N00129.AR.000042
NSB NEW LONDON
5090.3a

# DRAFT REPORT

# INSTALLATION RESTORATION STUDY
# NAVAL SUBMARINE BASE - NEW LONDON
# GROTON, CONNECTICUT

## APPENDIX F

## ECOLOGICAL RISK ASSESSMENT DATA

**PREPARED FOR:**

**NORTHERN DIVISION**
**NAVAL FACILITIES ENGINEERING COMMAND**
**PHILADELPHIA, PENNSYLVANIA**

**AUGUST 1991**

**ATLANTIC PROJECT NO.: 1256-10**
**NAVY CONTRACT NO. N62472-88-C-1294**

**ATLANTIC**
ENVIRONMENTAL SERVICES, INC. 188 NORWICH AVENUE COLCHESTER, CONNECTICUT 06415 (203) 537-0751

# APPENDIX F-1
# AREA A SPECIES LISTS

# GROTON - AREA A: BIRD SPECIES LIST, 1990

| | |
|---|---|
| Green-backed Heron | *Butorides striatus* |
| Mallard | *Anas platyrhynchos* |
| Turkey Vulture | *Cathartes aura* |
| Osprey | *Pandion haliaetus* |
| Red-tailed Hawk | *Buteo jamaicensis* |
| Northern Bobwhite | *Colinus virginianus* |
| Mourning Dove | *Zenaida macroura* |
| Chimney Swift | *Chaetura pelagica* |
| Red-bellied Woodpecker | *Melanerpes carolinus* |
| Downy Woodpecker | *Picoides pubescens* |
| Northern Flicker | *Colaptes auratus* |
| Least Flycatcher | *Empidonax minimus* |
| Eastern Phoebe | *Sayornis phoebe* |
| Eastern Kingbird | *Tyrannus tyrannus* |
| Tree Swallow | *Tachycineta bicolor* |
| Barn Swallow | *Hirundo rustica* |
| Blue Jay | *Cyanocitta cristata* |
| American Crow | *Corvus brachyrhynchos* |
| Black-capped Chickadee | *Parus atricapillus* |
| Tufted Titmouse | *Parus bicolor* |
| Carolina Wren | *Thryothorus ludovicianus* |
| Golden-crowned Kinglet | *Regulus satrapa* |
| Ruby-crowned Kinglet | *Regulus calendula* |
| Hermit Thrush | *Catharus guttatus* |
| Wood Thrush | *Hylocichla mustelina* |
| American Robin | *Turdus migratorius* |
| Gray Catbird | *Dumetella carolinensis* |
| Northern Mockingbird | *Mimus polyglottos* |
| Cedar Waxwing | *Bombycilla cedrorum* |
| European Starling | *Sturnus vulgaris* |
| Warbling Vireo | *Vireo gilvus* |
| Red-eyed Vireo | *Vireo olivaceus* |
| Blue-winged Warbler | *Vermivora pinus* |
| Tennessee Warbler | *Vermivora peregrina* |
| Yellow Warbler | *Dendroica petechia* |
| Magnolia Warbler | *Dendroica magnolia* |
| Yellow-rumped Warbler | *Dendroica coronata* |
| Prairie Warbler | *Dendroica discolor* |
| American Redstart | *Setophaga ruticilla* |
| Ovenbird | *Seiurus aurocapillus* |
| Northern Waterthrush | *Seiurus noveboracensis* |
| Mourning Warbler | *Oporornis philadelphia* |
| Common Yellowthroat | *Geothlypis trichas* |
| Yellow-breasted Chat | *Icteria virens* |
| Scarlet Tanager | *Piranga olivacea* |
| Northern Cardinal | *Cardinalis cardinalis* |

| | |
|---|---|
| Rose-breasted Grosbeak | *Pheucticus ludovicianus* |
| Indigo Bunting | *Passerina cyanea* |
| Chipping Sparrow | *Spizella passerina* |
| Field Sparrow | *Spizella pusilla* |
| Song Sparrow | *Melospiza melodia* |
| Swamp Sparrow | *Melospiza georgiana* |
| White-throated Sparrow | *Zonotrichia albicollis* |
| Dark-eyed Junco | *Junco hyemalis* |
| Bobolink | *Dolichonyx oryzivorus* |
| Red-winged Blackbird | *Agelaius phoeniceus* |
| Common Grackle | *Quiscalus quiscula* |
| Brown-headed Cowbird | *Molothrus ater* |
| Northern Oriole | *Icterus galbula* |
| House Finch | *Carpodacus mexicanus* |
| American Goldfinch | *Carduelis tristis* |
| House Sparrow | *Passer domesticus* |

## GROTON - AREA A: MAMMAL, REPTILE, AMPHIBIAN LIST,1990

| | |
|---|---|
| Opossum | *Didelphis virginiana* |
| Woodchuck | *Marmota monax* |
| Raccoon | *Procyon lotor* |
| Eastern Cottontail | *Sylvilagus floridanus* |
| White Tail Deer | *Odocoileus virginianus* |
| White Footed Mouse | *Peromyscus leucopus* |
| Striped Skunk | *Mephitis mephitis* |
| Eastern Gray Squirrel | *Sciurus carolinensis* |
| Bat | *Chiroptera* sp. |
| | |
| Green Frog | *Rana clamitans melanota* |
| Spring Peeper | *Hyla crucifer* |
| Leopard Frog | *Rana pipiens* |
| | |
| Painted Turtle | *Chrysemys picta* |

## GROTON - AREA A: VEGETATION TYPES, 1990

### Herbaceous Wetland (HF1 and HF2)

**HF1**

| | |
|---|---|
| Marsh Reed | *Phragmites* sp. |

**HF2**

| | |
|---|---|
| Marsh Reed | *Phragmites* sp. |

### Upland Deciduous Forest (DF1, DF2, DF3, DF4)

**DF1**

| | |
|---|---|
| Red/Black Oak | *Quercus* sp. |
| Black Birch | *Betula lenta* |
| Red Maple | *Acer rubrum* |
| Beech | *Fagus grandifolia* |
| Witch Hazel | *Hamamelis virginiana* |
| Mountain Laurel | *Kalmia latifolia* |
| Sweet Pepperbush | *Clethra* sp. |
| Bayberry | *Myrica* sp. |

**DF2**

| | |
|---|---|
| Red/Black Oak | *Quercus* sp. |
| Black Birch | *Betula lenta* |
| Red Maple | *Acer rubrum* |
| Gray Birch | *Betula populifolia* |
| White Oak | *Quercus alba* |
| | |
| Mountain Laurel | *Kalmia latifolia* |
| American Bittersweet | *Celastrus scandens* |
| Sweet Pepperbush | *Clethra* sp. |

**DF3**

| | |
|---|---|
| Black Cherry | *Prunus serotina* |
| Black Birch | *Betula lenta* |
| Red Maple | *Acer rubrum* |
| Gray Birch | *Betula populifolia* |
| Staghorn Sumac | *Rhus typhina* |
| | |
| Multiflora Rose | *Rosa multiflora* |
| American Bittersweet | *Celastrus scandens* |
| Blackberry | *Rubus* sp. |

**DF4**

| | |
|---|---|
| Red/Black Oak | *Quercus* sp. |
| Black Birch | *Betula lenta* |
| Red Maple | *Acer rubrum* |
| Mockernut Hickory | *Carya tomentosa* |
| Sassafras | *Sassafras albidum* |
| | |
| Mountain Laurel | *Kalmia latifolia* |
| Witch Hazel | *Hamamelis virginiana* |

## Upland Coniferous/Deciduous Forest (C/DF1, C/DF2)

**C/DF1**

| | |
|---|---|
| Red/Black Oak | *Quercus* sp. |
| Eastern Hemlock | *Tsuga canadensis* |
| White Oak | *Quercus alba* |
| Black Birch | *Betula lenta* |
| Mockernut Hickory | *Carya tomentosa* |
| | |
| Mountain Laurel | *Kalmia latifolia* |
| MapleLeaf Viburnum | *Viburnum acerifolium* |
| Sassafras | *Sassafras albidum* |

**C/DF2**

| | |
|---|---|
| Red/Black Oak | *Quercus* sp. |
| Yellow Birch | *Betula lutea* |
| Mockernut Hickory | *Carya tomentosa* |
| White Oak | *Quercus alba* |
| Eastern Hemlock | *Tsuga canadensis* |
| | |
| Common Spicebush | *Lindera benzoin* |
| Mapleleaf Viburnum | *Vibernum acerifolium* |
| Mountain Laurel | *Kalmia latifolia* |

## Upland Shrub (US)

**US**

| | |
|---|---|
| Quaking Aspen | *Populus tremuloides* |
| Staghorn Sumac | *Rhus typhina* |
| Autumn Olive | *Elaeagnus umbellata* |
| Multiflora Rose | *Rosa multiflora* |
| American Bittersweet | *Celastrus scandens* |

## Upland Deciduous Forest/Shrub (DF/S1, DF/S2, DF/S3)

**DF/S1**

| | |
|---|---|
| Black Birch | *Betula lenta* |
| Black Cherry | *Prunus serotina* |
| Red Maple | *Acer rubrum* |
| Gray Birch | *Betula populifolia* |

| | |
|---|---|
| Red Cedar | *Juniperus virginiana* |
| Blackberry | *Rubus* sp. |
| American Bittersweet | *Celastrus scandens* |
| Multiflora Rose | *Rosa multiflora* |

**DF/S2**

| | |
|---|---|
| Quaking Aspen | *Populus tremuloides* |
| American Bittersweet | *Celastrus scandens* |
| Wild Grape | *Vitis* sp. |
| Autumn Olive | *Elaeagnus umbellata* |
| Staghorn Sumac | *Rhus typhina* |
| Multiflora Rose | *Rosa multiflora* |

**DF/S3**

| | |
|---|---|
| Quaking Aspen | *Populus tremuloides* |
| Multiflora Rose | *Rosa multiflora* |
| American Bittersweet | *Celastrus scandens* |
| Autumn Olive | *Elaeagnus umbellata* |
| Willow | *Salix* sp. |
| Red Cedar | *Juniperus virginiana* |

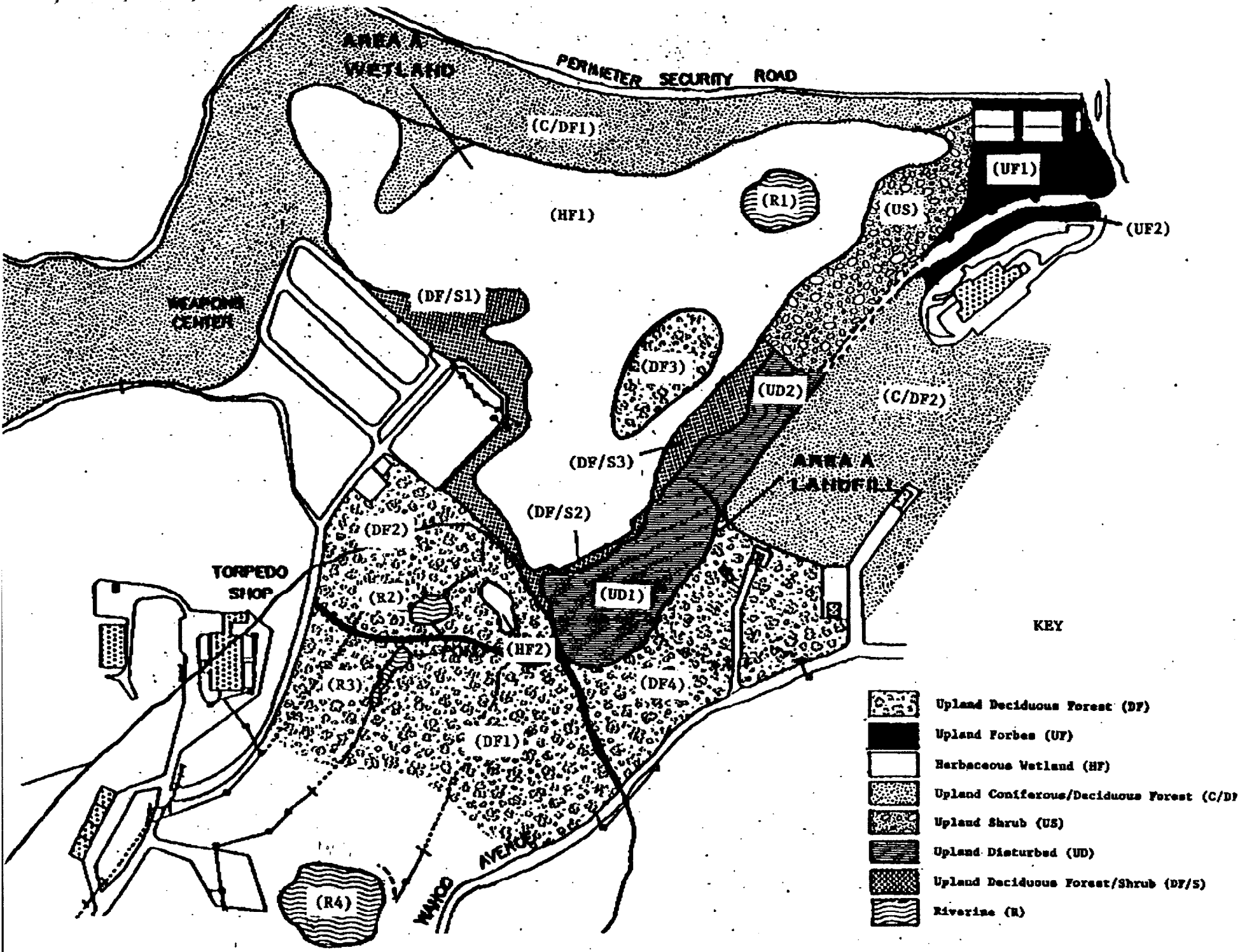
## Upland Forbes (UF1, UF2)

**UF1**

| | |
|---|---|
| Forbes | *Graminaceae* sp. |

**UF2**

| | |
|---|---|
| Forbes | *Graminaceae* sp. |


AREA A WETLAND
PERIMETER SECURITY ROAD
(C/DF1)
(HF1)
(R1)
(US)
(UF1)
(UF2)
WEAPONS CENTER
(DF/S1)
(DF3)
(UD2)
(C/DF2)
(DF/S3)
AREA A LANDFILL
(DF/S2)
(DF2)
TORPEDO SHOP
(R2)
(UD1)
(HF2)
(R3)
(DF4)
(DF1)
(R4)
WAHOO AVENUE
KEY
Upland Deciduous Forest (DF)
Upland Forbes (UF)
Herbaceous Wetland (HF)
Upland Coniferous/Deciduous Forest (C/DF)
Upland Shrub (US)
Upland Disturbed (UD)
Upland Deciduous Forest/Shrub (DF/S)
Riverine (R)

