-02 | N/A | N/A | N/A | 4.7E-03 | N/A |

***Notes:***

Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.
Dermal RfD = Dermal reference dose adjusted for $ABS_{GI}$.
Dermal SF = Dermal slope factoradjusted for $ABS_{GI}$.

Equations for Dermal Reference Dose and Dermal Slope Factor, surface water risk

$$RfD_{dermal} = RfD_{oral} \times ABS_{GI}$$

$$SF_{dermal} = \frac{RfD_{oral}}{ABS_{GI}}$$

Where:
$RfD_{dermal}$ = Dermal reference dose.
$RFD_{oral}$ = Oral reference dose.
SFdermal = Dermal slope factor.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.

Risk calculation equation, cancer:

$$Risk = DAD_{sw} \times SF_{dermal}$$

Risk calculation equation, noncancer:

$$Hazard\ Quotient = \frac{DAD_{sw}}{RfD_{dermal}}$$

**Table 15-1-43**
**Wetland 19A Phase II**
**Surface Water Incidental Ingestion Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum concentration ($mg/cm^3$) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | Child Trespasser Ingestion Hazard Quotient | Child Trespasser Ingestion Cancer Risk | Maintenance Worker Ingestion Hazard Quotient | Maintenance Worker Ingestion Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|
| SW Incidental Ingestion | Aluminum | N | 1.1E-01 | 1.0E+00 | N/A | N/A | N/A | 2.3E-06 | N/A |
| | Arsenic | C | 2.7E-04 | 3.0E-04 | 1.5E+00 | N/A | N/A | 6.5E-06 | 2.9E-09 |
| | Barium | N | 3.0E-04 | 7.0E-02 | N/A | N/A | N/A | 8.7E-08 | N/A |
| | Beryllium | N | 4.0E-06 | 2.0E-03 | N/A | N/A | N/A | 4.1E-08 | N/A |
| | Chromium | N | 1.0E-04 | 3.0E-03 | N/A | N/A | N/A | 6.8E-07 | N/A |
| | Cobalt | C | 3.9E-05 | 2.0E-02 | N/A | N/A | N/A | 1.4E-08 | N/A |
| | Copper | N | 4.2E-05 | 4.0E-02 | N/A | N/A | N/A | 2.1E-08 | N/A |
| | Iron | N | 3.3E-01 | N/A | N/A | N/A | N/A | N/A | N/A |
| | Lead | N | 8.7E-05 | N/A | N/A | N/A | N/A | N/A | N/A |
| | Manganese | N | 1.3E-02 | 1.4E-01 | N/A | N/A | N/A | 1.8E-06 | N/A |
| | Mercury | N | 5.9E-07 | 3.0E-04 | N/A | N/A | N/A | 4.0E-08 | N/A |
| | Vanadium | N | 2.8E-04 | 7.0E-03 | N/A | N/A | N/A | 8.1E-07 | N/A |
| | Zinc | N | 2.0E-04 | 3.0E-01 | N/A | N/A | N/A | 1.4E-08 | N/A |
| | Di-n-butylphthalate | N | 2.8E-05 | 1.0E-01 | N/A | N/A | N/A | 5.7E-09 | N/A |

***Notes:***
Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
CDI = Chronic daily intake

$$Risk = CDI \times SF_{oral}$$

Equation for Chronic Daily Intake, surface water risk:

$$CDI = \frac{EPC_{sw} \times IR_{sw} \times EF \times ED}{BW \times AT}$$

$$Hazard\ Quotient = \frac{CDI}{RfD_{oral}}$$

Where:
CDI = Chronic daily intake (mg/kg-day).
$EPC_{sw}$ = Exposure point concentration in surface water (mg/L).
$IR_{sw}$ = Incidental ingestion rate for sediment (L/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr.
carcinogenic effects AT = 70 yr x 365 dy/yr.

= Oral reference dose.
= Oral slope factor.

Exposure Parameters:
Irsw = 0.01 L/day exposure to surface water during wading for adolescents and adults.
EF = 52 dys/yr (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).

**Table 15-1-44**
**Wetland 19A Phase IV**
**Surface Water Dermal Absorbed Dose-Child Trespasser and Adult Maintenance Worker**

| CAS Number | Chemical | | Minimum Concentration (µg/L) | Min. Qual. | Maximum Concentration (µg/L) | Max. Qual. | Units | Location of Max.Conc. | Detection Frequency | Range of Detection Limits | Mean | Maximum concentration ($mg/cm^3$) | $K_p$ | $DA_{event}$ | $DAD_{sw}$ (mg/kg-day): Child Trespasser | $DAD_{sw}$ (mg/kg-day): Adult Maintenance Worker |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429905 | Aluminum | N | N/A | N/A | 3.3E+02 | = | UG/L | 041W19A102 | 1 / 1 | NAV | 3.3E+02 | 3.3E-04 | 1.0E-03 | 8.58E-07 | N/A | 1.82E-05 |
| 7440393 | Barium | N | N/A | N/A | 8.5E+00 | I | UG/L | 041W19A102 | 1 / 1 | NAV | 8.5E+00 | 8.5E-06 | 1.0E-03 | 2.21E-08 | N/A | 4.68E-07 |
| 7440417 | Beryllium | N | N/A | N/A | 7.4E-01 | I | UG/L | 041W19A102 | 1 / 1 | NAV | 7.4E-01 | 7.4E-07 | 1.0E-03 | 1.92E-09 | N/A | 4.07E-08 |
| 7439965 | Manganese | N | N/A | N/A | 1.8E+01 | = | UG/L | 041W19A102 | 1 / 1 | NAV | 1.8E+01 | 1.8E-05 | 1.0E-03 | 4.68E-08 | N/A | 9.91E-07 |
| 7440622 | Vanadium | N | N/A | N/A | 3.0E+00 | I | UG/L | 041W19A102 | 1 / 1 | NAV | 3.0E+00 | 3.0E-06 | 1.0E-03 | 7.80E-09 | N/A | 1.65E-07 |

***Notes:***

Equation for Dermal Absorbed Dose, surface water risk:

$$DAD_{sw} = \frac{DA_{event} \times EV \times ED \times EF \times SA}{BW \times AT}$$

Where:

$DAD_{sw}$ = Dermal absorbed dose-water contact (mg/kg-day).
$DA_{event}$ = Dermal absorbed dose per event (mg/cm2-event).
SA = Skin surface area available for contact (cm2).
EV = Event frequency (events/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr
carcinogenic effects AT = 70 yr x 365 dy/yr.

Equation for DAevent for inorganics:

$$DA_{event} = K_p \times C_w \times t_{event}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: RAGS Part E, Exhibit B-3 or Exhibit B-4
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).

Equation for DAevent for organics:

$$DA_{event} = FA \times K_p \times C_w \left[ \frac{t_{event}}{1 + B} + 2\tau_{event} \left( \frac{1 + 3B + 3B^2}{(1 + B)^2} \right) \right]$$

Where:

FA = Fraction absorbed water (dimensionless). From RAGS Part E, Exhibit B-4.
Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E, Exhibit B-4.
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).
$t_{event}$ = Lag time per event (hr/event). From RAGS Part E, Exhibit B-4.
B = Dimensionless ratio of the permeability coefficient of a compound,
calculated using the equation below:

$$B = \frac{K_p \sqrt{MW}}{2.6}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E.
MW = Molecular weight

Exposure Parameters:

EV = 1 event per day (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
EF = 52 dys/yr (child trespasser/adult maintenance worker).
SA = 5,000 cm2(child trespasser); 10,400 cm2 (adult maintenance worker).
Source: Tables 6-6 and 6-8 Exposure Factors Handbook.
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).
$t_{event}$ = 2.6 hrs/dy (child trespasser/adult maintenance worker).

**Table 15-1-45**
**Wetland 19A Phase IV**
**Surface Water Dermal Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum concentration ($mg/cm^3$) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | $ABS_{GI}$ | $ABS_{GI}$ Source | Dermal RfD (mg/kg-day) | Dermal SF (mg/kg-day)-1 | Child Trespasser: Dermal Hazard Quotient | Child Trespasser: Dermal Cancer Risk | Maintenance Worker: Dermal Hazard Quotient | Maintenance Worker: Dermal Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW Dermal Risk | Aluminum | N | 3.3E-04 | 1.0E+00 | N/A | 1.0E-01 | 2 | 1.0E-01 | N/A | N/A | N/A | 1.8E-04 | N/A |
| | Barium | N | 8.5E-06 | 7.0E-02 | N/A | 7.0E-02 | 1, 2 | 4.9E-03 | N/A | N/A | N/A | 9.5E-05 | N/A |
| | Beryllium | N | 7.4E-07 | 2.0E-03 | N/A | 7.0E-03 | 1 | 1.4E-05 | N/A | N/A | N/A | 2.9E-03 | N/A |
| | Manganese | N | 1.8E-05 | 1.4E-01 | N/A | 4.0E-02 | 1 | 5.6E-03 | N/A | N/A | N/A | 1.8E-04 | N/A |
| | Vanadium | N | 3.0E-06 | 7.0E-03 | N/A | 2.6E-02 | 1 | 1.8E-04 | N/A | N/A | N/A | 9.1E-04 | N/A |

***Notes:***

Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.
Dermal RfD = Dermal reference dose adjusted for $ABS_{GI}$.
Dermal SF = Dermal slope factoradjusted for $ABS_{GI}$.

Equations for Dermal Reference Dose and Dermal Slope Factor, surface water risk:

$$RfD_{dermal} = RfD_{oral} \times ABS_{GI}$$

$$SF_{dermal} = \frac{RfD_{oral}}{ABS_{GI}}$$

Where:
$RfD_{dermal}$ = Dermal reference dose.
$RFD_{oral}$ = Oral reference dose.
SFdermal = Dermal slope factor.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.

Risk calculation equation, cancer:

$$Risk = DAD_{sw} \times SF_{dermal}$$

Risk calculation equation, noncancer:

$$Hazard\ Quotient = \frac{DAD_{sw}}{RfD_{dermal}}$$

**Table 15-1-46**
**Wetland 19A Phase IV**
**Surface Water Incidental Ingestion Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum concentration ($mg/cm^3$) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | Child Trespasser | | Maintenance Worker | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ingestion Hazard Quotient | Ingestion Cancer Risk | Ingestion Hazard Quotient | Ingestion Cancer Risk |
| SW Incidental Ingestion | Aluminum | N | 3.3E-04 | 1.0E+00 | N/A | N/A | N/A | 6.7E-09 | N/A |
| | Barium | N | 8.5E-06 | 7.0E-02 | N/A | N/A | N/A | 2.5E-09 | N/A |
| | Beryllium | N | 7.4E-07 | 2.0E-03 | N/A | N/A | N/A | 7.5E-09 | N/A |
| | Manganese | N | 1.8E-05 | 1.4E-01 | N/A | N/A | N/A | 2.6E-09 | N/A |
| | Vanadium | N | 3.0E-06 | 7.0E-03 | N/A | N/A | N/A | 8.7E-09 | N/A |

***Notes:***
Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
CDI = Chronic daily intake.

$$Risk = CDI \times SF_{oral}$$

Equation for Chronic Daily Intake, surface water risk:

$$CDI = \frac{EPC_{sw} \times IR_{sw} \times EF \times ED}{BW \times AT}$$

$$Hazard\ Quotient = \frac{CDI}{RfD_{oral}}$$

Where:
CDI = Chronic daily intake (mg/kg-day).
$EPC_{sw}$ = Exposure point concentration in surface water (mg/L).
$IR_{sw}$ = Incidental ingestion rate for sediment (L/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr.
carcinogenic effects AT = 70 yr x 365 dy/yr.

= Oral reference dose.
= Oral slope factor.

Exposure Parameters:
Irsw = 0.01 L/day exposure to surface water during wading for adolescents and adults.
EF = 52 dys/yr (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).

**Table 15-1-47**
**Wetland 19B Phase II**
**Surface Water Dermal Absorbed Dose-Child Trespasser and Adult Maintenance Worker**

| CAS Number | Chemical | | Minimum Concentration (µg/L) | Min. Qual. | Maximum Concentration (µg/L) | Max. Qual. | Units | Location of Max.Conc. | Detection Frequency | Range of Detection Limits | Mean | Maximum concentration (mg/cm$^3$) | $K_p$ | $DA_{event}$ | $DAD_{sw}$ (mg/kg-day): Child Trespasser | $DAD_{sw}$ (mg/kg-day): Adult Maintenance Worker |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429905 | Aluminum | N | N/A | N/A | 2.1E+03 | = | UG/L | 041W190301 | 1 / 1 | NAV | 2.1E+03 | 2.1E-03 | 1.0E-03 | 5.56E-06 | N/A | 1.18E-04 |
| 7440393 | Barium | N | N/A | N/A | 7.4E+00 | J | UG/L | 041W190301 | 1 / 1 | NAV | 7.4E+00 | 7.4E-06 | 1.0E-03 | 1.92E-08 | N/A | 4.07E-07 |
| 7439896 | Iron | N | N/A | N/A | 4.0E+03 | = | UG/L | 041W190301 | 1 / 1 | NAV | 4.0E+03 | 4.0E-03 | 2.5E-04 | 2.62E-06 | N/A | 5.54E-05 |
| 7439921 | Lead | N | N/A | N/A | 5.6E+00 | = | UG/L | 041W190301 | 1 / 1 | NAV | 5.6E+00 | 5.6E-06 | 3.4E-04 | 4.95E-09 | N/A | 1.05E-07 |
| 7439965 | Manganese | N | N/A | N/A | 2.6E+01 | = | UG/L | 041W190301 | 1 / 1 | NAV | 2.6E+01 | 2.6E-05 | 1.0E-03 | 6.84E-08 | N/A | 1.45E-06 |
| 7440622 | Vanadium | N | N/A | N/A | 4.4E+00 | J | UG/L | 041W190301 | 1 / 1 | NAV | 4.4E+00 | 4.4E-06 | 1.0E-03 | 1.14E-08 | N/A | 2.42E-07 |

***Notes:***

Equation for Dermal Absorbed Dose, surface water risk:

$$DAD_{sw} = \frac{DA_{event} \times EV \times ED \times EF \times SA}{BW \times AT}$$

Where:

$DAD_{sw}$ = Dermal absorbed dose-water contact (mg/kg-day).
$DA_{event}$ = Dermal absorbed dose per event (mg/cm2-event).
SA = Skin surface area available for contact (cm2).
EV = Event frequency (events/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr
carcinogenic effects AT = 70 yr x 365 dy/yr.

Equation for DAevent for inorganics:

$$DA_{event} = K_p \times C_w \times t_{event}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: RAGS Part E, Exhibit B-3 or Exhibit B-4
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).

Equation for DAevent for organics:

$$DA_{event} = FA \times K_p \times C_w \left[ \frac{t_{event}}{1+B} + 2\tau_{event} \left( \frac{1+3B+3B^2}{(1+B)^2} \right) \right]$$

Where:

FA = Fraction absorbed water (dimensionless). From RAGS Part E, Exhibit B-4.
Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E, Exhibit B-4.
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).
$t_{event}$ = Lag time per event (hr/event). From RAGS Part E, Exhibit B-4.
B = Dimensionless ratio of the permeability coefficient of a compound, calculated using the equation below:

$$B = \frac{K_p \sqrt{MW}}{2.6}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E.
MW = Molecular weight

Exposure Parameters:

EV = 1 event per day (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
EF = 52 dys/yr (child trespasser/adult maintenance worker).
SA = 5,000 cm2(child trespasser); 10,400 cm2 (adult maintenance worker).
Source: Tables 6-6 and 6-8 Exposure Factors Handbook.
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker)
Cancer — 25,550 days (child trespasser/adult maintenance worker).
$t_{event}$ = 2.6 hrs/dy (child trespasser/adult maintenance worker).

**Table 15-1-48**
**Wetland 19B Phase II**
**Surface Water Dermal Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum concentration ($mg/cm^3$) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | $ABS_{GI}$ | $ABS_{GI}$ Source | Dermal RfD (mg/kg-day) | Dermal SF (mg/kg-day)-1 | Child Trespasser: Dermal Hazard Quotient | Child Trespasser: Dermal Cancer Risk | Maintenance Worker: Dermal Hazard Quotient | Maintenance Worker: Dermal Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW Dermal Risk | Aluminum | N | 2.1E-03 | 1.0E+00 | N/A | 1.0E-01 | 2 | 1.0E-01 | N/A | N/A | N/A | 1.2E-03 | N/A |
| | Barium | N | 7.4E-06 | 7.0E-02 | N/A | 7.0E-02 | 1, 2 | 4.9E-03 | N/A | N/A | N/A | 8.3E-05 | N/A |
| | Iron | N | 4.0E-03 | N/A | N/A | 1.5E-01 | 3 | N/A | N/A | N/A | N/A | N/A | N/A |
| | Lead | N | 5.6E-06 | N/A | N/A | 1.5E-01 | 3 | N/A | N/A | N/A | N/A | N/A | N/A |
| | Manganese | N | 2.6E-05 | 1.4E-01 | N/A | 4.0E-02 | 1 | 5.6E-03 | N/A | N/A | N/A | 2.6E-04 | N/A |
| | Vanadium | N | 4.4E-06 | 7.0E-03 | N/A | 2.6E-02 | 1 | 1.8E-04 | N/A | N/A | N/A | 1.3E-03 | N/A |

***Notes:***

Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.
Dermal RfD = Dermal reference dose adjusted for $ABS_{GI}$.
Dermal SF = Dermal slope factoradjusted for $ABS_{GI}$.

Equations for Dermal Reference Dose and Dermal Slope Factor, surface water risk:

$$RfD_{dermal} = RfD_{oral} \times ABS_{GI}$$

$$SF_{dermal} = \frac{RfD_{oral}}{ABS_{GI}}$$

Where:
$RfD_{dermal}$ = Dermal reference dose.
$RFD_{oral}$ = Oral reference dose.
SFdermal = Dermal slope factor.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.

Risk calculation equation, cancer:

$$Risk = DAD_{sw} \times SF_{dermal}$$

Risk calculation equation, noncancer:

$$Hazard\ Quotient = \frac{DAD_{sw}}{RfD_{dermal}}$$

**Table 15-1-49**
**Wetland 19B Phase II**
**Surface Water Incidental Ingestion Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum concentration ($mg/cm^3$) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | Child Trespasser Ingestion Hazard Quotient | Child Trespasser Ingestion Cancer Risk | Maintenance Worker Ingestion Hazard Quotient | Maintenance Worker Ingestion Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|
| SW Incidental Ingestion | Aluminum | N | 2.1E-03 | 1.0E+00 | N/A | N/A | N/A | 4.4E-08 | N/A |
| | Barium | N | 7.4E-06 | 7.0E-02 | N/A | N/A | N/A | 2.2E-09 | N/A |
| | Iron | N | 4.0E-03 | N/A | N/A | N/A | N/A | N/A | N/A |
| | Lead | N | 5.6E-06 | N/A | N/A | N/A | N/A | N/A | N/A |
| | Manganese | N | 2.6E-05 | 1.4E-01 | N/A | N/A | N/A | 3.8E-09 | N/A |
| | Vanadium | N | 4.4E-06 | 7.0E-03 | N/A | N/A | N/A | 1.3E-08 | N/A |

***Notes:***
Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
CDI = Chronic daily intake.

$$Risk = CDI \times SF_{oral}$$

Equation for Chronic Daily Intake, surface water risk:

$$CDI = \frac{EPC_{sw} \times IR_{sw} \times EF \times ED}{BW \times AT}$$

$$Hazard\ Quotient = \frac{CDI}{RfD_{oral}}$$

Where:
CDI = Chronic daily intake (mg/kg-day).
$EPC_{sw}$ = Exposure point concentration in surface water (mg/L).
$IR_{sw}$ = Incidental ingestion rate for sediment (L/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr.
carcinogenic effects AT = 70 yr x 365 dy/yr.

= Oral reference dose.
= Oral slope factor.

Exposure Parameters:
Irsw = 0.01 L/day exposure to surface water during wading for adolescents and adults.
EF = 52 dys/yr (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).

## 15.2 Wetland 56 — Screening Level Problem Formulation

### 15.2.1 Site Description and Habitats Present at Wetland 56

Wetland 56 is south of Radford Boulevard near the Oak Grove Campground (Site 39). Parsons and Pruitt divided this wetland into two areas, Wetlands 56A and 56B (USEPA, 1991a). Wetland 56A is described as a palustrine emergent wetland in the back of Sherman's Inlet. Wetland 56B is described as an estuarine emergent marsh along the littoral areas of Sherman's Inlet.

Surface water from Wetland 56 drains into Pensacola Bay via Sherman's Inlet. Wetland 56A receives storm water from Forrest Sherman Field and has an active National Pollution Discharge Elimination System (NPDES) permit at the storm water outlet. Vegetation associated with Wetland 56A includes saw grass (*Cladium jamaicense*) and cattails (*Typha latifolia*). Black needlerush (*Juncus roemerianus*) is the dominant foliage in Wetland 56B. The northern edges of Wetland 56 are adjacent to the right-of-way for Radford Boulevard and are maintained by base landscaping contractors.

The IR sites potentially affecting Wetland 56 are Sites 4 and 39. An interim removal action removed contaminated soil at Site 39 (Oak Grove Campground) in 1994 (E/A&H, 1995e), and the site was approved for no further action by USEPA (USEPA Region 4, 1995b) and FDEP (FDEP, 1995b). Storm water runoff from Forrest Sherman Field may also contribute contaminates to Wetland 56.

In the 1950s, rubble from the former Fort Barrancas was disposed in the area of Site 4. The rubble included timber, pipes, mattresses, and other wastes. None of the wastes was documented as being incinerated before disposal. Elevated metals concentrations in site soil were similar to those identified at previously investigated sites in the eastern portion of NAS Pensacola (E/A&H, 1997e). The detected PAH contaminants were likely associated with routine activities, such as automobile traffic or the asphalt pavement (E/A&H, 1997e). The USEPA (USEPA Region 4, 1997b) and FDEP (FDEP, 1997c) approved remedial alternative for Site 4 was no action.

**Photograph 1 Wetland 56 — Facing Southeast from the Northwest Shore**

**Photograph 2 Wetland 56 — Southeast End. Photo shows sign for NPDES discharge point. Storm water outfall from Sherman Field empties into this wetland at this point.**

**Photograph 3 Wetland 56 — Facing the NPDES Storm Water Outfall**

### 15.2.2 Wetland 56 — Sample Location Description

**Phase II Sediment Sample Location Description**

One sediment sample was collected and analyzed for the Wetland 56 ERA. The sample location for Wetland 56 was located in an area of the wetland where depositional areas and groundwater seeps could occur. This sample location is centrally located within the wetland (Figure 15-4). Table 15-2-1 (tables are located at the end of each section) provides a physical description of the sediment sample collected at Wetland 56. The sample was a dark brown silty sand, primarily fine grained, with organics and a TOC concentration of 1.26%.

**Phase II Surface Water Sample Location Description**

One surface water sample was collected at Wetland 56 in 1996 for the ERA process. Sample location 041W56A101 (Figure 15-4) was collocated with sediment location 041M56A101. Surface water from Wetland 56 was analyzed for physical parameters, with results presented on Table 15-2-2. The pH concentration was reported as 5.48. Specific conductivity was 0.124 mS/cm, and turbidity was 6 NTUs.

### 15.2.3 Nature and Extent of Contamination

**Phase II Sediment**

Figure 15-4 presents the sediment sampling locations for Wetland 56. Table 15-2-3 summarizes the analytical results for the one Wetland 56 sediment samples.

**Metals** — Sixteen metals were detected during Phase II sediment sampling at Wetland 56. Although location 041M56A101 exhibited detections of 16 metals, none of these were reported at concentrations exceeding their respective freshwater reference values.

**Pesticides and PCBs** — Five pesticide compounds were detected during Phase II sediment sampling at Wetland 56 including 4,4′-DDE, 4,4′-DDT, and 4,4′-DDD. Total DDT was calculated for each location by adding the concentrations of 4,4′-DDD, 4,4′-DDE and 4,4′-DDT. Likewise, a basewide total DDT reference concentration was calculated using the basewide concentrations for these same constituents.

The individual concentration detected for 4,4′-DDD exceeded the basewide reference concentration; however, total DDT was below the basewide value. No other pesticides were detected at concentrations above the reference value. No PCBs were detected in the sediment sample collected during Phase II sampling.

**SVOCs —** Two SVOCs, bis(2-ethlyhexyl)phthalate and pyrene, were detected in the sediment sample collected during Phase II sampling at Wetland 56.

**VOCs** — VOCs were not detected in the sediment sample collected during Phase II sampling at Wetland 56.

**Phase II Surface Water**

Figure 15-4 presents the surface water sampling locations for Wetland 56. Table 15-2-4 summarizes the analytical results for the Wetland 56 surface water sample.

**Metals** — Eight metals were detected in the Phase II surface water sample collected from Wetland 56. Of these eight detections, barium and calcium were present at concentrations exceeding the appropriate fresh water reference value.

There were no organic constituents detected in surface water collected from Wetland 56 during the Phase II sampling effort.

### 15.2.4 Ecological Risk Assessment

**Phase II Investigation Summary — Wetland 56**

**Sediment Screening — Level Risk-Exposure Estimation and Risk Calculation**

As presented in Table 15-2-5, the sediment sample was compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than one or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-2-6.

**Baseline Problem Formulation — Wetland 56 Sediment COPC Refinement**

During the COPC refinement, additional information was used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as preliminary COPCs. This risk assessment presents a statement of potential risk for each of the COPCs.

The COPC refinement process included:

- Comparison of maximum concentrations to RVs
- Comparison of average concentrations to SVs and RVs
- Comparison to basewide (reference) concentrations for total DDT
- Comparison of inorganic constituents to reference wetland values
- Interpretative tool for metals
- Di Toro EqP SQGs for VOCs
- Comparison to Swartz consensus values
- Mean ERM quotients
- Description of exceedances of RVs and their extent

The methods used in the COPC refinement in the Site 41 ERA process is detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-2-7. Additionally, the tables compare: 1) average concentrations to screening and refinement values to assess potential exposure across the entire wetland, and 2) Wetland 56 concentrations to reference concentrations.

At Wetland 56, 4,4′-DDD exceeded the basewide reference value; however, total DDT did not exceed the basewide level, indicating that 4,4'-DDT and its daughter products were not a concern for this wetland. None of the inorganic constituents exceeded the fresh water sediment reference values; therefore, the interpretative tool was not needed for Wetland 56.

VOCs were not detected at Wetland 56. PAHs, as a group, were not detected as well; therefore, comparison to TOC concentrations was not conducted.

Table 15-2-8 presents the Mean ERL and ERM values, the Mean ERM Quotients, and the Mean ERM Quotient Category by individual sample location. Based on this approach, the sample location (041M56A101) was determined to be Category 2, which, according to tests evaluated in developing this methodology, had average survival rates of approximately 80% of control sediments; however, this category also has the highest level of uncertainty. Figure 15-7 also shows the Mean ERM category for each sediment sample location at Wetland 56.

No COPCs were retained for sediment collected from Wetland 56.

**Surface Water Screening — Level Risk-Exposure Estimation and Risk Calculation**

As presented in Table 15-2-9, the surface water sample was compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than 1 or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-2-10.

**Baseline Problem Formulation — Wetland 56 Surface Water COPC Refinement**

During the surface water COPC refinement, additional information will be used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as preliminary COPCs.

The COPC refinement process included:

- Comparison of maximum SV concentrations to average SV concentrations
- Comparison of inorganic constituents to reference wetland values
- Description of surface water exceedances and their extent

The methods used in the COPC refinement in the Site 41 ERA process are detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-2-11. Additionally, the tables compare average concentrations to screening and refinement values to assess potential exposure across the entire wetland. A list of COPCs retained after refinement are presented in Table 15-2-12.

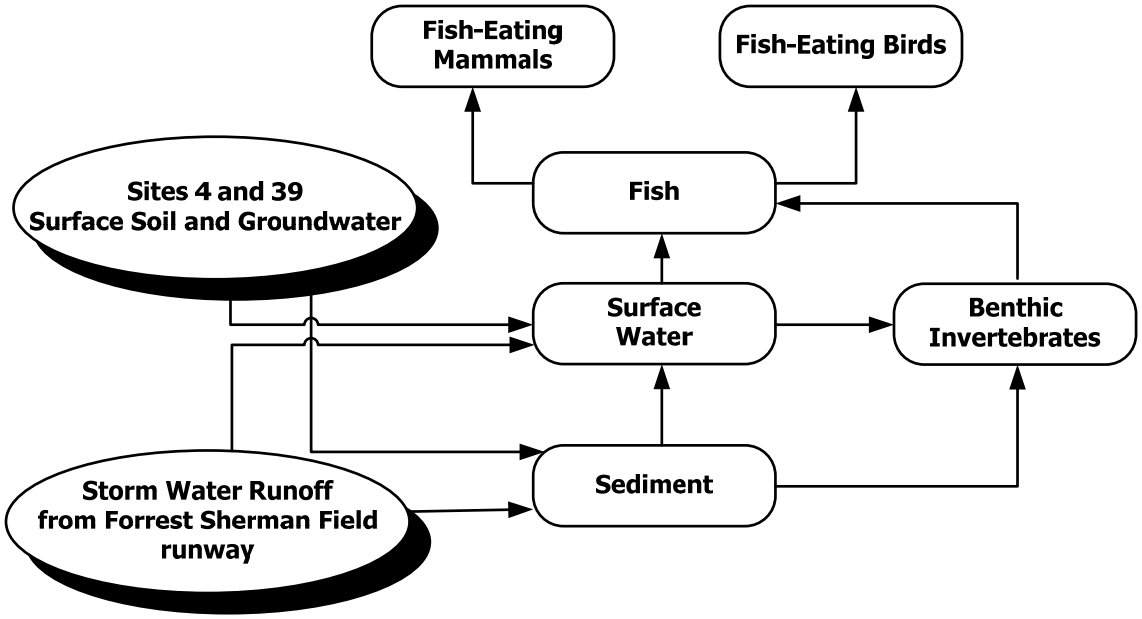
For Wetland 56, barium exceeded its Site 41 freshwater reference surface water concentration (Table 15-2-11) and was carried forward in the ERA process. Calcium also exceeded its reference concentration; however, calcium is an essential nutrient and is not carried forward.

There were no constituents retained in sediment during the Phase II investigation of Wetland 56.

Based on the Phase II results described above, Wetland 56 was identified as a Blue-Coded Wetland in the approved *Final RI/FS SAP Addendum* (E/A&H, 1997d), indicating that contaminants were present generally below screening values, and contaminants did not appear to be site related. Blue-Coded Wetlands were not assessed further in Phase III. However, to assess potential risks from contaminants that bioaccumulate, the results from Wetland 56 will be used in the remaining wetlands food-chain model presented in Section 15.8.

The conceptual model below symbolizes which environmental habitats may be impacted by Wetland 56 Phase II constituents retained during the ERA process.

**Wetland 56**
**Conceptual Site Model**



### 15.2.5 Wetland 56 — Human Health Risk Assessment

Wetland 56 is described in Section 15.2.1, and the HHRA is summarized below.

#### 15.2.5.1 Site Data

Section 15.2.3 summarizes the nature and extent of contamination for this wetland. Surface water and sediment data were collected at Wetland 56 during Phases II of the RI. Surface water and sediment data for 56 are summarized in Tables 15-2-3 and 15-2-4.

#### 15.2.5.2 Conceptual Site Model

As described in Section 15.2.1, Wetland 56 is located in an unrestricted area of the base; the wetland is accessible to Navy personnel and trespassers. Wetland 56 is continually inundated. Therefore, in accordance with USEPA Region IV Supplemental Guidance to RAGS Bulletins (2000) described in Section 9, sediment exposure was not assessed in this HHRA because it is assumed to be an insignificant exposure pathway. Based on the species present, depth of surface water, and available habitat, fishing could occur. Contact with surface water while, wading and game fish ingestion would be the likely exposure scenarios.

The following scenarios and exposure pathways were evaluated for this wetland:

| Scenario | Medium | Ingestion | Dermal |
|---|---|---|---|
| Maintenance | Surface water | √ | √ |
| Trespasser | Surface water | √ | √ |
| Fishermen | Fish Tissue | √ | NA |

#### 15.2.5.3 Risk Characterization

The child trespasser and adult maintenance worker scenarios for surface water and the recreational fishermen scenarios for game fish tissue ingestion were assessed for this wetland, as described in Section 9.

**Phase II Data**

***Trespasser***

As shown in Tables 15-2-13 through 15-2-15, surface water ingestion and dermal contact risk estimates for trespassers were below the FDEP risk threshold. Hazard indices were below 1.0.

***Maintenance Worker***

As shown in Tables 15-2-13 through 15-2-15, surface water ingestion and dermal contact risk estimates for maintenance workers were below the FDEP risk threshold. Hazard indices were below 1.0.

***Recreational Fisherman***

As shown in Table 15-2-16, game fish tissue ingestion risk estimates for recreational fishermen were below the FDEP risk threshold. Hazard indices were below 1.0.

**Summary of Wetland 56 Phase II Risk Estimates**

| Scenario | Medium | Hazard Index | Risk |
|---|---|---|---|
| Maintenance | Surface water | 4.87E-04 | 0.00E+00 |
| Trespasser | Surface water | 3.65E-04 | 0.00E+00 |
| Fishermen | Fish tissue | 1.92E-03 | 1.36E-06 |

Based on Phase II data, no COCs for Wetland 56 were identified.

**Wetland 56 HHRA COC Summary**

No COCs were identified in the HHRA for Wetland 56.

### 15.2.6 Wetland 56 — Fate and Transport Analysis

This wetland encompasses 56A and 56B, evaluated together as Wetland 56. It is located to the southeast of the north-south runway at Forrest Sherman Field. Two samples (one sediment sample and one surface water sample) from one location were collected in this wetland, near the head of the wetland. Externally, the wetland receives drainage from the northern portion of the east side of Wetland 52. Internally, the wetland complex drains from the northwest and flows southeast towards Pensacola Bay (see Figure 15-1).

The surface water COPCs retained after refinement for this wetland are summarized in Table 15-2-13. There were COPCs retained for sediment. Provided below are the associated soil borings and monitoring wells used for comparing data for the fate and transport analysis.

**Monitoring Wells Associated with 56:** 039GGI05, 039GGS01, 039GGS04, 039GGS03, 039GGI07, 039GGS02, 039GGI06

**Borings Associated with 56:** 039S0001, 039S0002, 039S0003, 039S0004, 039 S0005, 039S0006, 039S0007, 039S0008, 039S0009, 039S0010, 039S00011

***Surface Water/Sediment Transport into the Wetlands Media:***

**Surface Water** — There was no directly comparable storm water data from the area proximal to this wetland complex. Because of the lack of data, no definitive statement can be made regarding the validation of the pathway via storm water runoff into the wetland complex. The vast majority of surface water drainage to this wetland is from the northern portion of the eastern side of Wetland 52. The wetland may also be affected by storm water runoff and groundwater discharge from IR Site 39. Borings and wells from this site were evaluated as to potential impacts to the wetland.

***Groundwater Discharge into the Wetland Media:***

**Surface Water** — Based on the data from associated monitoring wells, the groundwater to surface water pathway was validated and significant for barium only.

**Sediment** — There were no detections of retained sediment parameters in associated groundwater samples.

***Surface Water/Sediment Transport within the Wetlands:***

Because only one sediment and one surface water sample was collected in this wetland, these pathways were not evaluated.

**Table 15-2-1**
**Wetland 56A Phase II**
**Sediment Physical Parameters**

| Parameter | 041M56A101 |
|---|---|
| TOC (%) | 1.26 |
| Percent Solids (%) | 66.1 |
| Grain Size Analysis (percent of composition[1]) | |
| Medium Sand | 13 |
| Fine Sand | 77 |
| Silt and Clay | 10 |
| Description | Dark Brown Silty Sand with Organics |

***Note:***
[1] = Derived from sieve analyses.

**Table 15-2-2**
**Wetland 56 Phase II**
**Surface Water Physical Parameters**

| Parameter | 041W56A101 |
|---|---|
| Hardness as CaCO3 (mg/L) | 38.7 |
| pH | 5.48 |
| Specific Conductivity (mS/cm) | 0.124 |
| Turbidity (NTU) | 6 |
| Salinity (%) | 0 |

***Notes:***
mg/L = Milligrams per liter
pH = Hydrogen ion content
MS/cm = Millisiemens per centimeter
NTU = Nephelometric turbidity units
% = Percent

**Table 15-2-3**
**Wetland 56 Phase II**
**Sediment Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | |
| Aluminum | 13,610.0 | 0 | 1 | 1 | 2,560.0 | 2,560.0 | 2,560.0 | 041M56A101 |
| Arsenic | 6.620 | 0 | 1 | 1 | 0.330 | 0.330 | 0.330 | 041M56A101 |
| Barium | 14.0 | 0 | 1 | 1 | 3.30 | 3.30 | 3.30 | 041M56A101 |
| Calcium | 10,756.670 | 0 | 1 | 1 | 682.0 | 682.0 | 682.0 | 041M56A101 |
| Chromium | 39.370 | 0 | 1 | 1 | 3.10 | 3.10 | 3.10 | 041M56A101 |
| Cobalt | 2.80 | 0 | 1 | 1 | 0.30 | 0.30 | 0.30 | 041M56A101 |
| Copper | 19.50 | 0 | 1 | 1 | 3.10 | 3.10 | 3.10 | 041M56A101 |
| Iron | 11,911.670 | 0 | 1 | 1 | 1,210.0 | 1,210.0 | 1,210.0 | 041M56A101 |
| Lead | 82.470 | 0 | 1 | 1 | 9.40 | 9.40 | 9.40 | 041M56A101 |
| Magnesium | 7,513.330 | 0 | 1 | 1 | 82.10 | 82.10 | 82.10 | 041M56A101 |
| Manganese | 37.970 | 0 | 1 | 1 | 3.20 | 3.20 | 3.20 | 041M56A101 |
| Nickel | 9.280 | 0 | 1 | 1 | 1.40 | 1.40 | 1.40 | 041M56A101 |
| Potassium | 1,628.670 | 0 | 1 | 1 | 52.0 | 52.0 | 52.0 | 041M56A101 |
| Selenium | 3.450 | 0 | 1 | 1 | 2.40 | 2.40 | 2.40 | 041M56A101 |
| Vanadium | 28.670 | 0 | 1 | 1 | 4.0 | 4.0 | 4.0 | 041M56A101 |
| Zinc | 36.730 | 0 | 1 | 1 | 5.90 | 5.90 | 5.90 | 041M56A101 |
| **PAHs (µg/kg)** | | | | | | | | |
| Pyrene | N/A | 0 | 1 | 1 | 36.0 | 36.0 | 36.0 | 041M56A101 |
| Total PAHs | N/A | 0 | 1 | 1 | 321.0 | 321.0 | 321.0 | 041M56A101 |
| **Pesticides and PCBs (µg/kg)** | | | | | | | | |
| Endrin | N/A | 0 | 1 | 1 | 0.390 | 0.390 | 0.390 | 041M56A101 |
| Total Endrin | N/A | 0 | 1 | 1 | 0.660 | 0.660 | 0.660 | 041M56A101 |
| gamma-BHC (Lindane) | N/A | 0 | 1 | 1 | 0.40 | 0.40 | 0.40 | 041M56A101 |
| Total BHC | N/A | 0 | 1 | 1 | 0.595 | 0.595 | 0.595 | 041M56A101 |
| 4,4'-DDD | 50.0 | 1 | 1 | 1 | 53.0 | 53.0 | 53.0 | 041M56A101 |
| 4,4'-DDE | 40.0 | 0 | 1 | 1 | 5.30 | 5.30 | 5.30 | 041M56A101 |
| 4,4'-DDT | 20.0 | 0 | 1 | 1 | 2.80 | 2.80 | 2.80 | 041M56A101 |
| Total DDT | 110.0 | 0 | 1 | 1 | 61.10 | 61.10 | 61.10 | 041M56A101 |
| **SVOCs (µg/kg)** | | | | | | | | |
| bis(2-Ethylhexyl)phthalate (BEHP) | N/A | 0 | 1 | 1 | 51.0 | 51.0 | 51.0 | 041M56A101 |

***Notes:***
µg/kg = micrograms per kilogram
mg/kg = milligram per kilogram
N/A = Not Applicable

**Table 15-2-4**
**Wetland 56 Phase II**
**Surface Water Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Range of Detections: Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | |
| Aluminum | 1,090.25 | 0 | 1 | 1 | 596.0 | 596.0 | 596.0 | 041W56A101 |
| Barium | 3.68 | 1 | 1 | 1 | 4.4 | 4.4 | 4.4 | 041W56A101 |
| Calcium | 7,675.0 | 1 | 1 | 1 | 12,700.0 | 12,700.0 | 12,700.0 | 041W56A101 |
| Iron | 2,360.0 | 0 | 1 | 1 | 682.0 | 682.0 | 682.0 | 041W56A101 |
| Magnesium | 20,260.0 | 0 | 1 | 1 | 1,710.0 | 1,710.0 | 1,710.0 | 041W56A101 |
| Manganese | 13.2 | 0 | 1 | 1 | 11.2 | 11.2 | 11.2 | 041W56A101 |
| Potassium | 6,995.0 | 0 | 1 | 1 | 676.0 | 676.0 | 676.0 | 041W56A101 |
| Sodium | 182,200.0 | 0 | 1 | 1 | 9,730.0 | 9,730.0 | 9,730.0 | 041W56A101 |

***Notes:***
µg/L = micrograms per liter
N/A = Not Applicable

**Table 15-2-5**
**Wetland 56 Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | 2,560 | 2,560 | 041M56A101 | 2,560 | | | N/A | | Yes | No SV |
| Antimony | 0 | 1 | 0.075 | 0.075 | | | ND | 0.075 | UJ | 12 | 2 | 0.01 | No | Max SQL< SV |
| Arsenic | 1 | 1 | | | 0.33 | 0.33 | 041M56A101 | 0.33 | J | 7.24 | 1, 2 | 0.05 | No | Max Detect < SV |
| Barium | 1 | 1 | | | 3.3 | 3.3 | 041M56A101 | 3.3 | J | | N/A | | Yes | No SV |
| Beryllium | 0 | 1 | 0.04 | 0.04 | | | ND | 0.04 | U | | N/A | | Yes | No SV |
| Cadmium | 0 | 1 | 0.075 | 0.075 | | | ND | 0.075 | U | 0.676 | 1 | 0.11 | No | Max SQL< SV |
| Calcium | 1 | 1 | | | 682 | 682 | 041M56A101 | 682 | | | N/A | | Yes | No SV |
| Chromium | 1 | 1 | | | 3.1 | 3.1 | 041M56A101 | 3.1 | | 52.3 | 1, 2 | 0.06 | No | Max Detect < SV |
| Cobalt | 1 | 1 | | | 0.3 | 0.3 | 041M56A101 | 0.3 | J | | N/A | | Yes | No SV |
| Copper | 1 | 1 | | | 3.1 | 3.1 | 041M56A101 | 3.1 | | 18.7 | 1, 2 | 0.17 | No | Max Detect < SV |
| Cyanide (CN) | 0 | 1 | 0.375 | 0.375 | | | ND | 0.375 | U | | N/A | | Yes | No SV |
| Iron | 1 | 1 | | | 1,210 | 1,210 | 041M56A101 | 1,210 | | | N/A | | Yes | No SV |
| Lead | 1 | 1 | | | 9.4 | 9.4 | 041M56A101 | 9.4 | | 30.2 | 1, 2 | 0.31 | No | Max Detect < SV |
| Magnesium | 1 | 1 | | | 82.1 | 82.1 | 041M56A101 | 82.1 | J | | N/A | | Yes | No SV |
| Manganese | 1 | 1 | | | 3.2 | 3.2 | 041M56A101 | 3.2 | | | N/A | | Yes | No SV |
| Mercury | 0 | 1 | 0.035 | 0.035 | | | ND | 0.035 | U | 0.13 | 1, 2 | 0.27 | No | Max SQL< SV |
| Nickel | 1 | 1 | | | 1.4 | 1.4 | 041M56A101 | 1.4 | J | 15.9 | 1, 2 | 0.09 | No | Max Detect < SV |
| Potassium | 1 | 1 | | | 52 | 52 | 041M56A101 | 52 | J | | N/A | | Yes | No SV |
| Selenium | 1 | 1 | | | 2.4 | 2.4 | 041M56A101 | 2.4 | J | | N/A | | Yes | No SV |
| Silver | 0 | 1 | 0.19 | 0.19 | | | ND | 0.19 | U | 0.733 | 1 | 0.26 | No | Max SQL< SV |
| Sodium | 0 | 1 | 6.95 | 6.95 | | | ND | 6.95 | U | | N/A | | Yes | No SV |
| Thallium | 0 | 1 | 0.15 | 0.15 | | | ND | 0.15 | U | | N/A | | Yes | No SV |
| Vanadium | 1 | 1 | | | 4 | 4 | 041M56A101 | 4 | | | N/A | | Yes | No SV |
| Zinc | 1 | 1 | | | 5.9 | 5.9 | 041M56A101 | 5.9 | | 124 | 1, 2 | 0.05 | No | Max Detect < SV |
| **PAHs (µg/kg)** | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 26 | 26 | | | ND | 26 | U | 20.2 | 1 | 1.29 | No | TOC Normalized PAHs<TEC |
| Acenaphthene | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | 6.71 | 1 | 1.86 | No | TOC Normalized PAHs<TEC |
| Acenaphthylene | 0 | 1 | 26 | 26 | | | ND | 26 | U | 5.87 | 1 | 4.43 | No | TOC Normalized PAHs<TEC |
| Anthracene | 0 | 1 | 26 | 26 | | | ND | 26 | U | 46.9 | 1 | 0.55 | No | TOC Normalized PAHs<TEC |
| Benzo(a)anthracene | 0 | 1 | 26 | 26 | | | ND | 26 | U | 74.8 | 1 | 0.35 | No | TOC Normalized PAHs<TEC |
| Benzo(a)pyrene | 0 | 1 | 26 | 26 | | | ND | 26 | U | 88.8 | 1 | 0.29 | No | TOC Normalized PAHs<TEC |
| Chrysene | 0 | 1 | 26 | 26 | | | ND | 26 | U | 108 | 1 | 0.24 | No | TOC Normalized PAHs<TEC |
| Dibenz(a,h)anthracene | 0 | 1 | 26 | 26 | | | ND | 26 | U | 6.22 | 1 | 4.18 | No | TOC Normalized PAHs<TEC |
| Fluoranthene | 0 | 1 | 26 | 26 | | | ND | 26 | U | 113 | 1 | 0.23 | No | TOC Normalized PAHs<TEC |
| Fluorene | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | 21.2 | 1 | 0.59 | No | TOC Normalized PAHs<TEC |
| Naphthalene | 0 | 1 | 26 | 26 | | | ND | 26 | U | 34.6 | 1 | 0.75 | No | TOC Normalized PAHs<TEC |
| Phenanthrene | 0 | 1 | 26 | 26 | | | ND | 26 | U | 86.7 | 1 | 0.3 | No | TOC Normalized PAHs<TEC |
| Pyrene | 1 | 1 | | | 36 | 36 | 041M56A101 | 36 | J | 153 | 1 | 0.24 | No | TOC Normalized PAHs<TEC |
| Total PAHs | 1 | 1 | | | 321 | 321 | 041M56A101 | 321 | | 1684 | 1, 2 | 0.19 | No | TOC Normalized PAHs<TEC |
| TOC Normalized PAHs | 1 | 1 | | | 25.48 | 25.48 | 041M56A101 | 25.48 | | 290 | 3 | 0.09 | No | Max Detect < SV |
| **PCBs (µg/kg)** | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 1.35 | 1.35 | | | ND | 1.35 | U | 21.6 | N/A | 0.06 | No | Max SQL< SV |
| Aroclor-1221 | 0 | 1 | 2.7 | 2.7 | | | ND | 2.7 | U | 67 | 2 | 0.04 | No | Max SQL< SV |
| Aroclor-1232 | 0 | 1 | 1.35 | 1.35 | | | ND | 1.35 | U | 21.6 | N/A | 0.06 | No | Max SQL< SV |
| Aroclor-1242 | 0 | 1 | 1.35 | 1.35 | | | ND | 1.35 | U | 21.6 | N/A | 0.06 | No | Max SQL< SV |
| Aroclor-1248 | 0 | 1 | 1.35 | 1.35 | | | ND | 1.35 | U | 21.6 | N/A | 0.06 | No | Max SQL< SV |
| Aroclor-1254 | 0 | 1 | 1.35 | 1.35 | | | ND | 1.35 | U | 21.6 | N/A | 0.06 | No | Max SQL< SV |
| Aroclor-1260 | 0 | 1 | 1.35 | 1.35 | | | ND | 1.35 | U | 21.6 | N/A | 0.06 | No | Max SQL< SV |
| Total PCBs | 0 | 1 | 10.8 | 10.8 | | | ND | 10.8 | U | 21.6 | 1 | 0.5 | No | Max SQL< SV |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.065 | 0.065 | | | ND | 0.065 | U | | N/A | | Yes | No SV |
| Dieldrin | 0 | 1 | 0.135 | 0.135 | | | ND | 0.135 | U | 0.716 | 1 | 0.19 | No | Max SQL< SV |
| Endosulfan I | 0 | 1 | 0.065 | 0.065 | | | ND | 0.065 | U | | N/A | | Yes | No SV |
| Endosulfan II | 0 | 1 | 0.135 | 0.135 | | | ND | 0.135 | U | | N/A | | Yes | No SV |
| Endosulfan sulfate | 0 | 1 | 0.135 | 0.135 | | | ND | 0.135 | U | | N/A | | Yes | No SV |
| Heptachlor | 0 | 1 | 0.065 | 0.065 | | | ND | 0.065 | U | | N/A | | Yes | No SV |
| Heptachlor epoxide | 0 | 1 | 0.065 | 0.065 | | | ND | 0.065 | U | | N/A | | Yes | No SV |
| Methoxychlor | 0 | 1 | 0.65 | 0.65 | | | ND | 0.65 | U | | N/A | | Yes | No SV |
| Toxaphene | 0 | 1 | 13.5 | 13.5 | | | ND | 13.5 | U | | N/A | | Yes | No SV |
| alpha-Chlordane | 0 | 1 | 0.065 | 0.065 | | | ND | 0.065 | U | 1.7 | 1 | 0.04 | No | Max SQL< SV |
| gamma-Chlordane | 0 | 1 | 0.065 | 0.065 | | | ND | 0.065 | U | 1.7 | 1 | 0.04 | No | Max SQL< SV |
| Total Chlordane | 0 | 1 | 0.13 | 0.13 | | | ND | 0.13 | U | 1.7 | 1 | 0.08 | No | Max SQL< SV |
| Endrin | 1 | 1 | | | 0.39 | 0.39 | 041M56A101 | 0.39 | J | 3.3 | 2 | 0.12 | No | Max Detect < SV |
| Endrin aldehyde | 0 | 1 | 0.135 | 0.135 | | | ND | 0.135 | U | 3.3 | 2 | 0.04 | No | Max SQL< SV |
| Endrin ketone | 0 | 1 | 0.135 | 0.135 | | | ND | 0.135 | U | 3.3 | 2 | 0.04 | No | Max SQL< SV |
| Total Endrin | 1 | 1 | | | 0.66 | 0.66 | 041M56A101 | 0.66 | | 3.3 | 2 | 0.2 | No | Max Detect < SV |
| alpha-BHC | 0 | 1 | 0.065 | 0.065 | | | ND | 0.065 | U | | N/A | | Yes | No SV |
| beta-BHC | 0 | 1 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.32 | N/A | 0.20 | No | Max SQL< SV |
| delta-BHC | 0 | 1 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.32 | N/A | 0.20 | No | Max SQL< SV |
| **gamma-BHC (Lindane)** | **1** | **1** | | | **0.4** | **0.4** | **041M56A101** | **0.4** | **J** | **0.32** | **1** | **1.25** | **Yes** | **Max Detect > SV** |
| **Total BHC** | **1** | **1** | | | **0.595** | **0.595** | **041M56A101** | **0.595** | | **0.32** | **2** | **1.86** | **Yes** | **Max Detect > SV** |
| **4,4'-DDD** | **1** | **1** | | | **53** | **53** | **041M56A101** | **53** | **D** | **1.22** | **1** | **43.4** | **Yes** | **Max Detect > SV** |
| **4,4'-DDE** | **1** | **1** | | | **5.3** | **5.3** | **041M56A101** | **5.3** | **DJ** | **2.07** | **1** | **2.56** | **Yes** | **Max Detect > SV** |
| **4,4'-DDT** | **1** | **1** | | | **2.8** | **2.8** | **041M56A101** | **2.8** | | **1.19** | **1** | **2.35** | **Yes** | **Max Detect > SV** |
| **Total DDT** | **1** | **1** | | | **61.1** | **61.1** | **041M56A101** | **61.1** | | **3.3** | **2** | **18.5** | **Yes** | **Max Detect > SV** |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 1 | 650 | 650 | | | ND | 650 | U | | N/A | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 1 | 650 | 650 | | | ND | 650 | U | | N/A | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 2-Chlorophenol | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 650 | 650 | | | ND | 650 | U | | N/A | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 2-Nitroaniline | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 2-Nitrophenol | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 3-Nitroaniline | 0 | 1 | 650 | 650 | | | ND | 650 | U | | N/A | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 4-Chloroaniline | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| 4-Nitroaniline | 0 | 1 | 650 | 650 | | | ND | 650 | U | | N/A | | Yes | No SV |
| 4-Nitrophenol | 0 | 1 | 650 | 650 | | | ND | 650 | U | | N/A | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 1 | 26 | 26 | | | ND | 26 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| Benzo(g,h,i)perylene | 0 | 1 | 26 | 26 | | | ND | 26 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| Benzo(k)fluoranthene | 0 | 1 | 26 | 26 | | | ND | 26 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| bis(2-Chloroethoxy)methane | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 1 | 26 | 26 | | | ND | 26 | U | | N/A | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 1 | 1 | | | 51 | 51 | 041M56A101 | 51 | J | 182 | 1, 2 | 0.28 | No | Max Detect < SV |
| Butylbenzylphthalate | 0 | 1 | 260 | 260 | | | ND | 260 | U | 182 | 1, 2 | 1.43 | Yes | Max SQL > SV |
| Carbazole | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| Dibenzofuran | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| Diethylphthalate | 0 | 1 | 260 | 260 | | | ND | 260 | U | 182 | 1, 2 | 1.43 | Yes | Max SQL > SV |
| Dimethylphthalate | 0 | 1 | 260 | 260 | | | ND | 260 | U | 182 | 1, 2 | 1.43 | Yes | Max SQL > SV |
| Di-n-butylphthalate | 0 | 1 | 260 | 260 | | | ND | 260 | U | 182 | 1, 2 | 1.43 | Yes | Max SQL > SV |
| Di-n-octylphthalate | 0 | 1 | 260 | 260 | | | ND | 260 | U | 182 | 1, 2 | 1.43 | Yes | Max SQL > SV |

**Table 15-2-5**
**Wetland 56 Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/kg) - cont.** | | | | | | | | | | | | | | |
| Hexachlorobenzene | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| Hexachlorobutadiene | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| Hexachloroethane | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 26 | 26 | | | ND | 26 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| Isophorone | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| Nitrobenzene | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 1 | 26 | 26 | | | ND | 26 | U | | N/A | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| Pentachlorophenol | 0 | 1 | 650 | 650 | | | ND | 650 | U | | N/A | | Yes | No SV |
| Phenol | 0 | 1 | 260 | 260 | | | ND | 260 | U | | N/A | | Yes | No SV |
| **VOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethane | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethene (total) | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| 2-Butanone (MEK) | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| 2-Hexanone | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Acetone | 0 | 1 | 43.5 | 43.5 | | | ND | 43.5 | U | | N/A | | Yes | No SV |
| Benzene | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Bromodichloromethane | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Bromoform | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Bromomethane | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Carbon disulfide | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Carbon tetrachloride | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Chlorobenzene | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Chloroethane | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Chloroform | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Chloromethane | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Dibromochloromethane | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Ethylbenzene | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Methylene chloride | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Styrene | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Tetrachloroethene | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Toluene | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Trichloroethene | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |
| Vinyl chloride | 0 | 1 | 4 | 4 | | | ND | 4 | U | | N/A | | Yes | No SV |
| Xylene (Total) | 0 | 1 | 12.5 | 12.5 | | | ND | 12.5 | U | | N/A | | Yes | No SV |

***Notes:***

Sources for Screening Values:
SV = Screening Value
1 = USEPA Region 4 Screening Value. Detailed explanation for SVs provided in Section 8.0.
2 = FDEP Threshold effects level

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available.
U or ND = Not Detected at or above the SQL
J = Estimated value
SHQ = Screening Hazard Quotient

D = Diluted Result
mg/kg = milligrams per kilograms
µg/kg = micrograms per kilograms
mg/kg oc = milligrams per kilograms - organic carbon
UJ = Not detected. SQL is estimated.
Parameters in bold were detected and exceeded screening values.

**Table 15-2-6**
**Wetland 56 Phase II**
**Sediment COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| **Detected Parameters** | | | |
| Aluminum | 4,4'-DDD | None | None |
| Barium | 4,4'-DDE | | |
| Calcium | 4,4'-DDT | | |
| Cobalt | gamma-BHC (Lindane) | | |
| Iron | Total BHC | | |
| Magnesium | Total DDT | | |
| Manganese | | | |
| Potassium | | | |
| Selenium | | | |
| Vanadium | | | |
| **Not Detected Parameters** | | | |
| Beryllium | Aldrin | 1,2,4-Trichlorobenzene | 1,1,1-Trichloroethane |
| Cyanide (CN) | alpha-BHC | 1,2-Dichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Sodium | Endosulfan I | 1,3-Dichlorobenzene | 1,1,2-Trichloroethane |
| Thallium | Endosulfan II | 1,4-Dichlorobenzene | 1,1-Dichloroethane |
| | Endosulfan sulfate | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1-Dichloroethene |
| | Heptachlor | 2,4,5-Trichlorophenol | 1,2-Dichloroethane |
| | Heptachlor epoxide | 2,4,6-Trichlorophenol | 1,2-Dichloroethene (total) |
| | Methoxychlor | 2,4-Dichlorophenol | 1,2-Dichloropropane |
| | Toxaphene | 2,4-Dimethylphenol | 2-Butanone (MEK) |
| | | 2,4-Dinitrophenol | 2-Hexanone |
| | | 2,4-Dinitrotoluene | 4-Methyl-2-Pentanone (MIBK) |
| | | 2,6-Dinitrotoluene | Acetone |
| | | 2-Chloronaphthalene | Benzene |
| | | 2-Chlorophenol | Bromodichloromethane |
| | | 2-Methyl-4,6-Dinitrophenol | Bromoform |
| | | 2-Methylphenol (o-Cresol) | Bromomethane |
| | | 2-Nitroaniline | Carbon disulfide |
| | | 2-Nitrophenol | Carbon tetrachloride |
| | | 3,3'-Dichlorobenzidine | Chlorobenzene |
| | | 3-Nitroaniline | Chloroethane |
| | | 4-Bromophenyl-phenylether | Chloroform |
| | | 4-Chloro-3-methylphenol | Chloromethane |
| | | 4-Chloroaniline | cis-1,3-Dichloropropene |
| | | 4-Chlorophenylphenyl ether | Dibromochloromethane |
| | | 4-Methylphenol (p-Cresol) | Ethylbenzene |
| | | 4-Nitroaniline | Methylene chloride |
| | | 4-Nitrophenol | Styrene |
| | | bis(2-Chloroethoxy)methane | Tetrachloroethene |
| | | bis(2-Chloroethyl)ether | Toluene |
| | | Butylbenzylphthalate | trans-1,3-Dichloropropene |
| | | Carbazole | Trichloroethene |
| | | Dibenzofuran | Vinyl chloride |
| | | Diethylphthalate | Xylene (Total) |
| | | Dimethylphthalate | |
| | | Di-n-butylphthalate | |
| | | Di-n-octylphthalate | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |

**Table 15-2-7**
**Wetland 56 Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result HQ | SV | Average Result SV HQ | Maximum Result HQ | RV | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | | 2,560 | 2,560 | 2,560 | 2,560 | | 041M56A101 | | | NA | | | | | | | 0 | 13,610 | 0 | No | EPC < RC |
| Barium | 1 | 1 | | | | 3.3 | 3.3 | 3.3 | 3.3 | J | 041M56A101 | | | NA | | | | | | | 0 | 14 | 0 | No | EPC < RC |
| Beryllium | 0 | 1 | 0.04 | 0.04 | 0.04 | 0.04 | | | 0.04 | U | ND | | | NA | | | | | | | 0 | 0.84 | 0 | No | Parameter Not Detected |
| Calcium | 1 | 1 | | | | 682 | 682 | 682 | 682 | | 041M56A101 | | | NA | | | | | | | 0 | 10,756.67 | 0 | No | EPC < RC |
| Cobalt | 1 | 1 | | | | 0.3 | 0.3 | 0.3 | 0.3 | J | 041M56A101 | | | NA | | | | | | | 0 | 2.8 | 0 | No | EPC < RC |
| Cyanide (CN) | 0 | 1 | 0.375 | 0.375 | 0.375 | 0.375 | | | 0.375 | U | ND | | | NA | | | | | | | 0 | 5.22 | 0 | No | Parameter Not Detected |
| Iron | 1 | 1 | | | | 1,210 | 1,210 | 1,210 | 1,210 | | 041M56A101 | | | NA | | | | | | | 0 | 11,911.67 | 0 | No | EPC < RC |
| Magnesium | 1 | 1 | | | | 82.1 | 82.1 | 82.1 | 82.1 | J | 041M56A101 | | | NA | | | | | | | 0 | 7,513.33 | 0 | No | EPC < RC |
| Manganese | 1 | 1 | | | | 3.2 | 3.2 | 3.2 | 3.2 | | 041M56A101 | | | NA | | | | | | | 0 | 37.97 | 0 | No | EPC < RC |
| Potassium | 1 | 1 | | | | 52 | 52 | 52 | 52 | J | 041M56A101 | | | NA | | | | | | | 0 | 1,628.67 | 0 | No | EPC < RC |
| Selenium | 1 | 1 | | | | 2.4 | 2.4 | 2.4 | 2.4 | J | 041M56A101 | | | NA | | | | | | | 0 | 3.45 | 0 | No | EPC < RC |
| Sodium | 0 | 1 | 6.95 | 6.95 | 6.95 | 6.95 | | | 6.95 | U | ND | | | NA | | | | | | | 0 | 18,993.33 | 0 | No | Parameter Not Detected |
| Thallium | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | 0.15 | U | ND | | | NA | | | | | | | 0 | 1.57 | 0 | No | Parameter Not Detected |
| Vanadium | 1 | 1 | | | | 4 | 4 | 4 | 4 | | 041M56A101 | | | NA | | | | | | | 0 | 28.67 | 0 | No | EPC < RC |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | 0.065 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan I | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | 0.065 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan II | 0 | 1 | 0.135 | 0.135 | 0.135 | 0.135 | | | 0.135 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan sulfate | 0 | 1 | 0.135 | 0.135 | 0.135 | 0.135 | | | 0.135 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | 0.065 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor epoxide | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | 0.065 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Methoxychlor | 0 | 1 | 0.65 | 0.65 | 0.65 | 0.65 | | | 0.65 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toxaphene | 0 | 1 | 13.5 | 13.5 | 13.5 | 13.5 | | | 13.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| alpha-BHC | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | 0.065 | U | ND | | 0.99 | PEL | | | | 0.07 | | 0.07 | 0 | | 0 | No | Parameter Not Detected |
| beta-BHC | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | 0.065 | U | ND | 0.32 | 0.99 | PEL | 0.20 | | 0.20 | 0.07 | | 0.07 | 0 | | 0 | No | Parameter Not Detected |
| delta-BHC | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | 0.065 | U | ND | 0.32 | 0.99 | PEL | 0.20 | | 0.20 | 0.07 | | 0.07 | 0 | | 0 | No | Parameter Not Detected |
| gamma-BHC (Lindane) | 1 | 1 | | | | 0.4 | 0.4 | 0.4 | 0.4 | J | 041M56A101 | 0.32 | 0.99 | PEL | 1.25 | | 1.25 | 0.40 | | 0.40 | 0 | | 0 | No | RV HQ <1 and no RC |
| Total BHC | 1 | 1 | | | | 0.595 | 0.595 | 0.595 | 0.595 | | 041M56A101 | 0.32 | 0.99 | PEL | 1.86 | | 1.86 | 0.60 | | 0.60 | 0 | | 0 | No | RV HQ <1 and no RC |
| **4,4'-DDD** | **1** | **1** | | | | **53** | **53** | **53** | **53** | **D** | **041M56A101** | **1.22** | **7.81** | **PEL** | **43.4** | | **43.4** | **6.79** | | **6.79** | **1** | **50** | **1** | **No** | **Total DDT<RC** |
| 4,4'-DDE | 1 | 1 | | | | 5.3 | 5.3 | 5.3 | 5.3 | DJ | 041M56A101 | 2.07 | 374 | PEL | 2.56 | | 2.56 | 0.01 | | 0.01 | 0 | 40 | 0 | No | EPC < RC and RV |
| 4,4'-DDT | 1 | 1 | | | | 2.8 | 2.8 | 2.8 | 2.8 | | 041M56A101 | 1.19 | 4.77 | PEL | 2.35 | | 2.35 | 0.59 | | 0.59 | 0 | 20 | 0 | No | EPC < RC and RV |
| **Total DDT** | **1** | **1** | | | | **61.1** | **61.1** | **61.1** | **61.1** | | **041M56A101** | **3.3** | **51.7** | **PEL** | **18.5** | | **18.5** | **1.18** | | **1.18** | **1** | **110** | **0** | **No** | **EPC > RV, but < RC** |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichlorobenzene | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,4-Dichlorobenzene | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,5-Trichlorophenol | 0 | 1 | 650 | 650 | 650 | 650 | | | 650 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,6-Trichlorophenol | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dichlorophenol | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dimethylphenol | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrophenol | 0 | 1 | 650 | 650 | 650 | 650 | | | 650 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrotoluene | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,6-Dinitrotoluene | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chloronaphthalene | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chlorophenol | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 650 | 650 | 650 | 650 | | | 650 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitroaniline | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitrophenol | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3,3'-Dichlorobenzidine | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3-Nitroaniline | 0 | 1 | 650 | 650 | 650 | 650 | | | 650 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Bromophenyl-phenylether | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chloro-3-methylphenol | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chloroaniline | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chlorophenylphenyl ether | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitroaniline | 0 | 1 | 650 | 650 | 650 | 650 | | | 650 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitrophenol | 0 | 1 | 650 | 650 | 650 | 650 | | | 650 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethoxy)methane | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethyl)ether | 0 | 1 | 26 | 26 | 26 | 26 | | | 26 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Butylbenzylphthalate | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | 182 | 2647 | PEL | 1.43 | | 1.43 | 0.10 | | 0.10 | 0 | | 0 | No | Parameter Not Detected |
| Carbazole | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dibenzofuran | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Diethylphthalate | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | 182 | 2647 | PEL | 1.43 | | 1.43 | 0.10 | | 0.10 | 0 | | 0 | No | Parameter Not Detected |
| Dimethylphthalate | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | 182 | 2647 | PEL | 1.43 | | 1.43 | 0.10 | | 0.10 | 0 | | 0 | No | Parameter Not Detected |
| Di-n-butylphthalate | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | 182 | 2647 | PEL | 1.43 | | 1.43 | 0.10 | | 0.10 | 0 | | 0 | No | Parameter Not Detected |
| Di-n-octylphthalate | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | 182 | 2647 | PEL | 1.43 | | 1.43 | 0.10 | | 0.10 | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobenzene | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobutadiene | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorocyclopentadiene | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachloroethane | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Isophorone | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Nitrobenzene | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitroso-di-n-propylamine | 0 | 1 | 26 | 26 | 26 | 26 | | | 26 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitrosodiphenylamine | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Pentachlorophenol | 0 | 1 | 650 | 650 | 650 | 650 | | | 650 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Phenol | 0 | 1 | 260 | 260 | 260 | 260 | | | 260 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |

**Table 15-2-7**
**Wetland 56 Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result HQ | SV | Average Result SV HQ | Maximum Result HQ | RV | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2-Trichloroethane | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethane | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethene | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethane | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethene (total) | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloropropane | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Butanone (MEK) | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Hexanone | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Acetone | 0 | 1 | 43.5 | 43.5 | 43.5 | 43.5 | | | 43.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Benzene | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromodichloromethane | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromoform | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromomethane | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon disulfide | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon tetrachloride | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chlorobenzene | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroethane | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroform | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloromethane | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| cis-1,3-Dichloropropene | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dibromochloromethane | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Ethylbenzene | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Methylene chloride | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Styrene | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Tetrachloroethene | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toluene | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| trans-1,3-Dichloropropene | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Trichloroethene | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Vinyl chloride | 0 | 1 | 4 | 4 | 4 | 4 | | | 4 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Xylene (Total) | 0 | 1 | 12.5 | 12.5 | 12.5 | 12.5 | | | 12.5 | U | ND | | | NA | | | | | | | 0 | | 0 | No | Parameter Not Detected |

***Notes:***

Sources for Refinement Values (RVs):
PEL = FDEP Probable Effects Level
MEC = Swartz Midrange Effect Concentration

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
Parameters in bold were detected and exceeded screening values.

J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
PEL = Probable effects level.

N/R = No refinement value available.
N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters.
As a result, some average detections may exceed the maximum detections
NAS Pensacola basewide levels used as reference values for 4,4'-DDT, 4,4'-DDD, 4,4'-DDE and total DDT.

**Table 15-2-8**
**Wetland 56 Phase II**
**Sediment COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| None | None | None | None |

**Table 15-2-9**
**Wetland 56 Phase II**
**Mean ERM Quotient**

| Sample ID | Sample Date | Units | Result | VQUAL | Parameter | ERL | ERM | ERM Quotient |
|---|---|---|---|---|---|---|---|---|
| 041M56A101 | 1/24/1996 | mg/kg | 0.33 | J | Arsenic | 8.2 | 70 | 0.00 |
| 041M56A101 | 1/24/1996 | mg/kg | 0.075 | U | Cadmium | 1.2 | 9.6 | 0.01 |
| 041M56A101 | 1/24/1996 | mg/kg | 3.1 | | Chromium | 81 | 370 | 0.01 |
| 041M56A101 | 1/24/1996 | mg/kg | 3.1 | | Copper | 34 | 270 | 0.01 |
| 041M56A101 | 1/24/1996 | mg/kg | 9.4 | | Lead | 46.7 | 218 | 0.04 |
| 041M56A101 | 1/24/1996 | mg/kg | 0.035 | U | Mercury | 0.15 | 0.71 | 0.05 |
| 041M56A101 | 1/24/1996 | mg/kg | 1.4 | J | Nickel | 20.9 | 51.6 | 0.03 |
| 041M56A101 | 1/24/1996 | mg/kg | 0.19 | U | Silver | 1 | 3.7 | 0.05 |
| 041M56A101 | 1/24/1996 | mg/kg | 5.9 | | Zinc | 150 | 410 | 0.01 |
| 041M56A101 | 1/24/1996 | µg/kg | 5.3 | DJ | 4,4'-DDE | 2.2 | 27 | 0.20 |
| 041M56A101 | 1/24/1996 | µg/kg | 2.8 | | 4,4'-DDT | 1.58 | 46.1 | 0.06 |
| 041M56A101 | 1/24/1996 | µg/kg | 10.8 | U | Total PCBs | 22.7 | 180 | 0.06 |
| 041M56A101 | 1/24/1996 | µg/kg | 26 | U | 2-Methylnaphthalene | 70 | 670 | 0.04 |
| 041M56A101 | 1/24/1996 | µg/kg | 12.5 | U | Acenaphthene | 16 | 500 | 0.03 |
| 041M56A101 | 1/24/1996 | µg/kg | 26 | U | Acenaphthylene | 44 | 640 | 0.04 |
| 041M56A101 | 1/24/1996 | µg/kg | 26 | U | Anthracene | 85.3 | 1,100 | 0.02 |
| 041M56A101 | 1/24/1996 | µg/kg | 26 | U | Benzo(a)anthracene | 261 | 1,600 | 0.02 |
| 041M56A101 | 1/24/1996 | µg/kg | 26 | U | Benzo(a)pyrene | 430 | 1,600 | 0.02 |
| 041M56A101 | 1/24/1996 | µg/kg | 26 | U | Chrysene | 384 | 2,800 | 0.01 |
| 041M56A101 | 1/24/1996 | µg/kg | 26 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.10 |
| 041M56A101 | 1/24/1996 | µg/kg | 26 | U | Fluoranthene | 600 | 5,100 | 0.01 |
| 041M56A101 | 1/24/1996 | µg/kg | 12.5 | U | Fluorene | 19 | 540 | 0.02 |
| 041M56A101 | 1/24/1996 | µg/kg | 26 | U | Naphthalene | 160 | 2,100 | 0.01 |
| 041M56A101 | 1/24/1996 | µg/kg | 26 | U | Phenanthrene | 240 | 1,500 | 0.02 |
| 041M56A101 | 1/24/1996 | µg/kg | 36 | J | Pyrene | 665 | 2,600 | 0.01 |
| 041M56A101 | 1/24/1996 | | | | ERM Quotient Sum | | | 0.88 |
| 041M56A101 | 1/24/1996 | | | | Mean ERM Quotient | | | 0.04 |
| 041M56A101 | 1/24/1996 | | | | Mean ERM Quotient without ND | | | 0.02 |
| 041M56A101 | 1/24/1996 | | | | Mean ERM Quotient Category | | | 2 |

***Notes:***
ERL = Effects Range Low
ERM = Effects Range Median
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
U = not detected at or above the SQL (value in table is 1/2 reported value)
J = estimated value
Shaded cells indicate constituent exceeds ERL.
**Shaded and bold cells indicate constituent exceeds ERM.**

**Table 15-2-10**
**Wetland 56 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | |
| **Aluminum** | **1** | **1** | | | | **596** | **596** | **596** | **041W56A101** | **596** | | **13** | **FDEP** | **45.8** | **Yes** | **Max Detect > SV** |
| Antimony | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | 160 | EPA | 0.01 | No | Max SQL< SV |
| Arsenic | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 50 | FDEP | 0.02 | No | Max SQL< SV |
| Barium | 1 | 1 | | | | 4.4 | 4.4 | 4.4 | 041W56A101 | 4.4 | J | | NA | | Yes | No SV |
| Beryllium | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.13 | FDEP | 3.85 | Yes | Max SQL > SV |
| Cadmium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | 0.66 | EPA | 1.52 | Yes | Max SQL > SV |
| Calcium | 1 | 1 | | | | 12,700 | 12,700 | 12,700 | 041W56A101 | 12,700 | | | NA | | Yes | No SV |
| Chromium | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 11 | EPA | 0.23 | No | Max SQL< SV |
| Cobalt | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Copper | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 6.54 | EPA | 0.31 | No | Max SQL< SV |
| Cyanide (CN) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 5.2 | EPA | 0.48 | No | Max SQL< SV |
| Iron | 1 | 1 | | | | 682 | 682 | 682 | 041W56A101 | 682 | | | NA | | Yes | No SV |
| Lead | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 1.32 | EPA | 0.76 | No | Max SQL< SV |
| Magnesium | 1 | 1 | | | | 1,710 | 1,710 | 1,710 | 041W56A101 | 1,710 | J | | NA | | Yes | No SV |
| Manganese | 1 | 1 | | | | 11.2 | 11.2 | 11.2 | 041W56A101 | 11.2 | J | | NA | | Yes | No SV |
| Mercury | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.012 | EPA | 5.42 | Yes | Max SQL > SV |
| Nickel | 0 | 1 | 4.5 | 4.5 | 4.5 | 4.5 | | | ND | 4.5 | U | 87.71 | EPA | 0.05 | No | Max SQL< SV |
| Potassium | 1 | 1 | | | | 676 | 676 | 676 | 041W56A101 | 676 | J | | NA | | Yes | No SV |
| Selenium | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 5 | EPA | 0.4 | No | Max SQL< SV |
| Silver | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.012 | EPA | 208 | Yes | Max SQL > SV |
| Sodium | 1 | 1 | | | | 9,730 | 9,730 | 9,730 | 041W56A101 | 9,730 | | | NA | | Yes | No SV |
| Thallium | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 4 | EPA | 0.5 | No | Max SQL< SV |
| Vanadium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Zinc | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 58.91 | EPA | 0.03 | No | Max SQL< SV |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | Yes | No SV |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | Yes | No SV |
| Endosulfan I | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.056 | EPA | 0.45 | No | Max SQL< SV |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | Yes | No SV |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | Yes | No SV |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.0038 | EPA | 6.58 | Yes | Max SQL > SV |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.00004 | FDEP | 625 | Yes | Max SQL > SV |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | UJ | | NA | | Yes | No SV |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | Yes | No SV |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | Yes | No SV |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | Yes | No SV |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0043 | EPA | 11.6 | Yes | Max SQL > SV |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | Yes | No SV |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | Yes | No SV |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.0023 | EPA | 21.7 | Yes | Max SQL > SV |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | Yes | No SV |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | Yes | No SV |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | Yes | No SV |
| gamma-BHC (Lindane) | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.08 | EPA | 0.31 | No | Max SQL< SV |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | Yes | No SV |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.0003 | FDEP | 167 | Yes | Max SQL > SV |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.0002 | FDEP | 250 | Yes | Max SQL > SV |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.00059 | FDEP | 84.7 | Yes | Max SQL > SV |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | Yes | No SV |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | | NA | | Yes | No SV |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | Yes | No SV |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | Yes | No SV |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | Yes | No SV |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | Yes | No SV |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | 0.014 | EPA | 35.7 | Yes | Max SQL > SV |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | Yes | No SV |

**Table 15-2-10**
**Wetland 56 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 43.8 | EPA | 0.06 | No | Max SQL< SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.3 | EPA | 8.33 | Yes | Max SQL > SV |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Di-n-butylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 9.4 | EPA | 0.27 | No | Max SQL< SV |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Naphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 26 | FDEP | 0.02 | No | Max SQL< SV |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |

**Table 15-2-10**
**Wetland 56 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Total PAH | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | Yes | No SV |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 270 | FDEP | 0.00 | No | Max SQL< SV |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3.2 | FDEP | 0.16 | No | Max SQL< SV |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 15.8 | EPA | 0.03 | No | Max SQL< SV |
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3 | FDEP | 0.17 | No | Max SQL< SV |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Benzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 53 | EPA | 0.01 | No | Max SQL< SV |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 17 | FDEP | 0.03 | No | Max SQL< SV |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chloroform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 289 | EPA | 0.00 | No | Max SQL< SV |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Ethylbenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 453 | EPA | 0.00 | No | Max SQL< SV |
| Methylene chloride | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 1580 | FDEP | 0.00 | No | Max SQL< SV |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Toluene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 175 | EPA | 0.00 | No | Max SQL< SV |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL

J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8)
HQ = Hazard Quotient.
N/R = No refinement value available.
N/A = Not Applicable.