# APPENDIX F-2
# AREA A SOIL AND SEDIMENT DATA SUMMARIES

**SURFACE SOIL DATA SUMMARY**
**AREA A WETLANDS**

| SAMPLE ID: | 2WMW5S | 2WMW6S | 2WTB2 | 2WTB4 | 2WTB6 | 2WTB7 | 2WTB8 | 2WSD1 | 2WSD2 | 2WSD3 |
|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (ft): | 0-2 | 2-4 | 0-2 | 0-2 | 0-2 | 0-2 | 1-3 | | | |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | | | | | |
| Benzene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | | | | | | | | | | |
| Toluene | | | | | | | | | | |
| Xylene (total) | | | | | | | | | | |
| **Chlorinated Compounds** | | | | | | | | | | |
| Chloromethane | | | | | | | | | | |
| 1,1-Dichloroethane | | | | | | | | | | |
| 1,2-Dichloroethane | | | | | | | | | | |
| 1,1-Dichloroethene | | | | | | | | | | |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Methylene Chloride | ND | ND | ND | ND | ND | ND | 4 | ND | ND | ND |
| Tetrachloroethane | | | | | | | | | | |
| Tetrachloroethene | 3 | 3 | ND | ND | ND | ND | 7 | ND | ND | ND |
| Trichloroethene | ND | ND | ND | 4 | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | | | | | | | | | | |
| 1,1,2-Trichloroethane | | | | | | | | | | |
| Vinyl Chloride | | | | | | | | | | |
| **Other VOCs** | | | | | | | | | | |
| Acetone | ND | 74 | ND | ND | 540 | ND | 850 | 210 | 130 | 230 |
| 2-Butanone | ND | ND | ND | ND | 87 | ND | 310 | 140 | 100 | ND |
| 4-Methyl-2-Pentanone | | | | | | | | | | |
| Carbon Disulfide | ND | 15 | ND | ND | 6 | ND | 8 | 11 | 16 | 18 |
| **SEMIVOLATILE COMPOUNDS** | | | | | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | | | | | |
| Acenaphthene | | | | | | | | | | |
| Acenaphthylene | ND | ND | ND | 77 | ND | ND | 120 | | | |
| Anthracene | ND | ND | ND | 52 | ND | ND | 79 | ND | ND | ND |

**SURFACE SOIL DATA SUMMARY**
**AREA A WETLANDS**

| **SAMPLE ID:** | **2WMW5S** | **2WMW6S** | **2WTB2** | **2WTB4** | **2WTB6** | **2WTB7** | **2WTB8** | **2WSD1** | **2WSD2** | **2WSD3** |
|---|---|---|---|---|---|---|---|---|---|---|
| **DEPTH (ft):** | **0-2** | **2-4** | **0-2** | **0-2** | **0-2** | **0-2** | **1-3** | | | |
| Fluoranthene | 180 | 460 | 460 | 310 | 300 | 72 | 600 | 970 | ND | 390 |
| Fluorene | | | | | | | | ND | ND | ND |
| 2-Methylnaphthalene | | | | | | | | | | |
| Naphthalene | | | | | | | | | | |
| Phenanthrene | 130 | ND | ND | 270 | 160 | ND | 340 | ND | ND | ND |
| Pyrene | 320 | 360 | 380 | 460 | 270 | 98 | 570 | 1300 | ND | 670 |
| **Carcinogenic PAHs** | | | | | | | | | | |
| Benzo(a)Anthracene | 160 | 370 | 400 | 220 | 200 | ND | 370 | 670 | ND | ND |
| Benzo(a)Pyrene | ND | ND | ND | 230 | 190 | ND | 390 | ND | ND | ND |
| Benzo(b)Fluoranthene | 180 | ND | ND | 220 | 210 | ND | 550 | 380 | ND | ND |
| Benzo(g,h,i)Perylene | | | | | | | | ND | ND | ND |
| Benzo(k)Fluoranthene | 120 | ND | ND | 310 | 250 | ND | 390 | 480 | ND | ND |
| Chrysene | 230 | 330 | ND | 320 | 250 | ND | 600 | 630 | ND | ND |
| Dibenz(a,h)Anthracene | | | | | | | | | | |
| Indeno(1,2,3-cd)Pyrene | ND | ND | ND | ND | ND | ND | 270 | ND | ND | ND |
| ***Total PAHs*** | *2351.24* | *3324.67* | *3302.48* | *2726.81* | *2603.4* | *2490.29* | *4279* | *5976.86* | *3093.72* | *3638.1* |
| **Other Semi-Volatile Compounds** | | | | | | | | | | |
| bis(2-Ethylhexyl)Phthalate | 790 | ND | ND | 280 | 350 | ND | 1300 | | | |
| Di-n-Butylphthalate | | | | | | | | | | |
| 2,4-Dimethylphenol | | | | | | | | | | |
| 4,6-Dinitro-2-methylphenol | | | | | | | | | | |
| 2-Methylphenol | | | | | | | | | | |
| 4-Methylphenol | | | | | | | | | | |
| Phenol | | | | | | | | | | |
| Benzoic Acid | ND | ND | ND | 160 | 130 | ND | ND | ND | ND | ND |
| 4-Chloroaniline | | | | | | | | | | |
| Dibenzofuran | | | | | | | | ND | ND | ND |
| 2-Nitroaniline | | | | | | | | | | |
| N-Nitrosodiphenylamine (1) | | | | | | | | | | |

**SURFACE SOIL DATA SUMMARY**
**AREA A WETLANDS**

| SAMPLE ID: | 2WMW5S | 2WMW6S | 2WTB2 | 2WTB4 | 2WTB6 | 2WTB7 | 2WTB8 | 2WSD1 | 2WSD2 | 2WSD3 |
|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (ft): | 0-2 | 2-4 | 0-2 | 0-2 | 0-2 | 0-2 | 1-3 | | | |
| **PESTICIDES** | | | | | | | | | | |
| 4,4' DDE | ND | ND | ND | 32 | ND | ND | ND | 36 | 40 | ND |
| 4,4' DDD | ND | ND | ND | ND | 69 | ND | ND | 140 | ND | ND |
| 4,4'-DDT | ND | ND | ND | ND | ND | ND | ND | ND | ND | 57 |
| ***Total DDT Residues*** | *37.5* | *37.5* | *37.5* | *57* | *94* | *37.5* | *37.5* | *188.5* | *65* | *82* |
| Beta-BHC | | | | | | | | | | |
| Endrin | | | | | | | | | | |
| Endrin Ketone | | | | | | | | | | |
| Methoxychlor | | | | | | | | | | |
| **PCBs** | | | | | | | | | | |
| Aroclor 1260 | ND | ND | 370 | ND | ND | ND | ND | | | |
| Aroclor 1254 | | | | | | | | | | |
| **INORGANICS** | | | | | | | | | | |
| **Metals** | | | | | | | | | | |
| Aluminum | 11200 | 14100 | 14100 | 15300 | 16800 | 13900 | 17900 | 18900 | 22200 | 18800 |
| Antimony | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Arsenic | 7 | 7.7 | 6.7 | 8.7 | 8.4 | 7.2 | 6.8 | 9.2 | 9.5 | 9.5 |
| Beryllium | 1.2 | 0.57 | 1.8 | ND | 0.73 | 1.5 | 1.8 | 0.91 | 1.1 | 0.88 |
| Boron | 530 | 703 | 1600 | 672 | 563 | 170 | 330 | 4100 | 4000 | 4400 |
| Cadmium | 4.7 | 4.5 | 6.9 | ND | 1.9 | 4.5 | 6.7 | 4.2 | 4.8 | 5.3 |
| Copper | 38.5 | 31.1 | 20.2 | 47.6 | 64.1 | 35.4 | 55 | 33 | 30.5 | 69.5 |
| Iron | 21500 | 28000 | 27200 | 30800 | 27100 | 20200 | 27900 | 28100 | 31700 | 29700 |
| Lead | 38.5 | 298 | 11.2 | 128 | 44 | 49.5 | 83.7 | 51 | 21.3 | 46.1 |
| Manganese | 160 | 176 | 306 | 188 | 202 | 189 | 233 | 352 | 365 | 341 |
| Mercury | 0.22 | 0.41 | ND | 0.69 | ND | 0.38 | 0.67 | ND | ND | 0.31 |
| Nickel | 14.7 | 16.1 | 25.9 | 16.7 | 20.2 | 16.8 | 26.9 | 26 | 28.2 | 27 |
| Selenium | 0.7 | 0.7 | ND | 1.2 | 1.5 | ND | 0.93 | 0.89 | 1.6 | 1.3 |
| Zinc | 54.6 | 59.7 | 75.5 | 60.8 | 74.9 | 59.5 | 62.9 | 90.6 | 126 | 127 |

**SURFACE SOIL DATA SUMMARY**
**AREA A WETLANDS**

| **SAMPLE ID:** | **2WSD4** | **2WSD5** | **2WSD6** | **2WSD7** | **2WSD8** | **2WSD9** |
|---|---|---|---|---|---|---|
| **DEPTH (ft):** | | | | | | |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | |
| Benzene | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | | | | | | |
| Toluene | | | | | | |
| Xylene (total) | | | | | | |
| **Chlorinated Compounds** | | | | | | |
| Chloromethane | | | | | | |
| 1,1-Dichloroethane | | | | | | |
| 1,2-Dichloroethane | | | | | | |
| 1,1-Dichloroethene | | | | | | |
| 1,2-Dichloroethene (total) | | | | | | |
| Methylene Chloride | 10 | 3 | 10 | ND | 2 | 5 |
| Tetrachloroethane | | | | | | |
| Tetrachloroethene | 16 | 4 | 10 | ND | ND | 11 |
| Trichloroethene | 11 | 3 | ND | ND | ND | 6 |
| 1,1,1-Trichloroethane | | | | | | |
| 1,1,2-Trichloroethane | | | | | | |
| Vinyl Chloride | | | | | | |
| **Other VOCs** | | | | | | |
| Acetone | ND | ND | 240 | 720 | 190 | ND |
| 2-Butanone | ND | ND | ND | ND | ND | ND |
| 4-Methyl-2-Pentanone | | | | | | |
| Carbon Disulfide | ND | ND | 9 | ND | 15 | ND |
| **SEMIVOLATILE COMPOUNDS** | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | |
| Acenaphthene | | | | | | |
| Acenaphthylene | | | | | | |
| Anthracene | ND | ND | ND | ND | ND | 2400 |

**SURFACE SOIL DATA SUMMARY**
**AREA A WETLANDS**

| **SAMPLE ID:** | **2WSD4** | **2WSD5** | **2WSD6** | **2WSD7** | **2WSD8** | **2WSD9** |
|---|---|---|---|---|---|---|
| **DEPTH (ft):** | | | | | | |
| Fluoranthene | 410 | ND | ND | 470 | 1300 | 80000 |
| Fluorene | ND | ND | ND | ND | ND | 1000 |
| 2-Methylnaphthalene | | | | | | |
| Naphthalene | | | | | | |
| Phenanthrene | ND | ND | ND | ND | 440 | 36000 |
| Pyrene | 460 | ND | 470 | 610 | 1500 | 42000 |
| **Carcinogenic PAHs** | | | | | | |
| Benzo(a)Anthracene | ND | ND | ND | ND | ND | 27000 |
| Benzo(a)Pyrene | ND | ND | ND | ND | ND | 35000 |
| Benzo(b)Fluoranthene | ND | ND | ND | ND | 420 | 55000 |
| Benzo(g,h,i)Perylene | ND | ND | ND | ND | ND | 23000 |
| Benzo(k)Fluoranthene | ND | ND | ND | ND | 670 | 45000 |
| Chrysene | ND | ND | ND | ND | 610 | 42000 |
| Dibenz(a,h)Anthracene | | | | | | |
| Indeno(1,2,3-cd)Pyrene | ND | ND | ND | ND | ND | 23000 |
| ***Total PAHs*** | *3448.1* | *3093.72* | *3305.91* | *3658.1* | *6486.86* | *411400* |
| **Other Semi-Volatile Compounds** | | | | | | |
| bis(2-Ethylhexyl)Phthalate | | | | | | |
| Di-n-Butylphthalate | | | | | | |
| 2,4-Dimethylphenol | | | | | | |
| 4,6-Dinitro-2-methylphenol | | | | | | |
| 2-Methylphenol | | | | | | |
| 4-Methylphenol | | | | | | |
| Phenol | | | | | | |
| Benzoic Acid | ND | ND | ND | 780 | ND | ND |
| 4-Chloroaniline | | | | | | |
| Dibenzofuran | ND | ND | ND | ND | ND | 1000 |
| 2-Nitroaniline | | | | | | |
| N-Nitrosodiphenylamine (1) | | | | | | |

**SURFACE SOIL DATA SUMMARY**
**AREA A WETLANDS**

| **SAMPLE ID:** | **2WSD4** | **2WSD5** | **2WSD6** | **2WSD7** | **2WSD8** | **2WSD9** |
|---|---|---|---|---|---|---|
| **DEPTH (ft):** | | | | | | |
| **PESTICIDES** | | | | | | |
| 4,4' DDE | ND | ND | ND | ND | ND | ND |
| 4,4' DDD | ND | ND | ND | ND | ND | ND |
| 4,4'-DDT | ND | ND | ND | ND | ND | ND |
| ***Total DDT Residues*** | *37.5* | *37.5* | *37.5* | *37.5* | *37.5* | *37.5* |
| Beta-BHC | | | | | | |
| Endrin | | | | | | |
| Endrin Ketone | | | | | | |
| Methoxychlor | | | | | | |
| **PCBs** | | | | | | |
| Aroclor 1260 | | | | | | |
| Aroclor 1254 | | | | | | |
| **INORGANICS** | | | | | | |
| **Metals** | | | | | | |
| Aluminum | 16600 | 14200 | 19300 | 17800 | 18300 | 20800 |
| Antimony | ND | ND | ND | ND | ND | ND |
| Arsenic | 10 | 8.5 | 10.5 | 13.9 | 8.1 | 11.8 |
| Beryllium | 0.44 | 0.39 | 0.81 | 0.51 | 0.84 | 0.85 |
| Boron | 1200 | 1300 | 730 | 450 | 3600 | 490 |
| Cadmium | 3.8 | 3.7 | 3.5 | 3.5 | 5 | 6.1 |
| Copper | 44.8 | 52.2 | 51.3 | 34.6 | 71.5 | 39.6 |
| Iron | 26700 | 28300 | 22900 | 24100 | 25500 | 44000 |
| Lead | 56.8 | 48.1 | 69 | 37.8 | 69.2 | 241 |
| Manganese | 193 | 166 | 210 | 193 | 278 | 357 |
| Mercury | 0.25 | 0.35 | 0.32 | 0.42 | 0.48 | 0.24 |
| Nickel | 17.8 | 16.7 | 19.9 | 17.6 | 24.2 | 21.2 |
| Selenium | 0.79 | 0.98 | 1.1 | 1.6 | 1.2 | 1.3 |
| Zinc | 63.2 | 58.1 | 57.6 | 51.5 | 124 | 109 |

| SURFACE SOIL DATA SUMMARY<br>AREA A WETLANDS<br>SAMPLE ID:<br>DEPTH (ft): | Number Analyzed | Number Detected | Minimum | Maximum | Average |
|---|---|---|---|---|---|
| **VOLATILE ORGANIC COMPOUNDS** | | | | | |
| **Nonchlorinated Aromatics** | | | | | |
| Benzene | 16 | 0 | | | |
| Ethylbenzene | | | | | |
| Toluene | | | | | |
| Xylene (total) | | | | | |
| **Chlorinated Compounds** | | | | | |
| Chloromethane | | | | | |
| 1,1-Dichloroethane | | | | | |
| 1,2-Dichloroethane | | | | | |
| 1,1-Dichloroethene | | | | | |
| 1,2-Dichloroethene (total) | | | | | |
| Methylene Chloride | 16 | 6 | 2 | 10 | 4.57 |
| Tetrachloroethane | | | | | |
| Tetrachloroethene | 16 | 7 | 3 | 16 | 5.57 |
| Trichloroethene | 16 | 4 | 3 | 11 | 4.43 |
| 1,1,1-Trichloroethane | | | | | |
| 1,1,2-Trichloroethane | | | | | |
| Vinyl Chloride | | | | | |
| **Other VOCs** | | | | | |
| Acetone | 16 | 9 | 74 | 850 | 202.42 |
| 2-Butanone | 16 | 4 | 87 | 310 | 45.67 |
| 4-Methyl-2-Pentanone | | | | | |
| Carbon Disulfide | 16 | 8 | 6 | 18 | 8.08 |
| **SEMIVOLATILE COMPOUNDS** | | | | | |
| **Noncarcinogenic PAHs** | | | | | |
| Acenaphthene | | | | | |
| Acenaphthylene | 7 | 2 | 77 | 120 | 212.29 |
| Anthracene | 16 | 3 | 52 | 2400 | 367.66 |

| SURFACE SOIL DATA SUMMARY<br>AREA A WETLANDS<br>SAMPLE ID:<br>DEPTH (ft): | Number Analyzed | Number Detected | Minimum | Maximum | Average |
|---|---|---|---|---|---|
| Fluoranthene | 16 | 13 | 72 | 80000 | 5418.46 |
| Fluorene | 9 | 1 | 1000 | 1000 | 340.28 |
| 2-Methylnaphthalene | | | | | |
| Naphthalene | | | | | |
| Phenanthrene | 16 | 6 | 130 | 36000 | 2494.88 |
| Pyrene | 16 | 14 | 98 | 42000 | 3123.98 |
| **Carcinogenic PAHs** | | | | | |
| Benzo(a)Anthracene | 16 | 8 | 160 | 27000 | 1965.78 |
| Benzo(a)Pyrene | 16 | 4 | 190 | 35000 | 2431.48 |
| Benzo(b)Fluoranthene | 16 | 7 | 180 | 55000 | 3705.02 |
| Benzo(g,h,i)Perylene | 9 | 1 | 23000 | 23000 | 2784.72 |
| Benzo(k)Fluoranthene | 16 | 7 | 120 | 45000 | 3096.27 |
| Chrysene | 16 | 8 | 230 | 42000 | 2939.53 |
| Dibenz(a,h)Anthracene | | | | | |
| Indeno(1,2,3-cd)Pyrene | 16 | 2 | 270 | 23000 | 1679.96 |
| ***Total PAHs*** | | | | *411520* | *30560.326* |
| **Other Semi-Volatile Compounds** | | | | | |
| bis(2-Ethylhexyl)Phthalate | 7 | 4 | 280 | 1300 | 499.06 |
| Di-n-Butylphthalate | | | | | |
| 2,4-Dimethylphenol | | | | | |
| 4,6-Dinitro-2-methylphenol | | | | | |
| 2-Methylphenol | | | | | |
| 4-Methylphenol | | | | | |
| Phenol | | | | | |
| Benzoic Acid | 16 | 3 | 130 | 780 | 1082.50 |
| 4-Chloroaniline | | | | | |
| Dibenzofuran | 9 | 1 | 1000 | 1000 | 340.28 |
| 2-Nitroaniline | | | | | |
| N-Nitrosodiphenylamine (1) | | | | | |

| SURFACE SOIL DATA SUMMARY<br>AREA A WETLANDS<br>SAMPLE ID:<br>DEPTH (ft): | Number Analyzed | Number Detected | Minimum | Maximum | Average |
|---|---|---|---|---|---|
| **PESTICIDES** | | | | | |
| 4,4' DDE | 16 | 3 | 32 | 40 | 16.91 |
| 4,4' DDD | 16 | 2 | 69 | 140 | 24.00 |
| 4,4'-DDT | 16 | 1 | 57 | 57 | 15.28 |
| ***Total DDT Residues*** | | | | *237* | *56.1875* |
| Beta-BHC | | | | | |
| Endrin | | | | | |
| Endrin Ketone | | | | | |
| Methoxychlor | | | | | |
| **PCBs** | | | | | |
| Aroclor 1260 | 7 | 1 | 370 | 370 | 160.00 |
| Aroclor 1254 | | | | | |
| **INORGANICS** | | | | | |
| **Metals** | | | | | |
| Aluminum | 16 | 16 | 11200 | 22200 | 16887.50 |
| Antimony | 16 | 0 | | | |
| Arsenic | 16 | 16 | 6.7 | 13.9 | 8.97 |
| Beryllium | 16 | 15 | 0.39 | 1.8 | 0.93 |
| Boron | 16 | 16 | 170 | 4400 | 1552.38 |
| Cadmium | 16 | 15 | 1.9 | 6.9 | 4.35 |
| Copper | 16 | 16 | 20.2 | 71.5 | 44.93 |
| Iron | 16 | 16 | 20200 | 44000 | 27731.25 |
| Lead | 16 | 16 | 11.2 | 298 | 80.83 |
| Manganese | 16 | 16 | 160 | 365 | 244.31 |
| Mercury | 16 | 12 | 0.22 | 0.69 | 0.32 |
| Nickel | 16 | 16 | 14.7 | 28.2 | 20.99 |
| Selenium | 16 | 14 | 0.7 | 1.6 | 1.05 |
| Zinc | 16 | 16 | 51.5 | 127 | 78.43 |

**SURFACE SOIL DATA**
**AREA A DOWNSTREAM AND OBDA** **Over Bank Disposal Area**

| SAMPLE ID: | 3SD1 | 3SD1 | 3SD2 | 3SD2 | 3SD3 | 3SD3 | 3SD4 | 3SD4 | 3SD5 | 3SD5 |
|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (in): | 0-6 | 12-18 | 0-6 | 12-18 | 0-6 | 12-18 | 0-6 | 12-18 | 0-6 | 12-18 |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | | | | | |
| Benzene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | ND | ND | ND | ND | 2 | ND | ND | ND | ND | ND |
| Toluene | ND | ND | ND | ND | ND | ND | 4 | ND | ND | ND |
| Xylene (total) | ND | ND | ND | ND | 3 | ND | ND | ND | ND | ND |
| **Chlorinated Compounds** | | | | | | | | | | |
| Chloromethane | | | | | | | | | | |
| 1,1-Dichloroethane | | | | | | | | | | |
| 1,2-Dichloroethane | | | | | | | | | | |
| 1,1-Dichloroethene | | | | | | | | | | |
| 1,2-Dichloroethene (Total) | | | | | | | | | | |
| Methylene Chloride | 2 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachloroethane | | | | | | | | | | |
| Tetrachloroethene | ND | ND | ND | ND | ND | ND | ND | ND | 4 | ND |
| Trichloroethene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | | | | | | | | | | |
| 1,1,2-Trichloroethane | | | | | | | | | | |
| Vinyl Chloride | | | | | | | | | | |
| **Other VOCs** | | | | | | | | | | |
| Acetone | ND | ND | ND | ND | 150 | 210 | 310 | 140 | 54 | 130 |
| 2-Butanone | ND | 6 | 4 | 6 | 32 | 51 | 66 | 33 | 13 | 24 |
| 4-Methyl-2-Pentanone | | | | | | | | | | |
| Carbon Disulfide | ND | ND | ND | ND | 3 | 4 | ND | ND | 2 | 11 |
| **SEMIVOLATILE COMPOUNDS** | | | | | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | | | | | |
| Acenaphthene | 140 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | | | | | | | | | | |

**SURFACE SOIL DATA**
**AREA A DOWNSTREAM AND OBDA** **Over Bank Disposal Area**

| **SAMPLE ID:** | **3SD1** | **3SD1** | **3SD2** | **3SD2** | **3SD3** | **3SD3** | **3SD4** | **3SD4** | **3SD5** | **3SD5** |
|---|---|---|---|---|---|---|---|---|---|---|
| **DEPTH (in):** | **0-6** | **12-18** | **0-6** | **12-18** | **0-6** | **12-18** | **0-6** | **12-18** | **0-6** | **12-18** |
| Anthracene | 330 | ND | ND | ND | ND | ND | ND | ND | ND | 390 |
| Fluoranthene | 1400 | 110 | 73 | ND | ND | ND | 1300 | 970 | ND | 1500 |
| Fluorene | 180 | ND | ND | ND | ND | ND | ND | ND | ND | 200 |
| 2-Methylnaphthalene | | | | | | | | | | |
| Naphthalene | 80 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 1300 | ND | ND | ND | ND | ND | ND | ND | ND | 1600 |
| Pyrene | 1400 | 140 | 170 | ND | ND | ND | 1300 | 1100 | ND | 1300 |
| **Carcinogenic PAHs** | | | | | | | | | | |
| Benzo(a)Anthracene | 850 | ND | 45 | ND | ND | ND | ND | ND | ND | 720 |
| Benzo(a)Pyrene | 520 | ND | ND | ND | ND | ND | ND | ND | ND | 590 |
| Benzo(b)Fluoranthene | 750 | ND | 86 | ND | ND | ND | ND | ND | ND | ND |
| Benzo(g,h,i)Perylene | 260 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(k)Fluoranthene | 290 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chrysene | 700 | ND | 75 | ND | ND | ND | ND | ND | ND | 720 |
| Dibenz(a,h)Anthracene | | | | | | | | | | |
| Indeno(1,2,3-cd)Pyrene | 360 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| ***Total PAHs*** | 8560 | 3850 | 3149 | 4200 | 4200 | 4200 | 6200 | 5670 | 4200 | 8820 |
| **Other Semi-Volatile Compounds** | | | | | | | | | | |
| bis(2-Ethylhexyl)Phthalate | | | | | | | | | | |
| Di-n-Butylphthalate | | | | | | | | | | |
| 2,4-Dimethylphenol | | | | | | | | | | |
| 4,6-Dinitro-2-methylphenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Methylphenol | 120 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Methylphenol | | | | | | | | | | |
| Phenol | | | | | | | | | | |
| Benzoic Acid | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibenzofuran | 100 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| N-Nitrosodiphenylamine (1) | | | | | | | | | | |

**SURFACE SOIL DATA**
**AREA A DOWNSTREAM AND OBDA** **Over Bank Disposal Area**

| SAMPLE ID: | 3SD1 | 3SD1 | 3SD2 | 3SD2 | 3SD3 | 3SD3 | 3SD4 | 3SD4 | 3SD5 | 3SD5 |
|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (in): | 0-6 | 12-18 | 0-6 | 12-18 | 0-6 | 12-18 | 0-6 | 12-18 | 0-6 | 12-18 |
| **PESTICIDES** | | | | | | | | | | |
| 4,4' DDE | 87 | 60 | ND | ND | 15000 | 2800 | 410 | 4800 | 11000 | 1500 |
| 4,4' DDD | 89 | 140 | 190 | 59 | 300000 | 73000 | 3200 | 84000 | 99000 | 11000 |
| 4,4'-DDT | 57 | 69 | 855 | ND | 37000 | 3800 | 3300 | 12000 | 1100 | 270 |
| ***Total DDT Residue*** | *233* | *269* | *1059.55* | *88.1* | *352000* | *79600* | *6910* | *100800* | *111100* | *12770* |
| Beta-BHC | | | | | | | | | | |
| Endrin | | | | | | | | | | |
| Endrin Ketone | | | | | | | | | | |
| Methoxychlor | | | | | | | | | | |
| **PCBs** | | | | | | | | | | |
| Aroclor 1260 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Aroclor 1254 | | | | | | | | | | |
| **Metals** | | | | | | | | | | |
| Aluminum | 4820 | 4660 | 4190 | 8050 | 18800 | 15100 | 13000 | 14400 | 14400 | 17400 |
| Antimony | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Arsenic | 5.6 | 3.6 | 19.7 | 1.9 | 6.1 | 6.8 | 39.9 | 10.2 | 7.7 | 6.6 |
| Beryllium | 1.2 | 0.37 | 0.74 | 0.52 | 1.2 | 1.2 | 1.8 | 0.81 | 0.68 | 0.75 |
| Boron | 660 | 720 | 8300 | ND | 6200 | 3500 | 400 | 2900 | 2200 | 2600 |
| Cadmium | 3.8 | 3.2 | 23.6 | 1.2 | 11.1 | 5.7 | 30.1 | 6.7 | 3.8 | 4.5 |
| Copper | 33.2 | 29.7 | 118 | 10.6 | 20.7 | 19 | 105 | 26.1 | 20.6 | 19.7 |
| Iron | 25400 | 15700 | 133000 | 8430 | 76800 | 37800 | 195000 | 47100 | 25400 | 27600 |
| Lead | 87.7 | 73.9 | 223 | 5 | 30.8 | 18 | 189 | 32.6 | 17.9 | 14.5 |
| Manganese | 166 | 118 | 382 | 104 | 342 | 377 | 1020 | 537 | 339 | 433 |
| Mercury | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Nickel | 13 | 14.6 | 44.6 | 6.8 | 18.9 | 19.8 | 25.1 | 22.3 | 21.4 | 22.9 |
| Selenium | 0.83 | 0.33 | 1.1 | ND | 1.5 | 0.7 | 3.2 | 2.5 | 1.4 | 1.3 |
| Zinc | 145 | 155 | 2720 | 18.2 | 93.9 | 63.5 | 416 | 95.3 | 65.9 | 65.9 |

**SURFACE SOIL DATA**
**AREA A DOWNSTREAM AND OBDA** **Downstream Area**

| **SAMPLE ID:** | **2DMW10S** | **2DMW11S** | **3MW12S** | **2DMW15S** | **2DMW16S** |
|---|---|---|---|---|---|
| **DEPTH (in):** | **3-5** | **2-4** | **0-3** | **2-4** | **2-4** |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | |
| **Nonchlorinated Aromatics** | | | | | |
| Benzene | | | | | |
| Ethylbenzene | | | | | |
| Toluene | ND | ND | ND | 100 | ND |
| Xylene (total) | | | | | |
| **Chlorinated Compounds** | | | | | |
| Chloromethane | | | | | |
| 1,1-Dichloroethane | | | | | |
| 1,2-Dichloroethane | | | | | |
| 1,1-Dichloroethene | ND | ND | ND | 16 | ND |
| 1,2-Dichloroethene (Total) | | | | | |
| Methylene Chloride | | | | | |
| Tetrachloroethane | | | | | |
| Tetrachloroethene | ND | ND | ND | 58 | ND |
| Trichloroethene | 6 | ND | ND | 24 | ND |
| 1,1,1-Trichloroethane | | | | | |
| 1,1,2-Trichloroethane | | | | | |
| Vinyl Chloride | | | | | |
| **Other VOCs** | | | | | |
| Acetone | ND | ND | ND | 79 | ND |
| 2-Butanone | ND | ND | 32 | ND | ND |
| 4-Methyl-2-Pentanone | | | | | |
| Carbon Disulfide | ND | ND | ND | 7 | ND |
| **SEMIVOLATILE COMPOUNDS** | | | | | |
| **Noncarcinogenic PAHs** | | | | | |
| Acenaphthene | | | | | |
| Acenaphthylene | | | | | |