Average result calculations include summing detections and one half the detection limits for not detected parameters.
As a result some average detections may exceed the maximum maximum detections.
Parameters in bold were detected and exceeded the screening value

**Table 15-2-11**
**Wetland 56 Phase II**
**Surface Water COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | None | None | None |
| Barium | | | |
| Calcium | | | |
| Iron | | | |
| Magnesium | | | |
| Manganese | | | |
| Potassium | | | |
| Sodium | | | |
| | | **Not Detected Parameters** | |
| Beryllium | Aldrin | 1,2,4-Trichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Cadmium | Dieldrin | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1,2-Trichloroethane |
| Cobalt | Endosulfan II | 2,4,5-Trichlorophenol | 1,1-Dichloroethane |
| Mercury | Endosulfan sulfate | 2,4,6-Trichlorophenol | 1,2-Dibromo-3-Chloropropane |
| Silver | Heptachlor | 2,4-Dichlorophenol | 1,2-Dibromoethane |
| Vanadium | Heptachlor epoxide | 2,4-Dimethylphenol | 1,2-Dichloroethane |
| | Methoxychlor | 2,4-Dinitrophenol | 1,2-Dichloropropane |
| | Toxaphene | 2,4-Dinitrotoluene | 1,3-Dichlorobenzene |
| | alpha-Chlordane | 2,6-Dinitrotoluene | 2-Hexanone |
| | gamma-Chlordane | 2-Chloronaphthalene | 4-Methyl-2-Pentanone (MIBK) |
| | Total Chlordane | 2-Methyl-4,6-Dinitrophenol | Bromochloromethane |
| | Endrin | 2-Methylphenol (o-Cresol) | Bromodichloromethane |
| | Endrin aldehyde | 2-Nitroaniline | Bromoform |
| | Endrin ketone | 2-Nitrophenol | Bromomethane |
| | Total Endrin | 3,3'-Dichlorobenzidine | Carbon disulfide |
| | alpha-BHC | 3-Nitroaniline | Carbon tetrachloride |
| | beta-BHC | 4-Bromophenyl-phenylether | Chloroethane |
| | delta-BHC | 4-Chloro-3-methylphenol | Chloromethane |
| | Total BHC | 4-Chloroaniline | cis-1,2-Dichloroethene |
| | 4,4'-DDD | 4-Chlorophenylphenyl ether | cis-1,3-Dichloropropene |
| | 4,4'-DDE | 4-Methylphenol (p-Cresol) | Dibromochloromethane |
| | 4,4'-DDT | 4-Nitroaniline | Styrene |
| | Total DDT | 4-Nitrophenol | Tetrachloroethene |
| | Aroclor-1016 | Benzo(b)fluoranthene | trans-1,2-Dichloroethene |
| | Aroclor-1221 | Benzo(g,h,i)perylene | trans-1,3-Dichloropropene |
| | Aroclor-1232 | Benzo(k)fluoranthene | Trichloroethene |
| | Aroclor-1242 | bis(2-Chloroethoxy)methane | Vinyl chloride |
| | Aroclor-1248 | bis(2-Chloroethyl)ether | Xylene (Total) |
| | Aroclor-1254 | bis(2-Ethylhexyl)phthalate (BEHP) | |
| | Aroclor-1260 | Butylbenzylphthalate | |
| | Total PCBs | Dibenzofuran | |
| | | Diethylphthalate | |
| | | Dimethylphthalate | |
| | | Di-n-octylphthalate | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Indeno(1,2,3-cd)pyrene | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |
| | | 2-Methylnaphthalene | |
| | | Acenaphthene | |
| | | Acenaphthylene | |
| | | Anthracene | |
| | | Benzo(a)anthracene | |
| | | Benzo(a)pyrene | |
| | | Chrysene | |
| | | Dibenz(a,h)anthracene | |
| | | Fluoranthene | |
| | | Fluorene | |
| | | Phenanthrene | |
| | | Pyrene | |
| | | Total PAHs | |

**Table 15-2-12**
**Wetland 56 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | | | | |
| **Aluminum** | **1** | **1** | | | | **596** | **596** | **596** | **041W56A101** | **596** | | **13** | **FDEP** | **46** | **45.8** | **1,090.25** | **0** | **No** | **Max Result < Ref. Conc.** |
| Barium | 1 | 1 | | | | 4.4 | 4.4 | 4.4 | 041W56A101 | 4.4 | J | | NA | | | 3.68 | 1 | Yes | Max Result > Ref. Conc. |
| Beryllium | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.13 | FDEP | 4 | 3.85 | 1 | 0 | No | Max SQL < Ref. Conc. |
| Cadmium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | 0.66 | EPA | 2 | 1.52 | 3 | 0 | No | Max SQL < Ref. Conc. |
| Calcium | 1 | 1 | | | | 12,700 | 12,700 | 12,700 | 041W56A101 | 12,700 | | | NA | | | 7,675 | 1 | No | Essential Nutrient |
| Cobalt | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | 3 | 0 | No | Max SQL < Ref. Conc. |
| Iron | 1 | 1 | | | | 682 | 682 | 682 | 041W56A101 | 682 | | | NA | | | 2,360 | 0 | No | Max Result < Ref. Conc. |
| Magnesium | 1 | 1 | | | | 1,710 | 1,710 | 1,710 | 041W56A101 | 1,710 | J | | NA | | | 20,260 | 0 | No | Max Result < Ref. Conc. |
| Manganese | 1 | 1 | | | | 11.2 | 11.2 | 11.2 | 041W56A101 | 11.2 | J | | NA | | | 13.2 | 0 | No | Max Result < Ref. Conc. |
| Mercury | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.012 | EPA | 5.42 | 5.42 | 0.13 | 0 | No | Max SQL < Ref. Conc. |
| Potassium | 1 | 1 | | | | 676 | 676 | 676 | 041W56A101 | 676 | J | | NA | | | 6,995 | 0 | No | Max Result < Ref. Conc. |
| Silver | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.012 | EPA | 208.33 | 208 | 4 | 0 | No | Max SQL < Ref. Conc. |
| Sodium | 1 | 1 | | | | 9,730 | 9,730 | 9,730 | 041W56A101 | 9,730 | | | NA | | | 182,200 | 0 | No | Max Result < Ref. Conc. |
| Vanadium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | 4.7 | 0 | No | Max SQL < Ref. Conc. |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.0038 | EPA | 7 | 6.58 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.00004 | FDEP | 625 | 625 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0043 | EPA | 12 | 11.6 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.0023 | EPA | 22 | 21.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | No | Parameter Not Detected |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| gamma-BHC (Lindane) | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.08 | EPA | 0.31 | 0.31 | | 0 | No | Parameter Not Detected; Max SQL < SV |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.0003 | FDEP | 167 | 167 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.0002 | FDEP | 250 | 250 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.00059 | FDEP | 85 | 84.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | 0.014 | EPA | 36 | 35.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlo | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |

**Table 15-2-12**
**Wetland 56 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | | | | |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.3 | EPA | 8.33 | 8.33 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Naphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 26 | FDEP | 0.02 | 0.02 | | 0 | No | Parameter Not Detected; Max SQL < SV |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Total PAH | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |

**Table 15-2-12**
**Wetland 56 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | | | | |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL

UJ = Not detected. SQL is estimated.
D = Diluted Result
J = Estimated Value

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
PEL = Probable effects level.
N/R = No refinement value available.

N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters.
As a result, some average detections may exceed the Max detections.
Parameters in bold were detected and exceeded Ref. Conc.s.

**Table 15-2-13**
**Wetland 56 Phase II**
**Surface Water COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Barium | None | None | None |

**Table 15-2-14**
**Wetland 56 Phase II**
**Surface Water Dermal Absorbed Dose-Child Trespasser and Adult Maintenance Worker**

| CAS Number | Chemical | | Minimum Concentration (µg/L) | Min. Qual. | Maximum Concentration (µg/L) | Max. Qual. | Units | Location of Max.Conc. | Detection Frequency | Range of Detection Limits | Mean | Maximum Concentration ($mg/cm^3$) | $K_p$ | $DA_{event}$ | $DAD_{sw}$ (mg/kg-day): Child Trespasser | $DAD_{sw}$ (mg/kg-day): Adult Maintenance Worker |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429905 | Aluminum | N | N/A | N/A | 6.0E+02 | = | UG/L | 041W56A101 | 1 / 1 | NAV | 6.0E+02 | 6.0E-04 | 1.0E-03 | 1.55E-06 | 2.45E-05 | 3.28E-05 |
| 7440393 | Barium | N | N/A | N/A | 4.4E+00 | J | UG/L | 041W56A101 | 1 / 1 | NAV | 4.4E+00 | 4.4E-06 | 1.0E-03 | 1.14E-08 | 1.81E-07 | 2.42E-07 |
| 7439965 | Manganese | N | N/A | N/A | 1.1E+01 | J | UG/L | 041W56A101 | 1 / 1 | NAV | 1.1E+01 | 1.1E-05 | 1.0E-03 | 2.91E-08 | 4.61E-07 | 6.16E-07 |

***Notes:***

Equation for Dermal Absorbed Dose, surface water risk:

$$DAD_{sw} = \frac{DA_{event} \times EV \times ED \times EF \times SA}{BW \times AT}$$

Where:

$DAD_{sw}$ = Dermal absorbed dose-water contact (mg/kg-day).
$DA_{event}$ = Dermal absorbed dose per event (mg/cm2-event).
SA = Skin surface area available for contact (cm2).
EV = Event frequency (events/day).

EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr
carcinogenic effects AT = 70 yr x 365 dy/yr.

Equation for DAevent for inorganics:

$$DA_{event} = K_p \times C_w \times t_{event}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: RAGS Part E, Exhibit B-3 or Exhibit B-4
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).

Equation for DAevent for organics:

$$DA_{event} = FA \times K_p \times C_w \left[ \frac{t_{event}}{1 + B} + 2\tau_{event} \left( \frac{1 + 3B + 3B^2}{(1 + B)^2} \right) \right]$$

Where:

FA = Fraction absorbed water (dimensionless). From RAGS Part E, Exhibit B-4.
Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E, Exhibit B-4.
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).
$t_{event}$ = Lag time per event (hr/event). From RAGS Part E, Exhibit B-4.
B = Dimensionless ratio of the permeability coefficient of a compound, calculated using the equation below:

$$B = \frac{K_p \sqrt{MW}}{2.6}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E.
MW = Molecular weight

Exposure Parameters:

EV = 1 event per day (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
EF = 52 dys/yr (child trespasser/adult maintenance worker).
SA = 5,000 cm2(child trespasser); 10,400 cm2 (adult maintenance worker).
Source: Tables 6-6 and 6-8 Exposure Factors Handbook.
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer - 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer - 25,550 days (child trespasser/adult maintenance worker).
$t_{event}$ = 2.6 hrs/dy (child trespasser/adult maintenance worker).

**Table 15-2-15**
**Wetland 56 Phase II**
**Surface Water Dermal Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum Concentration ($mg/cm^3$) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | $ABS_{GI}$ | $ABS_{GI}$ Source | Dermal RfD (mg/kg-day) | Dermal SF (mg/kg-day)-1 | Child Trespasser | | Maintenance Worker | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Dermal Hazard Quotient | Dermal Cancer Risk | Dermal Hazard Quotient | Dermal Cancer Risk |
| SW Dermal Risk | Aluminum | N | 6.0E-04 | 1.0E+00 | N/A | 1.0E-01 | 2 | 1.0E-01 | N/A | 2.5E-04 | N/A | 3.3E-04 | N/A |
| | Barium | N | 4.4E-06 | 7.0E-02 | N/A | 7.0E-02 | 1, 2 | 4.9E-03 | N/A | 3.7E-05 | N/A | 4.9E-05 | N/A |
| | Manganese | N | 1.1E-05 | 1.4E-01 | N/A | 4.0E-02 | 1 | 5.6E-03 | N/A | 8.2E-05 | N/A | 1.1E-04 | N/A |

***Notes:***

Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.
Dermal RfD = Dermal reference dose adjusted for $ABS_{GI}$.
Dermal SF = Dermal slope factoradjusted for $ABS_{GI}$.

Equations for Dermal Reference Dose and Dermal Slope Factor, surface water risk:

$$RfD_{dermal} = RfD_{oral} \times ABS_{GI}$$

$$SF_{dermal} = \frac{RfD_{oral}}{ABS_{GI}}$$

Where:
$RfD_{dermal}$ = Dermal reference dose.
$RFD_{oral}$ = Oral reference dose.
SFdermal = Dermal slope factor.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.

Risk calculation equation, cancer:

$$Risk = DAD_{sw} \times SF_{dermal}$$

Risk calculation equation, noncancer:

$$Hazard\ Quotient = \frac{DAD_{sw}}{RfD_{dermal}}$$

**Table 15-2-16**
**Wetland 56 Phase II**
**Surface Water Incidental Ingestion Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum Concentration ($mg/cm^3$) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | Child Trespasser | | Maintenance Worker | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ingestion Hazard Quotient | Ingestion Cancer Risk | Ingestion Hazard Quotient | Ingestion Cancer Risk |
| SW Incidental Ingestion | Aluminum | N | 6.0E-04 | 1.0E+00 | N/A | 1.9E-08 | N/A | 1.2E-08 | N/A |
| | Barium | N | 4.4E-06 | 7.0E-02 | N/A | 2.0E-09 | N/A | 1.3E-09 | N/A |
| | Manganese | N | 1.1E-05 | 1.4E-01 | N/A | 2.5E-09 | N/A | 1.6E-09 | N/A |

***Notes:***
Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
CDI = Chronic daily intake

$$Risk = CDI \times SF_{oral}$$

Equation for Chronic Daily Intake, surface water risk:

$$CDI = \frac{EPC_{sw} \times IR_{sw} \times EF \times ED}{BW \times AT}$$

$$Hazard\ Quotient = \frac{CDI}{RfD_{oral}}$$

Where:
CDI = Chronic daily intake (mg/kg-day).
$EPC_{sw}$ = Exposure point concentration in surface water (mg/L).
$IR_{sw}$ = Incidental ingestion rate for sediment (L/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr.
carcinogenic effects AT = 70 yr x 365 dy/yr.

= Oral reference dose.
= Oral slope factor.

Exposure Parameters:
Irsw = 0.01 L/day exposure to surface water during wading for adolescents and adults.
EF = 52 dys/yr (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).

**Table 15-2-17**
**Wetland 56 Phase II**
**Fish Tissue Ingestion Exposure Recreational and Subsistence Fishermen**

| Exposure Route | COPC | | Sediment Concentration (mg/kg) | BSAF | Estimated Tissue Concentration [a] (mg/kg) | Trophic Transfer Factor | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | Recreational Ingestion Hazard Quotient | Recreational Ingestion Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|---|
| Fish Tissue Ingestion | Aluminum | N | 2,560 | N/A | N/A | N/A | 1.00E+00 | N/A | N/A | N/A |
| | Barium | N | 3.3 | N/A | N/A | N/A | 7.00E-02 | N/A | N/A | N/A |
| | Cobalt | C | 0.3 | N/A | N/A | N/A | 2.00E-02 | N/A | N/A | N/A |
| | Iron | N | 1,210 | 0.00046 | 5.57E-01 | 1.00E+00 | 3.00E-01 | N/A | 1.53E-04 | N/A |
| | Manganese | N | 3.2 | N/A | N/A | N/A | 2.40E-02 | N/A | N/A | N/A |
| | Selenium | N | 2.4 | N/A | N/A | N/A | 5.00E-03 | N/A | N/A | N/A |
| | Vanadium | N | 4 | N/A | N/A | N/A | 7.00E-03 | N/A | N/A | N/A |
| | 4,4'-DDD | C | 0.053 | 1.93 | 1.02E-01 | 3.08E+00 | N/A | 2.40E-01 | N/A | 8.89E-07 |
| | 4,4'-DDE | C | 0.0053 | 1.93 | 1.02E-02 | 3.64E+00 | N/A | 3.40E-01 | N/A | 1.49E-07 |
| | 4,4'-DDT | C | 0.0028 | 1.93 | 5.40E-03 | 3.69E+00 | 5.00E-04 | 3.40E-01 | 4.69E-04 | 7.97E-08 |
| | Endrin | N | 0.00039 | 4.01 | 1.56E-03 | 1.60E+00 | 3.00E-04 | N/A | 6.87E-04 | N/A |
| | gamma-BHC (Lindane) | C | 0.004 | 3.55091 | 1.42E-02 | 1.08E+00 | 3.00E-04 | 1.30E+00 | 6.01E-04 | 2.34E-07 |
| | bis(2-Ethylhexyl)phthalate (BEHP) | C | 0.051 | 0.184 | 9.38E-03 | 2.27E+00 | 2.00E-02 | 1.40E-02 | 1.25E-05 | 3.51E-09 |
| | Pyrene | N | 0.036 | N/A | N/A | N/A | N/A | 3.00E-02 | N/A | N/A |

**Notes:**
Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
a = Tissue concentration determined as described in Section 8 of the text; see Table 9-5

$$CDI = \frac{EPC_t \times IR_t \times EF \times ED \times CF}{BW \times AT}$$

Where:
CDI = Chronic daily intake (mg/kg-day).
$EPC_t$ = Exposure point concentration in sediment (mg/kg).
$IR_t$ = Incidental ingestion rate for sediment (mg/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
CF = conversion factor (0.001 kg/g)
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr.
carcinogenic effects AT = 70 yr x 365 dy/yr.

Exposure Parameters:
$IR_t$ = Fish tissue ingestion rate for sediment (recreational: 26 g/day; subsistence: 170 g/day).
EF = 52 dys/yr (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).

Risk calculation equation, cancer:

$$Risk = CDI \times SF_{oral}$$

Risk calculation equation, non cancer:

$$Hazard\ Quotient = \frac{CDI}{RfD_{oral}}$$

## 15.3 Wetland 57 — Screening Level Problem Formulation

### 15.3.1 Site Description and Habitats Present at Wetland 57

Wetland 57 is north of the Oak Grove Campground (Site 39) and due south of Forrest Sherman Field. This area serves as a minor drainage pathway for the surrounding area (Figure 15-1).

Parsons and Pruitt (USEPA, 1991a) identified Wetland 57 as a palustrine, forested emergent system containing slash pine (*Pinus elliotti*) and sweet bay magnolia (*Magnolia virginiana*).

The IR site potentially affecting Wetland 57 is Site 4. In the 1950s, rubble from the former Fort Barrancas was disposed in the area of Site 4. The rubble included timber, pipes, mattresses, and other wastes. None of the wastes was documented as being incinerated before disposal. Elevated metals concentrations in site soil were similar to those identified at previously investigated sites in the eastern portion of NAS Pensacola (E/A&H, 1997e). The detected PAH contaminants were likely associated with routine activities, such as automobile traffic or the asphalt pavement (E/A&H, 1997e). The USEPA (USEPA Region 4, 1997b) and FDEP (FDEP, 1997c) approved remedial alternative for Site 4 was no action.

### 15.3.2 Wetland 57 — Sample Location Description

#### Phase II Sediment Sample Location Description

One sediment samples was collected and analyzed for the Wetland 57 ERA. The sample location is shown on Figure 15-4. Table 15-3-1 provides a physical description of the sediment collected at Wetland 57. Sediment at Wetland 57 was described as dark grayish brown poorly graded fine sand with a TOC concentration of 2.6%.

#### Phase II Surface Water Sample Location Description

One surface water sample was collected at Wetland 57, location 041W570101 (Figure 15-4), which was collocated with sediment location 041M570101. The surface water sample was taken during the 1995 site investigation. Table 15-3-2 provides a physical description of the surface water collected at Wetland 57. Surface water at Wetland 57 had a pH concentration of 6.44. Specific conductivity concentration was 0.455 mS/cm. Hardness as $CaCO_3$ reported a concentration of 55 mg/L, and salinity was 0.01%. Surface water at Wetland 57 had a turbidity reading of 280 NTUs.

### 15.3.3 Nature and Extent of Contamination

#### Phase II Sediment

Figure 15-4 presents the Phase II sediment sampling location for Wetland 57. Table 15-3-3 presents a summary of the analytical results of the one Phase II sediment sample.

**Metals** — Eighteen metals were detected during Phase II sediment sampling at Wetland 57. The inorganic detections at location 041M570101, located at the east end of the wetland, were all below the freshwater reference concentrations.

**Pesticides and PCBs** — Six pesticide compounds and the PCB aroclor-1260 were detected during Phase II sediment sampling at Wetland 57. Total DDT was calculated for each location by adding the concentrations of 4,4′-DDD, 4,4′-DDE, and 4,4′-DDT. Likewise, a basewide total DDT reference concentration was calculated using the basewide concentrations for these same constituents.

Concentrations of 4,4′-DDD, 4,4′-DDE, 4,4′-DDT, and the total DDT concentrations were below the basewide reference concentration. Similarly low concentrations of total DDT's metabolites (aldrin, beta-BHC, and gamma-BHC) were also detected. Reference concentrations for these pesticides and aroclor-1260 were not available.

**SVOCs** — Three SVOCs were detected during the Phase II sediment sampling, namely benzo(b)fluoranthene, fluoranthene, and pyrene. SVOC concentrations were relatively low with the maximum detection of 72 µg/kg. No reference concentrations exist for the detected SVOC compounds.

**VOCs** — One VOC was detected in the sediment collected from Wetland 57 during Phase II sampling. Acetone, a common laboratory artifact, was detected at low concentrations (49 mg/kg). No freshwater reference concentration exists for acetone.

**Phase II Surface Water**

Figure 15-4 presents the Phase II surface water sampling location for Wetland 57. Table 15-3-4 present a summary of the analytical results of the one Phase II surface water sample.

**Metals** — Twelve metals were detected in the Phase II surface water sample taken from Wetland 57. Sample 041W570101, collocated with the sediment sample, was collected from the east end of the wetland. Nine of the detected metals exceeded the freshwater reference concentration, namely aluminum, barium, calcium, copper, iron, lead, manganese, vanadium, and zinc with the highest exceedance being attributed to manganese.

**Pesticides and PCBs** — No pesticides or PCBs were detected during Phase II surface water sampling at Wetland 57.

**SVOCs** — No SVOCs were not detected during Phase II surface water sampling at Wetland 57.

**VOCs** — Methylene chloride, a common laboratory artifact, was the only VOC detected during Phase II surface water sampling at relatively low concentrations (150 µg/L). No freshwater reference concentration exists for methylene chloride.

### 15.3.4 Ecological Risk Assessment

#### Phase II Investigation Summary — Wetland 57

#### Sediment Screening — Level Risk-Exposure Estimation and Risk Calculation

As presented in Table 15-3-5, the sediment sample was compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than 1 or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-3-6.

#### Baseline Problem Formulation — Wetland 57 Sediment COPC Refinement

During the COPC refinement, additional information was used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as preliminary COPCs. This risk assessment presents a statement of potential risk for each of the COPCs.

The COPC refinement process included:

- Comparison of maximum concentrations to RVs
- Comparison of average concentrations to SVs and RVs
- Comparison to basewide (reference) concentrations for total DDT
- Comparison of inorganic constituents to reference wetland values
- Interpretative tool for metals
- Di Toro EqP SQGs for VOCs
- Comparison to Swartz consensus values
- Mean ERM quotients
- Description of exceedances of RVs and their extent

The methods used in the COPC refinement in the Site 41 ERA process is detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-3-7. Additionally, the tables compare: 1) average concentrations to screening and refinement values to assess potential exposure across the entire wetland, and 2) Wetland 57 concentrations to reference concentrations. COPCs retained after refinement are presented in Table 15-3-8.

At Wetland 57, total DDT and its daughter products were below the basewide level, indicating that these constituents are not a concern for this wetland. None of the inorganic constituents exceeded their Site 41 freshwater sediment reference concentrations; therefore, the interpretative tool for metals

was not applicable. Aldrin, benzo(b)fluoranthene, and acetone were retained during the ERA process due to lack of screening criteria. When normalized to detected TOC concentrations, both VOCs and PAHs did not appear to be risk drivers for Wetland 57.

Table 15-3-9 presents the Mean ERL and ERM values, the Mean ERM Quotients, and the Mean ERM Quotient Category by individual sample location. Based on this approach, sample location 041M570101 was determined to be Category 2, which, according to tests evaluated in developing this methodology, had average survival rates of approximately 80% of control sediments; however, this category also has the highest level of uncertainty. Figure 15-7 also shows the Mean ERM category for the sediment sample location at Wetland 57.

At Wetland 57, aldrin, benzo(b)fluoranthene, and acetone was detected at the sediment sample location 041M570101 with detections of 0.2 µg/kg, 41 µg/kg, and 49 µg/kg, respectively. No background values or screening values were available for these compounds.

**Surface Water Screening — Level Risk-Exposure Estimation and Risk Calculation**

As presented in Table 15-3-10, the surface water sample was compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than 1 or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-3-11.

**Baseline Problem Formulation — Wetland 57 Surface Water COPC Refinement**

During the surface water COPC refinement, additional information was used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as preliminary COPCs.

The COPC refinement process included:

- Comparison of maximum SV concentrations to average SV concentrations
- Comparison of inorganic constituents to reference wetland values
- Description of surface water exceedances and their extent

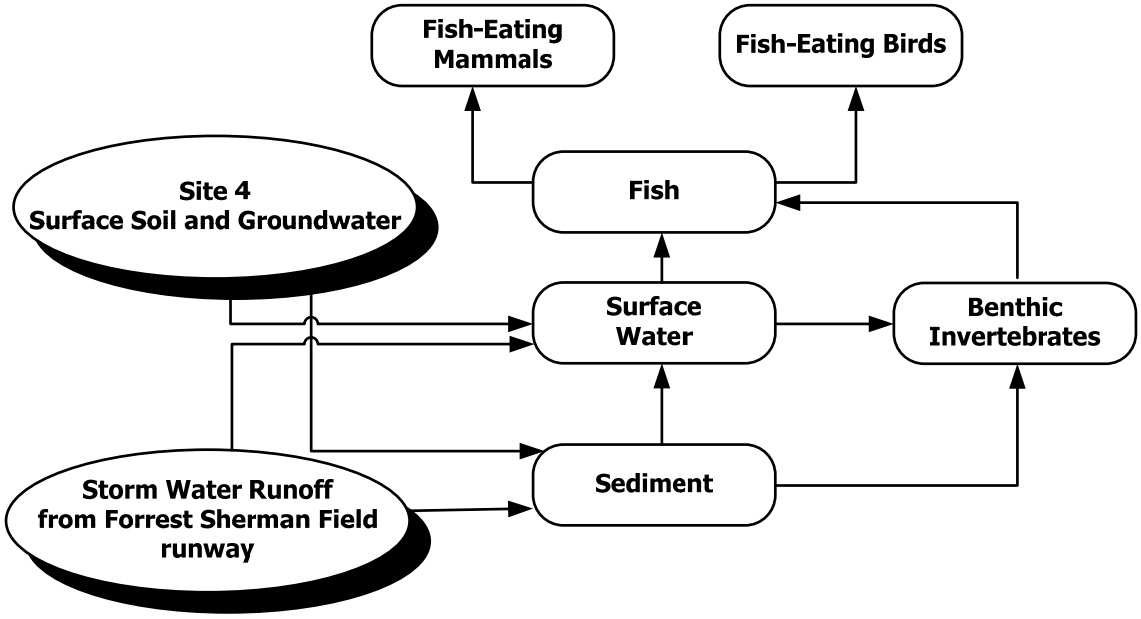
The methods used in the COPC refinement in the Site 41 ERA Process are detailed in Section 8. Comparison of maximum detected concentrations with refinement values are presented in Table 15-3-12. Additionally, the tables compare average concentrations to screening and refinement values to assess potential exposure across the entire wetland. COPCs retained after refinement are presented in Table 15-3-13.

For Wetland 57, aluminum, barium, copper, iron, lead, manganese, and vanadium exceeded their Site 41 freshwater reference surface water concentrations (Table 15-3-12) and were carried forward. Calcium also its reference concentration; however, calcium is an essential nutrient and was not retained.
At Wetland 57 during the Phase II investigation, none of the same constituents was detected in sediment and surface water samples.

Based on the Phase II results described above, Wetland 57 was identified as a Blue-Coded Wetland in the approved *Final RI/FS SAP Addendum* (E/A&H, 1997d), indicating that contaminants were present generally below screening values, and contaminants did not appear to be site related. Blue-Coded Wetlands were not assessed further in Phase III. However, to assess potential risks from contaminants that bioaccumulate, the results from Wetland 57 will be used in the remaining wetlands food-chain model presented in Section 15.8.

The conceptual model below symbolizes which environmental habitats, may be impacted by Wetland 57 Phase II constituents are retained during the ERA process.

**Wetland 57**
**Conceptual Site Model**



### 15.3.5 Wetland 57 — Human Health Risk Assessment

Wetland 57 is described in Section 15.3.1, and the HHRA is summarized below.

#### 15.3.5.1 Site Data

Section 15.3.3 summarizes the nature and extent of contamination for this wetland. Surface water and sediment data were collected at Wetland 57 during Phase II of the RI. Surface water and sediment data for 57 are summarized in Tables 15-3-3 and 15-3-4.

#### 15.3.5.2 Conceptual Site Model

As described in Section 15.3.1, Wetland 57 is north of the Oak Grove Campground (Site 39) and due south of Forrest Sherman Field. Because Wetland 57 is located in an unrestricted area of the base, the wetland is accessible to Navy personnel and trespassers. Wetland 57 intermittently floods; therefore, contact with sediment and surface water is possible.

The following scenarios and exposure pathways were evaluated for this wetland:

| Scenario | Medium | Ingestion | Dermal |
|---|---|---|---|
| Trespassers | Surface water | √ | √ |
| | Sediment | √ | √ |
| Maintenance | Surface water | √ | √ |
| | Sediment | √ | √ |

#### 15.3.5.3 Risk Characterization

The child trespasser and the adult maintenance worker scenario for surface water and sediment were assessed for this wetland as described in Section 9.

**Phase II Data**

***Trespasser***

As shown in Tables 15-3-14 through 15-3-16, sediment ingestion and dermal contact risk estimates for maintenance workers were below the FDEP risk threshold. Hazard indices were below 1.0.

As shown in Tables 15-3-17 through 15-3-19, surface water ingestion and dermal contact risk estimates for trespassers were below the FDEP risk threshold. Hazard indices were below 1.0.

***Maintenance Worker***

As shown in Tables 15-3-14 through 15-3-16, sediment ingestion and dermal contact risk estimates for maintenance workers were below the FDEP risk threshold. Hazard indices were below 1.0.

As shown in Tables 15-3-17 through 15-3-19, surface water ingestion and dermal contact risk estimates for trespassers were below the FDEP risk threshold. Hazard indices were below 1.0.

**Summary of Wetland 57 Phase II Risk Estimates**

| Scenario | Medium | Hazard Index | Risk |
|---|---|---|---|
| Maintenance | Sediment | 4.79E-03 | 3.99E-08 |
| | Surface water | 1.15E-02 | 9.48E-07 |
| Trespassers | Sediment | 7.38E-03 | 2.72E-08 |
| | Surface water | 7.63E-03 | 2.84E-07 |

Based on Phase II data, no COCs for Wetland 57 were identified.

**Wetland 57 HHRA COC Summary**

No COCs were identified in the HHRA for Wetland 57.

### 15.3.6 Wetland 57 — Fate and Transport Analysis

Forrest Sherman Field area lies on the western portion of NAS Pensacola, and hosts a number of wetlands surrounding the operational runways running southwest-northeast and north-south. These included Wetlands 19A, 19B, 48, 49, 52, 56, 57, 58, 72, W1, and W2. For the general location of these wetlands, and the location of the surface water sediment, and nearby soil and groundwater samples, see Figure 15-4.

The potential sources for these wetlands include:

- Storm water drainage and runoff from Forrest Sherman Field
- Storm water runoff, surface soil transport, and groundwater discharge from UST Site 18, OU 12, Site 5, and Sites 16a and b
- Tidal flux from Bayou Grande and Pensacola Bay also plays a role for those wetlands close to the shorelines

A number of these wetlands are somewhat isolated from known IR sites by either being located upgradient or side gradient and/or being a significant distance away. Additionally, some of these wetlands had only one surface water and/or sediment sample collected. For these wetlands, no evaluation of the inter- or intra-wetland soil-to-sediment, groundwater-to-surface water, groundwater-to-sediment, or sediment/surface water transport pathways were completed due to a lack of data. These wetlands included 48, 57, and 58.

**Table 15-3-1**
**Wetland 57 Phase II**
**Sediment Physical Parameters**

| Parameter | 041M57101 |
|---|---|
| TOC (%) | 2.6 |
| Percent Solids (%) | 50.8 |
| Grain Size Analysis | |
| (percent of composition1) | |
| Medium Sand | 15 |
| Fine Sand | 74 |
| Silt and Clay | 11 |
| Description | Dark Grayish Brown Poorly Graded Sand, Fine |

***Note:***
[1] = Derived from sieve analyses.

**Table 15-3-2**
**Wetland 57 Phase II**
**Surface Water Physical Parameters**

| Parameter | 041W57101 |
|---|---|
| Hardness as CaCO3 (mg/L) | 55 |
| pH | 6.44 |
| Specific Conductivity (mS/cm) | 0.455 |
| Turbidity (NTU) | 280 |
| Salinity (%) | 0.01 |

***Notes:***

mg/L = Milligrams per liter
pH = Hydrogen ion content
MS/cm = Millisiemens per centimeter

NTU = Nephelometric turbidity units
% = Percent

**Table 15-3-3**
**Wetland 57 Phase II**
**Sediment Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | |
| Aluminum | 13,610.0 | 0 | 1 | 1 | 5,520.0 | 5,520.0 | 5,520.0 | 041M570101 |
| Arsenic | 6.620 | 0 | 1 | 1 | 1.60 | 1.60 | 1.60 | 041M570101 |
| Barium | 14.0 | 0 | 1 | 1 | 11.30 | 11.30 | 11.30 | 041M570101 |
| Calcium | 10,756.670 | 0 | 1 | 1 | 2,720.0 | 2,720.0 | 2,720.0 | 041M570101 |
| Chromium | 39.370 | 0 | 1 | 1 | 4.80 | 4.80 | 4.80 | 041M570101 |
| Cobalt | 2.80 | 0 | 1 | 1 | 0.450 | 0.450 | 0.450 | 041M570101 |
| Copper | 19.50 | 0 | 1 | 1 | 4.90 | 4.90 | 4.90 | 041M570101 |
| Iron | 11,911.670 | 0 | 1 | 1 | 3,790.0 | 3,790.0 | 3,790.0 | 041M570101 |
| Lead | 82.470 | 0 | 1 | 1 | 17.70 | 17.70 | 17.70 | 041M570101 |
| Magnesium | 7,513.330 | 0 | 1 | 1 | 214.0 | 214.0 | 214.0 | 041M570101 |
| Manganese | 37.970 | 0 | 1 | 1 | 15.80 | 15.80 | 15.80 | 041M570101 |
| Mercury | 0.550 | 0 | 1 | 1 | 0.140 | 0.140 | 0.140 | 041M570101 |
| Nickel | 9.280 | 0 | 1 | 1 | 2.0 | 2.0 | 2.0 | 041M570101 |
| Potassium | 1,628.670 | 0 | 1 | 1 | 117.0 | 117.0 | 117.0 | 041M570101 |
| Selenium | 3.450 | 0 | 1 | 1 | 1.60 | 1.60 | 1.60 | 041M570101 |
| Sodium | 18,993.330 | 0 | 1 | 1 | 48.80 | 48.80 | 48.80 | 041M570101 |
| Vanadium | 28.670 | 0 | 1 | 1 | 9.20 | 9.20 | 9.20 | 041M570101 |
| Zinc | 36.730 | 0 | 1 | 1 | 14.70 | 14.70 | 14.70 | 041M570101 |
| **PAHs (µg/kg)** | | | | | | | | |
| Fluoranthene | N/A | 0 | 1 | 1 | 68.0 | 68.0 | 68.0 | 041M570101 |
| Pyrene | N/A | 0 | 1 | 1 | 72.0 | 72.0 | 72.0 | 041M570101 |
| Total PAHs | N/A | 0 | 1 | 1 | 493.50 | 493.50 | 494.0 | 041M570101 |
| **Pesticides and PCBs (µg/kg)** | | | | | | | | |
| Aroclor-1260 | N/A | 0 | 1 | 1 | 3.70 | 3.70 | 3.70 | 041M570101 |
| Total PCBs | N/A | 0 | 1 | 1 | 16.50 | 16.50 | 16.50 | 041M570101 |
| Aldrin | N/A | 0 | 1 | 1 | 0.20 | 0.20 | 0.20 | 041M570101 |
| beta-BHC | N/A | 0 | 1 | 1 | 0.190 | 0.190 | 0.190 | 041M570101 |
| gamma-BHC (Lindane) | N/A | 0 | 1 | 1 | 0.40 | 0.40 | 0.40 | 041M570101 |
| Total BHC | N/A | 0 | 1 | 1 | 0.770 | 0.770 | 0.770 | 041M570101 |
| 4,4'-DDD | 50.0 | 0 | 1 | 1 | 3.30 | 3.30 | 3.30 | 041M570101 |
| 4,4'-DDE | 40.0 | 0 | 1 | 1 | 7.20 | 7.20 | 7.20 | 041M570101 |
| 4,4'-DDT | 20.0 | 0 | 1 | 1 | 1.20 | 1.20 | 1.20 | 041M570101 |
| Total DDT | 110.0 | 0 | 1 | 1 | 11.70 | 11.70 | 11.70 | 041M570101 |
| **SVOCs (µg/kg)** | | | | | | | | |
| Benzo(b)fluoranthene | N/A | 0 | 1 | 1 | 41.0 | 41.0 | 41.0 | 041M570101 |
| **VOCs (µg/kg)** | | | | | | | | |
| Acetone | N/A | 0 | 1 | 1 | 49.0 | 49.0 | 49.0 | 041M570101 |

***Notes:***
µg/kg = micrograms per kilogram
mg/kg = milligram per kilogram
N/A = Not Applicable

**Table 15-3-4**
**Wetland 57 Phase II**
**Surface Water Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections | | Range of Detections | | Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| | | | Number Detected | Number Analyzed | Minimum Detection | Maximum Detection | | |
| **Metals (µg/L)** | | | | | | | | |
| Aluminum | 1,090.25 | 1 | 1 | 1 | 7,390.0 | 7,390.0 | 7,390.0 | 041W570101 |
| Barium | 3.68 | 1 | 1 | 1 | 25.3 | 25.3 | 25.3 | 041W570101 |
| Calcium | 7,675.0 | 1 | 1 | 1 | 19,400.0 | 19,400.0 | 19,400.0 | 041W570101 |
| Copper | 4.0 | 1 | 1 | 1 | 7.2 | 7.2 | 7.2 | 041W570101 |
| Iron | 2,360.0 | 1 | 1 | 1 | 7,360.0 | 7,360.0 | 7,360.0 | 041W570101 |
| Lead | 3.2 | 1 | 1 | 1 | 16.9 | 16.9 | 16.9 | 041W570101 |
| Magnesium | 20,260.0 | 0 | 1 | 1 | 1,570.0 | 1,570.0 | 1,570.0 | 041W570101 |
| Manganese | 13.2 | 1 | 1 | 1 | 134.0 | 134.0 | 134.0 | 041W570101 |
| Potassium | 6,995.0 | 0 | 1 | 1 | 1,040.0 | 1,040.0 | 1,040.0 | 041W570101 |
| Sodium | 182,200.0 | 0 | 1 | 1 | 6,470.0 | 6,470.0 | 6,470.0 | 041W570101 |
| Vanadium | 4.7 | 1 | 1 | 1 | 12.2 | 12.2 | 12.2 | 041W570101 |
| Zinc | 5.53 | 1 | 1 | 1 | 17.5 | 17.5 | 17.5 | 041W570101 |
| **VOCs (µg/L)** | | | | | | | | |
| Methylene chloride | N/A | 0 | 1 | 1 | 150.0 | 150.0 | 150.0 | 041W570101 |

***Notes:***
µg/L = micrograms per liter
N/A = Not Applicable

**Table 15-3-5**
**Wetland 57 Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | 5,520 | 5,520 | 041M570101 | 5,520 | | | N/A | | Yes | No SV |
| Arsenic | 1 | 1 | | | 1.6 | 1.6 | 041M570101 | 1.6 | | 7.24 | 1, 2 | 0.22 | No | Max Detect < SV |
| Barium | 1 | 1 | | | 11.3 | 11.3 | 041M570101 | 11.3 | J | | N/A | | Yes | No SV |
| Beryllium | 0 | 1 | 0.05 | 0.05 | | | ND | 0.05 | U | | N/A | | Yes | No SV |
| Cadmium | 0 | 1 | 0.155 | 0.155 | | | ND | 0.155 | U | 0.676 | 1 | 0.23 | No | Max SQL< SV |
| Calcium | 1 | 1 | | | 2,720 | 2,720 | 041M570101 | 2,720 | | | N/A | | Yes | No SV |
| Chromium | 1 | 1 | | | 4.8 | 4.8 | 041M570101 | 4.8 | J | 52.3 | 1, 2 | 0.09 | No | Max Detect < SV |
| Cobalt | 1 | 1 | | | 0.45 | 0.45 | 041M570101 | 0.45 | J | | N/A | | Yes | No SV |
| Copper | 1 | 1 | | | 4.9 | 4.9 | 041M570101 | 4.9 | | 18.7 | 1, 2 | 0.26 | No | Max Detect < SV |
| Cyanide (CN) | 0 | 1 | 0.475 | 0.475 | | | ND | 0.475 | U | | N/A | | Yes | No SV |
| Iron | 1 | 1 | | | 3,790 | 3,790 | 041M570101 | 3,790 | | | N/A | | Yes | No SV |
| Lead | 1 | 1 | | | 17.7 | 17.7 | 041M570101 | 17.7 | | 30.2 | 1, 2 | 0.59 | No | Max Detect < SV |
| Magnesium | 1 | 1 | | | 214 | 214 | 041M570101 | 214 | J | | N/A | | Yes | No SV |
| Manganese | 1 | 1 | | | 15.8 | 15.8 | 041M570101 | 15.8 | | | N/A | | Yes | No SV |
| **Mercury** | **1** | **1** | | | **0.14** | **0.14** | **041M570101** | **0.14** | **J** | **0.13** | **1, 2** | **1.08** | **Yes** | **Max Detect > SV** |
| Nickel | 1 | 1 | | | 2 | 2 | 041M570101 | 2 | J | 15.9 | 1, 2 | 0.13 | No | Max Detect < SV |
| Potassium | 1 | 1 | | | 117 | 117 | 041M570101 | 117 | J | | N/A | | Yes | No SV |
| Selenium | 1 | 1 | | | 1.6 | 1.6 | 041M570101 | 1.6 | | | N/A | | Yes | No SV |
| Silver | 0 | 1 | 0.205 | 0.205 | | | ND | 0.205 | U | 0.733 | 1 | 0.28 | No | Max SQL< SV |
| Sodium | 1 | 1 | | | 48.8 | 48.8 | 041M570101 | 48.8 | J | | N/A | | Yes | No SV |
| Thallium | 0 | 1 | 0.155 | 0.155 | | | ND | 0.155 | UJ | | N/A | | Yes | No SV |
| Vanadium | 1 | 1 | | | 9.2 | 9.2 | 041M570101 | 9.2 | | | N/A | | Yes | No SV |
| Zinc | 1 | 1 | | | 14.7 | 14.7 | 041M570101 | 14.7 | | 124 | 1, 2 | 0.12 | No | Max Detect < SV |
| **PAHs (µg/kg)** | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | 20.2 | 1 | 1.76 | No | TOC Normalized PAHs<TEC |
| Acenaphthene | 0 | 1 | 17 | 17 | | | ND | 17 | U | 6.71 | 1 | 2.53 | No | TOC Normalized PAHs<TEC |
| Acenaphthylene | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | 5.87 | 1 | 6.05 | No | TOC Normalized PAHs<TEC |
| Anthracene | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | 46.9 | 1 | 0.76 | No | TOC Normalized PAHs<TEC |
| Benzo(a)anthracene | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | 74.8 | 1 | 0.48 | No | TOC Normalized PAHs<TEC |
| Benzo(a)pyrene | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | 88.8 | 1 | 0.4 | No | TOC Normalized PAHs<TEC |
| Chrysene | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | 108 | 1 | 0.33 | No | TOC Normalized PAHs<TEC |
| Dibenz(a,h)anthracene | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | 6.22 | 1 | 5.71 | No | TOC Normalized PAHs<TEC |
| Fluoranthene | 1 | 1 | | | 68 | 68 | 041M570101 | 68 | J | 113 | 1 | 0.60 | No | TOC Normalized PAHs<TEC |
| Fluorene | 0 | 1 | 17 | 17 | | | ND | 17 | U | 21.2 | 1 | 0.80 | No | TOC Normalized PAHs<TEC |
| Naphthalene | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | 34.6 | 1 | 1.03 | No | TOC Normalized PAHs<TEC |
| Phenanthrene | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | 86.7 | 1 | 0.41 | No | TOC Normalized PAHs<TEC |
| Pyrene | 1 | 1 | | | 72 | 72 | 041M570101 | 72 | | 153 | 1 | 0.47 | No | TOC Normalized PAHs<TEC |
| Total PAHs | 1 | 1 | | | 494 | 494 | 041M570101 | 494 | | 1,684 | 1, 2 | 0.29 | No | TOC Normalized PAHs<TEC |
| TOC Normalized PAHs | 1 | 1 | | | 18.98 | 18.98 | 041M570101 | 18.98 | | 290 | 3 | 0.07 | No | Max Detect < SV |
| **PCBs (µg/kg)** | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 1.85 | 1.85 | | | ND | 1.85 | U | 21.6 | N/A | 0.09 | No | Max SQL< SV |
| Aroclor-1221 | 0 | 1 | 3.55 | 3.55 | | | ND | 3.55 | U | 67 | 2 | 0.05 | No | Max SQL< SV |
| Aroclor-1232 | 0 | 1 | 1.85 | 1.85 | | | ND | 1.85 | U | 21.6 | N/A | 0.09 | No | Max SQL< SV |
| Aroclor-1242 | 0 | 1 | 1.85 | 1.85 | | | ND | 1.85 | U | 21.6 | N/A | 0.09 | No | Max SQL< SV |
| Aroclor-1248 | 0 | 1 | 1.85 | 1.85 | | | ND | 1.85 | U | 21.6 | N/A | 0.09 | No | Max SQL< SV |
| Aroclor-1254 | 0 | 1 | 1.85 | 1.85 | | | ND | 1.85 | U | 21.6 | N/A | 0.09 | No | Max SQL< SV |
| Aroclor-1260 | 1 | 1 | | | 3.7 | 3.7 | 041M570101 | 3.7 | | 21.6 | N/A | 0.17 | No | Max Detect < SV |
| Total PCBs | 1 | 1 | | | 16.5 | 16.5 | 041M570101 | 16.5 | | 21.6 | 1 | 0.76 | No | Max Detect < SV |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | |
| Aldrin | 1 | 1 | | | 0.2 | 0.2 | 041M570101 | 0.2 | J | | N/A | | Yes | No SV |
| Dieldrin | 0 | 1 | 0.185 | 0.185 | | | ND | 0.185 | U | 0.716 | 1 | 0.26 | No | Max SQL< SV |
| Endosulfan I | 0 | 1 | 0.185 | 0.185 | | | ND | 0.185 | U | | N/A | | Yes | No SV |
| Endosulfan II | 0 | 1 | 0.185 | 0.185 | | | ND | 0.185 | U | | N/A | | Yes | No SV |
| Endosulfan sulfate | 0 | 1 | 0.185 | 0.185 | | | ND | 0.185 | U | | N/A | | Yes | No SV |
| Heptachlor | 0 | 1 | 0.09 | 0.09 | | | ND | 0.09 | U | | N/A | | Yes | No SV |
| Heptachlor epoxide | 0 | 1 | 0.09 | 0.09 | | | ND | 0.09 | U | | N/A | | Yes | No SV |
| Methoxychlor | 0 | 1 | 0.9 | 0.9 | | | ND | 0.9 | UJ | | N/A | | Yes | No SV |
| Toxaphene | 0 | 1 | 9 | 9 | | | ND | 9 | U | | N/A | | Yes | No SV |
| alpha-Chlordane | 0 | 1 | 0.09 | 0.09 | | | ND | 0.09 | U | 1.7 | 1 | 0.05 | No | Max SQL< SV |
| gamma-Chlordane | 0 | 1 | 0.09 | 0.09 | | | ND | 0.09 | U | 1.7 | 1 | 0.05 | No | Max SQL< SV |
| Total Chlordane | 0 | 1 | 0.18 | 0.18 | | | ND | 0.18 | U | 1.7 | 1 | 0.11 | No | Max SQL< SV |
| Endrin | 0 | 1 | 0.185 | 0.185 | | | ND | 0.185 | U | 3.3 | 2 | 0.06 | No | Max SQL< SV |
| Endrin aldehyde | 0 | 1 | 0.185 | 0.185 | | | ND | 0.185 | U | 3.3 | 2 | 0.06 | No | Max SQL< SV |
| Endrin ketone | 0 | 1 | 0.185 | 0.185 | | | ND | 0.185 | U | 3.3 | 2 | 0.06 | No | Max SQL< SV |
| Total Endrin | 0 | 1 | 0.555 | 0.555 | | | ND | 0.555 | U | 3.3 | 2 | 0.17 | No | Max SQL< SV |
| alpha-BHC | 0 | 1 | 0.09 | 0.09 | | | ND | 0.09 | U | | N/A | | Yes | No SV |
| beta-BHC | 1 | 1 | | | 0.19 | 0.19 | 041M570101 | 0.19 | J | 0.32 | N/A | 0.59 | No | Max Detect < SV |
| delta-BHC | 0 | 1 | 0.09 | 0.09 | | | ND | 0.09 | U | 0.32 | N/A | 0.28 | No | Max SQL< SV |
| **gamma-BHC (Lindane)** | **1** | **1** | | | **0.4** | **0.4** | **041M570101** | **0.4** | **J** | **0.32** | **1** | **1.25** | **Yes** | **Max Detect > SV** |
| **Total BHC** | **1** | **1** | | | **0.77** | **0.77** | **041M570101** | **0.77** | | **0.32** | **2** | **2.41** | **Yes** | **Max Detect > SV** |
| **4,4'-DDD** | **1** | **1** | | | **3.3** | **3.3** | **041M570101** | **3.3** | **J** | **1.22** | **1** | **2.7** | **Yes** | **Max Detect > SV** |
| **4,4'-DDE** | **1** | **1** | | | **7.2** | **7.2** | **041M570101** | **7.2** | **J** | **2.07** | **1** | **3.48** | **Yes** | **Max Detect > SV** |
| **4,4'-DDT** | **1** | **1** | | | **1.2** | **1.2** | **041M570101** | **1.2** | **J** | **1.19** | **1** | **1.01** | **Yes** | **Max Detect > SV** |
| **Total DDT** | **1** | **1** | | | **11.7** | **11.7** | **041M570101** | **11.7** | | **3.3** | **2** | **3.55** | **Yes** | **Max Detect > SV** |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 1 | 850 | 850 | | | ND | 850 | U | | N/A | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 1 | 850 | 850 | | | ND | 850 | U | | N/A | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 2-Chlorophenol | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 850 | 850 | | | ND | 850 | U | | N/A | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 2-Nitroaniline | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 2-Nitrophenol | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 3-Nitroaniline | 0 | 1 | 850 | 850 | | | ND | 850 | U | | N/A | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 4-Chloroaniline | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| 4-Nitroaniline | 0 | 1 | 850 | 850 | | | ND | 850 | U | | N/A | | Yes | No SV |
| 4-Nitrophenol | 0 | 1 | 850 | 850 | | | ND | 850 | U | | N/A | | Yes | No SV |
| Benzo(b)fluoranthene | 1 | 1 | | | 41 | 41 | 041M570101 | 41 | J | | N/A | | No | TOC Normalized PAHs<TEC |
| Benzo(g,h,i)perylene | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| Benzo(k)fluoranthene | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| bis(2-Chloroethoxy)methane | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | | N/A | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 355 | 355 | | | ND | 355 | U | 182 | 1, 2 | 1.95 | Yes | Max SQL > SV |
| Butylbenzylphthalate | 0 | 1 | 355 | 355 | | | ND | 355 | U | 182 | 1, 2 | 1.95 | Yes | Max SQL > SV |
| Carbazole | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| Dibenzofuran | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| Diethylphthalate | 0 | 1 | 355 | 355 | | | ND | 355 | U | 182 | 1, 2 | 1.95 | Yes | Max SQL > SV |
| Dimethylphthalate | 0 | 1 | 355 | 355 | | | ND | 355 | U | 182 | 1, 2 | 1.95 | Yes | Max SQL > SV |
| Di-n-butylphthalate | 0 | 1 | 355 | 355 | | | ND | 355 | U | 182 | 1, 2 | 1.95 | Yes | Max SQL > SV |
| Di-n-octylphthalate | 0 | 1 | 355 | 355 | | | ND | 355 | U | 182 | 1, 2 | 1.95 | Yes | Max SQL > SV |
| Hexachlorobenzene | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| Hexachlorobutadiene | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| Hexachloroethane | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| Isophorone | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| Nitrobenzene | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 1 | 35.5 | 35.5 | | | ND | 35.5 | U | | N/A | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |
| Pentachlorophenol | 0 | 1 | 850 | 850 | | | ND | 850 | U | | N/A | | Yes | No SV |
| Phenol | 0 | 1 | 355 | 355 | | | ND | 355 | U | | N/A | | Yes | No SV |

**Table 15-3-5**
**Wetland 57 Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethane | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethene (total) | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| 2-Butanone (MEK) | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| 2-Hexanone | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Acetone | 1 | 1 | | | 49 | 49 | 041M570101 | 49 | | | N/A | | Yes | No SV |
| Benzene | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Bromodichloromethane | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Bromoform | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Bromomethane | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Carbon disulfide | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Carbon tetrachloride | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Chlorobenzene | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Chloroethane | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Chloroform | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Chloromethane | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Dibromochloromethane | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Ethylbenzene | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Methylene chloride | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Styrene | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Tetrachloroethene | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Toluene | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Trichloroethene | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Vinyl chloride | 0 | 1 | 3 | 3 | | | ND | 3 | U | | N/A | | Yes | No SV |
| Xylene (Total) | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |

***Notes:***

Sources for Screening Values:
SV = Screening Value
1 = USEPA Region 4 Screening Value. Detailed explanation for SVs provided in Section 8.0.
2 = FDEP Threshold effects level

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available.
U or ND = Not Detected at or above the SQL
J = Estimated value
SHQ = Screening Hazard Quotient

D = Diluted Result
mg/kg = milligrams per kilograms
µg/kg = micrograms per kilograms
mg/kg oc = milligrams per kilograms - organic carbon
UJ = Not detected. SQL is estimated.
Parameters in bold were detected and exceeded screening values.

**Table 15-3-6**
**Wetland 57 Phase II**
**Sediment COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | 4,4'-DDD | None | Acetone |
| Barium | 4,4'-DDE | | |
| Calcium | 4,4'-DDT | | |
| Cobalt | Aldrin | | |
| Iron | gamma-BHC (Lindane) | | |
| Magnesium | Total BHC | | |
| Manganese | Total DDT | | |
| Mercury | | | |
| Potassium | | | |
| Selenium | | | |
| Sodium | | | |
| Vanadium | | | |
| | | **Not Detected Parameters** | |
| Beryllium | alpha-BHC | 1,2,4-Trichlorobenzene | 1,1,1-Trichloroethane |
| Cyanide (CN) | Endosulfan I | 1,2-Dichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Thallium | Endosulfan II | 1,3-Dichlorobenzene | 1,1,2-Trichloroethane |
| | Endosulfan sulfate | 1,4-Dichlorobenzene | 1,1-Dichloroethane |
| | Heptachlor | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1-Dichloroethene |
| | Heptachlor epoxide | 2,4,5-Trichlorophenol | 1,2-Dichloroethane |
| | Methoxychlor | 2,4,6-Trichlorophenol | 1,2-Dichloroethene (total) |
| | Toxaphene | 2,4-Dichlorophenol | 1,2-Dichloropropane |
| | | 2,4-Dimethylphenol | 2-Butanone (MEK) |
| | | 2,4-Dinitrophenol | 2-Hexanone |
| | | 2,4-Dinitrotoluene | 4-Methyl-2-Pentanone (MIBK) |
| | | 2,6-Dinitrotoluene | Benzene |
| | | 2-Chloronaphthalene | Bromodichloromethane |
| | | 2-Chlorophenol | Bromoform |
| | | 2-Methyl-4,6-Dinitrophenol | Bromomethane |
| | | 2-Methylphenol (o-Cresol) | Carbon disulfide |
| | | 2-Nitroaniline | Carbon tetrachloride |
| | | 2-Nitrophenol | Chlorobenzene |
| | | 3,3'-Dichlorobenzidine | Chloroethane |
| | | 3-Nitroaniline | Chloroform |
| | | 4-Bromophenyl-phenylether | Chloromethane |
| | | 4-Chloro-3-methylphenol | cis-1,3-Dichloropropene |
| | | 4-Chloroaniline | Dibromochloromethane |
| | | 4-Chlorophenylphenyl ether | Ethylbenzene |
| | | 4-Methylphenol (p-Cresol) | Methylene chloride |
| | | 4-Nitroaniline | Styrene |
| | | 4-Nitrophenol | Tetrachloroethene |
| | | bis(2-Chloroethoxy)methane | Toluene |
| | | bis(2-Chloroethyl)ether | trans-1,3-Dichloropropene |
| | | bis(2-Ethylhexyl)phthalate (BEHP) | Trichloroethene |
| | | Butylbenzylphthalate | Vinyl chloride |
| | | Carbazole | Xylene (Total) |
| | | Dibenzofuran | |
| | | Diethylphthalate | |
| | | Dimethylphthalate | |
| | | Di-n-butylphthalate | |
| | | Di-n-octylphthalate | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |

**Table 15-3-7**
**Wetland 57 Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | | 5,520 | 5,520 | 5,520 | 5,520 | | 041M570101 | | | NA | | | | | 0 | 13,610 | 0 | No | EPC < RC |
| Barium | 1 | 1 | | | | 11.3 | 11.3 | 11.3 | 11.3 | J | 041M570101 | | | NA | | | | | 0 | 14 | 0 | No | EPC < RC |
| Beryllium | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | 0.05 | U | ND | | | NA | | | | | 0 | 0.84 | 0 | No | Parameter Not Detected |
| Calcium | 1 | 1 | | | | 2,720 | 2,720 | 2,720 | 2,720 | | 041M570101 | | | NA | | | | | 0 | 10,756.67 | 0 | No | EPC < RC |
| Cobalt | 1 | 1 | | | | 0.45 | 0.45 | 0.45 | 0.45 | J | 041M570101 | | | NA | | | | | 0 | 2.8 | 0 | No | EPC < RC |
| Cyanide (CN) | 0 | 1 | 0.475 | 0.475 | 0.475 | 0.475 | | | 0.475 | U | ND | | | NA | | | | | 0 | 5.22 | 0 | No | Parameter Not Detected |
| Iron | 1 | 1 | | | | 3,790 | 3,790 | 3,790 | 3,790 | | 041M570101 | | | NA | | | | | 0 | 11,911.67 | 0 | No | EPC < RC |
| Magnesium | 1 | 1 | | | | 214 | 214 | 214 | 214 | J | 041M570101 | | | NA | | | | | 0 | 7,513.33 | 0 | No | EPC < RC |
| Manganese | 1 | 1 | | | | 15.8 | 15.8 | 15.8 | 15.8 | | 041M570101 | | | NA | | | | | 0 | 37.97 | 0 | No | EPC < RC |
| Mercury | 1 | 1 | | | | 0.14 | 0.14 | 0.14 | 0.14 | J | 041M570101 | 0.13 | 0.696 | PEL | 1.08 | 1.08 | 0.20 | 0.20 | 0 | 0.55 | 0 | No | EPC < RC and RV |
| Potassium | 1 | 1 | | | | 117 | 117 | 117 | 117 | J | 041M570101 | | | NA | | | | | 0 | 1,628.67 | 0 | No | EPC < RC |
| Selenium | 1 | 1 | | | | 1.6 | 1.6 | 1.6 | 1.6 | | 041M570101 | | | NA | | | | | 0 | 3.45 | 0 | No | EPC < RC |
| Sodium | 1 | 1 | | | | 48.8 | 48.8 | 48.8 | 48.8 | J | 041M570101 | | | NA | | | | | 0 | 18,993.33 | 0 | No | EPC < RC |
| Thallium | 0 | 1 | 0.155 | 0.155 | 0.155 | 0.155 | | | 0.155 | UJ | ND | | | NA | | | | | 0 | 1.57 | 0 | No | Parameter Not Detected |
| Vanadium | 1 | 1 | | | | 9.2 | 9.2 | 9.2 | 9.2 | | 041M570101 | | | NA | | | | | 0 | 28.67 | 0 | No | EPC < RC |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aldrin | 1 | 1 | | | | 0.2 | 0.2 | 0.2 | 0.2 | J | 041M570101 | | | NA | | | | | 0 | | 0 | Yes | No SV, no RV, and no RC |
| Endosulfan I | 0 | 1 | 0.185 | 0.185 | 0.185 | 0.185 | | | 0.185 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan II | 0 | 1 | 0.185 | 0.185 | 0.185 | 0.185 | | | 0.185 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan sulfate | 0 | 1 | 0.185 | 0.185 | 0.185 | 0.185 | | | 0.185 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor | 0 | 1 | 0.09 | 0.09 | 0.09 | 0.09 | | | 0.09 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor epoxide | 0 | 1 | 0.09 | 0.09 | 0.09 | 0.09 | | | 0.09 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Methoxychlor | 0 | 1 | 0.9 | 0.9 | 0.9 | 0.9 | | | 0.9 | UJ | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toxaphene | 0 | 1 | 9 | 9 | 9 | 9 | | | 9 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| alpha-BHC | 0 | 1 | 0.09 | 0.09 | 0.09 | 0.09 | | | 0.09 | U | ND | | 0.99 | PEL | | | 0.09 | 0.09 | 0 | | 0 | No | Parameter Not Detected |
| beta-BHC | 1 | 1 | | | | 0.19 | 0.19 | 0.19 | 0.19 | J | 041M570101 | 0.32 | 0.99 | PEL | 0.59 | 0.59 | 0.19 | 0.19 | 0 | | 0 | No | RV HQ <1 and no RC |
| gamma-BHC (Lindane) | 1 | 1 | | | | 0.4 | 0.4 | 0.4 | 0.4 | J | 041M570101 | 0.32 | 0.99 | PEL | 1.25 | 1.25 | 0.40 | 0.40 | 0 | | 0 | No | RV HQ <1 and no RC |
| Total BHC | 1 | 1 | | | | 0.77 | 0.77 | 0.77 | 0.77 | | 041M570101 | 0.32 | 0.99 | PEL | 2.41 | 2.41 | 0.78 | 0.78 | 0 | | 0 | No | RV HQ <1 and no RC |
| 4,4'-DDD | 1 | 1 | | | | 3.3 | 3.3 | 3.3 | 3.3 | J | 041M570101 | 1.22 | 7.81 | PEL | 2.7 | 2.7 | 0.42 | 0.42 | 0 | 50 | 0 | No | EPC < RC and RV |
| 4,4'-DDE | 1 | 1 | | | | 7.2 | 7.2 | 7.2 | 7.2 | J | 041M570101 | 2.07 | 374 | PEL | 3.48 | 3.48 | 0.02 | 0.02 | 0 | 40 | 0 | No | EPC < RC and RV |
| 4,4'-DDT | 1 | 1 | | | | 1.2 | 1.2 | 1.2 | 1.2 | J | 041M570101 | 1.19 | 4.77 | PEL | 1.01 | 1.01 | 0.25 | 0.25 | 0 | 20 | 0 | No | EPC < RC and RV |
| Total DDT | 1 | 1 | | | | 11.7 | 11.7 | 11.7 | 11.7 | | 041M570101 | 3.3 | 51.7 | PEL | 3.55 | 3.55 | 0.23 | 0.23 | 0 | 110 | 0 | No | EPC < RC and RV |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichlorobenzene | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,4-Dichlorobenzene | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,5-Trichlorophenol | 0 | 1 | 850 | 850 | 850 | 850 | | | 850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,6-Trichlorophenol | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dichlorophenol | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dimethylphenol | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrophenol | 0 | 1 | 850 | 850 | 850 | 850 | | | 850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrotoluene | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,6-Dinitrotoluene | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chloronaphthalene | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chlorophenol | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 850 | 850 | 850 | 850 | | | 850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitroaniline | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitrophenol | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3,3'-Dichlorobenzidine | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3-Nitroaniline | 0 | 1 | 850 | 850 | 850 | 850 | | | 850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Bromophenyl-phenylether | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chloro-3-methylphenol | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chloroaniline | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chlorophenylphenyl ether | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitroaniline | 0 | 1 | 850 | 850 | 850 | 850 | | | 850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitrophenol | 0 | 1 | 850 | 850 | 850 | 850 | | | 850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethoxy)methane | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethyl)ether | 0 | 1 | 35.5 | 35.5 | 35.5 | 35.5 | | | 35.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | 182 | 2,647 | PEL | 1.95 | 1.95 | 0.13 | 0.13 | 0 | | 0 | No | Parameter Not Detected |
| Butylbenzylphthalate | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | 182 | 2,647 | PEL | 1.95 | 1.95 | 0.13 | 0.13 | 0 | | 0 | No | Parameter Not Detected |
| Carbazole | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dibenzofuran | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Diethylphthalate | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | 182 | 2,647 | PEL | 1.95 | 1.95 | 0.13 | 0.13 | 0 | | 0 | No | Parameter Not Detected |
| Dimethylphthalate | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | 182 | 2,647 | PEL | 1.95 | 1.95 | 0.13 | 0.13 | 0 | | 0 | No | Parameter Not Detected |
| Di-n-butylphthalate | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | 182 | 2,647 | PEL | 1.95 | 1.95 | 0.13 | 0.13 | 0 | | 0 | No | Parameter Not Detected |
| Di-n-octylphthalate | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | 182 | 2,647 | PEL | 1.95 | 1.95 | 0.13 | 0.13 | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobenzene | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobutadiene | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorocyclopentadiene | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachloroethane | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Isophorone | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |

**Table 15-3-7**
**Wetland 57 Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrobenzene | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitroso-di-n-propylamine | 0 | 1 | 35.5 | 35.5 | 35.5 | 35.5 | | | 35.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitrosodiphenylamine | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Pentachlorophenol | 0 | 1 | 850 | 850 | 850 | 850 | | | 850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Phenol | 0 | 1 | 355 | 355 | 355 | 355 | | | 355 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| **VOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2-Trichloroethane | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethane | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethene | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethane | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethene (total) | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloropropane | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Butanone (MEK) | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Hexanone | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Acetone | 1 | 1 | | | | 49 | 49 | 49 | 49 | | 041M570101 | | | NA | | | | | 0 | | 0 | Yes | No SV, no RV, and no RC |
| Benzene | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromodichloromethane | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromoform | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromomethane | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon disulfide | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon tetrachloride | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chlorobenzene | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroethane | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroform | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloromethane | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| cis-1,3-Dichloropropene | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dibromochloromethane | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Ethylbenzene | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Methylene chloride | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Styrene | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Tetrachloroethene | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toluene | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| trans-1,3-Dichloropropene | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Trichloroethene | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Vinyl chloride | 0 | 1 | 3 | 3 | 3 | 3 | | | 3 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Xylene (Total) | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |

***Notes:***

Sources for Refinement Values (RVs):
PEL = FDEP Probable Effects Level
MEC = Swartz Midrange Effect Concentration

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
Parameters in bold were detected and exceeded screening values.

J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
PEL = Probable effects level.

N/R = No refinement value available.
N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters.
As a result, some average detections may exceed the maximum detections
NAS Pensacola basewide levels used as reference values for 4,4'-DDT, 4,4'-DDD, 4,4'-DDE and total DDT.