**SURFACE SOIL DATA**
**AREA A DOWNSTREAM AND OBDA** **Downstream Area**

| **SAMPLE ID:** | **2DMW10S** | **2DMW11S** | **3MW12S** | **2DMW15S** | **2DMW16S** |
|---|---|---|---|---|---|
| **DEPTH (in):** | **3-5** | **2-4** | **0-3** | **2-4** | **2-4** |
| Anthracene | | | | | |
| Fluoranthene | ND | ND | 67 | ND | ND |
| Fluorene | | | | | |
| 2-Methylnaphthalene | | | | | |
| Naphthalene | | | | | |
| Phenanthrene | | | | | |
| Pyrene | ND | ND | 54 | ND | ND |
| **Carcinogenic PAHs** | | | | | |
| Benzo(a)Anthracene | | | | | |
| Benzo(a)Pyrene | | | | | |
| Benzo(b)Fluoranthene | | | | | |
| Benzo(g,h,i)Perylene | | | | | |
| Benzo(k)Fluoranthene | ND | ND | 50 | ND | ND |
| Chrysene | | | | | |
| Dibenz(a,h)Anthracene | | | | | |
| Indeno(1,2,3-cd)Pyrene | | | | | |
| ***Total PAHs*** | 900 | 900 | 171 | 900 | 900 |
| **Other Semi-Volatile Compounds** | | | | | |
| bis(2-Ethylhexyl)Phthalate | ND | 140 | 160 | ND | ND |
| Di-n-Butylphthalate | | | | | |
| 2,4-Dimethylphenol | | | | | |
| 4,6-Dinitro-2-methylphenol | | | | | |
| 2-Methylphenol | | | | | |
| 4-Methylphenol | | | | | |
| Phenol | | | | | |
| Benzoic Acid | ND | ND | 82 | ND | ND |
| 4-Chloroaniline | | | | | |
| Dibenzofuran | | | | | |
| 2-Nitroaniline | | | | | |
| N-Nitrosodiphenylamine (1) | | | | | |

**SURFACE SOIL DATA**
**AREA A DOWNSTREAM AND OBDA** **Downstream Area**

| **SAMPLE ID:** | **2DMW10S** | **2DMW11S** | **3MW12S** | **2DMW15S** | **2DMW16S** |
|---|---|---|---|---|---|
| **DEPTH (in):** | **3-5** | **2-4** | **0-3** | **2-4** | **2-4** |
| **PESTICIDES** | | | | | |
| 4,4' DDE | ND | ND | 27 | ND | 28 |
| 4,4' DDD | ND | ND | 61 | ND | ND |
| 4,4'-DDT | ND | ND | 24 | ND | 74 |
| ***Total DDT Residue*** | *43.65* | *43.65* | *112* | *43.65* | *116.55* |
| Beta-BHC | | | | | |
| Endrin | | | | | |
| Endrin Ketone | | | | | |
| Methoxychlor | | | | | |
| **PCBs** | | | | | |
| Aroclor 1260 | | | | | |
| Aroclor 1254 | | | | | |
| **Metals** | | | | | |
| Aluminum | 15500 | 17000 | 14000 | 26200 | 4080 |
| Antimony | ND | ND | ND | ND | ND |
| Arsenic | 2.5 | 2.2 | 2.6 | 3.1 | 0.58 |
| Beryllium | 0.42 | 0.75 | 0.52 | 0.72 | ND |
| Boron | 47 | ND | 300 | 46 | 41 |
| Cadmium | 1.8 | 5 | 5.1 | 2.4 | ND |
| Copper | 22.6 | 12.2 | 11.8 | 14.3 | 11.9 |
| Iron | 19800 | 16100 | 12000 | 22600 | 7220 |
| Lead | 5.1 | 15.1 | 17.8 | 7.5 | 28.1 |
| Manganese | 283 | 94.6 | 255 | 232 | 105 |
| Mercury | ND | ND | ND | ND | ND |
| Nickel | 11.3 | 14.3 | 16.4 | 13.4 | 4.4 |
| Selenium | ND | ND | ND | ND | ND |
| Zinc | 47.2 | 82.1 | 83.8 | 39 | 27.2 |

| SURFACE SOIL DATA<br>AREA A DOWNSTREAM AND OBDA | Over Bank Disposal Area<br>Number Analyzed | Number Detected | Minimum | Maximum | Average |
|---|---|---|---|---|---|
| **SAMPLE ID:**<br>**DEPTH (in):** | | | | | |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | |
| **Nonchlorinated Aromatics** | | | | | |
| Benzene | 10 | 0 | | | |
| Ethylbenzene | 10 | 1 | 2 | 2 | 4.29 |
| Toluene | 10 | 1 | 4 | 4 | 4.49 |
| Xylene (total) | 10 | 1 | 3 | 3 | 4.39 |
| **Chlorinated Compounds** | | | | | |
| Chloromethane | | | | | |
| 1,1-Dichloroethane | | | | | |
| 1,2-Dichloroethane | | | | | |
| 1,1-Dichloroethene | | | | | |
| 1,2-Dichloroethene (Total) | | | | | |
| Methylene Chloride | 10 | 1 | 2 | 2 | 4.29 |
| Tetrachloroethane | | | | | |
| Tetrachloroethene | 10 | 1 | 4 | 4 | 4.49 |
| Trichloroethene | 10 | 0 | | | |
| 1,1,1-Trichloroethane | | | | | |
| 1,1,2-Trichloroethane | | | | | |
| Vinyl Chloride | | | | | |
| **Other VOCs** | | | | | |
| Acetone | 10 | 6 | 54 | 310 | 103.04 |
| 2-Butanone | 10 | 9 | 4 | 66 | 24.41 |
| 4-Methyl-2-Pentanone | | | | | |
| Carbon Disulfide | 10 | 4 | 2 | 11 | 4.73 |
| **SEMIVOLATILE COMPOUNDS** | | | | | |
| **Noncarcinogenic PAHs** | | | | | |
| Acenaphthene | 10 | 1 | 140 | 140 | 284.00 |
| Acenaphthylene | | | | | |

| SURFACE SOIL DATA<br>AREA A DOWNSTREAM AND OBDA | Over Bank Disposal Area<br>Number<br>Analyzed | <br>Number<br>Detected | <br>Minimum | <br>Maximum | <br>Average |
|---|---|---|---|---|---|
| **SAMPLE ID:** | | | | | |
| **DEPTH (in):** | | | | | |
| Anthracene | 10 | 2 | 330 | 390 | 312.00 |
| Fluoranthene | 10 | 6 | 73 | 1500 | 655.30 |
| Fluorene | 10 | 2 | 180 | 200 | 278.00 |
| 2-Methylnaphthalene | | | | | |
| Naphthalene | 10 | 1 | 80 | 80 | 278.00 |
| Phenanthrene | 10 | 2 | 1300 | 1600 | 530.00 |
| Pyrene | 10 | 6 | 140 | 1400 | 661.00 |
| **Carcinogenic PAHs** | | | | | |
| Benzo(a)Anthracene | 10 | 3 | 45 | 850 | 371.50 |
| Benzo(a)Pyrene | 10 | 2 | 520 | 590 | 351.00 |
| Benzo(b)Fluoranthene | 10 | 2 | 86 | 750 | 323.60 |
| Benzo(g,h,i)Perylene | 10 | 1 | 260 | 260 | 296.00 |
| Benzo(k)Fluoranthene | 10 | 1 | 290 | 290 | 299.00 |
| Chrysene | 10 | 3 | 75 | 720 | 359.50 |
| Dibenz(a,h)Anthracene | | | | | |
| Indeno(1,2,3-cd)Pyrene | 10 | 1 | 360 | 360 | 306.00 |
| ***Total PAHs*** | 10 | 10 | 3149 | 8820 | 5304.90 |
| **Other Semi-Volatile Compounds** | | | | | |
| bis(2-Ethylhexyl)Phthalate | | | | | |
| Di-n-Butylphthalate | | | | | |
| 2,4-Dimethylphenol | | | | | |
| 4,6-Dinitro-2-methylphenol | 10 | 0 | | | |
| 2-Methylphenol | 10 | 1 | 120 | 120 | 282.00 |
| 4-Methylphenol | | | | | |
| Phenol | | | | | |
| Benzoic Acid | 10 | 0 | | | |
| 4-Chloroaniline | 10 | 0 | | | |
| Dibenzofuran | 10 | 1 | 100 | 100 | 280.00 |
| 2-Nitroaniline | 10 | 0 | | | |
| N-Nitrosodiphenylamine (1) | | | | | |

| SURFACE SOIL DATA<br>AREA A DOWNSTREAM AND OBDA | Over Bank Disposal Area<br>Number Analyzed | Number Detected | Minimum | Maximum | Average |
|---|---|---|---|---|---|
| **SAMPLE ID:**<br>**DEPTH (in):** | | | | | |
| **PESTICIDES** | | | | | |
| 4,4' DDE | 10 | 8 | 60 | 15000 | 3568.61 |
| 4,4' DDD | 10 | 10 | 59 | 300000 | 57067.80 |
| 4,4'-DDT | 10 | 9 | 57 | 37000 | 5846.55 |
| ***Total DDT Residue*** | 10 | 10 | 88.1 | 352000 | 66482.97 |
| Beta-BHC | | | | | |
| Endrin | | | | | |
| Endrin Ketone | | | | | |
| Methoxychlor | | | | | |
| **PCBs** | | | | | |
| Aroclor 1260 | 10 | 0 | | | |
| Aroclor 1254 | | | | | |
| **Metals** | | | | | |
| Aluminum | 10 | 10 | 4190 | 18800 | 11482.00 |
| Antimony | 10 | 0 | | | |
| Arsenic | 10 | 10 | 1.9 | 39.9 | 10.81 |
| Beryllium | 10 | 10 | 0.37 | 1.8 | 0.93 |
| Boron | 10 | 9 | 400 | 8300 | 2748.00 |
| Cadmium | 10 | 10 | 1.2 | 30.1 | 9.37 |
| Copper | 10 | 10 | 10.6 | 118 | 40.26 |
| Iron | 10 | 10 | 8430 | 195000 | 59223.00 |
| Lead | 10 | 10 | 5 | 223 | 69.24 |
| Manganese | 10 | 10 | 104 | 1020 | 381.80 |
| Mercury | 10 | 0 | | | |
| Nickel | 10 | 10 | 6.8 | 44.6 | 20.94 |
| Selenium | 10 | 9 | 0.33 | 3.2 | 1.29 |
| Zinc | 10 | 10 | 18.2 | 2720 | 383.87 |

| SURFACE SOIL DATA<br>AREA A DOWNSTREAM AND OBDA | Downstream Area<br>Number<br>Analyzed | Number<br>Detected | Minimum | Maximum | Average |
|---|---|---|---|---|---|
| **SAMPLE ID:**<br>**DEPTH (in):** | | | | | |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | |
| **Nonchlorinated Aromatics** | | | | | |
| Benzene | | | | | |
| Ethylbenzene | | | | | |
| Toluene | 5 | 1 | 100 | 100 | 23.64 |
| Xylene (total) | | | | | |
| **Chlorinated Compounds** | | | | | |
| Chloromethane | | | | | |
| 1,1-Dichloroethane | | | | | |
| 1,2-Dichloroethane | | | | | |
| 1,1-Dichloroethene | 5 | 1 | 16 | 16 | 6.84 |
| 1,2-Dichloroethene (Total) | | | | | |
| Methylene Chloride | | | | | |
| Tetrachloroethane | | | | | |
| Tetrachloroethene | 5 | 1 | 58 | 58 | 15.24 |
| Trichloroethene | 5 | 2 | 6 | 24 | 8.73 |
| 1,1,1-Trichloroethane | | | | | |
| 1,1,2-Trichloroethane | | | | | |
| Vinyl Chloride | | | | | |
| **Other VOCs** | | | | | |
| Acetone | 5 | 1 | 79 | 79 | 23.07 |
| 2-Butanone | 5 | 1 | 32 | 32 | 13.67 |
| 4-Methyl-2-Pentanone | | | | | |
| Carbon Disulfide | 5 | 1 | 7 | 7 | 5.04 |
| **SEMIVOLATILE COMPOUNDS** | | | | | |
| **Noncarcinogenic PAHs** | | | | | |
| Acenaphthene | | | | | |
| Acenaphthylene | | | | | |

| SURFACE SOIL DATA<br>AREA A DOWNSTREAM AND OBDA | Downstream Area<br>Number<br>Analyzed | Number<br>Detected | Minimum | Maximum | Average |
|---|---|---|---|---|---|
| **SAMPLE ID:**<br>**DEPTH (in):** | | | | | |
| Anthracene | | | | | |
| Fluoranthene | 5 | 1 | 67 | 67 | 253.40 |
| Fluorene | | | | | |
| 2-Methylnaphthalene | | | | | |
| Naphthalene | | | | | |
| Phenanthrene | | | | | |
| Pyrene | 5 | 1 | 54 | 54 | 250.80 |
| **Carcinogenic PAHs** | | | | | |
| Benzo(a)Anthracene | | | | | |
| Benzo(a)Pyrene | | | | | |
| Benzo(b)Fluoranthene | | | | | |
| Benzo(g,h,i)Perylene | | | | | |
| Benzo(k)Fluoranthene | 5 | 1 | 50 | 50 | 250.00 |
| Chrysene | | | | | |
| Dibenz(a,h)Anthracene | | | | | |
| Indeno(1,2,3-cd)Pyrene | | | | | |
| ***Total PAHs*** | | | | 171 | 754.2 |
| **Other Semi-Volatile Compounds** | | | | | |
| bis(2-Ethylhexyl)Phthalate | 5 | 2 | 140 | 160 | 240.00 |
| Di-n-Butylphthalate | | | | | |
| 2,4-Dimethylphenol | | | | | |
| 4,6-Dinitro-2-methylphenol | | | | | |
| 2-Methylphenol | | | | | |
| 4-Methylphenol | | | | | |
| Phenol | | | | | |
| Benzoic Acid | 5 | 1 | 82 | 82 | 1180.04 |
| 4-Chloroaniline | | | | | |
| Dibenzofuran | | | | | |
| 2-Nitroaniline | | | | | |
| N-Nitrosodiphenylamine (1) | | | | | |

| SURFACE SOIL DATA<br>AREA A DOWNSTREAM AND OBDA | Downstream Area<br>Number<br>Analyzed | Number<br>Detected | Minimum | Maximum | Average |
|---|---|---|---|---|---|
| **SAMPLE ID:**<br>**DEPTH (in):** | | | | | |
| **PESTICIDES** | | | | | |
| 4,4' DDE | 5 | 2 | 27 | 28 | 19.73 |
| 4,4' DDD | 5 | 1 | 61 | 61 | 23.84 |
| 4,4'-DDT | 5 | 2 | 24 | 74 | 28.33 |
| ***Total DDT Residue*** | | | | *163* | *71.890909* |
| Beta-BHC | | | | | |
| Endrin | | | | | |
| Endrin Ketone | | | | | |
| Methoxychlor | | | | | |
| **PCBs** | | | | | |
| Aroclor 1260 | | | | | |
| Aroclor 1254 | | | | | |
| **Metals** | | | | | |
| Aluminum | | | | | |
| Antimony | | | | | |
| Arsenic | | | | | |
| Beryllium | | | | | |
| Boron | | | | | |
| Cadmium | | | | | |
| Copper | | | | | |
| Iron | | | | | |
| Lead | | | | | |
| Manganese | | | | | |
| Mercury | | | | | |
| Nickel | | | | | |
| Selenium | | | | | |
| Zinc | | | | | |