**Table 15-3-8**
**Wetland 57 Phase II**
**Sediment COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| None | Aldrin | None | None |

**Table 15-3-9**
**Wetland 57 Phase II**
**Mean ERM Quotient**

| Sample ID | Sample Date | Units | Result | VQUAL | Parameter | ERL | ERM | ERM Quotient |
|---|---|---|---|---|---|---|---|---|
| 041M570101 | 11/29/1995 | mg/kg | 1.6 | | Arsenic | 8.2 | 70 | 0.02 |
| 041M570101 | 11/29/1995 | mg/kg | 0.155 | U | Cadmium | 1.2 | 9.6 | 0.02 |
| 041M570101 | 11/29/1995 | mg/kg | 4.8 | J | Chromium | 81 | 370 | 0.01 |
| 041M570101 | 11/29/1995 | mg/kg | 4.9 | | Copper | 34 | 270 | 0.02 |
| 041M570101 | 11/29/1995 | mg/kg | 17.7 | | Lead | 46.7 | 218 | 0.08 |
| 041M570101 | 11/29/1995 | mg/kg | 0.14 | J | Mercury | 0.15 | 0.71 | 0.20 |
| 041M570101 | 11/29/1995 | mg/kg | 2 | J | Nickel | 20.9 | 51.6 | 0.04 |
| 041M570101 | 11/29/1995 | mg/kg | 0.205 | U | Silver | 1 | 3.7 | 0.06 |
| 041M570101 | 11/29/1995 | mg/kg | 14.7 | | Zinc | 150 | 410 | 0.04 |
| 041M570101 | 11/29/1995 | µg/kg | 7.2 | J | 4,4'-DDE | 2.2 | 27 | 0.27 |
| 041M570101 | 11/29/1995 | µg/kg | 1.2 | J | 4,4'-DDT | 1.58 | 46.1 | 0.03 |
| 041M570101 | 11/29/1995 | µg/kg | 16.5 | | Total PCBs | 22.7 | 180 | 0.09 |
| 041M570101 | 11/29/1995 | µg/kg | 35.5 | U | 2-Methylnaphthalene | 70 | 670 | 0.05 |
| 041M570101 | 11/29/1995 | µg/kg | 17 | U | Acenaphthene | 16 | 500 | 0.03 |
| 041M570101 | 11/29/1995 | µg/kg | 35.5 | U | Acenaphthylene | 44 | 640 | 0.06 |
| 041M570101 | 11/29/1995 | µg/kg | 35.5 | U | Anthracene | 85.3 | 1,100 | 0.03 |
| 041M570101 | 11/29/1995 | µg/kg | 35.5 | U | Benzo(a)anthracene | 261 | 1,600 | 0.02 |
| 041M570101 | 11/29/1995 | µg/kg | 35.5 | U | Benzo(a)pyrene | 430 | 1,600 | 0.02 |
| 041M570101 | 11/29/1995 | µg/kg | 35.5 | U | Chrysene | 384 | 2,800 | 0.01 |
| 041M570101 | 11/29/1995 | µg/kg | 35.5 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.14 |
| 041M570101 | 11/29/1995 | µg/kg | 68 | J | Fluoranthene | 600 | 5,100 | 0.01 |
| 041M570101 | 11/29/1995 | µg/kg | 17 | U | Fluorene | 19 | 540 | 0.03 |
| 041M570101 | 11/29/1995 | µg/kg | 35.5 | U | Naphthalene | 160 | 2,100 | 0.02 |
| 041M570101 | 11/29/1995 | µg/kg | 35.5 | U | Phenanthrene | 240 | 1,500 | 0.02 |
| 041M570101 | 11/29/1995 | µg/kg | 72 | | Pyrene | 665 | 2,600 | 0.03 |
| 041M570101 | 11/29/1995 | | | | ERM Quotient Sum | | | 1.34 |
| 041M570101 | 11/29/1995 | | | | Mean ERM Quotient | | | 0.05 |
| 041M570101 | 11/29/1995 | | | | Mean ERM Quotient without ND | | | 0.03 |
| 041M570101 | 11/29/1995 | | | | Mean ERM Quotient Category | | | 2 |

***Notes:***
ERL = Effects Range Low
ERM = Effects Range Median
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
U = not detected at or above the SQL (value in table is 1/2 reported value)
J = estimated value
Shaded cells indicate constituent exceeds ERL.
**Shaded and bold cells indicate constituent exceeds ERM.**

**Table 15-3-10**
**Wetland 57 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | |
| **Aluminum** | **1** | **1** | | | | **7390** | **7390** | **7390** | **041W570101** | **7390** | | **13** | **FDEP** | **568** | **Yes** | **Max Detect > SV** |
| Arsenic | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | 50 | FDEP | 0.00 | No | Max SQL< SV |
| Barium | 1 | 1 | | | | 25.3 | 25.3 | 25.3 | 041W570101 | 25.3 | J | | NA | | Yes | No SV |
| Beryllium | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.13 | FDEP | 0.39 | No | Max SQL< SV |
| Cadmium | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | 0.66 | EPA | 0.23 | No | Max SQL< SV |
| Calcium | 1 | 1 | | | | 19400 | 19400 | 19400 | 041W570101 | 19400 | | | NA | | Yes | No SV |
| Chromium | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | 11 | EPA | 0.36 | No | Max SQL< SV |
| Cobalt | 0 | 1 | 1.5 | 1.5 | 1.5 | 1.5 | | | ND | 1.5 | U | | NA | | Yes | No SV |
| **Copper** | **1** | **1** | | | | **7.2** | **7.2** | **7.2** | **041W570101** | **7.2** | **J** | **6.54** | **EPA** | **1.1** | **Yes** | **Max Detect > SV** |
| Cyanide (CN) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 5.2 | EPA | 0.48 | No | Max SQL< SV |
| Iron | 1 | 1 | | | | 7360 | 7360 | 7360 | 041W570101 | 7360 | | | NA | | Yes | No SV |
| **Lead** | **1** | **1** | | | | **16.9** | **16.9** | **16.9** | **041W570101** | **16.9** | | **1.32** | **EPA** | **12.8** | **Yes** | **Max Detect > SV** |
| Magnesium | 1 | 1 | | | | 1570 | 1570 | 1570 | 041W570101 | 1570 | J | | NA | | Yes | No SV |
| Manganese | 1 | 1 | | | | 134 | 134 | 134 | 041W570101 | 134 | | | NA | | Yes | No SV |
| Mercury | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.012 | EPA | 5.42 | Yes | Max SQL > SV |
| Nickel | 0 | 1 | 6 | 6 | 6 | 6 | | | ND | 6 | U | 87.71 | EPA | 0.07 | No | Max SQL< SV |
| Potassium | 1 | 1 | | | | 1040 | 1040 | 1040 | 041W570101 | 1040 | J | | NA | | Yes | No SV |
| Selenium | 0 | 1 | 1.5 | 1.5 | 1.5 | 1.5 | | | ND | 1.5 | U | 5 | EPA | 0.3 | No | Max SQL< SV |
| Silver | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 0.012 | EPA | 167 | Yes | Max SQL > SV |
| Sodium | 1 | 1 | | | | 6470 | 6470 | 6470 | 041W570101 | 6470 | | | NA | | Yes | No SV |
| Thallium | 0 | 1 | 1.5 | 1.5 | 1.5 | 1.5 | | | ND | 1.5 | UJ | 4 | EPA | 0.38 | No | Max SQL< SV |
| Vanadium | 1 | 1 | | | | 12.2 | 12.2 | 12.2 | 041W570101 | 12.2 | J | | NA | | Yes | No SV |
| Zinc | 1 | 1 | | | | 17.5 | 17.5 | 17.5 | 041W570101 | 17.5 | J | 58.91 | EPA | 0.30 | No | Max Detect < SV |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endosulfan I | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.056 | EPA | 0.45 | No | Max SQL< SV |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0038 | EPA | 6.58 | Yes | Max SQL > SV |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.00004 | FDEP | 625 | Yes | Max SQL > SV |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | UJ | | NA | | Yes | No SV |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0043 | EPA | 11.6 | Yes | Max SQL > SV |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0023 | EPA | 21.7 | Yes | Max SQL > SV |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| gamma-BHC (Lindane) | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.08 | EPA | 0.31 | No | Max SQL< SV |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | Yes | No SV |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0003 | FDEP | 167 | Yes | Max SQL > SV |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0002 | FDEP | 250 | Yes | Max SQL > SV |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.00059 | FDEP | 84.7 | Yes | Max SQL > SV |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.014 | EPA | 35.7 | Yes | Max SQL > SV |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | Yes | No SV |
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 15.8 | EPA | 0.16 | No | Max SQL< SV |
| 1,3-Dichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 3 | FDEP | 0.83 | No | Max SQL< SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |

**Table 15-3-10**
**Wetland 57 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 43.8 | EPA | 0.06 | No | Max SQL< SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | Yes | No SV |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | UJ | | NA | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.3 | EPA | 8.33 | Yes | Max SQL > SV |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Di-n-butylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 9.4 | EPA | 0.27 | No | Max SQL< SV |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Naphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 26 | FDEP | 0.02 | No | Max SQL< SV |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Total PAH | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | Yes | No SV |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 270 | FDEP | 0.00 | No | Max SQL< SV |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3.2 | FDEP | 0.16 | No | Max SQL< SV |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 15.8 | EPA | 0.03 | No | Max SQL< SV |
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3 | FDEP | 0.17 | No | Max SQL< SV |
| 2-Butanone (MEK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Acetone | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | Yes | No SV |
| Benzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 53 | EPA | 0.01 | No | Max SQL< SV |

**Table 15-3-10**
**Wetland 57 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 17 | FDEP | 0.03 | No | Max SQL< SV |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chloroform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 289 | EPA | 0.00 | No | Max SQL< SV |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Ethylbenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 453 | EPA | 0.00 | No | Max SQL< SV |
| Methylene chloride | 1 | 1 | | | | 150 | 150 | 150 | 041W570101 | 150 | D | 1580 | FDEP | 0.09 | No | Max Detect < SV |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Toluene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 175 | EPA | 0.00 | No | Max SQL< SV |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
N/R = No refinement value available.
N/A = Not applicable.

Average result calculations include summing detections and one half the detection limits for not detected parameters. As a result, some average detections may exceed the maximum detections
Parameters in bold were detected and exceeded the screening value

**Table 15-3-11**
**Wetland 57 Phase II**
**Surface Water COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | None | None | None |
| Barium | | | |
| Calcium | | | |
| Copper | | | |
| Iron | | | |
| Lead | | | |
| Magnesium | | | |
| Manganese | | | |
| Potassium | | | |
| Sodium | | | |
| Vanadium | | | |
| | | **Not Detected Parameters** | |
| Cobalt | Aldrin | 1,2,4-Trichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Mercury | Dieldrin | 1,3-Dichlorobenzene | 1,1,2-Trichloroethane |
| Silver | Endosulfan II | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1-Dichloroethane |
| | Endosulfan sulfate | 2,4,5-Trichlorophenol | 1,2-Dibromo-3-Chloropropane |
| | Heptachlor | 2,4,6-Trichlorophenol | 1,2-Dibromoethane |
| | Heptachlor epoxide | 2,4-Dichlorophenol | 1,2-Dichloroethane |
| | Methoxychlor | 2,4-Dimethylphenol | 1,2-Dichloropropane |
| | Toxaphene | 2,4-Dinitrophenol | 1,3-Dichlorobenzene |
| | alpha-Chlordane | 2,4-Dinitrotoluene | 2-Butanone (MEK) |
| | gamma-Chlordane | 2,6-Dinitrotoluene | 2-Hexanone |
| | Total Chlordane | 2-Chloronaphthalene | 4-Methyl-2-Pentanone (MIBK) |
| | Endrin | 2-Methyl-4,6-Dinitrophenol | Acetone |
| | Endrin aldehyde | 2-Methylnaphthalene | Bromochloromethane |
| | Endrin ketone | 2-Methylphenol (o-Cresol) | Bromodichloromethane |
| | Total Endrin | 2-Nitroaniline | Bromoform |
| | alpha-BHC | 2-Nitrophenol | Bromomethane |
| | beta-BHC | 3,3'-Dichlorobenzidine | Carbon disulfide |
| | delta-BHC | 3-Nitroaniline | Carbon tetrachloride |
| | Total BHC | 4-Bromophenyl-phenylether | Chloroethane |
| | 4,4'-DDD | 4-Chloro-3-methylphenol | Chloromethane |
| | 4,4'-DDE | 4-Chloroaniline | cis-1,2-Dichloroethene |
| | 4,4'-DDT | 4-Chlorophenylphenyl ether | cis-1,3-Dichloropropene |
| | Total DDT | 4-Methylphenol (p-Cresol) | Dibromochloromethane |
| | Aroclor-1016 | 4-Nitroaniline | Styrene |
| | Aroclor-1221 | 4-Nitrophenol | Tetrachloroethene |
| | Aroclor-1232 | Acenaphthene | trans-1,2-Dichloroethene |
| | Aroclor-1242 | Acenaphthylene | trans-1,3-Dichloropropene |
| | Aroclor-1248 | Anthracene | Trichloroethene |
| | Aroclor-1254 | Benzo(a)anthracene | Vinyl chloride |
| | Aroclor-1260 | Benzo(a)pyrene | Xylene (Total) |
| | Total PCBs | Benzo(b)fluoranthene | |
| | | Benzo(g,h,i)perylene | |
| | | Benzo(k)fluoranthene | |
| | | bis(2-Chloroethoxy)methane | |
| | | bis(2-Chloroethyl)ether | |
| | | bis(2-Ethylhexyl)phthalate (BEHP) | |
| | | Butylbenzylphthalate | |
| | | Chrysene | |
| | | Dibenz(a,h)anthracene | |
| | | Dibenzofuran | |
| | | Diethylphthalate | |
| | | Dimethylphthalate | |
| | | Di-n-octylphthalate | |
| | | Fluoranthene | |
| | | Fluorene | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Indeno(1,2,3-cd)pyrene | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenanthrene | |
| | | Phenol | |
| | | Pyrene | |
| | | Total PAHs | |

**Table 15-3-12**
**Wetland 57 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | | | | |
| **Aluminum** | **1** | **1** | | | | **7,390** | **7,390** | **7,390** | **041W570101** | **7,390** | | **13** | **FDEP** | **568.46** | **568** | **1,090.25** | **1** | **Yes** | **Max Result > Ref. Conc.** |
| Barium | 1 | 1 | | | | 25.3 | 25.3 | 25.3 | 041W570101 | 25.3 | J | | NA | | | 3.68 | 1 | Yes | Max Result > Ref. Conc. |
| Calcium | 1 | 1 | | | | 19,400 | 19,400 | 19,400 | 041W570101 | 19,400 | | | NA | | | 7675 | 1 | No | Essential Nutrient |
| Cobalt | 0 | 1 | 1.5 | 1.5 | 1.5 | 1.5 | | | ND | 1.5 | U | | NA | | | 3 | 0 | No | Max SQL < Ref. Conc. |
| **Copper** | **1** | **1** | | | | **7.2** | **7.2** | **7.2** | **041W570101** | **7.2** | **J** | **6.54** | **EPA** | **1.10** | **1.10** | **4** | **1** | **Yes** | **Max Result > Ref. Conc.** |
| Iron | 1 | 1 | | | | 7,360 | 7,360 | 7,360 | 041W570101 | 7,360 | | | NA | | | 2,360 | 1 | Yes | Max Result > Ref. Conc. |
| **Lead** | **1** | **1** | | | | **16.9** | **16.9** | **16.9** | **041W570101** | **16.9** | | **1.32** | **EPA** | **13** | **12.8** | **3.2** | **1** | **Yes** | **Max Result > Ref. Conc.** |
| Magnesium | 1 | 1 | | | | 1,570 | 1,570 | 1,570 | 041W570101 | 1,570 | J | | NA | | | 20,260 | 0 | No | Max Result < Ref. Conc. |
| Manganese | 1 | 1 | | | | 134 | 134 | 134 | 041W570101 | 134 | | | NA | | | 13.2 | 1 | Yes | Max Result > Ref. Conc. |
| Mercury | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.012 | EPA | 5.42 | 5.42 | 0.13 | 0 | No | Max SQL < Ref. Conc. |
| Potassium | 1 | 1 | | | | 1,040 | 1,040 | 1,040 | 041W570101 | 1,040 | J | | NA | | | 6,995 | 0 | No | Max Result < Ref. Conc. |
| Silver | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 0.012 | EPA | 167 | 167 | 4 | 0 | No | Max SQL < Ref. Conc. |
| Sodium | 1 | 1 | | | | 6,470 | 6,470 | 6,470 | 041W570101 | 6,470 | | | NA | | | 182,200 | 0 | No | Max Result < Ref. Conc. |
| Vanadium | 1 | 1 | | | | 12.2 | 12.2 | 12.2 | 041W570101 | 12.2 | J | | NA | | | 4.7 | 1 | Yes | Max Result > Ref. Conc. |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0038 | EPA | 7 | 6.58 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.00004 | FDEP | 625 | 625 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0043 | EPA | 12 | 11.6 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0023 | EPA | 22 | 21.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | No | Parameter Not Detected |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0003 | FDEP | 167 | 167 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0002 | FDEP | 250 | 250 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.00059 | FDEP | | 84.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.014 | EPA | 36 | 35.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |

**Table 15-3-12**
**Wetland 57 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | | | | |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.3 | EPA | 8.33 | 8.33 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Naphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 26 | FDEP | 0.02 | 0.02 | | 0 | No | Max SQL < SV |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Total PAH | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Butanone (MEK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Acetone | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
UJ = Not detected. SQL is estimated.
D = Diluted Result
J = Estimated Value

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
PEL = Probable effects level.
N/R = No refinement value available.

N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters. As a result, some average detections may exceed the Max detections.
Parameters in bold were detected and exceeded Ref. Conc.s.

**Table 15-3-13**
**Wetland 57 Phase II**
**Surface Water COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | None | None | None |
| Iron | | | |
| Lead | | | |
| Manganese | | | |
| Barium | | | |
| Copper | | | |
| Vanadium | | | |

## 15.4 Wetland 58 — Screening Level Problem Formulation

### 15.4.1 Site Description and Habitats Present at Wetland 58

Wetland 58 is near the shoreline of the Intracoastal Waterway, southwest of Lighthouse Point and east of the Oak Grove campground (Site 39). Parsons and Pruitt (USEPA, 1991a) described this area as a palustrine shrub-scrub with the dominant vegetation made up of titi (*Cyrilla racemiflora*) and buttonbush (*Cephalanthus occidentalis*).

Wetland 58 is adjacent to an isolated location of the Intercoastal Waterway at NAS Pensacola. It is a heavily vegetated interdunal swale, upgradient from the shoreline, and is seasonally saturated during the rainy season. A seaward breach allows surface water to flow into the Intercostal Waterway. This wetland is a fresh water wetland and is rarely tidally influenced; however, it does appear to wash out during severe storms.

The IR site potentially affecting Wetland 57 is Site 4. In the 1950s, rubble from the former Fort Barrancas was disposed in the area of Site 4. The rubble included timber, pipes, mattresses, and other wastes. None of the wastes was documented as being incinerated before disposal. Elevated metals concentrations in site soil were similar to those identified at previously investigated sites in the eastern portion of NAS Pensacola (E/A&H, 1997e). The detected PAH contaminants were likely associated with routine activities, such as automobile traffic or the asphalt pavement (E/A&H, 1997e). The USEPA (USEPA Region 4, 1997b) and FDEP (FDEP, 1997c) approved remedial alternative for Site 4 was no action.

**Photograph 1 Wetland 58 — Moisture loving vegetation. No standing water visible.**

**Photograph 2 Shoreline in the Area of Wetland 58**

### 15.4.2 Wetland 58 — Sample Location Description

**Phase II Sediment Sample Location Description**

One sediment sample was collected and analyzed for the Wetland 58 ERA, 041M580101. The sample location for Wetland 58 was located in an area of the wetland where depositional areas and groundwater seeps could occur. This sample location is centrally located within the wetland (Figure 15-4). Table 15-4-1 (tables are located at the end of each section) provides a physical description of the sediments collected at Wetland 58. Sediment at Wetland 58 was composed of a poorly graded medium to fine grained sand with a TOC concentration of 0.491%.

**Phase II Surface Water Sample Location Description**

One surface water sample was collected at Wetland 58, location 041W580101 (Figure 15-4), which was collocated with sediment location 041M580101. This sample was collected in January 1996. Surface water from Wetland 58 was analyzed for physical parameters, with results presented in Table 15-4-2. Surface water at Wetland 58 had a pH concentration of 6.73. Specific conductivity concentration was 0.135 mS/cm. Hardness as $CaCO_3$ reported a concentration of 40 mg/L, and salinity was 0%. Surface water at Wetland 58 had a turbidity reading of 0 NTUs.

### 15.4.3 Nature and Extent of Contamination

**Phase II Sediment**

Figure 15-4 presents the Phase II sediment sampling location for Wetland 58. Tables 15-4-3 present a summary of the analytical results of the one Phase II sediment sample.

**Metals** — Fifteen metals were detected during Phase II sediment sampling at Wetland 58. Sample 041M580101, located at the southeast edge of the wetland, did not contain inorganic constituents above the freshwater reference concentrations.

**Pesticides and PCBs** — No pesticide compounds were detected during Phase II sediment sampling at Wetland 58. The PCB aroclor-1260 was detected at relatively low concentrations (0.66 µg/kg) in the sediment. Aroclor-1260 does not have a reference concentration.

**SVOCs** — Thirteen SVOCs were detected during the Phase II sediment sampling. However, SVOC concentrations were relatively low. No reference concentrations exist for the detected SVOC compounds.

**VOCs** — One VOC was detected in sample 041M580101 collected during Phase II sampling. Acetone, a common laboratory artifact, was detected at low concentrations (520 µg/kg). No freshwater reference concentration exists for acetone.

**Phase II Surface Water**

Figure 15-4 presents the Phase II surface water sampling location for Wetland 58. Tables 15-4-4 present a summary of the analytical results of the one Phase II surface water sample.

**Metals** — Eleven metals were detected in the Phase II surface water sample taken from Wetland 58. Sample 041W580101, collocated with the sediment sample, was collected from the southeast edge of the wetland. Arsenic, calcium, copper, iron, lead, and vanadium exceeded the freshwater reference concentration. Most of the detected inorganic concentrations only slightly exceeded the reference concentration, except iron, lead, and vanadium, which were detected at approximately twice the reference concentration.

**Organics** — There were no organic constituents detected in surface water collected during the Phase II investigation at Wetland 58.

### 15.4.4 Ecological Risk Assessment

**Phase II Investigation Summary — Wetland 58**

**Sediment Screening — Level Risk-Exposure Estimation and Risk Calculation**

As presented in Table 15-4-5, the sediment sample was compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than 1 or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-4-6.

**Baseline Problem Formulation — Wetland 58 Sediment COPC Refinement**

During the COPC refinement, additional information was used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as preliminary COPCs.

This risk assessment will present a statement of potential risk for each of the preliminary COPCs.

The COPC refinement process included:

- Comparison of maximum concentrations to RVs
- Comparison of average concentrations to SVs and RVs
- Comparison to basewide (reference) concentrations for total DDT
- Comparison of inorganic constituents to reference wetland values
- Interpretative tool for metals
- Di Toro EqP SQGs for VOCs
- Comparison to Swartz consensus values
- Mean ERM quotients
- Description of exceedances of RVs and their extent

The methods used in the COPC refinement in the Site 41 ERA process are detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-4-7. Additionally, the tables compare: 1) average concentrations to screening and refinement values to assess potential exposure across the entire wetland, and 2) Wetland 58 concentrations to reference concentrations. COPCs retained after refinement are presented in Table 15-4-8.

At Wetland 58, total DDT did not exceed the basewide level, indicating that 4,4'-DDT and its daughter products were not a potential concern for this wetland. No contaminates exceeded their Site 41 freshwater sediment reference concentrations. Since none of the inorganic constituents exceeded their SV, the interpretive tool was not needed for Wetland 58.

Several organic constituents were detected and retained during the ERA refinement process. Those constituents included: acenaphthene, carbazole, dibenzofuran, and acetone. When normalized to detected TOC concentrations, VOCs do not appear to be risk drivers for Wetland 58. Total PAHs, as a group, were not detected above screening values; therefore, comparison to Swartz consensus values was not applicable.

Table 15-4-9 presents the Mean ERL and ERM values, the Mean ERM Quotients, and the Mean ERM Quotient Category by individual sample location. Based on this approach, the sample location (041M580101) was determined to be Category 2, which is the category that includes the studies where about 50% of samples were found to be toxic and average survival was about 60-70%. Figure 15-7 also shows the Mean ERM category for each sediment sample location at Wetland 58.

At Wetland 58, acenaphthene, carbazole, dibenzofuran, and acetone were detected, but no screening values were available to evaluate potential ecotoxicity.

**Surface Water Screening — Level Risk-Exposure Estimation and Risk Calculation**

As presented in Table 15-4-10, the surface water sample was compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than 1 or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-4-11.

**Baseline Problem Formulation — Wetland 58 Surface Water COPC Refinement**

During the surface water COPC refinement, additional information was used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as COPCs.

The COPC refinement process included:

- Comparison of maximum SV concentrations to average SV concentrations
- Comparison of inorganic constituents to reference wetland values
- Description of surface water exceedances and their extent

The methods used in the COPC refinement in the Site 41 ERA process are detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-4-12. Additionally, the tables compare average concentrations to screening and refinement values to assess

potential exposure across the entire wetland. COPCs retained after refinement are presented in Table 15-4-13.

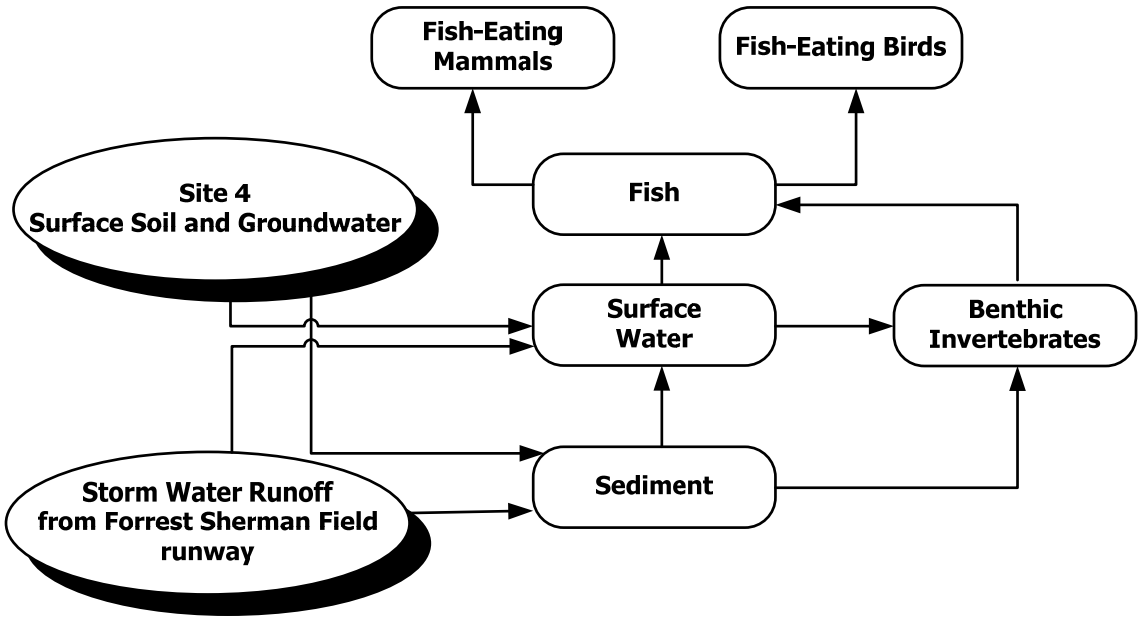
For Wetland 58, iron, lead, and vanadium exceeded their Site 41 freshwater reference surface water concentrations (Table 15-4-12). Calcium also exceeded its reference concentration; however, calcium is an essential nutrient and is not carried forward in the process.

None of the same constituents were retained in both sediment and surface water samples collected at Wetland 58.

Based on the Phase II results described above, Wetland 58 was identified as a Blue-Coded Wetland in the approved *Final RI/FS SAP Addendum* (EnSafe, 1997d), indicating that contaminants were present generally below screening values, and contaminants did not appear to be site related. Blue-Coded Wetlands were not assessed further in Phase III. However, to assess potential risks from contaminants that bioaccumulate, the results from Wetland 58 will be used in the remaining wetlands food-chain model presented in Section 15.8.

The conceptual model below symbolizes which environmental habitats may be impacted by Wetland 58 Phase II constituents retained during the ERA process.

**Wetland 58**
**Conceptual Site Model**



### 15.4.5 Wetland 58 — Human Health Risk Assessment

Wetland 58 is described in Section 15.4.1, and the HHRA is summarized below.

#### 15.4.5.1 Site Data

Section 15.4.3 summarizes the nature and extent of contamination for this wetland. Surface water and sediment data were collected at Wetland 58 during Phase II of the RI. Surface water and sediment data for 58 are summarized in Tables 15-4-3 and 15-4-4.

#### 15.4.5.2 Conceptual Site Model

As described in Section 15.4.1, Wetland 58 is adjacent to an isolated location of the Intracoastal Waterway at NAS Pensacola. Because Wetland 58 is located in an unrestricted area of the base, the wetland is accessible to Navy personnel and trespassers. Wetland 58 intermittently floods; therefore, contact with sediment and surface water is possible.

The following scenarios and exposure pathways were evaluated for this wetland:

| Scenario | Medium | Ingestion | Dermal |
|---|---|---|---|
| Trespassers | Surface water | √ | √ |
| | Sediment | √ | √ |
| Maintenance | Surface water | √ | √ |
| | Sediment | √ | √ |

#### 15.4.5.3 Risk Characterization

The child trespasser and the adult maintenance worker scenario for surface water and sediment were assessed for this wetland as described in Section 9.

**Phase II Data**

***Trespasser***

As shown in Tables 15-4-14 through 15-4-16, sediment ingestion and dermal contact risk estimates for maintenance workers were below the FDEP risk threshold. Hazard indices were below 1.0.

As shown in Tables 15-4-17 through 15-4-19, surface water ingestion and dermal contact risk estimates for trespassers were below the FDEP risk threshold. Hazard indices were below 1.0.

***Maintenance Worker***

As shown in Tables 15-4-14 through 15-4-16, sediment ingestion and dermal contact risk estimates for maintenance workers were below the FDEP risk threshold. Hazard indices were below 1.0.

As shown in Tables 15-4-17 through 15-4-19, surface water ingestion and dermal contact risk estimates for trespassers were below the FDEP risk threshold. Hazard indices were below 1.0.

**Summary of Wetland 58 Phase II Risk Estimates**

| Scenario | Medium | Hazard Index | Risk |
|---|---|---|---|
| Maintenance | Sediment | 8.58E-04 | 7.85E-09 |
| | Surface water | 3.84E-03 | N/A |
| Trespassers | Sediment | 1.33E-03 | 1.13E-08 |
| | Surface water | 2.87E-03 | N/A |

Based on Phase II data, no COCs for Wetland 58 were identified.

**Wetland 58 HHRA COC Summary**

No COCs were identified in the HHRA for Wetland 58.

### 15.4.6 Wetland 58 — Fate and Transport Analysis

Forrest Sherman Field area lies on the western portion of NAS Pensacola and hosts a number of wetlands surrounding the operational runways that run southwest-northeast and north-south. These included Wetlands 19A, 19B, 48, 49, 52, 56, 57, 58, 72, W1, and W2. For the general location of these wetlands and the location of the surface water, sediment, and nearby soil and groundwater samples, see Figure 15-4. The potential sources for these wetlands included:

- storm water drainage and runoff from Forrest Sherman Field
- storm water runoff, surface soil transport, and groundwater discharge from UST Site 18, OU12, Site 5, and Sites 16a and b
- tidal flux from Bayou Grande and Pensacola Bay also plays a role for those wetlands close to the shorelines

A number of these wetlands are somewhat isolated from known IR sites by either being located upgradient or side gradient, and/or being a significant distance away. Additionally, some of these wetlands had only one surface water and/or sediment sample collected. For these wetlands, evaluation of the inter- or intra-wetland soil-to-sediment, groundwater-to-surface water, groundwater-to-sediment, or sediment/surface water transport pathways were not completed due to a lack of data. These wetlands included 48, 57, and 58.

**Table 15-4-1**
**Wetland 58 Phase II**
**Sediment Physical Parameters**

| Parameter | | 041M580101 |
|---|---|---|
| TOC (%) | | 0.491 |
| Percent Solids (%) | | 68.9 |
| Grain Size Analysis | | |
| (percent of composition[1]) | | |
| | Medium Sand | 37 |
| | Fine Sand | 61 |
| | Clay | 2 |
| | Description | Poorly Graded Sand, medium to fine |

***Note:***
[1] = Derived from sieve analyses.

**Table 15-4-2**
**Wetland 58 Phase II**
**Surface Water Physical Parameters**

| Parameter | 041W58101 |
|---|---|
| Hardness as CaCO3 (mg/L) | 40 |
| pH | 6.73 |
| Specific Conductivity (mS/cm) | 0.135 |
| Turbidity (NTU) | 0 |
| Salinity (%) | 0 |

***Notes:***

mg/L = Milligrams per liter
pH = Hydrogen ion content
MS/cm = Millisiemens per centimeter
NTU = Nephelometric turbidity units
% = Percent

**Table 15-4-3**
**Wetland 58 Phase II**
**Sediment Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | |
| Aluminum | 13,610.0 | 0 | 1 | 1 | 1,360.0 | 1,360.0 | 1,360.0 | 041M580101 |
| Arsenic | 6.620 | 0 | 1 | 1 | 0.270 | 0.270 | 0.270 | 041M580101 |
| Barium | 14.0 | 0 | 1 | 1 | 1.20 | 1.20 | 1.20 | 041M580101 |
| Calcium | 10,756.670 | 0 | 1 | 1 | 230.0 | 230.0 | 230.0 | 041M580101 |
| Chromium | 39.370 | 0 | 1 | 1 | 1.20 | 1.20 | 1.20 | 041M580101 |
| Copper | 19.50 | 0 | 1 | 1 | 1.80 | 1.80 | 1.80 | 041M580101 |
| Iron | 11,911.670 | 0 | 1 | 1 | 548.0 | 548.0 | 548.0 | 041M580101 |
| Lead | 82.470 | 0 | 1 | 1 | 7.80 | 7.80 | 7.80 | 041M580101 |
| Magnesium | 7,513.330 | 0 | 1 | 1 | 70.0 | 70.0 | 70.0 | 041M580101 |
| Manganese | 37.970 | 0 | 1 | 1 | 1.20 | 1.20 | 1.20 | 041M580101 |
| Nickel | 9.280 | 0 | 1 | 1 | 1.20 | 1.20 | 1.20 | 041M580101 |
| Potassium | 1,628.670 | 0 | 1 | 1 | 41.20 | 41.20 | 41.20 | 041M580101 |
| Selenium | 3.450 | 0 | 1 | 1 | 0.410 | 0.410 | 0.410 | 041M580101 |
| Vanadium | 28.670 | 0 | 1 | 1 | 2.50 | 2.50 | 2.50 | 041M580101 |
| Zinc | 36.730 | 0 | 1 | 1 | 2.30 | 2.30 | 2.30 | 041M580101 |
| **PAHs (µg/kg)** | | | | | | | | |
| 2-Methylnaphthalene | N/A | 0 | 1 | 1 | 110.0 | 110.0 | 110.0 | 041M580101 |
| Acenaphthene | N/A | 0 | 1 | 1 | 110.0 | 110.0 | 110.0 | 041M580101 |
| Anthracene | N/A | 0 | 1 | 1 | 84.0 | 84.0 | 84.0 | 041M580101 |
| Fluoranthene | N/A | 0 | 1 | 1 | 110.0 | 110.0 | 110.0 | 041M580101 |
| Fluorene | N/A | 0 | 1 | 1 | 120.0 | 120.0 | 120.0 | 041M580101 |
| Naphthalene | N/A | 0 | 1 | 1 | 220.0 | 220.0 | 220.0 | 041M580101 |
| Phenanthrene | N/A | 0 | 1 | 1 | 250.0 | 250.0 | 250.0 | 041M580101 |
| Pyrene | N/A | 0 | 1 | 1 | 70.0 | 70.0 | 70.0 | 041M580101 |
| Total PAHs | N/A | 0 | 1 | 1 | 1,189.0 | 1,189.0 | 1,190.0 | 041M580101 |
| **Pesticides and PCBs (µg/kg)** | | | | | | | | |
| Aroclor-1260 | N/A | 0 | 1 | 1 | 0.660 | 0.660 | 0.660 | 041M580101 |
| Total PCBs | N/A | 0 | 1 | 1 | 8.710 | 8.710 | 8.710 | 041M580101 |
| **SVOCs (µg/kg)** | | | | | | | | |
| bis(2-Ethylhexyl)phthalate (BEHP) | N/A | 0 | 1 | 1 | 34.0 | 34.0 | 34.0 | 041M580101 |
| Butylbenzylphthalate | N/A | 0 | 1 | 1 | 25.0 | 25.0 | 25.0 | 041M580101 |
| Carbazole | N/A | 0 | 1 | 1 | 40.0 | 40.0 | 40.0 | 041M580101 |
| Dibenzofuran | N/A | 0 | 1 | 1 | 88.0 | 88.0 | 88.0 | 041M580101 |
| Di-n-butylphthalate | N/A | 0 | 1 | 1 | 42.0 | 42.0 | 42.0 | 041M580101 |
| **VOCs (µg/kg)** | | | | | | | | |
| Acetone | N/A | 0 | 1 | 1 | 520.0 | 520.0 | 520.0 | 041M580101 |

***Notes:***
µg/kg = micrograms per kilogram
mg/kg = milligram per kilogram
N/A = Not Applicable

**Table 15-4-4**
**Wetland 58 Phase II**
**Surface Water Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Range of Detections: Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | |
| Aluminum | 1,090.25 | 0 | 1 | 1 | 1,090.0 | 1,090.0 | 1,090.0 | 041W580101 |
| Arsenic | 2.7 | 1 | 1 | 1 | 3.1 | 3.1 | 3.1 | 041W580101 |
| Barium | 3.68 | 0 | 1 | 1 | 3.4 | 3.4 | 3.4 | 041W580101 |
| Calcium | 7,675.0 | 1 | 1 | 1 | 9,230.0 | 9,230.0 | 9,230.0 | 041W580101 |
| Copper | 4.0 | 1 | 1 | 1 | 5.2 | 5.2 | 5.2 | 041W580101 |
| Iron | 2,360.0 | 1 | 1 | 1 | 4,070.0 | 4,070.0 | 4,070.0 | 041W580101 |
| Lead | 3.2 | 1 | 1 | 1 | 7.4 | 7.4 | 7.4 | 041W580101 |
| Magnesium | 20,260.0 | 0 | 1 | 1 | 4,110.0 | 4,110.0 | 4,110.0 | 041W580101 |
| Potassium | 6,995.0 | 0 | 1 | 1 | 1,420.0 | 1,420.0 | 1,420.0 | 041W580101 |
| Sodium | 182,200.0 | 0 | 1 | 1 | 11,400.0 | 11,400.0 | 11,400.0 | 041W580101 |
| Vanadium | 4.7 | 1 | 1 | 1 | 10.6 | 10.6 | 10.6 | 041W580101 |

***Notes:***
µg/L = micrograms per liter
N/A = Not Applicable

**Table 15-4-5**
**Wetland 58 Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | 1,360 | 1,360 | 041M580101 | 1,360 | | | N/A | | Yes | No SV |
| Antimony | 0 | 1 | 0.075 | 0.075 | | | ND | 0.075 | UJ | 12 | 2 | 0.01 | No | Max SQL< SV |
| Arsenic | 1 | 1 | | | 0.27 | 0.27 | 041M580101 | 0.27 | J | 7.24 | 1, 2 | 0.04 | No | Max Detect < SV |
| Barium | 1 | 1 | | | 1.2 | 1.2 | 041M580101 | 1.2 | J | | N/A | | Yes | No SV |
| Beryllium | 0 | 1 | 0.035 | 0.035 | | | ND | 0.035 | U | | N/A | | Yes | No SV |
| Cadmium | 0 | 1 | 0.075 | 0.075 | | | ND | 0.075 | U | 0.676 | 1 | 0.11 | No | Max SQL< SV |
| Calcium | 1 | 1 | | | 230 | 230 | 041M580101 | 230 | J | | N/A | | Yes | No SV |
| Chromium | 1 | 1 | | | 1.2 | 1.2 | 041M580101 | 1.2 | | 52.3 | 1, 2 | 0.02 | No | Max Detect < SV |
| Cobalt | 0 | 1 | 0.075 | 0.075 | | | ND | 0.075 | U | | N/A | | Yes | No SV |
| Copper | 1 | 1 | | | 1.8 | 1.8 | 041M580101 | 1.8 | | 18.7 | 1, 2 | 0.10 | No | Max Detect < SV |
| Cyanide (CN) | 0 | 1 | 0.355 | 0.355 | | | ND | 0.355 | U | | N/A | | Yes | No SV |
| Iron | 1 | 1 | | | 548 | 548 | 041M580101 | 548 | | | N/A | | Yes | No SV |
| Lead | 1 | 1 | | | 7.8 | 7.8 | 041M580101 | 7.8 | | 30.2 | 1, 2 | 0.26 | No | Max Detect < SV |
| Magnesium | 1 | 1 | | | 70 | 70 | 041M580101 | 70 | J | | N/A | | Yes | No SV |
| Manganese | 1 | 1 | | | 1.2 | 1.2 | 041M580101 | 1.2 | | | N/A | | Yes | No SV |
| Mercury | 0 | 1 | 0.03 | 0.03 | | | ND | 0.03 | U | 0.13 | 1, 2 | 0.23 | No | Max SQL< SV |
| Nickel | 1 | 1 | | | 1.2 | 1.2 | 041M580101 | 1.2 | J | 15.9 | 1, 2 | 0.08 | No | Max Detect < SV |
| Potassium | 1 | 1 | | | 41.2 | 41.2 | 041M580101 | 41.2 | J | | N/A | | Yes | No SV |
| Selenium | 1 | 1 | | | 0.41 | 0.41 | 041M580101 | 0.41 | J | | N/A | | Yes | No SV |
| Silver | 0 | 1 | 0.18 | 0.18 | | | ND | 0.18 | U | 0.733 | 1 | 0.25 | No | Max SQL< SV |
| Sodium | 0 | 1 | 11.4 | 11.4 | | | ND | 11.4 | U | | N/A | | Yes | No SV |
| Thallium | 0 | 1 | 0.145 | 0.145 | | | ND | 0.145 | U | | N/A | | Yes | No SV |
| Vanadium | 1 | 1 | | | 2.5 | 2.5 | 041M580101 | 2.5 | J | | N/A | | Yes | No SV |
| Zinc | 1 | 1 | | | 2.3 | 2.3 | 041M580101 | 2.3 | | 124 | 1, 2 | 0.02 | No | Max Detect < SV |
| **PAHs (µg/kg)** | | | | | | | | | | | | | | |
| **2-Methylnaphthalene** | **1** | **1** | | | **110** | **110** | **041M580101** | **110** | | **20.2** | **1** | **5.45** | No | TOC Normalized PAHs<TEC |
| **Acenaphthene** | **1** | **1** | | | **110** | **110** | **041M580101** | **110** | | **6.71** | **1** | **16.4** | No | TOC Normalized PAHs<TEC |
| Acenaphthylene | 0 | 1 | 23 | 23 | | | ND | 23 | U | 5.87 | 1 | 3.92 | No | TOC Normalized PAHs<TEC |
| **Anthracene** | **1** | **1** | | | **84** | **84** | **041M580101** | **84** | | **46.9** | **1** | **1.79** | No | TOC Normalized PAHs<TEC |
| Benzo(a)anthracene | 0 | 1 | 23 | 23 | | | ND | 23 | U | 74.8 | 1 | 0.31 | No | TOC Normalized PAHs<TEC |
| Benzo(a)pyrene | 0 | 1 | 23 | 23 | | | ND | 23 | U | 88.8 | 1 | 0.26 | No | TOC Normalized PAHs<TEC |
| Chrysene | 0 | 1 | 23 | 23 | | | ND | 23 | U | 108 | 1 | 0.21 | No | TOC Normalized PAHs<TEC |
| Dibenz(a,h)anthracene | 0 | 1 | 23 | 23 | | | ND | 23 | U | 6.22 | 1 | 3.7 | No | TOC Normalized PAHs<TEC |
| Fluoranthene | 1 | 1 | | | 110 | 110 | 041M580101 | 110 | | 113 | 1 | 0.97 | No | TOC Normalized PAHs<TEC |
| **Fluorene** | **1** | **1** | | | **120** | **120** | **041M580101** | **120** | | **21.2** | **1** | **5.66** | No | TOC Normalized PAHs<TEC |
| **Naphthalene** | **1** | **1** | | | **220** | **220** | **041M580101** | **220** | | **34.6** | **1** | **6.36** | No | TOC Normalized PAHs<TEC |
| **Phenanthrene** | **1** | **1** | | | **250** | **250** | **041M580101** | **250** | | **86.7** | **1** | **2.88** | No | TOC Normalized PAHs<TEC |
| Pyrene | 1 | 1 | | | 70 | 70 | 041M580101 | 70 | | 153 | 1 | 0.46 | No | TOC Normalized PAHs<TEC |
| Total PAHs | 1 | 1 | | | 1,190 | 1,190 | 041M580101 | 1,190 | | 1684 | 1, 2 | 0.71 | No | TOC Normalized PAHs<TEC |
| TOC Normalized PAHs | 1 | 1 | | | 242.16 | 242.16 | 041M580101 | 242.16 | | 290 | 3 | 0.84 | No | Max Detect < SV |
| **PCBs (µg/kg)** | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 1.15 | 1.15 | | | ND | 1.15 | U | 21.6 | N/A | 0.05 | No | Max SQL< SV |
| Aroclor-1221 | 0 | 1 | 2.3 | 2.3 | | | ND | 2.3 | U | 67 | 2 | 0.03 | No | Max SQL< SV |
| Aroclor-1232 | 0 | 1 | 1.15 | 1.15 | | | ND | 1.15 | U | 21.6 | N/A | 0.05 | No | Max SQL< SV |
| Aroclor-1242 | 0 | 1 | 1.15 | 1.15 | | | ND | 1.15 | U | 21.6 | N/A | 0.05 | No | Max SQL< SV |
| Aroclor-1248 | 0 | 1 | 1.15 | 1.15 | | | ND | 1.15 | U | 21.6 | N/A | 0.05 | No | Max SQL< SV |
| Aroclor-1254 | 0 | 1 | 1.15 | 1.15 | | | ND | 1.15 | U | 21.6 | N/A | 0.05 | No | Max SQL< SV |
| Aroclor-1260 | 1 | 1 | | | 0.66 | 0.66 | 041M580101 | 0.66 | J | 21.6 | N/A | 0.03 | No | Max Detect < SV |
| Total PCBs | 1 | 1 | | | 8.71 | 8.71 | 041M580101 | 8.71 | | 21.6 | 1 | 0.40 | No | Max Detect < SV |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.06 | 0.06 | | | ND | 0.06 | U | | N/A | | Yes | No SV |
| Dieldrin | 0 | 1 | 0.115 | 0.115 | | | ND | 0.115 | U | 0.716 | 1 | 0.16 | No | Max SQL< SV |
| Endosulfan I | 0 | 1 | 0.06 | 0.06 | | | ND | 0.06 | U | | N/A | | Yes | No SV |
| Endosulfan II | 0 | 1 | 0.115 | 0.115 | | | ND | 0.115 | U | | N/A | | Yes | No SV |
| Endosulfan sulfate | 0 | 1 | 0.115 | 0.115 | | | ND | 0.115 | U | | N/A | | Yes | No SV |
| Heptachlor | 0 | 1 | 0.06 | 0.06 | | | ND | 0.06 | U | | N/A | | Yes | No SV |
| Heptachlor epoxide | 0 | 1 | 0.06 | 0.06 | | | ND | 0.06 | U | | N/A | | Yes | No SV |
| Methoxychlor | 0 | 1 | 0.6 | 0.6 | | | ND | 0.6 | U | | N/A | | Yes | No SV |
| Toxaphene | 0 | 1 | 12 | 12 | | | ND | 12 | U | | N/A | | Yes | No SV |
| alpha-Chlordane | 0 | 1 | 0.06 | 0.06 | | | ND | 0.06 | U | 1.7 | 1 | 0.04 | No | Max SQL< SV |
| gamma-Chlordane | 0 | 1 | 0.06 | 0.06 | | | ND | 0.06 | U | 1.7 | 1 | 0.04 | No | Max SQL< SV |
| Total Chlordane | 0 | 1 | 0.12 | 0.12 | | | ND | 0.12 | U | 1.7 | 1 | 0.07 | No | Max SQL< SV |
| Endrin | 0 | 1 | 0.115 | 0.115 | | | ND | 0.115 | U | 3.3 | 2 | 0.03 | No | Max SQL< SV |
| Endrin aldehyde | 0 | 1 | 0.115 | 0.115 | | | ND | 0.115 | U | 3.3 | 2 | 0.03 | No | Max SQL< SV |
| Endrin ketone | 0 | 1 | 0.115 | 0.115 | | | ND | 0.115 | U | 3.3 | 2 | 0.03 | No | Max SQL< SV |
| Total Endrin | 0 | 1 | 0.345 | 0.345 | | | ND | 0.345 | U | 3.3 | 2 | 0.11 | No | Max SQL< SV |

**Table 15-4-5**
**Wetland 58 Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Pesticides (µg/kg) - cont.** | | | | | | | | | | | | | | |
| alpha-BHC | 0 | 1 | 0.06 | 0.06 | | | ND | 0.06 | U | | N/A | | Yes | No SV |
| beta-BHC | 0 | 1 | 0.06 | 0.06 | | | ND | 0.06 | U | 0.32 | N/A | 0.19 | No | Max SQL< SV |
| delta-BHC | 0 | 1 | 0.06 | 0.06 | | | ND | 0.06 | U | 0.32 | N/A | 0.19 | No | Max SQL< SV |
| gamma-BHC (Lindane) | 0 | 1 | 0.06 | 0.06 | | | ND | 0.06 | U | 0.32 | 1 | 0.19 | No | Max SQL< SV |
| Total BHC | 0 | 1 | 0.24 | 0.24 | | | ND | 0.24 | U | 0.32 | 2 | 0.75 | No | Max SQL< SV |
| 4,4'-DDD | 0 | 1 | 0.115 | 0.115 | | | ND | 0.115 | U | 1.22 | 1 | 0.09 | No | Max SQL< SV |
| 4,4'-DDE | 0 | 1 | 0.115 | 0.115 | | | ND | 0.115 | U | 2.07 | 1 | 0.06 | No | Max SQL< SV |
| 4,4'-DDT | 0 | 1 | 0.115 | 0.115 | | | ND | 0.115 | U | 1.19 | 1 | 0.10 | No | Max SQL< SV |
| Total DDT | 0 | 1 | 0.345 | 0.345 | | | ND | 0.345 | U | 3.3 | 2 | 0.11 | No | Max SQL< SV |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 1 | 550 | 550 | | | ND | 550 | U | | N/A | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 1 | 550 | 550 | | | ND | 550 | U | | N/A | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 2-Chlorophenol | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 550 | 550 | | | ND | 550 | U | | N/A | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 2-Nitroaniline | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 2-Nitrophenol | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 3-Nitroaniline | 0 | 1 | 550 | 550 | | | ND | 550 | U | | N/A | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 4-Chloroaniline | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| 4-Nitroaniline | 0 | 1 | 550 | 550 | | | ND | 550 | U | | N/A | | Yes | No SV |
| 4-Nitrophenol | 0 | 1 | 550 | 550 | | | ND | 550 | U | | N/A | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 1 | 23 | 23 | | | ND | 23 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| Benzo(g,h,i)perylene | 0 | 1 | 23 | 23 | | | ND | 23 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| Benzo(k)fluoranthene | 0 | 1 | 23 | 23 | | | ND | 23 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| bis(2-Chloroethoxy)methane | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 1 | 23 | 23 | | | ND | 23 | U | | N/A | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 1 | 1 | | | 34 | 34 | 041M580101 | 34 | J | 182 | 1, 2 | 0.19 | No | Max Detect < SV |
| Butylbenzylphthalate | 1 | 1 | | | 25 | 25 | 041M580101 | 25 | J | 182 | 1, 2 | 0.14 | No | Max Detect < SV |
| Carbazole | 1 | 1 | | | 40 | 40 | 041M580101 | 40 | J | | N/A | | Yes | No SV |
| Dibenzofuran | 1 | 1 | | | 88 | 88 | 041M580101 | 88 | J | | N/A | | Yes | No SV |
| Diethylphthalate | 0 | 1 | 230 | 230 | | | ND | 230 | U | 182 | 1, 2 | 1.26 | Yes | Max SQL > SV |
| Dimethylphthalate | 0 | 1 | 230 | 230 | | | ND | 230 | U | 182 | 1, 2 | 1.26 | Yes | Max SQL > SV |
| Di-n-butylphthalate | 1 | 1 | | | 42 | 42 | 041M580101 | 42 | J | 182 | 1, 2 | 0.23 | No | Max Detect < SV |
| Di-n-octylphthalate | 0 | 1 | 230 | 230 | | | ND | 230 | U | 182 | 1, 2 | 1.26 | Yes | Max SQL > SV |
| Hexachlorobenzene | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| Hexachlorobutadiene | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| Hexachloroethane | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 23 | 23 | | | ND | 23 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| Isophorone | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| Nitrobenzene | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 1 | 23 | 23 | | | ND | 23 | U | | N/A | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |
| Pentachlorophenol | 0 | 1 | 550 | 550 | | | ND | 550 | U | | N/A | | Yes | No SV |
| Phenol | 0 | 1 | 230 | 230 | | | ND | 230 | U | | N/A | | Yes | No SV |

**Table 15-4-5**
**Wetland 58 Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethane | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethene (total) | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| 2-Butanone (MEK) | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| 2-Hexanone | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Acetone | 1 | 1 | | | 520 | 520 | 041M580101 | 520 | | | N/A | | Yes | No SV |
| Benzene | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Bromodichloromethane | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Bromoform | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Bromomethane | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Carbon disulfide | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Carbon tetrachloride | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Chlorobenzene | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Chloroethane | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Chloroform | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Chloromethane | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Dibromochloromethane | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Ethylbenzene | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Methylene chloride | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Styrene | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Tetrachloroethene | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Toluene | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Trichloroethene | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |
| Vinyl chloride | 0 | 1 | 8.5 | 8.5 | | | ND | 8.5 | U | | N/A | | Yes | No SV |
| Xylene (Total) | 0 | 1 | 28 | 28 | | | ND | 28 | U | | N/A | | Yes | No SV |

***Notes:***

Sources for Screening Values:
SV = Screening Value
1 = USEPA Region 4 Screening Value. Detailed explanation for SVs provided in Section 8.0.
2 = FDEP Threshold effects level

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available.
U or ND = Not Detected at or above the SQL
J = Estimated value
SHQ = Screening Hazard Quotient

D = Diluted Result
mg/kg = milligrams per kilograms
µg/kg = micrograms per kilograms
mg/kg oc = milligrams per kilograms - organic carbon
UJ = Not detected. SQL is estimated.
Parameters in bold were detected and exceeded screening values.

**Table 15-4-6**
**Wetland 58 Phase II**
**Sediment COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | None | Carbazole | Acetone |
| Barium | | Dibenzofuran | |
| Calcium | | | |
| Iron | | | |
| Magnesium | | | |
| Manganese | | | |
| Potassium | | | |
| Selenium | | | |
| Vanadium | | | |
| | | **Not Detected Parameters** | |
| Beryllium | Aldrin | 1,2,4-Trichlorobenzene | 1,1,1-Trichloroethane |
| Cobalt | alpha-BHC | 1,2-Dichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Cyanide (CN) | Endosulfan I | 1,3-Dichlorobenzene | 1,1,2-Trichloroethane |
| Sodium | Endosulfan II | 1,4-Dichlorobenzene | 1,1-Dichloroethane |
| Thallium | Endosulfan sulfate | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1-Dichloroethene |
| | Heptachlor | 2,4,5-Trichlorophenol | 1,2-Dichloroethane |
| | Heptachlor epoxide | 2,4,6-Trichlorophenol | 1,2-Dichloroethene (total) |
| | Methoxychlor | 2,4-Dichlorophenol | 1,2-Dichloropropane |
| | Toxaphene | 2,4-Dimethylphenol | 2-Butanone (MEK) |
| | | 2,4-Dinitrophenol | 2-Hexanone |
| | | 2,4-Dinitrotoluene | 4-Methyl-2-Pentanone (MIBK) |
| | | 2,6-Dinitrotoluene | Benzene |
| | | 2-Chloronaphthalene | Bromodichloromethane |
| | | 2-Chlorophenol | Bromoform |
| | | 2-Methyl-4,6-Dinitrophenol | Bromomethane |
| | | 2-Methylphenol (o-Cresol) | Carbon disulfide |
| | | 2-Nitroaniline | Carbon tetrachloride |
| | | 2-Nitrophenol | Chlorobenzene |
| | | 3,3'-Dichlorobenzidine | Chloroethane |
| | | 3-Nitroaniline | Chloroform |
| | | 4-Bromophenyl-phenylether | Chloromethane |
| | | 4-Chloro-3-methylphenol | cis-1,3-Dichloropropene |
| | | 4-Chloroaniline | Dibromochloromethane |
| | | 4-Chlorophenylphenyl ether | Ethylbenzene |
| | | 4-Methylphenol (p-Cresol) | Methylene chloride |
| | | 4-Nitroaniline | Styrene |
| | | 4-Nitrophenol | Tetrachloroethene |
| | | bis(2-Chloroethoxy)methane | Toluene |
| | | bis(2-Chloroethyl)ether | trans-1,3-Dichloropropene |
| | | Diethylphthalate | Trichloroethene |
| | | Dimethylphthalate | Vinyl chloride |
| | | Di-n-octylphthalate | Xylene (Total) |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |

**Table 15-4-7**
**Wetland 58 Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | | 1,360 | 1,360 | 1,360 | 1,360 | | 041M580101 | | | NA | | | | | 0 | 13,610 | 0 | No | EPC < RC |
| Barium | 1 | 1 | | | | 1.2 | 1.2 | 1.2 | 1.2 | J | 041M580101 | | | NA | | | | | 0 | 14 | 0 | No | EPC < RC |
| Beryllium | 0 | 1 | 0.035 | 0.035 | 0.035 | 0.035 | | | 0.035 | U | ND | | | NA | | | | | 0 | 0.84 | 0 | No | Parameter Not Detected |
| Calcium | 1 | 1 | | | | 230 | 230 | 230 | 230 | J | 041M580101 | | | NA | | | | | 0 | 10,756.67 | 0 | No | EPC < RC |
| Cobalt | 0 | 1 | 0.075 | 0.075 | 0.075 | 0.075 | | | 0.075 | U | ND | | | NA | | | | | 0 | 2.8 | 0 | No | Parameter Not Detected |
| Cyanide (CN) | 0 | 1 | 0.355 | 0.355 | 0.355 | 0.355 | | | 0.355 | U | ND | | | NA | | | | | 0 | 5.22 | 0 | No | Parameter Not Detected |
| Iron | 1 | 1 | | | | 548 | 548 | 548 | 548 | | 041M580101 | | | NA | | | | | 0 | 11,911.67 | 0 | No | EPC < RC |
| Magnesium | 1 | 1 | | | | 70 | 70 | 70 | 70 | J | 041M580101 | | | NA | | | | | 0 | 7,513.33 | 0 | No | EPC < RC |
| Manganese | 1 | 1 | | | | 1.2 | 1.2 | 1.2 | 1.2 | | 041M580101 | | | NA | | | | | 0 | 37.97 | 0 | No | EPC < RC |
| Potassium | 1 | 1 | | | | 41.2 | 41.2 | 41.2 | 41.2 | J | 041M580101 | | | NA | | | | | 0 | 1,628.67 | 0 | No | EPC < RC |
| Selenium | 1 | 1 | | | | 0.41 | 0.41 | 0.41 | 0.41 | J | 041M580101 | | | NA | | | | | 0 | 3.45 | 0 | No | EPC < RC |
| Sodium | 0 | 1 | 11.4 | 11.4 | 11.4 | 11.4 | | | 11.4 | U | ND | | | NA | | | | | 0 | 18,993.33 | 0 | No | Parameter Not Detected |
| Thallium | 0 | 1 | 0.145 | 0.145 | 0.145 | 0.145 | | | 0.145 | U | ND | | | NA | | | | | 0 | 1.57 | 0 | No | Parameter Not Detected |
| Vanadium | 1 | 1 | | | | 2.5 | 2.5 | 2.5 | 2.5 | J | 041M580101 | | | NA | | | | | 0 | 28.67 | 0 | No | EPC < RC |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.06 | 0.06 | 0.06 | 0.06 | | | 0.06 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan I | 0 | 1 | 0.06 | 0.06 | 0.06 | 0.06 | | | 0.06 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan II | 0 | 1 | 0.115 | 0.115 | 0.115 | 0.115 | | | 0.115 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan sulfate | 0 | 1 | 0.115 | 0.115 | 0.115 | 0.115 | | | 0.115 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor | 0 | 1 | 0.06 | 0.06 | 0.06 | 0.06 | | | 0.06 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor epoxide | 0 | 1 | 0.06 | 0.06 | 0.06 | 0.06 | | | 0.06 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Methoxychlor | 0 | 1 | 0.6 | 0.6 | 0.6 | 0.6 | | | 0.6 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toxaphene | 0 | 1 | 12 | 12 | 12 | 12 | | | 12 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| alpha-BHC | 0 | 1 | 0.06 | 0.06 | 0.06 | 0.06 | | | 0.06 | U | ND | | 0.99 | PEL | | | 0.06 | 0.06 | 0 | | 0 | No | Parameter Not Detected |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichlorobenzene | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,4-Dichlorobenzene | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,5-Trichlorophenol | 0 | 1 | 550 | 550 | 550 | 550 | | | 550 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,6-Trichlorophenol | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dichlorophenol | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dimethylphenol | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrophenol | 0 | 1 | 550 | 550 | 550 | 550 | | | 550 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrotoluene | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,6-Dinitrotoluene | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chloronaphthalene | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chlorophenol | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 550 | 550 | 550 | 550 | | | 550 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitroaniline | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitrophenol | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3,3'-Dichlorobenzidine | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3-Nitroaniline | 0 | 1 | 550 | 550 | 550 | 550 | | | 550 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Bromophenyl-phenylether | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chloro-3-methylphenol | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chloroaniline | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chlorophenylphenyl ether | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitroaniline | 0 | 1 | 550 | 550 | 550 | 550 | | | 550 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitrophenol | 0 | 1 | 550 | 550 | 550 | 550 | | | 550 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethoxy)methane | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethyl)ether | 0 | 1 | 23 | 23 | 23 | 23 | | | 23 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbazole | 1 | 1 | | | | 40 | 40 | 40 | 40 | J | 041M580101 | | | NA | | | | | 0 | | 0 | Yes | No SV, no RV, and no RC |
| Dibenzofuran | 1 | 1 | | | | 88 | 88 | 88 | 88 | J | 041M580101 | | | NA | | | | | 0 | | 0 | Yes | No SV, no RV, and no RC |
| Diethylphthalate | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | 182 | 2,647 | PEL | 1.26 | 1.26 | 0.09 | 0.09 | 0 | | 0 | No | Parameter Not Detected |
| Dimethylphthalate | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | 182 | 2,647 | PEL | 1.26 | 1.26 | 0.09 | 0.09 | 0 | | 0 | No | Parameter Not Detected |
| Di-n-octylphthalate | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | 182 | 2,647 | PEL | 1.26 | 1.26 | 0.09 | 0.09 | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobenzene | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobutadiene | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorocyclopentadiene | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachloroethane | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Isophorone | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Nitrobenzene | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitroso-di-n-propylamine | 0 | 1 | 23 | 23 | 23 | 23 | | | 23 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitrosodiphenylamine | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Pentachlorophenol | 0 | 1 | 550 | 550 | 550 | 550 | | | 550 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Phenol | 0 | 1 | 230 | 230 | 230 | 230 | | | 230 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |

**Table 15-4-7**
**Wetland 58 Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2-Trichloroethane | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethane | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethene | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethane | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethene (total) | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloropropane | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Butanone (MEK) | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Hexanone | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Acetone | 1 | 1 | | | | 520 | 520 | 520 | 520 | | 041M580101 | | | NA | | | | | 0 | | 0 | Yes | No SV, no RV, and no RC |
| Benzene | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromodichloromethane | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromoform | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromomethane | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon disulfide | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon tetrachloride | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chlorobenzene | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroethane | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroform | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloromethane | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| cis-1,3-Dichloropropene | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dibromochloromethane | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Ethylbenzene | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Methylene chloride | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Styrene | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Tetrachloroethene | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toluene | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| trans-1,3-Dichloropropene | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Trichloroethene | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Vinyl chloride | 0 | 1 | 8.5 | 8.5 | 8.5 | 8.5 | | | 8.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Xylene (Total) | 0 | 1 | 28 | 28 | 28 | 28 | | | 28 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |

***Notes:***

Sources for Refinement Values (RVs):
PEL = FDEP Probable Effects Level
MEC = Swartz Midrange Effect Concentration

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
Parameters in bold were detected and exceeded screening values.

J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
PEL = Probable effects level.

N/R = No refinement value available.
N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters.
As a result, some average detections may exceed the maximum detections
NAS Pensacola basewide levels used as reference values for 4,4'-DDT, 4,4'-DDD, 4,4'-DDE and total DDT.

**Table 15-4-8**
**Wetland 58 Phase II**
**Sediment COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| **Detected Parameters** | | | |
| None | None | Carbazole<br>Dibenzofuran | None |

**Table 15-4-9**
**Wetland 58 Phase II**
**Mean ERM Quotient**

| Sample ID | Sample Date | Units | Result | VQUAL | Parameter | ERL | ERM | ERM Quotient |
|---|---|---|---|---|---|---|---|---|
| 041M580101 | 1/24/1996 | mg/kg | 0.27 | J | Arsenic | 8.2 | 70 | 0.00 |
| 041M580101 | 1/24/1996 | mg/kg | 0.075 | U | Cadmium | 1.2 | 9.6 | 0.01 |
| 041M580101 | 1/24/1996 | mg/kg | 1.2 | | Chromium | 81 | 370 | 0.00 |
| 041M580101 | 1/24/1996 | mg/kg | 1.8 | | Copper | 34 | 270 | 0.01 |
| 041M580101 | 1/24/1996 | mg/kg | 7.8 | | Lead | 46.7 | 218 | 0.04 |
| 041M580101 | 1/24/1996 | mg/kg | 0.03 | U | Mercury | 0.15 | 0.71 | 0.04 |
| 041M580101 | 1/24/1996 | mg/kg | 1.2 | J | Nickel | 20.9 | 51.6 | 0.02 |
| 041M580101 | 1/24/1996 | mg/kg | 0.18 | U | Silver | 1 | 3.7 | 0.05 |
| 041M580101 | 1/24/1996 | mg/kg | 2.3 | | Zinc | 150 | 410 | 0.01 |
| 041M580101 | 1/24/1996 | µg/kg | 0.115 | U | 4,4'-DDE | 2.2 | 27 | 0.00 |
| 041M580101 | 1/24/1996 | µg/kg | 0.115 | U | 4,4'-DDT | 1.58 | 46.1 | 0.00 |
| 041M580101 | 1/24/1996 | µg/kg | 8.71 | | Total PCBs | 22.7 | 180 | 0.05 |
| 041M580101 | 1/24/1996 | µg/kg | 110 | | 2-Methylnaphthalene | 70 | 670 | 0.16 |
| 041M580101 | 1/24/1996 | µg/kg | 110 | | Acenaphthene | 16 | 500 | 0.22 |
| 041M580101 | 1/24/1996 | µg/kg | 23 | U | Acenaphthylene | 44 | 640 | 0.04 |
| 041M580101 | 1/24/1996 | µg/kg | 84 | | Anthracene | 85.3 | 1,100 | 0.08 |
| 041M580101 | 1/24/1996 | µg/kg | 23 | U | Benzo(a)anthracene | 261 | 1,600 | 0.01 |
| 041M580101 | 1/24/1996 | µg/kg | 23 | U | Benzo(a)pyrene | 430 | 1,600 | 0.01 |
| 041M580101 | 1/24/1996 | µg/kg | 23 | U | Chrysene | 384 | 2,800 | 0.01 |
| 041M580101 | 1/24/1996 | µg/kg | 23 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.09 |
| 041M580101 | 1/24/1996 | µg/kg | 110 | | Fluoranthene | 600 | 5,100 | 0.02 |
| 041M580101 | 1/24/1996 | µg/kg | 120 | | Fluorene | 19 | 540 | 0.22 |
| 041M580101 | 1/24/1996 | µg/kg | 220 | | Naphthalene | 160 | 2,100 | 0.10 |
| 041M580101 | 1/24/1996 | µg/kg | 250 | | Phenanthrene | 240 | 1,500 | 0.17 |
| 041M580101 | 1/24/1996 | µg/kg | 70 | | Pyrene | 665 | 2,600 | 0.03 |
| 041M580101 | 1/24/1996 | | | | ERM Quotient Sum | | | 1.40 |
| 041M580101 | 1/24/1996 | | | | Mean ERM Quotient | | | 0.06 |
| 041M580101 | 1/24/1996 | | | | Mean ERM Quotient without ND | | | 0.05 |
| 041M580101 | 1/24/1996 | | | | Mean ERM Quotient Category | | | 3 |

***Notes:***
ERL = Effects Range Low
ERM = Effects Range Median
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
U = not detected at or above the SQL (value in table is 1/2 reported value)
J = estimated value
Shaded cells indicate constituent exceeds ERL.
**Shaded and bold cells indicate constituent exceeds ERM.**

**Table 15-4-10**
**Wetland 58 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | |
| **Aluminum** | **1** | **1** | | | | **1,090** | **1,090** | **1,090** | **041W580101** | **1,090** | | **13** | **FDEP** | **83.8** | **Yes** | **Max Detect > SV** |
| Antimony | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | 160 | EPA | 0.01 | No | Max SQL< SV |
| Arsenic | 1 | 1 | | | | 3.1 | 3.1 | 3.1 | 041W580101 | 3.1 | J | 50 | FDEP | 0.06 | No | Max Detect < SV |
| Barium | 1 | 1 | | | | 3.4 | 3.4 | 3.4 | 041W580101 | 3.4 | J | | NA | | Yes | No SV |
| Beryllium | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.13 | FDEP | 3.85 | Yes | Max SQL > SV |
| Cadmium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | 0.66 | EPA | 1.52 | Yes | Max SQL > SV |
| Calcium | 1 | 1 | | | | 9,230 | 9,230 | 9,230 | 041W580101 | 9,230 | | | NA | | Yes | No SV |
| Chromium | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 11 | EPA | 0.23 | No | Max SQL< SV |
| Cobalt | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Copper | 1 | 1 | | | | 5.2 | 5.2 | 5.2 | 041W580101 | 5.2 | J | 6.54 | EPA | 0.80 | No | Max Detect < SV |
| Cyanide (CN) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 5.2 | EPA | 0.48 | No | Max SQL< SV |
| Iron | 1 | 1 | | | | 4,070 | 4,070 | 4,070 | 041W580101 | 4,070 | | | NA | | Yes | No SV |
| **Lead** | **1** | **1** | | | | **7.4** | **7.4** | **7.4** | **041W580101** | **7.4** | | **1.32** | **EPA** | **5.61** | **Yes** | **Max Detect > SV** |
| Magnesium | 1 | 1 | | | | 4110 | 4110 | 4110 | 041W580101 | 4110 | J | | NA | | Yes | No SV |
| Manganese | 0 | 1 | 2.45 | 2.45 | 2.45 | 2.45 | | | ND | 2.45 | U | | NA | | Yes | No SV |
| Mercury | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.012 | EPA | 5.42 | Yes | Max SQL > SV |
| Nickel | 0 | 1 | 4.5 | 4.5 | 4.5 | 4.5 | | | ND | 4.5 | U | 87.71 | EPA | 0.05 | No | Max SQL< SV |
| Potassium | 1 | 1 | | | | 1,420 | 1,420 | 1,420 | 041W580101 | 1,420 | J | | NA | | Yes | No SV |
| Selenium | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 5 | EPA | 0.4 | No | Max SQL< SV |
| Silver | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.012 | EPA | 208 | Yes | Max SQL > SV |
| Sodium | 1 | 1 | | | | 11,400 | 11,400 | 11,400 | 041W580101 | 11,400 | | | NA | | Yes | No SV |
| Thallium | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 4 | EPA | 0.5 | No | Max SQL< SV |
| Vanadium | 1 | 1 | | | | 10.6 | 10.6 | 10.6 | 041W580101 | 10.6 | J | | NA | | Yes | No SV |
| Zinc | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 58.91 | EPA | 0.03 | No | Max SQL< SV |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endosulfan I | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.056 | EPA | 0.45 | No | Max SQL< SV |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0038 | EPA | 6.58 | Yes | Max SQL > SV |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.00004 | FDEP | 625 | Yes | Max SQL > SV |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | U | | NA | | Yes | No SV |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0043 | EPA | 11.6 | Yes | Max SQL > SV |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0023 | EPA | 21.7 | Yes | Max SQL > SV |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| gamma-BHC (Lindane) | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.08 | EPA | 0.31 | No | Max SQL< SV |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | Yes | No SV |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0003 | FDEP | 167 | Yes | Max SQL > SV |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0002 | FDEP | 250 | Yes | Max SQL > SV |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.00059 | FDEP | 84.7 | Yes | Max SQL > SV |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.014 | EPA | 35.7 | Yes | Max SQL > SV |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | Yes | No SV |
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| **SVOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |

**Table 15-4-10**
**Wetland 58 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 43.8 | EPA | 0.06 | No | Max SQL< SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.3 | EPA | 8.33 | Yes | Max SQL > SV |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Di-n-butylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 9.4 | EPA | 0.27 | No | Max SQL< SV |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Naphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 26 | FDEP | 0.02 | No | Max SQL< SV |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Total PAH | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | Yes | No SV |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 270 | FDEP | 0.00 | No | Max SQL< SV |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3.2 | FDEP | 0.16 | No | Max SQL< SV |
| **VOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 15.8 | EPA | 0.03 | No | Max SQL< SV |

**Table 15-4-10**
**Wetland 58 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3 | FDEP | 0.17 | No | Max SQL< SV |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Benzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 53 | EPA | 0.01 | No | Max SQL< SV |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 17 | FDEP | 0.03 | No | Max SQL< SV |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chloroform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 289 | EPA | 0.00 | No | Max SQL< SV |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Ethylbenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 453 | EPA | 0.00 | No | Max SQL< SV |
| Methylene chloride | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 1,580 | FDEP | 0.00 | No | Max SQL< SV |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Toluene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 175 | EPA | 0.00 | No | Max SQL< SV |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8)
HQ = Hazard Quotient.
N/R = No refinement value available.
N/A = Not Applicable.

Average result calculations include summing detections and one half the detection limits for not detected parameters.
As a result, some average detections may exceed the maximum detections.
Parameters in bold were detected and exceeded the screening value.