**SEDIMENT DATA**
**AREA A DOWNSTREAM**

| SAMPLE ID: | 2DSD1 | 2DSD2 | 2DSD3 | 2DSD4 | 2DSD5 | 2DSD7 | 2DSD8 | 2DSD9 | 2DSD10 | 2DSD11 | 2DSD12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (in): | | | | | | | | | | | |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | | | | | | |
| Benzene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Toluene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Xylene (total) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Chlorinated Compounds** | | | | | | | | | | | |
| Chloromethane | | | | | | | | | | | |
| 1,1-Dichloroethane | | | | | | | | | | | |
| 1,2-Dichloroethane | | | | | | | | | | | |
| 1,1-Dichloroethene | | | | | | | | | | | |
| 1,2-Dichloroethene (Total) | | | | | | | | | | | |
| Methylene Chloride | ND | 5 | 3 | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachloroethane | | | | | | | | | | | |
| Tetrachloroethene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichloroethene | ND | 3 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | | | | | | | | | | | |
| 1,1,2-Trichloroethane | | | | | | | | | | | |
| Vinyl Chloride | | | | | | | | | | | |
| **Other VOCs** | | | | | | | | | | | |
| Acetone | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Butanone | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Methyl-2-Pentanone | | | | | | | | | | | |
| Carbon Disulfide | ND | 4 | ND | ND | 5 | 2 | ND | ND | ND | ND | ND |
| **SEMIVOLATILE COMPOUNDS** | | | | | | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | | | | | | |
| Acenaphthene | ND | ND | ND | ND | ND | ND | ND | ND | ND | 41 | ND |
| Acenaphthylene | ND | ND | ND | ND | ND | ND | ND | ND | ND | 150 | 71 |

**SEDIMENT DATA**
**AREA A DOWNSTREAM**

| SAMPLE ID: | 2DSD1 | 2DSD2 | 2DSD3 | 2DSD4 | 2DSD5 | 2DSD7 | 2DSD8 | 2DSD9 | 2DSD10 | 2DSD11 | 2DSD12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **DEPTH (in):** | | | | | | | | | | | |
| Anthracene | ND | ND | ND | ND | ND | ND | ND | ND | ND | 160 | 68 |
| Fluoranthene | ND | ND | ND | 97 | 280 | 1000 | ND | 340 | 68 | 1300 | 590 |
| Fluorene | ND | ND | ND | ND | ND | ND | ND | ND | ND | 130 | ND |
| 2-Methylnaphthalene | | | | | | | | | | | |
| Naphthalene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | ND | ND | ND | 130 | 210 | 980 | ND | 160 | ND | 1600 | 270 |
| Pyrene | ND | ND | ND | 190 | 380 | 810 | 1200 | 560 | 64 | 4700 | 2700 |
| **Carcinogenic PAHs** | | | | | | | | | | | |
| Benzo(a)Anthracene | ND | ND | ND | ND | 130 | ND | ND | 230 | ND | 780 | 700 |
| Benzo(a)Pyrene | ND | ND | ND | ND | ND | ND | ND | 180 | ND | 640 | 410 |
| Benzo(b)Fluoranthene | ND | ND | ND | ND | 140 | ND | ND | 340 | 47 | 520 | 500 |
| Benzo(g,h,i)Perylene | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1200 | 730 |
| Benzo(k)Fluoranthene | ND | ND | ND | ND | 110 | ND | ND | 110 | ND | 300 | 170 |
| Chrysene | ND | ND | ND | ND | 170 | ND | 1200 | 220 | ND | 950 | 540 |
| Dibenz(a,h)Anthracene | | | | | | | | | | | |
| Indeno(1,2,3-cd)Pyrene | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1200 | 750 |
| **Other Semi-Volatile Compounds** | | | | | | | | | | | |
| bis(2-Ethylhexyl)Phthalate | | | | | | | | | | | |
| Di-n-Butylphthalate | | | | | | | | | | | |
| 2,4-Dimethylphenol | | | | | | | | | | | |
| 4,6-Dinitro-2-methylphenol | ND | 6200 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Methylphenol | | | | | | | | | | | |
| Phenol | | | | | | | | | | | |
| Benzoic Acid | ND | ND | ND | 160 | ND | ND | ND | ND | ND | 46 | 91 |
| 4-Chloroaniline | ND | ND | ND | ND | ND | 510 | ND | ND | ND | ND | ND |
| Dibenzofuran | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Nitroaniline | ND | 3100 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| N-Nitrosodiphenylamine (1) | | | | | | | | | | | |

**SEDIMENT DATA**
**AREA A DOWNSTREAM**

| **SAMPLE ID:** | **2DSD1** | **2DSD2** | **2DSD3** | **2DSD4** | **2DSD5** | **2DSD7** | **2DSD8** | **2DSD9** | **2DSD10** | **2DSD11** | **2DSD12** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **DEPTH (in):** | | | | | | | | | | | |
| **PESTICIDES** | | | | | | | | | | | |
| 4,4' DDE | 6300 | 3100 | 1500 | 28000 | 17 | 170 | 350 | ND | ND | 120 | ND |
| 4,4' DDD | 23000 | 90000 | 18000 | 1700000 | 1000 | 3300 | 14000 | 12000 | ND | ND | ND |
| 4,4'-DDT | ND | 1400 | 60 | 240000 | 29 | 1400 | 610 | 7000 | ND | ND | 68 |
| Beta-BHC | | | | | | | | | | | |
| Endrin | | | | | | | | | | | |
| Endrin Ketone | | | | | | | | | | | |
| Methoxychlor | | | | | | | | | | | |
| **PCBs** | | | | | | | | | | | |
| Aroclor 1260 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 280 |
| Aroclor 1254 | | | | | | | | | | | |
| **INORGANICS** | | | | | | | | | | | |
| **Metals** | | | | | | | | | | | |
| Aluminum | 32100 | 33100 | 11500 | 11500 | 9910 | 9460 | 15300 | 5100 | 8830 | 1710 | 4060 |
| Antimony | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Arsenic | 5 | 7.5 | 4 | ND | 4.2 | 3.2 | 3.8 | 1.1 | 4.5 | 1.1 | 0.83 |
| Beryllium | 4.1 | 5.4 | 1.6 | ND | 0.58 | 1.5 | 1.5 | 0.46 | 0.36 | ND | ND |
| Boron | 870 | 660 | 320 | 4100 | 1700 | 530 | 840 | ND | 63 | 60 | 650 |
| Cadmium | 13.8 | 12.3 | 4.2 | 4 | 3 | 6.1 | 4.3 | 1.2 | 1.7 | 1.4 | 1.8 |
| Copper | 94.3 | 78.7 | 21.1 | 21.7 | 14 | 30.9 | 45.7 | 13.9 | 36.5 | 16 | 13.1 |
| Iron | 18900 | 62400 | 25600 | 17100 | 17500 | 33200 | 20300 | 8960 | 9930 | 8560 | 9300 |
| Lead | 51.5 | 50 | 18.7 | 55.3 | 22.1 | 64.2 | 27.4 | 13.8 | 13.1 | 38.2 | 10.9 |
| Manganese | 137 | 222 | 129 | 311 | 411 | 145 | 236 | 149 | 177 | 191 | 102 |
| Mercury | ND | ND | ND | ND | ND | 0.26 | 0.15 | ND | ND | ND | ND |
| Nickel | 26.5 | 27.9 | 10.1 | 25.2 | 8.4 | 10.6 | 19.1 | 6.9 | 8.6 | 4.1 | 6.5 |
| Selenium | ND | ND | ND | 3 | 0.65 | ND | ND | ND | ND | ND | ND |
| Zinc | 617 | 291 | 73 | 85.4 | 44.1 | 118 | 135 | 44.4 | 37.7 | 44.2 | 41.9 |

| SEDIMENT DATA<br>AREA A DOWNSTREAM | | | Number Analyzed | Number Detected | Minimum | Maximum | Average |
|---|---|---|---|---|---|---|---|
| **SAMPLE ID:** | **2DSD13** | **7SD1** | | | | | |
| **DEPTH (in):** | | | | | | | |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | | |
| Benzene | ND | ND | 13 | 0 | | | |
| Ethylbenzene | ND | ND | 13 | 0 | | | |
| Toluene | ND | ND | 13 | 0 | | | |
| Xylene (total) | ND | ND | 13 | 0 | | | |
| **Chlorinated Compounds** | | | | | | | |
| Chloromethane | | | | | | | |
| 1,1-Dichloroethane | | | | | | | |
| 1,2-Dichloroethane | | | | | | | |
| 1,1-Dichloroethene | | | | | | | |
| 1,2-Dichloroethene (Total) | | | | | | | |
| Methylene Chloride | ND | ND | 13 | 2 | 3 | 5 | 4.46 |
| Tetrachloroethane | | | | | | | |
| Tetrachloroethene | ND | ND | 13 | 0 | | | |
| Trichloroethene | ND | ND | 13 | 1 | 3 | 3 | 4.43 |
| 1,1,1-Trichloroethane | | | | | | | |
| 1,1,2-Trichloroethane | | | | | | | |
| Vinyl Chloride | | | | | | | |
| **Other VOCs** | | | | | | | |
| Acetone | ND | ND | 13 | 0 | | | |
| 2-Butanone | ND | ND | 13 | 0 | | | |
| 4-Methyl-2-Pentanone | | | | | | | |
| Carbon Disulfide | ND | ND | 13 | 3 | 2 | 5 | 4.34 |
| **SEMIVOLATILE COMPOUNDS** | | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | | |
| Acenaphthene | ND | ND | 13 | 1 | 41 | 41 | 280.08 |
| Acenaphthylene | 65 | ND | 13 | 3 | 65 | 150 | 252.77 |

| SEDIMENT DATA<br>AREA A DOWNSTREAM | | | Number Analyzed | Number Detected | Minimum | Maximum | Average |
|---|---|---|---|---|---|---|---|
| **SAMPLE ID:** | **2DSD13** | **7SD1** | | | | | |
| **DEPTH (in):** | | | | | | | |
| Anthracene | 91 | ND | 13 | 3 | 68 | 160 | 255.31 |
| Fluoranthene | 750 | 210 | 13 | 9 | 68 | 1300 | 448.85 |
| Fluorene | 51 | ND | 13 | 2 | 51 | 130 | 267.77 |
| 2-Methylnaphthalene | | | | | | | |
| Naphthalene | ND | ND | 13 | 0 | | | |
| Phenanthrene | 500 | 140 | 13 | 8 | 130 | 1600 | 422.31 |
| Pyrene | 640 | 200 | 13 | 10 | 64 | 4700 | 949.54 |
| **Carcinogenic PAHs** | | | | | | | |
| Benzo(a)Anthracene | 430 | 84 | 13 | 6 | 84 | 780 | 342.62 |
| Benzo(a)Pyrene | 310 | ND | 13 | 4 | 180 | 640 | 326.15 |
| Benzo(b)Fluoranthene | 320 | ND | 13 | 6 | 47 | 520 | 305.15 |
| Benzo(g,h,i)Perylene | ND | ND | 13 | 2 | 730 | 1200 | 402.31 |
| Benzo(k)Fluoranthene | 320 | ND | 13 | 5 | 110 | 320 | 262.31 |
| Chrysene | 420 | 110 | 13 | 7 | 110 | 1200 | 416.15 |
| Dibenz(a,h)Anthracene | | | | | | | |
| Indeno(1,2,3-cd)Pyrene | 110 | ND | 13 | 3 | 110 | 1200 | 389.23 |
| **Other Semi-Volatile Compounds** | | | | | | | |
| bis(2-Ethylhexyl)Phthalate | | | | | | | |
| Di-n-Butylphthalate | | | | | | | |
| 2,4-Dimethylphenol | | | | | | | |
| 4,6-Dinitro-2-methylphenol | ND | ND | 13 | 1 | 6200 | 6200 | 1819.58 |
| 2-Methylphenol | ND | ND | 13 | 0 | | | |
| 4-Methylphenol | | | | | | | |
| Phenol | | | | | | | |
| Benzoic Acid | ND | ND | 13 | 2 | 46 | 91 | 1241.31 |
| 4-Chloroaniline | ND | ND | 13 | 1 | 510 | 510 | 316.15 |
| Dibenzofuran | ND | ND | 13 | 0 | | | |
| 2-Nitroaniline | ND | ND | 13 | 1 | 3100 | 3100 | 1581.12 |
| N-Nitrosodiphenylamine (1) | | | | | | | |

| SEDIMENT DATA<br>AREA A DOWNSTREAM | | | Number Analyzed | Number Detected | Minimum | Maximum | Average |
|---|---|---|---|---|---|---|---|
| **SAMPLE ID:** | **2DSD13** | **7SD1** | | | | | |
| **DEPTH (in):** | | | | | | | |
| **PESTICIDES** | | | | | | | |
| 4,4' DDE | ND | ND | 13 | 8 | 17 | 28000 | 3048.44 |
| 4,4' DDD | ND | ND | 13 | 8 | 1000 | 1700000 | 143182.52 |
| 4,4'-DDT | 120 | ND | 13 | 9 | 29 | 240000 | 19288.09 |
| Beta-BHC | | | | | | | |
| Endrin | | | | | | | |
| Endrin Ketone | | | | | | | |
| Methoxychlor | | | | | | | |
| **PCBs** | | | | | | | |
| Aroclor 1260 | ND | ND | 13 | 1 | 280 | 280 | 155.80 |
| Aroclor 1254 | | | | | | | |
| **INORGANICS** | | | | | | | |
| **Metals** | | | | | | | |
| Aluminum | 3030 | 11900 | 13 | 13 | 1710 | 33100 | 12115.38 |
| Antimony | ND | ND | 13 | 0 | | | |
| Arsenic | 1.1 | 5.6 | 13 | 12 | 0.83 | 7.5 | 3.30 |
| Beryllium | ND | 0.49 | 13 | 9 | 0.36 | 5.4 | 1.38 |
| Boron | 60 | 67 | 13 | 12 | 60 | 4100 | 766.15 |
| Cadmium | 1.7 | 2.4 | 13 | 13 | 1.2 | 13.8 | 4.45 |
| Copper | 8.8 | 16.4 | 13 | 13 | 8.8 | 94.3 | 31.62 |
| Iron | 8000 | 11600 | 13 | 13 | 8000 | 62400 | 19334.62 |
| Lead | 8.7 | 13.5 | 13 | 13 | 8.7 | 64.2 | 29.80 |
| Manganese | 657 | 147 | 13 | 13 | 102 | 657 | 231.85 |
| Mercury | ND | ND | 13 | 2 | 0.15 | 0.26 | 0.12 |
| Nickel | 4.6 | 9.5 | 13 | 13 | 4.1 | 27.9 | 12.92 |
| Selenium | ND | 0.28 | 13 | 3 | 0.28 | 3 | 0.69 |
| Zinc | 41 | 56.5 | 13 | 13 | 37.7 | 617 | 125.32 |