**Table 15-4-11**
**Wetland 58 Phase II**
**Surface Water COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | None | None | None |
| Barium | | | |
| Calcium | | | |
| Iron | | | |
| Lead | | | |
| Magnesium | | | |
| Potassium | | | |
| Sodium | | | |
| Vanadium | | | |
| | | **Not Detected Parameters** | |
| Beryllium | Aldrin | 1,2,4-Trichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Cadmium | Dieldrin | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1,2-Trichloroethane |
| Cobalt | Endosulfan II | 2,4,5-Trichlorophenol | 1,1-Dichloroethane |
| Manganese | Endosulfan sulfate | 2,4,6-Trichlorophenol | 1,2-Dibromo-3-Chloropropane |
| Mercury | Heptachlor | 2,4-Dichlorophenol | 1,2-Dibromoethane |
| Silver | Heptachlor epoxide | 2,4-Dimethylphenol | 1,2-Dichloroethane |
| | Methoxychlor | 2,4-Dinitrophenol | 1,2-Dichloropropane |
| | Toxaphene | 2,4-Dinitrotoluene | 1,3-Dichlorobenzene |
| | alpha-Chlordane | 2,6-Dinitrotoluene | 2-Hexanone |
| | gamma-Chlordane | 2-Chloronaphthalene | 4-Methyl-2-Pentanone (MIBK) |
| | Total Chlordane | 2-Methyl-4,6-Dinitrophenol | Bromochloromethane |
| | Endrin | 2-Methylphenol (o-Cresol) | Bromodichloromethane |
| | Endrin aldehyde | 2-Nitroaniline | Bromoform |
| | Endrin ketone | 2-Nitrophenol | Bromomethane |
| | Total Endrin | 3,3'-Dichlorobenzidine | Carbon disulfide |
| | alpha-BHC | 3-Nitroaniline | Carbon tetrachloride |
| | beta-BHC | 4-Bromophenyl-phenylether | Chloroethane |
| | delta-BHC | 4-Chloro-3-methylphenol | Chloromethane |
| | Total BHC | 4-Chloroaniline | cis-1,2-Dichloroethene |
| | 4,4'-DDD | 4-Chlorophenylphenyl ether | cis-1,3-Dichloropropene |
| | 4,4'-DDE | 4-Methylphenol (p-Cresol) | Dibromochloromethane |
| | 4,4'-DDT | 4-Nitroaniline | Styrene |
| | Total DDT | 4-Nitrophenol | Tetrachloroethene |
| | Aroclor-1016 | Benzo(b)fluoranthene | trans-1,2-Dichloroethene |
| | Aroclor-1221 | Benzo(g,h,i)perylene | trans-1,3-Dichloropropene |
| | Aroclor-1232 | Benzo(k)fluoranthene | Trichloroethene |
| | Aroclor-1242 | bis(2-Chloroethoxy)methane | Vinyl chloride |
| | Aroclor-1248 | bis(2-Chloroethyl)ether | Xylene (Total) |
| | Aroclor-1254 | bis(2-Ethylhexyl)phthalate (BEHP) | |
| | Aroclor-1260 | Butylbenzylphthalate | |
| | Total PCBs | Dibenzofuran | |
| | | Diethylphthalate | |
| | | Dimethylphthalate | |
| | | Di-n-octylphthalate | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Indeno(1,2,3-cd)pyrene | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |
| | | 2-Methylnaphthalene | |
| | | Acenaphthene | |
| | | Acenaphthylene | |
| | | Anthracene | |
| | | Benzo(a)anthracene | |
| | | Benzo(a)pyrene | |
| | | Chrysene | |
| | | Dibenz(a,h)anthracene | |
| | | Fluoranthene | |
| | | Fluorene | |
| | | Phenanthrene | |
| | | Pyrene | |
| | | Total PAHs | |

**Table 15-4-12**
**Wetland 58 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | | | | |
| **Aluminum** | **1** | **1** | | | | **1,090** | **1,090** | **1,090** | **041W580101** | **1,090** | | **13** | **FDEP** | **84** | **83.8** | **1,090.25** | **0** | **No** | **Max Result < Ref. Conc.** |
| Barium | 1 | 1 | | | | 3.4 | 3.4 | 3.4 | 041W580101 | 3.4 | J | | NA | | | 3.68 | 0 | No | Max Result < Ref. Conc. |
| Beryllium | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.13 | FDEP | 4 | 3.85 | 1 | 0 | No | Max SQL < Ref. Conc. |
| Cadmium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | 0.66 | EPA | 2 | 1.52 | 3 | 0 | No | Max SQL < Ref. Conc. |
| Calcium | 1 | 1 | | | | 9,230 | 9,230 | 9,230 | 041W580101 | 9,230 | | | NA | | | 7,675 | 1 | No | Essential Nutrient |
| Cobalt | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | 3 | 0 | No | Max SQL < Ref. Conc. |
| Iron | 1 | 1 | | | | 4,070 | 4,070 | 4,070 | 041W580101 | 4,070 | | | NA | | | 2,360 | 1 | Yes | Max Result > Ref. Conc. |
| **Lead** | **1** | **1** | | | | **7.4** | **7.4** | **7.4** | **041W580101** | **7.4** | | **1.32** | **EPA** | **6** | **5.61** | **3.2** | **1** | **Yes** | **Max Result > Ref. Conc.** |
| Magnesium | 1 | 1 | | | | 4,110 | 4,110 | 4,110 | 041W580101 | 4,110 | J | | NA | | | 20,260 | 0 | No | Max Result < Ref. Conc. |
| Manganese | 0 | 1 | 2.45 | 2.45 | 2.45 | 2.45 | | | ND | 2.45 | U | | NA | | | 13.2 | 0 | No | Max SQL < Ref. Conc. |
| Mercury | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.012 | EPA | 5.42 | 5.42 | 0.13 | 0 | No | Max SQL < Ref. Conc. |
| Potassium | 1 | 1 | | | | 1,420 | 1,420 | 1,420 | 041W580101 | 1,420 | J | | NA | | | 6,995 | 0 | No | Max Result < Ref. Conc. |
| Silver | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.012 | EPA | 208.33 | 208 | 4 | 0 | No | Max SQL < Ref. Conc. |
| Sodium | 1 | 1 | | | | 11,400 | 11,400 | 11,400 | 041W580101 | 11,400 | | | NA | | | 182,200 | 0 | No | Max Result < Ref. Conc. |
| Vanadium | 1 | 1 | | | | 10.6 | 10.6 | 10.6 | 041W580101 | 10.6 | J | | NA | | | 4.7 | 1 | Yes | Max Result > Ref. Conc. |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0038 | EPA | 7 | 6.58 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.00004 | FDEP | 625 | 625 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0043 | EPA | 12 | 11.6 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0023 | EPA | 22 | 21.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | No | Parameter Not Detected |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| gamma-BHC (Lindane) | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.08 | EPA | 0.31 | 0.31 | | 0 | No | Parameter Not Detected; Max SQL < SV |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0003 | FDEP | 167 | 167 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0002 | FDEP | 250 | 250 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.00059 | FDEP | 85 | 84.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.014 | EPA | 36 | 35.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |

**Table 15-4-12**
**Wetland 58 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | | | | |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.3 | EPA | 8.33 | 8.33 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Naphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 26 | FDEP | 0.02 | 0.02 | | 0 | No | Parameter Not Detected; Max SQL < SV |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Total PAH | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |

**Table 15-4-12**
**Wetland 58 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | | | | |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL

UJ = Not detected. SQL is estimated.
D = Diluted Result
J = Estimated Value

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
PEL = Probable effects level.
N/R = No refinement value available.

N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters
As a result, some average detections may exceed the Max detections
Parameters in bold were detected and exceeded Ref. Conc.s

**Table 15-4-13**
**Wetland 58 Phase II**
**Surface Water COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Iron | None | None | None |
| Lead | | | |
| Vanadium | | | |

## 15.5 Wetland W2 — Screening Level Problem Formulation

### 15.5.1 Site Description and Habitats Present at Wetland W2

Wetland W2, also known as the Southeast Drainage Ditch, drains surface and storm water from the northeastern end of Forrest Sherman Field and the Barrancas Cemetery area into the southern portion of Redoubt Bayou (Figure 15-1).

Parsons and Pruitt (USEPA, 1991a) had not classified or described Wetland W2; however, E&E, Inc. added the site to the list (E&E, 1992). Wetland W2 contains emergent vegetation such as cattails (*Typha latifolia*) and duck potato (*Sagittaria sp*). Vegetation is periodically cleared from this system to facilitate free flow of water. The Wetland W2 drainage system received surface water from the cemetery area via buried twin eight-foot diameter culverts, which pass under Taylor Road, emerging on the northwest side of Site 1 adjacent to Wetland 1. This feature continues to the southwest as an open drainage ditch for approximately 1,000 feet until it intersects Wetland W2 about 900 feet upstream from Redoubt Bayou. Wetland W2 is tidally influenced from Redoubt Bayou to this intersection. An active NPDES permit location exists where the two ditches intersect. During the Site 41 RI, the wetland and associated drainage area were sampled and results were reported.

The IR sites potentially affecting Wetland W2 are Sites 1 (OU 1), 5, 6, and 16.

As described in Section 10, the Site 1 landfill was used from the mid-1950s until 1976 as the predominant disposal site for all solid wastes generated on the base. Based on the data collected during the Site 1 RI, the *Final ROD* (EnSafe, 1998a) issued on August 19, 1998, outlined three RAOs for the OU 1 site:

- Protection of groundwater from leachable compounds
- Restoration of groundwater and prevention of further contamination of shallow/intermediate groundwater
- Prevention of further contamination of surface water in Wetland 3

The following remedial actions were selected for the site:

- Institutional controls to restrict groundwater use and intrusive activities
- Implementation of a groundwater monitoring program to ensure that natural processes are effectively reducing the concentrations of organic compounds to attain performance standards

- A groundwater interceptor system to treat the iron-contaminated groundwater that is migrating from the landfill and discharging to Wetland 3

The long-term monitoring plan was implemented by TetraTech NUS. Groundwater was monitored for the following constituents: 1,1,2,2-tetrachlorethane, benzene, chlorobenzene, vinyl chloride, xylenes, aluminum, cadmium, chromium, iron, manganese, and nickel.

Based upon collected data, the Third Annual Groundwater Monitoring Report recommended continued monitoring for benzene, xylenes, vinyl chloride, aluminum, cadmium, iron, and manganese (TtNUS, 2003). The other constituents no longer exceeded MCLs and were dropped from the monitoring plan. Treatment of iron at Wetland 3 is discussed in Section 10.2.

Site 5 (Borrow Pit) occupies an area approximately 650 by 800 feet and is bordered to the north and south by wooded areas and on the east by Site 6. Site 5 was a cover material source for Site 1, the Sanitary Landfill. Concentrations detected during the Site 5 investigation were low (E/A&H, 1995a). A previous UST investigation at Site 3221NE, adjacent to the northwest corner of Site 5, showed that the contaminants were not associated with Site 5 (E/A&H, 1995a). Site 3221NE will be addressed under the Florida Petroleum Program. The USEPA (USEPA Region 4, 1995a) and FDEP (1995a) approved remedial alternative for Site 5 was no action.

Site 6 (Fort Redoubt Rubble Disposal Area) is covered by concrete and asphalt rubble, scrap wood, brush piles, metal, plastic, and other debris. There are no paved areas on site. Site 6 is an active construction rubble debris landfill subject to State of Florida solid waste regulations. Therefore, the site was not investigated under the IR program. FDEP concurred with the finding in 1997 (FDEP, 1997d).

Site 16 (Brush Disposal Site) consists of the disposal site for tree pruning and trimming from the late 1960s. Site 16 occupies approximately 30 acres of a sparsely vegetated, open field immediately northeast of Sherman Field. It was reportedly used during the late 1960s to 1973 for the disposal of pruning and tree-trimming refuse. However, the area may have been used for garbage incineration and ash disposal. There was no evidence of chemical usage onsite. A visual inspection showed evidence of brush and several pieces of metal onsite.

Inorganic constituents in Site 16 soil were similar to those identified at other sites in the area (E/A&H, 1997a). Elevated soil PAH concentrations likely originated from a source not related to site activities (E/A&H, 1997a). Detected concentrations of aluminum and iron in groundwater were below their respective reference concentrations at all locations but one for each constituent

(E/A&H, 1997a). The USEPA (USEPA Region 4, 1997c) and FDEP (FDEP, 1997a) approved alternative for Site 16 was no action.

**Photograph 1 Wetland W2 — Facing North**

### 15.5.2 Wetland W2 — Sample Location Description

#### Sediment Sample Location Description

Three sediment samples were collected and analyzed for the Wetland W2 ERA. Sample locations for Wetland W2 were located along the southwest portion of the open drainage ditch, at the convergence of Wetland W2 and surrounding drainage area, as well as at the mouth of the drainage system and Redoubt Bayou (Figure 15-4). Table 15-5-1 (tables are located at the end of each section) provides a physical description of the sediments collected at Wetland W2. Sediments at Wetland W2 were mostly composed of fine-grained sand to medium fine-grained sand. The sediment location near Redoubt Bayou was mostly composed of dark brown silty sand with organics (041MW20101 and 041MW20301) to brown poorly graded sand, medium, trace of silt (041MW20201). TOC concentrations ranged from 0.511% at 041MW20201 to 16.5% at the 041MW20301, nearest the bayou.

#### Surface Water Sample Location Description

One surface water sample was collected at Wetland W2, location 041WW20201 (Figure 15-4), which was collocated with sediment location 041MW20201. The surface water sample was collected during

the 1996 site investigation. Table 15-5-2 provides a physical description of the surface water collected at Wetland W2. Surface water at Wetland W2 had a pH concentration of 6.22. Specific conductivity concentration was 0.35 mS/cm. Hardness as $CaCO_3$ reported a concentration of 43.3 mg/L, and salinity was 0.04%. Surface water at Wetland W2 had a turbidity reading of 6 NTUs.

### 15.5.3 Nature and Extent of Contamination

**Phase II Sediment**

Figure 15-4 presents the Phase II sediment sampling locations for Wetland W2. Table 15-5-3 presents a summary of the analytical results of the three Phase II sediment samples.

**Metals** — Nineteen metals were detected during Phase II sediment sampling at Wetland W2. The distribution of inorganic detections and reference value exceedances were primarily centered at location 041MW20301, near the north edge of the wetland and the Redoubt Bayou. Of the 19 metals detected, nine exceeded the estuarine reference values. Location 041MW20101, near the southern edge of the wetland, exhibited reference value exceedances for two analytes. Barium and selenium were the common analytes exceeding the reference values at the four locations. Location 041MW20201, near the center of the wetland contained the fewest metal detections (15), none of which exceeded the reference concentration.

**Pesticides and PCBs** — Eight pesticide compounds and the PCB aroclor-1260 were detected during Phase II sediment sampling at Wetland W2. Total DDT was calculated for each location by adding the concentrations of 4,4′-DDD, 4,4′-DDE, and 4,4′-DDT. Likewise, a basewide total DDT reference concentration was calculated using the basewide concentrations for these same constituents.

The greatest number of pesticides detected in Wetland W2 sediments during Phase II sampling was situated near the south end of the wetland at location 041MW20101. The number of detections and concentrations decreased proceeding north along the wetland, with four pesticide compounds detected at the center (location 041MW20201), and one detected at the north end (location 041MW20301). None of the detections exceeded reference concentrations. Aroclor-1260 was detected at three locations at relatively low concentrations. A reference concentration has not been established for aroclor-1260.

**SVOCs** — Nine SVOCs (including PAHs) were detected in sediment samples collected during Phase II sampling at Wetland W2. The distribution of detections and concentrations generally mirrored the pesticide detections. Location 041MW20101, located at the southern edge of the wetland, contained eight SVOCs. The most commonly detected compounds were bis(2-ethylhexyl)phthalate, butylbenzylphthalate, and di-n-butylphthalate. No reference concentration has been established for the detected compounds.

**VOCs** — One VOC was detected in sediments collected from Wetland W2 during Phase II sampling. Acetone, a common laboratory artifact, was detected at 041MW20301, located at the northern edge of the wetland. A reference concentration has not been established for acetone.

**Phase II Surface Water**

Figure 15-4 presents the Phase II surface sampling locations for Wetland W2. Table 15-5-4 presents a summary of the analytical results of the one Phase II surface water sample.

**Metals** — Ten metals were detected in the Phase II surface water sample collected from Wetland W2. Manganese was the only metal detected above its estuarine reference concentration. Sample 41WW20201, located at the center of the wetland, contained one exceedance for manganese.

**Pesticides and PCBs** — No pesticides or PCBs were detected during Phase II surface water sampling at Wetland W2.

**SVOCs** — One SVOC, 2-methylnaphthalene, was detected at a relatively low concentration during Phase II surface water sampling at Wetland W2. No reference concentration is established for 2-methylnaphthalene.

**VOCs** — VOCs were not detected during Phase II surface water sampling at Wetland W2.

### 15.5.4 Ecological Risk Assessment

**Phase II Investigation Summary — Wetland W2**

**Sediment Screening — Level Risk-Exposure Estimation and Risk Calculation**

As presented in Table 15-5-5, the sediment samples were compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than 1 or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-5-6.

**Baseline Problem Formulation — Wetland W2 Sediment COPC Refinement**

During the COPC refinement, additional information was used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as preliminary COPCs. This risk assessment presents a statement of potential risk for each of the COPCs.

The COPC refinement process included:

- Comparison of maximum concentrations to RVs
- Comparison of average concentrations to SVs and RVs

- Comparison to basewide (reference) concentrations for total DDT
- Comparison of inorganic constituents to reference wetland values
- Regression analysis for metals
- Di Toro EqP SQGs for VOCs
- Comparison to Swartz consensus values
- Mean ERM quotients
- Description of exceedances of RVs and their extent

The methods used in the COPC refinement in the Site 41 ERA process are detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-5-7. Additionally, the tables compare: 1) average concentrations to screening and refinement values to assess potential exposure across the entire wetland, and 2) Wetland W2 concentrations to reference concentrations. COPCs retained after refinement are presented in Table 15-5-8.

At Wetland W2, total DDT and its daughter products were below the basewide level, indicating these constituents were not a concern for this wetland. For Wetland W2, aluminum, arsenic, barium, beryllium, cobalt, iron, selenium, and vanadium exceeded their Site 41 estuarine sediment reference concentrations. The following constituents were retained as COPCs: aluminum, barium, beryllium, cobalt, iron, selenium, and vanadium. Based on regression analysis, the barium concentration at sample location 041MW20101 was identified as an outlier when normalized to iron concentrations.

Several organic constituents were detected and retained as COPCs due to a lack of screening criteria: aldrin, endrin, total endrin, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, and acetone. When normalized to detected TOC concentrations, both VOCs and PAHs do not appear to be risk drivers for Wetland W2.

Table 15-5-9 presents the Mean ERL and ERM values, the Mean ERM Quotients, and the Mean ERM Quotient Category by individual sample location. Based on this approach, two of the three sample locations (041MW20101 and 041MW20301) were determined to be Category 2, which, according to tests evaluated in developing this methodology, had average survival rates of approximately 80% of control sediments; however, this category also has the highest level of uncertainty. Sample location 041MW20201 was determined to be a Category 1, indicating sediment at this location were considered nontoxic. Figure 15-7 also shows the Mean ERM category for each sediment sample location at Wetland W2.

At Wetland W2, beryllium and cobalt were detected at two of the three sample locations, with a maximum detection of 0.35 mg/kg and 3.3 mg/kg, respectively, occurring at sample location 041MW20301. Aluminum had a maximum concentration of 6,700 mg/kg; iron had a

detection of 5,130 mg/kg; and vanadium was reported with a maximum concentration of 27 mg/kg. These constituents' maximum concentrations occurred at sample location 041MW20301. The following constituents and concentrations were reported at sample location 041MW20101: barium with a maximum detection of 11.5 mg/kg; and selenium had a maximum concentration of 1.6 mg/kg.

Aldrin was detected at one of the three sample locations, with a detection of 0.23 µg/kg occurring at 041MW20101. No background values were available for this compound. Endrin and total endrin were detected in two of the sample locations, with the maximum concentration reported for sample location 041MW20301. Screening criteria is no available for these constituents. Benzo(b)fluoranthene and indeno(1,2,3-cd)pyrene were detected at sample location 041MW20101, with maximum concentration of 28 µg/kg and 26 µg/kg, respectively. There were no background values available for these constituents.

**Surface Water Screening — Level Risk-Exposure Estimation and Risk Calculation**

As presented in Table 15-5-10, the surface water sample was compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than one or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-5-11.

**Baseline Problem Formulation — Wetland W2 Surface Water COPC Refinement**

During the surface water COPC refinement, additional information will be used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as preliminary COPCs. The COPC refinement process included:

- Comparison of maximum SV concentrations to average SV concentrations
- Comparison of inorganic constituents to reference wetland values
- Description of surface water exceedances and their extent

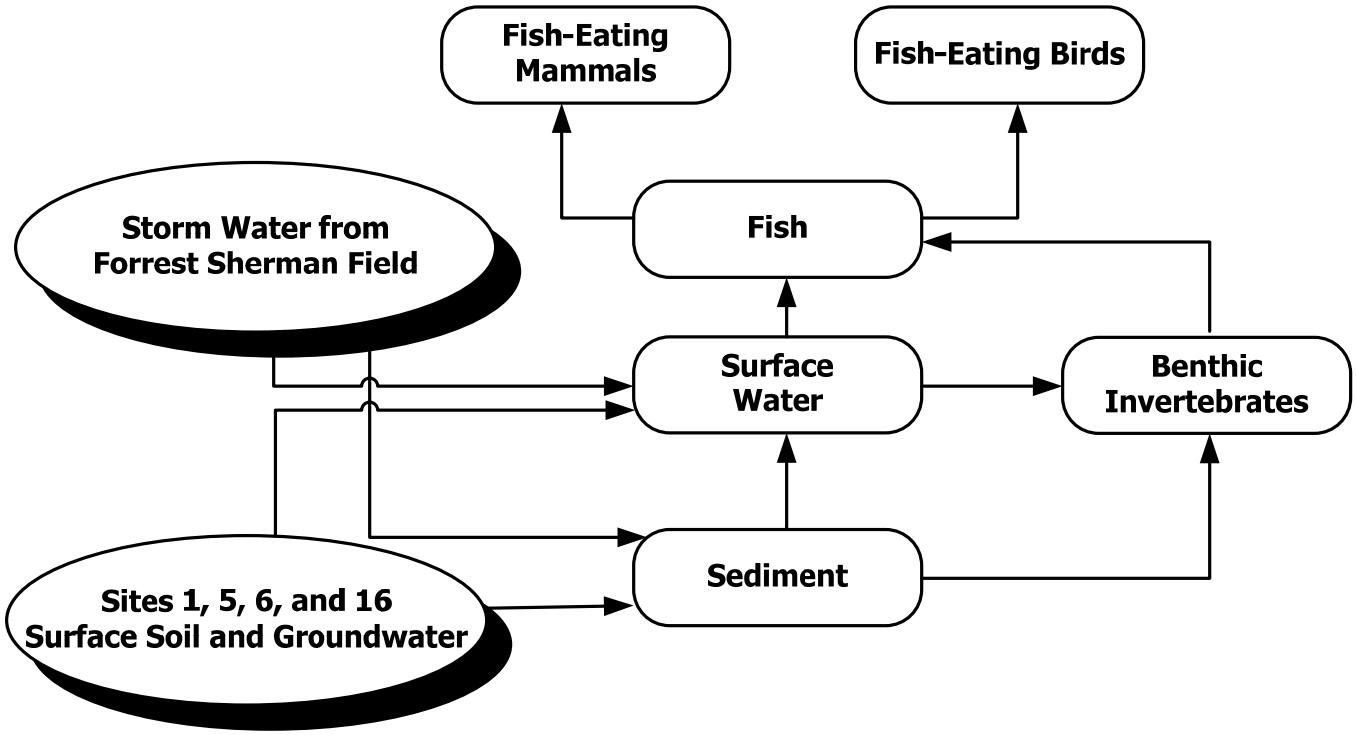
The methods used in the COPC refinement in the Site 41 ERA process are detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-5-12. Additionally, the tables compare average concentrations to screening and refinement values to assess potential exposure across the entire wetland. A list of COPCs retained after refinement are presented in Table 15-5-13.

For Wetland W2, manganese exceeded its Site 41 estuarine reference surface water concentration (Table 15-5-12). 2-Methylnaphthalene and total PAH were detected and retained as COPCs during the ERA process.

Based on the Phase II results described above, Wetland W2 was identified as a Blue-Coded Wetland in the approved *Final RI/FS SAP Addendum* (E/A&H, 1997d), indicating that contaminants were present generally below screening values, and contaminants did not appear to be site related. Blue-Coded Wetlands were not assessed further in Phase III. However, to assess potential risks from contaminants that bioaccumulate, the results from Wetland W2 will be used in the food-chain model for the remaining wetlands presented in Section 15.8.

The conceptual model below symbolizes which environmental habitats, may be impacted by Wetland W2 Phase II constituents retained during the ERA process.

**Wetland W2**
**Conceptual Site Model**




### 15.5.5 Wetland W2 — Human Health Risk Assessment

Wetland W2 is described in Section 15.5.1, and the HHRA is summarized below.

#### 15.5.5.1 Site Data

Section 15.6.3 summarizes the nature and extent of contamination for this wetland. Surface water and sediment data were collected at Wetland W2 during Phase II. Sediment and surface water data for W2 are summarized in Tables 15-5-3 and 15-5-4.

#### 15.5.5.2 Conceptual Site Model

As described in Section 15.5.1, Wetland W2, also known as the Southeast Drainage Ditch, drains surface and storm water from the northeastern end of Forrest Sherman Field and the Barrancas Cemetery area into the southern portion of Redoubt Bayou. Because Wetland W2 is located in a restricted area of the base, the wetland is only accessible to Navy personnel.

Wetland W2 is continually inundated; therefore, in accordance with USEPA Region IV Supplemental Guidance to RAGS Bulletins (2000) described in Section 9, sediment exposure was not assessed in this HHRA, because it is assumed to be an insignificant exposure pathway.

The following scenarios and exposure pathways were evaluated for this wetland:

| Scenario | Medium | Ingestion | Dermal |
|---|---|---|---|
| Maintenance | Surface water | √ | √ |

#### 15.5.5.3 Risk Characterization

The adult maintenance worker scenario for surface water was assessed for this wetland as described in Section 9.

**Phase II Data**

***Maintenance Worker***

As shown in Tables 15-5-14 and 15-5-16, surface water ingestion and dermal contact risk estimates for maintenance workers were below the FDEP risk threshold. Hazard indices were below 1.0.

**Summary of Wetland W2 Phase II Risk Estimates**

| Scenario | Medium | Hazard Index | Risk |
|---|---|---|---|
| Maintenance | Surface water | 6.92E-04 | N/A |

Based on Phase II data, no COCs for Wetland W2 were identified.

**Wetland W2 HHRA COC Summary**

No COCs were identified in the HHRA for Wetland W2.

### 15.5.6 Wetland W2 — Fate and Transport Analysis

This wetland is a drainage feature that borders the southeastern and northwestern boundaries of the northeast-southwest runway of Forrest Sherman Field. Four samples (three sediment samples and one surface water sample) were collected in the portion of this wetland that flows to the northwest.

The wetland receives drainage from the northeastern portion of the northeast-southwest Forrest Sherman Field runway and receives storm water drainage and groundwater discharge from IR Sites 5 and 16 (see Figure 15-1).

The sediment and surface water COPCs retained after refinement for this wetland are summarized in Tables 15-5-8 and 15-5-13 respectively. Provided below are the associated soil borings and monitoring wells used for comparing data for the fate and transport analysis.

**Monitoring Wells Associated with W2:** 005GGS01, 005GGS02, 005GGS04, 005GGS03, 016GGS08, 016GGS06, 016GGS07, 016GGS03, 016GGS05

**Borings Associated with W2:** 005S0001, 005S0002, 005S0004, 005S0005, 005S0003, 016S0008, 016S0009, 016S0006, 016S0007, 016S0003, 016S0012, 016S0011, 016S0005

***Surface Water/Sediment Transport into the Wetlands Media:***

**Surface Water** — There was no directly comparable storm water data from the area proximal to this wetland complex. Because of the lack of data, no definitive statement can be made regarding the validation of the storm water runoff pathway into the wetland complex. The vast majority of surface water drainage to this wetland is runoff from the northeast-southwest runway at Forrest Sherman Field. The wetland is also be affected by storm water runoff and groundwater discharge from Sites 5 and 16. Borings and wells from these sites were evaluated as potential impacts to the wetland.

**Sediment** — Based on the data from surface soil in associated borings, this pathway was validated for the following parameters:

| Phase II |
|---|
| Aluminum |
| Barium |
| Beryllium |
| Cobalt |
| Iron |
| Selenium |
| Vanadium |
| Aldrin |
| Benzo(b)fluoranthene |
| Indeno(1,2,3-cd)pyrene |

***Groundwater Discharge into the Wetland Media:***

**Surface Water** — Based on the data from associated wells, the groundwater to surface water pathway was validated and significant for the following parameters (note that 1993 data are not used due to the potential bias from sampling methodology):

| Phase II |
|---|
| Manganese |

**Sediment** — Based on the data from associated wells, the groundwater to sediment pathway was validated and significant for the following parameters (note that 1993 data are not used due to the potential bias from sampling methodology):

| Phase II |
|---|
| Aluminum |
| Beryllium |
| Iron |
| Vanadium |

***Surface Water/Sediment Transport within the Wetlands:***

**Surface Water** — Because there was only one surface water sample collected in this wetland, this pathway could not be evaluated.

**Sediment** — To evaluate this pathway, upgradient sediment sample location041MW201 was compared to downgradient sample locations 041MW202 and 041MW203.

Evaluation of locations 041MW201 and 041MW202 indicated a decrease in detected parameters downgradient (18 metals and 17 organics upgradient versus 15 metals and eight organics

downgradient). TOC exhibited a marked decrease downgradient. For metals, one parameter was present in the downgradient location that was not detected in the upgradient location. Of the 14 metals detected at both locations all exhibited a marked decrease. For the organics, six compounds exhibited a decrease downgradient and two compounds exhibited an increase; decreases in organics were only moderate. The organics detected consist of low level PCBs, pesticides, and phthalates. PCBs and the pesticides were consistent with application residuals and storm water runoff, and the phthalates may be laboratory artifacts.

Evaluation of locations 041MW202 and 041MW203 indicate an increase in inorganic detections and a decrease in organics (15 metals and eight organics upgradient versus 18 metals and four organics downgradient). TOC exhibited a marked increase. For the metals, three parameters were present downgradient that were not detected in the upgradient location. Of the 15 parameters detected in both locations, all 15 exhibited a marked increase. For the organics, three compounds were present in the downgradient locations that were not detected in the upgradient location. Only one organic detected at both exhibited an increase. Detected organics at both locations were similar and consistent with pesticide application residuals and potential laboratory artifacts (phthalates).

**Table 15-5-1**
**Wetland W2 Phase II**
**Sediment Physical Parameters**

| Parameter | 041MW20101 | 041MW20201 | 041MW20301 |
|---|---|---|---|
| TOC (%) | 1.68 | 0.511 | 16.5 |
| Percent Solids (%) | 69.3 | 71.5 | 17 |
| Grain Size Analysis (percent of composition[1]) | | | |
| Medium Sand | 16 | 29 | 10 |
| Fine Sand | 72 | 70 | 51 |
| Silt and Clay | 12 | 1 | 39 |
| Description | Dark Brown Silty Sand with organics | Brown Poorly Graded Sand, Medium, Trace of Silt | Dark Brown Silty Sand with Organics |

***Note:***
[1] = Derived from sieve analyses.

**Table 15-5-2**
**Wetland W2 Phase II**
**Surface Water Physical Parameters**

| Parameter | 041WW20201 |
|---|---|
| Hardness as CaCO3 (mg/L) | 43.3 |
| pH | 6.22 |
| Specific Conductivity (mS/cm) | 0.35 |
| Turbidity (NTU) | 6 |
| Salinity (%) | 0.04 |

***Notes:***
mg/L = Milligrams per liter
pH = Hydrogen ion content
MS/cm = Millisiemens per centimeter
NTU = Nephelometric turbidity units
% = Percent

**Table 15-5-3**
**Wetland W2**
**Phase II Sediment Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections | | Range of Detections | | Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| | | | Number Detected | Number Analyzed | Minimum Detection | Maximum Detection | | |
| **Metals (mg/kg)** | | | | | | | | |
| Aluminum | 4,274.0 | 1 | 3 | 3 | 607.0 | 6,700.0 | 3,620.0 | 041MW20301 |
| Arsenic | 2.140 | 1 | 2 | 3 | 0.50 | 14.10 | 4.890 | 041MW20301 |
| Barium | 3.840 | 2 | 3 | 3 | 1.0 | 11.50 | 6.270 | 041MW20101 |
| Beryllium | 0.130 | 1 | 2 | 3 | 0.080 | 0.350 | 0.155 | 041MW20301 |
| Cadmium | 0.390 | 0 | 1 | 3 | 0.180 | 0.180 | 0.187 | 041MW20101 |
| Calcium | 1,978.80 | 0 | 3 | 3 | 285.0 | 1,250.0 | 623.0 | 041MW20301 |
| Chromium | 13.10 | 0 | 3 | 3 | 0.760 | 10.20 | 5.450 | 041MW20301 |
| Cobalt | 0.910 | 1 | 2 | 3 | 0.240 | 3.30 | 1.20 | 041MW20301 |
| Copper | 8.440 | 0 | 3 | 3 | 1.30 | 4.70 | 3.070 | 041MW20301 |
| Iron | 2,684.40 | 1 | 3 | 3 | 209.0 | 5,130.0 | 2,050.0 | 041MW20301 |
| Lead | 21.040 | 0 | 3 | 3 | 2.30 | 17.10 | 9.50 | 041MW20101 |
| Magnesium | 2,943.60 | 0 | 3 | 3 | 93.50 | 1,660.0 | 636.0 | 041MW20301 |
| Manganese | 9.810 | 0 | 3 | 3 | 1.20 | 6.0 | 3.40 | 041MW20301 |
| Nickel | 3.690 | 1 | 3 | 3 | 0.80 | 9.20 | 3.770 | 041MW20301 |
| Potassium | 899.720 | 0 | 3 | 3 | 32.0 | 503.0 | 208.0 | 041MW20301 |
| Selenium | 0.660 | 2 | 3 | 3 | 0.460 | 1.60 | 1.120 | 041MW20101 |
| Sodium | 11,439.60 | 0 | 2 | 3 | 254.0 | 2,430.0 | 896.0 | 041MW20301 |
| Vanadium | 8.590 | 1 | 3 | 3 | 1.20 | 27.0 | 11.30 | 041MW20301 |
| Zinc | 14.360 | 0 | 3 | 3 | 4.90 | 10.40 | 7.670 | 041MW20301 |
| **PAHs (µg/kg)** | | | | | | | | |
| Chrysene | N/A | 0 | 1 | 3 | 40.0 | 40.0 | 81.80 | 041MW20101 |
| Fluoranthene | N/A | 0 | 1 | 3 | 47.0 | 47.0 | 84.20 | 041MW20101 |
| Pyrene | N/A | 0 | 1 | 3 | 82.0 | 82.0 | 95.80 | 041MW20101 |
| Total PAHs | N/A | 0 | 1 | 3 | 362.0 | 362.0 | 941.0 | 041MW20101 |
| **Pesticides and PCBs (µg/kg)** | | | | | | | | |
| Aroclor-1260 | N/A | 0 | 3 | 3 | 1.70 | 5.60 | 3.70 | 041MW20301 |
| Total PCBs | N/A | 0 | 3 | 3 | 9.350 | 37.350 | 19.30 | 041MW20301 |
| Aldrin | N/A | 0 | 1 | 3 | 0.230 | 0.230 | 0.170 | 041MW20101 |
| Dieldrin | N/A | 0 | 1 | 3 | 0.340 | 0.340 | 0.30 | 041MW20101 |
| alpha-Chlordane | N/A | 0 | 2 | 3 | 0.140 | 0.220 | 0.197 | 041MW20201 |
| Total Chlordane | N/A | 0 | 2 | 3 | 0.195 | 0.270 | 0.308 | 041MW20201 |
| Endrin | N/A | 0 | 2 | 3 | 0.770 | 2.50 | 1.130 | 041MW20301 |
| Total Endrin | N/A | 0 | 2 | 3 | 0.990 | 3.410 | 1.570 | 041MW20301 |
| delta-BHC | N/A | 0 | 1 | 3 | 0.630 | 0.630 | 0.303 | 041MW20101 |
| Total BHC | N/A | 0 | 1 | 3 | 0.795 | 0.795 | 0.638 | 041MW20101 |
| 4,4'-DDD | 50.0 | 0 | 2 | 3 | 0.860 | 5.80 | 2.370 | 041MW20101 |
| 4,4'-DDE | 40.0 | 0 | 2 | 3 | 0.380 | 2.40 | 1.080 | 041MW20101 |
| 4,4'-DDT | 20.0 | 0 | 2 | 3 | 0.280 | 3.50 | 1.410 | 041MW20101 |
| Total DDT | 110.0 | 0 | 2 | 3 | 1.520 | 11.70 | 4.860 | 041MW20101 |
| **SVOCs (µg/kg)** | | | | | | | | |
| Benzo(b)fluoranthene | N/A | 0 | 1 | 3 | 28.0 | 28.0 | 77.80 | 041MW20101 |
| bis(2-Ethylhexyl)phthalate (BEHP) | N/A | 0 | 2 | 3 | 55.0 | 460.0 | 788.0 | 041MW20101 |
| Butylbenzylphthalate | N/A | 0 | 2 | 3 | 21.0 | 32.0 | 634.0 | 041MW20101 |
| Diethylphthalate | N/A | 0 | 1 | 3 | 220.0 | 220.0 | 213.0 | 041MW20301 |
| Di-n-butylphthalate | N/A | 0 | 2 | 3 | 33.0 | 39.0 | 641.0 | 041MW20101 |
| Indeno(1,2,3-cd)pyrene | N/A | 0 | 1 | 3 | 26.0 | 26.0 | 77.20 | 041MW20101 |
| **VOCs (µg/kg)** | | | | | | | | |
| Acetone | N/A | 0 | 1 | 3 | 210.0 | 210.0 | 83.70 | 041MW20301 |

***Notes:***
µg/kg = micrograms per kilogram
mg/kg = milligram per kilogram
N/A = Not Applicable

**Table 15-5-4**
**Wetland W2 Phase II**
**Surface Water Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Range of Detections: Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | |
| Aluminum | 2,927.5 | 0 | 1 | 1 | 213.0 | 213.0 | 213.0 | 041WW20201 |
| Barium | 9.43 | 0 | 1 | 1 | 8.2 | 8.2 | 8.2 | 041WW20201 |
| Calcium | 76,800.0 | 0 | 1 | 1 | 15,000.0 | 15,000.0 | 15,000.0 | 041WW20201 |
| Copper | 7.03 | 0 | 1 | 1 | 6.8 | 6.8 | 6.8 | 041WW20201 |
| Iron | 1,352.0 | 0 | 1 | 1 | 309.0 | 309.0 | 309.0 | 041WW20201 |
| Magnesium | 243,650.0 | 0 | 1 | 1 | 1,450.0 | 1,450.0 | 1,450.0 | 041WW20201 |
| Manganese | 12.15 | 1 | 1 | 1 | 17.2 | 17.2 | 17.2 | 041WW20201 |
| Potassium | 81,250.0 | 0 | 1 | 1 | 1,870.0 | 1,870.0 | 1,870.0 | 041WW20201 |
| Sodium | 1,952,000.0 | 0 | 1 | 1 | 5,260.0 | 5,260.0 | 5,260.0 | 041WW20201 |
| Zinc | 12.88 | 0 | 1 | 1 | 8.8 | 8.8 | 8.8 | 041WW20201 |
| **SVOCs (µg/L)** | | | | | | | | |
| 2-Methylnaphthalene | N/A | 0 | 1 | 1 | 1.0 | 1.0 | 1.0 | 041WW20201 |
| Total PAH | N/A | 0 | 1 | 1 | 7.0 | 7.0 | 7.0 | 041WW20201 |

***Notes:***
µg/L = micrograms per liter
N/A = Not Applicable

**Table 15-5-5**
**Wetland W2 Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | |
| Aluminum | 3 | 3 | | | 607 | 6,700 | 041MW20301 | 6,700 | | | N/A | | Yes | No SV |
| Antimony | 0 | 3 | 0.07 | 1.55 | | | ND | 1.55 | UJ | 12 | 2 | 0.13 | No | Max SQL< SV |
| **Arsenic** | **2** | **3** | **0.07** | **0.07** | **0.5** | **14.1** | **041MW20301** | **14.1** | | **7.24** | **1, 2** | **1.95** | **Yes** | **Max Detect > SV** |
| Barium | 3 | 3 | | | 1 | 11.5 | 041MW20101 | 11.5 | J | | N/A | | Yes | No SV |
| Beryllium | 2 | 3 | 0.035 | 0.035 | 0.08 | 0.35 | 041MW20301 | 0.35 | J | | N/A | | Yes | No SV |
| Cadmium | 1 | 3 | 0.07 | 0.31 | 0.18 | 0.18 | 041MW20101 | 0.18 | J | 0.676 | 1 | 0.27 | No | Max Detect < SV |
| Calcium | 3 | 3 | | | 285 | 1,250 | 041MW20301 | 1,250 | J | | N/A | | Yes | No SV |
| Chromium | 3 | 3 | | | 0.76 | 10.2 | 041MW20301 | 10.2 | | 52.3 | 1, 2 | 0.20 | No | Max Detect < SV |
| Cobalt | 2 | 3 | 0.07 | 0.07 | 0.24 | 3.3 | 041MW20301 | 3.3 | J | | N/A | | Yes | No SV |
| Copper | 3 | 3 | | | 1.3 | 4.7 | 041MW20301 | 4.7 | J | 18.7 | 1, 2 | 0.25 | No | Max Detect < SV |
| Cyanide (CN) | 0 | 3 | 0.325 | 1.45 | | | ND | 1.45 | U | | N/A | | Yes | No SV |
| Iron | 3 | 3 | | | 209 | 5,130 | 041MW20301 | 5,130 | | | N/A | | Yes | No SV |
| Lead | 3 | 3 | | | 2.3 | 17.1 | 041MW20101 | 17.1 | | 30.2 | 1, 2 | 0.57 | No | Max Detect < SV |
| Magnesium | 3 | 3 | | | 93.5 | 1,660 | 041MW20301 | 1,660 | | | N/A | | Yes | No SV |
| Manganese | 3 | 3 | | | 1.2 | 6 | 041MW20301 | 6 | | | N/A | | Yes | No SV |
| Mercury | 0 | 3 | 0.025 | 0.135 | | | ND | 0.135 | U | 0.13 | 1, 2 | 1.04 | Yes | Max SQL > SV |
| Nickel | 3 | 3 | | | 0.8 | 9.2 | 041MW20301 | 9.2 | J | 15.9 | 1, 2 | 0.58 | No | Max Detect < SV |
| Potassium | 3 | 3 | | | 32 | 503 | 041MW20301 | 503 | J | | N/A | | Yes | No SV |
| Selenium | 3 | 3 | | | 0.46 | 1.6 | 041MW20101 | 1.6 | J | | N/A | | Yes | No SV |
| Silver | 0 | 3 | 0.175 | 0.75 | | | ND | 0.75 | U | 0.733 | 1 | 1.02 | Yes | Max SQL > SV |
| Sodium | 2 | 3 | 3.15 | 3.15 | 254 | 2,430 | 041MW20301 | 2,430 | | | N/A | | Yes | No SV |
| Thallium | 0 | 3 | 0.14 | 0.6 | | | ND | 0.6 | U | | N/A | | Yes | No SV |
| Vanadium | 3 | 3 | | | 1.2 | 27 | 041MW20301 | 27 | | | N/A | | Yes | No SV |
| Zinc | 3 | 3 | | | 4.9 | 10.4 | 041MW20301 | 10.4 | | 124 | 1, 2 | 0.08 | No | Max Detect < SV |
| **PAHs (µg/kg)** | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 3 | 20.5 | 185 | | | ND | 185 | U | 20.2 | 1 | 9.16 | No | TOC Normalized PAHs<TEC |
| Acenaphthene | 0 | 3 | 10 | 90 | | | ND | 90 | U | 6.71 | 1 | 13.4 | No | TOC Normalized PAHs<TEC |
| Acenaphthylene | 0 | 3 | 20.5 | 185 | | | ND | 185 | U | 5.87 | 1 | 31.5 | No | TOC Normalized PAHs<TEC |
| Anthracene | 0 | 3 | 20.5 | 185 | | | ND | 185 | U | 46.9 | 1 | 3.94 | No | TOC Normalized PAHs<TEC |
| Benzo(a)anthracene | 0 | 3 | 20.5 | 185 | | | ND | 185 | U | 74.8 | 1 | 2.47 | No | TOC Normalized PAHs<TEC |
| Benzo(a)pyrene | 0 | 3 | 20.5 | 185 | | | ND | 185 | U | 88.8 | 1 | 2.08 | No | TOC Normalized PAHs<TEC |
| Chrysene | 1 | 3 | 20.5 | 185 | 40 | 40 | 041MW20101 | 40 | J | 108 | 1 | 0.37 | No | TOC Normalized PAHs<TEC |
| Dibenz(a,h)anthracene | 0 | 3 | 20.5 | 185 | | | ND | 185 | U | 6.22 | 1 | 29.7 | No | TOC Normalized PAHs<TEC |
| Fluoranthene | 1 | 3 | 20.5 | 185 | 47 | 47 | 041MW20101 | 47 | | 113 | 1 | 0.42 | No | TOC Normalized PAHs<TEC |
| Fluorene | 0 | 3 | 10 | 90 | | | ND | 90 | U | 21.2 | 1 | 4.25 | No | TOC Normalized PAHs<TEC |
| Naphthalene | 0 | 3 | 20.5 | 185 | | | ND | 185 | U | 34.6 | 1 | 5.35 | No | TOC Normalized PAHs<TEC |
| Phenanthrene | 0 | 3 | 20.5 | 185 | | | ND | 185 | U | 86.7 | 1 | 2.13 | No | TOC Normalized PAHs<TEC |
| Pyrene | 1 | 3 | 20.5 | 185 | 82 | 82 | 041MW20101 | 82 | | 153 | 1 | 0.54 | No | TOC Normalized PAHs<TEC |
| Total PAHs | 1 | 3 | 246 | 2,220 | 362 | 362 | 041MW20101 | 362 | | 1,684 | 1, 2 | 0.22 | No | TOC Normalized PAHs<TEC |
| TOC Normalized PAHs | 1 | 3 | 13.42 | 48.04 | 21.55 | 21.55 | 041MW20101 | 21.55 | | 290 | 3 | 0.07 | No | Max Detect < SV |
| **PCBs (µg/kg)** | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 3 | 1.05 | 4.55 | | | ND | 4.55 | U | 21.6 | N/A | 0.21 | No | Max SQL< SV |
| Aroclor-1221 | 0 | 3 | 2.05 | 9 | | | ND | 9 | U | 67 | 2 | 0.13 | No | Max SQL< SV |
| Aroclor-1232 | 0 | 3 | 1.05 | 4.55 | | | ND | 4.55 | U | 21.6 | N/A | 0.21 | No | Max SQL< SV |
| Aroclor-1242 | 0 | 3 | 1.05 | 4.55 | | | ND | 4.55 | U | 21.6 | N/A | 0.21 | No | Max SQL< SV |
| Aroclor-1248 | 0 | 3 | 1.05 | 4.55 | | | ND | 4.55 | U | 21.6 | N/A | 0.21 | No | Max SQL< SV |
| Aroclor-1254 | 0 | 3 | 1.05 | 4.55 | | | ND | 4.55 | U | 21.6 | N/A | 0.21 | No | Max SQL< SV |
| Aroclor-1260 | 3 | 3 | | | 1.7 | 5.6 | 041MW20301 | 5.6 | J | 21.6 | N/A | 0.26 | No | Max Detect < SV |
| **Total PCBs** | **3** | **3** | | | **9.35** | **37.3** | **041MW20301** | **37.3** | | **21.6** | **1** | **1.73** | **Yes** | **Max Detect > SV** |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | |
| Aldrin | 1 | 3 | 0.05 | 0.23 | 0.23 | 0.23 | 041MW20101 | 0.23 | J | | N/A | | Yes | No SV |
| Dieldrin | 1 | 3 | 0.105 | 0.455 | 0.34 | 0.34 | 041MW20101 | 0.34 | J | 0.716 | 1 | 0.48 | No | Max Detect < SV |
| Endosulfan I | 0 | 3 | 0.05 | 0.23 | | | ND | 0.23 | U | | N/A | | Yes | No SV |
| Endosulfan II | 0 | 3 | 0.105 | 0.455 | | | ND | 0.455 | U | | N/A | | Yes | No SV |
| Endosulfan sulfate | 0 | 3 | 0.105 | 0.455 | | | ND | 0.455 | U | | N/A | | Yes | No SV |
| Heptachlor | 0 | 3 | 0.05 | 0.23 | | | ND | 0.23 | U | | N/A | | Yes | No SV |
| Heptachlor epoxide | 0 | 3 | 0.05 | 0.23 | | | ND | 0.23 | U | | N/A | | Yes | No SV |
| Methoxychlor | 0 | 3 | 0.5 | 2.3 | | | ND | 2.3 | U | | N/A | | Yes | No SV |
| Toxaphene | 0 | 3 | 10.5 | 46.5 | | | ND | 46.5 | U | | N/A | | Yes | No SV |
| alpha-Chlordane | 2 | 3 | 0.23 | 0.23 | 0.14 | 0.22 | 041MW20201 | 0.22 | | 1.7 | 1 | 0.13 | No | Max Detect < SV |
| gamma-Chlordane | 0 | 3 | 0.05 | 0.23 | | | ND | 0.23 | U | 1.7 | 1 | 0.14 | No | Max SQL< SV |
| Total Chlordane | 2 | 3 | 0.46 | 0.46 | 0.195 | 0.27 | 041MW20201 | 0.27 | | 1.7 | 1 | 0.16 | No | Max Detect < SV |
| Endrin | 2 | 3 | 0.105 | 0.105 | 0.77 | 2.5 | 041MW20301 | 2.5 | J | 3.3 | 2 | 0.76 | No | Max Detect < SV |
| Endrin aldehyde | 0 | 3 | 0.105 | 0.455 | | | ND | 0.455 | U | 3.3 | 2 | 0.14 | No | Max SQL< SV |
| Endrin ketone | 0 | 3 | 0.105 | 0.455 | | | ND | 0.455 | U | 3.3 | 2 | 0.14 | No | Max SQL< SV |
| **Total Endrin** | **2** | **3** | **0.315** | **0.315** | **0.99** | **3.41** | **041MW20301** | **3.41** | | **3.3** | **2** | **1.03** | **Yes** | **Max Detect > SV** |
| alpha-BHC | 0 | 3 | 0.05 | 0.23 | | | ND | 0.23 | U | | N/A | | Yes | No SV |
| beta-BHC | 0 | 3 | 0.05 | 0.23 | | | ND | 0.23 | U | 0.32 | N/A | 0.72 | No | Max SQL< SV |
| **delta-BHC** | **1** | **3** | **0.05** | **0.23** | **0.63** | **0.63** | **041MW20101** | **0.63** | | **0.32** | **2** | **1.97** | **Yes** | **Max Detect > SV** |
| gamma-BHC (Lindane) | 0 | 3 | 0.05 | 0.23 | | | ND | 0.23 | U | 0.32 | 1 | 0.72 | No | Max SQL< SV |
| **Total BHC** | **1** | **3** | **0.2** | **0.92** | **0.795** | **0.795** | **041MW20101** | **0.795** | | **0.32** | **2** | **2.48** | **Yes** | **Max Detect > SV** |
| **4,4'-DDD** | **2** | **3** | **0.455** | **0.455** | **0.86** | **5.8** | **041MW20101** | **5.8** | **D** | **1.22** | **1** | **4.75** | **Yes** | **Max Detect > SV** |
| **4,4'-DDE** | **2** | **3** | **0.455** | **0.455** | **0.38** | **2.4** | **041MW20101** | **2.4** | **J** | **2.07** | **1** | **1.16** | **Yes** | **Max Detect > SV** |
| **4,4'-DDT** | **2** | **3** | **0.455** | **0.455** | **0.28** | **3.5** | **041MW20101** | **3.5** | **J** | **1.19** | **1** | **2.94** | **Yes** | **Max Detect > SV** |
| **Total DDT** | **2** | **3** | **1.37** | **1.37** | **1.52** | **11.7** | **041MW20101** | **11.7** | | **3.3** | **2** | **3.55** | **Yes** | **Max Detect > SV** |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 3 | 500 | 4,450 | | | ND | 4,450 | U | | N/A | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 3 | 500 | 4,450 | | | ND | 4,450 | U | | N/A | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 2-Chlorophenol | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 3 | 500 | 4,450 | | | ND | 4,450 | U | | N/A | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 2-Nitroaniline | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 2-Nitrophenol | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 3-Nitroaniline | 0 | 3 | 500 | 4,450 | | | ND | 4,450 | U | | N/A | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 4-Chloroaniline | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| 4-Nitroaniline | 0 | 3 | 500 | 4,450 | | | ND | 4,450 | U | | N/A | | Yes | No SV |
| 4-Nitrophenol | 0 | 3 | 500 | 4,450 | | | ND | 4,450 | U | | N/A | | Yes | No SV |
| Benzo(b)fluoranthene | 1 | 3 | 20.5 | 185 | 28 | 28 | 041MW20101 | 28 | J | | N/A | | No | TOC Normalized PAHs<TEC |
| Benzo(g,h,i)perylene | 0 | 3 | 20.5 | 185 | | | ND | 185 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| Benzo(k)fluoranthene | 0 | 3 | 20.5 | 185 | | | ND | 185 | U | | N/A | | No | TOC Normalized PAHs<TEC |
| bis(2-Chloroethoxy)methane | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 3 | 20.5 | 185 | | | ND | 185 | U | | N/A | | Yes | No SV |
| **bis(2-Ethylhexyl)phthalate (BEHP)** | **2** | **3** | **1,850** | **1,850** | **55** | **460** | **041MW20101** | **460** | | **182** | **1, 2** | **2.53** | **Yes** | **Max Detect > SV** |
| Butylbenzylphthalate | 2 | 3 | 1,850 | 1,850 | 21 | 32 | 041MW20101 | 32 | J | 182 | 1, 2 | 0.18 | No | Max Detect < SV |
| Carbazole | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| Dibenzofuran | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| **Diethylphthalate** | **1** | **3** | **205** | **215** | **220** | **220** | **041MW20301** | **220** | **J** | **182** | **1, 2** | **1.21** | **Yes** | **Max Detect > SV** |
| Dimethylphthalate | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | 182 | 1, 2 | 10.2 | Yes | Max SQL > SV |
| Di-n-butylphthalate | 2 | 3 | 1,850 | 1,850 | 33 | 39 | 041MW20101 | 39 | J | 182 | 1, 2 | 0.21 | No | Max Detect < SV |
| Di-n-octylphthalate | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | 182 | 1, 2 | 10.2 | Yes | Max SQL > SV |
| Hexachlorobenzene | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| Hexachlorobutadiene | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| Hexachloroethane | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 1 | 3 | 20.5 | 185 | 26 | 26 | 041MW20101 | 26 | J | | N/A | | No | TOC Normalized PAHs<TEC |
| Isophorone | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| Nitrobenzene | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 3 | 20.5 | 185 | | | ND | 185 | U | | N/A | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |
| Pentachlorophenol | 0 | 3 | 500 | 4,450 | | | ND | 4,450 | U | | N/A | | Yes | No SV |
| Phenol | 0 | 3 | 205 | 1,850 | | | ND | 1,850 | U | | N/A | | Yes | No SV |

**Table 15-5-5**
**Wetland W2 Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| 1,1,2,2-Tetrachloroethane | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethane | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethene (total) | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| 2-Butanone (MEK) | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| 2-Hexanone | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Acetone | 1 | 3 | 14 | 27 | 210 | 210 | 041MW20301 | 210 | | | N/A | | Yes | No SV |
| Benzene | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Bromodichloromethane | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Bromoform | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Bromomethane | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Carbon disulfide | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Carbon tetrachloride | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Chlorobenzene | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Chloroethane | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Chloroform | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Chloromethane | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Dibromochloromethane | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Ethylbenzene | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Methylene chloride | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Styrene | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Tetrachloroethene | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Toluene | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Trichloroethene | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |
| Vinyl chloride | 0 | 3 | 2 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Xylene (Total) | 0 | 3 | 6.5 | 24 | | | ND | 24 | U | | N/A | | Yes | No SV |

***Notes:***

Sources for Screening Values:
SV = Screening Value
1 = USEPA Region 4 Screening Value. Detailed explanation for SVs provided in Section 8.0.
2 = FDEP Threshold effects level

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available.
U or ND = Not Detected at or above the SQL
J = Estimated value
SHQ = Screening Hazard Quotient

D = Diluted Result
mg/kg = milligrams per kilograms
µg/kg = micrograms per kilograms
mg/kg oc = milligrams per kilograms - organic carbon
UJ = Not detected. SQL is estimated.
Parameters in bold were detected and exceeded screening values.

**Table 15-5-6**
**Wetland W2 Phase II**
**Sediment COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | 4,4'-DDD | bis(2-Ethylhexyl)phthalate (BEHP) | Acetone |
| Arsenic | 4,4'-DDE | Diethylphthalate | |
| Barium | 4,4'-DDT | | |
| Beryllium | Aldrin | | |
| Calcium | delta-BHC | | |
| Cobalt | Total BHC | | |
| Iron | Total DDT | | |
| Magnesium | Total Endrin | | |
| Manganese | Total PCBs | | |
| Potassium | | | |
| Selenium | | | |
| Sodium | | | |
| Vanadium | | | |
| | | **Not Detected Parameters** | |
| Cyanide (CN) | alpha-BHC | 1,2,4-Trichlorobenzene | 1,1,1-Trichloroethane |
| Thallium | Endosulfan I | 1,2-Dichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Mercury | Endosulfan II | 1,3-Dichlorobenzene | 1,1,2-Trichloroethane |
| Silver | Endosulfan sulfate | 1,4-Dichlorobenzene | 1,1-Dichloroethane |
| | Heptachlor | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1-Dichloroethene |
| | Heptachlor epoxide | 2,4,5-Trichlorophenol | 1,2-Dichloroethane |
| | Methoxychlor | 2,4,6-Trichlorophenol | 1,2-Dichloroethene (total) |
| | Toxaphene | 2,4-Dichlorophenol | 1,2-Dichloropropane |
| | | 2,4-Dimethylphenol | 2-Butanone (MEK) |
| | | 2,4-Dinitrophenol | 2-Hexanone |
| | | 2,4-Dinitrotoluene | 4-Methyl-2-Pentanone (MIBK) |
| | | 2,6-Dinitrotoluene | Benzene |
| | | 2-Chloronaphthalene | Bromodichloromethane |
| | | 2-Chlorophenol | Bromoform |
| | | 2-Methyl-4,6-Dinitrophenol | Bromomethane |
| | | 2-Methylphenol (o-Cresol) | Carbon disulfide |
| | | 2-Nitroaniline | Carbon tetrachloride |
| | | 2-Nitrophenol | Chlorobenzene |
| | | 3,3'-Dichlorobenzidine | Chloroethane |
| | | 3-Nitroaniline | Chloroform |
| | | 4-Bromophenyl-phenylether | Chloromethane |
| | | 4-Chloro-3-methylphenol | cis-1,3-Dichloropropene |
| | | 4-Chloroaniline | Dibromochloromethane |
| | | 4-Chlorophenylphenyl ether | Ethylbenzene |
| | | 4-Methylphenol (p-Cresol) | Methylene chloride |
| | | 4-Nitroaniline | Styrene |
| | | 4-Nitrophenol | Tetrachloroethene |
| | | bis(2-Chloroethoxy)methane | Toluene |
| | | bis(2-Chloroethyl)ether | trans-1,3-Dichloropropene |
| | | Carbazole | Trichloroethene |
| | | Dibenzofuran | Vinyl chloride |
| | | Dimethylphthalate | Xylene (Total) |
| | | Di-n-octylphthalate | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |

**Table 15-5-7**
**Wetland W2 Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 3 | 3 | | | | 3,620 | 607 | 6,700 | 6,700 | | 041MW20301 | | | NA | | | | | 0 | 4,274 | 1 | Yes | EPC > RC and no RV |
| Arsenic | 2 | 3 | 0.07 | 0.07 | 0.07 | 4.89 | 0.5 | 14.1 | 14.1 | | 041MW20301 | 7.24 | 41.6 | PEL | 1.95 | 0.68 | 0.34 | 0.12 | 0 | 2.14 | 1 | No | EPC > RC, but < RV |
| Barium | 3 | 3 | | | | 6.27 | 1 | 11.5 | 11.5 | J | 041MW20101 | | | NA | | | | | 0 | 3.84 | 2 | Yes | EPC > RC and no RV |
| Beryllium | 2 | 3 | 0.035 | 0.035 | 0.035 | 0.155 | 0.08 | 0.35 | 0.35 | J | 041MW20301 | | | NA | | | | | 0 | 0.13 | 1 | Yes | EPC > RC and no RV |
| Calcium | 3 | 3 | | | | 623 | 285 | 1,250 | 1,250 | J | 041MW20301 | | | NA | | | | | 0 | 1,978.80 | 0 | No | EPC < RC |
| Cobalt | 2 | 3 | 0.07 | 0.07 | 0.07 | 1.2 | 0.24 | 3.3 | 3.3 | J | 041MW20301 | | | NA | | | | | 0 | 0.91 | 1 | Yes | EPC > RC and no RV |
| Cyanide (CN) | 0 | 3 | 0.708 | 0.325 | 1.45 | 0.708 | | | 1.45 | U | ND | | | NA | | | | | 0 | 1.29 | 0 | No | Parameter Not Detected |
| Iron | 3 | 3 | | | | 2,050 | 209 | 5,130 | 5,130 | | 041MW20301 | | | NA | | | | | 0 | 2,684.40 | 1 | Yes | EPC > RC and no RV |
| Magnesium | 3 | 3 | | | | 636 | 93.5 | 1,660 | 1,660 | | 041MW20301 | | | NA | | | | | 0 | 2,943.60 | 0 | No | EPC < RC |
| Manganese | 3 | 3 | | | | 3.4 | 1.2 | 6 | 6 | | 041MW20301 | | | NA | | | | | 0 | 9.81 | 0 | No | EPC < RC |
| Mercury | 0 | 3 | 0.065 | 0.025 | 0.135 | 0.065 | | | 0.135 | U | ND | 0.13 | 0.696 | PEL | 1.04 | 0.5 | 0.19 | 0.09 | 0 | 0.11 | 1 | No | Parameter Not Detected |
| Potassium | 3 | 3 | | | | 208 | 32 | 503 | 503 | J | 041MW20301 | | | NA | | | | | 0 | 899.72 | 0 | No | EPC < RC |
| Selenium | 3 | 3 | | | | 1.12 | 0.46 | 1.6 | 1.6 | J | 041MW20101 | | | NA | | | | | 0 | 0.66 | 2 | Yes | EPC > RC and no RV |
| Silver | 0 | 3 | 0.37 | 0.175 | 0.75 | 0.37 | | | 0.75 | U | ND | 0.733 | 1.77 | PEL | 1.02 | 0.50 | 0.42 | 0.21 | 0 | 0.52 | 1 | No | Parameter Not Detected |
| Sodium | 2 | 3 | 3.15 | 3.15 | 3.15 | 896 | 254 | 2,430 | 2,430 | | 041MW20301 | | | NA | | | | | 0 | 11,439.60 | 0 | No | EPC < RC |
| Thallium | 0 | 3 | 0.295 | 0.14 | 0.6 | 0.295 | | | 0.6 | U | ND | | | NA | | | | | 0 | 0.39 | 0 | No | Parameter Not Detected |
| Vanadium | 3 | 3 | | | | 11.3 | 1.2 | 27 | 27 | | 041MW20301 | | | NA | | | | | 0 | 8.59 | 1 | Yes | EPC > RC and no RV |
| **PCBs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 3 | 2.23 | 1.05 | 4.55 | 2.23 | | | 4.55 | U | ND | 21.6 | 189 | PEL | 0.21 | 0.10 | 0.02 | 0.01 | 0 | | 0 | No | Parameter Not Detected |
| Aroclor-1221 | 0 | 3 | 4.4 | 2.05 | 9 | 4.4 | | | 9 | U | ND | 67 | 189 | PEL | 0.13 | 0.07 | 0.05 | 0.02 | 0 | | 0 | No | Parameter Not Detected |
| Aroclor-1232 | 0 | 3 | 2.23 | 1.05 | 4.55 | 2.23 | | | 4.55 | U | ND | 21.6 | 189 | PEL | 0.21 | 0.10 | 0.02 | 0.01 | 0 | | 0 | No | Parameter Not Detected |
| Aroclor-1242 | 0 | 3 | 2.23 | 1.05 | 4.55 | 2.23 | | | 4.55 | U | ND | 21.6 | 189 | PEL | 0.21 | 0.10 | 0.02 | 0.01 | 0 | | 0 | No | Parameter Not Detected |
| Aroclor-1248 | 0 | 3 | 2.23 | 1.05 | 4.55 | 2.23 | | | 4.55 | U | ND | 21.6 | 189 | PEL | 0.21 | 0.10 | 0.02 | 0.01 | 0 | | 0 | No | Parameter Not Detected |
| Aroclor-1254 | 0 | 3 | 2.23 | 1.05 | 4.55 | 2.23 | | | 4.55 | U | ND | 21.6 | 189 | PEL | 0.21 | 0.10 | 0.02 | 0.01 | 0 | | 0 | No | Parameter Not Detected |
| Aroclor-1260 | 3 | 3 | | | | 3.7 | 1.7 | 5.6 | 5.6 | J | 041MW20301 | 21.6 | 189 | PEL | 0.26 | 0.17 | 0.03 | 0.02 | 0 | | 0 | No | RV HQ <1 and no RC |
| Total PCBs | 3 | 3 | | | | 19.3 | 9.35 | 37.3 | 37.3 | | 041MW20301 | 21.6 | 189 | PEL | 1.73 | 0.89 | 0.20 | 0.10 | 0 | | 0 | No | RV HQ <1 and no RC |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aldrin | 1 | 3 | 0.14 | 0.05 | 0.23 | 0.17 | 0.23 | 0.23 | 0.23 | J | 041MW20101 | | | NA | | | | | 0 | | 0 | Yes | No SV, no RV, and no RC |
| Endosulfan I | 0 | 3 | 0.112 | 0.05 | 0.23 | 0.112 | | | 0.23 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan II | 0 | 3 | 0.223 | 0.105 | 0.455 | 0.223 | | | 0.455 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan sulfate | 0 | 3 | 0.223 | 0.105 | 0.455 | 0.223 | | | 0.455 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor | 0 | 3 | 0.112 | 0.05 | 0.23 | 0.112 | | | 0.23 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor epoxide | 0 | 3 | 0.112 | 0.05 | 0.23 | 0.112 | | | 0.23 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Methoxychlor | 0 | 3 | 1.12 | 0.5 | 2.3 | 1.12 | | | 2.3 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toxaphene | 0 | 3 | 22.7 | 10.5 | 46.5 | 22.7 | | | 46.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endrin | 2 | 3 | 0.105 | 0.105 | 0.105 | 1.13 | 0.77 | 2.5 | 2.5 | J | 041MW20301 | 3.3 | | NA | 0.76 | 0.34 | | | 0 | | 0 | No | RV HQ <1 and no RC |
| Endrin aldehyde | 0 | 3 | 0.223 | 0.105 | 0.455 | 0.223 | | | 0.455 | U | ND | 3.3 | | NA | 0.14 | 0.07 | | | 0 | | 0 | No | Parameter Not Detected |
| Endrin ketone | 0 | 3 | 0.223 | 0.105 | 0.455 | 0.223 | | | 0.455 | U | ND | 3.3 | | NA | 0.14 | 0.07 | | | 0 | | 0 | No | Parameter Not Detected |
| Total Endrin | 2 | 3 | 0.315 | 0.315 | 0.315 | 1.57 | 0.99 | 3.41 | 3.41 | | 041MW20301 | 3.3 | | NA | 1.03 | 0.48 | | | 0 | | 0 | Yes | No RV or RC and EPC > SV |
| alpha-BHC | 0 | 3 | 0.112 | 0.05 | 0.23 | 0.112 | | | 0.23 | U | ND | | 0.99 | PEL | | | 0.23 | 0.11 | 0 | | 0 | No | Parameter Not Detected |
| beta-BHC | 0 | 3 | 0.112 | 0.05 | 0.23 | 0.112 | | | 0.23 | U | ND | 0.32 | 0.99 | PEL | 0.72 | 0.35 | 0.23 | 0.11 | 0 | | 0 | No | Parameter Not Detected |
| delta-BHC | 1 | 3 | 0.14 | 0.05 | 0.23 | 0.303 | 0.63 | 0.63 | 0.63 | | 041MW20101 | 0.32 | 0.99 | PEL | 1.97 | 0.95 | 0.64 | 0.31 | 0 | | 0 | No | RV HQ <1 and no RC |
| gamma-BHC (Lindane) | 0 | 3 | 0.112 | 0.05 | 0.23 | 0.112 | | | 0.23 | U | ND | 0.32 | 0.99 | PEL | 0.72 | 0.35 | 0.23 | 0.11 | 0 | | 0 | No | Parameter Not Detected |
| Total BHC | 1 | 3 | 0.56 | 0.2 | 0.92 | 0.638 | 0.795 | 0.795 | 0.795 | | 041MW20101 | 0.32 | 0.99 | PEL | 2.48 | 1.99 | 0.80 | 0.65 | 0 | | 0 | No | RV HQ <1 and no RC |
| 4,4'-DDD | 2 | 3 | 0.455 | 0.455 | 0.455 | 2.37 | 0.86 | 5.8 | 5.8 | D | 041MW20101 | 1.22 | 7.81 | PEL | 4.75 | 1.94 | 0.74 | 0.30 | 0 | 50 | 0 | No | EPC < RC and RV |
| 4,4'-DDE | 2 | 3 | 0.455 | 0.455 | 0.455 | 1.08 | 0.38 | 2.4 | 2.4 | J | 041MW20101 | 2.07 | 374 | PEL | 1.16 | 0.52 | 0.01 | 0.00 | 0 | 40 | 0 | No | EPC < RC and RV |
| 4,4'-DDT | 2 | 3 | 0.455 | 0.455 | 0.455 | 1.41 | 0.28 | 3.5 | 3.5 | J | 041MW20101 | 1.19 | 4.77 | PEL | 2.94 | 1.19 | 0.73 | 0.30 | 0 | 20 | 0 | No | EPC < RC and RV |
| Total DDT | 2 | 3 | 1.37 | 1.37 | 1.37 | 4.86 | 1.52 | 11.7 | 11.7 | | 041MW20101 | 3.3 | 51.7 | PEL | 3.55 | 1.47 | 0.23 | 0.09 | 0 | 110 | 0 | No | EPC < RC and RV |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichlorobenzene | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,4-Dichlorobenzene | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,5-Trichlorophenol | 0 | 3 | 1,820 | 500 | 4,450 | 1,820 | | | 4,450 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,6-Trichlorophenol | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dichlorophenol | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dimethylphenol | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrophenol | 0 | 3 | 1,820 | 500 | 4,450 | 1,820 | | | 4,450 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrotoluene | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,6-Dinitrotoluene | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chloronaphthalene | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chlorophenol | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 3 | 1,820 | 500 | 4,450 | 1,820 | | | 4,450 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitroaniline | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitrophenol | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3,3'-Dichlorobenzidine | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3-Nitroaniline | 0 | 3 | 1,820 | 500 | 4,450 | 1,820 | | | 4,450 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Bromophenyl-phenylether | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chloro-3-methylphenol | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |

**Table 15-5-7**
**Wetland W2 Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result HQ | SV | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/kg) - cont.** | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-Chloroaniline | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chlorophenylphenyl ether | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Methylphenol (p-Cresol) | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitroaniline | 0 | 3 | 1,820 | 500 | 4,450 | 1,820 | | | 4,450 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitrophenol | 0 | 3 | 1,820 | 500 | 4,450 | 1,820 | | | 4,450 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethoxy)methane | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethyl)ether | 0 | 3 | 76 | 21 | 185 | 76 | | | 185 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Ethylhexyl)phthalate (BEHP) | 2 | 3 | 1,850 | 1,850 | 1,850 | 788 | 55 | 460 | 460 | | 041MW20101 | 182 | 2,647 | PEL | 2.53 | | 4.33 | 0.17 | 0.30 | 0 | | 0 | No | RV HQ <1 and no RC |
| Carbazole | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dibenzofuran | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Diethylphthalate | 1 | 3 | 210 | 205 | 215 | 213 | 220 | 220 | 220 | J | 041MW20301 | 182 | 2,647 | PEL | 1.21 | | 1.17 | 0.08 | 0.08 | 0 | | 0 | No | RV HQ <1 and no RC |
| Dimethylphthalate | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | 182 | 2,647 | PEL | 10.2 | | 4.16 | 0.70 | 0.29 | 0 | | 0 | No | Parameter Not Detected |
| Di-n-octylphthalate | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | 182 | 2,647 | PEL | 10.2 | | 4.16 | 0.70 | 0.29 | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobenzene | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobutadiene | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorocyclopentadiene | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachloroethane | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Isophorone | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Nitrobenzene | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitroso-di-n-propylamine | 0 | 3 | 76 | 21 | 185 | 76 | | | 185 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitrosodiphenylamine | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Pentachlorophenol | 0 | 3 | 1,820 | 500 | 4,450 | 1,820 | | | 4,450 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Phenol | 0 | 3 | 757 | 205 | 1,850 | 757 | | | 1,850 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| **VOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2,2-Tetrachloroethane | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2-Trichloroethane | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethane | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethene | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethane | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethene (total) | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloropropane | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Butanone (MEK) | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Hexanone | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Acetone | 1 | 3 | 20.5 | 14 | 27 | 83.7 | 210 | 210 | 210 | | 041MW20301 | | | NA | | | | | | 0 | | 0 | Yes | No SV, no RV, and no RC |
| Benzene | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromodichloromethane | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromoform | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromomethane | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon disulfide | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon tetrachloride | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chlorobenzene | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroethane | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroform | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloromethane | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| cis-1,3-Dichloropropene | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dibromochloromethane | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Ethylbenzene | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Methylene chloride | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Styrene | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Tetrachloroethene | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toluene | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| trans-1,3-Dichloropropene | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Trichloroethene | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Vinyl chloride | 0 | 3 | 4.5 | 2 | 7 | 4.5 | | | 7 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |
| Xylene (Total) | 0 | 3 | 15.3 | 6.5 | 24 | 15.3 | | | 24 | U | ND | | | NA | | | | | | 0 | | 0 | No | Parameter Not Detected |

***Notes:***

Sources for Refinement Values (RVs):
PEL = FDEP Probable Effects Level
MEC = Swartz Midrange Effect Concentration

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result
Parameters in bold were detected and exceeded screening values.