# APPENDIX F-3
# RISKS TO SOIL INVERTEBRATES - AREA A
# EQUILIBRIUM PARTITIONING CALCULATIONS

## RISKS TO SOIL INVERTEBRATES - AREA A WETLANDS
### Equilibrium Partitioning Approach

| | Koc | Chronic Criterion, ppb | Sediment Quality Criterion, ppb | 2WMW5S (0-2 feet) Soil Value, ppb | Toxicity Quotient | 2WMW6S (2-4 feet) Soil Value, ppb | Toxicity Quotient | 2WTB2 (0-2 feet) Soil Value ppb | Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|
| **VOLATILE ORGANIC COMPO NDS** | | | | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | | | | |
| Benzene | 8.30E+01 | 500 | 2075 | | 0.00 | | 0.00 | | 0.00 |
| Ethylbenzene | 1.10E+03 | 3750 | 206250 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Toluene | 3.00E+02 | 635 | 9525 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Xylene (total) | 2.40E+02 | 675 | 8100 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| **Chlorinated Compounds** | | | | | | | | | |
| Chloromethane | 2.70E+01 | | | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethane | 3.00E+01 | 580 | 870 | | 0.00 | | 0.00 | | 0.00 |
| 1,2-Dichloroethane | 1.40E+01 | 2000 | 1400 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethene | 6.50E+01 | 580 | 1885 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Cis-1,2-dichloroethene | 4.90E+01 | 580 | 1421 | | 0.00 | | 0.00 | | 0.00 |
| Trans-1,2-dichloroethene | 5.90E+01 | 580 | 1711 | | 0.00 | | 0.00 | | 0.00 |
| Methylene Chloride | 8.80E+00 | 11000 | 4840 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Tetrachloroethane | 1.18E+02 | 2400 | 14160 | | 0.00 | | 0.00 | | 0.00 |
| Tetrachloroethene | 3.64E+02 | 84 | 1528.8 | 3 | 0.00 | 3 | 0.00 | ND | 0.00 |
| Trichloroethene | 1.26E+02 | 2190 | 13797 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| 1,1,1-Trichloroethane | 1.52E+02 | 900 | 6840 | | 0.00 | | 0.00 | | 0.00 |
| 1,1,2-Trichloroethane | 5.60E+01 | 900 | 2520 | | 0.00 | | 0.00 | | 0.00 |
| Vinyl Chloride | 5.70E+01 | | 0 | | 0.00 | | 0.00 | | 0.00 |
| **Other VOCs** | | | | | | | | | |
| Acetone | 2.20E+00 | 5000 | 550 | ND | 0.01 | 74 | 0.13 | ND | 0.01 |
| 2-Butanone | 4.50E+00 | 5000 | 1125 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 4-Methyl-2-Pentanone | 2.09E+01 | | 0 | | 0.00 | | 0.00 | | 0.00 |
| Carbon Disulfide | 5.40E+01 | | 0 | ND | | 15 | | ND | |
| **Total Toxicity Quotient - VOCs** | | | | | **0.03** | | **0.15** | | **0.03** |
| **SEMIVOLATILE COMPOUNDS** | | | | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | | | | |
| Acenaphthene | 4.60E+03 | 86 | 19780 | ND | 0.01 | ND | 0.01 | ND | 0.01 |

## RISKS TO SOIL INVERTEBRATES - AREA A WETLANDS
### Equilibrium Partitioning Approach

| | | | | 2WMW5S (0-2 feet) | | 2WMW6S (2-4 feet) | | 2WTB2 (0-2 feet) | |
|---|---|---|---|---|---|---|---|---|---|
| | Koc | Chronic Criterion, ppb | Sediment Quality Criterion, ppb | Soil Value, ppb | Toxicity Quotient | Soil Value, ppb | Toxicity Quotient | Soil Value ppb | Toxicity Quotient |
| Acenaphthylene | 2.50E+03 | 13 | 1625 | ND | 0.16 | ND | 0.16 | ND | 0.16 |
| Anthracene | 1.40E+04 | 13 | 9100 | ND | 0.03 | ND | 0.03 | ND | 0.03 |
| Fluoranthene | 3.80E+04 | 13 | 24700 | 180 | 0.01 | 460 | 0.02 | 460 | 0.02 |
| Fluorene | 7.30E+03 | 13 | 4745 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| 2-Methylnaphthalene | 4.08E+03 | | 0 | | 0.00 | | 0.00 | | 0.00 |
| Naphthalene | 1.22E+58 | 62 | 3.796E+58 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Phenanthrene | 1.40E+04 | 35 | 24500 | 130 | 0.01 | ND | 0.01 | ND | 0.01 |
| Pyrene | 3.80E+04 | 13 | 24700 | 320 | 0.01 | 360 | 0.01 | 380 | 0.02 |
| **Carcinogenic PAHs** | | | | | | | | | |
| Benzo(a)Anthracene | 1.38E+06 | 3 | 207000 | 160 | 0.00 | 370 | 0.00 | 400 | 0.00 |
| Benzo(a)Pyrene | 5.50E+06 | 1.2 | 330000 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(b)Fluoranthene | 5.50E+05 | 35 | 962500 | 180 | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(g,h,i)Perylene | 1.60E+06 | 1.2 | 96000 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(k)Fluoranthene | 5.50E+05 | 35 | 962500 | 120 | 0.00 | ND | 0.00 | ND | 0.00 |
| Chrysene | 2.00E+05 | 13 | 130000 | 230 | 0.00 | 330 | 0.00 | ND | 0.00 |
| Dibenz(a,h)Anthracene | 3.30E+06 | 1.2 | 198000 | | 0.00 | | 0.00 | | 0.00 |
| Indeno(1,2,3-cd)Pyrene | 1.60E+06 | 1.2 | 96000 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| **Other Semi-Volatile Compounds** | | | | | | | | | |
| bis(2-Ethylhexyl)Phthalate | 6.05E+04 | 0.3 | 907.5 | 790 | 0.87 | ND | 0.28 | ND | 0.28 |
| Di-n-Butylphthalate | 1.70E+05 | 105 | 892500 | | 0.00 | | 0.00 | | 0.00 |
| 2,4-Dimethylphenol | 9.60E+01 | | 0 | | 0.00 | | 0.00 | | 0.00 |
| 4,6-Dinitro-2-methylphenol | 2.40E+02 | | 0 | | 0.00 | | 0.00 | | 0.00 |
| 2-Methylphenol | 6.62E+01 | | | ND | | ND | | ND | |
| 4-Methylphenol | 6.48E+01 | | 0 | | 0.00 | | 0.00 | | 0.00 |
| Phenol | 1.42E+01 | 256 | 181.76 | | 0.00 | | 0.00 | | 0.00 |
| Benzoic Acid | 5.57E+01 | 6450 | 17963.25 | ND | 0.07 | ND | 0.07 | ND | 0.07 |
| 4-Chloroaniline | 5.11E+01 | | 0 | | 0.00 | | 0.00 | | 0.00 |
| Dibenzofuran | 7.15E+03 | | | ND | | ND | | ND | |
| 2-Nitroaniline | 9.80E+01 | | 0 | | 0.00 | | 0.00 | | 0.00 |
| N-Nitrosodiphenylamine (1) | 8.45E+02 | | 0 | | 0.00 | | 0.00 | | 0.00 |

**RISKS TO SOIL INVERTEBRATES - AREA A WETLANDS**
**Equilibrium Partitioning Approach**

| | Koc | Chronic Criterion, ppb | Sediment Quality Criterion, ppb | 2WMW5S (0-2 feet) Soil Value, ppb | Toxicity Quotient | 2WMW6S (2-4 feet) Soil Value, ppb | Toxicity Quotient | 2WTB2 (0-2 feet) Soil Value ppb | Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|
| **Total Toxicity Quotient - SVOCs** | | | | | **1.23** | | **0.66** | | **0.66** |
| **PESTICIDES** | | | | | | | | | |
| 4,4' DDE | 4.40E+06 | 0.001 | 220 | ND | 0.06 | ND | 0.06 | ND | 0.06 |
| 4,4' DDD | 7.70E+05 | 0.001 | 38.5 | ND | 0.32 | ND | 0.32 | ND | 0.32 |
| 4,4'-DDT | 2.43E+05 | 0.001 | 12.15 | ND | 1.03 | ND | 1.03 | ND | 1.03 |
| Beta-BHC | 5.12E+03 | | 0 | | 0.00 | | 0.00 | | 0.00 |
| Endrin | 1.70E+03 | 0.0023 | 0.1955 | | 0.00 | | 0.00 | | 0.00 |
| Endrin Ketone | | | 0 | | 0.00 | | 0.00 | | 0.00 |
| Methoxychlor | 8.00E+04 | 0.03 | 120 | | 0.00 | | 0.00 | | 0.00 |
| **Total Toxicity Quotient - Pesticides** | | | | | **1.41** | | **1.41** | | **1.41** |
| **PCBs** | | | | | | | | | |
| Aroclor 1260 | 5.30E+05 | 0.014 | 371 | ND | 0.34 | ND | 0.34 | 370 | 1.00 |
| Aroclor 1254 | 5.30E+05 | 0.014 | 371 | | 0.00 | | 0.00 | | 0.00 |
| **Total Toxicity Quotient - PCBs** | | | | | **0.34** | | **0.34** | | **1.00** |

## RISKS TO SOIL INVERTEBRATES - AREA A WETLANDS
### Equilibrium Partitioning Approach

| | 2WTB4 (0-2 feet) | | 2WTB6 (0-2feet) | | 2WTB7 (0-2 feet) | | 2WTB8 (1-3 feet) | | 2WSD1 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Soil Value ppb | Toxicity Quotient | Soil Value ppb | Toxicity Quotient | Soil Value ppb | Toxicity Quotient | Soil Value, ppb | Toxicity Quotient | Soil Value, ppb | Toxicity Quotient |
| **VOLATILE ORGANIC COMPO** | | | | | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | | | | | |
| Benzene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Ethylbenzene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Toluene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Xylene (total) | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| **Chlorinated Compounds** | | | | | | | | | | |
| Chloromethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,2-Dichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Cis-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Trans-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methylene Chloride | ND | 0.00 | ND | 0.00 | ND | 0.00 | 4 | 0.00 | ND | 0.00 |
| Tetrachloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Tetrachloroethene | ND | 0.00 | ND | 0.00 | ND | 0.00 | 7 | 0.00 | ND | 0.00 |
| Trichloroethene | 4 | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| 1,1,1-Trichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1,2-Trichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Vinyl Chloride | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Other VOCs** | | | | | | | | | | |
| Acetone | ND | 0.01 | 540 | 0.98 | ND | 0.01 | 850 | 1.55 | 210 | 0.38 |
| 2-Butanone | ND | 0.01 | 87 | 0.08 | ND | 0.01 | 310 | 0.28 | 140 | 0.12 |
| 4-Methyl-2-Pentanone | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Carbon Disulfide | ND | | 6 | | ND | | 8 | | 11 | |
| **Total Toxicity Quotient - VOCs** | | **0.03** | | **1.07** | | **0.03** | | **1.83** | | **0.51** |
| **SEMIVOLATILE COMPOUNDS** | | | | | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | | | | | |
| Acenaphthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |

## RISKS TO SOIL INVERTEBRATES - AREA A WETLANDS
### Equilibrium Partitioning Approach

| | 2WTB4 (0-2 feet) | | 2WTB6 (0-2feet) | | 2WTB7 (0-2 feet) | | 2WTB8 (1-3 feet) | | 2WSD1 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Soil Value ppb | Toxicity Quotient | Soil Value ppb | Toxicity Quotient | Soil Value ppb | Toxicity Quotient | Soil Value, ppb | Toxicity Quotient | Soil Value, ppb | Toxicity Quotient |
| Acenaphthylene | 77 | 0.05 | ND | 0.16 | ND | 0.16 | 120 | 0.07 | ND | 0.16 |
| Anthracene | 52 | 0.01 | ND | 0.03 | ND | 0.03 | 79 | 0.01 | ND | 0.03 |
| Fluoranthene | 310 | 0.01 | 300 | 0.01 | 72 | 0.00 | 600 | 0.02 | 970 | 0.04 |
| Fluorene | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| 2-Methylnaphthalene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Naphthalene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Phenanthrene | 270 | 0.01 | 160 | 0.01 | ND | 0.01 | 340 | 0.01 | ND | 0.01 |
| Pyrene | 460 | 0.02 | 270 | 0.01 | 98 | 0.00 | 570 | 0.02 | 1300 | 0.05 |
| **Carcinogenic PAHs** | | | | | | | | | | |
| Benzo(a)Anthracene | 220 | 0.00 | 200 | 0.00 | ND | 0.00 | 370 | 0.00 | 670 | 0.00 |
| Benzo(a)Pyrene | 230 | 0.00 | 190 | 0.00 | ND | 0.00 | 390 | 0.00 | ND | 0.00 |
| Benzo(b)Fluoranthene | 220 | 0.00 | 210 | 0.00 | ND | 0.00 | 550 | 0.00 | 380 | 0.00 |
| Benzo(g,h,i)Perylene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(k)Fluoranthene | 310 | 0.00 | 250 | 0.00 | ND | 0.00 | 390 | 0.00 | 480 | 0.00 |
| Chrysene | 320 | 0.00 | 250 | 0.00 | ND | 0.00 | 600 | 0.00 | 630 | 0.00 |
| Dibenz(a,h)Anthracene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Indeno(1,2,3-cd)Pyrene | ND | 0.00 | ND | 0.00 | ND | 0.00 | 270 | 0.00 | ND | 0.00 |
| **Other Semi-Volatile Compounds** | | | | | | | | | | |
| bis(2-Ethylhexyl)Phthalate | 280 | 0.31 | 350 | 0.39 | ND | 0.28 | 1300 | 1.43 | ND | 0.28 |
| Di-n-Butylphthalate | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2,4-Dimethylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4,6-Dinitro-2-methylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2-Methylphenol | ND | | ND | | ND | | ND | | ND | |
| 4-Methylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Phenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Benzoic Acid | 160 | 0.01 | 130 | 0.01 | ND | 0.07 | ND | 0.07 | ND | 0.07 |
| 4-Chloroaniline | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Dibenzofuran | ND | | ND | | ND | | ND | | ND | |
| 2-Nitroaniline | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| N-Nitrosodiphenylamine (1) | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |