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
PEL = Probable effects level.

N/R = No refinement value available.
N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters.
As a result, some average detections may exceed the maximum detections
NAS Pensacola base wide levels used as reference values for 4,4'-DDT, 4,4'-DDD, 4,4'-DDE and total DDT.

**Table 15-5-8**
**Wetland W2 Phase II**
**Sediment COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | Aldrin | None | None |
| Barium | Total Endrin | | |
| Beryllium | | | |
| Cobalt | | | |
| Iron | | | |
| Selenium | | | |
| Vanadium | | | |

**Table 15-5-9**
**Wetland W2 Phase II**
**Mean ERM Quotient**

| Sample ID | Sample Date | Units | Result | VQUAL | Parameter | ERL | ERM | ERM Quotient |
|---|---|---|---|---|---|---|---|---|
| 041MW20101 | 1/24/1996 | mg/kg | 0.5 | J | Arsenic | 8.2 | 70 | 0.01 |
| 041MW20101 | 1/24/1996 | mg/kg | 0.18 | J | Cadmium | 1.2 | 9.6 | 0.02 |
| 041MW20101 | 1/24/1996 | mg/kg | 5.4 | | Chromium | 81 | 370 | 0.01 |
| 041MW20101 | 1/24/1996 | mg/kg | 3.2 | | Copper | 34 | 270 | 0.01 |
| 041MW20101 | 1/24/1996 | mg/kg | 17.1 | | Lead | 46.7 | 218 | 0.08 |
| 041MW20101 | 1/24/1996 | mg/kg | 0.035 | U | Mercury | 0.15 | 0.71 | 0.05 |
| 041MW20101 | 1/24/1996 | mg/kg | 1.3 | J | Nickel | 20.9 | 51.6 | 0.03 |
| 041MW20101 | 1/24/1996 | mg/kg | 0.18 | U | Silver | 1 | 3.7 | 0.05 |
| 041MW20101 | 1/24/1996 | mg/kg | 7.7 | | Zinc | 150 | 410 | 0.02 |
| 041MW20101 | 1/24/1996 | µg/kg | 2.4 | J | 4,4'-DDE | 2.2 | 27 | 0.09 |
| 041MW20101 | 1/24/1996 | µg/kg | 3.5 | J | 4,4'-DDT | 1.58 | 46.1 | 0.08 |
| 041MW20101 | 1/24/1996 | µg/kg | 9.35 | | Total PCBs | 22.7 | 180 | 0.05 |
| 041MW20101 | 1/24/1996 | µg/kg | 21.5 | U | 2-Methylnaphthalene | 70 | 670 | 0.03 |
| 041MW20101 | 1/24/1996 | µg/kg | 10.5 | U | Acenaphthene | 16 | 500 | 0.02 |
| 041MW20101 | 1/24/1996 | µg/kg | 21.5 | U | Acenaphthylene | 44 | 640 | 0.03 |
| 041MW20101 | 1/24/1996 | µg/kg | 21.5 | U | Anthracene | 85.3 | 1,100 | 0.02 |
| 041MW20101 | 1/24/1996 | µg/kg | 21.5 | U | Benzo(a)anthracene | 261 | 1,600 | 0.01 |
| 041MW20101 | 1/24/1996 | µg/kg | 21.5 | U | Benzo(a)pyrene | 430 | 1,600 | 0.01 |
| 041MW20101 | 1/24/1996 | µg/kg | 40 | J | Chrysene | 384 | 2,800 | 0.01 |
| 041MW20101 | 1/24/1996 | µg/kg | 21.5 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.08 |
| 041MW20101 | 1/24/1996 | µg/kg | 47 | | Fluoranthene | 600 | 5,100 | 0.01 |
| 041MW20101 | 1/24/1996 | µg/kg | 10.5 | U | Fluorene | 19 | 540 | 0.02 |
| 041MW20101 | 1/24/1996 | µg/kg | 21.5 | U | Naphthalene | 160 | 2,100 | 0.01 |
| 041MW20101 | 1/24/1996 | µg/kg | 21.5 | U | Phenanthrene | 240 | 1,500 | 0.01 |
| 041MW20101 | 1/24/1996 | µg/kg | 82 | | Pyrene | 665 | 2,600 | 0.03 |
| 041MW20101 | 1/24/1996 | | | | ERM Quotient Sum | | | 0.80 |
| 041MW20101 | 1/24/1996 | | | | Mean ERM Quotient | | | 0.03 |
| 041MW20101 | 1/24/1996 | | | | Mean ERM Quotient without ND | | | 0.02 |
| 041MW20101 | 1/24/1996 | | | | Mean ERM Quotient Category | | | 2 |
| 041MW20201 | 1/24/1996 | mg/kg | 0.07 | U | Arsenic | 8.2 | 70 | 0.00 |
| 041MW20201 | 1/24/1996 | mg/kg | 0.07 | U | Cadmium | 1.2 | 9.6 | 0.01 |
| 041MW20201 | 1/24/1996 | mg/kg | 0.76 | | Chromium | 81 | 370 | 0.00 |
| 041MW20201 | 1/24/1996 | mg/kg | 1.3 | J | Copper | 34 | 270 | 0.00 |
| 041MW20201 | 1/24/1996 | mg/kg | 2.3 | | Lead | 46.7 | 218 | 0.01 |
| 041MW20201 | 1/24/1996 | mg/kg | 0.025 | U | Mercury | 0.15 | 0.71 | 0.04 |
| 041MW20201 | 1/24/1996 | mg/kg | 0.8 | J | Nickel | 20.9 | 51.6 | 0.02 |
| 041MW20201 | 1/24/1996 | mg/kg | 0.175 | U | Silver | 1 | 3.7 | 0.05 |
| 041MW20201 | 1/24/1996 | mg/kg | 4.9 | | Zinc | 150 | 410 | 0.01 |
| 041MW20201 | 1/24/1996 | µg/kg | 0.38 | J | 4,4'-DDE | 2.2 | 27 | 0.01 |
| 041MW20201 | 1/24/1996 | µg/kg | 0.28 | J | 4,4'-DDT | 1.58 | 46.1 | 0.01 |
| 041MW20201 | 1/24/1996 | µg/kg | 11.1 | | Total PCBs | 22.7 | 180 | 0.06 |
| 041MW20201 | 1/24/1996 | µg/kg | 20.5 | U | 2-Methylnaphthalene | 70 | 670 | 0.03 |
| 041MW20201 | 1/24/1996 | µg/kg | 10 | U | Acenaphthene | 16 | 500 | 0.02 |
| 041MW20201 | 1/24/1996 | µg/kg | 20.5 | U | Acenaphthylene | 44 | 640 | 0.03 |
| 041MW20201 | 1/24/1996 | µg/kg | 20.5 | U | Anthracene | 85.3 | 1,100 | 0.02 |
| 041MW20201 | 1/24/1996 | µg/kg | 20.5 | U | Benzo(a)anthracene | 261 | 1,600 | 0.01 |
| 041MW20201 | 1/24/1996 | µg/kg | 20.5 | U | Benzo(a)pyrene | 430 | 1,600 | 0.01 |
| 041MW20201 | 1/24/1996 | µg/kg | 20.5 | U | Chrysene | 384 | 2,800 | 0.01 |
| 041MW20201 | 1/24/1996 | µg/kg | 20.5 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.08 |
| 041MW20201 | 1/24/1996 | µg/kg | 20.5 | U | Fluoranthene | 600 | 5,100 | 0.00 |
| 041MW20201 | 1/24/1996 | µg/kg | 10 | U | Fluorene | 19 | 540 | 0.02 |
| 041MW20201 | 1/24/1996 | µg/kg | 20.5 | U | Naphthalene | 160 | 2,100 | 0.01 |
| 041MW20201 | 1/24/1996 | µg/kg | 20.5 | U | Phenanthrene | 240 | 1,500 | 0.01 |
| 041MW20201 | 1/24/1996 | µg/kg | 20.5 | U | Pyrene | 665 | 2,600 | 0.01 |
| 041MW20201 | 1/24/1996 | | | | ERM Quotient Sum | | | 0.48 |
| 041MW20201 | 1/24/1996 | | | | Mean ERM Quotient | | | 0.02 |
| 041MW20201 | 1/24/1996 | | | | Mean ERM Quotient without ND | | | 0.01 |
| 041MW20201 | 1/24/1996 | | | | Mean ERM Quotient Category | | | 1 |

**Table 15-5-9**
**Wetland W2 Phase II**
**Mean ERM Quotient**

| Sample ID | Sample Date | Units | Result | VQUAL | Parameter | ERL | ERM | ERM Quotient |
|---|---|---|---|---|---|---|---|---|
| 041MW20301 | 1/24/1996 | mg/kg | 14.1 | | Arsenic | 8.2 | 70 | 0.20 |
| 041MW20301 | 1/24/1996 | mg/kg | 0.31 | UJ | Cadmium | 1.2 | 9.6 | 0.03 |
| 041MW20301 | 1/24/1996 | mg/kg | 10.2 | | Chromium | 81 | 370 | 0.03 |
| 041MW20301 | 1/24/1996 | mg/kg | 4.7 | J | Copper | 34 | 270 | 0.02 |
| 041MW20301 | 1/24/1996 | mg/kg | 9.1 | | Lead | 46.7 | 218 | 0.04 |
| 041MW20301 | 1/24/1996 | mg/kg | 0.135 | U | Mercury | 0.15 | 0.71 | 0.19 |
| 041MW20301 | 1/24/1996 | mg/kg | 9.2 | J | Nickel | 20.9 | 51.6 | 0.18 |
| 041MW20301 | 1/24/1996 | mg/kg | 0.75 | U | Silver | 1 | 3.7 | 0.20 |
| 041MW20301 | 1/24/1996 | mg/kg | 10.4 | | Zinc | 150 | 410 | 0.03 |
| 041MW20301 | 1/24/1996 | µg/kg | 0.455 | U | 4,4'-DDE | 2.2 | 27 | 0.02 |
| 041MW20301 | 1/24/1996 | µg/kg | 0.455 | U | 4,4'-DDT | 1.58 | 46.1 | 0.01 |
| 041MW20301 | 1/24/1996 | µg/kg | 37.35 | | Total PCBs | 22.7 | 180 | 0.21 |
| 041MW20301 | 1/24/1996 | µg/kg | 185 | U | 2-Methylnaphthalene | 70 | 670 | 0.28 |
| 041MW20301 | 1/24/1996 | µg/kg | 90 | U | Acenaphthene | 16 | 500 | 0.18 |
| 041MW20301 | 1/24/1996 | µg/kg | 185 | U | Acenaphthylene | 44 | 640 | 0.29 |
| 041MW20301 | 1/24/1996 | µg/kg | 185 | U | Anthracene | 85.3 | 1,100 | 0.17 |
| 041MW20301 | 1/24/1996 | µg/kg | 185 | U | Benzo(a)anthracene | 261 | 1,600 | 0.12 |
| 041MW20301 | 1/24/1996 | µg/kg | 185 | U | Benzo(a)pyrene | 430 | 1,600 | 0.12 |
| 041MW20301 | 1/24/1996 | µg/kg | 185 | U | Chrysene | 384 | 2,800 | 0.07 |
| 041MW20301 | 1/24/1996 | µg/kg | 185 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.71 |
| 041MW20301 | 1/24/1996 | µg/kg | 185 | U | Fluoranthene | 600 | 5,100 | 0.04 |
| 041MW20301 | 1/24/1996 | µg/kg | 90 | U | Fluorene | 19 | 540 | 0.17 |
| 041MW20301 | 1/24/1996 | µg/kg | 185 | U | Naphthalene | 160 | 2,100 | 0.09 |
| 041MW20301 | 1/24/1996 | µg/kg | 185 | U | Phenanthrene | 240 | 1,500 | 0.12 |
| 041MW20301 | 1/24/1996 | µg/kg | 185 | U | Pyrene | 665 | 2,600 | 0.07 |
| 041MW20301 | 1/24/1996 | | | | ERM Quotient Sum | | | 3.56 |
| 041MW20301 | 1/24/1996 | | | | Mean ERM Quotient | | | 0.14 |
| 041MW20301 | 1/24/1996 | | | | Mean ERM Quotient without ND | | | 0.03 |
| 041MW20301 | 1/24/1996 | | | | Mean ERM Quotient Category | | | 2 |

***Notes:***
ERL = Effects Range Low
ERM = Effects Range Median
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
U = not detected at or above the SQL (value in table is 1/2 reported value)
J = estimated value
Shaded cells indicate constituent exceeds ERL.
**Shaded and bold cells indicate constituent exceeds ERM.**

**Table 15-5-10**
**Wetland W2 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | | 213 | 213 | 213 | 041WW20201 | 213 | | | NA | | Yes | No SV |
| Antimony | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | | NA | | Yes | No SV |
| Arsenic | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 36 | EPA | 0.03 | No | Max SQL< SV |
| Barium | 1 | 1 | | | | 8.2 | 8.2 | 8.2 | 041WW20201 | 8.2 | J | | NA | | Yes | No SV |
| Beryllium | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Cadmium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | 9.3 | EPA | 0.11 | No | Max SQL< SV |
| Calcium | 1 | 1 | | | | 15,000 | 15,000 | 15,000 | 041WW20201 | 15,000 | | | NA | | Yes | No SV |
| Chromium | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 50 | EPA | 0.05 | No | Max SQL< SV |
| Cobalt | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| **Copper** | **1** | **1** | | | | **6.8** | **6.8** | **6.8** | **041WW20201** | **6.8** | **J** | **2.9** | **EPA** | **2.34** | **Yes** | **Max Detect > SV** |
| Cyanide (CN) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 1 | EPA | 2.5 | Yes | Max SQL > SV |
| Iron | 1 | 1 | | | | 309 | 309 | 309 | 041WW20201 | 309 | | | NA | | Yes | No SV |
| Lead | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 8.5 | EPA | 0.12 | No | Max SQL< SV |
| Magnesium | 1 | 1 | | | | 1,450 | 1,450 | 1,450 | 041WW20201 | 1,450 | J | | NA | | Yes | No SV |
| Manganese | 1 | 1 | | | | 17.2 | 17.2 | 17.2 | 041WW20201 | 17.2 | | | NA | | Yes | No SV |
| Mercury | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.025 | EPA | 2.6 | Yes | Max SQL > SV |
| Nickel | 0 | 1 | 4.5 | 4.5 | 4.5 | 4.5 | | | ND | 4.5 | U | 8.3 | EPA | 0.54 | No | Max SQL< SV |
| Potassium | 1 | 1 | | | | 1,870 | 1,870 | 1,870 | 041WW20201 | 1,870 | J | | NA | | Yes | No SV |
| Selenium | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 71 | EPA | 0.03 | No | Max SQL< SV |
| Silver | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.23 | EPA | 10.9 | Yes | Max SQL > SV |
| Sodium | 1 | 1 | | | | 5,260 | 5,260 | 5,260 | 041WW20201 | 5,260 | | | NA | | Yes | No SV |
| Thallium | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 6.3 | FDEP | 0.32 | No | Max SQL< SV |
| Vanadium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Zinc | 1 | 1 | | | | 8.8 | 8.8 | 8.8 | 041WW20201 | 8.8 | J | 86 | EPA | 0.10 | No | Max Detect < SV |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | Yes | No SV |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | Yes | No SV |
| Endosulfan I | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.0087 | EPA | 2.87 | Yes | Max SQL > SV |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | Yes | No SV |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | Yes | No SV |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.0036 | EPA | 6.94 | Yes | Max SQL > SV |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.00004 | FDEP | 625 | Yes | Max SQL > SV |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | UJ | | NA | | Yes | No SV |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | Yes | No SV |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | Yes | No SV |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | Yes | No SV |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.004 | EPA | 12.5 | Yes | Max SQL > SV |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | Yes | No SV |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | Yes | No SV |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.0023 | EPA | 21.7 | Yes | Max SQL > SV |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.005 | FDEP | 5 | Yes | Max SQL > SV |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | Yes | No SV |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | Yes | No SV |
| gamma-BHC (Lindane) | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.016 | EPA | 1.56 | Yes | Max SQL > SV |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | Yes | No SV |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.0003 | FDEP | 167 | Yes | Max SQL > SV |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.0002 | FDEP | 250 | Yes | Max SQL > SV |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.00059 | FDEP | 84.7 | Yes | Max SQL > SV |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | Yes | No SV |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | | NA | | Yes | No SV |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | Yes | No SV |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | Yes | No SV |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | Yes | No SV |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | Yes | No SV |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | 0.014 | FDEP | 35.7 | Yes | Max SQL > SV |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | Yes | No SV |

**Table 15-5-10**
**Wetland W2 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Di-n-butylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 3.4 | EPA | 0.74 | No | Max SQL< SV |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | Yes | No SV |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 1 | 1 | | | | 1 | 1 | 1 | 041WW20201 | 1 | | | NA | | Yes | No SV |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Naphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 23.5 | EPA | 0.02 | No | Max SQL< SV |

**Table 15-5-10**
**Wetland W2 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAHs (µg/L) - cont.** | | | | | | | | | | | | | | | | |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Total PAH | 1 | 1 | | | | 7 | 7 | 7 | 041WW20201 | 7 | | | NA | | Yes | No SV |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 270 | FDEP | 0.00 | No | Max SQL< SV |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3.2 | FDEP | 0.16 | No | Max SQL< SV |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 19.7 | EPA | 0.03 | No | Max SQL< SV |
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3 | FDEP | 0.17 | No | Max SQL< SV |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Benzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 71.28 | FDEP | 0.01 | No | Max SQL< SV |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 17 | FDEP | 0.03 | No | Max SQL< SV |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chloroform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 470.8 | FDEP | 0.00 | No | Max SQL< SV |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Ethylbenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 4.3 | EPA | 0.12 | No | Max SQL< SV |
| Methylene chloride | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 1,580 | FDEP | 0.00 | No | Max SQL< SV |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Toluene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 37 | EPA | 0.01 | No | Max SQL< SV |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
N/R = No refinement value available.
N/A = Not Applicable.

Average result calculations include summing detections and one half the detection limits for not detected parameters. As a result, some average detections may exceed the maximum detections.
Parameters in bold were detected and exceeded the screening value.

**Table 15-5-11**
**Wetland W2 Phase II**
**Surface Water COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | None | 2-Methylnaphthalene | None |
| Barium | | Total PAHs | |
| Calcium | | | |
| Copper | | | |
| Iron | | | |
| Magnesium | | | |
| Manganese | | | |
| Potassium | | | |
| Sodium | | | |
| | | **Not Detected Parameters** | |
| Antimony | Aldrin | 1,2,4-Trichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Beryllium | Dieldrin | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1,2-Trichloroethane |
| Cobalt | Endosulfan I | 2,4,5-Trichlorophenol | 1,1-Dichloroethane |
| Cyanide (CN) | Endosulfan II | 2,4,6-Trichlorophenol | 1,2-Dibromo-3-Chloropropane |
| Mercury | Endosulfan sulfate | 2,4-Dichlorophenol | 1,2-Dibromoethane |
| Silver | Heptachlor | 2,4-Dimethylphenol | 1,2-Dichloroethane |
| Vanadium | Heptachlor epoxide | 2,4-Dinitrophenol | 1,2-Dichloropropane |
| | Methoxychlor | 2,4-Dinitrotoluene | 1,3-Dichlorobenzene |
| | Toxaphene | 2,6-Dinitrotoluene | 2-Hexanone |
| | alpha-Chlordane | 2-Chloronaphthalene | 4-Methyl-2-Pentanone (MIBK) |
| | gamma-Chlordane | 2-Chlorophenol | Bromochloromethane |
| | Total Chlordane | 2-Methyl-4,6-Dinitrophenol | Bromodichloromethane |
| | Endrin | 2-Methylphenol (o-Cresol) | Bromoform |
| | Endrin aldehyde | 2-Nitroaniline | Bromomethane |
| | Endrin ketone | 2-Nitrophenol | Carbon disulfide |
| | Total Endrin | 3,3'-Dichlorobenzidine | Carbon tetrachloride |
| | alpha-BHC | 3-Nitroaniline | Chloroethane |
| | beta-BHC | 4-Bromophenyl-phenylether | Chloromethane |
| | delta-BHC | 4-Chloro-3-methylphenol | cis-1,2-Dichloroethene |
| | gamma-BHC (Lindane) | 4-Chloroaniline | cis-1,3-Dichloropropene |
| | Total BHC | 4-Chlorophenylphenyl ether | Dibromochloromethane |
| | 4,4'-DDD | 4-Methylphenol (p-Cresol) | Styrene |
| | 4,4'-DDE | 4-Nitroaniline | Tetrachloroethene |
| | 4,4'-DDT | 4-Nitrophenol | trans-1,2-Dichloroethene |
| | Total DDT | Benzo(b)fluoranthene | trans-1,3-Dichloropropene |
| | Aroclor-1016 | Benzo(g,h,i)perylene | Trichloroethene |
| | Aroclor-1221 | Benzo(k)fluoranthene | Vinyl chloride |
| | Aroclor-1232 | bis(2-Chloroethoxy)methane | Xylene (Total) |
| | Aroclor-1242 | bis(2-Chloroethyl)ether | |
| | Aroclor-1248 | bis(2-Ethylhexyl)phthalate (BEHP) | |
| | Aroclor-1254 | Butylbenzylphthalate | |
| | Aroclor-1260 | Dibenzofuran | |
| | Total PCBs | Diethylphthalate | |
| | | Dimethylphthalate | |
| | | Di-n-octylphthalate | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Indeno(1,2,3-cd)pyrene | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |
| | | Acenaphthene | |
| | | Acenaphthylene | |
| | | Anthracene | |
| | | Benzo(a)anthracene | |
| | | Benzo(a)pyrene | |
| | | Chrysene | |
| | | Dibenz(a,h)anthracene | |
| | | Fluoranthene | |
| | | Fluorene | |
| | | Phenanthrene | |
| | | Pyrene | |

**Table 15-5-12**
**Wetland W2 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Number Analyzed | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | | 213 | 213 | 213 | 041WW20201 | 213 | | | NA | | | 2,930 | 0 | 1 | No | Max Result < Ref. Conc. |
| Antimony | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | | NA | | | 4.15 | 0 | 1 | No | Max SQL < Ref. Conc. |
| Barium | 1 | 1 | | | | 8.2 | 8.2 | 8.2 | 041WW20201 | 8.2 | J | | NA | | | 9.43 | 0 | 1 | No | Max Result < Ref. Conc. |
| Beryllium | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | 0.82 | 0 | 1 | No | Max SQL < Ref. Conc. |
| Calcium | 1 | 1 | | | | 15,000 | 15,000 | 15,000 | 041WW20201 | 15,000 | | | NA | | | 76,800 | 0 | 1 | No | Max Result < Ref. Conc. |
| Cobalt | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | 2.38 | 0 | 1 | No | Max SQL < Ref. Conc. |
| **Copper** | **1** | **1** | | | | **6.8** | **6.8** | **6.8** | **041WW20201** | **6.8** | **J** | **2.9** | **EPA** | **2.34** | **2.34** | **7.02** | **0** | **1** | **No** | **Max Result < Ref. Conc.** |
| Cyanide (CN) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 1 | EPA | 2.5 | 2.5 | 4.1 | 0 | 1 | No | Max SQL < Ref. Conc. |
| Iron | 1 | 1 | | | | 309 | 309 | 309 | 041WW20201 | 309 | | | NA | | | 1,350 | 0 | 1 | No | Max Result < Ref. Conc. |
| Magnesium | 1 | 1 | | | | 1,450 | 1,450 | 1,450 | 041WW20201 | 1,450 | J | | NA | | | 244,000 | 0 | 1 | No | Max Result < Ref. Conc. |
| Manganese | 1 | 1 | | | | 17.2 | 17.2 | 17.2 | 041WW20201 | 17.2 | | | NA | | | 12.2 | 1 | 1 | Yes | Max Result > Ref. Conc. |
| Mercury | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.025 | EPA | 2.6 | 2.6 | 0.21 | 0 | 1 | No | Max SQL < Ref. Conc. |
| Potassium | 1 | 1 | | | | 1,870 | 1,870 | 1870 | 041WW20201 | 1870 | J | | NA | | | 81,300 | 0 | 1 | No | Max Result < Ref. Conc. |
| Silver | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.23 | EPA | 11 | 10.9 | 3.01 | 0 | 1 | No | Max SQL < Ref. Conc. |
| Sodium | 1 | 1 | | | | 5,260 | 5,260 | 5,260 | 041WW20201 | 5,260 | | | NA | | | 1,950,000 | 0 | 1 | No | Max Result < Ref. Conc. |
| Vanadium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | 6.69 | 0 | 1 | No | Max SQL < Ref. Conc. |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Endosulfan I | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.0087 | EPA | 3 | 2.87 | | 0 | 1 | No | Parameter Not Detected |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.0036 | EPA | 7 | 6.94 | | 0 | 1 | No | Parameter Not Detected |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.00004 | FDEP | 625 | 625 | | 0 | 1 | No | Parameter Not Detected |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.004 | EPA | 12.5 | 12.5 | | 0 | 1 | No | Parameter Not Detected |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.0023 | EPA | 22 | 21.7 | | 0 | 1 | No | Parameter Not Detected |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.005 | FDEP | 5 | 5 | | 0 | 1 | No | Parameter Not Detected |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| gamma-BHC (Lindane) | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | UJ | 0.016 | EPA | 1.56 | 1.56 | | 0 | 1 | No | Parameter Not Detected |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.0003 | FDEP | 167 | 167 | | 0 | 1 | No | Parameter Not Detected |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.0002 | FDEP | 250 | 250 | | 0 | 1 | No | Parameter Not Detected |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | UJ | 0.00059 | FDEP | 85 | 84.7 | | 0 | 1 | No | Parameter Not Detected |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | 0.014 | FDEP | 36 | 35.7 | | 0 | 1 | No | Parameter Not Detected |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2-Chlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |

**Table 15-5-12**
**Wetland W2 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Number Analyzed | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | | | | | |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 1 | 1 | | | | 1 | 1 | 1 | 041WW20201 | 1 | | | NA | | | | 0 | 1 | Yes | No SV; no RV |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Naphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 23.5 | EPA | 0.02 | 0.02 | | 0 | 1 | No | Parameter Not Detected |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Total PAH | 1 | 1 | | | | 7 | 7 | 7 | 041WW20201 | 7 | | | NA | | | | 0 | 1 | Yes | No SV; no RV |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | 1 | No | Parameter Not Detected |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL

UJ = Not detected. SQL is estimated.
D = Diluted Result
J = Estimated Value

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
PEL = Probable effects level.
N/R = No refinement value available.

N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters.
As a result, some average detections may exceed the Max detections.
Parameters in bold were detected and exceeded Ref. Conc.s.

**Table 15-5-13**
**Wetland W2 Phase II**
**Surface Water COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Manganese | None | 2-Methylnaphthalene<br>Total PAHs | None |

**Table 15-5-14**
**Wetland W2 Phase II**
**Surface Water Dermal Absorbed Dose-Child Trespasser and Adult Maintenance Worker**

| CAS Number | Chemical | | Minimum Concentration (µg/L) | Min. Qual. | Maximum Concentration (µg/L) | Max. Qual. | Units | Location of Max.Conc. | Detection Frequency | Range of Detection Limits | Mean | Maximum Concentration (mg/cm$^3$) | $K_p$ | $DA_{event}$ | $DAD_{sw}$ (mg/kg-day): Child Trespasser | $DAD_{sw}$ (mg/kg-day): Adult Maintenance Worker |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429905 | Aluminum | N | N/A | N/A | 2.1E+02 | = | UG/L | 041WW20201 | 1 / 1 | NAV | 2.1E+02 | 2.1E-04 | 1.0E-03 | 5.54E-07 | 8.77E-06 | 1.17E-05 |
| 7440393 | Barium | N | N/A | N/A | 8.2E+00 | J | UG/L | 041WW20201 | 1 / 1 | NAV | 8.2E+00 | 8.2E-06 | 1.0E-03 | 2.13E-08 | 3.37E-07 | 4.51E-07 |
| 7439965 | Manganese | N | N/A | N/A | 1.7E+01 | = | UG/L | 041WW20201 | 1 / 1 | NAV | 1.7E+01 | 1.7E-05 | 1.0E-03 | 4.47E-08 | 7.08E-07 | 9.47E-07 |
| 91576 | 2-Methylnaphthalene | N | N/A | N/A | 1.0E+00 | = | UG/L | 041WW20201 | 1 / 1 | NAV | 1.0E+00 | 1.0E-06 | 1.4E-01 | 5.93E-07 | 9.39E-06 | 1.26E-05 |

***Notes:***

Equation for Dermal Absorbed Dose, surface water risk:

$$DAD_{sw} = \frac{DA_{event} \times EV \times ED \times EF \times SA}{BW \times AT}$$

Where:

$DAD_{sw}$ = Dermal absorbed dose-water contact (mg/kg-day).
$DA_{event}$ = Dermal absorbed dose per event (mg/cm2-event).
SA = Skin surface area available for contact (cm2).
EV = Event frequency (events/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr
carcinogenic effects AT = 70 yr x 365 dy/yr.

Equation for DAevent for inorganics:

$$DA_{event} = K_p \times C_w \times t_{event}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: RAGS Part E, Exhibit B-3 or Exhibit B-4
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).

Equation for DAevent for organics:

$$DA_{event} = FA \times K_p \times C_w \left[ \frac{t_{event}}{1+B} + 2\tau_{event} \left( \frac{1+3B+3B^2}{(1+B)^2} \right) \right]$$

Where:

FA = Fraction absorbed water (dimensionless). From RAGS Part E, Exhibit B-4.
Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E, Exhibit B-4.
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).
$t_{event}$ = Lag time per event (hr/event). From RAGS Part E, Exhibit B-4.
B = Dimensionless ratio of the permeability coefficient of a compound,
calculated using the equation below:

$$B = \frac{K_p \sqrt{MW}}{2.6}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E.
MW = Molecular weight

Exposure Parameters:

EV = 1 event per day (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
EF = 52 dys/yr (child trespasser/adult maintenance worker).
SA = 5,000 cm2(child trespasser); 10,400 cm2 (adult maintenance worker).
Source: Tables 6-6 and 6-8 Exposure Factors Handbook.
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).
$t_{event}$ = 2.6 hrs/dy (child trespasser/adult maintenance worker).

**Table 15-5-15**
**Wetland W2 Phase II**
**Surface Water Dermal Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum Concentration ($mg/cm^3$) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | $ABS_{GI}$ | $ABS_{GI}$ Source | Dermal RfD (mg/kg-day) | Dermal SF (mg/kg-day)-1 | Child Trespasser: Dermal Hazard Quotient | Child Trespasser: Dermal Cancer Risk | Maintenance Worker: Dermal Hazard Quotient | Maintenance Worker: Dermal Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW Dermal Risk | Aluminum | N | 2.1E-04 | 1.0E+00 | N/A | 1.0E-01 | 2 | 1.0E-01 | N/A | N/A | N/A | 1.2E-04 | N/A |
| | Barium | N | 8.2E-06 | 7.0E-02 | N/A | 7.0E-02 | 1, 2 | 4.9E-03 | N/A | N/A | N/A | 9.2E-05 | N/A |
| | Manganese | N | 1.7E-05 | 1.4E-01 | N/A | 4.0E-02 | 1 | 5.6E-03 | N/A | N/A | N/A | 1.7E-04 | N/A |
| | 2-Methylnaphthalene | N | 1.0E-06 | 8.0E-02 | N/A | 5.0E-01 | 3 | 4.0E-02 | N/A | N/A | N/A | 3.1E-04 | N/A |

***Notes:***

Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.
Dermal RfD = Dermal reference dose adjusted for $ABS_{GI}$.
Dermal SF = Dermal slope factor adjusted for ABSGI.

Equations for Dermal Reference Dose and Dermal Slope Factor, surface water risk:

$$RfD_{dermal} = RfD_{oral} \times ABS_{GI}$$

$$SF_{dermal} = \frac{RfD_{oral}}{ABS_{GI}}$$

Where:
$RfD_{dermal}$ = Dermal reference dose.
$RFD_{oral}$ = Oral reference dose.
SFdermal = Dermal slope factor.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.

Risk calculation equation, cancer:

$$Risk = DAD_{sw} \times SF_{dermal}$$

Risk calculation equation, noncancer:

$$Hazard\ Quotient = \frac{DAD_{sw}}{RfD_{dermal}}$$

**Table 15-5-16**
**Wetland W2 Phase II**
**Surface Water Incidental Ingestion Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum concentration ($mg/cm^3$) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | Child Trespasser: Ingestion Hazard Quotient | Child Trespasser: Ingestion Cancer Risk | Maintenance Worker: Ingestion Hazard Quotient | Maintenance Worker: Ingestion Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|
| SW Incidental Ingestion | Aluminum | N | 2.1E-04 | 1.0E+00 | N/A | N/A | N/A | 4.3E-09 | N/A |
| | Barium | N | 8.2E-06 | 7.0E-02 | N/A | N/A | N/A | 2.4E-09 | N/A |
| | Manganese | N | 1.7E-05 | 1.4E-01 | N/A | N/A | N/A | 2.5E-09 | N/A |
| | 2-Methylnaphthalene | N | 1.0E-06 | 8.0E-02 | N/A | N/A | N/A | 2.5E-10 | N/A |

***Notes:***
Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
CDI

$$Risk = CDI \times SF_{oral}$$

Equation for Chronic Daily Intake, surface water risk:

$$CDI = \frac{EPC_{sw} \times IR_{sw} \times EF \times ED}{BW \times AT}$$

$$Hazard\ Quotient = \frac{CDI}{RfD_{oral}}$$

Where:
CDI = Chronic daily intake (mg/kg-day).
$EPC_{sw}$ = Exposure point concentration in surface water (mg/L).
$IR_{sw}$ = Incidental ingestion rate for sediment (L/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr.
carcinogenic effects AT = 70 yr x 365 dy/yr.

= Oral reference dose.
= Oral slope factor.

Exposure Parameters:
Irsw = 0.01 L/day exposure to surface water during wading for adolescents and adults.
EF = 52 dys/yr (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).

## 15.6 Wetland 48 — Screening Level Problem Formulation

### 15.6.1 Site Description and Habitats Present at Wetland 48

Wetland 48 is in a mostly undeveloped portion of NAS Pensacola, north of Radford Boulevard, and south of the NAS Pensacola Fuel Farm. It is a thickly vegetated palustrine forested wetland.

The IR site potentially affecting Wetland 48 is Site 37. Site 37 (Sherman Field Fuel Farm Area) is located south of the western end of Forrest Sherman Field. The site consists of an approximately 3.5-acre, fenced area around the former fuel farm including four cut-and-cover storage tanks (Tank Nos. 1884, 1886, 1887, and 1888). The petroleum storage tank system was installed in 1945 and used to store JP-4 Jet Fuel. The fuel storage tanks were abandoned in place in 1995 after a new fuel facility was constructed adjacent to the south side of the original fuel farm. An equipment malfunction in 1983 resulted in the release of approximately 48,000 gallons of JP-4 Jet Fuel. Initial recovery efforts by NAS Pensacola personnel included the installation of four recovery ditches along the fence line in the northwestern corner resulting in the recovery of approximately 600-700 gallons of free product. However, recovery efforts were discontinued by direction of the NAS Pensacola Fire Marshall due to the proximity of open excavations containing free product to the active fuel farm area. Additional recovery efforts in August 1983 included the installation of a product/groundwater recovery well system from approximately 50 to 140 feet west-northwest of the fuel farm. The system proved unsatisfactory, apparently due to its location, and recovery operations were discontinued.

**Photograph 1 Wetland 48 — Facing south-southeast**

Parsons and Pruitt described this area as a palustrine forested system (USEPA, 1991a). Wetland 48 appears to be fed by surface water and groundwater sources. Surface water drains to the east into Wetland 52, passing through a culvert under the access road to the fuel farm. A sediment sample collected in this area was mostly sandy, with a TOC value of 4.43%.

### 15.6.2 Wetland 48 — Sample Location Description

#### Phase II Sediment Sample Location Description

One sediment sample (041M480101) was collected and analyzed for the Wetland 48 ERA. The sample location for wetland 48 was located in an area of the wetland where depositional areas and groundwater seeps could occur. This sample location is centrally located within the wetland (Figure 15-4). Table 15-6-1 (tables are located at the end of each section) provides a physical description of the sediments collected at Wetland 48. Sediment at 041M480101 was a black silty sand with organics. The TOC concentration was 4.43%.

#### Phase II Surface Water Sample Location Description

In January 1996 one surface water sample was collected at Wetland 48, location 041W480101 (Figure 15-4), which was collocated with sediment location 041M480101. Surface water from Wetland 48 was analyzed for physical parameters, with results presented on Table 15-6-2. Surface water at Wetland 48 reported a pH concentration of 3.96, specific conductivity of 0.078 mS/CM, and turbidity of 3 NTUs.

### 15.6.3 Nature and Extent of Contamination

#### Phase II Sediment

Figure 15-4 presents the sediment sampling locations for Wetland 48. Table 15-6-3 summarizes the analytical results for the one Wetland 48 sediment samples.

**Metals** — Fifteen metals were detected during Phase II sediment sampling at Wetland 48. Although location 041M480101 exhibited detections of 15 metals, none of these were reported at concentrations exceeding their respective freshwater reference values.

**Pesticides and PCBs** — Three pesticide compounds were detected during Phase II sediment sampling at Wetland 48. Total DDT was calculated for each location by adding the concentrations of 4,4′-DDD, 4,4′-DDE, and 4,4′-DDT. Likewise, a basewide total DDT reference concentration was calculated using the basewide concentrations for these same constituents.

Location 041M480101 had three pesticides detected at elevated concentrations. These included 4,4′-DDE, 4,4′-DDT, and 4,4′-DDD. The individual concentrations detected all exceeded their basewide reference concentrations, as well as the total DDT reference value. No PCBs were detected in the sediment sample collected during Phase II sampling.

**SVOCs** — SVOCs were not detected in the sediment sample collected during Phase II sampling at Wetland 48.

**VOCs** — No VOCs were detected in the sediment sample collected during Phase II sampling at Wetland 48.

**Phase II Surface Water**

Figure 15-4 presents the surface water sampling locations for Wetland 48. Table 15-6-4 summarizes the analytical results for the one Wetland 48 surface water samples.

**Metals** — Five metals were detected in the Phase II surface water sample collected from Wetland 48. Of these five detections, none were present at concentrations exceeding their respective fresh water reference values.

**Organics** — There were no organic constituents detected in the Phase II surface water collected at Wetland 48.

### 15.6.4 Ecological Risk Assessment

**Phase II Investigation Summary — Wetland 48**

**Sediment Screening — Level Risk-Exposure Estimation and Risk Calculation**

As presented in Table 15-6-5, the sediment sample was compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than 1 or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-6-6.

**Baseline Problem Formulation — Wetland 48 Sediment COPC Refinement**

During the COPC refinement, additional information was used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as preliminary COPCs. This risk assessment presents a statement of potential risk for each of the COPCs.

The COPC refinement process included:

- Comparison of maximum concentrations to RVs
- Comparison of average concentrations to SVs and RVs
- Comparison to basewide (reference) concentrations for total DDT
- Comparison of inorganic constituents to reference wetland values
- Interpretative tool for metals
- Di Toro EqP SQGs for VOCs
- Comparison to Swartz consensus values
- Mean ERM quotients
- Description of exceedances of RVs and their extent

The methods used in the COPC refinement in the Site 41 ERA process is detailed in Section 8. Comparison of maximum detected concentrations with refinement values are presented in Table 15-6-7. Additionally, the tables compare: 1) average concentrations to screening and refinement values to assess potential exposure across the entire wetland, and 2) Wetland 48 concentrations to reference concentrations. A list of COPCs retained after refinement are presented in Table 15-6-8.

At Wetland 48, total DDT exceeded the basewide level, indicating that 4,4'-DDT and its daughter products were a concern for this wetland and were retained as COPCs. For Wetland 48, none of the inorganic constituents exceeded their Site 41 freshwater sediment reference concentrations; therefore, the interpretative tool for metals was not addressed.

There were no VOCs detected in Wetland 48 sediment. As a group, the PAHs were not detected at Wetland 48; therefore, comparison to Swartz consensus values was not conducted.

Table 15-6-9 presents the Mean ERL and ERM values, the Mean ERM Quotients, and the Mean ERM Quotient Category by individual sample location. Based on this approach, the sample location (041M480101) was determined to be Category 3, which is the category that includes the studies where about 50% of samples were found to be toxic and average survival was about 60-70%. Figure 15-7 also shows the Mean ERM category for each sediment sample location at Wetland 48.

At Wetland 48, 4,4′-DDD, 4,4′-DDE, and 4,4′-DDT were detected with a maximum detection of 2,600 mg/kg occurring at sample location 041M480101. Total DDT was further evaluated in the food chain model to wetlands in this area.

**Surface Water Screening — Level Risk-Estimation and Risk Calculation**

As presented in Table 15-6-10, the surface water sample was compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than 1 or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-6-11.

**Baseline Problem Formulation — Wetland 48 Surface Water COPC Refinement**

During the surface water COPC refinement, additional information was used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as COPCs.

The COPC refinement process included:

- Comparison of maximum SV concentrations to average SV concentrations
- Comparison of inorganic constituents to reference wetland values
- Description of surface water exceedances and their extent

The methods used in the COPC refinement in the Site 41 ERA process is detailed in Section 8.

Comparison of maximum detected concentrations with refinement values is presented in Table 15-6-12. Additionally, the tables compare average concentrations to screening and refinement values to assess potential exposure across the entire wetland.

For Wetland 48, none of the detected constituents exceeded the fresh water reference concentrations; therefore, there were no constituents retained as COPCs for surface water (Table 15-6-12).

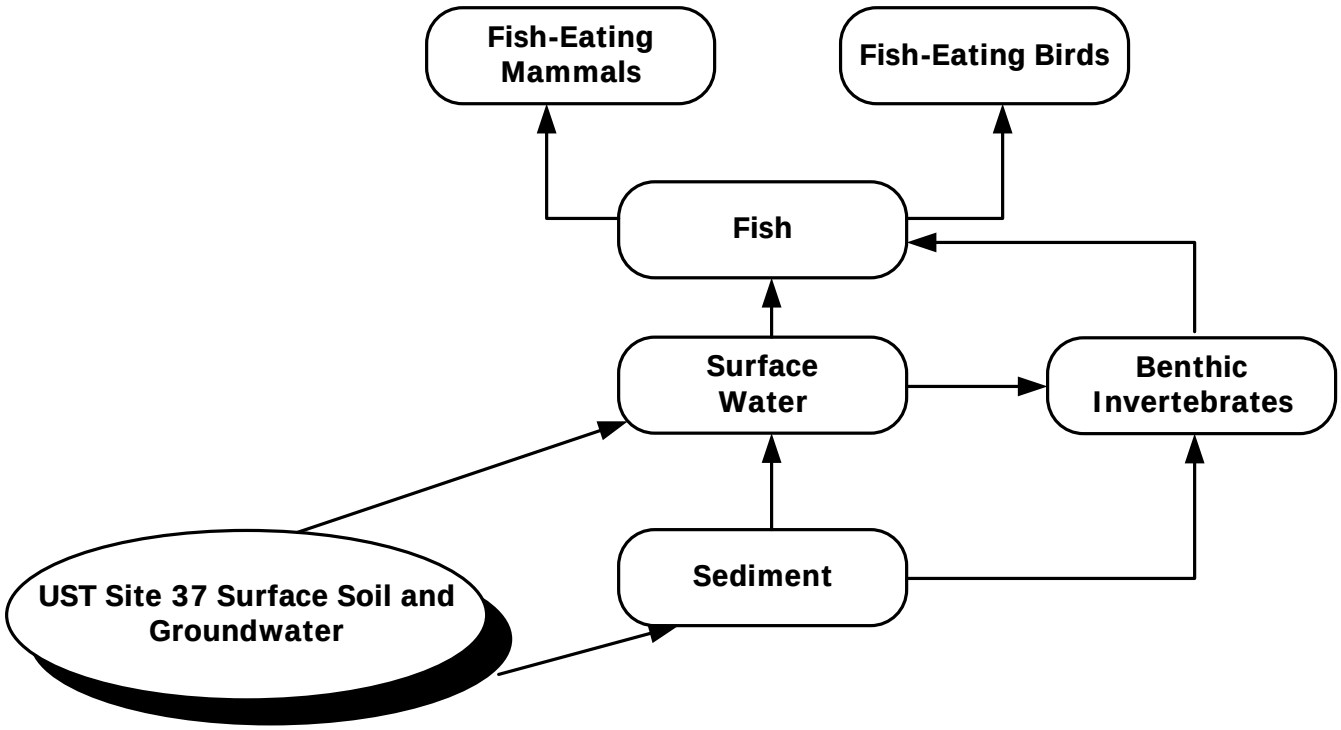
At Wetland 48 during the Phase II investigation, none of the same constituents were detected in sediment and surface water samples.

As summarized in the approved *Final RI/FS SAP Addendum* (E/A&H, 1997d), Wetland 48 was identified as an Orange-Coded Wetland based on the Phase II results, indicating contamination that was possibly related to nearby IR sites, but with limited contaminants exceeding sediment criteria and reference concentrations. Contaminants detected in these wetlands were also considered to be possible sources of ecological risk. Wetland 48 was also classified as a Group E wetland. Based on similar contaminants and physical characteristics, the other Group E wetlands include 49. These wetlands do not appear to be impacted from any IR sites and are subject to periodic intermittent flooding. However, to assess

potential risks from contaminants that bioaccumulate, the results from Wetland 48 will be used in the remaining wetlands food-chain model presented in Section 15.8.

The conceptual model below symbolizes which environmental habitats may be impacted by Wetland 48 Phase II constituents retained during the ERA process.

**Wetland 48**
**Conceptual Site Model**




### 15.6.5 Wetland 48 — Human Health Risk Assessment

Wetland 48 is described in Section 15.6.1, and the HHRA is summarized below.

#### 15.6.5.1 Site Data

Section 15.6.3 summarizes the nature and extent of contamination for this wetland. Surface water and sediment data were collected at Wetland 48 during Phases II of the RI. Surface water and sediment data for 48 are summarized in Tables 15-6-3 and 15-6-4.

#### 15.6.5.2 Conceptual Site Model

As described in Section 15.6.1, Wetland 48 is in a mostly undeveloped portion of NAS Pensacola, north of Radford Boulevard, and south of the NAS Pensacola Fuel Farm. Because Wetland 48 is located in a restricted area of the base, the wetland is only accessible to Navy personnel. Wetland 48 is intermittently flooded; therefore, contact with sediment and surface water is possible.

The following scenarios and exposure pathways were evaluated for this wetland:

| Scenario | Medium | Ingestion | Dermal |
|---|---|---|---|
| Maintenance | Surface water | √ | √ |
| | Sediment | √ | √ |

#### 15.6.5.3 Risk Characterization

The adult maintenance worker scenario for surface water and sediment were assessed for this wetland as described in Section 9.

**Phase II Data**

***Maintenance Worker***

As shown in Tables 15-6-13 through 15-6-15, sediment ingestion and dermal contact risk estimates for maintenance workers were below the FDEP risk threshold. Hazard indices were below 1.0.

As shown in Tables 15-6-16 through 15-6-18, surface water ingestion and dermal contact risk estimates for maintenance workers were below the FDEP risk threshold. Hazard indices were below 1.0.

**Summary of Wetland 48 Phase II Risk Estimates**

| Scenario | Medium | Hazard Index | Risk |
|---|---|---|---|
| Maintenance | Sediment | 1.08E-03 | 7.59E-07 |
| | Surface water | 2.85E-05 | N/A |

Based on Phase II data, no COCs for Wetland 48 were identified.

**Wetland 48 HHRA COC Summary**

No COCs were identified in the HHRA for Wetland 48.

### 15.6.6 Wetland 48 — Fate and Transport Analysis

Forrest Sherman Field area lies on the western portion of NAS Pensacola and hosts a number of wetlands surrounding the operational runways that run southwest-northeast and north-south. These included Wetlands 19A, 19B, 48, 49, 52, 56, 57, 58, 72, W1, and W2. For the general location of these wetlands and the location of the surface water, sediment, and nearby soil and groundwater samples, see Figure 15-4. The potential sources for these wetlands included:

- storm water drainage and runoff from Forrest Sherman Field
- storm water runoff, surface soil transport, and groundwater discharge from UST Site 18, OU 12, Site 5, and Sites 16a and b
- tidal flux from Bayou Grande and Pensacola Bay also plays a role for those wetlands close to the shorelines

A number of these wetlands are somewhat isolated from known IR sites by either being located upgradient or side gradient, and/or being a significant distance away. Additionally, some of these wetlands have had only one surface water and/or sediment sample collected. For these wetlands, evaluation of the inter- to intra-wetland soil-to-sediment, groundwater-to-surface water, groundwater-to-sediment, or sediment/surface water transport pathways were not completed due to a lack of data. These wetlands included 48, 57, and 58.

**Table 15-6-1**
**Wetland 48 Phase II**
**Sediment Physical Parameters**

| Parameter | 041M480101 |
|---|---|
| TOC (%) | 4.43 |
| Percent Solids (%) | 55.4 |
| Grain Size Analysis | |
| (percent of composition[1]) | |
| Medium Sand | 31 |
| Fine Sand | 59 |
| Silt and Clay | 10 |
| Description | Black Salty Sand with Organics |

***Note:***
[1] = Derived from sieve analyses.

**Table 15-6-2**
**Wetland 48 Phase II**
**Surface Water Physical Parameters**

| Parameter | 041W480101 |
|---|---|
| Hardness as CaCO3 (mg/L) | 6.6 |
| pH | 3.96 |
| Specific Conductivity (mS/cm) | 0.078 |
| Turbidity (NTU) | 3 |
| Salinity (%) | 0 |

***Notes:***
mg/L = Milligrams per liter
pH = Hydrogen ion content
MS/cm = Millisiemens per centimeter
NTU = Nephelometric turbidity units
% = Percent

**Table 15-6-3**
**Wetland 48**
**Phase II Sediment Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | |
| Aluminum | 13,610.0 | 0 | 1 | 1 | 1,400.0 | 1,400.0 | 1,400.0 | 041M480101 |
| Arsenic | 6.620 | 0 | 1 | 1 | 0.550 | 0.550 | 0.550 | 041M480101 |
| Barium | 14.0 | 0 | 1 | 1 | 3.50 | 3.50 | 3.50 | 041M480101 |
| Cadmium | 1.80 | 0 | 1 | 1 | 0.30 | 0.30 | 0.30 | 041M480101 |
| Calcium | 10,756.670 | 0 | 1 | 1 | 499.0 | 499.0 | 499.0 | 041M480101 |
| Chromium | 39.370 | 0 | 1 | 1 | 1.10 | 1.10 | 1.10 | 041M480101 |
| Copper | 19.50 | 0 | 1 | 1 | 1.10 | 1.10 | 1.10 | 041M480101 |
| Iron | 11,911.670 | 0 | 1 | 1 | 290.0 | 290.0 | 290.0 | 041M480101 |
| Lead | 82.470 | 0 | 1 | 1 | 17.40 | 17.40 | 17.40 | 041M480101 |
| Magnesium | 7,513.330 | 0 | 1 | 1 | 84.90 | 84.90 | 84.90 | 041M480101 |
| Manganese | 37.970 | 0 | 1 | 1 | 1.50 | 1.50 | 1.50 | 041M480101 |
| Potassium | 1,628.670 | 0 | 1 | 1 | 14.40 | 14.40 | 14.40 | 041M480101 |
| Selenium | 3.450 | 0 | 1 | 1 | 0.710 | 0.710 | 0.710 | 041M480101 |
| Vanadium | 28.670 | 0 | 1 | 1 | 2.40 | 2.40 | 2.40 | 041M480101 |
| Zinc | 36.730 | 0 | 1 | 1 | 6.30 | 6.30 | 6.30 | 041M480101 |
| **Pesticides and PCBs (µg/kg)** | | | | | | | | |
| 4,4'-DDD | 50.0 | 1 | 1 | 1 | 2,600.0 | 2,600.0 | 2,600.0 | 041M480101 |
| 4,4'-DDE | 40.0 | 1 | 1 | 1 | 620.0 | 620.0 | 620.0 | 041M480101 |
| 4,4'-DDT | 20.0 | 1 | 1 | 1 | 240.0 | 240.0 | 240.0 | 041M480101 |
| Total DDT | 110.0 | 1 | 1 | 1 | 3,460.0 | 3,460.0 | 3,460.0 | 041M480101 |

***Notes:***
µg/kg = micrograms per kilogram
mg/kg = milligram per kilogram
N/A = Not Applicable

**Table 15-6-4**
**Wetland 48 Phase II**
**Surface Water Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | |
| Calcium | 7,675.0 | 0 | 1 | 1 | 977.0 | 977.0 | 977.0 | 041W480101 |
| Iron | 2,360.0 | 0 | 1 | 1 | 285.0 | 285.0 | 285.0 | 041W480101 |
| Magnesium | 20,260.0 | 0 | 1 | 1 | 1,020.0 | 1,020.0 | 1,020.0 | 041W480101 |
| Manganese | 13.2 | 0 | 1 | 1 | 2.9 | 2.9 | 2.9 | 041W480101 |
| Sodium | 182,200.0 | 0 | 1 | 1 | 7,480.0 | 7,480.0 | 7,480.0 | 041W480101 |

***Notes:***
µg/L = micrograms per liter
N/A = Not Applicable

**Table 15-6-5**
**Wetland 48 Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | 1,400 | 1,400 | 041M480101 | 1,400 | | | N/A | | Yes | No SV |
| Antimony | 0 | 1 | 0.095 | 0.095 | | | ND | 0.095 | UJ | 12 | 2 | 0.01 | No | Max SQL< SV |
| Arsenic | 1 | 1 | | | 0.55 | 0.55 | 041M480101 | 0.55 | J | 7.24 | 1, 2 | 0.08 | No | Max Detect < SV |
| Barium | 1 | 1 | | | 3.5 | 3.5 | 041M480101 | 3.5 | J | | N/A | | Yes | No SV |
| Beryllium | 0 | 1 | 0.045 | 0.045 | | | ND | 0.045 | U | | N/A | | Yes | No SV |
| Cadmium | 1 | 1 | | | 0.3 | 0.3 | 041M480101 | 0.3 | J | 0.676 | 1 | 0.44 | No | Max Detect < SV |
| Calcium | 1 | 1 | | | 499 | 499 | 041M480101 | 499 | | | N/A | | Yes | No SV |
| Chromium | 1 | 1 | | | 1.1 | 1.1 | 041M480101 | 1.1 | | 52.3 | 1, 2 | 0.02 | No | Max Detect < SV |
| Cobalt | 0 | 1 | 0.095 | 0.095 | | | ND | 0.095 | U | | N/A | | Yes | No SV |
| Copper | 1 | 1 | | | 1.1 | 1.1 | 041M480101 | 1.1 | J | 18.7 | 1, 2 | 0.06 | No | Max Detect < SV |
| Cyanide (CN) | 0 | 1 | 0.44 | 0.44 | | | ND | 0.44 | U | | N/A | | Yes | No SV |
| Iron | 1 | 1 | | | 290 | 290 | 041M480101 | 290 | | | N/A | | Yes | No SV |
| Lead | 1 | 1 | | | 17.4 | 17.4 | 041M480101 | 17.4 | | 30.2 | 1, 2 | 0.58 | No | Max Detect < SV |
| Magnesium | 1 | 1 | | | 84.9 | 84.9 | 041M480101 | 84.9 | J | | N/A | | Yes | No SV |
| Manganese | 1 | 1 | | | 1.5 | 1.5 | 041M480101 | 1.5 | | | N/A | | Yes | No SV |
| Mercury | 0 | 1 | 0.04 | 0.04 | | | ND | 0.04 | U | 0.13 | 1, 2 | 0.31 | No | Max SQL< SV |
| Nickel | 0 | 1 | 0.425 | 0.425 | | | ND | 0.425 | U | 15.9 | 1, 2 | 0.03 | No | Max SQL< SV |
| Potassium | 1 | 1 | | | 14.4 | 14.4 | 041M480101 | 14.4 | J | | N/A | | Yes | No SV |
| Selenium | 1 | 1 | | | 0.71 | 0.71 | 041M480101 | 0.71 | | | N/A | | Yes | No SV |
| Silver | 0 | 1 | 0.235 | 0.235 | | | ND | 0.235 | U | 0.733 | 1 | 0.32 | No | Max SQL< SV |
| Sodium | 0 | 1 | 48.1 | 48.1 | | | ND | 48.1 | U | | N/A | | Yes | No SV |
| Thallium | 0 | 1 | 0.19 | 0.19 | | | ND | 0.19 | UJ | | N/A | | Yes | No SV |
| Vanadium | 1 | 1 | | | 2.4 | 2.4 | 041M480101 | 2.4 | J | | N/A | | Yes | No SV |
| Zinc | 1 | 1 | | | 6.3 | 6.3 | 041M480101 | 6.3 | | 124 | 1, 2 | 0.05 | No | Max Detect < SV |
| **PAHs (µg/kg)** | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 205 | 205 | | | ND | 205 | U | 20.2 | 1 | 10.1 | No | TOC Normalized PAHs <TEC |
| Acenaphthene | 0 | 1 | 100 | 100 | | | ND | 100 | U | 6.71 | 1 | 14.9 | No | TOC Normalized PAHs <TEC |
| Acenaphthylene | 0 | 1 | 205 | 205 | | | ND | 205 | U | 5.87 | 1 | 34.9 | No | TOC Normalized PAHs <TEC |
| Anthracene | 0 | 1 | 205 | 205 | | | ND | 205 | U | 46.9 | 1 | 4.37 | No | TOC Normalized PAHs <TEC |
| Benzo(a)anthracene | 0 | 1 | 205 | 205 | | | ND | 205 | U | 74.8 | 1 | 2.74 | No | TOC Normalized PAHs <TEC |
| Benzo(a)pyrene | 0 | 1 | 205 | 205 | | | ND | 205 | U | 88.8 | 1 | 2.31 | No | TOC Normalized PAHs <TEC |
| Chrysene | 0 | 1 | 205 | 205 | | | ND | 205 | U | 108 | 1 | 1.9 | No | TOC Normalized PAHs <TEC |
| Dibenz(a,h)anthracene | 0 | 1 | 205 | 205 | | | ND | 205 | U | 6.22 | 1 | 33 | No | TOC Normalized PAHs <TEC |
| Fluoranthene | 0 | 1 | 205 | 205 | | | ND | 205 | U | 113 | 1 | 1.81 | No | TOC Normalized PAHs <TEC |
| Fluorene | 0 | 1 | 100 | 100 | | | ND | 100 | U | 21.2 | 1 | 4.72 | No | TOC Normalized PAHs <TEC |
| Naphthalene | 0 | 1 | 205 | 205 | | | ND | 205 | U | 34.6 | 1 | 5.92 | No | TOC Normalized PAHs <TEC |
| Phenanthrene | 0 | 1 | 205 | 205 | | | ND | 205 | U | 86.7 | 1 | 2.36 | No | TOC Normalized PAHs <TEC |
| Pyrene | 0 | 1 | 205 | 205 | | | ND | 205 | U | 153 | 1 | 1.34 | No | TOC Normalized PAHs <TEC |
| Total PAHs | 0 | 1 | 2,460 | 2,460 | | | ND | 2,460 | U | 1,684 | 1, 2 | 1.46 | No | TOC Normalized PAHs <TEC |
| TOC Normalized PAHs | 0 | 1 | 55.42 | 55.42 | | | ND | 55.42 | U | 290 | 3 | 0.19 | No | Max SQL< SV |
| **PCBs (µg/kg)** | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 105 | 105 | | | ND | 105 | U | 21.6 | N/A | 4.86 | Yes | Max SQL > SV |
| Aroclor-1221 | 0 | 1 | 205 | 205 | | | ND | 205 | U | 67 | 2 | 3.06 | Yes | Max SQL > SV |
| Aroclor-1232 | 0 | 1 | 105 | 105 | | | ND | 105 | U | 21.6 | N/A | 4.86 | Yes | Max SQL > SV |
| Aroclor-1242 | 0 | 1 | 105 | 105 | | | ND | 105 | U | 21.6 | N/A | 4.86 | Yes | Max SQL > SV |
| Aroclor-1248 | 0 | 1 | 105 | 105 | | | ND | 105 | U | 21.6 | N/A | 4.86 | Yes | Max SQL > SV |
| Aroclor-1254 | 0 | 1 | 105 | 105 | | | ND | 105 | U | 21.6 | N/A | 4.86 | Yes | Max SQL > SV |
| Aroclor-1260 | 0 | 1 | 105 | 105 | | | ND | 105 | U | 21.6 | N/A | 4.86 | Yes | Max SQL > SV |
| Total PCBs | 0 | 1 | 835 | 835 | | | ND | 835 | U | 21.6 | 1 | 38.7 | Yes | Max SQL > SV |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 5 | 5 | | | ND | 5 | U | | N/A | | Yes | No SV |
| Dieldrin | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | 0.716 | 1 | 14.7 | Yes | Max SQL > SV |
| Endosulfan I | 0 | 1 | 5 | 5 | | | ND | 5 | U | | N/A | | Yes | No SV |
| Endosulfan II | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Endosulfan sulfate | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | | N/A | | Yes | No SV |
| Heptachlor | 0 | 1 | 5 | 5 | | | ND | 5 | U | | N/A | | Yes | No SV |
| Heptachlor epoxide | 0 | 1 | 5 | 5 | | | ND | 5 | U | | N/A | | Yes | No SV |
| Methoxychlor | 0 | 1 | 50 | 50 | | | ND | 50 | U | | N/A | | Yes | No SV |
| Toxaphene | 0 | 1 | 1,050 | 1,050 | | | ND | 1,050 | U | | N/A | | Yes | No SV |
| alpha-Chlordane | 0 | 1 | 5 | 5 | | | ND | 5 | U | 1.7 | 1 | 2.94 | Yes | Max SQL > SV |
| gamma-Chlordane | 0 | 1 | 5 | 5 | | | ND | 5 | U | 1.7 | 1 | 2.94 | Yes | Max SQL > SV |
| Total Chlordane | 0 | 1 | 10 | 10 | | | ND | 10 | U | 1.7 | 1 | 5.88 | Yes | Max SQL > SV |
| Endrin | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | 3.3 | 2 | 3.18 | Yes | Max SQL > SV |
| Endrin aldehyde | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | 3.3 | 2 | 3.18 | Yes | Max SQL > SV |
| Endrin ketone | 0 | 1 | 10.5 | 10.5 | | | ND | 10.5 | U | 3.3 | 2 | 3.18 | Yes | Max SQL > SV |
| Total Endrin | 0 | 1 | 31.5 | 31.5 | | | ND | 31.5 | U | 3.3 | 2 | 9.55 | Yes | Max SQL > SV |
| alpha-BHC | 0 | 1 | 5 | 5 | | | ND | 5 | U | | N/A | | Yes | No SV |
| beta-BHC | 0 | 1 | 5 | 5 | | | ND | 5 | U | 0.32 | N/A | 15.6 | Yes | Max SQL > SV |
| delta-BHC | 0 | 1 | 5 | 5 | | | ND | 5 | U | 0.32 | N/A | 15.6 | Yes | Max SQL > SV |
| gamma-BHC (Lindane) | 0 | 1 | 5 | 5 | | | ND | 5 | U | 0.32 | 1 | 15.6 | Yes | Max SQL > SV |
| Total BHC | 0 | 1 | 20 | 20 | | | ND | 20 | U | 0.32 | 2 | 62.5 | Yes | Max SQL > SV |
| **4,4'-DDD** | **1** | **1** | | | **2,600** | **2,600** | **041M480101** | **2,600** | **DJ** | **1.22** | **1** | **2,130** | **Yes** | **Max Detect > SV** |
| **4,4'-DDE** | **1** | **1** | | | **620** | **620** | **041M480101** | **620** | **DJ** | **2.07** | **1** | **300** | **Yes** | **Max Detect > SV** |
| **4,4'-DDT** | **1** | **1** | | | **240** | **240** | **041M480101** | **240** | **J** | **1.19** | **1** | **202** | **Yes** | **Max Detect > SV** |
| **Total DDT** | **1** | **1** | | | **3,460** | **3,460** | **041M480101** | **3,460** | | **3.3** | **2** | **1,050** | **Yes** | **Max Detect > SV** |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 1 | 5,000 | 5,000 | | | ND | 5,000 | U | | N/A | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 1 | 5,000 | 5,000 | | | ND | 5,000 | UJ | | N/A | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 2-Chlorophenol | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 5,000 | 5,000 | | | ND | 5,000 | U | | N/A | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 2-Nitroaniline | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 2-Nitrophenol | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 3-Nitroaniline | 0 | 1 | 5,000 | 5,000 | | | ND | 5,000 | U | | N/A | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 4-Chloroaniline | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| 4-Nitroaniline | 0 | 1 | 5,000 | 5,000 | | | ND | 5,000 | U | | N/A | | Yes | No SV |
| 4-Nitrophenol | 0 | 1 | 5,000 | 5,000 | | | ND | 5,000 | U | | N/A | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 1 | 205 | 205 | | | ND | 205 | U | | N/A | | No | TOC Normalized PAHs <TEC |
| Benzo(g,h,i)perylene | 0 | 1 | 205 | 205 | | | ND | 205 | U | | N/A | | No | TOC Normalized PAHs <TEC |
| Benzo(k)fluoranthene | 0 | 1 | 205 | 205 | | | ND | 205 | U | | N/A | | No | TOC Normalized PAHs <TEC |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 1 | 205 | 205 | | | ND | 205 | U | | N/A | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | 182 | 1, 2 | 11.3 | Yes | Max SQL > SV |
| Butylbenzylphthalate | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | 182 | 1, 2 | 11.3 | Yes | Max SQL > SV |
| Carbazole | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| Dibenzofuran | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| Diethylphthalate | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | 182 | 1, 2 | 11.3 | Yes | Max SQL > SV |

**Table 15-6-5**
**Wetland 48 Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/kg) - cont.** | | | | | | | | | | | | | | |
| Dimethylphthalate | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | 182 | 1, 2 | 11.3 | Yes | Max SQL > SV |
| Di-n-butylphthalate | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | 182 | 1, 2 | 11.3 | Yes | Max SQL > SV |
| Di-n-octylphthalate | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | 182 | 1, 2 | 11.3 | Yes | Max SQL > SV |
| Hexachlorobenzene | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| Hexachlorobutadiene | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| Hexachloroethane | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 205 | 205 | | | ND | 205 | U | | N/A | | No | TOC Normalized PAHs <TEC |
| Isophorone | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| Nitrobenzene | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 1 | 205 | 205 | | | ND | 205 | U | | N/A | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| Pentachlorophenol | 0 | 1 | 5,000 | 5,000 | | | ND | 5,000 | U | | N/A | | Yes | No SV |
| Phenol | 0 | 1 | 2,050 | 2,050 | | | ND | 2,050 | U | | N/A | | Yes | No SV |
| **VOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethane | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethene (total) | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| 2-Butanone (MEK) | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| 2-Hexanone | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Acetone | 0 | 1 | 11 | 11 | | | ND | 11 | U | | N/A | | Yes | No SV |
| Benzene | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Bromodichloromethane | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Bromoform | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Bromomethane | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Carbon disulfide | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Carbon tetrachloride | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Chlorobenzene | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Chloroethane | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Chloroform | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Chloromethane | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Dibromochloromethane | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Ethylbenzene | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Methylene chloride | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Styrene | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Tetrachloroethene | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Toluene | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Trichloroethene | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |
| Vinyl chloride | 0 | 1 | 2 | 2 | | | ND | 2 | U | | N/A | | Yes | No SV |
| Xylene (Total) | 0 | 1 | 7 | 7 | | | ND | 7 | U | | N/A | | Yes | No SV |

***Notes:***

Sources for Screening Values:
SV = Screening Value
1 = USEPA Region 4 Screening Value.
Detailed explanation for SVs provided in Section 8.0.
2 = FDEP Threshold effects level

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available.
U or ND = Not Detected at or above the SQL
J = Estimated value
SHQ = Screening Hazard Quotient

D = Diluted Result
mg/kg = milligrams per kilograms
µg/kg = micrograms per kilograms
mg/kg oc = milligrams per kilograms - organic carbon
UJ = Not detected. SQL is estimated.
Parameters in bold were detected and exceeded screening values.

**Table 15-6-6**
**Wetland 48 Phase II**
**Sediment COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | 4,4'-DDD | None | None |
| Barium | 4,4'-DDE | | |
| Calcium | 4,4'-DDT | | |
| Iron | Total DDT | | |
| Magnesium | | | |
| Manganese | | | |
| Potassium | | | |
| Selenium | | | |
| Vanadium | | | |
| | | **Not Detected Parameters** | |
| Beryllium | Aldrin | 1,2,4-Trichlorobenzene | 1,1,1-Trichloroethane |
| Cobalt | alpha-BHC | 1,2-Dichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Cyanide (CN) | alpha-Chlordane | 1,3-Dichlorobenzene | 1,1,2-Trichloroethane |
| Sodium | beta-BHC | 1,4-Dichlorobenzene | 1,1-Dichloroethane |
| Thallium | delta-BHC | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1-Dichloroethene |
| | Dieldrin | 2,4,5-Trichlorophenol | 1,2-Dichloroethane |
| | Endosulfan I | 2,4,6-Trichlorophenol | 1,2-Dichloroethene (total) |
| | Endosulfan II | 2,4-Dichlorophenol | 1,2-Dichloropropane |
| | Endosulfan sulfate | 2,4-Dimethylphenol | 2-Butanone (MEK) |
| | Endrin | 2,4-Dinitrophenol | 2-Hexanone |
| | Endrin aldehyde | 2,4-Dinitrotoluene | 4-Methyl-2-Pentanone (MIBK) |
| | Endrin ketone | 2,6-Dinitrotoluene | Acetone |
| | gamma-BHC (Lindane) | 2-Chloronaphthalene | Benzene |
| | gamma-Chlordane | 2-Chlorophenol | Bromodichloromethane |
| | Heptachlor | 2-Methyl-4,6-Dinitrophenol | Bromoform |
| | Heptachlor epoxide | 2-Methylphenol (o-Cresol) | Bromomethane |
| | Methoxychlor | 2-Nitroaniline | Carbon disulfide |
| | Total BHC | 2-Nitrophenol | Carbon tetrachloride |
| | Total Chlordane | 3,3'-Dichlorobenzidine | Chlorobenzene |
| | Total Endrin | 3-Nitroaniline | Chloroethane |
| | Toxaphene | 4-Bromophenyl-phenylether | Chloroform |
| | Aroclor-1016 | 4-Chloro-3-methylphenol | Chloromethane |
| | Aroclor-1221 | 4-Chloroaniline | cis-1,3-Dichloropropene |
| | Aroclor-1232 | 4-Chlorophenylphenyl ether | Dibromochloromethane |
| | Aroclor-1242 | 4-Methylphenol (p-Cresol) | Ethylbenzene |
| | Aroclor-1248 | 4-Nitroaniline | Methylene chloride |
| | Aroclor-1254 | 4-Nitrophenol | Styrene |
| | Aroclor-1260 | bis(2-Chloroethoxy)methane | Tetrachloroethene |
| | Total PCBs | bis(2-Chloroethyl)ether | Toluene |
| | | bis(2-Ethylhexyl)phthalate (BEHP) | trans-1,3-Dichloropropene |
| | | Butylbenzylphthalate | Trichloroethene |
| | | Carbazole | Vinyl chloride |
| | | Dibenzofuran | Xylene (Total) |
| | | Diethylphthalate | |
| | | Dimethylphthalate | |
| | | Di-n-butylphthalate | |
| | | Di-n-octylphthalate | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |

**Table 15-6-7**
**Wetland 48 Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 1 | 1 | | | | 1,400 | 1,400 | 1,400 | 1,400 | | 041M480101 | | | NA | | | | | 0 | 13,610 | 0 | No | EPC < RC |
| Barium | 1 | 1 | | | | 3.5 | 3.5 | 3.5 | 3.5 | J | 041M480101 | | | NA | | | | | 0 | 14 | 0 | No | EPC < RC |
| Beryllium | 0 | 1 | 0.045 | 0.045 | 0.045 | 0.045 | | | 0.045 | U | ND | | | NA | | | | | 0 | 0.84 | 0 | No | Parameter Not Detected |
| Calcium | 1 | 1 | | | | 499 | 499 | 499 | 499 | | 041M480101 | | | NA | | | | | 0 | 10,756.67 | 0 | No | EPC < RC |
| Cobalt | 0 | 1 | 0.095 | 0.095 | 0.095 | 0.095 | | | 0.095 | U | ND | | | NA | | | | | 0 | 2.8 | 0 | No | Parameter Not Detected |
| Cyanide (CN) | 0 | 1 | 0.44 | 0.44 | 0.44 | 0.44 | | | 0.44 | U | ND | | | NA | | | | | 0 | 5.22 | 0 | No | Parameter Not Detected |
| Iron | 1 | 1 | | | | 290 | 290 | 290 | 290 | | 041M480101 | | | NA | | | | | 0 | 11,911.67 | 0 | No | EPC < RC |
| Magnesium | 1 | 1 | | | | 84.9 | 84.9 | 84.9 | 84.9 | J | 041M480101 | | | NA | | | | | 0 | 7513.33 | 0 | No | EPC < RC |
| Manganese | 1 | 1 | | | | 1.5 | 1.5 | 1.5 | 1.5 | | 041M480101 | | | NA | | | | | 0 | 37.97 | 0 | No | EPC < RC |
| Potassium | 1 | 1 | | | | 14.4 | 14.4 | 14.4 | 14.4 | J | 041M480101 | | | NA | | | | | 0 | 1,628.67 | 0 | No | EPC < RC |
| Selenium | 1 | 1 | | | | 0.71 | 0.71 | 0.71 | 0.71 | | 041M480101 | | | NA | | | | | 0 | 3.45 | 0 | No | EPC < RC |
| Sodium | 0 | 1 | 48.1 | 48.1 | 48.1 | 48.1 | | | 48.1 | U | ND | | | NA | | | | | 0 | 18,993.33 | 0 | No | Parameter Not Detected |
| Thallium | 0 | 1 | 0.19 | 0.19 | 0.19 | 0.19 | | | 0.19 | UJ | ND | | | NA | | | | | 0 | 1.57 | 0 | No | Parameter Not Detected |
| Vanadium | 1 | 1 | | | | 2.4 | 2.4 | 2.4 | 2.4 | J | 041M480101 | | | NA | | | | | 0 | 28.67 | 0 | No | EPC < RC |
| **PCBs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 105 | 105 | 105 | 105 | | | 105 | U | ND | 21.6 | 189 | PEL | 4.86 | 4.86 | 0.56 | 0.56 | 0 | | 0 | No | Parameter Not Detected |
| Aroclor-1221 | 0 | 1 | 205 | 205 | 205 | 205 | | | 205 | U | ND | 67 | 189 | PEL | 3.06 | 3.06 | 1.08 | 1.08 | 0 | | 0 | No | Parameter Not Detected; Max SQL > RV |
| Aroclor-1232 | 0 | 1 | 105 | 105 | 105 | 105 | | | 105 | U | ND | 21.6 | 189 | PEL | 4.86 | 4.86 | 0.56 | 0.56 | 0 | | 0 | No | Parameter Not Detected |
| Aroclor-1242 | 0 | 1 | 105 | 105 | 105 | 105 | | | 105 | U | ND | 21.6 | 189 | PEL | 4.86 | 4.86 | 0.56 | 0.56 | 0 | | 0 | No | Parameter Not Detected |
| Aroclor-1248 | 0 | 1 | 105 | 105 | 105 | 105 | | | 105 | U | ND | 21.6 | 189 | PEL | 4.86 | 4.86 | 0.56 | 0.56 | 0 | | 0 | No | Parameter Not Detected |
| Aroclor-1254 | 0 | 1 | 105 | 105 | 105 | 105 | | | 105 | U | ND | 21.6 | 189 | PEL | 4.86 | 4.86 | 0.56 | 0.56 | 0 | | 0 | No | Parameter Not Detected |
| Aroclor-1260 | 0 | 1 | 105 | 105 | 105 | 105 | | | 105 | U | ND | 21.6 | 189 | PEL | 4.86 | 4.86 | 0.56 | 0.56 | 0 | | 0 | No | Parameter Not Detected |
| Total PCBs | 0 | 1 | 835 | 835 | 835 | 835 | | | 835 | U | ND | 21.6 | 189 | PEL | 38.7 | 38.7 | 4.42 | 4.42 | 0 | | 0 | No | Parameter Not Detected; Max SQL > RV |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 5 | 5 | 5 | 5 | | | 5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dieldrin | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | 0.716 | 4.3 | PEL | 14.7 | 14.7 | 2.44 | 2.44 | 0 | | 0 | No | Parameter Not Detected; Max SQL > RV |
| Endosulfan I | 0 | 1 | 5 | 5 | 5 | 5 | | | 5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan II | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Endosulfan sulfate | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor | 0 | 1 | 5 | 5 | 5 | 5 | | | 5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Heptachlor epoxide | 0 | 1 | 5 | 5 | 5 | 5 | | | 5 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Methoxychlor | 0 | 1 | 50 | 50 | 50 | 50 | | | 50 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toxaphene | 0 | 1 | 1,050 | 1,050 | 1,050 | 1,050 | | | 1,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| alpha-Chlordane | 0 | 1 | 5 | 5 | 5 | 5 | | | 5 | U | ND | 1.7 | 4.79 | PEL | 2.94 | 2.94 | 1.04 | 1.04 | 0 | | 0 | No | Parameter Not Detected; Max SQL > RV |
| gamma-Chlordane | 0 | 1 | 5 | 5 | 5 | 5 | | | 5 | U | ND | 1.7 | 4.79 | PEL | 2.94 | 2.94 | 1.04 | 1.04 | 0 | | 0 | No | Parameter Not Detected; Max SQL > RV |
| Total Chlordane | 0 | 1 | 10 | 10 | 10 | 10 | | | 10 | U | ND | 1.7 | 4.79 | PEL | 5.88 | 5.88 | 2.09 | 2.09 | 0 | | 0 | No | Parameter Not Detected; Max SQL > RV |
| Endrin | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | 3.3 | | NA | 3.18 | 3.18 | | | 0 | | 0 | No | Parameter Not Detected |
| Endrin aldehyde | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | 3.3 | | NA | 3.18 | 3.18 | | | 0 | | 0 | No | Parameter Not Detected |
| Endrin ketone | 0 | 1 | 10.5 | 10.5 | 10.5 | 10.5 | | | 10.5 | U | ND | 3.3 | | NA | 3.18 | 3.18 | | | 0 | | 0 | No | Parameter Not Detected |
| Total Endrin | 0 | 1 | 31.5 | 31.5 | 31.5 | 31.5 | | | 31.5 | U | ND | 3.3 | | NA | 9.55 | 9.55 | | | 0 | | 0 | No | Parameter Not Detected |
| alpha-BHC | 0 | 1 | 5 | 5 | 5 | 5 | | | 5 | U | ND | | 0.99 | PEL | | | 5.05 | 5.05 | 0 | | 0 | No | Parameter Not Detected; Max SQL > RV |
| beta-BHC | 0 | 1 | 5 | 5 | 5 | 5 | | | 5 | U | ND | 0.32 | 0.99 | PEL | 15.6 | 15.6 | 5.05 | 5.05 | 0 | | 0 | No | Parameter Not Detected; Max SQL > RV |
| delta-BHC | 0 | 1 | 5 | 5 | 5 | 5 | | | 5 | U | ND | 0.32 | 0.99 | PEL | 15.6 | 15.6 | 5.05 | 5.05 | 0 | | 0 | No | Parameter Not Detected; Max SQL > RV |
| gamma-BHC (Lindane) | 0 | 1 | 5 | 5 | 5 | 5 | | | 5 | U | ND | 0.32 | 0.99 | PEL | 15.6 | 15.6 | 5.05 | 5.05 | 0 | | 0 | No | Parameter Not Detected; Max SQL > RV |
| Total BHC | 0 | 1 | 20 | 20 | 20 | 20 | | | 20 | U | ND | 0.32 | 0.99 | PEL | 62.5 | 62.5 | 20.2 | 20.2 | 0 | | 0 | No | Parameter Not Detected; Max SQL > RV |
| **4,4'-DDD** | **1** | **1** | | | | **2,600** | **2,600** | **2,600** | **2,600** | **DJ** | **041M480101** | **1.22** | **7.81** | **PEL** | **2,130** | **2,130** | **333** | **333** | **1** | **50** | **1** | **Yes** | **EPC > RV and RC** |
| **4,4'-DDE** | **1** | **1** | | | | **620** | **620** | **620** | **620** | **DJ** | **041M480101** | **2.07** | **374** | **PEL** | **300** | **300** | **1.66** | **1.66** | **1** | **40** | **1** | **Yes** | **EPC > RV and RC** |
| **4,4'-DDT** | **1** | **1** | | | | **240** | **240** | **240** | **240** | **J** | **041M480101** | **1.19** | **4.77** | **PEL** | **202** | **202** | **50.3** | **50.3** | **1** | **20** | **1** | **Yes** | **EPC > RV and RC** |
| **Total DDT** | **1** | **1** | | | | **3,460** | **3,460** | **3,460** | **3,460** | | **041M480101** | **3.3** | **51.7** | **PEL** | **1,050** | **1,050** | **66.9** | **66.9** | **1** | **110** | **1** | **Yes** | **EPC > RV and RC** |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichlorobenzene | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,4-Dichlorobenzene | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,5-Trichlorophenol | 0 | 1 | 5,000 | 5,000 | 5,000 | 5,000 | | | 5,000 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4,6-Trichlorophenol | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dichlorophenol | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dimethylphenol | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrophenol | 0 | 1 | 5,000 | 5,000 | 5,000 | 5,000 | | | 5,000 | UJ | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrotoluene | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2,6-Dinitrotoluene | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chloronaphthalene | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Chlorophenol | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 5,000 | 5,000 | 5,000 | 5,000 | | | 5,000 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitroaniline | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Nitrophenol | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 3-Nitroaniline | 0 | 1 | 5,000 | 5,000 | 5,000 | 5,000 | | | 5,000 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Bromophenyl-phenylether | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |

**Table 15-6-7**
**Wetland 48 Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/kg) - cont.** | | | | | | | | | | | | | | | | | | | | | | | |
| 4-Chloro-3-methylphenol | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chloroaniline | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitroaniline | 0 | 1 | 5,000 | 5,000 | 5,000 | 5,000 | | | 5,000 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Nitrophenol | 0 | 1 | 5,000 | 5,000 | 5,000 | 5,000 | | | 5,000 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethyl)ether | 0 | 1 | 205 | 205 | 205 | 205 | | | 205 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | 182 | 2,647 | PEL | 11.3 | 11.3 | 0.77 | 0.77 | 0 | | 0 | No | Parameter Not Detected |
| Butylbenzylphthalate | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | 182 | 2,647 | PEL | 11.3 | 11.3 | 0.77 | 0.77 | 0 | | 0 | No | Parameter Not Detected |
| Carbazole | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dibenzofuran | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Diethylphthalate | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | 182 | 2,647 | PEL | 11.3 | 11.3 | 0.77 | 0.77 | 0 | | 0 | No | Parameter Not Detected |
| Dimethylphthalate | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | 182 | 2,647 | PEL | 11.3 | 11.3 | 0.77 | 0.77 | 0 | | 0 | No | Parameter Not Detected |
| Di-n-butylphthalate | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | 182 | 2,647 | PEL | 11.3 | 11.3 | 0.77 | 0.77 | 0 | | 0 | No | Parameter Not Detected |
| Di-n-octylphthalate | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | 182 | 2,647 | PEL | 11.3 | 11.3 | 0.77 | 0.77 | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobenzene | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorobutadiene | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachlorocyclopentadiene | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Hexachloroethane | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Isophorone | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Nitrobenzene | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitroso-di-n-propylamine | 0 | 1 | 205 | 205 | 205 | 205 | | | 205 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| N-Nitrosodiphenylamine | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Pentachlorophenol | 0 | 1 | 5,000 | 5,000 | 5,000 | 5,000 | | | 5,000 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Phenol | 0 | 1 | 2,050 | 2,050 | 2,050 | 2,050 | | | 2,050 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| **VOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1,2-Trichloroethane | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethane | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethene | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethane | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethene (total) | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 1,2-Dichloropropane | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Butanone (MEK) | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 2-Hexanone | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Acetone | 0 | 1 | 11 | 11 | 11 | 11 | | | 11 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Benzene | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromodichloromethane | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromoform | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Bromomethane | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon disulfide | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Carbon tetrachloride | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chlorobenzene | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroethane | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloroform | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Chloromethane | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| cis-1,3-Dichloropropene | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Dibromochloromethane | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Ethylbenzene | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Methylene chloride | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Styrene | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Tetrachloroethene | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Toluene | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| trans-1,3-Dichloropropene | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Trichloroethene | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Vinyl chloride | 0 | 1 | 2 | 2 | 2 | 2 | | | 2 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |
| Xylene (Total) | 0 | 1 | 7 | 7 | 7 | 7 | | | 7 | U | ND | | | NA | | | | | 0 | | 0 | No | Parameter Not Detected |

***Notes:***

Sources for Refinement Values (RVs):
PEL = FDEP Probable Effects Level
MEC = Swartz Midrange Effect Concentration

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
Parameters in bold were detected and exceeded screening values.
J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
PEL = Probable effects level.

N/R = No refinement value available.
N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters.
As a result, some average detections may exceed the maximum detections
NAS Pensacola base wide levels used as reference values for 4,4'-DDT, 4,4'-DDD, 4,4'-DDE and total DDT.

**Table 15-6-8**
**Wetland 48 Phase II**
**Sediment COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | **Detected Parameters** | | |
| None | 4,4'-DDD<br>4,4'-DDE<br>4,4'-DDT<br>Total DDT | None | None |

**Table 15-6-9**
**Wetland 48 Phase II**
**Mean ERM Quotient**

| Sample ID | Sample Date | Units | Result | VQUAL | Parameter | ERL | ERM | ERM Quotient |
|---|---|---|---|---|---|---|---|---|
| 041M480101 | 1/22/1996 | mg/kg | 0.55 | J | Arsenic | 8.2 | 70 | 0.01 |
| 041M480101 | 1/22/1996 | mg/kg | 0.3 | J | Cadmium | 1.2 | 9.6 | 0.03 |
| 041M480101 | 1/22/1996 | mg/kg | 1.1 | | Chromium | 81 | 370 | 0.00 |
| 041M480101 | 1/22/1996 | mg/kg | 1.1 | J | Copper | 34 | 270 | 0.00 |
| 041M480101 | 1/22/1996 | mg/kg | 17.4 | | Lead | 46.7 | 218 | 0.08 |
| 041M480101 | 1/22/1996 | mg/kg | 0.04 | U | Mercury | 0.15 | 0.71 | 0.06 |
| 041M480101 | 1/22/1996 | mg/kg | 0.425 | U | Nickel | 20.9 | 51.6 | 0.01 |
| 041M480101 | 1/22/1996 | mg/kg | 0.235 | U | Silver | 1 | 3.7 | 0.06 |
| 041M480101 | 1/22/1996 | mg/kg | 6.3 | | Zinc | 150 | 410 | 0.02 |
| **041M480101** | **1/22/1996** | **µg/kg** | **620** | **DJ** | **4,4'-DDE** | **2.2** | **27** | **22.96** |
| **041M480101** | **1/22/1996** | **µg/kg** | **240** | **J** | **4,4'-DDT** | **1.58** | **46.1** | **5.21** |
| 041M480101 | 1/22/1996 | µg/kg | 835 | U | Total PCBs | 22.7 | 180 | 4.64 |
| 041M480101 | 1/22/1996 | µg/kg | 205 | U | 2-Methylnaphthalene | 70 | 670 | 0.31 |
| 041M480101 | 1/22/1996 | µg/kg | 100 | U | Acenaphthene | 16 | 500 | 0.20 |
| 041M480101 | 1/22/1996 | µg/kg | 205 | U | Acenaphthylene | 44 | 640 | 0.32 |
| 041M480101 | 1/22/1996 | µg/kg | 205 | U | Anthracene | 85.3 | 1,100 | 0.19 |
| 041M480101 | 1/22/1996 | µg/kg | 205 | U | Benzo(a)anthracene | 261 | 1,600 | 0.13 |
| 041M480101 | 1/22/1996 | µg/kg | 205 | U | Benzo(a)pyrene | 430 | 1,600 | 0.13 |
| 041M480101 | 1/22/1996 | µg/kg | 205 | U | Chrysene | 384 | 2,800 | 0.07 |
| 041M480101 | 1/22/1996 | µg/kg | 205 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.79 |
| 041M480101 | 1/22/1996 | µg/kg | 205 | U | Fluoranthene | 600 | 5,100 | 0.04 |
| 041M480101 | 1/22/1996 | µg/kg | 100 | U | Fluorene | 19 | 540 | 0.19 |
| 041M480101 | 1/22/1996 | µg/kg | 205 | U | Naphthalene | 160 | 2,100 | 0.10 |
| 041M480101 | 1/22/1996 | µg/kg | 205 | U | Phenanthrene | 240 | 1,500 | 0.14 |
| 041M480101 | 1/22/1996 | µg/kg | 205 | U | Pyrene | 665 | 2,600 | 0.08 |
| 041M480101 | 1/22/1996 | | | | ERM Quotient Sum | | | 35.75 |
| 041M480101 | 1/22/1996 | | | | Mean ERM Quotient | | | 1.43 |
| 041M480101 | 1/22/1996 | | | | Mean ERM Quotient without ND | | | 1.13 |
| 041M480101 | 1/22/1996 | | | | Mean ERM Quotient Category | | | 3 |

***Notes:***
ERL = Effects Range Low
ERM = Effects Range Median
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
U = not detected at or above the SQL (value in table is 1/2 reported value)
J = estimated value
Shaded cells indicate constituent exceeds ERL.
**Shaded and bold cells indicate constituent exceeds ERM.**

**Table 15-6-10**
**Wetland 48 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Qual | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | |
| Aluminum | 0 | 1 | 178 | 178 | 178 | 178 | | | ND | 178 | U | 13 | FDEP | 13.7 | Yes | Max SQL > SV |
| Antimony | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | UJ | 160 | EPA | 0.01 | No | Max SQL< SV |
| Arsenic | 0 | 1 | 1.35 | 1.35 | 1.35 | 1.35 | | | ND | 1.35 | U | 50 | FDEP | 0.03 | No | Max SQL< SV |
| Barium | 0 | 1 | 2.6 | 2.6 | 2.6 | 2.6 | | | ND | 2.6 | U | | NA | | Yes | No SV |
| Beryllium | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.13 | FDEP | 3.85 | Yes | Max SQL > SV |
| Cadmium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 0.66 | EPA | 1.52 | Yes | Max SQL > SV |
| Calcium | 1 | 1 | | | | 977 | 977 | 977 | 041W480101 | 977 | J | | NA | | Yes | No SV |
| Chromium | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 11 | EPA | 0.23 | No | Max SQL< SV |
| Cobalt | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Copper | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 6.54 | EPA | 0.31 | No | Max SQL< SV |
| Cyanide (CN) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 5.2 | EPA | 0.48 | No | Max SQL< SV |
| Iron | 1 | 1 | | | | 285 | 285 | 285 | 041W480101 | 285 | | | NA | | Yes | No SV |
| Lead | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 1.32 | EPA | 0.76 | No | Max SQL< SV |
| Magnesium | 1 | 1 | | | | 1,020 | 1,020 | 1,020 | 041W480101 | 1,020 | J | | NA | | Yes | No SV |
| Manganese | 1 | 1 | | | | 2.9 | 2.9 | 2.9 | 041W480101 | 2.9 | J | | NA | | Yes | No SV |
| Mercury | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.012 | EPA | 5.42 | Yes | Max SQL > SV |
| Nickel | 0 | 1 | 4.5 | 4.5 | 4.5 | 4.5 | | | ND | 4.5 | U | 87.71 | EPA | 0.05 | No | Max SQL< SV |
| Potassium | 0 | 1 | 58 | 58 | 58 | 58 | | | ND | 58 | U | | NA | | Yes | No SV |
| Selenium | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 5 | EPA | 0.4 | No | Max SQL< SV |
| Silver | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.012 | EPA | 208 | Yes | Max SQL > SV |
| Sodium | 1 | 1 | | | | 7,480 | 7,480 | 7,480 | 041W480101 | 7,480 | | | NA | | Yes | No SV |
| Thallium | 0 | 1 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 4 | EPA | 0.5 | No | Max SQL< SV |
| Vanadium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Zinc | 0 | 1 | 19.1 | 19.05 | 19.05 | 19.1 | | | ND | 19.05 | U | 58.91 | EPA | 0.32 | No | Max SQL< SV |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endosulfan I | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.056 | EPA | 0.45 | No | Max SQL< SV |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0038 | EPA | 6.58 | Yes | Max SQL > SV |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.00004 | FDEP | 625 | Yes | Max SQL > SV |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | U | | NA | | Yes | No SV |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0043 | EPA | 11.6 | Yes | Max SQL > SV |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0023 | EPA | 21.7 | Yes | Max SQL > SV |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| gamma-BHC (Lindane) | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.08 | EPA | 0.31 | No | Max SQL< SV |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | Yes | No SV |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0003 | FDEP | 167 | Yes | Max SQL > SV |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0002 | FDEP | 250 | Yes | Max SQL > SV |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.00059 | FDEP | 84.7 | Yes | Max SQL > SV |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |

**Table 15-6-10**
**Wetland 48 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Qual | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PCBs (µg/L) - cont.** | | | | | | | | | | | | | | | | |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.014 | EPA | 35.7 | Yes | Max SQL > SV |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | Yes | No SV |
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 43.8 | EPA | 0.06 | No | Max SQL< SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.3 | EPA | 8.33 | Yes | Max SQL > SV |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Di-n-butylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 9.4 | EPA | 0.27 | No | Max SQL< SV |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | Yes | No SV |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |

**Table 15-6-10**
**Wetland 48 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Qual | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAHs (µg/L) - cont.** | | | | | | | | | | | | | | | | |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Naphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 26 | FDEP | 0.02 | No | Max SQL< SV |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Total PAH | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | Yes | No SV |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 270 | FDEP | 0.00 | No | Max SQL< SV |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3.2 | FDEP | 0.16 | No | Max SQL< SV |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 15.8 | EPA | 0.03 | No | Max SQL< SV |
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3 | FDEP | 0.17 | No | Max SQL< SV |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Benzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 53 | EPA | 0.01 | No | Max SQL< SV |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 17 | FDEP | 0.03 | No | Max SQL< SV |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chloroform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 289 | EPA | 0.00 | No | Max SQL< SV |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Ethylbenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 453 | EPA | 0.00 | No | Max SQL< SV |
| Methylene chloride | 0 | 1 | 1.5 | 1.5 | 1.5 | 1.5 | | | ND | 1.5 | U | 1,580 | FDEP | 0.00 | No | Max SQL< SV |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Toluene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 175 | EPA | 0.00 | No | Max SQL< SV |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8)
HQ = Hazard Quotient.
N/R = No refinement value available.

Average result calculations include summing detections and one half the detection limits for not detected parameters. As a result, some average detections may exce the maximum detections.
Parameters in bold were detected and exceeded the screening value.

**Table 15-6-11**
**Wetland 48 Phase II**
**Surface Water COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Calcium | None | None | None |
| Iron | | | |
| Magnesium | | | |
| Manganese | | | |
| Sodium | | | |
| | | **Not Detected Parameters** | |
| Aluminum | Aldrin | 1,2,4-Trichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Barium | Dieldrin | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1,2-Trichloroethane |
| Beryllium | Endosulfan II | 2,4,5-Trichlorophenol | 1,1-Dichloroethane |
| Cadmium | Endosulfan sulfate | 2,4,6-Trichlorophenol | 1,2-Dibromo-3-Chloropropane |
| Cobalt | Heptachlor | 2,4-Dichlorophenol | 1,2-Dibromoethane |
| Mercury | Heptachlor epoxide | 2,4-Dimethylphenol | 1,2-Dichloroethane |
| Potassium | Methoxychlor | 2,4-Dinitrophenol | 1,2-Dichloropropane |
| Silver | Toxaphene | 2,4-Dinitrotoluene | 1,3-Dichlorobenzene |
| Vanadium | alpha-Chlordane | 2,6-Dinitrotoluene | 2-Hexanone |
| | gamma-Chlordane | 2-Chloronaphthalene | 4-Methyl-2-Pentanone (MIBK) |
| | Total Chlordane | 2-Methyl-4,6-Dinitrophenol | Bromochloromethane |
| | Endrin | 2-Methylphenol (o-Cresol) | Bromodichloromethane |
| | Endrin aldehyde | 2-Nitroaniline | Bromoform |
| | Endrin ketone | 2-Nitrophenol | Bromomethane |
| | Total Endrin | 3,3'-Dichlorobenzidine | Carbon disulfide |
| | alpha-BHC | 3-Nitroaniline | Carbon tetrachloride |
| | beta-BHC | 4-Bromophenyl-phenylether | Chloroethane |
| | delta-BHC | 4-Chloro-3-methylphenol | Chloromethane |
| | Total BHC | 4-Chloroaniline | cis-1,2-Dichloroethene |
| | 4,4'-DDD | 4-Chlorophenylphenyl ether | cis-1,3-Dichloropropene |
| | 4,4'-DDE | 4-Methylphenol (p-Cresol) | Dibromochloromethane |
| | 4,4'-DDT | 4-Nitroaniline | Styrene |
| | Total DDT | 4-Nitrophenol | Tetrachloroethene |
| | Aroclor-1016 | Benzo(b)fluoranthene | trans-1,2-Dichloroethene |
| | Aroclor-1221 | Benzo(g,h,i)perylene | trans-1,3-Dichloropropene |
| | Aroclor-1232 | Benzo(k)fluoranthene | Trichloroethene |
| | Aroclor-1242 | bis(2-Chloroethoxy)methane | Vinyl chloride |
| | Aroclor-1248 | bis(2-Chloroethyl)ether | Xylene (Total) |
| | Aroclor-1254 | bis(2-Ethylhexyl)phthalate (BEHP) | |
| | Aroclor-1260 | Butylbenzylphthalate | |
| | Total PCBs | Dibenzofuran | |
| | | Diethylphthalate | |
| | | Dimethylphthalate | |
| | | Di-n-octylphthalate | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Indeno(1,2,3-cd)pyrene | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |
| | | 2-Methylnaphthalene | |
| | | Acenaphthene | |
| | | Acenaphthylene | |
| | | Anthracene | |
| | | Benzo(a)anthracene | |
| | | Benzo(a)pyrene | |
| | | Chrysene | |
| | | Dibenz(a,h)anthracene | |
| | | Fluoranthene | |
| | | Fluorene | |
| | | Phenanthrene | |
| | | Pyrene | |
| | | Total PAHs | |

**Table 15-6-12**
**Wetland 48 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | | | | |
| Aluminum | 0 | 1 | 178 | 178 | 178 | 178 | | | ND | 178 | U | 13 | FDEP | 14 | 13.7 | 1,090.25 | 0 | No | Max SQL < Ref. Conc. |
| Barium | 0 | 1 | 2.6 | 2.6 | 2.6 | 2.6 | | | ND | 2.6 | U | | NA | | | 3.68 | 0 | No | Max SQL < Ref. Conc. |
| Beryllium | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.13 | FDEP | 4 | 3.85 | 1 | 0 | No | Max SQL < Ref. Conc. |
| Cadmium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 0.66 | EPA | 2 | 1.52 | 3 | 0 | No | Max SQL < Ref. Conc. |
| Calcium | 1 | 1 | | | | 977 | 977 | 977 | 041W480101 | 977 | J | | NA | | | 7,675 | 0 | No | Max Result < Ref. Conc. |
| Cobalt | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | 3 | 0 | No | Max SQL < Ref. Conc. |
| Iron | 1 | 1 | | | | 285 | 285 | 285 | 041W480101 | 285 | | | NA | | | 2,360 | 0 | No | Max Result < Ref. Conc. |
| Magnesium | 1 | 1 | | | | 1,020 | 1,020 | 1,020 | 041W480101 | 1,020 | J | | NA | | | 20,260 | 0 | No | Max Result < Ref. Conc. |
| Manganese | 1 | 1 | | | | 2.9 | 2.9 | 2.9 | 041W480101 | 2.9 | J | | NA | | | 13.2 | 0 | No | Max Result < Ref. Conc. |
| Mercury | 0 | 1 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.012 | EPA | 5.42 | 5.42 | 0.13 | 0 | No | Max SQL < Ref. Conc. |
| Potassium | 0 | 1 | 58 | 58 | 58 | 58 | | | ND | 58 | U | | NA | | | 6,995 | 0 | No | Max SQL < Ref. Conc. |
| Silver | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.012 | EPA | 208.33 | 208 | 4 | 0 | No | Max SQL < Ref. Conc. |
| Sodium | 1 | 1 | | | | 7,480 | 7,480 | 7,480 | 041W480101 | 7,480 | | | NA | | | 182,200 | 0 | No | Max Result < Ref. Conc. |
| Vanadium | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | 4.7 | 0 | No | Max SQL < Ref. Conc. |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dieldrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endosulfan II | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endosulfan sulfate | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Heptachlor | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0038 | EPA | 7 | 6.58 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Heptachlor epoxide | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.00004 | FDEP | 625 | 625 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Methoxychlor | 0 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Toxaphene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| alpha-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| gamma-Chlordane | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Total Chlordane | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0043 | EPA | 12 | 11.6 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Endrin | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endrin aldehyde | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endrin ketone | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0023 | EPA | 22 | 21.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total Endrin | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | No | Parameter Not Detected |
| alpha-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| beta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| delta-BHC | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| gamma-BHC (Lindane) | 0 | 1 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.08 | EPA | 0.31 | 0.31 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total BHC | 0 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4,4'-DDD | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0003 | FDEP | 167 | 167 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| 4,4'-DDE | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0002 | FDEP | 250 | 250 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| 4,4'-DDT | 0 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.00059 | FDEP | 85 | 84.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total DDT | 0 | 1 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1221 | 0 | 1 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1232 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1242 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1248 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1254 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1260 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.014 | EPA | 36 | 35.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total PCB | 0 | 1 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4,5-Trichlorophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4,6-Trichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dichlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dimethylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,6-Dinitrotoluene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Chloronaphthalene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Nitroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Nitrophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 3,3'-Dichlorobenzidine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 3-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |

**Table 15-6-12**
**Wetland 48 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | | | | |
| 4-Bromophenyl-phenylether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chloro-3-methylphenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chloroaniline | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chlorophenylphenyl ether | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Methylphenol (p-Cresol) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Nitroaniline | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Nitrophenol | 0 | 1 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(b)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(g,h,i)perylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(k)fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethoxy)methane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethyl)ether | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.3 | EPA | 8.33 | 8.33 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Butylbenzylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibenzofuran | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Diethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dimethylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Di-n-octylphthalate | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorobutadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorocyclopentadiene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachloroethane | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Indeno(1,2,3-cd)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Isophorone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Nitrobenzene | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| N-Nitroso-di-n-propylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| N-Nitrosodiphenylamine | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Pentachlorophenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Phenol | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Acenaphthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Acenaphthylene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(a)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(a)pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chrysene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibenz(a,h)anthracene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Fluoranthene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Fluorene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Naphthalene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 26 | FDEP | 0.02 | 0.02 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Phenanthrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Pyrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Total PAH | 0 | 1 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,1,2-Trichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dibromo-3-Chloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dibromoethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dichloropropane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Hexanone | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 1 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromodichloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromoform | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromomethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Carbon disulfide | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Carbon tetrachloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chloroethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| cis-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| cis-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |

**Table 15-6-12**
**Wetland 48 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | | | | |
| Dibromochloromethane | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Styrene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Tetrachloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| trans-1,2-Dichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| trans-1,3-Dichloropropene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Trichloroethene | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Vinyl chloride | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Xylene (Total) | 0 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
UJ = Not detected. SQL is estimated.
D = Diluted Result
J = Estimated Value

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
PEL = Probable effects level.
N/R = No refinement value available.

N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters. As a result, some average detections may exceed the Max detections.
Parameters in bold were detected and exceeded Ref. Conc.s.

**Table 15-6-13**
**Wetland 48 Phase II**
**Surface Water COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| **Detected Parameters** | | | |
| None | None | None | None |

**Table 15-6-14**
**Wetland 48 Phase II**
**Sediment Dermal Exposure Dose-Child Trespasser and Adult Maintenance Worker**

| CAS Number | Chemical | | Minimum Concentration | Min. Qual. | Maximum Concentration | Max. Qual. | Units | Location of Max.Conc. | Detection Frequency | Range of Detection Limits | Mean | $ABS_{sd}$ | $ABS_{sd}$ Source | $DA_{event}$: Child Trespasser | $DA_{event}$: Adult Maintenance Worker | $DAD_{sd}$ (mg/kg-day): Child Trespasser | $DAD_{sd}$ (mg/kg-day): Adult Maintenance Worker |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429905 | Aluminum | N | N/A | N/A | 1.4E+03 | = | MG/KG | 041M480101 | 1 / 1 | NAV | 1.4E+03 | 1.0E-03 | 3 | N/A | 1.40E-07 | N/A | 2.96E-06 |
| 7440393 | Barium | N | N/A | N/A | 3.5E+00 | J | MG/KG | 041M480101 | 1 / 1 | NAV | 3.5E+00 | 1.0E-03 | 3 | N/A | 3.50E-10 | N/A | 7.41E-09 |
| 7439896 | Iron | N | N/A | N/A | 2.9E+02 | = | MG/KG | 041M480101 | 1 / 1 | NAV | 2.9E+02 | 1.0E-03 | 3 | N/A | 2.90E-08 | N/A | 6.14E-07 |
| 7439965 | Manganese | N | N/A | N/A | 1.5E+00 | = | MG/KG | 041M480101 | 1 / 1 | NAV | 1.5E+00 | 1.0E-03 | 3 | N/A | 1.50E-10 | N/A | 3.17E-09 |
| 7782492 | Selenium | N | N/A | N/A | 7.1E-01 | = | MG/KG | 041M480101 | 1 / 1 | NAV | 7.1E-01 | 1.0E-03 | 3 | N/A | 7.10E-11 | N/A | 1.50E-09 |
| 7440622 | Vanadium | N | N/A | N/A | 2.4E+00 | J | MG/KG | 041M480101 | 1 / 1 | NAV | 2.4E+00 | 1.0E-03 | 3 | N/A | 2.40E-10 | N/A | 5.08E-09 |
| 72548 | 4,4'-DDD | C | N/A | N/A | 2.6E+00 | DJ | MG/KG | 041M480101 | 1 / 1 | NAV | 2.6E+00 | 3.0E-02 | 1 | N/A | 7.80E-09 | N/A | 5.90E-08 |
| 72559 | 4,4'-DDE | C | N/A | N/A | 6.2E-01 | DJ | MG/KG | 041M480101 | 1 / 1 | NAV | 6.2E-01 | 3.0E-02 | 1 | N/A | 1.86E-09 | N/A | 1.41E-08 |
| 50293 | 4,4'-DDT | C | N/A | N/A | 2.4E-01 | J | MG/KG | 041M480101 | 1 / 1 | NAV | 2.4E-01 | 3.0E-02 | 1 | N/A | 7.20E-10 | N/A | 5.44E-09 |

***Notes:***
Equation for sediment risk:

$$DAD_{sd} = \frac{DA_{event} \times EV \times ED \times EF \times SA}{BW \times AT}$$

Where:

$DAD_{sd}$ = Dermal Absorbed Dose-soil contact (mg/kg-day).
$DA_{event}$ = Dermal absorbed dose per event (mg/cm2-event)
SA = Skin surface area available for contact (cm2).
EV = Event frequency (events/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr
carcinogenic effects AT = 70 yr x 365 dy/yr.

Exposure Parameters:

EV = 1 event per day (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
EF = 52 dys/yr (child trespasser/adult maintenance worker).
SA = 5,000 cm2(child trespasser); 10,400 cm2 (adult maintenance worker).
Source: Tables 6-6 and 6-8 Exposure Factors Handbook.
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer – 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer – 25,550 days (child trespasser/adult maintenance worker).

Equation for $DA_{event}$ for sediment contact:

$$DA_{event} = C_{sd} \times CF \times AF \times ABS_d$$

Where:

$C_{sd}$ = Chemical concentration in sediment (mg/kg).
CF = Conversion factor ($10^{-6}$ kg/mg).
AF = Adherence factor of sediment to soil (mg/cm2-event).
0.2 (children playing in wet soil) 0.1 (construction worker)
$AB_{sd}$ = Dermal absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1;
(2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.

**Table 15-6-15**
**Wetland 48 Phase II**
**Sediment Dermal Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum Concentration (mg/kg) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | ABSGI | ABSGI Source | Dermal RfD (mg/kg-day) | Dermal SF (mg/kg-day)-1 | Child Trespasser | | Maintenance Worker | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Dermal Hazard Quotient | Dermal Cancer Risk | Dermal Hazard Quotient | Dermal Cancer Risk |
| Sediment Dermal Risk | Aluminum | N | 1.4E+03 | 1.0E+00 | N/A | 1.0E-01 | 2 | 1.0E-01 | N/A | N/A | N/A | 3.0E-05 | N/A |
| | Barium | N | 3.5E+00 | 7.0E-02 | N/A | 7.0E-02 | 1, 3 | 4.9E-03 | N/A | N/A | N/A | 1.5E-06 | N/A |
| | Iron | N | 2.9E+02 | 3.0E-01 | N/A | 1.5E-01 | 3 | 4.5E-02 | N/A | N/A | N/A | 1.4E-05 | N/A |
| | Manganese | N | 1.5E+00 | 2.4E-02 | N/A | 4.0E-02 | 1, 3 | 9.6E-04 | N/A | N/A | N/A | 3.3E-06 | N/A |
| | Selenium | N | 7.1E-01 | 5.0E-03 | N/A | 5.5E-01 | 1 | 2.8E-03 | N/A | N/A | N/A | 5.5E-07 | N/A |
| | Vanadium | N | 2.4E+00 | 7.0E-03 | N/A | 2.6E-02 | 1 | 1.8E-04 | N/A | N/A | N/A | 2.8E-05 | N/A |
| | 4,4'-DDD | C | 2.6E+00 | N/A | 2.4E-01 | 3.0E-02 | 2 | N/A | 8.0E+00 | N/A | N/A | N/A | 4.7E-07 |
| | 4,4'-DDE | C | 6.2E-01 | N/A | 3.4E-01 | 3.0E-02 | 2 | N/A | 1.1E+01 | N/A | N/A | N/A | 1.6E-07 |
| | 4,4'-DDT | C | 2.4E-01 | 5.0E-04 | 3.4E-01 | 3.0E-02 | 2 | 1.5E-05 | 1.1E+01 | N/A | N/A | 3.6E-04 | 6.2E-08 |

***Notes:***

Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
ABSGI = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.
Dermal RfD = Dermal reference dose-sources: (1) RAIS value; (2) adjusted for ABSGI.
Dermal SF = Dermal slope factor-sources: (1) RAIS value; (2) adjusted for ABSGI.

Equations for Dermal Reference Dose and Dermal Slope Factor, surface water risk:

$$RfD_{dermal} = RfD_{oral} \times ABS_{GI}$$

$$SF_{dermal} = \frac{RfD_{oral}}{ABS_{GI}}$$

Where:
RfDdermal = Dermal reference dose.
RFDoral = Oral reference dose.
ABSGI = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.

Risk calculation equation, cancer:

$$Risk = DAD_{sw} \times SF_{dermal}$$

Risk calculation equation, noncancer:

$$Hazard\ Quotient = \frac{DAD_{sw}}{RfD_{dermal}}$$

**Table 15-6-16**
**Wetland 48 Phase II**
**Sediment Incidental Ingestion Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum Concentration (mg/kg) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | Child Trespasser: Ingestion Hazard Quotient | Child Trespasser: Ingestion Cancer Risk | Maintenance Worker: Ingestion Hazard Quotient | Maintenance Worker: Ingestion Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|
| Sediment Incidental Ingestion | Aluminum | N | 1.4E+03 | 1.0E+00 | N/A | N/A | N/A | 2.85E-04 | N/A |
| | Barium | N | 3.5E+00 | 7.0E-02 | N/A | N/A | N/A | 1.02E-05 | N/A |
| | Iron | N | 2.9E+02 | 3.0E-01 | N/A | N/A | N/A | 1.97E-04 | N/A |
| | Manganese | N | 1.5E+00 | 2.4E-02 | N/A | N/A | N/A | 1.27E-05 | N/A |
| | Selenium | N | 7.1E-01 | 5.0E-03 | N/A | N/A | N/A | 2.89E-05 | N/A |
| | Vanadium | N | 2.4E+00 | 7.0E-03 | N/A | N/A | N/A | 6.98E-05 | N/A |
| | 4,4'-DDD | C | 2.6E+00 | N/A | 2.4E-01 | N/A | N/A | N/A | 4.54E-08 |
| | 4,4'-DDE | C | 6.2E-01 | N/A | 3.4E-01 | N/A | N/A | N/A | 1.53E-08 |
| | 4,4'-DDT | C | 2.4E-01 | 5.0E-04 | 3.4E-01 | N/A | N/A | 3.49E-05 | 5.93E-09 |

***Notes:***

Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
CDI = Chronic daily intake (mg/kg-day)

$$Risk = CDI \times SF_{oral}$$

Equation for Chronic Daily Intake, sediment risk:

$$CDI = \frac{EPC_{sd} \times IR_{sd} \times EF \times ED \times CF}{BW \times AT}$$

$$Hazard\ Quotient = \frac{CDI}{RfD_{oral}}$$

Where:
CDI = Chronic daily intake (mg/kg-day).
EPCsd = Exposure point concentration in sediment (mg/kg).
IRsd = Incidental ingestion rate for sediment (mg/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
CF = Conversion factor (1E-6 kg/mg).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr.
carcinogenic effects AT = 70 yr x 365 dy/yr.

= Oral reference dose.
= Oral slope factor.

Exposure Parameters:
IRsd = 100 mg/day for age groups greater than 6-years old.
EF = 52 dys/yr (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).

**Table 15-6-17**
**Wetland 48 Phase II**
**Surface Water Dermal Absorbed Dose-Child Trespasser and Adult Maintenance Worker**

| CAS Number | Chemical | | Minimum Concentration | Min. Qual. | Maximum Concentration | Max. Qual. | Units | Location of Max. Conc. | Detection Frequency | Range of Detection Limits | Mean | Maximum Concentration | $K_p$ | $DA_{event}$ | $DAD_{sw}$ (mg/kg-day): Child Trespasser | $DAD_{sw}$ (mg/kg-day): Adult Maintenance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439965 | Manganese | N | N/A | N/A | 2.9E+00 | J | UG/L | 041W480101 | 1 / 1 | NAV | 2.9E+00 | 2.9E-06 | 1.0E-03 | 7.54E-09 | N/A | 1.60E-07 |

***Notes:***

Equation for Dermal Absorbed Dose, surface water risk:

$$DAD_{sw} = \frac{DA_{event} \times EV \times ED \times EF \times SA}{BW \times AT}$$

Where:

$DAD_{sw}$ = Dermal absorbed dose-water contact (mg/kg-day).
$DA_{event}$ = Dermal absorbed dose per event (mg/cm2-event).
SA = Skin surface area available for contact (cm2).
EV = Event frequency (events/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr
carcinogenic effects AT = 70 yr x 365 dy/yr.

Equation for DAevent for inorganics:

$$DA_{event} = K_p \times C_w \times t_{event}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: RAGS Part E, Exhibit B-3 or Exhibit B-4
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).

Equation for DAevent for organics:

$$DA_{event} = FA \times K_p \times C_w \left[ \frac{t_{event}}{1 + B} + 2\tau_{event} \left( \frac{1 + 3B + 3B^2}{(1 + B)^2} \right) \right]$$

Where:

FA = Fraction absorbed water (dimensionless). From RAGS Part E, Exhibit B-4.
Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E, Exhibit B-4.
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).
$t_{event}$ = Lag time per event (hr/event). From RAGS Part E, Exhibit B-4.
B = Dimensionless ratio of the permeability coefficient of a compound, calculated using the equation below:

$$B = \frac{K_p \sqrt{MW}}{2.6}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E.
MW = Molecular weight

Exposure Parameters:

EV = 1 event per day (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
EF = 52 dys/yr (child trespasser/adult maintenance worker).
SA = 5,000 cm2(child trespasser); 10,400 cm2 (adult maintenance worker).
Source: Tables 6-6 and 6-8 Exposure Factors Handbook.
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).
$t_{event}$ = 2.6 hrs/dy (child trespasser/adult maintenance worker).

**Table 15-6-18**
**Wetland 48 Phase II**
**Surface Water Dermal Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum concentration ($mg/cm^3$) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | $ABS_{GI}$ | $ABS_{GI}$ Source | Dermal RfD (mg/kg-day) | Dermal SF (mg/kg-day)-1 | Child Trespasser | | Maintenance Worker | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Dermal Hazard Quotient | Dermal Cancer Risk | Dermal Hazard Quotient | Dermal Cancer Risk |
| SW Dermal Risk | Manganese | N | 2.9E-06 | 1.4E-01 | N/A | 4.0E-02 | 1 | 5.6E-03 | N/A | N/A | N/A | 2.8E-05 | N/A |

***Notes:***

Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.
Dermal RfD = Dermal reference dose adjusted for $ABS_{GI}$.
Dermal SF = Dermal slope factor adjusted for ABSGI.

Equations for Dermal Reference Dose and Dermal Slope Factor, surface water risk:

$$RfD_{dermal} = RfD_{oral} \times ABS_{GI}$$

$$SF_{dermal} = \frac{RfD_{oral}}{ABS_{GI}}$$

Where:
$RfD_{dermal}$ = Dermal reference dose.
$RFD_{oral}$ = Oral reference dose.
SFdermal = Dermal slope factor.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.

Risk calculation equation, cancer:

$$Risk = DAD_{sw} \times SF_{dermal}$$

Risk calculation equation, noncancer:

$$Hazard\ Quotient = \frac{DAD_{sw}}{RfD_{dermal}}$$

**Table 15-6-19**
**Wetland 48 Phase II**
**Surface Water Incidental Ingestion Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| | | | | | | Child Trespasser | | Maintenance Worker | |
|---|---|---|---|---|---|---|---|---|---|
| **Exposure Route** | **COPC** | | **Maximum concentration ($mg/cm^3$)** | **Oral RfD (mg/kg-day)** | **Oral SF (mg/kg-day)-1** | **Ingestion Hazard Quotient** | **Ingestion Cancer Risk** | **Ingestion Hazard Quotient** | **Ingestion Cancer Risk** |
| **SW Incidental Ingestion** | Manganese | N | 2.9E-06 | 1.4E-01 | N/A | N/A | N/A | 4.2E-10 | N/A |

***Notes:***
Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
CDI

$$Risk = CDI \times SF_{oral}$$

Equation for Chronic Daily Intake, surface water risk:

$$CDI = \frac{EPC_{sw} \times IR_{sw} \times EF \times ED}{BW \times AT}$$

$$Hazard\ Quotient = \frac{CDI}{RfD_{oral}}$$

Where:
CDI = Chronic daily intake (mg/kg-day).
$EPC_{sw}$ = Exposure point concentration in surface water (mg/L).
$IR_{sw}$ = Incidental ingestion rate for sediment (L/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr.
carcinogenic effects AT = 70 yr x 365 dy/yr.

= Oral reference dose.
= Oral slope factor.

Exposure Parameters:
Irsw = 0.01 L/day exposure to surface water during wading for adolescents and adults.
EF = 52 dys/yr (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).

## 15.7 Wetland 49 — Screening Level Problem Formulation

### 15.7.1 Site Description and Habitats Present at Wetland 49

Wetland 49 is located southwest of Forrest Sherman Field. Wetland 49 is surrounded to the north and east by the grassy fields bordering the fringes of the Forrest Sherman Field runways, which are periodically mowed. To the south is a wooded zone containing mostly scrub oaks and pines. The northern fringe of the wetland is more seasonally wet than the drier southern portion. A shallow sheet flow of water in the northern portion at the south end of Wetland 49 ranges from zero to about one foot in depth and from five to 25 feet in width. A clearing at the southeast end of the wetland also is seasonally inundated during wet weather (Figure 15-1).

**Photograph 1 Wetland 49 — Facing Northwest**

Parsons and Pruitt (USEPA, 1991a) identified Wetland 49 as a palustrine, forested system dominated by pines and cypress tress. During the Site 41 RI, the wetland was sampled and analytical results were reported.

The IR site potentially affecting Wetland 49 is Site 19. Site 19 (Fuel Farm Pipeline Leak) was the site where a leak occurred in 1958 between an underground fuel pipeline, which led from the fuel farm to the aircraft refueling facility at Forrest Sherman Field. This leak resulted in the direct discharge of

860,000 gallons of fuel oil, which resulted in trees and other vegetation being killed in a 200 by 400 foot area. The leak occurred near Wetland 49. Wetland 49 is west of UST 18 (Crash Crew Training Area), to the northeast of Site 37/UST 24 (Sherman Field Fuel Farm Area), and is partially encompassed by Site 19.

### 15.7.2 Wetland 49 — Sample Location Description

**Phase II Sediment Sample Location Description**

Three sediment samples were collected and analyzed for the Wetland 49 ERA. Sample locations for Wetland 49 were located in areas of the wetland where depositional areas and groundwater seeps could occur. These sample locations are centrally located within the wetland (Figure 15-4). Table 15-7-1 (tables are located at the end of each section) provides a physical description of the sediments collected at Wetland 49. Sediments at Wetland 49 were composed of dark brown sand, some silt and organics (041M490101 and 041M490301) to very dark gray sandy silt (041M490201). TOC concentrations ranged from 0.811% (041M490101) to 1.48% (041M490301).

**Phase II Surface Water Sample Location Description**

Two surface water sample was collected at Wetland 49 (Figure 15-4), location 041W490101, collocated with sediment location 041M490101, and location 041W490301, collocated with sediment location 041M490301. The surface water samples were taken during the 1996 site investigation. Table 15-7-2 provides a physical description of the surface water collected at Wetland 49. Surface water at Wetland 49 had a pH concentration ranging from 4.95 to 5.21. Specific conductivity concentrations ranged from 0.054 to 0.079 mS/cm. Hardness as $CaCO_3$ concentrations ranged from 6.3 to 14.3, and salinity was 0%. Surface water had turbidity concentrations of 25 NTUs at both locations.

### 15.7.3 Nature and Extent of Contamination

**Phase II Sediment**

Figure 15-4 presents the sediment sampling locations for Wetland 49. Table 15-7-3 summarizes the analytical results for the three Wetland 49 sediment samples.

**Metals** — Seventeen inorganic constituents were detected during sediment sampling at Wetland 49. None of the metals detected were at a concentration exceeding their freshwater reference value. The greatest number of inorganic detections at Wetland 49 was at location 041M490201, where 16 analytes were detected. Locations 041M490101 and 041M490301 had 15 and 14 detections, respectively. The metals at Wetland 49 are widespread across the site area, with all detections below the applicable reference values.

**Pesticides and PCBs** — Four pesticide compounds were detected during sediment sampling at Wetland 49. No PCBs were detected in any of the three samples. Total DDT was calculated for each location by adding the concentrations of 4,4′-DDD, 4,4′-DDE, and 4,4′-DDT. Likewise, a basewide total DDT reference concentration was calculated using the basewide concentrations for these same constituents.

Locations 041M490101 and 041M490201 each exhibited concentrations of 4,4′-DDD exceeding the applicable basewide reference value. In addition, the total DDT concentration at location 041M490101 also exceeded the basewide reference value. Concentrations of 4,4′-DDE and 4,4′-DDT, also detected in these two samples, were below reference values. Location 041M490201 had a detection of heptachlor epoxide present at a relatively low concentration. Pesticide compounds were common at the southwest end of the wetland.

**SVOCs** — Four SVOCs were detected at location 041M490101. No other location exhibited detections of SVOCs. The concentration of bis(2-ethylhexyl)phthalate was elevated. The concentrations of butylbenzylphthalate, di-n-butylphthalate, and pyrene were much lower. All SVOCs detections were from sample location 041M490101, near the southwest end of the wetland.

**VOCs** — A single VOC, chloromethane, was detected at a low concentration at location 041M490301. The other two locations exhibited no detections of VOCs.

### Summary of Phase II Sediment Sampling at Wetland 49

The distribution of metals across Wetland 49 was widespread, but concentrations were low. Pesticides and SVOCs were only detected at the southwest end of the wetland, where as a single VOC was detected at the north end of the wetland.

### Phase II Surface Water

Figure 15-4 presents the surface water sampling locations for Wetland 49. Table 15-7-4 summarizes the analytical results for the two Wetland 48 surface water samples.

**Metals** — Nine metals were detected in the surface water from samples collected from Wetland 49. Sample location 041W490101 exhibited seven of these analytes, while sample location 041W490301 had eight metals detected. The only surface water exceedance for Wetland 49 was aluminum detected at sample location 041W490301.

**Pesticides and PCBs** — Pesticide compounds or PCBs were not detected in the Phase II surface water samples collected from Wetland 49.

**SVOCs —** No SVOCs were detected during surface water sampling at Wetland 49.

**VOCs —** Acetone was the only VOC detected in the Wetland 49 surface water samples collected during Phase II. The constituent was detected at both surface water locations.

### 15.7.4 Ecological Risk Assessment

**Phase II Investigation Summary — Wetland 49**

**Sediment Screening — Level Risk-Exposure Estimation and Risk Calculation**

As presented in Table 15-7-5, the sediment samples were compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than 1 or with no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-7-6.

**Baseline Problem Formulation — Wetland 49 Sediment COPC Refinement**

During the COPC refinement, additional information was used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as COPCs. This risk assessment presents a statement of potential risk for each of the COPCs.

The COPC refinement process included:

- Comparison of maximum concentrations to RVs
- Comparison of average concentrations to SVs and RVs
- Comparison to basewide (reference) concentrations for total DDT
- Comparison of inorganic constituents to reference wetland values
- Interpretative tool for metals
- Di Toro EqP SQGs for VOCs
- Comparison to Swartz consensus values
- Mean ERM quotients
- Description of exceedances of RVs and their extent

The methods used in the COPC refinement in the Site 41 ERA process are detailed in Section 8. Comparison of maximum detected concentrations with refinement values is presented in Table 15-7-7.

Additionally, the tables compare: 1) average concentrations to screening and refinement values to assess potential exposure across the entire wetland, and 2) Wetland 49 concentrations to reference concentrations. A list of COPCs retained after refinement are presented in Table 15-7-8.

At Wetland 49, 4,4'-DDD and total DDT were above the basewide level, indicating a potential concern for this wetland. For Wetland 49, none of the detected inorganic constituents exceeded their Site 41 freshwater sediment reference concentrations.

The only VOC detected was chloromethane, which does not have any Di Toro concentrations. As a group, the PAHs were not detected. However, when normalized to detected TOC concentrations, PAHs do not appear to be a risk driver for Wetland 49.

Table 15-7-9 presents the Mean ERL and ERM values, the Mean ERM Quotients, and the Mean ERM Quotient Category by individual sample location. Based on this approach, two of the three sample locations (041M490101 and 041M490201) were determined to be Category 2, which, according to tests evaluated in developing this methodology, had average survival rates of approximately 80% of control sediments; however, this category also has the highest level of uncertainly. Sample location 041M490301 was determined to be a Category 1, indicating the sediment at this location were considered to be nontoxic. Figure 15-7 also shows the Mean ERM category for each sediment sample location at Wetland 49.

At Wetland 49, 4,4'-DDD was detected in two of the three sample locations, with maximum detections of 94 µg/kg. The highest detection was reported at sample location 041M490101. Total DDT was also calculated with a maximum concentration of 113.2 µg/kg. As a result, total DDT will be included in the food chain models conducted for the wetlands in this area.

BEHP was detected at one sample location, with a detection of 1,700 µg/kg, also occurring at 041M490101. Heptachlor epoxide and chloromethane were retained as COPCs for Wetland 49 sediments due to a lack of screening values for comparison. Heptachlor epoxide was detected in one of the three sediments locations (041M490201), with a maximum concentration of 1.1 µg/kg. Chloromethane was detected at sediment location 041M490301, with a maximum concentration of 2 µg/kg.

**Surface Water Screening — Level Risk-Estimation and Risk Calculation**

As presented in Table 15-7-10, the surface water samples were compared with screening values in accordance with the procedures described in Section 8. All parameters with HQs greater than 1 or with

no screening values were carried forward to COPC refinement. A list of all COPCs after screening is included in Table 15-7-11.

**Baseline Problem Formulation — Wetland 49 Surface Water COPC Refinement**

During the surface water COPC refinement, additional information was used to help evaluate the potential for risk at Site 41 based on exposure to the constituents included as COPCs.

The COPC refinement process included:

- Comparison of maximum SV concentrations to average SV concentrations
- Comparison of inorganic constituents to reference wetland values
- Description of surface water exceedances and their extent

The methods used in the COPC refinement in the Site 41 ERA process are detailed in Section 8.

Comparison of maximum detected concentrations with refinement values is presented in Table 15-7-12. Additionally, the tables compare average concentrations to screening and refinement values to assess potential exposure across the entire wetland. COPCs retained after refinement are included in Table 15-7-13.

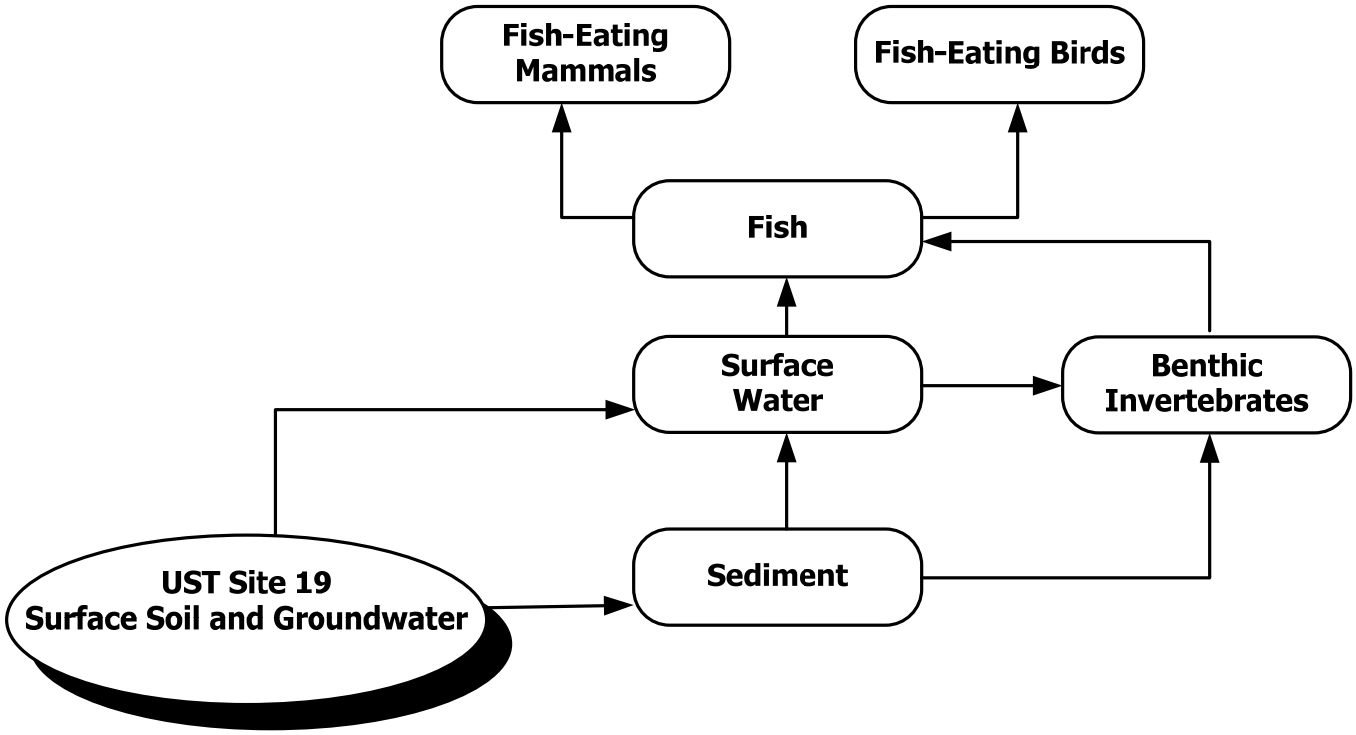
For Wetland 49, aluminum exceeded its Site 41 freshwater reference surface water concentration (Table 15-7-12). Acetone was also detected and retained due to a lack of screening criteria for the constituent.

None of the same constituents was retained for sediment and surface water at Wetland 49.

As summarized in the approved *Final RI/FS SAP Addendum* (E/A&H, 1997d), Wetland 49 was identified as an Orange-Coded Wetland based on the Phase II results, indicating contamination that was possibly related to nearby IR sites, but with limited contaminants exceeding sediment criteria and reference concentrations. Contaminants detected in these wetlands were also considered to be possible sources of ecological risk. Wetland 49 was also classified as a Group E wetland. Based on similar contaminants and physical characteristics, the other Group E wetlands include 48. These freshwater wetlands are on the western side of the base and do not appear to be impacted from any IR sites. However, to assess potential risks from contaminants that bioaccumulate, the results from Wetland 49 will be used in the remaining wetlands food-chain model presented in Section 15.8.

The conceptual model below symbolizes which environmental habitats may be impacted by Wetland 49 Phase II constituents retained during the ERA process.

**Wetland 49**
**Conceptual Site Model**




### 15.7.5 Wetland 49 — Human Health Risk Assessment

Wetland 49 is described in Section 15.8.1, and the HHRA is summarized below.

#### 15.7.5.1 Site Data

Section 15.7.3 summarizes the nature and extent of contamination for this wetland. Surface water and sediment data were collected at Wetland 49 during Phases II of the RI. Surface water and sediment data for 49 are summarized in Tables 15-7-3 and 15-7-4.

#### 15.7.5.2 Conceptual Site Model

As described in Section 15.7.1, Wetland 49 is located southwest of Forrest Sherman Field. Because Wetland 49 is located in a restricted area of the base, the wetland is only accessible to Navy personnel. Wetland 49 intermittently floods; therefore, contact with sediment and surface water is possible.

The following scenarios and exposure pathways were evaluated for this wetland:

| Scenario | Medium | Ingestion | Dermal |
|---|---|---|---|
| Maintenance | Surface water | √ | √ |
| | Sediment | √ | √ |

#### 15.7.5.3 Risk Characterization

The adult maintenance worker scenario for surface water and sediment were assessed for this wetland as described in Section 9.

**Phase II Data**

***Maintenance Worker***

As shown in Tables 15-7-14 through 15-7-16, sediment ingestion and dermal contact risk estimates for maintenance workers were below the FDEP risk threshold. Hazard indices were below 1.0.

As shown in Tables 15-7-17 through 15-7-19, surface water ingestion and dermal contact risk estimates for maintenance workers were below the FDEP risk threshold. Hazard indices were below 1.0.

**Summary of Wetland 49 Phase II Risk Estimates**

| Scenario | Medium | Hazard Index | Risk |
|---|---|---|---|
| Maintenance | Sediment | 1.62E-03 | 7.83E-08 |
| | Surface water | 1.78E-03 | N/A |

Based on Phase II data, no COCs for Wetland 49 were identified.

**Wetland 49 HHRA COC Summary**

No COCs were identified in the HHRA for Wetland 49.

### 15.7.6 Wetland 49 — Fate and Transport Analysis

There were no borings or wells proximal to this wetland; therefore, only the sediment/surface water transport pathways within the wetland were completed. Three sediment and two surface water samples were collected from this wetland, and are used to evaluate the transport pathways. The wetland occupies an area immediately south of the southwest end of the northeast-southwest Forrest Sherman runway. Most of the flow within this wetland is expected to be northeast to southwest.

***Surface Water/Sediment Transport within the Wetlands:***

To evaluate these pathways in Wetland 49, upgradient sediment sample location 041M4903 (sampled during Phase II) was compared to downgradient sediment location 041M4901 and further downgradient location 041M4902 (sampled during Phase II). To evaluate the surface water pathway, upgradient surface water location 041W4903 was compared to downgradient surface water location 041W4901 (sampled during Phase II).

**Surface Water** — Evaluation of Wetland 49 upgradient location 041W4903 and downgradient location 041W4901 indicated detections of eight metals and one organic upgradient versus seven metals and one organic downgradient. There was no trend in any of the detected parameters. For metals detected in the downgradient location, one parameter increased, one constituent was not detected in the upgradient location, one parameter remained the same, and four metals decreased. Acetone was detected at low concentrations in both locations and was likely a lab artifact.

**Sediment —** Evaluation of Wetland 49 upgradient location 041M4903 with downgradient location 041M4901 indicated an increase in detected parameters (14 metals and one organic versus 15 metals and seven organics, respectively). From upgradient to downgradient, there was a marked decrease in TOC. For metals, 13 parameters exhibited an increase, one constituent decreased, and one parameter was not detected in the downgradient sample. For the organics, seven compounds present in the downgradient sample were not detected in the upgradient sample, namely pesticides and SVOCs.

Evaluation of upgradient location 041M4901 with downgradient location 041M4902 indicated 15 metals and seven organics upgradient versus 16 metals and four organics downgradient. There was slight increase in TOC downgradient. From upgradient to downgradient metal detections, eight parameters increased, four metals decreased, two constituents remained the same, and two metals were not detected. For organics, two compounds decreased, one compound increased, and one organic was not detected. Overall, there were no marked changes in the number of detections or the detected concentrations, clearly demonstrating the mixing capabilities of the wetland.