**RISKS TO SOIL INVERTEBRATES - AREA A WETLANDS**
**Equilibrium Partitioning Approach**

| | 2WTB4 (0-2 feet) | | 2WTB6 (0-2feet) | | 2WTB7 (0-2 feet) | | 2WTB8 (1-3 feet) | | 2WSD1 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Soil Value ppb | Toxicity Quotient | Soil Value ppb | Toxicity Quotient | Soil Value ppb | Toxicity Quotient | Soil Value, ppb | Toxicity Quotient | Soil Value, ppb | Toxicity Quotient |
| **Total Toxicity Quotient - SVOCs** | | **0.49** | | **0.69** | | **0.64** | | **1.73** | | **0.73** |
| **PESTICIDES** | | | | | | | | | | |
| 4,4' DDE | 32 | 0.15 | ND | 0.06 | ND | 0.06 | ND | 0.06 | 36 | 0.16 |
| 4,4' DDD | ND | 0.32 | 69 | 1.79 | ND | 0.32 | ND | 0.32 | 140 | 3.64 |
| 4,4'-DDT | ND | 1.03 | ND | 1.03 | ND | 1.03 | ND | 1.03 | ND | 1.03 |
| Beta-BHC | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin Ketone | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methoxychlor | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Total Toxicity Quotient - Pesticide** | | **1.50** | | **2.88** | | **1.41** | | **1.41** | | **4.83** |
| **PCBs** | | | | | | | | | | |
| Aroclor 1260 | ND | 0.34 | ND | 0.34 | ND | 0.34 | ND | 0.34 | ND | 0.34 |
| Aroclor 1254 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Total Toxicity Quotient - PCBs** | | **0.34** | | **0.34** | | **0.34** | | **0.34** | | **0.34** |

## RISKS TO SOIL INVERTEBRATES - AREA A WETLANDS
### Equilibrium Partitioning Approach

| | 2WSD2 Soil Value, ppb | Toxicity Quotient | 2WSD3 Soil Value, ppb | Toxicity Quotient | 2WSD4 Soil Value, ppb | Toxicity Quotient | 2WSD5 Soil Value, ppb | Toxicity Quotient | 2WSD6 Soil Value, ppb | Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|
| **VOLATILE ORGANIC COMPO** | | | | | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | | | | | |
| Benzene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Ethylbenzene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Toluene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Xylene (total) | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| **Chlorinated Compounds** | | | | | | | | | | |
| Chloromethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,2-Dichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Cis-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Trans-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methylene Chloride | ND | 0.00 | ND | 0.00 | 10 | 0.00 | 3 | 0.00 | 10 | 0.00 |
| Tetrachloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Tetrachloroethene | ND | 0.00 | ND | 0.00 | 16 | 0.01 | 4 | 0.00 | 10 | 0.01 |
| Trichloroethene | ND | 0.00 | ND | 0.00 | 11 | 0.00 | 3 | 0.00 | ND | 0.00 |
| 1,1,1-Trichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1,2-Trichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Vinyl Chloride | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Other VOCs** | | | | | | | | | | |
| Acetone | 130 | 0.24 | 230 | 0.42 | ND | 0.01 | ND | 0.01 | 240 | 0.44 |
| 2-Butanone | 100 | 0.09 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 4-Methyl-2-Pentanone | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Carbon Disulfide | 16 | | 18 | | ND | | ND | | 9 | |
| **Total Toxicity Quotient - VOCs** | | **0.33** | | **0.43** | | **0.04** | | **0.03** | | **0.46** |
| **SEMIVOLATILE COMPOUNDS** | | | | | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | | | | | |
| Acenaphthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |

## RISKS TO SOIL INVERTEBRATES - AREA A WETLANDS
### Equilibrium Partitioning Approach

| | 2WSD2 Soil Value, ppb | Toxicity Quotient | 2WSD3 Soil Value, ppb | Toxicity Quotient | 2WSD4 Soil Value, ppb | Toxicity Quotient | 2WSD5 Soil Value, ppb | Toxicity Quotient | 2WSD6 Soil Value, ppb | Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthylene | ND | 0.16 | ND | 0.16 | ND | 0.16 | ND | 0.16 | ND | 0.16 |
| Anthracene | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 |
| Fluoranthene | ND | 0.01 | 390 | 0.02 | 410 | 0.02 | ND | 0.01 | ND | 0.01 |
| Fluorene | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| 2-Methylnaphthalene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Naphthalene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Phenanthrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Pyrene | ND | 0.01 | 670 | 0.03 | 460 | 0.02 | ND | 0.01 | 470 | 0.02 |
| **Carcinogenic PAHs** | | | | | | | | | | |
| Benzo(a)Anthracene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(a)Pyrene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(b)Fluoranthene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(g,h,i)Perylene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(k)Fluoranthene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Chrysene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Dibenz(a,h)Anthracene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Indeno(1,2,3-cd)Pyrene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| **Other Semi-Volatile Compounds** | | | | | | | | | | |
| bis(2-Ethylhexyl)Phthalate | ND | 0.28 | ND | 0.28 | ND | 0.28 | ND | 0.28 | ND | 0.28 |
| Di-n-Butylphthalate | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2,4-Dimethylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4,6-Dinitro-2-methylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2-Methylphenol | ND | | ND | | ND | | ND | | ND | |
| 4-Methylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Phenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Benzoic Acid | ND | 0.07 | ND | 0.07 | ND | 0.07 | ND | 0.07 | ND | 0.07 |
| 4-Chloroaniline | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Dibenzofuran | ND | | ND | | ND | | ND | | ND | |
| 2-Nitroaniline | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| N-Nitrosodiphenylamine (1) | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |

**RISKS TO SOIL INVERTEBRATES - AREA A WETLANDS**
**Equilibrium Partitioning Approach**

| | 2WSD2 Soil Value, ppb | Toxicity Quotient | 2WSD3 Soil Value, ppb | Toxicity Quotient | 2WSD4 Soil Value, ppb | Toxicity Quotient | 2WSD5 Soil Value, ppb | Toxicity Quotient | 2WSD6 Soil Value, ppb | Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Toxicity Quotient - SVOCs** | | **0.65** | | **0.67** | | **0.66** | | **0.65** | | **0.66** |
| **PESTICIDES** | | | | | | | | | | |
| 4,4' DDE | 40 | 0.18 | ND | 0.06 | ND | 0.06 | ND | 0.06 | ND | 0.06 |
| 4,4' DDD | ND | 0.32 | ND | 0.32 | ND | 0.32 | ND | 0.32 | ND | 0.32 |
| 4,4'-DDT | ND | 1.03 | 57 | 4.69 | ND | 1.03 | ND | 1.03 | ND | 1.03 |
| Beta-BHC | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin Ketone | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methoxychlor | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Total Toxicity Quotient - Pesticide** | | **1.54** | | **5.07** | | **1.41** | | **1.41** | | **1.41** |
| **PCBs** | | | | | | | | | | |
| Aroclor 1260 | ND | 0.34 | ND | 0.34 | ND | 0.34 | ND | 0.34 | ND | 0.34 |
| Aroclor 1254 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Total Toxicity Quotient - PCBs** | | **0.34** | | **0.34** | | **0.34** | | **0.34** | | **0.34** |

## RISKS TO SOIL INVERTEBRATES - WETLANDS
### Equilibrium Partitioning Approach

| | 2WSD7 Soil Value, ppb | Toxicity Quotient | 2WSD8 Soil Value, ppb | Toxicity Quotient | 2WSD9 Soil Value, ppb | Toxicity Quotient |
|---|---|---|---|---|---|---|
| **VOLATILE ORGANIC COMPO** | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | |
| Benzene | | 0.00 | | 0.00 | | 0.00 |
| Ethylbenzene | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Toluene | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Xylene (total) | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| **Chlorinated Compounds** | | | | | | |
| Chloromethane | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethane | | 0.00 | | 0.00 | | 0.00 |
| 1,2-Dichloroethane | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethene | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Cis-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 |
| Trans-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 |
| Methylene Chloride | ND | 0.00 | 2 | 0.00 | 5 | 0.00 |
| Tetrachloroethane | | 0.00 | | 0.00 | | 0.00 |
| Tetrachloroethene | ND | 0.00 | ND | 0.00 | 11 | 0.01 |
| Trichloroethene | ND | 0.00 | ND | 0.00 | 6 | 0.00 |
| 1,1,1-Trichloroethane | | 0.00 | | 0.00 | | 0.00 |
| 1,1,2-Trichloroethane | | 0.00 | | 0.00 | | 0.00 |
| Vinyl Chloride | | 0.00 | | 0.00 | | 0.00 |
| **Other VOCs** | | | | | | |
| Acetone | 720 | 1.31 | 190 | 0.35 | ND | 0.01 |
| 2-Butanone | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 4-Methyl-2-Pentanone | | 0.00 | | 0.00 | | 0.00 |
| Carbon Disulfide | ND | | 15 | | ND | |
| **Total Toxicity Quotient - VOCs** | | **1.32** | | **0.36** | | **0.03** |
| **SEMIVOLATILE COMPOUNDS** | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | |
| Acenaphthene | ND | 0.01 | ND | 0.01 | ND | 0.01 |

**RISKS TO SOIL INVERTEBRATES - WETLANDS**
**Equilibrium Partitioning Approach**

| | 2WSD7 Soil Value, ppb | Toxicity Quotient | 2WSD8 Soil Value, ppb | Toxicity Quotient | 2WSD9 Soil Value, ppb | Toxicity Quotient |
|---|---|---|---|---|---|---|
| Acenaphthylene | ND | 0.16 | ND | 0.16 | ND | 0.16 |
| Anthracene | ND | 0.03 | ND | 0.03 | 2400 | 0.26 |
| Fluoranthene | 470 | 0.02 | 1300 | 0.05 | 80000 | 3.24 |
| Fluorene | ND | 0.05 | ND | 0.05 | 1000 | 0.21 |
| 2-Methylnaphthalene | | 0.00 | | 0.00 | | 0.00 |
| Naphthalene | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Phenanthrene | ND | 0.01 | 440 | 0.02 | 36000 | 1.47 |
| Pyrene | 610 | 0.02 | 1500 | 0.06 | 42000 | 1.70 |
| **Carcinogenic PAHs** | | | | | | |
| Benzo(a)Anthracene | ND | 0.00 | ND | 0.00 | 27000 | 0.13 |
| Benzo(a)Pyrene | ND | 0.00 | ND | 0.00 | 35000 | 0.11 |
| Benzo(b)Fluoranthene | ND | 0.00 | 420 | 0.00 | 55000 | 0.06 |
| Benzo(g,h,i)Perylene | ND | 0.00 | ND | 0.00 | 23000 | 0.24 |
| Benzo(k)Fluoranthene | ND | 0.00 | 670 | 0.00 | 45000 | 0.05 |
| Chrysene | ND | 0.00 | 610 | 0.00 | 42000 | 0.32 |
| Dibenz(a,h)Anthracene | | 0.00 | | 0.00 | | 0.00 |
| Indeno(1,2,3-cd)Pyrene | ND | 0.00 | ND | 0.00 | 23000 | 0.24 |
| **Other Semi-Volatile Compounds** | | | | | | |
| bis(2-Ethylhexyl)Phthalate | ND | 0.28 | ND | 0.28 | ND | 0.28 |
| Di-n-Butylphthalate | | 0.00 | | 0.00 | | 0.00 |
| 2,4-Dimethylphenol | | 0.00 | | 0.00 | | 0.00 |
| 4,6-Dinitro-2-methylphenol | | 0.00 | | 0.00 | | 0.00 |
| 2-Methylphenol | ND | | ND | | ND | |
| 4-Methylphenol | | 0.00 | | 0.00 | | 0.00 |
| Phenol | | 0.00 | | 0.00 | | 0.00 |
| Benzoic Acid | 780 | 0.04 | ND | 0.07 | ND | 0.07 |
| 4-Chloroaniline | | 0.00 | | 0.00 | | 0.00 |
| Dibenzofuran | ND | | ND | | 1000 | |
| 2-Nitroaniline | | 0.00 | | 0.00 | | 0.00 |
| N-Nitrosodiphenylamine (1) | | 0.00 | | 0.00 | | 0.00 |

**RISKS TO SOIL INVERTEBRATES - WETLANDS**
**Equilibrium Partitioning Approach**

| | 2WSD7 Soil Value, ppb | Toxicity Quotient | 2WSD8 Soil Value, ppb | Toxicity Quotient | 2WSD9 Soil Value, ppb | Toxicity Quotient |
|---|---|---|---|---|---|---|
| **Total Toxicity Quotient - SVOCs** | | **0.65** | | **0.75** | | **8.55** |
| **PESTICIDES** | | | | | | |
| 4,4' DDE | ND | 0.06 | ND | 0.06 | ND | 0.06 |
| 4,4' DDD | ND | 0.32 | ND | 0.32 | ND | 0.32 |
| 4,4'-DDT | ND | 1.03 | ND | 1.03 | ND | 1.03 |
| Beta-BHC | | 0.00 | | 0.00 | | 0.00 |
| Endrin | | 0.00 | | 0.00 | | 0.00 |
| Endrin Ketone | | 0.00 | | 0.00 | | 0.00 |
| Methoxychlor | | 0.00 | | 0.00 | | 0.00 |
| **Total Toxicity Quotient - Pesticide** | | **1.41** | | **1.41** | | **1.41** |
| **PCBs** | | | | | | |
| Aroclor 1260 | ND | 0.34 | ND | 0.34 | ND | 0.34 |
| Aroclor 1254 | | 0.00 | | 0.00 | | 0.00 |
| **Total Toxicity Quotient - PCBs** | | **0.34** | | **0.34** | | **0.34** |

**Risks to Soil Invertebrates\Area A Downstream and OBDA**
**Equilibrium Partitioning Approach**

| SURFACE SOIL DATA (0-4 FEET) | Koc | Chronic Criterion, ppb | Sediment Quality Criterion, ppb | OBDA 3SD1 Soil Value, ppb | (0-6 in) Toxicity Quotient | 3SD1 Soil Value, ppb | (12-18 in) Toxicity Quotient | 3SD2 Soil Value, ppb | (0-6 in) Toxicity Quotient | 3SD2 Soil Value, ppb | (12-18 in) Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VOLATILE ORGANIC COMPOUNDS | | | | | | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | | | | | | |
| Benzene | 8.30E+01 | 500 | 2075 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Ethylbenzene | 1.10E+03 | 3750 | 206250 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Toluene | 3.00E+02 | 635 | 9525 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Xylene (total) | 2.40E+02 | 675 | 8100 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| **Chlorinated Compounds** | | | | | | | | | | | |
| Chloromethane | 2.70E+01 | find | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethane | 3.00E+01 | 580 | 870 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,2-Dichloroethane | 1.40E+01 | 2000 | 1400 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethene | 6.50E+01 | 580 | 1885 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Cis-1,2-dichloroethene | 4.90E+01 | 580 | 1421 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Trans-1,2-dichloroethene | 5.90E+01 | 580 | 1711 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methylene Chloride | 8.80E+00 | 11000 | 4840 | 2 | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Tetrachloroethane | 1.18E+02 | 2400 | 14160 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Tetrachloroethene | 3.64E+02 | 84 | 1528.8 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Trichloroethene | 1.26E+02 | 2190 | 13797 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| 1,1,1-Trichloroethane | 1.52E+02 | 900 | 6840 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1,2-Trichloroethane | 5.60E+01 | 900 | 2520 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Vinyl Chloride | 5.70E+01 | | 0 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Other VOCs** | | | | | | | | | | | |
| Acetone | 2.20E+00 | 5000 | 550 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 |
| 2-Butanone | 4.50E+00 | 5000 | 1125 | ND | 0.01 | 6 | 0.01 | 4 | 0.00 | 6 | 0.01 |
| 4-Methyl-2-Pentanone | 2.09E+01 | | 0 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Carbon Disulfide | 5.40E+01 | | 0 | ND | | ND | | ND | | ND | |
| ***Total-VOCs*** | | | | | *0.03* | | *0.03* | | *0.03* | | *0.03* |
| SEMIVOLATILE COMPOUNDS | | | | | | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | | | | | | |
| Acenaphthene | 4.60E+03 | 86 | 19780 | 140 | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 |