**Table 15-7-1**
**Wetland 49 Phase II**
**Sediment Physical Parameters**

| Parameter | | 041M490101 | 041M490201 | 041M490301 |
|---|---|---|---|---|
| TOC (%) | | 0.811 | 1.26 | 1.48 |
| Percent Solids (%) | | 73.2 | 71.3 | 72.7 |
| Grain Size Analysis (percent of composition[1]) | | | | |
| | Medium Sand | 31 | 26 | 27 |
| | Fine Sand | 58 | 57 | 66 |
| | Silt and Clay | 11 | 17 | 7 |
| | Description | Dark Brown Sand, Some Silt and Organics | Very Dark Gray Sandy Silt | Dark Brown Sand, Some Silt and Organics |

***Note:***
[1] = Derived from sieve analyses.

**Table 15-7-2**
**Wetland 49 Phase II**
**Surface Water Physical Parameters**

| Parameter | 041W490101 | 041W490301 |
|---|---|---|
| % SOLID | 0 | 0 |
| Hardness as CaCO3 | 14.3 | 6.3 |
| pH | 5.21 | 4.95 |
| Specific Conductivity (mS/cm) | 0.054 | 0.079 |
| Turbidity (NTU) | 25 | 25 |
| Salinity (%) | 0 | 0 |

***Notes:***
mg/L = Milligrams per liter
pH = Hydrogen ion content
MS/cm = Millisiemens per centimeter
NTU = Nephelometric turbidity units
% = Percent

**Table 15-7-3**
**Wetland 49 Phase II**
**Sediment Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections: Number Detected | Frequency of Detections: Number Analyzed | Range of Detections: Minimum Detection | Range of Detections: Maximum Detection | Average Detection | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | |
| Aluminum | 13,610.0 | 0 | 3 | 3 | 1,500.0 | 3,560.0 | 2,690.0 | 041M490201 |
| Arsenic | 6.620 | 0 | 1 | 3 | 0.210 | 0.210 | 0.117 | 041M490201 |
| Barium | 14.0 | 0 | 3 | 3 | 1.70 | 5.60 | 4.30 | 041M490201 |
| Calcium | 10,756.670 | 0 | 3 | 3 | 14.40 | 1,630.0 | 676.0 | 041M490201 |
| Chromium | 39.370 | 0 | 3 | 3 | 0.990 | 2.60 | 2.030 | 041M490201 |
| Cobalt | 2.80 | 0 | 3 | 3 | 0.150 | 0.20 | 0.173 | 041M490101 |
| Copper | 19.50 | 0 | 3 | 3 | 0.490 | 1.60 | 1.10 | 041M490101 |
| Iron | 11,911.670 | 0 | 3 | 3 | 407.0 | 707.0 | 554.0 | 041M490201 |
| Lead | 82.470 | 0 | 3 | 3 | 2.70 | 7.20 | 5.570 | 041M490101 |
| Magnesium | 7,513.330 | 0 | 3 | 3 | 43.30 | 123.0 | 81.80 | 041M490201 |
| Manganese | 37.970 | 0 | 3 | 3 | 0.940 | 7.0 | 3.380 | 041M490201 |
| Mercury | 0.550 | 0 | 1 | 3 | 0.060 | 0.060 | 0.040 | 041M490101 |
| Nickel | 9.280 | 0 | 1 | 3 | 0.910 | 0.910 | 0.518 | 041M490201 |
| Potassium | 1,628.670 | 0 | 3 | 3 | 26.20 | 66.0 | 50.60 | 041M490201 |
| Sodium | 18,993.330 | 0 | 3 | 3 | 17.90 | 30.40 | 22.20 | 041M490201 |
| Vanadium | 28.670 | 0 | 3 | 3 | 2.10 | 3.0 | 2.630 | 041M490201 |
| Zinc | 36.730 | 0 | 3 | 3 | 0.960 | 7.60 | 5.020 | 041M490101 |
| **PAHs (µg/kg)** | | | | | | | | |
| Pyrene | N/A | 0 | 1 | 3 | 21.0 | 21.0 | 22.80 | 041M490101 |
| Total PAHs | N/A | 0 | 1 | 3 | 246.0 | 246.0 | 272.0 | 041M490101 |
| **Pesticides and PCBs (µg/kg)** | | | | | | | | |
| Heptachlor epoxide | N/A | 0 | 1 | 3 | 1.10 | 1.10 | 0.553 | 041M490201 |
| 4,4'-DDD | 50.0 | 2 | 2 | 3 | 59.0 | 94.0 | 51.0 | 041M490101 |
| 4,4'-DDE | 40.0 | 0 | 2 | 3 | 9.20 | 18.0 | 9.110 | 041M490101 |
| 4,4'-DDT | 20.0 | 0 | 2 | 3 | 1.20 | 3.0 | 1.440 | 041M490201 |
| Total DDT | 110.0 | 1 | 2 | 3 | 71.20 | 113.20 | 61.60 | 041M490101 |
| **SVOCs (µg/kg)** | | | | | | | | |
| bis(2-Ethylhexyl)phthalate (BEHP) | N/A | 0 | 1 | 3 | 1,700.0 | 1,700.0 | 725.0 | 041M490101 |
| Butylbenzylphthalate | N/A | 0 | 1 | 3 | 30.0 | 30.0 | 168.0 | 041M490101 |
| Di-n-butylphthalate | N/A | 0 | 1 | 3 | 39.0 | 39.0 | 171.0 | 041M490101 |
| **VOCs (µg/kg)** | | | | | | | | |
| Chloromethane | N/A | 0 | 1 | 3 | 2.0 | 2.0 | 13.70 | 041M490301 |

***Notes:***
µg/kg = micrograms per kilogram
mg/kg = milligram per kilogram
N/A = Not Applicable

**Table 15-7-4**
**Wetland 49 Phase II**
**Surface Water Analytical Results**

| Parameter | Reference Concentration (if applicable) | Number Greater Than Reference Concentration | Frequency of Detections | | Range of Detections | | | Maximum Detection Location |
|---|---|---|---|---|---|---|---|---|
| | | | Number Detected | Number Analyzed | Minimum Detection | Maximum Detection | Average Detection | |
| **Metals (µg/L)** | | | | | | | | |
| Aluminum | 1,090.25 | 1 | 1 | 2 | 1,800.0 | 1,800.0 | 1,800.0 | 041W490301 |
| Calcium | 7,675.0 | 0 | 2 | 2 | 692.0 | 4,500.0 | 2,600.0 | 041W490101 |
| Iron | 2,360.0 | 0 | 2 | 2 | 73.0 | 821.0 | 447.0 | 041W490301 |
| Lead | 3.2 | 0 | 1 | 2 | 3.1 | 3.1 | 3.1 | 041W490301 |
| Magnesium | 20,260.0 | 0 | 2 | 2 | 733.0 | 1,100.0 | 917.0 | 041W490301 |
| Manganese | 13.2 | 0 | 2 | 2 | 1.9 | 7.4 | 4.7 | 041W490301 |
| Potassium | 6,995.0 | 0 | 1 | 2 | 180.0 | 180.0 | 180.0 | 041W490101 |
| Sodium | 182,200.0 | 0 | 2 | 2 | 6,750.0 | 13,100.0 | 9,930.0 | 041W490301 |
| Vanadium | 4.7 | 0 | 2 | 2 | 2.3 | 2.3 | 2.3 | 041W490301 |
| **VOCs (µg/L)** | | | | | | | | |
| Acetone | N/A | 0 | 2 | 2 | 4.0 | 6.0 | 5.0 | 041W490301 |

***Notes:***
µg/L = micrograms per liter
N/A = Not Applicable

**Table 15-7-5**
**Wetland 49 Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | |
| Aluminum | 3 | 3 | | | 1,500 | 3,560 | 041M490201 | 3,560 | | | N/A | | Yes | No SV |
| Antimony | 0 | 3 | 0.07 | 0.075 | | | ND | 0.075 | UJ | 12 | 2 | 0.01 | No | Max SQL< SV |
| Arsenic | 1 | 3 | 0.07 | 0.07 | 0.21 | 0.21 | 041M490201 | 0.21 | J | 7.24 | 1, 2 | 0.03 | No | Max Detect < SV |
| Barium | 3 | 3 | | | 1.7 | 5.6 | 041M490201 | 5.6 | J | | N/A | | Yes | No SV |
| Beryllium | 0 | 3 | 0.035 | 0.035 | | | ND | 0.035 | U | | N/A | | Yes | No SV |
| Cadmium | 0 | 3 | 0.075 | 0.1 | | | ND | 0.1 | U | 0.676 | 1 | 0.15 | No | Max SQL< SV |
| Calcium | 3 | 3 | | | 14.4 | 1,630 | 041M490201 | 1,630 | | | N/A | | Yes | No SV |
| Chromium | 3 | 3 | | | 0.99 | 2.6 | 041M490201 | 2.6 | | 52.3 | 1, 2 | 0.05 | No | Max Detect < SV |
| Cobalt | 3 | 3 | | | 0.15 | 0.2 | 041M490101 | 0.2 | J | | N/A | | Yes | No SV |
| Copper | 3 | 3 | | | 0.49 | 1.6 | 041M490101 | 1.6 | J | 18.7 | 1, 2 | 0.09 | No | Max Detect < SV |
| Cyanide (CN) | 0 | 3 | 0.33 | 0.34 | | | ND | 0.34 | U | | N/A | | Yes | No SV |
| Iron | 3 | 3 | | | 407 | 707 | 041M490201 | 707 | | | N/A | | Yes | No SV |
| Lead | 3 | 3 | | | 2.7 | 7.2 | 041M490101 | 7.2 | | 30.2 | 1, 2 | 0.24 | No | Max Detect < SV |
| Magnesium | 3 | 3 | | | 43.3 | 123 | 041M490201 | 123 | J | | N/A | | Yes | No SV |
| Manganese | 3 | 3 | | | 0.94 | 7 | 041M490201 | 7 | | | N/A | | Yes | No SV |
| Mercury | 1 | 3 | 0.03 | 0.03 | 0.06 | 0.06 | 041M490101 | 0.06 | J | 0.13 | 1, 2 | 0.46 | No | Max Detect < SV |
| Nickel | 1 | 3 | 0.32 | 0.325 | 0.91 | 0.91 | 041M490201 | 0.91 | J | 15.9 | 1, 2 | 0.06 | No | Max Detect < SV |
| Potassium | 3 | 3 | | | 26.2 | 66 | 041M490201 | 66 | J | | N/A | | Yes | No SV |
| Selenium | 0 | 3 | 0.14 | 0.145 | | | ND | 0.145 | UJ | | N/A | | Yes | No SV |
| Silver | 0 | 3 | 0.175 | 0.185 | | | ND | 0.185 | U | 0.733 | 1 | 0.25 | No | Max SQL< SV |
| Sodium | 3 | 3 | | | 17.9 | 30.4 | 041M490201 | 30.4 | J | | N/A | | Yes | No SV |
| Thallium | 0 | 3 | 0.14 | 0.145 | | | ND | 0.145 | U | | N/A | | Yes | No SV |
| Vanadium | 3 | 3 | | | 2.1 | 3 | 041M490201 | 3 | J | | N/A | | Yes | No SV |
| Zinc | 3 | 3 | | | 0.96 | 7.6 | 041M490101 | 7.6 | | 124 | 1, 2 | 0.06 | No | Max Detect < SV |
| **PAHs (µg/kg)** | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | 20.2 | 1 | 1.21 | No | TOC Normalized PAHs < TEC |
| Acenaphthene | 0 | 3 | 10 | 12 | | | ND | 12 | U | 6.71 | 1 | 1.79 | No | TOC Normalized PAHs < TEC |
| Acenaphthylene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | 5.87 | 1 | 4.17 | No | TOC Normalized PAHs < TEC |
| Anthracene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | 46.9 | 1 | 0.52 | No | Max SQL< SV |
| Benzo(a)anthracene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | 74.8 | 1 | 0.33 | No | Max SQL< SV |
| Benzo(a)pyrene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | 88.8 | 1 | 0.28 | No | Max SQL< SV |
| Chrysene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | 108 | 1 | 0.23 | No | Max SQL< SV |
| Dibenz(a,h)anthracene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | 6.22 | 1 | 3.94 | No | TOC Normalized PAHs < TEC |
| Fluoranthene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | 113 | 1 | 0.22 | No | Max SQL< SV |
| Fluorene | 0 | 3 | 10 | 12 | | | ND | 12 | U | 21.2 | 1 | 0.57 | No | Max SQL< SV |
| Naphthalene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | 34.6 | 1 | 0.71 | No | Max SQL< SV |
| Phenanthrene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | 86.7 | 1 | 0.28 | No | Max SQL< SV |
| Pyrene | 1 | 3 | 23 | 24.5 | 21 | 21 | 041M490101 | 21 | J | 153 | 1 | 0.14 | No | Max Detect < SV |
| Total PAHs | 1 | 3 | 275 | 294 | 246 | 246 | 041M490101 | 246 | | 1,684 | 1, 2 | 0.15 | No | Max Detect < SV |
| TOC Normalized PAHs | 1 | 3 | 18.58 | 23.29 | 30.33 | 30.33 | 041M490101 | 30.33 | | 290 | 3 | 0.11 | No | Max Detect < SV |
| **PCBs (µg/kg)** | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 3 | 1.2 | 10.5 | | | ND | 10.5 | U | 21.6 | N/A | 0.49 | No | Max SQL< SV |
| Aroclor-1221 | 0 | 3 | 2.3 | 20 | | | ND | 20 | U | 67 | 2 | 0.30 | No | Max SQL< SV |
| Aroclor-1232 | 0 | 3 | 1.2 | 10.5 | | | ND | 10.5 | U | 21.6 | N/A | 0.49 | No | Max SQL< SV |
| Aroclor-1242 | 0 | 3 | 1.2 | 10.5 | | | ND | 10.5 | U | 21.6 | N/A | 0.49 | No | Max SQL< SV |
| Aroclor-1248 | 0 | 3 | 1.2 | 10.5 | | | ND | 10.5 | U | 21.6 | N/A | 0.49 | No | Max SQL< SV |
| Aroclor-1254 | 0 | 3 | 1.2 | 10.5 | | | ND | 10.5 | U | 21.6 | N/A | 0.49 | No | Max SQL< SV |
| Aroclor-1260 | 0 | 3 | 1.2 | 10.5 | | | ND | 10.5 | U | 21.6 | N/A | 0.49 | No | Max SQL< SV |
| Total PCBs | 0 | 3 | 9.5 | 83 | | | ND | 83 | U | 21.6 | 1 | 3.84 | Yes | Max SQL > SV |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | |
| Aldrin | 0 | 3 | 0.06 | 0.5 | | | ND | 0.5 | U | | N/A | | Yes | No SV |
| Dieldrin | 0 | 3 | 0.12 | 1.05 | | | ND | 1.05 | U | 0.716 | 1 | 1.47 | Yes | Max SQL > SV |
| Endosulfan I | 0 | 3 | 0.06 | 0.5 | | | ND | 0.5 | U | | N/A | | Yes | No SV |
| Endosulfan II | 0 | 3 | 0.12 | 1.05 | | | ND | 1.05 | U | | N/A | | Yes | No SV |
| Endosulfan sulfate | 0 | 3 | 0.12 | 1.05 | | | ND | 1.05 | U | | N/A | | Yes | No SV |
| Heptachlor | 0 | 3 | 0.06 | 0.5 | | | ND | 0.5 | U | | N/A | | Yes | No SV |
| Heptachlor epoxide | 1 | 3 | 0.06 | 0.5 | 1.1 | 1.1 | 041M490201 | 1.1 | J | | N/A | | Yes | No SV |
| Methoxychlor | 0 | 3 | 0.6 | 5 | | | ND | 5 | U | | N/A | | Yes | No SV |
| Toxaphene | 0 | 3 | 12 | 105 | | | ND | 105 | U | | N/A | | Yes | No SV |
| alpha-Chlordane | 0 | 3 | 0.06 | 0.5 | | | ND | 0.5 | U | 1.7 | 1 | 0.29 | No | Max SQL< SV |
| gamma-Chlordane | 0 | 3 | 0.06 | 0.5 | | | ND | 0.5 | U | 1.7 | 1 | 0.29 | No | Max SQL< SV |
| Total Chlordane | 0 | 3 | 0.12 | 1 | | | ND | 1 | U | 1.7 | 1 | 0.59 | No | Max SQL< SV |
| Endrin | 0 | 3 | 0.12 | 1.05 | | | ND | 1.05 | U | 3.3 | 2 | 0.32 | No | Max SQL< SV |
| Endrin aldehyde | 0 | 3 | 0.12 | 1.05 | | | ND | 1.05 | U | 3.3 | 2 | 0.32 | No | Max SQL< SV |
| Endrin ketone | 0 | 3 | 0.12 | 1.05 | | | ND | 1.05 | U | 3.3 | 2 | 0.32 | No | Max SQL< SV |
| Total Endrin | 0 | 3 | 0.36 | 3.15 | | | ND | 3.15 | U | 3.3 | 2 | 0.96 | No | Max SQL< SV |
| alpha-BHC | 0 | 3 | 0.06 | 0.5 | | | ND | 0.5 | UJ | | N/A | | Yes | No SV |
| beta-BHC | 0 | 3 | 0.06 | 0.5 | | | ND | 0.5 | U | 0.32 | N/A | 1.56 | Yes | Max SQL > SV |
| delta-BHC | 0 | 3 | 0.06 | 0.5 | | | ND | 0.5 | U | 0.32 | N/A | 1.56 | Yes | Max SQL > SV |
| gamma-BHC (Lindane) | 0 | 3 | 0.06 | 0.5 | | | ND | 0.5 | U | 0.32 | 1 | 1.56 | Yes | Max SQL > SV |
| Total BHC | 0 | 3 | 0.24 | 2 | | | ND | 2 | U | 0.32 | 2 | 6.25 | Yes | Max SQL > SV |
| **4,4'-DDD** | **2** | **3** | **0.12** | **0.12** | **59** | **94** | **041M490101** | **94** | **DJ** | **1.22** | **1** | **77** | **Yes** | **Max Detect > SV** |
| **4,4'-DDE** | **2** | **3** | **0.12** | **0.12** | **9.2** | **18** | **041M490101** | **18** | | **2.07** | **1** | **8.7** | **Yes** | **Max Detect > SV** |
| **4,4'-DDT** | **2** | **3** | **0.12** | **0.12** | **1.2** | **3** | **041M490201** | **3** | **J** | **1.19** | **1** | **2.52** | **Yes** | **Max Detect > SV** |
| **Total DDT** | **2** | **3** | **0.36** | **0.36** | **71.2** | **113** | **041M490101** | **113** | | **3.3** | **2** | **34.3** | **Yes** | **Max Detect > SV** |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 3 | 495 | 600 | | | ND | 600 | U | | N/A | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 3 | 495 | 600 | | | ND | 600 | UJ | | N/A | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 2-Chlorophenol | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 3 | 495 | 600 | | | ND | 600 | UJ | | N/A | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 2-Nitroaniline | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 2-Nitrophenol | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 3-Nitroaniline | 0 | 3 | 495 | 600 | | | ND | 600 | U | | N/A | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 4-Chloroaniline | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| 4-Nitroaniline | 0 | 3 | 495 | 600 | | | ND | 600 | U | | N/A | | Yes | No SV |
| 4-Nitrophenol | 0 | 3 | 495 | 600 | | | ND | 600 | U | | N/A | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | | N/A | | No | TOC Normalized PAHs < TEC |
| Benzo(g,h,i)perylene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | | N/A | | No | TOC Normalized PAHs < TEC |
| Benzo(k)fluoranthene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | | N/A | | No | TOC Normalized PAHs < TEC |
| bis(2-Chloroethoxy)methane | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | | N/A | | Yes | No SV |
| **bis(2-Ethylhexyl)phthalate (BEHP)** | **1** | **3** | **230** | **245** | **1,700** | **1,700** | **041M490101** | **1,700** | | **182** | **1, 2** | **9.34** | **Yes** | **Max Detect > SV** |
| Butylbenzylphthalate | 1 | 3 | 230 | 245 | 30 | 30 | 041M490101 | 30 | J | 182 | 1, 2 | 0.17 | No | Max Detect < SV |
| Carbazole | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| Dibenzofuran | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| Diethylphthalate | 0 | 3 | 205 | 245 | | | ND | 245 | U | 182 | 1, 2 | 1.35 | Yes | Max SQL > SV |
| Dimethylphthalate | 0 | 3 | 205 | 245 | | | ND | 245 | U | 182 | 1, 2 | 1.35 | Yes | Max SQL > SV |
| Di-n-butylphthalate | 1 | 3 | 230 | 245 | 39 | 39 | 041M490101 | 39 | J | 182 | 1, 2 | 0.21 | No | Max Detect < SV |

**Table 15-7-5**
**Wetland 49 Phase II**
**Sediment Screening**

| Parameter | Number Detected | Number Analyzed | Min SQL | Max SQL | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | SV | Source | SHQ | Retained for Refinement | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/kg) - cont.** | | | | | | | | | | | | | | |
| Di-n-octylphthalate | 0 | 3 | 205 | 245 | | | ND | 245 | U | 182 | 1, 2 | 1.35 | Yes | Max SQL > SV |
| Hexachlorobenzene | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| Hexachlorobutadiene | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| Hexachloroethane | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | | N/A | | No | TOC Normalized PAHs < TEC |
| Isophorone | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| Nitrobenzene | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 3 | 20.5 | 24.5 | | | ND | 24.5 | U | | N/A | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| Pentachlorophenol | 0 | 3 | 495 | 600 | | | ND | 600 | U | | N/A | | Yes | No SV |
| Phenol | 0 | 3 | 205 | 245 | | | ND | 245 | U | | N/A | | Yes | No SV |
| **VOCs (µg/kg)** | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| 1,1,2,2-Tetrachloroethane | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethane | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| 1,2-Dichloroethene (total) | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| 2-Butanone (MEK) | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| 2-Hexanone | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Acetone | 0 | 3 | 7 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Benzene | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Bromodichloromethane | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Bromoform | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Bromomethane | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Carbon disulfide | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Carbon tetrachloride | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Chlorobenzene | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Chloroethane | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Chloroform | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Chloromethane | 1 | 3 | 6.5 | 32.5 | 2 | 2 | 041M490301 | 2 | J | | N/A | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Dibromochloromethane | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Ethylbenzene | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Methylene chloride | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Styrene | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Tetrachloroethene | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Toluene | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Trichloroethene | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |
| Vinyl chloride | 0 | 3 | 2 | 9.5 | | | ND | 9.5 | U | | N/A | | Yes | No SV |
| Xylene (Total) | 0 | 3 | 6.5 | 32.5 | | | ND | 32.5 | U | | N/A | | Yes | No SV |

***Notes:***

Sources for Screening Values:
SV = Screening Value
1 = USEPA Region 4 Screening Value.
Detailed explanation for SVs provided in Section 8.0.
2 = FDEP Threshold effects level

Supporting Information:
SQL = Sample Quantitation Limit
HQ = Hazard Quotient
N/A = No screening value available.
U or ND = Not Detected at or above the SQL
J = Estimated value
SHQ = Screening Hazard Quotient

D = Diluted Result
mg/kg = milligrams per kilograms
µg/kg = micrograms per kilograms
mg/kg oc = milligrams per kilograms - organic carbon
UJ = Not detected. SQL is estimated.
Parameters in bold were detected and exceeded screening values.

**Table 15-7-6**
**Wetland 49 Phase II**
**Sediment COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | 4,4'-DDD | bis(2-Ethylhexyl)phthalate (BEHP) | Chloromethane |
| Barium | 4,4'-DDE | | |
| Calcium | 4,4'-DDT | | |
| Cobalt | Heptachlor epoxide | | |
| Iron | Total DDT | | |
| Magnesium | | | |
| Manganese | | | |
| Potassium | | | |
| Sodium | | | |
| Vanadium | | | |
| | | **Not Detected Parameters** | |
| Beryllium | Aldrin | 1,2,4-Trichlorobenzene | 1,1,1-Trichloroethane |
| Cyanide (CN) | alpha-BHC | 1,2-Dichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Selenium | beta-BHC | 1,3-Dichlorobenzene | 1,1,2-Trichloroethane |
| Thallium | delta-BHC | 1,4-Dichlorobenzene | 1,1-Dichloroethane |
| | Dieldrin | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1-Dichloroethene |
| | Endosulfan I | 2,4,5-Trichlorophenol | 1,2-Dichloroethane |
| | Endosulfan II | 2,4,6-Trichlorophenol | 1,2-Dichloroethene (total) |
| | Endosulfan sulfate | 2,4-Dichlorophenol | 1,2-Dichloropropane |
| | gamma-BHC (Lindane) | 2,4-Dimethylphenol | 2-Butanone (MEK) |
| | Heptachlor | 2,4-Dinitrophenol | 2-Hexanone |
| | Methoxychlor | 2,4-Dinitrotoluene | 4-Methyl-2-Pentanone (MIBK) |
| | Total BHC | 2,6-Dinitrotoluene | Acetone |
| | Toxaphene | 2-Chloronaphthalene | Benzene |
| | Total PCBs | 2-Chlorophenol | Bromodichloromethane |
| | | 2-Methyl-4,6-Dinitrophenol | Bromoform |
| | | 2-Methylnaphthalene | Bromomethane |
| | | 2-Methylphenol (o-Cresol) | Carbon disulfide |
| | | 2-Nitroaniline | Carbon tetrachloride |
| | | 2-Nitrophenol | Chlorobenzene |
| | | 3,3'-Dichlorobenzidine | Chloroethane |
| | | 3-Nitroaniline | Chloroform |
| | | 4-Bromophenyl-phenylether | cis-1,3-Dichloropropene |
| | | 4-Chloro-3-methylphenol | Dibromochloromethane |
| | | 4-Chloroaniline | Ethylbenzene |
| | | 4-Chlorophenylphenyl ether | Methylene chloride |
| | | 4-Methylphenol (p-Cresol) | Styrene |
| | | 4-Nitroaniline | Tetrachloroethene |
| | | 4-Nitrophenol | Toluene |
| | | Benzo(b)fluoranthene | trans-1,3-Dichloropropene |
| | | Benzo(g,h,i)perylene | Trichloroethene |
| | | Benzo(k)fluoranthene | Vinyl chloride |
| | | bis(2-Chloroethoxy)methane | Xylene (Total) |
| | | bis(2-Chloroethyl)ether | |
| | | Carbazole | |
| | | Dibenzofuran | |
| | | Diethylphthalate | |
| | | Dimethylphthalate | |
| | | Di-n-octylphthalate | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |

**Table 15-7-7**
**Wetland 49 Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/kg)** | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 3 | 3 | | | | 2,690 | 1,500 | 3,560 | 3,560 | | 041M490201 | | | NA | | | | | 0 | 13,610 | 0 | No |
| Barium | 3 | 3 | | | | 4.3 | 1.7 | 5.6 | 5.6 | J | 041M490201 | | | NA | | | | | 0 | 14 | 0 | No |
| Beryllium | 0 | 3 | 0.035 | 0.035 | 0.035 | 0.035 | | | 0.035 | U | ND | | | NA | | | | | 0 | 0.84 | 0 | No |
| Calcium | 3 | 3 | | | | 676 | 14.4 | 1,630 | 1,630 | | 041M490201 | | | NA | | | | | 0 | 10,756.67 | 0 | No |
| Cobalt | 3 | 3 | | | | 0.173 | 0.15 | 0.2 | 0.2 | J | 041M490101 | | | NA | | | | | 0 | 2.8 | 0 | No |
| Cyanide (CN) | 0 | 3 | 0.337 | 0.33 | 0.34 | 0.337 | | | 0.34 | U | ND | | | NA | | | | | 0 | 5.22 | 0 | No |
| Iron | 3 | 3 | | | | 554 | 407 | 707 | 707 | | 041M490201 | | | NA | | | | | 0 | 11,911.67 | 0 | No |
| Magnesium | 3 | 3 | | | | 81.8 | 43.3 | 123 | 123 | J | 041M490201 | | | NA | | | | | 0 | 7513.33 | 0 | No |
| Manganese | 3 | 3 | | | | 3.38 | 0.94 | 7 | 7 | | 041M490201 | | | NA | | | | | 0 | 37.97 | 0 | No |
| Potassium | 3 | 3 | | | | 50.6 | 26.2 | 66 | 66 | J | 041M490201 | | | NA | | | | | 0 | 1,628.67 | 0 | No |
| Selenium | 0 | 3 | 0.143 | 0.14 | 0.145 | 0.143 | | | 0.145 | UJ | ND | | | NA | | | | | 0 | 3.45 | 0 | No |
| Sodium | 3 | 3 | | | | 22.2 | 17.9 | 30.4 | 30.4 | J | 041M490201 | | | NA | | | | | 0 | 18,993.33 | 0 | No |
| Thallium | 0 | 3 | 0.143 | 0.14 | 0.145 | 0.143 | | | 0.145 | U | ND | | | NA | | | | | 0 | 1.57 | 0 | No |
| Vanadium | 3 | 3 | | | | 2.63 | 2.1 | 3 | 3 | J | 041M490201 | | | NA | | | | | 0 | 28.67 | 0 | No |
| **PCBs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 3 | 6.07 | 1.2 | 10.5 | 6.07 | | | 10.5 | U | ND | 21.6 | 189 | PEL | 0.49 | 0.28 | 0.06 | 0.03 | 0 | | 0 | No |
| Aroclor-1221 | 0 | 3 | 11.6 | 2.3 | 20 | 11.6 | | | 20 | U | ND | 67 | 189 | PEL | 0.30 | 0.17 | 0.11 | 0.06 | 0 | | 0 | No |
| Aroclor-1232 | 0 | 3 | 6.07 | 1.2 | 10.5 | 6.07 | | | 10.5 | U | ND | 21.6 | 189 | PEL | 0.49 | 0.28 | 0.06 | 0.03 | 0 | | 0 | No |
| Aroclor-1242 | 0 | 3 | 6.07 | 1.2 | 10.5 | 6.07 | | | 10.5 | U | ND | 21.6 | 189 | PEL | 0.49 | 0.28 | 0.06 | 0.03 | 0 | | 0 | No |
| Aroclor-1248 | 0 | 3 | 6.07 | 1.2 | 10.5 | 6.07 | | | 10.5 | U | ND | 21.6 | 189 | PEL | 0.49 | 0.28 | 0.06 | 0.03 | 0 | | 0 | No |
| Aroclor-1254 | 0 | 3 | 6.07 | 1.2 | 10.5 | 6.07 | | | 10.5 | U | ND | 21.6 | 189 | PEL | 0.49 | 0.28 | 0.06 | 0.03 | 0 | | 0 | No |
| Aroclor-1260 | 0 | 3 | 6.07 | 1.2 | 10.5 | 6.07 | | | 10.5 | U | ND | 21.6 | 189 | PEL | 0.49 | 0.28 | 0.06 | 0.03 | 0 | | 0 | No |
| Total PCBs | 0 | 3 | 48 | 9.5 | 83 | 48 | | | 83 | U | ND | 21.6 | 189 | PEL | 3.84 | 2.22 | 0.44 | 0.25 | 0 | | 0 | No |
| **Pesticides (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 3 | 0.29 | 0.06 | 0.5 | 0.29 | | | 0.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Dieldrin | 0 | 3 | 0.607 | 0.12 | 1.05 | 0.607 | | | 1.05 | U | ND | 0.7 | 4.3 | PEL | 1.5 | 0.87 | 0.24 | 0.14 | 0 | | 0 | No |
| Endosulfan I | 0 | 3 | 0.29 | 0.06 | 0.5 | 0.29 | | | 0.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Endosulfan II | 0 | 3 | 0.607 | 0.12 | 1.05 | 0.607 | | | 1.05 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Endosulfan sulfate | 0 | 3 | 0.607 | 0.12 | 1.05 | 0.607 | | | 1.05 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Heptachlor | 0 | 3 | 0.29 | 0.06 | 0.5 | 0.29 | | | 0.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Heptachlor epoxide | 1 | 3 | 0.28 | 0.06 | 0.5 | 0.553 | 1.1 | 1.1 | 1.1 | J | 041M490201 | | | NA | | | | | 0 | | 0 | Yes |
| Methoxychlor | 0 | 3 | 2.9 | 0.6 | 5 | 2.9 | | | 5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Toxaphene | 0 | 3 | 60.7 | 12 | 105 | 60.7 | | | 105 | U | ND | | | NA | | | | | 0 | | 0 | No |
| alpha-BHC | 0 | 3 | 0.29 | 0.06 | 0.5 | 0.29 | | | 0.5 | UJ | ND | | 0.99 | PEL | | | 0.51 | 0.29 | 0 | | 0 | No |
| beta-BHC | 0 | 3 | 0.29 | 0.06 | 0.5 | 0.29 | | | 0.5 | U | ND | 0.32 | 0.99 | PEL | 1.56 | 0.91 | 0.51 | 0.29 | 0 | | 0 | No |
| delta-BHC | 0 | 3 | 0.29 | 0.06 | 0.5 | 0.29 | | | 0.5 | U | ND | 0.32 | 0.99 | PEL | 1.56 | 0.91 | 0.51 | 0.29 | 0 | | 0 | No |
| gamma-BHC (Lindane) | 0 | 3 | 0.29 | 0.06 | 0.5 | 0.29 | | | 0.5 | U | ND | 0.32 | 0.99 | PEL | 1.56 | 0.91 | 0.51 | 0.29 | 0 | | 0 | No |
| Total BHC | 0 | 3 | 1.16 | 0.24 | 2 | 1.16 | | | 2 | U | ND | 0.32 | 0.99 | PEL | 6.25 | 3.62 | 2.02 | 1.17 | 0 | | 0 | No |
| **4,4'-DDD** | **2** | **3** | **0.12** | **0.12** | **0.12** | **51** | **59** | **94** | **94** | **DJ** | **041M490101** | **1.22** | **7.81** | **PEL** | **77** | **41.8** | **12** | **6.54** | **2** | **50** | **2** | **Yes** |
| 4,4'-DDE | 2 | 3 | 0.12 | 0.12 | 0.12 | 9.11 | 9.2 | 18 | 18 | | 041M490101 | 2.07 | 374 | PEL | 8.7 | 4.4 | 0.05 | 0.02 | 0 | 40 | 0 | No |
| 4,4'-DDT | 2 | 3 | 0.12 | 0.12 | 0.12 | 1.44 | 1.2 | 3 | 3 | J | 041M490201 | 1.19 | 4.77 | PEL | 2.52 | 1.21 | 0.63 | 0.30 | 0 | 20 | 0 | No |
| **Total DDT** | **2** | **3** | **0.36** | **0.36** | **0.36** | **61.6** | **71.2** | **113** | **113** | | **041M490101** | **3.3** | **51.7** | **PEL** | **34.3** | **18.7** | **2.19** | **1.19** | **2** | **110** | **1** | **Yes** |
| **SVOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 1,2-Dichlorobenzene | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 1,3-Dichlorobenzene | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 1,4-Dichlorobenzene | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,4,5-Trichlorophenol | 0 | 3 | 548 | 495 | 600 | 548 | | | 600 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,4,6-Trichlorophenol | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,4-Dichlorophenol | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,4-Dimethylphenol | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,4-Dinitrophenol | 0 | 3 | 548 | 495 | 600 | 548 | | | 600 | UJ | ND | | | NA | | | | | 0 | | 0 | No |
| 2,4-Dinitrotoluene | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2,6-Dinitrotoluene | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Chloronaphthalene | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Chlorophenol | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Methyl-4,6-Dinitrophenol | 0 | 3 | 548 | 495 | 600 | 548 | | | 600 | UJ | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Methylphenol (o-Cresol) | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Nitroaniline | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Nitrophenol | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 3,3'-Dichlorobenzidine | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 3-Nitroaniline | 0 | 3 | 548 | 495 | 600 | 548 | | | 600 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Bromophenyl-phenylether | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Chloro-3-methylphenol | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Chloroaniline | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Chlorophenylphenyl ether | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Methylphenol (p-Cresol) | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Nitroaniline | 0 | 3 | 548 | 495 | 600 | 548 | | | 600 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Nitrophenol | 0 | 3 | 548 | 495 | 600 | 548 | | | 600 | U | ND | | | NA | | | | | 0 | | 0 | No |
| bis(2-Chloroethoxy)methane | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| bis(2-Chloroethyl)ether | 0 | 3 | 22.7 | 20.5 | 24.5 | 22.7 | | | 24.5 | U | ND | | | NA | | | | | 0 | | 0 | No |

**Table 15-7-7**
**Wetland 49 Phase II**
**Sediment Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Min SQL | Max SQL | Average Result | Minimum Detected | Maximum Detected | EPC | Q | Maximum Detection Location | SV | Refinement Value | Refinement Value Source | Maximum Result SV HQ | Average Result SV HQ | Maximum Result RV HQ | Average Result RV HQ | Number Detected > RV | Reference Concentration | Number Detected > Reference Concentration | COPC Retained (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| bis(2-Ethylhexyl)phthalate (BEHP) | 1 | 3 | 238 | 230 | 245 | 725 | 1,700 | 1,700 | 1,700 | | 041M490101 | 182 | 2,647 | PEL | 9.34 | 3.98 | 0.64 | 0.27 | 0 | | 0 | No |
| Carbazole | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Dibenzofuran | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Diethylphthalate | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | 182 | 2,647 | PEL | 1.35 | 1.25 | 0.09 | 0.09 | 0 | | 0 | No |
| Dimethylphthalate | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | 182 | 2,647 | PEL | 1.35 | 1.25 | 0.09 | 0.09 | 0 | | 0 | No |
| Di-n-octylphthalate | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | 182 | 2,647 | PEL | 1.35 | 1.25 | 0.09 | 0.09 | 0 | | 0 | No |
| Hexachlorobenzene | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Hexachlorobutadiene | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Hexachlorocyclopentadiene | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Hexachloroethane | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Isophorone | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Nitrobenzene | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| N-Nitroso-di-n-propylamine | 0 | 3 | 22.7 | 20.5 | 24.5 | 22.7 | | | 24.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| N-Nitrosodiphenylamine | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Pentachlorophenol | 0 | 3 | 548 | 495 | 600 | 548 | | | 600 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Phenol | 0 | 3 | 227 | 205 | 245 | 227 | | | 245 | U | ND | | | NA | | | | | 0 | | 0 | No |
| **VOCs (µg/kg)** | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 1,1,2,2-Tetrachloroethane | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 1,1,2-Trichloroethane | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 1,1-Dichloroethane | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 1,1-Dichloroethene | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 1,2-Dichloroethane | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 1,2-Dichloroethene (total) | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 1,2-Dichloropropane | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Butanone (MEK) | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 2-Hexanone | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Acetone | 0 | 3 | 17 | 7 | 32.5 | 17 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Benzene | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Bromodichloromethane | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Bromoform | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Bromomethane | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Carbon disulfide | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Carbon tetrachloride | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Chlorobenzene | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Chloroethane | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Chloroform | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Chloromethane | 1 | 3 | 19.5 | 6.5 | 32.5 | 13.7 | 2 | 2 | 2 | J | 041M490301 | | | NA | | | | | 0 | | 0 | Yes |
| cis-1,3-Dichloropropene | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Dibromochloromethane | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Ethylbenzene | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Methylene chloride | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Styrene | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Tetrachloroethene | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Toluene | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| trans-1,3-Dichloropropene | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Trichloroethene | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Vinyl chloride | 0 | 3 | 4.5 | 2 | 9.5 | 4.5 | | | 9.5 | U | ND | | | NA | | | | | 0 | | 0 | No |
| Xylene (Total) | 0 | 3 | 15.5 | 6.5 | 32.5 | 15.5 | | | 32.5 | U | ND | | | NA | | | | | 0 | | 0 | No |

***Notes:***

Sources for Refinement Values (RVs):
PEL = FDEP Probable Effects Level
MEC = Swartz Midrange Effect Concentration

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result
Parameters in bold were detected and exceeded screening values.

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
PEL = Probable effects level.

N/R = No refinement value available.
N/A = Not Applicable.
Average result calculations include summing detections and one half the detection lin
As a result, some average detections may exceed the maximum detections
NAS Pensacola base wide levels used as reference values for 4,4'-DDT, 4,4'-DDD, 4,4

| Rationale |
| --- |
| |
| EPC < RC |
| EPC < RC |
| Parameter Not Detected |
| EPC < RC |
| EPC < RC |
| Parameter Not Detected |
| EPC < RC |
| EPC < RC |
| EPC < RC |
| EPC < RC |
| Parameter Not Detected |
| EPC < RC |
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| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| No SV, no RV, and no RC |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected; Max SQL > RV |
| **EPC > RV and RC** |
| EPC < RC and RV |
| EPC < RC and RV |
| **EPC > RV and RC** |
| |
| Parameter Not Detected |
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| Rationale |
| --- |
| RV HQ <1 and no RC |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
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| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| No SV, no RV, and no RC |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |
| Parameter Not Detected |

nits for not detected parameters.

'-DDE and total DDT.

**Table 15-7-8**
**Wetland 49 Phase II**
**Sediment COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | **Detected Parameters** | | |
| None | Heptachlor epoxide<br>4,4'-DDD<br>Total DDT | None | None |

**Table 15-7-9**
**Wetland 49 Phase II**
**Mean ERM Quotient**

| Sample ID | Sample Date | Units | Result | VQUAL | Parameter | ERL | ERM | ERM Quotient |
|---|---|---|---|---|---|---|---|---|
| 041M490101 | 1/16/1996 | mg/kg | 0.07 | U | Arsenic | 8.2 | 70 | 0.00 |
| 041M490101 | 1/16/1996 | mg/kg | 0.075 | U | Cadmium | 1.2 | 9.6 | 0.01 |
| 041M490101 | 1/16/1996 | mg/kg | 2.5 | | Chromium | 81 | 370 | 0.01 |
| 041M490101 | 1/16/1996 | mg/kg | 1.6 | J | Copper | 34 | 270 | 0.01 |
| 041M490101 | 1/16/1996 | mg/kg | 7.2 | | Lead | 46.7 | 218 | 0.03 |
| 041M490101 | 1/16/1996 | mg/kg | 0.06 | J | Mercury | 0.15 | 0.71 | 0.08 |
| 041M490101 | 1/16/1996 | mg/kg | 0.325 | U | Nickel | 20.9 | 51.6 | 0.01 |
| 041M490101 | 1/16/1996 | mg/kg | 0.18 | U | Silver | 1 | 3.7 | 0.05 |
| 041M490101 | 1/16/1996 | mg/kg | 7.6 | | Zinc | 150 | 410 | 0.02 |
| 041M490101 | 1/16/1996 | µg/kg | 18 | | 4,4'-DDE | 2.2 | 27 | 0.67 |
| 041M490101 | 1/16/1996 | µg/kg | 1.2 | J | 4,4'-DDT | 1.58 | 46.1 | 0.03 |
| 041M490101 | 1/16/1996 | µg/kg | 83 | U | Total PCBs | 22.7 | 180 | 0.46 |
| 041M490101 | 1/16/1996 | µg/kg | 20.5 | U | 2-Methylnaphthalene | 70 | 670 | 0.03 |
| 041M490101 | 1/16/1996 | µg/kg | 10 | U | Acenaphthene | 16 | 500 | 0.02 |
| 041M490101 | 1/16/1996 | µg/kg | 20.5 | U | Acenaphthylene | 44 | 640 | 0.03 |
| 041M490101 | 1/16/1996 | µg/kg | 20.5 | U | Anthracene | 85.3 | 1,100 | 0.02 |
| 041M490101 | 1/16/1996 | µg/kg | 20.5 | U | Benzo(a)anthracene | 261 | 1,600 | 0.01 |
| 041M490101 | 1/16/1996 | µg/kg | 20.5 | U | Benzo(a)pyrene | 430 | 1,600 | 0.01 |
| 041M490101 | 1/16/1996 | µg/kg | 20.5 | U | Chrysene | 384 | 2,800 | 0.01 |
| 041M490101 | 1/16/1996 | µg/kg | 20.5 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.08 |
| 041M490101 | 1/16/1996 | µg/kg | 20.5 | U | Fluoranthene | 600 | 5,100 | 0.00 |
| 041M490101 | 1/16/1996 | µg/kg | 10 | U | Fluorene | 19 | 540 | 0.02 |
| 041M490101 | 1/16/1996 | µg/kg | 20.5 | U | Naphthalene | 160 | 2,100 | 0.01 |
| 041M490101 | 1/16/1996 | µg/kg | 20.5 | U | Phenanthrene | 240 | 1,500 | 0.01 |
| 041M490101 | 1/16/1996 | µg/kg | 21 | J | Pyrene | 665 | 2,600 | 0.01 |
| 041M490101 | 1/16/1996 | | | | ERM Quotient Sum | | | 1.63 |
| 041M490101 | 1/16/1996 | | | | Mean ERM Quotient | | | 0.07 |
| 041M490101 | 1/16/1996 | | | | Mean ERM Quotient without ND | | | 0.03 |
| 041M490101 | 1/16/1996 | | | | Mean ERM Quotient Category | | | 2 |
| 041M490201 | 1/16/1996 | mg/kg | 0.21 | J | Arsenic | 8.2 | 70 | 0.00 |
| 041M490201 | 1/16/1996 | mg/kg | 0.075 | U | Cadmium | 1.2 | 9.6 | 0.01 |
| 041M490201 | 1/16/1996 | mg/kg | 2.6 | | Chromium | 81 | 370 | 0.01 |
| 041M490201 | 1/16/1996 | mg/kg | 1.2 | J | Copper | 34 | 270 | 0.00 |
| 041M490201 | 1/16/1996 | mg/kg | 6.8 | | Lead | 46.7 | 218 | 0.03 |
| 041M490201 | 1/16/1996 | mg/kg | 0.03 | U | Mercury | 0.15 | 0.71 | 0.04 |
| 041M490201 | 1/16/1996 | mg/kg | 0.91 | J | Nickel | 20.9 | 51.6 | 0.02 |
| 041M490201 | 1/16/1996 | mg/kg | 0.185 | U | Silver | 1 | 3.7 | 0.05 |
| 041M490201 | 1/16/1996 | mg/kg | 6.5 | | Zinc | 150 | 410 | 0.02 |
| 041M490201 | 1/16/1996 | µg/kg | 9.2 | | 4,4'-DDE | 2.2 | 27 | 0.34 |
| 041M490201 | 1/16/1996 | µg/kg | 3 | J | 4,4'-DDT | 1.58 | 46.1 | 0.07 |
| 041M490201 | 1/16/1996 | µg/kg | 51.5 | U | Total PCBs | 22.7 | 180 | 0.29 |
| 041M490201 | 1/16/1996 | µg/kg | 24.5 | U | 2-Methylnaphthalene | 70 | 670 | 0.04 |
| 041M490201 | 1/16/1996 | µg/kg | 12 | U | Acenaphthene | 16 | 500 | 0.02 |
| 041M490201 | 1/16/1996 | µg/kg | 24.5 | U | Acenaphthylene | 44 | 640 | 0.04 |
| 041M490201 | 1/16/1996 | µg/kg | 24.5 | U | Anthracene | 85.3 | 1,100 | 0.02 |
| 041M490201 | 1/16/1996 | µg/kg | 24.5 | U | Benzo(a)anthracene | 261 | 1,600 | 0.02 |
| 041M490201 | 1/16/1996 | µg/kg | 24.5 | U | Benzo(a)pyrene | 430 | 1,600 | 0.02 |
| 041M490201 | 1/16/1996 | µg/kg | 24.5 | U | Chrysene | 384 | 2,800 | 0.01 |
| 041M490201 | 1/16/1996 | µg/kg | 24.5 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.09 |
| 041M490201 | 1/16/1996 | µg/kg | 24.5 | U | Fluoranthene | 600 | 5,100 | 0.00 |
| 041M490201 | 1/16/1996 | µg/kg | 12 | U | Fluorene | 19 | 540 | 0.02 |
| 041M490201 | 1/16/1996 | µg/kg | 24.5 | U | Naphthalene | 160 | 2,100 | 0.01 |
| 041M490201 | 1/16/1996 | µg/kg | 24.5 | U | Phenanthrene | 240 | 1,500 | 0.02 |
| 041M490201 | 1/16/1996 | µg/kg | 24.5 | U | Pyrene | 665 | 2,600 | 0.01 |
| 041M490201 | 1/16/1996 | | | | ERM Quotient Sum | | | 1.19 |
| 041M490201 | 1/16/1996 | | | | Mean ERM Quotient | | | 0.05 |
| 041M490201 | 1/16/1996 | | | | Mean ERM Quotient without ND | | | 0.02 |
| 041M490201 | 1/16/1996 | | | | Mean ERM Quotient Category | | | 2 |
| 041M490301 | 1/16/1996 | mg/kg | 0.07 | U | Arsenic | 8.2 | 70 | 0.00 |
| 041M490301 | 1/16/1996 | mg/kg | 0.1 | U | Cadmium | 1.2 | 9.6 | 0.01 |
| 041M490301 | 1/16/1996 | mg/kg | 0.99 | | Chromium | 81 | 370 | 0.00 |
| 041M490301 | 1/16/1996 | mg/kg | 0.49 | J | Copper | 34 | 270 | 0.00 |
| 041M490301 | 1/16/1996 | mg/kg | 2.7 | | Lead | 46.7 | 218 | 0.01 |
| 041M490301 | 1/16/1996 | mg/kg | 0.03 | U | Mercury | 0.15 | 0.71 | 0.04 |
| 041M490301 | 1/16/1996 | mg/kg | 0.32 | U | Nickel | 20.9 | 51.6 | 0.01 |
| 041M490301 | 1/16/1996 | mg/kg | 0.175 | U | Silver | 1 | 3.7 | 0.05 |
| 041M490301 | 1/16/1996 | mg/kg | 0.96 | J | Zinc | 150 | 410 | 0.00 |
| 041M490301 | 1/16/1996 | µg/kg | 0.12 | U | 4,4'-DDE | 2.2 | 27 | 0.00 |
| 041M490301 | 1/16/1996 | µg/kg | 0.12 | U | 4,4'-DDT | 1.58 | 46.1 | 0.00 |
| 041M490301 | 1/16/1996 | µg/kg | 9.5 | U | Total PCBs | 22.7 | 180 | 0.05 |
| 041M490301 | 1/16/1996 | µg/kg | 23 | U | 2-Methylnaphthalene | 70 | 670 | 0.03 |
| 041M490301 | 1/16/1996 | µg/kg | 11 | U | Acenaphthene | 16 | 500 | 0.02 |
| 041M490301 | 1/16/1996 | µg/kg | 23 | U | Acenaphthylene | 44 | 640 | 0.04 |
| 041M490301 | 1/16/1996 | µg/kg | 23 | U | Anthracene | 85.3 | 1,100 | 0.02 |
| 041M490301 | 1/16/1996 | µg/kg | 23 | U | Benzo(a)anthracene | 261 | 1,600 | 0.01 |
| 041M490301 | 1/16/1996 | µg/kg | 23 | U | Benzo(a)pyrene | 430 | 1,600 | 0.01 |
| 041M490301 | 1/16/1996 | µg/kg | 23 | U | Chrysene | 384 | 2,800 | 0.01 |
| 041M490301 | 1/16/1996 | µg/kg | 23 | U | Dibenz(a,h)anthracene | 63.4 | 260 | 0.09 |
| 041M490301 | 1/16/1996 | µg/kg | 23 | U | Fluoranthene | 600 | 5,100 | 0.00 |
| 041M490301 | 1/16/1996 | µg/kg | 11 | U | Fluorene | 19 | 540 | 0.02 |
| 041M490301 | 1/16/1996 | µg/kg | 23 | U | Naphthalene | 160 | 2,100 | 0.01 |
| 041M490301 | 1/16/1996 | µg/kg | 23 | U | Phenanthrene | 240 | 1,500 | 0.02 |
| 041M490301 | 1/16/1996 | µg/kg | 23 | U | Pyrene | 665 | 2,600 | 0.01 |
| 041M490301 | 1/16/1996 | | | | ERM Quotient Sum | | | 0.48 |
| 041M490301 | 1/16/1996 | | | | Mean ERM Quotient | | | 0.02 |
| 041M490301 | 1/16/1996 | | | | Mean ERM Quotient without ND | | | 0.00 |
| 041M490301 | 1/16/1996 | | | | Mean ERM Quotient Category | | | 1 |

***Notes:***
ERL = Effects Range Low
ERM = Effects Range Median
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
U = not detected at or above the SQL (value in table is 1/2 reported value)
J = estimated value
Shaded cells indicate constituent exceeds ERL.
**Shaded and bold cells indicate constituent exceeds ERM.**

**Table 15-7-10**
**Wetland 49 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | |
| **Aluminum** | **1** | **2** | **363** | **362.5** | **362.5** | **1,080** | **1,800** | **1,800** | **041W490301** | **1,800** | **J** | **13** | **FDEP** | **138** | **Yes** | **Max Detect > SV** |
| Antimony | 0 | 2 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 160 | EPA | 0.01 | No | Max SQL< SV |
| Arsenic | 0 | 2 | 1.85 | 1 | 2.7 | 1.85 | | | ND | 2.7 | U | 50 | FDEP | 0.05 | No | Max SQL< SV |
| Barium | 0 | 2 | 2.83 | 2.05 | 3.6 | 2.83 | | | ND | 3.6 | U | | NA | | Yes | No SV |
| Beryllium | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.13 | FDEP | 3.85 | Yes | Max SQL > SV |
| Cadmium | 0 | 2 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 0.66 | EPA | 1.52 | Yes | Max SQL > SV |
| Calcium | 2 | 2 | | | | 2,600 | 692 | 4,500 | 041W490101 | 4,500 | J | | NA | | Yes | No SV |
| Chromium | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 11 | EPA | 0.23 | No | Max SQL< SV |
| Cobalt | 0 | 2 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Copper | 0 | 2 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 6.54 | EPA | 0.31 | No | Max SQL< SV |
| Cyanide (CN) | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 5.2 | EPA | 0.48 | No | Max SQL< SV |
| Iron | 2 | 2 | | | | 447 | 73 | 821 | 041W490301 | 821 | | | NA | | Yes | No SV |
| **Lead** | **1** | **2** | **1** | **1** | **1** | **2.05** | **3.1** | **3.1** | **041W490301** | **3.1** | | **1.32** | **EPA** | **2.35** | **Yes** | **Max Detect > SV** |
| Magnesium | 2 | 2 | | | | 917 | 733 | 1,100 | 041W490301 | 1,100 | J | | NA | | Yes | No SV |
| Manganese | 2 | 2 | | | | 4.65 | 1.9 | 7.4 | 041W490301 | 7.4 | J | | NA | | Yes | No SV |
| Mercury | 0 | 2 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.012 | EPA | 5.42 | Yes | Max SQL > SV |
| Nickel | 0 | 2 | 4.5 | 4.5 | 4.5 | 4.5 | | | ND | 4.5 | U | 87.71 | EPA | 0.05 | No | Max SQL< SV |
| Potassium | 1 | 2 | 58 | 58 | 58 | 119 | 180 | 180 | 041W490101 | 180 | J | | NA | | Yes | No SV |
| Selenium | 0 | 2 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 5 | EPA | 0.4 | No | Max SQL< SV |
| Silver | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.012 | EPA | 208 | Yes | Max SQL > SV |
| Sodium | 2 | 2 | | | | 9,930 | 6,750 | 13,100 | 041W490301 | 13,100 | | | NA | | Yes | No SV |
| Thallium | 0 | 2 | 2 | 2 | 2 | 2 | | | ND | 2 | U | 4 | EPA | 0.5 | No | Max SQL< SV |
| Vanadium | 2 | 2 | | | | 2.3 | 2.3 | 2.3 | 041W490301 | 2.3 | J | | NA | | Yes | No SV |
| Zinc | 0 | 2 | 13.1 | 7.85 | 18.25 | 13.1 | | | ND | 18.25 | U | 58.91 | EPA | 0.31 | No | Max SQL< SV |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| Dieldrin | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endosulfan I | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.056 | EPA | 0.45 | No | Max SQL< SV |
| Endosulfan II | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endosulfan sulfate | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Heptachlor | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0038 | EPA | 6.58 | Yes | Max SQL > SV |
| Heptachlor epoxide | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.00004 | FDEP | 625 | Yes | Max SQL > SV |
| Methoxychlor | 0 | 2 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | U | | NA | | Yes | No SV |
| Toxaphene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| alpha-Chlordane | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| gamma-Chlordane | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| Total Chlordane | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0043 | EPA | 11.6 | Yes | Max SQL > SV |
| Endrin | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endrin aldehyde | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | Yes | No SV |
| Endrin ketone | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0023 | EPA | 21.7 | Yes | Max SQL > SV |
| Total Endrin | 0 | 2 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| alpha-BHC | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| beta-BHC | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| delta-BHC | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | Yes | No SV |
| gamma-BHC (Lindane) | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.08 | EPA | 0.31 | No | Max SQL< SV |
| Total BHC | 0 | 2 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | Yes | No SV |
| 4,4'-DDD | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0003 | FDEP | 167 | Yes | Max SQL > SV |
| 4,4'-DDE | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0002 | FDEP | 250 | Yes | Max SQL > SV |
| 4,4'-DDT | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.00059 | FDEP | 84.7 | Yes | Max SQL > SV |
| Total DDT | 0 | 2 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | Yes | No SV |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1221 | 0 | 2 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | Yes | No SV |
| Aroclor-1232 | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1242 | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1248 | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1254 | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Aroclor-1260 | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.014 | EPA | 35.7 | Yes | Max SQL > SV |
| Total PCB | 0 | 2 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | Yes | No SV |

**Table 15-7-10**
**Wetland 49 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4,5-Trichlorophenol | 0 | 2 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4,6-Trichlorophenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dichlorophenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dimethylphenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,4-Dinitrophenol | 0 | 2 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2,4-Dinitrotoluene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2,6-Dinitrotoluene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chloronaphthalene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Chlorophenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 43.8 | EPA | 0.06 | No | Max SQL< SV |
| 2-Methyl-4,6-Dinitrophenol | 0 | 2 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 2-Methylphenol (o-Cresol) | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitroaniline | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 2-Nitrophenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3,3'-Dichlorobenzidine | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 3-Nitroaniline | 0 | 2 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Bromophenyl-phenylether | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloro-3-methylphenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chloroaniline | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Chlorophenylphenyl ether | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Methylphenol (p-Cresol) | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| 4-Nitroaniline | 0 | 2 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| 4-Nitrophenol | 0 | 2 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | Yes | No SV |
| Benzo(b)fluoranthene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(g,h,i)perylene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(k)fluoranthene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethoxy)methane | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| bis(2-Chloroethyl)ether | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.3 | EPA | 8.33 | Yes | Max SQL > SV |
| Butylbenzylphthalate | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dibenzofuran | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Diethylphthalate | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Dimethylphthalate | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Di-n-butylphthalate | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 9.4 | EPA | 0.27 | No | Max SQL< SV |
| Di-n-octylphthalate | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorobenzene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Hexachlorobutadiene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Hexachlorocyclopentadiene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | Yes | No SV |
| Hexachloroethane | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Indeno(1,2,3-cd)pyrene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Isophorone | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Nitrobenzene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitroso-di-n-propylamine | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| N-Nitrosodiphenylamine | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Pentachlorophenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Phenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Acenaphthylene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Anthracene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)anthracene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Benzo(a)pyrene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chrysene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibenz(a,h)anthracene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluoranthene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Fluorene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Naphthalene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 26 | FDEP | 0.02 | No | Max SQL< SV |

**Table 15-7-10**
**Wetland 49 Phase II**
**Surface Water Screening**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Maximum SQL | Average Result | Minimum Detected | Maximum Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Screening HQ | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAHs (µg/L) - cont.** | | | | | | | | | | | | | | | | |
| Phenanthrene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Pyrene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Total PAH | 0 | 2 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | Yes | No SV |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 270 | FDEP | 0.00 | No | Max SQL< SV |
| 1,1,2,2-Tetrachloroethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1,2-Trichloroethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,1-Dichloroethene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3.2 | FDEP | 0.16 | No | Max SQL< SV |
| 1,2-Dibromo-3-Chloropropane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dibromoethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichlorobenzene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 15.8 | EPA | 0.03 | No | Max SQL< SV |
| 1,2-Dichloroethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,2-Dichloropropane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,3-Dichlorobenzene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| 1,4-Dichlorobenzene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 3 | FDEP | 0.17 | No | Max SQL< SV |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | Yes | No SV |
| Acetone | 2 | 2 | | | | 5 | 4 | 6 | 041W490301 | 6 | J | | NA | | Yes | No SV |
| Benzene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 53 | EPA | 0.01 | No | Max SQL< SV |
| Bromochloromethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromodichloromethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromoform | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Bromomethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon disulfide | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Carbon tetrachloride | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chlorobenzene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 17 | FDEP | 0.03 | No | Max SQL< SV |
| Chloroethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Chloroform | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 289 | EPA | 0.00 | No | Max SQL< SV |
| Chloromethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | Yes | No SV |
| cis-1,2-Dichloroethene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| cis-1,3-Dichloropropene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Dibromochloromethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Ethylbenzene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 453 | EPA | 0.00 | No | Max SQL< SV |
| Methylene chloride | 0 | 2 | 1.75 | 1.5 | 2 | 1.75 | | | ND | 2 | U | 1,580 | FDEP | 0.00 | No | Max SQL< SV |
| Styrene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Tetrachloroethene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Toluene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 175 | EPA | 0.00 | No | Max SQL< SV |
| trans-1,2-Dichloroethene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| trans-1,3-Dichloropropene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Trichloroethene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Vinyl chloride | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |
| Xylene (Total) | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | Yes | No SV |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
J = Estimated Value
UJ = Not detected. SQL is estimated.
D = Diluted Result

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
HQ = Hazard Quotient.
N/R = No refinement value available.
N/A = Not Applicable.

Average result calculations include summing detections and one half the detection limits for not detected parameters. As a result, some average detections may exceed the maximum detections.
Parameters in bold were detected and exceeded the screening value.

**Table 15-7-11**
**Wetland 49 Phase II**
**Surface Water COPCs Retained After Screening**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| | | **Detected Parameters** | |
| Aluminum | None | None | Acetone |
| Calcium | | | |
| Iron | | | |
| Lead | | | |
| Magnesium | | | |
| Manganese | | | |
| Potassium | | | |
| Sodium | | | |
| Vanadium | | | |
| | | **Not Detected Parameters** | |
| Barium | Aldrin | 1,2,4-Trichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Beryllium | Dieldrin | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 1,1,2-Trichloroethane |
| Cadmium | Endosulfan II | 2,4,5-Trichlorophenol | 1,1-Dichloroethane |
| Cobalt | Endosulfan sulfate | 2,4,6-Trichlorophenol | 1,2-Dibromo-3-Chloropropane |
| Mercury | Heptachlor | 2,4-Dichlorophenol | 1,2-Dibromoethane |
| Silver | Heptachlor epoxide | 2,4-Dimethylphenol | 1,2-Dichloroethane |
| | Methoxychlor | 2,4-Dinitrophenol | 1,2-Dichloropropane |
| | Toxaphene | 2,4-Dinitrotoluene | 1,3-Dichlorobenzene |
| | alpha-Chlordane | 2,6-Dinitrotoluene | 4-Methyl-2-Pentanone (MIBK) |
| | gamma-Chlordane | 2-Chloronaphthalene | Bromochloromethane |
| | Total Chlordane | 2-Methyl-4,6-Dinitrophenol | Bromodichloromethane |
| | Endrin | 2-Methylphenol (o-Cresol) | Bromoform |
| | Endrin aldehyde | 2-Nitroaniline | Bromomethane |
| | Endrin ketone | 2-Nitrophenol | Carbon disulfide |
| | Total Endrin | 3,3'-Dichlorobenzidine | Carbon tetrachloride |
| | alpha-BHC | 3-Nitroaniline | Chloroethane |
| | beta-BHC | 4-Bromophenyl-phenylether | Chloromethane |
| | delta-BHC | 4-Chloro-3-methylphenol | cis-1,2-Dichloroethene |
| | Total BHC | 4-Chloroaniline | cis-1,3-Dichloropropene |
| | 4,4'-DDD | 4-Chlorophenylphenyl ether | Dibromochloromethane |
| | 4,4'-DDE | 4-Methylphenol (p-Cresol) | Styrene |
| | 4,4'-DDT | 4-Nitroaniline | Tetrachloroethene |
| | Total DDT | 4-Nitrophenol | trans-1,2-Dichloroethene |
| | Aroclor-1016 | Benzo(b)fluoranthene | trans-1,3-Dichloropropene |
| | Aroclor-1221 | Benzo(g,h,i)perylene | Trichloroethene |
| | Aroclor-1232 | Benzo(k)fluoranthene | Vinyl chloride |
| | Aroclor-1242 | bis(2-Chloroethoxy)methane | Xylene (Total) |
| | Aroclor-1248 | bis(2-Chloroethyl)ether | |
| | Aroclor-1254 | bis(2-Ethylhexyl)phthalate (BEHP) | |
| | Aroclor-1260 | Butylbenzylphthalate | |
| | Total PCBs | Dibenzofuran | |
| | | Diethylphthalate | |
| | | Dimethylphthalate | |
| | | Di-n-octylphthalate | |
| | | Hexachlorobenzene | |
| | | Hexachlorobutadiene | |
| | | Hexachlorocyclopentadiene | |
| | | Hexachloroethane | |
| | | Indeno(1,2,3-cd)pyrene | |
| | | Isophorone | |
| | | Nitrobenzene | |
| | | N-Nitroso-di-n-propylamine | |
| | | N-Nitrosodiphenylamine | |
| | | Pentachlorophenol | |
| | | Phenol | |
| | | 2-Methylnaphthalene | |
| | | Acenaphthene | |
| | | Acenaphthylene | |
| | | Anthracene | |
| | | Benzo(a)anthracene | |
| | | Benzo(a)pyrene | |
| | | Chrysene | |
| | | Dibenz(a,h)anthracene | |
| | | Fluoranthene | |
| | | Fluorene | |
| | | Phenanthrene | |
| | | Pyrene | |
| | | Total PAHs | |

**Table 15-7-12**
**Wetland 49 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (µg/L)** | | | | | | | | | | | | | | | | | | | |
| **Aluminum** | **1** | **2** | **363** | **362.5** | **362.5** | **1,080** | **1,800** | **1,800** | **041W490301** | **1,800** | **J** | **13** | **FDEP** | **138.46** | **83.2** | **1,090.25** | **1** | **Yes** | **Max Result > Ref. Conc.** |
| Barium | 0 | 2 | 2.83 | 2.05 | 3.6 | 2.83 | | | ND | 3.6 | U | | NA | | | 3.68 | 0 | No | Max SQL < Ref. Conc. |
| Beryllium | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.13 | FDEP | 4 | 3.85 | 1 | 0 | No | Max SQL < Ref. Conc. |
| Cadmium | 0 | 2 | 1 | 1 | 1 | 1 | | | ND | 1 | U | 0.66 | EPA | 2 | 1.52 | 3 | 0 | No | Max SQL < Ref. Conc. |
| Calcium | 2 | 2 | | | | 2,600 | 692 | 4,500 | 041W490101 | 4,500 | J | | NA | | | 7,675 | 0 | No | Max Result < Ref. Conc. |
| Cobalt | 0 | 2 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | 3 | 0 | No | Max SQL < Ref. Conc. |
| Iron | 2 | 2 | | | | 447 | 73 | 821 | 041W490301 | 821 | | | NA | | | 2,360 | 0 | No | Max Result < Ref. Conc. |
| **Lead** | **1** | **2** | **1** | **1** | **1** | **2.05** | **3.1** | **3.1** | **041W490301** | **3.1** | | **1.32** | **EPA** | **2.35** | **1.55** | **3.2** | **0** | **No** | **Max Result < Ref. Conc.** |
| Magnesium | 2 | 2 | | | | 917 | 733 | 1,100 | 041W490301 | 1,100 | J | | NA | | | 20,260 | 0 | No | Max Result < Ref. Conc. |
| Manganese | 2 | 2 | | | | 4.65 | 1.9 | 7.4 | 041W490301 | 7.4 | J | | NA | | | 13.2 | 0 | No | Max Result < Ref. Conc. |
| Mercury | 0 | 2 | 0.065 | 0.065 | 0.065 | 0.065 | | | ND | 0.065 | U | 0.012 | EPA | 5.42 | 5.42 | 0.13 | 0 | No | Max SQL < Ref. Conc. |
| Potassium | 1 | 2 | 58 | 58 | 58 | 119 | 180 | 180 | 041W490101 | 180 | J | | NA | | | 6,995 | 0 | No | Max Result < Ref. Conc. |
| Silver | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.012 | EPA | 208.33 | 208 | 4 | 0 | No | Max SQL < Ref. Conc. |
| Sodium | 2 | 2 | | | | 9,930 | 6,750 | 13,100 | 041W490301 | 13,100 | | | NA | | | 182,200 | 0 | No | Max Result < Ref. Conc. |
| Vanadium | 2 | 2 | | | | 2.3 | 2.3 | 2.3 | 041W490301 | 2.3 | J | | NA | | | 4.7 | 0 | No | Max Result < Ref. Conc. |
| **Pesticides (µg/L)** | | | | | | | | | | | | | | | | | | | |
| Aldrin | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dieldrin | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endosulfan II | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endosulfan sulfate | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Heptachlor | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.0038 | EPA | 7 | 6.58 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Heptachlor epoxide | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.00004 | FDEP | 625 | 625 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Methoxychlor | 0 | 2 | 0.25 | 0.25 | 0.25 | 0.25 | | | ND | 0.25 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Toxaphene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| alpha-Chlordane | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| gamma-Chlordane | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Total Chlordane | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0043 | EPA | 12 | 11.6 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Endrin | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endrin aldehyde | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Endrin ketone | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0023 | EPA | 22 | 21.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total Endrin | 0 | 2 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | No | Parameter Not Detected |
| alpha-BHC | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| beta-BHC | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| delta-BHC | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | | NA | | | | 0 | No | Parameter Not Detected |
| gamma-BHC (Lindane) | 0 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | | | ND | 0.025 | U | 0.08 | EPA | 0.31 | 0.31 | | 0 | No | Parameter Not Detected |
| Total BHC | 0 | 2 | 0.1 | 0.1 | 0.1 | 0.1 | | | ND | 0.1 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4,4'-DDD | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0003 | FDEP | 167 | 167 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| 4,4'-DDE | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.0002 | FDEP | 250 | 250 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| 4,4'-DDT | 0 | 2 | 0.05 | 0.05 | 0.05 | 0.05 | | | ND | 0.05 | U | 0.00059 | FDEP | 85 | 84.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total DDT | 0 | 2 | 0.15 | 0.15 | 0.15 | 0.15 | | | ND | 0.15 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **PCBs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| Aroclor-1016 | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1221 | 0 | 2 | 1 | 1 | 1 | 1 | | | ND | 1 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1232 | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1242 | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1248 | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1254 | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Aroclor-1260 | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 0.014 | EPA | 36 | 35.7 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Total PCB | 0 | 2 | 4 | 4 | 4 | 4 | | | ND | 4 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **SVOCs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,2'-oxybis(1-Chloropropane)/bis(2-chlor) | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4,5-Trichlorophenol | 0 | 2 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4,6-Trichlorophenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dichlorophenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dimethylphenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrophenol | 0 | 2 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,4-Dinitrotoluene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2,6-Dinitrotoluene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Chloronaphthalene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Methyl-4,6-Dinitrophenol | 0 | 2 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Methylphenol (o-Cresol) | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Nitroaniline | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 2-Nitrophenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 3,3'-Dichlorobenzidine | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 3-Nitroaniline | 0 | 2 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Bromophenyl-phenylether | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chloro-3-methylphenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chloroaniline | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Chlorophenylphenyl ether | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Methylphenol (p-Cresol) | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Nitroaniline | 0 | 2 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Nitrophenol | 0 | 2 | 10 | 10 | 10 | 10 | | | ND | 10 | U | | NA | | | | 0 | No | Parameter Not Detected |

**Table 15-7-12**
**Wetland 49 Phase II**
**Surface Water Refinement**

| Parameter | Number Detected | Number Analyzed | Average SQL | Minimum SQL | Max SQL | Average Result | Minimum Detected | Max Detected | Maximum Detection Location | EPC | Q | Screening Value | Source | Max Screening HQ | Average Screening HQ | Ref. Conc. | Number Detected > Ref. Conc. | Retained for Refinement? | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVOCs (µg/L) - cont.** | | | | | | | | | | | | | | | | | | | |
| Benzo(b)fluoranthene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(g,h,i)perylene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(k)fluoranthene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethoxy)methane | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Chloroethyl)ether | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| bis(2-Ethylhexyl)phthalate (BEHP) | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | 0.3 | EPA | 8.33 | 8.33 | | 0 | No | Parameter Not Detected; Max SQL > SV |
| Butylbenzylphthalate | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibenzofuran | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Diethylphthalate | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dimethylphthalate | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Di-n-octylphthalate | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorobenzene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorobutadiene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachlorocyclopentadiene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| Hexachloroethane | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Indeno(1,2,3-cd)pyrene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Isophorone | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Nitrobenzene | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| N-Nitroso-di-n-propylamine | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| N-Nitrosodiphenylamine | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Pentachlorophenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Phenol | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **PAHs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Acenaphthene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Acenaphthylene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Anthracene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(a)anthracene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Benzo(a)pyrene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chrysene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibenz(a,h)anthracene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Fluoranthene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Fluorene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Naphthalene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | 26 | FDEP | 0.02 | 0.02 | | 0 | No | Parameter Not Detected |
| Phenanthrene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Pyrene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Total PAH | 0 | 2 | 6.5 | 6.5 | 6.5 | 6.5 | | | ND | 6.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| **VOCs (µg/L)** | | | | | | | | | | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,1,2-Trichloroethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,1-Dichloroethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dibromo-3-Chloropropane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dibromoethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dichloroethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,2-Dichloropropane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 1,3-Dichlorobenzene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| 4-Methyl-2-Pentanone (MIBK) | 0 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | | | ND | 2.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Acetone | 2 | 2 | | | | 5 | 4 | 6 | 041W490301 | 6 | J | | NA | | | | 0 | Yes | No SV |
| Bromochloromethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromodichloromethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromoform | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Bromomethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Carbon disulfide | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Carbon tetrachloride | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chloroethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Chloromethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | UJ | | NA | | | | 0 | No | Parameter Not Detected |
| cis-1,2-Dichloroethene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| cis-1,3-Dichloropropene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Dibromochloromethane | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Styrene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Tetrachloroethene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| trans-1,2-Dichloroethene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| trans-1,3-Dichloropropene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Trichloroethene | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Vinyl chloride | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |
| Xylene (Total) | 0 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | | | ND | 0.5 | U | | NA | | | | 0 | No | Parameter Not Detected |

***Notes:***

Sources for Screening Values (SVs):
EPA = Ambient Water Quality Criteria
FDEP = Surface Water Quality Criteria

Supporting Information:
SQL = Sample Quanitation Limit
HQ = Hazard Quotient
N/A = No screening value available
U or ND = Not Detected at or above the SQL
UJ = Not detected. SQL is estimated.
D = Diluted Result
J = Estimated Value

Supporting Information:
SV = Screening value (detailed explanation for SVs provided in Section 8).
RV = Refinement value (detailed explanation of RVs provided in Section 8).
PEL = Probable effects level.
N/R = No refinement value available.
N/A = Not Applicable.
Average result calculations include summing detections and one half the detection limits for not detected parameters. As a result, some average detections may exceed the Max detections
Parameters in bold were detected and exceeded Ref. Conc.s.

**Table 15-7-13**
**Wetland 49 Phase II**
**Surface Water COPCs Retained After Refinement**

| Metals | Pesticides/PCBs | SVOCs/PAHs | VOCs |
|---|---|---|---|
| **Detected Parameters** | | | |
| Aluminum | None | None | Acetone |

**Table 15-7-14**
**Wetland 49 Phase II**
**Sediment Dermal Exposure Dose-Child Trespasser and Adult Maintenance Worker**

| CAS Number | Chemical | | Minimum Concentration | Min. Qual. | Maximum Concentration | Max. Qual. | Units | Location of Max. Conc. | Detection Frequency | Range of Detection Limits | Mean | $ABS_{sd}$ | $ABS_{sd}$ Source | $DA_{event}$: Child Trespasser | $DA_{event}$: Adult Maintenance Worker | $DAD_{sd}$ (mg/kg-day): Child Trespasser | $DAD_{sd}$ (mg/kg-day): Adult Maintenance Worker |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429905 | Aluminum | N | 1.5E+03 | = | 3.6E+03 | = | MG/KG | 041M490201 | 3 / 3 | NAV | 2.7E+03 | 1.0E-03 | 3 | N/A | 3.56E-07 | N/A | 7.54E-06 |
| 7440393 | Barium | N | 1.7E+00 | J | 5.6E+00 | J | MG/KG | 041M490201 | 3 / 3 | NAV | 4.3E+00 | 1.0E-03 | 3 | N/A | 5.60E-10 | N/A | 1.19E-08 |
| 7440484 | Cobalt | C | 1.5E-01 | J | 2.0E-01 | J | MG/KG | 041M490101 | 3 / 3 | NAV | 1.7E-01 | 1.0E-03 | 3 | N/A | 2.00E-11 | N/A | 1.51E-10 |
| 7439896 | Iron | N | 4.1E+02 | = | 7.1E+02 | = | MG/KG | 041M490201 | 3 / 3 | NAV | 5.5E+02 | 1.0E-03 | 3 | N/A | 7.07E-08 | N/A | 1.50E-06 |
| 7439965 | Manganese | N | 9.4E-01 | J | 7.0E+00 | = | MG/KG | 041M490201 | 3 / 3 | NAV | 3.4E+00 | 1.0E-03 | 3 | N/A | 7.00E-10 | N/A | 1.48E-08 |
| 7440622 | Vanadium | N | 2.1E+00 | J | 3.0E+00 | J | MG/KG | 041M490201 | 3 / 3 | NAV | 2.6E+00 | 1.0E-03 | 3 | N/A | 3.00E-10 | N/A | 6.35E-09 |
| 72548 | 4,4'-DDD | C | 5.9E-02 | DJ | 9.4E-02 | DJ | MG/KG | 041M490101 | 2 / 3 | N/A / 2.4E-04 | 5.1E-02 | 3.0E-02 | 1 | N/A | 2.82E-10 | N/A | 2.13E-09 |
| 72559 | 4,4'-DDE | C | 9.2E-03 | = | 1.8E-02 | = | MG/KG | 041M490101 | 2 / 3 | N/A / 2.4E-04 | 9.1E-03 | 3.0E-02 | 1 | N/A | 5.40E-11 | N/A | 4.08E-10 |
| 50293 | 4,4'-DDT | C | 1.2E-03 | J | 3.0E-03 | J | MG/KG | 041M490201 | 2 / 3 | N/A / 2.4E-04 | 1.4E-03 | 3.0E-02 | 1 | N/A | 9.00E-12 | N/A | 6.80E-11 |
| 1024573 | Heptachlor epoxide | C | N/A | N/A | 1.1E-03 | J | MG/KG | 041M490201 | 1 / 3 | 1.2E-04 / 1.0E-03 | 5.5E-04 | 1.0E-01 | 2 | N/A | 1.10E-11 | N/A | 8.32E-11 |
| 117817 | bis(2-Ethylhexyl)phthalate (BEHP) | C | N/A | N/A | 1.7E+00 | = | MG/KG | 041M490101 | 1 / 3 | 4.6E-01 / 4.9E-01 | 7.3E-01 | 1.0E-01 | 1 | N/A | 1.70E-08 | N/A | 1.29E-07 |
| 85687 | Butylbenzylphthalate | N | N/A | N/A | 3.0E-02 | J | MG/KG | 041M490101 | 1 / 3 | 4.6E-01 / 4.9E-01 | 1.7E-01 | 1.0E-01 | 2 | N/A | 3.00E-10 | N/A | 6.35E-09 |
| 84742 | Di-n-butylphthalate | N | N/A | N/A | 3.9E-02 | J | MG/KG | 041M490101 | 1 / 3 | 4.6E-01 / 4.9E-01 | 1.7E-01 | 1.0E-01 | 2 | N/A | 3.90E-10 | N/A | 8.25E-09 |
| 129000 | Pyrene | N | N/A | N/A | 2.1E-02 | J | MG/KG | 041M490101 | 1 / 3 | 4.6E-02 / 4.9E-02 | 2.3E-02 | 1.0E-02 | 3 | N/A | 2.10E-11 | N/A | 4.44E-10 |
| 74873 | Chloromethane | C | N/A | N/A | 2.0E-03 | J | MG/KG | 041M490301 | 1 / 3 | 1.3E-02 / 6.5E-02 | 1.4E-02 | 1.0E-02 | 3 | N/A | 2.00E-12 | N/A | 1.51E-11 |

***Notes:***

Equation for sediment risk:

$$DAD_{sd} = \frac{DA_{event} \times EV \times ED \times EF \times SA}{BW \times AT}$$

Where:

$DAD_{sd}$ = Dermal Absorbed Dose-soil contact (mg/kg-day).
$DA_{event}$ = Dermal absorbed dose per event (mg/cm2-event)
SA = Skin surface area available for contact (cm2).
EV = Event frequency (events/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr
carcinogenic effects AT = 70 yr x 365 dy/yr.

Exposure Parameters:

EV = 1 event per day (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
EF = 52 dys/yr (child trespasser/adult maintenance worker).
SA = 5,000 cm2(child trespasser); 10,400 cm2 (adult maintenance worker).
Source: Tables 6-6 and 6-8 Exposure Factors Handbook.
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).

Equation for $DA_{event}$ for sediment contact:

$$DA_{event} = C_{sd} \times CF \times AF \times ABS_d$$

Where:

$C_{sd}$ = Chemical concentration in sediment (mg/kg).
CF = Conversion factor ($10^{-6}$ kg/mg).
AF = Adherence factor of sediment to soil (mg/cm2-event).
0.2 (children playing in wet soil) 0.1 (construction worker)
$AB_{sd}$ = Dermal absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1;
(2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.

**Table 15-7-15**
**Wetland 49 Phase II**
**Sediment Dermal Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum Concentration (mg/kg) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | ABSGI | ABSGI Source | Dermal RfD (mg/kg-day) | Dermal SF (mg/kg-day)-1 | Child Trespasser: Dermal Hazard Quotient | Child Trespasser: Dermal Cancer Risk | Maintenance Worker: Dermal Hazard Quotient | Maintenance Worker: Dermal Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sediment Dermal Risk | Aluminum | N | 3.6E+03 | 1.0E+00 | N/A | 1.0E-01 | 2 | 1.0E-01 | N/A | N/A | N/A | 7.5E-05 | N/A |
| | Barium | N | 5.6E+00 | 7.0E-02 | N/A | 7.0E-02 | 1, 3 | 4.9E-03 | N/A | N/A | N/A | 2.4E-06 | N/A |
| | Cobalt | C | 2.0E-01 | 2.0E-02 | N/A | 8.0E-01 | 3 | 1.6E-02 | N/A | N/A | N/A | 9.4E-09 | N/A |
| | Iron | N | 7.1E+02 | 3.0E-01 | N/A | 1.5E-01 | 3 | 4.5E-02 | N/A | N/A | N/A | 3.3E-05 | N/A |
| | Manganese | N | 7.0E+00 | 2.4E-02 | N/A | 4.0E-02 | 1, 3 | 9.6E-04 | N/A | N/A | N/A | 1.5E-05 | N/A |
| | Vanadium | N | 3.0E+00 | 7.0E-03 | N/A | 2.6E-02 | 1 | 1.8E-04 | N/A | N/A | N/A | 3.5E-05 | N/A |
| | 4,4'-DDD | C | 9.4E-02 | N/A | 2.4E-01 | 3.0E-02 | 2 | N/A | 8.0E+00 | N/A | N/A | N/A | 1.7E-08 |
| | 4,4'-DDE | C | 1.8E-02 | N/A | 3.4E-01 | 3.0E-02 | 2 | N/A | 1.1E+01 | N/A | N/A | N/A | 4.6E-09 |
| | 4,4'-DDT | C | 3.0E-03 | 5.0E-04 | 3.4E-01 | 3.0E-02 | 2 | 1.5E-05 | 1.1E+01 | N/A | N/A | 4.5E-06 | 7.7E-10 |
| | Heptachlor epoxide | C | 1.1E-03 | 5.0E-04 | 4.5E+00 | 1.1E-02 | 3 | 5.6E-06 | 4.0E+02 | N/A | N/A | 1.5E-05 | 3.3E-08 |
| | bis(2-Ethylhexyl)phthalate (BEHP) | C | 1.7E+00 | 2.0E-02 | 1.4E-02 | 1.0E-01 | 2 | 2.0E-03 | 1.4E-01 | N/A | N/A | 6.4E-05 | 1.8E-08 |
| | Butylbenzylphthalate | N | 3.0E-02 | 2.0E-01 | N/A | 1.7E-02 | 3 | 3.5E-03 | N/A | N/A | N/A | 1.8E-06 | N/A |
| | Di-n-butylphthalate | N | 3.9E-02 | 1.0E-01 | N/A | 3.1E-01 | 3 | 3.1E-02 | N/A | N/A | N/A | 2.7E-07 | N/A |
| | Pyrene | N | 2.1E-02 | N/A | 3.0E-02 | 3.1E-01 | 3 | N/A | 9.7E-02 | N/A | N/A | N/A | 4.3E-11 |
| | Chloromethane | C | 2.0E-03 | N/A | 1.3E-02 | 8.0E-01 | 3 | N/A | 1.6E-02 | N/A | N/A | N/A | 2.5E-13 |

***Notes:***

Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
ABSGI = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.
Dermal RfD = Dermal reference dose-sources: (1) RAIS value; (2) adjusted for ABSGI.
Dermal SF = Dermal slope factor-sources: (1) RAIS value; (2) adjusted for ABSGI.

Equations for Dermal Reference Dose and Dermal Slope Factor, surface water risk:

$$RfD_{dermal} = RfD_{oral} \times ABS_{GI}$$

$$SF_{dermal} = \frac{RfD_{oral}}{ABS_{GI}}$$

Where:
RfDdermal = Dermal reference dose.
RFDoral = Oral reference dose.
ABSGI = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.

Risk calculation equation, cancer:

$$Risk = DAD_{sw} \times SF_{dermal}$$

Risk calculation equation, noncancer:

$$Hazard\ Quotient = \frac{DAD_{sw}}{RfD_{dermal}}$$

**Table 15-7-16**
**Wetland 49 Phase II**
**Sediment Incidental Ingestion Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum Concentration (mg/kg) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | Child Trespasser | | Maintenance Worker | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ingestion Hazard Quotient | Ingestion Cancer Risk | Ingestion Hazard Quotient | Ingestion Cancer Risk |
| Sediment Incidental Ingestion | Aluminum | N | 3.6E+03 | 1.0E+00 | N/A | N/A | N/A | 7.25E-04 | N/A |
| | Barium | N | 5.6E+00 | 7.0E-02 | N/A | N/A | N/A | 1.63E-05 | N/A |
| | Cobalt | C | 2.0E-01 | 2.0E-02 | N/A | N/A | N/A | 7.27E-07 | N/A |
| | Iron | N | 7.1E+02 | 3.0E-01 | N/A | N/A | N/A | 4.80E-04 | N/A |
| | Manganese | N | 7.0E+00 | 2.4E-02 | N/A | N/A | N/A | 5.94E-05 | N/A |
| | Vanadium | N | 3.0E+00 | 7.0E-03 | N/A | N/A | N/A | 8.72E-05 | N/A |
| | 4,4'-DDD | C | 9.4E-02 | N/A | 2.4E-01 | N/A | N/A | N/A | 1.64E-09 |
| | 4,4'-DDE | C | 1.8E-02 | N/A | 3.4E-01 | N/A | N/A | N/A | 4.45E-10 |
| | 4,4'-DDT | C | 3.0E-03 | 5.0E-04 | 3.4E-01 | N/A | N/A | 4.36E-07 | 7.41E-11 |
| | Heptachlor epoxide | C | 1.1E-03 | 5.0E-04 | 4.5E+00 | N/A | N/A | 1.60E-07 | 3.60E-10 |
| | bis(2-Ethylhexyl)phthalate (BEHP) | C | 1.7E+00 | 2.0E-02 | 1.4E-02 | N/A | N/A | 6.18E-06 | 1.73E-09 |
| | Butylbenzylphthalate | N | 3.0E-02 | 2.0E-01 | N/A | N/A | N/A | 3.05E-08 | N/A |
| | Di-n-butylphthalate | N | 3.9E-02 | 1.0E-01 | N/A | N/A | N/A | 7.94E-08 | N/A |
| | Pyrene | N | 2.1E-02 | N/A | 3.0E-02 | N/A | N/A | N/A | 1.28E-10 |
| | Chloromethane | C | 2.0E-03 | N/A | 1.3E-02 | N/A | N/A | N/A | 1.89E-12 |

***Notes:***
Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
CDI = Chronic daily intake (mg/kg-day)

$$Risk = CDI \times SF_{oral}$$

Equation for Chronic Daily Intake, sediment risk:

$$CDI = \frac{EPC_{sd} \times IR_{sd} \times EF \times ED \times CF}{BW \times AT}$$

$$Hazard\ Quotient = \frac{CDI}{RfD_{oral}}$$

Where:
CDI = Chronic daily intake (mg/kg-day).
EPCsd = Exposure point concentration in sediment (mg/kg).
IRsd = Incidental ingestion rate for sediment (mg/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
CF = Conversion factor (1E-6 kg/mg).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr.
carcinogenic effects AT = 70 yr x 365 dy/yr.

= Oral reference dose.
= Oral slope factor.

Exposure Parameters:
IRsd = 100 mg/day for age groups greater than 6-years old.
EF = 52 dys/yr (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).

**Table 15-7-17**
**Wetland 49 Phase II**
**Surface Water Dermal Absorbed Dose-Child Trespasser and Adult Maintenance Worker**

| CAS Number | Chemical | | Minimum Concentration | Min. Qual. | Maximum Concentration | Max. Qual. | Units | Location of Max. Conc. | Detection Frequency | Range of Detection Limits | Mean | Maximum Concentration | $K_p$ | $DA_{event}$ | $DAD_{sw}$ (mg/kg-day): Child Trespasser | $DAD_{sw}$ (mg/kg-day): Adult Maintenance Worker |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429905 | Aluminum | N | N/A | N/A | 1.8E+03 | J | UG/L | 041W490301 | 1 / 2 | N/A / 7.3E+02 | 1.1E+03 | 1.8E-03 | 1.0E-03 | 4.68E-06 | N/A | 9.91E-05 |
| 7439921 | Lead | N | N/A | N/A | 3.1E+00 | = | UG/L | 041W490301 | 1 / 2 | N/A / 2.0E+00 | 2.1E+00 | 3.1E-06 | 3.4E-04 | 2.74E-09 | N/A | 5.80E-08 |
| 7439965 | Manganese | N | 1.9E+00 | J | 7.4E+00 | J | UG/L | 041W490301 | 2 / 2 | NAV | 4.7E+00 | 7.4E-06 | 1.0E-03 | 1.92E-08 | N/A | 4.07E-07 |
| 7440622 | Vanadium | N | 2.3E+00 | J | 2.3E+00 | J | UG/L | 041W490301 | 2 / 2 | NAV | 2.3E+00 | 2.3E-06 | 1.0E-03 | 5.98E-09 | N/A | 1.27E-07 |
| 67641 | Acetone | N | 4.0E+00 | J | 6.0E+00 | J | UG/L | 041W490301 | 2 / 2 | NAV | 5.0E+00 | 6.0E-06 | 5.7E-04 | 1.12E-08 | N/A | 2.37E-07 |

***Notes:***

Equation for Dermal Absorbed Dose, surface water risk:

$$DAD_{sw} = \frac{DA_{event} \times EV \times ED \times EF \times SA}{BW \times AT}$$

Where:

$DAD_{sw}$ = Dermal absorbed dose-water contact (mg/kg-day).
$DA_{event}$ = Dermal absorbed dose per event (mg/cm2-event).
SA = Skin surface area available for contact (cm2).
EV = Event frequency (events/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr
carcinogenic effects AT = 70 yr x 365 dy/yr.

Equation for DAevent for inorganics:

$$DA_{event} = K_p \times C_w \times t_{event}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: RAGS Part E, Exhibit B-3 or Exhibit B-4
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).

Equation for DAevent for organics:

$$DA_{event} = FA \times K_p \times C_w \left[ \frac{t_{event}}{1 + B} + 2\tau_{event} \left( \frac{1 + 3B + 3B^2}{(1 + B)^2} \right) \right]$$

Where:

FA = Fraction absorbed water (dimensionless). From RAGS Part E, Exhibit B-4.
Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E, Exhibit B-4.
Cw = Chemical concentration in water (mg/cm3).
$t_{event}$ = Event duration (hr/event).
$t_{event}$ = Lag time per event (hr/event). From RAGS Part E, Exhibit B-4.
B = Dimensionless ratio of the permeability coefficient of a compound, calculated using the equation below:

$$B = \frac{K_p \sqrt{MW}}{2.6}$$

Where:

Kp = Dermal permeability coefficient of compound in water (cm/hr).
Source: (1) RAGS Part E.
MW = Molecular weight

Exposure Parameters:

EV = 1 event per day (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
EF = 52 dys/yr (child trespasser/adult maintenance worker).
SA = 5,000 cm2(child trespasser); 10,400 cm2 (adult maintenance worker).
Source: Tables 6-6 and 6-8 Exposure Factors Handbook.
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).
$t_{event}$ = 2.6 hrs/dy (child trespasser/adult maintenance worker).

**Table 15-7-18**
**Wetland 49 Phase II**
**Surface Water Dermal Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum Concentration ($mg/cm^3$) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | $ABS_{GI}$ | $ABS_{GI}$ Source | Dermal RfD (mg/kg-day) | Dermal SF (mg/kg-day)-1 | Child Trespasser | | Maintenance Worker | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Dermal Hazard Quotient | Dermal Cancer Risk | Dermal Hazard Quotient | Dermal Cancer Risk |
| SW Dermal Risk | Aluminum | N | 1.8E-03 | 1.0E+00 | N/A | 1.0E-01 | 2 | 1.0E-01 | N/A | N/A | N/A | 9.9E-04 | N/A |
| | Lead | N | 3.1E-06 | N/A | N/A | 1.5E-01 | 3 | N/A | N/A | N/A | N/A | N/A | N/A |
| | Manganese | N | 7.4E-06 | 1.4E-01 | N/A | 4.0E-02 | 1 | 5.6E-03 | N/A | N/A | N/A | 7.3E-05 | N/A |
| | Vanadium | N | 2.3E-06 | 7.0E-03 | N/A | 2.6E-02 | 1 | 1.8E-04 | N/A | N/A | N/A | 7.0E-04 | N/A |
| | Acetone | N | 6.0E-06 | 1.0E-01 | N/A | 1.0E-01 | 2 | 1.0E-02 | N/A | N/A | N/A | 2.4E-05 | N/A |

***Notes:***

Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.
Dermal RfD = Dermal reference dose adjusted for $ABS_{GI}$.
Dermal SF = Dermal slope factor adjusted for ABSGI.

Equations for Dermal Reference Dose and Dermal Slope Factor, surface water risk:

$$RfD_{dermal} = RfD_{oral} \times ABS_{GI}$$

$$SF_{dermal} = \frac{RfD_{oral}}{ABS_{GI}}$$

Where:
$RfD_{dermal}$ = Dermal reference dose.
$RFD_{oral}$ = Oral reference dose.
SFdermal = Dermal slope factor.
$ABS_{GI}$ = GI absorption fraction from following sources, in order of choice: (1) RAGS Part E, Exhibit 4-1; (2) 2002 USEPA Region 9 RBC Table; (3) RAIS; (4) USEPA Region 4 OTS supplemental values.

Risk calculation equation, cancer:

$$Risk = DAD_{sw} \times SF_{dermal}$$

Risk calculation equation, noncancer:

$$Hazard\ Quotient = \frac{DAD_{sw}}{RfD_{dermal}}$$

**Table 15-7-19**
**Wetland 49 Phase II**
**Surface Water Incidental Ingestion Exposure Risk-Child Trespasser and Adult Maintenance Worker**

| Exposure Route | COPC | | Maximum Concentration ($mg/cm^3$) | Oral RfD (mg/kg-day) | Oral SF (mg/kg-day)-1 | Child Trespasser: Ingestion Hazard Quotient | Child Trespasser: Ingestion Cancer Risk | Maintenance Worker: Ingestion Hazard Quotient | Maintenance Worker: Ingestion Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|
| SW Incidental Ingestion | Aluminum | N | 1.8E-03 | 1.0E+00 | N/A | N/A | N/A | 3.7E-08 | N/A |
| | Lead | N | 3.1E-06 | N/A | N/A | N/A | N/A | N/A | N/A |
| | Manganese | N | 7.4E-06 | 1.4E-01 | N/A | N/A | N/A | 1.1E-09 | N/A |
| | Vanadium | N | 2.3E-06 | 7.0E-03 | N/A | N/A | N/A | 6.7E-09 | N/A |
| | Acetone | N | 6.0E-06 | 1.0E-01 | N/A | N/A | N/A | 1.2E-09 | N/A |

***Notes:***
Oral RfD = Oral reference dose from: (1) IRIS; or (2) RAIS.
Oral SF = Oral Slope Factor from (1) IRIS; or (2) RAIS.
CDI

$$Risk = CDI \times SF_{oral}$$

Equation for Chronic Daily Intake, surface water risk:

$$CDI = \frac{EPC_{sw} \times IR_{sw} \times EF \times ED}{BW \times AT}$$

$$Hazard\ Quotient = \frac{CDI}{RfD_{oral}}$$

Where:
CDI = Chronic daily intake (mg/kg-day).
$EPC_{sw}$ = Exposure point concentration in surface water (mg/L).
$IR_{sw}$ = Incidental ingestion rate for sediment (L/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Body weight (kg) 70 kg (adult) 45 kg (child).
AT = Averaging time (days) noncarcinogenic effects AT = ED x 365 dy/yr.
carcinogenic effects AT = 70 yr x 365 dy/yr.

= Oral reference dose.
= Oral slope factor.

Exposure Parameters:
Irsw = 0.01 L/day exposure to surface water during wading for adolescents and adults.
EF = 52 dys/yr (child trespasser/adult maintenance worker).
ED = 10 yrs (child trespasser); 25 yrs (adult maintenance worker).
BW = 45 kg (child trespasser); 70 kg (adult maintenance worker).
AT = Noncancer — 3,650 days (child trespasser); 9,125 days (adult maintenance worker).
Cancer — 25,550 days (child trespasser/adult maintenance worker).

## 15.8 Miscellaneous Wetlands Evaluation

The wetlands included in this evaluation (Wetlands 19, 48, 49, 56, 57, 58, and W2) were grouped together and were evaluated collectively to help determine where the highest probabilities of unacceptable risk may occur and whether that risk is likely to be related to releases from IR sites at NAS Pensacola. The evaluations in this section included:

- **Food-Chain Models:** Many of the upper-level predators likely to be exposed within Site 41 wetlands would likely be exposed to constituents in more than one wetland. To evaluate this scenario, food-chain models were developed using constituent concentrations from the miscellaneous wetlands.

- **Mean ERM Quotients:** This methodology is an effective way to pinpoint areas of potential risk from a mixture of constituents. It is also useful in identifying locations most likely to be impacted by direct toxicity. Mean ERM quotients are presented on Figure 15-7.

- **Basewide Total DDT-Level Comparison:** A basewide level was established for total DDT at NAS Pensacola. A comparison of site concentrations to the basewide levels is presented in Figure 15-5 and will be discussed on a basewide level in this section.

- **TOC-Normalized PAH Concentrations:** PAHs are widespread across NAS Pensacola and have been evaluated based on their potential for adverse effects when the TOC at each sample location is taken into account. This method has been summarized in Figure 15-6 to identify locations where PAHs may occur at levels most likely to cause adverse effects.

### 15.8.1 Miscellaneous Wetlands Food-Chain Modeling

To evaluate the potential for risk to upper-trophic-level receptors that forage within and around the miscellaneous wetlands, food-chain models were prepared following the methodology presented in Section 8. No prey items were collected from the miscellaneous wetlands during the RI; therefore, all the tissue concentrations utilized in the food-chain models were estimated using literature-based BSAFs (Table 8-6 — tables are located at the end of each section). According to USEPA guidance, constituents for which no BSAF could be located, a BSAF of 1 was assumed for accumulation purposes. The exposure concentrations for sediment and surface water utilized in the food-chain models are included in Appendix M.

Tables 15-8-1 through 15-8-3 show the results of the food-chain models for the following receptor groups:

- Piscivorous Birds (green heron used as representative species) (Table 15-8-1)
- Piscivorous Mammals (mink used as representative species) (Table 15-8-2)
- Predatory Fish (red drum used as representative species) (Table 15-8-3)

#### 15.8.1.1 Food-Chain Modeling Results

The following assessment endpoints were proposed and approved in the *Final RI/FS SAP, Site 41* (E/A&H, 1995g).

**Assessment Endpoint 1 — Health and Viability of Piscivorous Bird Communities that Forage Throughout Miscellaneous Wetlands**

The only constituent that generated HQs greater than 1 for the piscivorous bird community was total DDT. The total DDT HQs within these wetlands range from 1.4 (max concentration NOAEL HQ) to less than 1 for the average concentration LOAEL HQ, indicating a potential for adverse effects to piscivorous birds. The maximum total DDT concentration in sediment was detected within Wetland 48 (041M4801; 3,460 µg/kg) and was much higher than any other detected concentration. The next highest concentration of total DDT within the remaining wetlands was at Wetland 49 (113 µg/kg).

**Assessment Endpoint 2 — Health and Viability of Piscivorous Mammal Communities that Forage Throughout Miscellaneous Wetlands**

The only constituent generating a HQ greater than 1 for the piscivorous mammal community was total DDT. The total DDT NOAEL HQ calculated using the maximum concentration (from Wetland 48, 041M4801) was 1.34. This HQ greater than 1 indicated the potential for adverse effects to the piscivorous mammal communities that may forage throughout the miscellaneous wetlands. However, based on the HQs, the only location that would generate this potential for adverse effects is the maximum location in Wetland 48.

**Assessment Endpoint 3 — Health and Viability of Predatory Fish Communities that Forage in and around Miscellaneous Wetlands**

Mercury generated an HQ of 2.4 for the NOAEL HQ calculated using the maximum concentration (0.14 mg/kg), the LOAEL HQ using the maximum concentration, and the NOAEL HQ calculated using the average concentration (0.06 mg/kg). However, the only detection in all of the miscellaneous wetlands was the concentration from the maximum location (041M5701). Therefore,

while this location may present a potential for adverse effects, it is unlikely that this limited distribution and low HQs would impact the health and viability of the predatory fish communities that forage within the miscellaneous wetlands.

### 15.8.2 Mean ERM Quotients

Of the 13 sediment sample locations, eight locations were within the mean ERM Category 2, and one location was within Category 3. The only location that had any individual ERM exceedances was Wetland 48 sample 041M4801 (only for DDE and DDT). Using this methodology, most of the wetlands incorporated within the miscellaneous wetlands have high uncertainty and require additional lines of evidence for evaluation. However, based on the mean ERM quotient methodology, it is likely that some level of direct toxicity may be present within Wetland 48.

### 15.8.3 Basewide Total DDT-Levels

Two locations in the miscellaneous wetlands exceeded the basewide levels. The largest concentration was in Wetland 48 at sample location 041M4801 (3,460 µg/kg) and the other exceedance was in Wetland 49 with a concentration of 113.2 µg/kg.

### 15.8.4 TOC-Normalized Total PAHs Concentrations

No detected TOC–normalized PAHs within the miscellaneous wetlands exceeded the Swartz TEC; therefore, they are not likely to pose any unacceptable levels of risk related to exposure to PAHs.

### 15.8.5 Conclusions

Some potential for limited adverse impacts exists through exposure to total DDT and mercury via the food web within the miscellaneous wetlands. However, the potential for adverse impacts appears to occur only at one sample location for each constituent (041M4801 for total DDT and 041M5701 for mercury). Based on these results, no further actions are recommended for any of the wetlands in this group.

**Table 15-8-1**
**Remaining Wetlands FCM (Phase 2)**
**Receptor: Green Heron (Butorides virescens)**

Sediment Ingestion Rate[a] : 0.00023 kg/day
Surface Water Ingestion Rat 0.0227 L/day
Food Ingestion Rate[c]: 0.0115 kg/day

Body Weight[d]: 0.241 kg

| Contaminant | Sediment Concentrations mg/kg | Surface Water Concentrations mg/L | Tissue Concentrations mg/kg | Sediment Exposure mg/day | Water Exposure mg/day | Prey Exposure mg/day | Total Exposure mg/day | Daily Dose mg/kgBW/day | NOAEL mg/kdBW/day | LOAEL mg/kdBW/day | NOAEL HQ | LOAEL HQ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | | | | | | | | | | | | |
| Max | 0.14 | 0.0006 | 0.2800 | 0.0000322 | 0.0000 | 0.0032 | 0.00326582 | 0.0136 | 0.44 | 0.86 | 3.08E-02 | 1.58E-02 |
| Actual Detections | 0.14 | 0 | 0.2800 | 0.0000322 | 0.0000 | 0.0032 | 0.0032522 | 0.0135 | 0.059 | 0.35 | 2.29E-01 | 3.86E-02 |
| Average | 0.06 | 0.0001 | 0.1200 | 0.0000138 | 0.0000 | 0.0014 | 0.00139607 | 0.0058 | 0.44 | 0.86 | 1.32E-02 | 6.74E-03 |
| Total BHC | | | | | | | | | | | | |
| Max | 0.0010 | 0 | 0.0010 | 0.00000023 | 0.0000 | 0.0000 | 0.00001173 | 0.0000 | 0.563 | 2.25 | 8.65E-05 | 2.16E-05 |
| Actual Detections | 0.001 | 0 | 0.0010 | 0.00000023 | 0.0000 | 0.0000 | 0.00001173 | 0.0000 | 0.563 | 2.25 | 8.65E-05 | 2.16E-05 |
| Average | 0.0023 | 0.0001 | 0.0023 | 0.000000529 | 0.0000 | 0.0000 | 0.000029249 | 0.0001 | 0.563 | 2.25 | 2.16E-04 | 5.39E-05 |
| Total Chlordane | | | | | | | | | | | | |
| Max | 0.0003 | 0 | 0.0007 | 0.000000069 | 0.0000 | 0.0000 | 8.1765E-06 | 0.0000 | 2.14 | 10.7 | 1.59E-05 | 3.17E-06 |
| Actual Detections | 0.0003 | 0 | 0.0007 | 0.000000069 | 0.0000 | 0.0000 | 8.1765E-06 | 0.0000 | 2.14 | 10.7 | 1.59E-05 | 3.17E-06 |
| Average | 0.0012 | 0.0001 | 0.0028 | 0.000000276 | 0.0000 | 0.0000 | 0.000034976 | 0.0001 | 2.14 | 10.7 | 6.78E-05 | 1.36E-05 |
| Dieldrin | | | | | | | | | | | | |
| Max | 0.00003 | 0 | 0.0001 | 6.9E-09 | 0.0000 | 0.0000 | 1.67325E-06 | 0.0000 | 0.044 | 0.44 | 1.58E-04 | 1.58E-05 |
| Average | 0.0011 | 0.0001 | 0.0053 | 0.000000253 | 0.0000 | 0.0001 | 6.36225E-05 | 0.0003 | 0.044 | 0.44 | 6.00E-03 | 6.00E-04 |
| Total DDT | | | | | | | | | | | | |
| Max | 3.46 | 0 | 14.8434 | 0.0007958 | 0.0000 | 0.1707 | 0.1714949 | 0.7116 | 0.051 | 0.512 | **1.40E+01** | **1.39E+00** |
| Actual Detections | 3.46 | 0 | 14.8434 | 0.0007958 | 0.0000 | 0.1707 | 0.1714949 | 0.7116 | 0.2 | 0.4 | **3.56E+00** | **1.78E+00** |
| Average | 0.2875 | 0.0002 | 1.2334 | 0.000066125 | 0.0000 | 0.0142 | 0.014254478 | 0.0591 | 0.051 | 0.512 | **1.16E+00** | 1.16E-01 |
| Total Endrin | | | | | | | | | | | | |
| Max | 0.00432 | 0 | 0.0043 | 9.936E-07 | 0.0000 | 0.0000 | 5.06736E-05 | 0.0002 | 0.01 | 0.1 | 2.10E-02 | 2.10E-03 |
| Actual Detections | 0.00432 | 0 | 0.0043 | 9.936E-07 | 0.0000 | 0.0000 | 5.06736E-05 | 0.0002 | 0.01 | 0.1 | 2.10E-02 | 2.10E-03 |
| Average | 0.0037 | 0.0001 | 0.0037 | 0.000000851 | 0.0000 | 0.0000 | 0.000045671 | 0.0002 | 0.01 | 0.1 | 1.90E-02 | 1.90E-03 |
| Total PCB | | | | | | | | | | | | |
| Max | 0.0691 | 0 | 0.1133 | 0.000015893 | 0.0000 | 0.0013 | 0.001319119 | 0.0055 | 0.112 | 1.12 | 4.89E-02 | 4.89E-03 |
| Actual Detections | 0.0691 | 0 | 0.1133 | 0.000015893 | 0.0000 | 0.0013 | 0.001319119 | 0.0055 | 0.42 | 0.94 | 1.30E-02 | 5.82E-03 |
| Average | 0.0947 | 0.004 | 0.1553 | 0.000021781 | 0.0001 | 0.0018 | 0.001898623 | 0.0079 | 0.112 | 1.12 | 7.03E-02 | 7.03E-03 |

***Notes:***
Sediment Exposure = Sediment Concentration * Sediment Ingestion Rate (mg/day)
Surface Water Exposure = Surface Water Concentration * Water Ingestion Rate (mg/day)
Prey Exposure = Tissue Concentration * Food Ingestion Rate (mg/day)
Total Exposure = Sediment Exposure + Surface Water Exposure + Prey Exposure (mg/day)

Daily Dose = Total Exposure / Body Weight (mg/kgBW/day)

NOAEL HQ = Daily Dose/NOAEL (mg/kgBW/day)
LOAEL HQ = Daily Dose/LOAEL (mg/kgBW/day)

a Estimated based on the results of Beyer et al 1994.
b Calder and Braun 1983.
c Kushlan 1978
d Niethammer and Kaiser 1983.

**Table 15-8-2**
**Remaining Wetlands FCM (Phase 2)**
**Receptor: Mink (Mustella vison)**

Sediment Ingestion Rate[a] : 0.003 kg/day
Surface Water Ingestion Rate[b]: 0.0578 L/day
Food Ingestion Rate[c]: 0.029 kg/day

Body Weight[d]: 0.55 kg

| Contaminant | Sediment Concentrations mg/kg | Surface Water Concentrations mg/L | Tissue Concentrations mg/kg | Sediment Exposure mg/day | Water Exposure mg/day | Prey Exposure mg/day | Total Exposure mg/day | Daily Dose mg/kgBW/day | NOAEL mg/kdBW/day | LOAEL mg/kdBW/day | NOAEL HQ | LOAEL HQ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | | | | | | | | | | | | |
| Max | 0.14 | 0.0006 | 0.2800 | 0.00042 | 0.0000 | 0.0081 | 0.00857468 | 0.0156 | 0.032 | 0.16 | 4.87E-01 | 9.74E-02 |
| Actual Detections | 0.14 | 0 | 0.2800 | 0.00042 | 0.0000 | 0.0081 | 0.00854 | 0.0155 | 0.015 | 0.075 | **1.04E+00** | 2.07E-01 |
| Average | 0.06 | 0.0001 | 0.1200 | 0.00018 | 0.0000 | 0.0035 | 0.00366578 | 0.0067 | 0.032 | 0.16 | 2.08E-01 | 4.17E-02 |
| Total BHC | | | | | | | | | | | | |
| Max | 0.0010 | 0 | 0.0010 | 0.000003 | 0.0000 | 0.0000 | 0.000032 | 0.0001 | 0.014 | 0.14 | 4.16E-03 | 4.16E-04 |
| Actual Detections | 0.001 | 0 | 0.0010 | 0.000003 | 0.0000 | 0.0000 | 0.000032 | 0.0001 | 0.014 | 0.14 | 4.16E-03 | 4.16E-04 |
| Average | 0.0023 | 0.0001 | 0.0023 | 0.0000069 | 0.0000 | 0.0001 | 0.00007938 | 0.0001 | 0.014 | 0.14 | 1.03E-02 | 1.03E-03 |
| Total Chlordane | | | | | | | | | | | | |
| Max | 0.0003 | 0 | 0.0007 | 0.0000009 | 0.0000 | 0.0000 | 0.000021345 | 0.0000 | 3.9 | 7.8 | 9.95E-06 | 4.98E-06 |
| Actual Detections | 0.0003 | 0 | 0.0007 | 0.0000009 | 0.0000 | 0.0000 | 0.000021345 | 0.0000 | 4.58 | 9.16 | 8.47E-06 | 4.24E-06 |
| Average | 0.0012 | 0.0001 | 0.0028 | 0.0000036 | 0.0000 | 0.0001 | 0.00009116 | 0.0002 | 3.9 | 7.8 | 4.25E-05 | 2.12E-05 |
| Dieldrin | | | | | | | | | | | | |
| Max | 0.00003 | 0 | 0.0001 | 0.00000009 | 0.0000 | 0.0000 | 4.2921E-06 | 0.0000 | 0.015 | 0.15 | 5.20E-04 | 5.20E-05 |
| Average | 0.0011 | 0.0001 | 0.0053 | 0.0000033 | 0.0000 | 0.0002 | 0.000163157 | 0.0003 | 0.015 | 0.15 | 1.98E-02 | 1.98E-03 |
| Total DDT | | | | | | | | | | | | |
| Max | 3.46 | 0 | 14.8434 | 0.01038 | 0.0000 | 0.4305 | 0.4408386 | 0.8015 | 0.6 | 3 | **1.34E+00** | 2.67E-01 |
| Actual Detections | 3.46 | 0 | 14.8434 | 0.01038 | 0.0000 | 0.4305 | 0.4408386 | 0.8015 | 0.8 | 4 | **1.00E+00** | 2.00E-01 |
| Average | 0.2875 | 0.0002 | 1.2334 | 0.0008625 | 0.0000 | 0.0358 | 0.036641935 | 0.0666 | 0.6 | 3 | 1.11E-01 | 2.22E-02 |
| Total Endrin | | | | | | | | | | | | |
| Max | 0.00432 | 0 | 0.0043 | 0.00001296 | 0.0000 | 0.0001 | 0.00013824 | 0.0003 | 0.092 | 0.92 | 2.73E-03 | 2.73E-04 |
| Actual Detections | 0.00432 | 0 | 0.0043 | 0.00001296 | 0.0000 | 0.0001 | 0.00013824 | 0.0003 | 0.092 | 0.92 | 2.73E-03 | 2.73E-04 |
| Average | 0.0037 | 0.0001 | 0.0037 | 0.0000111 | 0.0000 | 0.0001 | 0.00012418 | 0.0002 | 0.092 | 0.92 | 2.45E-03 | 2.45E-04 |
| Total PCB | | | | | | | | | | | | |
| Max | 0.0691 | 0 | 0.1133 | 0.0002073 | 0.0000 | 0.0033 | 0.003493696 | 0.0064 | 0.05 | 0.1 | 1.27E-01 | 6.35E-02 |
| Actual Detections | 0.0691 | 0 | 0.1133 | 0.0002073 | 0.0000 | 0.0033 | 0.003493696 | 0.0064 | 0.15 | 0.31 | 4.23E-02 | 2.05E-02 |
| Average | 0.0947 | 0.004 | 0.1553 | 0.0002841 | 0.0002 | 0.0045 | 0.005019232 | 0.0091 | 0.05 | 0.1 | 1.83E-01 | 9.13E-02 |

***Notes:***
Sediment Exposure = Sediment Concentration * Sediment Ingestion Rate (mg/day)
Surface Water Exposure = Surface Water Concentration * Water Ingestion Rate (mg/day)
Prey Exposure = Tissue Concentration * Food Ingestion Rate (mg/day)
Total Exposure = Sediment Exposure + Surface Water Exposure + Prey Exposure (mg/day)

Daily Dose = Total Exposure / Body Weight (mg/kgBW/day)

NOAEL HQ = Daily Dose/NOAEL (mg/kgBW/day)
LOAEL HQ = Daily Dose/LOAEL (mg/kgBW/day)

a Guilday 1957.
b Based on Morrison 1957.
c Chew 1951.
d Estimated based on the results of Beyer et al. 1994.

**Table 15-8-3**
**Remaining Wetlands Phase II Data**
**Red Drum Exposure Model**

| | MeHg in Sediment (Cs) (ppm) | MeHg in Forage Fish (Cf) (ppm)a | MeHg in Crustaceans (Ccr) (ppm) | MeHg in Invertebrates (Cinv) (ppm) | MeHg in Red Drum Tissue (ppm) | NOAEL HQ | LOAEL HQ |
|---|---|---|---|---|---|---|---|
| **Remaining Maximum** | 0.14 | 0.168 | 0.0392 | 0.014 | 0.36 | **2.40** | **1.20** |
| **Remaining Average** | 0.06 | 0.072 | 0.0168 | 0.006 | 0.15 | **1.03** | 0.51 |

***Note:***
a = Forage Fish tissue concentrations calculated BSAF of 2.0 from Evans and Engel 1994.

## 16.0 CONCLUSIONS AND RECOMMENDATIONS

The objectives of the Site 41 RI were to identify the nature and extent of contamination in sediment and surface water for all wetlands listed in Groups A-E and to evaluate human health and ecological risk. The following section summarizes the findings of the RI and makes appropriate recommendations.

Table 16-1 summarizes the results of the ecological risk assessments and human health risk assessments for each wetland. The table lists the following:

- Ecological COCs retained
- Refinement HQs greater than one for those retained COCs
- Locations with refinement HQs greater than one
- Mean ERM quotient categories
- TOC normalized PAH results
- Site-wide DDT results
- Results of Acute Toxicity Tests
- Results of Sublethal Toxicity Tests
- Locations of Toxic Effects
- FCM results
- HHRA COCs
- Recommendation for the Wetland

As summarized in Table 16-1, the following wetlands are recommended for an FS:

- Wetland 3
- Wetland 5A
- Wetland 64
- Wetland 10 (contingent on confirmatory sampling at location 033M00401)

The following wetlands are being assessed under the FDEP petroleum program, therefore CERCLA has no authority to proceed:

- Wetland 12 (Bilge Water Spill)
- Wetland W1 (UST 18)

All other wetlands are recommended for NFA based on the weight of evidence from the various techniques used to analyze the data and that Navy policy prohibits investigation of wetlands not directly linked to Navy CERCLA/RCRA sites.

**Table 16-1**
**Weight of Evidence**

| OU/Group | Wetland | Total Samples Locations | Phase Summarized | List of Eco COCs | Max Refinement HQs > 1 | Sample Locations Exceeding RV | ERM Quotient Categories | | Exceeds TOC normalized PAH value | Exceeds Site-wide DDT level | Stat Sig Acute Tox | Stat Sig Sublethal Tox | Location of Tox Results | FCM Results | HHRA COCs | Recommendation | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | **PHASE III/PHASE IV** | | | | | | | | |
| | | | | | | | | | | | | | | | | FS | Section 4 of the RI identifies this wetland as a Red-coded wetland included in Group B. |
| 1 | 3 | 2 | III | | | | | | No PAHs Detected | No | No | Yes - Growth | 041M030701 | | Arsenic | | |
| | | | | Barium | No | NA | | | | | | | | | Methylene Chloride | | A groundwater optimization study is currently underway at Wetland 3. FS should be focused on determining if toxicity is related to constituents related to Site 1 Landfill. |
| | | | | Cadmium | 2.2 | 041M030701 | Cat. 1 | 0 | | | | | | | | | |
| | | | | Iron | No | NA | Cat. 2 | 2 | | | | | | | | | |
| | | | | Manganese | No | NA | Cat. 3 | 0 | | | | | | | | | |
| | | | | Selenium | No | NA | Cat. 4 | 0 | | | | | | | | | |
| | | | | | No | NA | | | | | | | | | | | |
| | | | | Endosulfan sulfate | No | NA | | | | | | | | | | | |
| | | | | Total Endrin | No | NA | | | | | | | | Total Endrin FCM Max. NOAEL HQ<1 | | | |
| | | | | | No | NA | | | | | | | | | | | |
| | | | | Carbon Disulfide | No | NA | | | | | | | | | | | |
| | | | | | No | NA | | | | | | | | | | | |
| | 16 | 1 | III | | | | | | Exceeds TEC; Less than MEC | No | No | No | NA | | Aroclor 1254 | NFA | Section 4 of the RI identifies this wetland as a Red-coded wetland included in Group C. Wetland 16 served as one representative wetlands identified to represent all wetlands in Group C. |
| | | | | Aluminum | No | NA | | | | | | | | | | | |
| | | | | Barium | No | NA | | | | | | | | | | | |
| | | | | Beryllium | No | NA | Cat. 1 | 0 | | | | | | | | | |
| | | | | Iron | No | NA | Cat. 2 | 1 | | | | | | | | | |
| | | | | Manganese | No | NA | Cat. 3 | 0 | | | | | | | | | |
| | | | | Potassium | No | NA | Cat. 4 | 0 | | | | | | | | | |
| | | | | Selenium | No | NA | | | | | | | | | | | |
| | | | | Vanadium | No | NA | | | | | | | | | | | Phase III results do not indicate contamination warranting further investigation in the Group C wetlands. |
| | | | | | No | NA | | | | | | | | | | | |
| | | | | Endrin | No | NA | | | | | | | | | | | |
| | | | | Total Endrin | No | NA | | | | | | | | Total Endrin FCM Max. NOAEL HQ<1 | | | |
| | | | | | No | NA | | | | | | | | | | | |
| | 18B | 1 | III | | | | | | No PAHs Detected | Yes | No | No | NA | | Arsenic | NFA | Section 4 of the RI identifies this wetland as a Red-coded wetland included in group C. Wetland 18 served as one representative wetlands identified to represent all wetlands in Group C. |
| | | | | Iron | No | NA | | | | | | | | | | | |
| | | | | Manganese | No | NA | Cat. 1 | 0 | | | | | | | | | |
| | | | | Selenium | No | NA | Cat. 2 | 1 | | | | | | | | | |
| | | | | | | | Cat. 3 | 0 | | | | | | | | | |
| | | | | 4,4'-DDT | 23.1 | 041M18B101 | Cat. 4 | 0 | | | | | | | | | |
| | | | | Total DDT | 2.9 | 041M18B101 | | | | | | | | Total DDT FCM Max. NOAEL HQ <1 | | | Phase III results do not indicate contamination warranting further |
| 2 | 5A | 3 | III | | | | | | Exceeds TEC; Less than MEC | Yes | No | Yes - Weight | 041M5A0505 041M5A0506 | | None | FS | Section 4 of the RI identifies this wetland as a Red-coded wetland included in Group B. |
| | | | | Antimony | No | NA | | | | | | | | | | | |
| | | | | Barium | No | NA | | | | | | | | | | | |
| | | | | Copper | 1 | 041M5A0501 | | | | | | | | | | | The FS recommended for this site is to address the sublethal effects to benthic invertebrates. |
| | | | | Lead | 2.3 | 041M5A0501 | | | | | | | | | | | |
| | | | | Zinc | 1.5 | 041M5A0501 | Cat. 1 | 0 | | | | | | | | | |
| | | | | | | | Cat. 2 | 3 | | | | | | | | | |
| | | | | Endosulfan I | No | NA | Cat. 3 | 0 | | | | | | | | | |
| | | | | Endosulfan sulfate | No | NA | Cat. 4 | 0 | | | | | | | | | |
| | | | | gamma-Chlordane | 1.65 | 041M5A0401 | | | | | | | | | | | |
| | | | | Total Chlordane | 2.59 | 041M5A0401 | | | | | | | | Total Chlordane FCM Max NOAEL HQ <1 | | | |
| | | | | Endrin | No | NA | | | | | | | | | | | |
| | | | | Total Endrin | No | NA | | | | | | | | Total Endrin FCM Max. NOAEL HQ<1 | | | |
| | | | | Total BHC | 4.18 | 041M5A0401 | | | | | | | | Total BHC FCM Max. NOAEL HQ<1 | | | |
| | | | | 4,4'-DDD | 12.8 | 041M5A0401 | | | | | | | | | | | |
| | | | | 4,4'-DDT | 1.51 | 041M5A0401 | | | | | | | | | | | |
| | | | | Total DDT | 3.18 | 041M5A0401 | | | | | | | | Total DDT FCM Max. NOAEL HQ<1 | | | |
| | 5B | 5 | IV | | | | | | No | Yes | No | No | NA | | N-Nitroso-di-n-propylanine | | Section 4 of the RI report identifies this wetland as a Red-coded wetland included in Group D. |
| | | | | Barium | No | NA | | | | | | | | | Pyrene | | |
| | | | | Cadmium | 7.4 | 041M5B0202 041M5B0601 | | | | | | | | | Trichloroethene | | |
| | | | | Chromium | 2.9 | 041M5B0202 | Cat. 1 | 2 | | | | | | | | | Phase IV site specific toxicity tests do not indicate constituents present are causing adverse acute or chronic effects on benthic macroinvertebrates. |
| | | | | Cobalt | No | NA | Cat. 2 | 3 | | | | | | | | | |
| | | | | Lead | 3.8 | 041M5B0202 | Cat. 3 | 0 | | | | | | | | | |
| | | | | Silver | 3.6 | 041M5B0202 | Cat. 4 | 0 | | | | | | | | | |
| | | | | | | | | | | | | | | Total PCBs FCM Max. NOAEL HQ<1 | | | |

**Table 16-1**
**Weight of Evidence**

| OU/Group | Wetland | Total Samples Locations | Phase Summarized | List of Eco COCs | Max Refinement HQs > 1 | Sample Locations Exceeding RV | ERM Quotient Categories | | Exceeds TOC normalized PAH value | Exceeds Site-wide DDT level | Stat Sig Acute Tox | Stat Sig Sublethal Tox | Location of Tox Results | FCM Results | HHRA COCs | Recommendation | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Total PCBs | 1.1 | 041M5B0601 | | | | | | | | | | | |
| | | | | Dieldrin | 23.3 | 041M5B0601<br>041M5B0202<br>041M5B0301<br>041M5B0401<br>041M5B0501 | | | | | | | | Dieldrin FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | beta-BHC | 2.9 | 041M5B0601 | | | | | | | | | | | |
| | | | | Total BHC | 3.5 | 041M5B0601 | | | | | | | | Total BHC FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | 3-Methylphenol/4-Methylphenol | No | NA | | | | | | | | | | | |
| | | | | Vinyl Chloride | No | NA | | | | | | | | | | | |
| | 64 | 3 | III | | | | | | Less than TEC | Yes | Yes | Yes - Weight | 041M6404 (Acute)<br>041M6406 (Acute)<br>041M6405 (Weight) | | 4,4'-DDE<br>4,4'-DDD<br>4,4'-DDT | FS | Section 4 of the RI identifies this wetland as a Red-coded wetland included as Group A. |
| | | | | Aluminum | No | NA | | | | | | | | | | | |
| | | | | Barium | No | NA | Cat. 1 | 0 | | | | | | | | | |
| | | | | Beryllium | No | NA | Cat. 2 | 0 | | | | | | | Aldrin | | The FS for Wetland 64 should focus on 1) direct toxicity to benthic invertebrates in the proximity of sample IDs 041M6404, 041M6405 and 041M6406; and 2) uptake of mercury in predatory fish. |
| | | | | Cadmium | 5 | 041M640601<br>041M640401<br>041M640501 | Cat. 3 | 2 | | | | | | | alpha-BHC | | |
| | | | | Chromium | 5.4 | 041M640601<br>041M640401<br>041M640502 | Cat. 4 | 1 | | | | | | | delta-BHC | | |
| | | | | Cobalt | No | NA | | | | | | | | | alpha-Chlordane | | |
| | | | | Copper | 1.4 | 041M640501<br>041M640601 | | | | | | | | | Aroclor 1254 | | |
| | | | | Iron | No | NA | | | | | | | | | Aroclor 1260 | | |
| | | | | Lead | 3.1 | 041M640401<br>041M640601<br>041M640501 | | | | | | | | | gamma-Chlordane | | |
| | | | | Manganese | No | NA | | | | | | | | | BEHP | | |
| | | | | Selenium | No | NA | | | | | | | | | | | |
| | | | | Silver | 1.7 | 041M640501<br>041M640401<br>041M640601 | | | | | | | | | | | |
| | | | | Vanadium | No | NA | | | | | | | | | | | |
| | | | | Zinc | 1.7 | 041M640401<br>041M640601<br>041M640501 | | | | | | | | | | | |
| | | | | Aroclor-1260 | 1.6 | 041M640401<br>041M640501 | | | | | | | | | | | |
| | | | | Total PCBs | 6.5 | 041M640401<br>041M640501<br>041M640601 | | | | | | | | Total PCBs FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | Dieldrin | 4.7 | 041M640401<br>041M640501<br>041M640601 | | | | | | | | Total Dieldrin FCM<br>Max. NAOEL HQ<1 | | | |
| | | | | Endosulfan I | | | | | | | | | | | | | |
| | | | | Total Chlordane | 2.4 | 041M640401 | | | | | | | | Total Chlordane FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | Total BHC | 21.9 | 041M640401<br>041M640601 | | | | | | | | | | | |
| | | | | 4,4'-DDD | 11.4 | 041M640401<br>041M640601<br>041M640501 | | | | | | | | | | | |
| | | | | Total DDT | 3.8 | 041M640401<br>041M640601<br>041M640501 | | | | | | | | Total DDT FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | bis(2-Ethylhexyl)phthalate (BEHP) | 1.5 | 041M640601<br>041M640401 | | | | | | | | | | | |
| | | | | Carbazole | No | NA | | | | | | | | | | | |
| | | | | Dibenzofuran | No | NA | | | | | | | | | | | |
| | | | | | | | | | PHASE II | | | | | | | | |
| 1 | 1A | 3 | II | | | | | | No PAHs Detected | No | Not Collected | Not Collected | NA | | None | NFA | Section 4 of the RI identifies this wetland as an Orange-coded wetland included in Group D. |
| | | | | Aluminum | No | NA | Category 1 | 0 | | | | | | | | | |
| | | | | Barium | No | NA | Category 2 | 3 | | | | | | | | | |
| | | | | Vanadium | No | NA | Category 3 | 0 | | | | | | | | | Constituent levels in this wetland do not warrant further investigation. |
| | | | | | | | Category 4 | 0 | | | | | | | | | |

**Table 16-1**
**Weight of Evidence**

| OU/Group | Wetland | Total Samples Locations | Phase Summarized | List of Eco COCs | Max Refinement HQs > 1 | Sample Locations Exceeding RV | ERM Quotient Categories | | Exceeds TOC normalized PAH value | Exceeds Site-wide DDT level | Stat Sig Acute Tox | Stat Sig Sublethal Tox | Location of Tox Results | FCM Results | HHRA COCs | Recommendation | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Dieldrin | 1.6 | 041M010201 | | | | | | | | Dieldrin FCM<br>Max NOAELHQ<1 | | | Not Warrant Further Investigation |
| | 1B | 2 | II | | | | | | Greater than TEC; less than MEC | No | Not Collected | Not Collected | NA | | Benzo(a)pyrene<br>Benzo(b)fluoranthene | NFA | Section 4 of the RI identifies this wetland as an Orange-coded wetland included in Group D.<br><br>This wetland is permitted under the base NPDES permit and should be regulated under that program. |
| | | | | Barium | No | NA | | | | | | | | | | | |
| | | | | Lead | 1.8 | 041M010401 | Cat. 1 | 0 | | | | | | | | | |
| | | | | Zinc | 1.1 | 041M010401 | Cat. 2 | 1 | | | | | | | | | |
| | | | | | | | Cat. 3 | 1 | | | | | | | | | |
| | | | | Endosulfan sulfate | No | NA | Cat. 4 | 0 | | | | | | | | | |
| | | | | Methoxychlor | No | NA | | | | | | | | | | | |
| | | | | alpha-Chlordane | 1.3 | 041M010401 | | | | | | | | | | | |
| | | | | gamma-Chlordane | 2 | 041M010401 | | | | | | | | | | | |
| | | | | Total Chlordane | 3.3 | 041M010401 | | | | | | | | Total Chlordane FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | bis(2-Ethylhexyl)phthalate (BEHP) | 1.3 | 041M010401 | | | | | | | | | | | |
| | | | | Carbazole | No | NA | | | | | | | | | | | |
| | 4D | 5 | II | | | | | | Exceeded TEC; Less than MEC | Yes | Not Collected | Not Collected | NA | | Arsenic | NFA | Section 4 of the RI identifies this wetland as a Red-coded wetland included in Group C.<br><br>During Phase III Wetlands 16 and 18 were sampled to represent all Group C wetlands and results of the Phase III sampling indicate no need for further evaluation. |
| | | | | Aluminum | No | NA | | | | | | | | | | | |
| | | | | Barium | No | NA | | | | | | | | | | | |
| | | | | Beryllium | No | NA | Cat. 1 | 2 | | | | | | | | | |
| | | | | Cobalt | No | NA | Cat. 2 | 2 | | | | | | | | | |
| | | | | Iron | No | NA | Cat. 3 | 1 | | | | | | | | | |
| | | | | Lead | 3.1 | 041M4D201<br>041M4D101<br>041M4D401 | Cat. 4 | 0 | | | | | | | | | |
| | | | | Manganese | No | NA | | | | | | | | | | | |
| | | | | Selenium | No | NA | | | | | | | | | | | |
| | | | | Vanadium | No | NA | | | | | | | | | | | |
| | | | | Endosulfan sulfate | No | NA | | | | | | | | | | | |
| | | | | delta-BHC | 16.2 | 041M4D101<br>041M4D401<br>041M4D201 | | | | | | | | | | | |
| | | | | Total BHC | 16.7 | 041M4D101<br>041M4D401<br>041M4D201<br>041M4D301 | | | | | | | | Total BHC FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | 4,4'-DDD | 14.1 | 041M4D401<br>041M4D101<br>041M4D201 | | | | | | | | | | | |
| | | | | Total DDT | 3.5 | 041M4D401<br>041M4D101 | | | | | | | | Total DDT FCM<br>Max NOAEL HQ = 9.7 | | | |
| | | | | Diethylphthalate | 26.8 | 041M4D401 | | | | | | | | | | | |
| | | | | Carbon Disulfide | No | NA | | | | | | | | | | | |
| | | | | Carbazol | No | NA | | | | | | | | | | | |
| | 15 | 4 | II | | | | | | Less than TEC | Yes | Not Collected | Not Collected | NA | | Arsenic<br>Aroclor 1260<br>delta-BHC<br>4,4'-DDD<br>4,4'-DDE | NFA | Section 4 of the RI identifies this wetland as a Orange-coded wetland included in Group C.<br><br>During Phase III Wetlands 16 and 18 were sampled to represent all Group C wetlands and results of the Phase III sampling indicate no need for further evaluation. |
| | | | | Aluminum | No | NA | | | | | | | | | | | |
| | | | | Arsenic | 3.4 | 041M150301 | | | | | | | | | | | |
| | | | | Barium | No | NA | Cat. 1 | 0 | | | | | | | | | |
| | | | | Beryllium | No | NA | Cat. 2 | 3 | | | | | | | | | |
| | | | | Cobalt | No | NA | Cat. 3 | 1 | | | | | | | | | |
| | | | | Iron | No | NA | Cat. 4 | 0 | | | | | | | | | |
| | | | | Lead | 1.9 | 041M150201 | | | | | | | | | | | |
| | | | | Manganese | No | NA | | | | | | | | | | | |
| | | | | Selenium | No | NA | | | | | | | | | | | |
| | | | | Vanadium | No | NA | | | | | | | | | | | |
| | | | | Endosulfan I | No | NA | | | | | | | | | | | |
| | | | | Heptachlor | No | NA | | | | | | | | | | | |
| | | | | Endrin | No | NA | | | | | | | | | | | |
| | | | | Endrin aldehyde | No | NA | | | | | | | | | | | |
| | | | | Endrin ketone | No | NA | | | | | | | | | | | |
| | | | | Total Endrin | No | NA | | | | | | | | Total Endrin FCM<br>Max. NOAEL HO<1 | | | |
| | | | | beta-BHC | 1.4 | 041M150201 | | | | | | | | | | | |
| | | | | delta-BHC | 5.6 | 041M150301 | | | | | | | | | | | |
| | | | | Total BHC | 6.5 | 041M150301<br>041M150201<br>041M150101 | | | | | | | | Total BHC FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | 4,4'-DDD | 25.6 | 041M150301<br>041M150101<br>041M150201 | | | | | | | | | | | |

**Table 16-1**
**Weight of Evidence**

| OU/Group | Wetland | Total Samples Locations | Phase Summarized | List of Eco COCs | Max Refinement HQs > 1 | Sample Locations Exceeding RV | ERM Quotient Categories | | Exceeds TOC normalized PAH value | Exceeds Site-wide DDT level | Stat Sig Acute Tox | Stat Sig Sublethal Tox | Location of Tox Results | FCM Results | HHRA COCs | Recommendation | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Total DDT | 8.4 | 041M150101<br>041M150301<br>041M150201 | | | | | | | | Total DDT FCM<br>Max NOAEL HQ = 9.7 | | | |
| | | | | 2,2'-oxybis(1-Chloropropane)/bis(2-chlor | No | NA | | | | | | | | | | | |
| | | | | 2,4-Dimethylphenol | No | NA | | | | | | | | | | | |
| | | | | 2-Methylphenol (o-Cresol) | No | NA | | | | | | | | | | | |
| | | | | 4-Methylphenol (p-Cresol) | No | NA | | | | | | | | | | | |
| | | | | Phenol | No | NA | | | | | | | | | | | |
| | | | | | No | NA | | | | | | | | | | | |
| | 17 | 3 | II | | | | | | No PAHs Detected | No | Not Collected | Not Collected | NA | | | NFA | Section 4 identifies this wetland as a Blue-coded wetland. |
| | | | | None | No | NA | Cat. 1 | 3 | | | | | | | None | | |
| | | | | | | | Cat. 2 | 0 | | | | | | | | | Constituent levels do not warrant further investigation. |
| | | | | | | | Cat. 3 | 0 | | | | | | | | | |
| | | | | | | | Cat. 4 | 0 | | | | | | | | | |
| | 18A | 4 | II | | | | | | Less than TEC | Yes | Not Collected | Not Collected | NA | | Arsenic<br>Benzene | NFA | Section 4 of the RI identifies this wetland as a Red-coded wetland in Group C. |
| | | | | Barium | No | NA | | | | | | | | | | | |
| | | | | Iron | No | NA | Cat. 1 | 0 | | | | | | | | | |
| | | | | Manganese | No | NA | Cat. 2 | 3 | | | | | | | | | During Phase III Wetlands 16 and 18 were sampled to represent all Group C wetlands and results of the Phase III sampling indicate no need for further evaluation. |
| | | | | Selenium | No | NA | Cat. 3 | 1 | | | | | | | | | |
| | | | | | | | Cat. 4 | 0 | | | | | | | | | |
| | | | | Aldrin | | | | | | | | | | | | | |
| | | | | alpha-Chlordane | 2.5 | 001M1801<br>041M18A201 | | | | | | | | | | | |
| | | | | gamma-Chlordane | 2 | 001M1801 | | | | | | | | | | | |
| | | | | Total Chlordane | 4.5 | 001M1801<br>041M18A201 | | | | | | | | Total Chlordane FCM<br>Max. NOAEL HQ <1 | | | |
| | | | | Endrin | No | NA | | | | | | | | | | | |
| | | | | Endrin ketone | No | NA | | | | | | | | | | | |
| | | | | Total Endrin | No | NA | | | | | | | | Total Endrin FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | beta-BHC | 1.3 | 041M18A201 | | | | | | | | | | | |
| | | | | Total BHC | 3.1 | 041M18A201 | | | | | | | | | | | |
| | | | | 4,4'-DDD | 119 | 041M18A101<br>001M1801 | | | | | | | | | | | |
| | | | | 4,4'-DDT | 252 | 041M18A101<br>041M18A0201 | | | | | | | | | | | |
| | | | | Total DDT | 46.4 | 041M18A101<br>041M18A0201<br>001M1801 | | | | | | | | Total DDT FCM<br>Max NOAEL HQ = 9.7 | | | |
| | | | | 1,4-Dichlorobenzene | No | NA | | | | | | | | | | | |
| | | | | 4-Methylphenol (p-Cresol) | No | NA | | | | | | | | | | | |
| OU2 | 6 | 12 | II | | | | | | Less than TEC | Yes | None Collected | None Collected | NA | | BEHP | NFA | Section 4 of the RI identifies this wetland as a Orange-coded wetland included in Group D. |
| | | | | Barium | No | NA | Cat. 1 | 3 | | | | | | | | | |
| | | | | Cadmium | 1.3 | 041M060701 | Cat. 2 | 9 | | | | | | | | | |
| | | | | Cobalt | No | NA | Cat. 3 | 0 | | | | | | | | | |
| | | | | Lead | 1.3 | 041M060701 | Cat. 4 | 0 | | | | | | | | | |
| | | | | Aldrin | No | NA | | | | | | | | | | | Since this wetland functions primarily as a drainage ditch and FCMs indicate acceptable risk levels to receptors, there is no need for further investigation at this wetland. |
| | | | | Dieldrin | 2.3 | 041M060701<br>041M060801<br>041M060601 | | | | | | | | Dieldrin FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | Heptachlor | No | NA | | | | | | | | | | | |
| | | | | Endrin | No | NA | | | | | | | | | | | |
| | | | | Total Endrin | No | NA | | | | | | | | Total Endrin FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | beta-BHC | 2.8 | 041M060301<br>041M060701 | | | | | | | | | | | |
| | | | | Total BHC | 3.4 | 041M060301<br>041M060701 | | | | | | | | Total BHC FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | 4,4'-DDT | 54.5 | 041M060101<br>04M060301<br>010M000101<br>041M060701<br>041M060601 | | | | | | | | | | | |
| | | | | Total DDT | 7.6 | 041M060101<br>041M060301<br>010M000101<br>141M060701 | | | | | | | | Total DDT FCM<br>Max. NOAEL HQ=1.1 | | | |
| | | | | 1,1-Dichloroethane | No | NA | | | | | | | | | | | |
| | | | | Chloroethane | No | NA | | | | | | | | | | | |

**Table 16-1**
**Weight of Evidence**

| OU/Group | Wetland | Total Samples Locations | Phase Summarized | List of Eco COCs | Max Refinement HQs > 1 | Sample Locations Exceeding RV | ERM Quotient Categories | | Exceeds TOC normalized PAH value | Exceeds Site-wide DDT level | Stat Sig Acute Tox | Stat Sig Sublethal Tox | Location of Tox Results | FCM Results | HHRA COCs | Recommendation | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OU10 | 10 | 7 | II | | | | | | Greater than TEC; Less than MEC | Yes | None Collected | None Collected | NA | | None | FS | Section 4 of the RI identifies this wetland as a Red-coded wetland included in Group D.<br><br>A pre-requisite to conducting the FS at this site is to verify the elevated levels of inorganics at location 033M004001 at the mouth of the drainage ditch and the bay. If constituent levels are not confirmed, Wetland 10 should be recommended for NFA. |
| | | | | Barium | No | NA | Cat. 1 | 2 | | | | | | | | | |
| | | | | Cadmium | 8.2 | 033M004001 | Cat. 2 | 5 | | | | | | | | | |
| | | | | Chromium | 7.4 | 033M004001 | Cat. 3 | 0 | | | | | | | | | |
| | | | | Cobalt | No | NA | Cat. 4 | 0 | | | | | | | | | |
| | | | | Lead | 1.4 | 033M004001 | | | | | | | | | | | |
| | | | | Manganese | No | NA | | | | | | | | | | | |
| | | | | Nickel | 1.2 | 033M004001 | | | | | | | | | | | |
| | | | | Total PCBs | 1.1 | 033M002001 | | | | | | | | Total PCBs FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | Aldrin | No | NA | | | | | | | | | | | |
| | | | | Endosulfan I | No | NA | | | | | | | | | | | |
| | | | | Heptachlor | No | NA | | | | | | | | | | | |
| | | | | Heptachlor epoxide | No | NA | | | | | | | | | | | |
| | | | | Endrin | No | NA | | | | | | | | | | | |
| | | | | Endrin aldehyde | No | NA | | | | | | | | | | | |
| | | | | Total Endrin | No | NA | | | | | | | | Total Endrin FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | Total BHC | 3.6 | 033M003001<br>033M001001<br>033M002001 | | | | | | | | | | | |
| | | | | 4,4'-DDD | 15.4 | 033M003001<br>033M001001<br>033M002001<br>033M004001 | | | | | | | | | | | |
| | | | | 4,4'-DDT | 10.1 | 033M003001<br>033M004001<br>033M002001<br>033M001001 | | | | | | | | | | | |
| | | | | Total DDT | 5.1 | 033M003001<br>033M002001<br>033M001001 | | | | | | | | Total DDT FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | 1,2-Dichlorobenzene | | | | | | | | | | | | | |
| | | | | 1,4-Dichlorobenzene | | | | | | | | | | | | | |
| | 12 | 2 | II | | | | | | Exceeds TEC; Less than MEC | No | None Collected | None Collected | NA | | None | Pursue under different regulatory program. | Section 4 of the RI identifies this wetland as a Red-coded wetland.<br><br>PAH constituents detected; however, currently being investigated under the Florida Petroleum Program. No further investigation required for this RI. |
| | | | | Endosulfan I | No | NA | Cat. 1 | 1 | | | | | | | | | |
| | | | | Endosulfan sulfate | No | NA | Cat. 2 | 0 | | | | | | | | | |
| | | | | Endrin aldehyde | No | NA | Cat. 3 | 1 | | | | | | | | | |
| | | | | Endrin ketone | No | NA | Cat. 4 | 0 | | | | | | | | | |
| | | | | Total Endrin | No | NA | | | | | | | | Total Endrin FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | delta-BHC | 1.1 | 041M120101 | | | | | | | | | | | |
| | | | | Total BHC | 2.1 | 041M120101 | | | | | | | | Total BHC FCM<br>Max. NOAEL HQ<1 | | | |
| | 13 | 1 | II | | | | | | Less than TEC | No | None Collected | None Collected | NA | | None | NFA | Section 4 of the RI identifies this wetland as a Blue-coded wetland.<br><br>Constituent levels do not warrant further investigation. |
| | | | | None | No | NA | Cat. 1 | 1 | | | | | | | | | |
| | | | | | | | Cat. 2 | 0 | | | | | | | | | |
| | | | | | | | Cat. 3 | 0 | | | | | | | | | |
| | | | | | | | Cat. 4 | 0 | | | | | | | | | |
| Cheveliar Field | 63A | 5 | II | | | | | | Less than TEC | No | None Collected | None Collected | NA | | None | NFA | Section 4 of the RI identifies this wetland as an Orange-coded wetland included in Group C.<br><br>During Phase III Wetlands 16 and 18 were sampled to represent all Group C wetlands and results of the Phase III sampling indicate no need for further evaluation. |
| | | | | Aluminum | No | NA | Cat. 1 | 4 | | | | | | | | | |
| | | | | Barium | No | NA | Cat. 2 | 1 | | | | | | | | | |
| | | | | Cadmium | 1.8 | 041M63A301 | Cat. 3 | 0 | | | | | | | | | |
| | | | | Iron | No | NA | Cat. 4 | 0 | | | | | | | | | |
| | | | | Manganese | No | NA | | | | | | | | | | | |
| | | | | Vanadium | No | NA | | | | | | | | | | | |
| | | | | Aroclor-1260 | 1.4 | 041M63A501 | | | | | | | | | | | |
| | | | | Total PCBs | 1.5 | 041M63A501 | | | | | | | | Total PCBs FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | Endosulfan sulfate | No | NA | | | | | | | | | | | |
| | 63B | 4 | II | | | | | | Less than TEC | No | None Collected | None Collected | NA | | None | NFA | Section 4 of the RI identifies this wetland as a Blue-coded wetland.<br><br>Constituent levels do not warrant further investigation. |
| | | | | Barium | No | NA | Cat. 1 | 3 | | | | | | | | | |
| | | | | | | | Cat. 2 | 2 | | | | | | | | | |
| | | | | Endosulfan Sulfate | No | NA | Cat. 3 | 0 | | | | | | | | | |
| | | | | | | | Cat. 4 | 0 | | | | | | | | | |

**Table 16-1**
**Weight of Evidence**

| OU/Group | Wetland | Total Samples Locations | Phase Summarized | List of Eco COCs | Max Refinement HQs > 1 | Sample Locations Exceeding RV | ERM Quotient Categories | | Exceeds TOC normalized PAH value | Exceeds Site-wide DDT level | Stat Sig Acute Tox | Stat Sig Sublethal Tox | Location of Tox Results | FCM Results | HHRA COCs | Recommendation | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Dibenzofuran | No | NA | | | | | | | | | | | |
| UST 18 | 52 | 5 | II | | | | | | Less than TEC | No | None Collected | None Collected | NA | | None | | Section 4 of the RI identifies this wetland as a Blue-coded wetland. |
| | | | | Barium | No | NA | Cat. 1 | 3 | | | | | | | | | |
| | | | | Selenium | No | NA | Cat. 2 | 2 | | | | | | | | | |
| | | | | | | | Cat. 3 | 0 | | | | | | | | | Constituent levels do not warrant further investigation. |
| | | | | Aldrin | No | NA | Cat. 4 | 0 | | | | | | | | | |
| | | | | Dieldrin | | | | | | | | | | Dieldrin FCM<br>Max. NOAEL HQ<1 | | | |
| | | | | Endosulfan I | No | NA | | | | | | | | | | | |
| | | | | Endosulfan sulfate | No | NA | | | | | | | | | | | |
| | | | | 4-Methylphenol (p-Cresol) | No | NA | | | | | | | | | | | |
| | | | | Carbazole | No | NA | | | | | | | | | | | |
| | | | | Dibenzofuran | No | NA | | | | | | | | | | | |
| | 72 | 2 | II | | | | | | Less than TEC | No | None Collected | None Collected | NA | | None | NFA | Section 4 of the RI identifies this wetland as a Blue-coded wetland. |
| | | | | None | No | NA | Cat. 1 | 1 | | | | | | | | | |
| | | | | | | | Cat. 2 | 1 | | | | | | | | | |
| | | | | | | | Cat. 3 | 0 | | | | | | | | | Constituent levels do not warrant further investigation. |
| | | | | | | | Cat. 4 | 0 | | | | | | | | | |
| | W1 | 3 | II | | | | | | Exceeds TEC; Less than MEC | No | None Collected | None Collected | NA | | Benzene | NFA | Section 4 of the RI identifies this wetland as a Red-coded wetland included in Group D. |
| | | | | Barium | No | | Cat. 1 | 2 | | | | | | | | | |
| | | | | Lead | 4.7 | 003M000101 | Cat. 2 | 0 | | | | | | | | | |
| | | | | Selenium | No | | Cat. 3 | 1 | | | | | | | | | |
| | | | | | | | Cat. 4 | 0 | | | | | | | | | Refinement of constituents (primarily FCM) does not indicate further evaluation is necessary at this wetland. |
| | | | | Aldrin | No | NA | | | | | | | | | | | |
| | | | | Endosulfan I | No | NA | | | | | | | | | | | |
| | | | | Endosulfan sulfate | No | NA | | | | | | | | | | | |
| | | | | Heptachlor | No | NA | | | | | | | | | | | |
| | | | | Heptachlor epoxide | No | NA | | | | | | | | | | | |
| | | | | Endrin | No | NA | | | | | | | | | | | This wetland is currently being investigated under the FDEP Petroleum Program. |
| | | | | Endrin aldehyde | No | NA | | | | | | | | | | | |
| | | | | Endrin ketone | No | NA | | | | | | | | | | | |
| | | | | Total Endrin | No | NA | | | | | | | | Total Endrin FCM<br>Max. NOAEL HO<1 | | | |
| | | | | beta-BHC | 1.5 | 003M000101 | | | | | | | | | | | |
| | | | | Total BHC | 2.8 | 003M000301 | | | | | | | | Total BHC FCM<br>Max. NOAEL HO<1 | | | |
| Remaining Wetlands | 19A | 2 | II | | | | | | None Detected | No | None Collected | None Collected | NA | | Arsenic | NFA | Section 4 of the RI identifies this wetland as a Blue-coded wetland. |
| | | | | Aluminum | No | NA | Cat. 1 | 1 | | | | | | | | | |
| | | | | Barium | No | NA | Cat. 2 | 1 | | | | | | | | | |
| | | | | Cobalt | No | NA | Cat. 3 | 0 | | | | | | | | | Constituent levels do not warrant further investigation. |
| | | | | Iron | No | NA | Cat. 4 | 0 | | | | | | | | | |
| | | | | Manganese | No | NA | | | | | | | | | | | |
| | | | | Vanadium | No | NA | | | | | | | | | | | |
| | | | | Endosulfan I | No | NA | | | | | | | | | | | |
| | | | | Heptachlor epoxide | No | NA | | | | | | | | | | | |
| | 19B | 1 | II | | | | | | None Detected | No | None Collected | None Collected | NA | | None | NFA | Section 4 of the RI identifies this wetland as a Blue-coded wetland. |
| | | | | Heptachlor epoxide | No | NA | Cat. 1 | 1 | | | | | | | | | |
| | | | | | | | Cat. 2 | 0 | | | | | | | | | |
| | | | | | | | Cat. 3 | 0 | | | | | | | | | Constituent levels do not warrant further investigation. |
| | | | | | | | Cat. 4 | 0 | | | | | | | | | |
| | 56 | 1 | II | | | | | | None Detected | No | None Collected | None Collected | NA | | None | NFA | Section 4 of the RI identifies this wetland as a Blue-coded wetland. |
| | | | | None | No | NA | Cat. 1 | 0 | | | | | | | | | |
| | | | | | | | Cat. 2 | 1 | | | | | | | | | |
| | | | | | | | Cat. 3 | 0 | | | | | | | | | Constituent levels do not warrant further investigation. |
| | | | | | | | Cat. 4 | 0 | | | | | | | | | |
| | 57 | 1 | II | | | | | | None Detected | No | None Collected | None Collected | NA | | None | | Section 4 of the RI identifies this wetland as a Blue-coded wetland. |
| | | | | Aldrin | No | NA | Cat. 1 | 0 | | | | | | | | | |
| | | | | | | | Cat. 2 | 1 | | | | | | | | | |
| | | | | | | | Cat. 3 | 0 | | | | | | | | | Constituent levels do not warrant further investigation. |
| | | | | | | | Cat. 4 | 0 | | | | | | | | | |
| | 58 | 1 | II | | | | | | Less than TEC | No | None Collected | None Collected | NA | | None | NFA | Section 4 of the RI identifies this wetland as a Blue-coded wetland. |
| | | | | Carbazole | No | NA | Cat. 1 | 1 | | | | | | | | | |
| | | | | Dibenzofuran | No | NA | Cat. 2 | 0 | | | | | | | | | |
| | | | | | | | Cat. 3 | 0 | | | | | | | | | Constituent levels do not warrant further investigation. |
| | | | | | | | Cat. 4 | 0 | | | | | | | | | |

**Table 16-1**
**Weight of Evidence**

| OU/Group | Wetland | Total Samples Locations | Phase Summarized | List of Eco COCs | Max Refinement HQs > 1 | Sample Locations Exceeding RV | ERM Quotient Categories | | Exceeds TOC normalized PAH value | Exceeds Site-wide DDT level | Stat Sig Acute Tox | Stat Sig Sublethal Tox | Location of Tox Results | FCM Results | HHRA COCs | Recommendation | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W2 | 3 | II | | | | | | Less than TEC | No | None Collected | None Collected | NA | | None | NFA | Section 4 of the RI identifies this wetland as a Blue-coded wetland. |
| | | | | Aluminum | No | NA | Cat. 1 | 1 | | | | | | | | | |
| | | | | Barium | No | NA | Cat. 2 | 2 | | | | | | | | | |
| | | | | Beryllium | No | NA | Cat. 3 | 0 | | | | | | | | | Constituent levels do not warrant further investigation. |
| | | | | Cobalt | No | NA | Cat. 4 | 0 | | | | | | | | | |
| | | | | Iron | No | NA | | | | | | | | | | | |
| | | | | Selenium | No | NA | | | | | | | | | | | |
| | | | | Vanadium | No | NA | | | | | | | | | | | |
| | | | | Aldrin | No | NA | | | | | | | | | | | |
| | | | | Total Endrin | No | NA | | | | | | | | Total Endrin FCM Max. NOAEL HQ<1 | | | |
| | 48 | 1 | II | | | | | | None Detected | Yes | None Collected | None Collected | NA | | None | NFA | Section 4 of the RI identifies this wetland as a Blue-coded wetland. |
| | | | | 4,4'-DDD | 333 | 041M0480101 | Cat. 1 | 0 | | | | | | | | | |
| | | | | 4,4'-DDE | 1.7 | 041M0480101 | Cat. 2 | 0 | | | | | | | | | |
| | | | | 4,4'-DDT | 50.3 | 041M0480101 | Cat. 3 | 1 | | | | | | | | | Constituent levels indicate potential risk; however, the constituents driving risk are not attributable to nearby IR sites. Most likely source is application of road side pesticides (DDT) |
| | | | | Total DDT | 66.9 | 041M0480101 | Cat. 4 | 0 | | | | | | Total DDT Max. NOAEL HQ=14.0 | | | |
| | 49 | 3 | II | | | | | | Less than TEC | Yes | None Collected | None Collected | NA | | None | | Section 4 of the RI identifies this wetland as a Blue-coded wetland. |
| | | | | Heptachlor epoxide | No | NA | Cat. 1 | 1 | | | | | | | | | |
| | | | | 4,4'-DDD | 12 | 041M0490101<br>041M0490201 | Cat. 2 | 2 | | | | | | | | | |
| | | | | Total DDT | 2.2 | 041M0490101<br>041M0490201 | Cat. 3 | 0 | | | | | | Total DDT Max. NOAEL HQ=14.0 | | | Constituent levels indicate potential risk; however, the constituents driving risk are not attributable to nearby IR sites. Most likely source is application of road side pesticides (DDT) |
| | | | | | | | Cat. 4 | 0 | | | | | | | | | |

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## 18.0 FLORIDA PROFESSIONAL GEOLOGIST SEAL

I have reviewed this Remedial Investigation Report for NAS Pensacola Site 41, Pensacola, Florida, with regard to geologic characterization, data collection, and interpretation, and seal it in accordance with Chapter 492 of the Florida Statutes. In sealing this document, I certify the geological information contained in it is accurate to the best of my knowledge, and the geological methods and procedures included herein are consistent with currently accepted geological practices.

| | |
|---|---|
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