**Risks to Soil Invertebrates\Area A Downstream and OBDA**
**Equilibrium Partitioning Approach**

| SURFACE SOIL DATA (0-4 FEET) | Koc | Chronic Criterion, ppb | Sediment Quality Criterion, ppb | OBDA 3SD1 Soil Value, ppb | (0-6 in) Toxicity Quotient | 3SD1 Soil Value, ppb | (12-18 in) Toxicity Quotient | 3SD2 Soil Value, ppb | (0-6 in) Toxicity Quotient | 3SD2 Soil Value, ppb | (12-18 in) Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthylene | 2.50E+03 | 13 | 1625 | ND | 0.18 | ND | 0.18 | ND | 0.18 | ND | 0.18 |
| Anthracene | 1.40E+04 | 13 | 9100 | 330 | 0.04 | ND | 0.03 | ND | 0.03 | ND | 0.03 |
| Fluoranthene | 3.80E+04 | 13 | 24700 | 1400 | 0.06 | 110 | 0.00 | 73 | 0.00 | ND | 0.01 |
| Fluorene | 7.30E+03 | 13 | 4745 | 180 | 0.04 | ND | 0.06 | ND | 0.06 | ND | 0.06 |
| 2-Methylnaphthalene | 4.08E+03 | | 0 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Naphthalene | 1.22E+58 | 62 | 3.796E+58 | 80 | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Phenanthrene | 1.40E+04 | 35 | 24500 | 1300 | 0.05 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Pyrene | 3.80E+04 | 13 | 24700 | 1400 | 0.06 | 140 | 0.01 | 170 | 0.01 | ND | 0.01 |
| **Carcinogenic PAHs** | | | | | | | | | | | |
| Benzo(a)Anthracene | 1.38E+06 | 3 | 207000 | 850 | 0.00 | ND | 0.00 | 45 | 0.00 | ND | 0.00 |
| Benzo(a)Pyrene | 5.50E+06 | 1.2 | 330000 | 520 | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(b)Fluoranthene | 5.50E+05 | 35 | 962500 | 750 | 0.00 | ND | 0.00 | 86 | 0.00 | ND | 0.00 |
| Benzo(g,h,i)Perylene | 1.60E+06 | 1.2 | 96000 | 260 | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(k)Fluoranthene | 5.50E+05 | 35 | 962500 | 290 | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Chrysene | 2.00E+05 | 13 | 130000 | 700 | 0.01 | ND | 0.00 | 75 | 0.00 | ND | 0.00 |
| Dibenz(a,h)Anthracene | 3.30E+06 | 1.2 | 198000 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Indeno(1,2,3-cd)Pyrene | 1.60E+06 | 1.2 | 96000 | 360 | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| **Other Semi-Volatile Compounds** | | | | | | | | | | | |
| bis(2-Ethylhexyl)Phthalate | 6.05E+04 | 0.3 | 907.5 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 |
| Di-n-Butylphthalate | 1.70E+05 | 105 | 892500 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2,4-Dimethylphenol | 9.60E+01 | | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4,6-Dinitro-2-methylphenol | 2.40E+02 | | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2-Methylphenol | 6.62E+01 | | | 120 | | ND | | ND | | ND | |
| 4-Methylphenol | 6.48E+01 | | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Phenol | 1.42E+01 | 256 | 181.76 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Benzoic Acid | 5.57E+01 | 6450 | 6450 | ND | 0.23 | ND | 0.23 | ND | 0.23 | ND | 0.23 |
| 4-Chloroaniline | 5.11E+01 | | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Dibenzofuran | 7.15E+03 | | | 100 | | ND | | ND | | ND | |
| 2-Nitroaniline | 9.80E+01 | | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| N-Nitrosodiphenylamine (1) | 8.45E+02 | | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |

**Risks to Soil Invertebrates\Area A Downstream and OBDA**
**Equilibrium Partitioning Approach**

| SURFACE SOIL DATA (0-4 FEET) | Koc | Chronic Criterion, ppb | Sediment Quality Criterion, ppb | OBDA 3SD1 Soil Value, ppb | (0-6 in) Toxicity Quotient | 3SD1 Soil Value, ppb | (12-18 in) Toxicity Quotient | 3SD2 Soil Value, ppb | (0-6 in) Toxicity Quotient | 3SD2 Soil Value, ppb | (12-18 in) Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Total Semi-VOCs*** | | | | | *1.01* | | *0.89* | | *0.88* | | *0.90* |
| **PESTICIDES** | | | | | | | | | | | |
| 4,4' DDE | 4.40E+06 | 0.001 | 220 | 87 | 0.40 | 60 | 0.27 | ND | 0.07 | ND | 0.07 |
| 4,4' DDD | 7.70E+05 | 0.001 | 38.5 | 89 | 2.31 | 140 | 3.64 | 190 | 4.94 | 59 | 1.53 |
| 4,4'-DDT | 2.43E+05 | 0.001 | 12.15 | 57 | 4.69 | 69 | 5.68 | 855 | 70.37 | ND | 1.20 |
| Beta-BHC | 5.12E+03 | | 0 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin | 1.70E+03 | 0.0023 | 0.1955 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin Ketone | | | 0 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methoxychlor | 8.00E+04 | 0.03 | 120 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| ***Total Pesticides*** | | | | | *7.40* | | *9.59* | | *75.37* | | *2.80* |
| **PCBs** | | | | | | | | | | | |
| Aroclor 1260 | 5.30E+05 | 0.014 | 371 | ND | 0.39 | ND | 0.39 | ND | 0.39 | ND | 0.39 |
| Aroclor 1254 | 5.30E+05 | 0.014 | 371 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| ***Total PCBs*** | | | | | *0.39* | | *0.39* | | *0.39* | | *0.39* |

**Risks to Soil Invertebrates\Area A Downstream and OBDA**
**Equilibrium Partitioning Approach**

| SURFACE SOIL DATA (0-4 FEET) | 3SD3 Soil Value, ppb | (0-6 in) Toxicity Quotient | 3SD3 Soil Value, ppb | (12-18 in) Toxicity Quotient | 3SD4 Soil Value, ppb | (0-6 in) Toxicity Quotient | 3SD4 Soil Value, ppb | (12-18 in) Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|
| VOLATILE ORGANIC COMPOUNDS | | | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | | | |
| Benzene | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Ethylbenzene | 2 | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Toluene | ND | 0.00 | ND | 0.00 | 4 | 0.00 | ND | 0.00 |
| Xylene (total) | 3 | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| **Chlorinated Compounds** | | | | | | | | |
| Chloromethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,2-Dichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Cis-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Trans-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methylene Chloride | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Tetrachloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Tetrachloroethene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Trichloroethene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| 1,1,1-Trichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1,2-Trichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Vinyl Chloride | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Other VOCs** | | | | | | | | |
| Acetone | 150 | 0.27 | 210 | 0.38 | 310 | 0.56 | 140 | 0.25 |
| 2-Butanone | 32 | 0.03 | 51 | 0.05 | 66 | 0.06 | 33 | 0.03 |
| 4-Methyl-2-Pentanone | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Carbon Disulfide | 3 | | 4 | | ND | | ND | |
| ***Total-VOCs*** | | *0.31* | | *0.43* | | *0.63* | | *0.29* |
| SEMIVOLATILE COMPOUNDS | | | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | | | |
| Acenaphthene | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 |

**Risks to Soil Invertebrates\Area A Downstream and OBDA**
**Equilibrium Partitioning Approach**

| SURFACE SOIL DATA (0-4 FEET) | 3SD3 (0-6 in) Soil Value, ppb | Toxicity Quotient | 3SD3 (12-18 in) Soil Value, ppb | Toxicity Quotient | 3SD4 (0-6 in) Soil Value, ppb | Toxicity Quotient | 3SD4 (12-18 in) Soil Value, ppb | Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|
| Acenaphthylene | ND | 0.18 | ND | 0.18 | ND | 0.18 | ND | 0.18 |
| Anthracene | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 |
| Fluoranthene | ND | 0.01 | ND | 0.01 | 1300 | 0.05 | 970 | 0.04 |
| Fluorene | ND | 0.06 | ND | 0.06 | ND | 0.06 | ND | 0.06 |
| 2-Methylnaphthalene | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Naphthalene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Phenanthrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Pyrene | ND | 0.01 | ND | 0.01 | 1300 | 0.05 | 1100 | 0.04 |
| **Carcinogenic PAHs** | | | | | | | | |
| Benzo(a)Anthracene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(a)Pyrene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(b)Fluoranthene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(g,h,i)Perylene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(k)Fluoranthene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Chrysene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Dibenz(a,h)Anthracene | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Indeno(1,2,3-cd)Pyrene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| **Other Semi-Volatile Compounds** | | | | | | | | |
| bis(2-Ethylhexyl)Phthalate | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 |
| Di-n-Butylphthalate | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2,4-Dimethylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4,6-Dinitro-2-methylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2-Methylphenol | ND | | ND | | ND | | ND | |
| 4-Methylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Phenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Benzoic Acid | ND | 0.23 | ND | 0.23 | ND | 0.23 | ND | 0.23 |
| 4-Chloroaniline | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Dibenzofuran | ND | | ND | | ND | | ND | |
| 2-Nitroaniline | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| N-Nitrosodiphenylamine (1) | | 0.00 | | 0.00 | | 0.00 | | 0.00 |

**Risks to Soil Invertebrates\Area A Downstream and OBDA**
**Equilibrium Partitioning Approach**

| SURFACE SOIL DATA (0-4 FEET) | 3SD3 Soil Value, ppb | (0-6 in) Toxicity Quotient | 3SD3 Soil Value, ppb | (12-18 in) Toxicity Quotient | 3SD4 Soil Value, ppb | (0-6 in) Toxicity Quotient | 3SD4 Soil Value, ppb | (12-18 in) Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|
| *Total Semi-VOCs* | | *0.90* | | *0.90* | | *0.98* | | *0.96* |
| **PESTICIDES** | | | | | | | | |
| 4,4' DDE | 15000 | 68.18 | 2800 | 12.73 | 410 | 1.86 | 4800 | 21.82 |
| 4,4' DDD | 300000 | 7792.21 | 73000 | 1896.10 | 3200 | 83.12 | 84000 | 2181.82 |
| 4,4'-DDT | 37000 | 3045.27 | 3800 | 312.76 | 3300 | 271.60 | 12000 | 987.65 |
| Beta-BHC | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin Ketone | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methoxychlor | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| *Total Pesticides* | | *10905.66* | | *2221.59* | | *356.59* | | *3191.29* |
| **PCBs** | | | | | | | | |
| Aroclor 1260 | ND | 0.39 | ND | 0.39 | ND | 0.39 | ND | 0.39 |
| Aroclor 1254 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| *Total PCBs* | | *0.39* | | *0.39* | | *0.39* | | *0.39* |

**Risks to Soil Invertebrates\Area A Downstream and OBDA**
**Equilibrium Partitioning Approach**

| SURFACE SOIL DATA (0-4 FEET) | OBDA 3SD5 (0-6 in) Soil Value, ppb | Toxicity Quotient | 3SD5 (12-18 in) Soil Value, ppb | Toxicity Quotient | 3MW12S (0-3 feet) Soil Value, ppb | Toxicity Quotient | Downstream 2DMW10S (3-5 feet) Soil Value, ppb | Toxicity Quotient | 2DMW11S (2-4 feet) Soil Value, ppb | Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|
| VOLATILE ORGANIC COMPOUNDS | | | | | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | | | | | |
| Benzene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Ethylbenzene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Toluene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Xylene (total) | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| **Chlorinated Compounds** | | | | | | | | | | |
| Chloromethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,2-Dichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Cis-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Trans-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methylene Chloride | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Tetrachloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Tetrachloroethene | 4 | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Trichloroethene | ND | 0.00 | ND | 0.00 | ND | 0.00 | 6 | 0.00 | ND | 0.00 |
| 1,1,1-Trichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1,2-Trichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Vinyl Chloride | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Other VOCs** | | | | | | | | | | |
| Acetone | 54 | 0.10 | 130 | 0.24 | ND | 0.02 | ND | 0.02 | ND | 0.02 |
| 2-Butanone | 13 | 0.01 | 24 | 0.02 | 32 | 0.03 | ND | 0.01 | ND | 0.01 |
| 4-Methyl-2-Pentanone | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Carbon Disulfide | 2 | | 11 | | ND | | ND | | ND | |
| ***Total-VOCs*** | | *0.12* | | *0.27* | | *0.05* | | *0.03* | | *0.03* |
| SEMIVOLATILE COMPOUNDS | | | | | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | | | | | |
| Acenaphthene | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 |

**Risks to Soil Invertebrates\Area A Downstream and OBDA**
**Equilibrium Partitioning Approach**

| SURFACE SOIL DATA (0-4 FEET) | OBDA | | | | | | Downstream | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3SD5 (0-6 in) Soil Value, ppb | Toxicity Quotient | 3SD5 (12-18 in) Soil Value, ppb | Toxicity Quotient | 3MW12S (0-3 feet) Soil Value, ppb | Toxicity Quotient | 2DMW10S (3-5 feet) Soil Value, ppb | Toxicity Quotient | 2DMW11S (2-4 feet) Soil Value, ppb | Toxicity Quotient |
| Acenaphthylene | ND | 0.18 | ND | 0.18 | ND | 0.18 | ND | 0.18 | ND | 0.18 |
| Anthracene | ND | 0.03 | 390 | 0.04 | ND | 0.03 | ND | 0.03 | ND | 0.03 |
| Fluoranthene | ND | 0.01 | 1500 | 0.06 | 67 | 0.00 | ND | 0.01 | ND | 0.01 |
| Fluorene | ND | 0.06 | 200 | 0.04 | ND | 0.06 | ND | 0.06 | ND | 0.06 |
| 2-Methylnaphthalene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Naphthalene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Phenanthrene | ND | 0.01 | 1600 | 0.07 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Pyrene | ND | 0.01 | 1300 | 0.05 | 54 | 0.00 | ND | 0.01 | ND | 0.01 |
| **Carcinogenic PAHs** | | | | | | | | | | |
| Benzo(a)Anthracene | ND | 0.00 | 720 | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(a)Pyrene | ND | 0.00 | 590 | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(b)Fluoranthene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(g,h,i)Perylene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(k)Fluoranthene | ND | 0.00 | ND | 0.00 | 50 | 0.00 | ND | 0.00 | ND | 0.00 |
| Chrysene | ND | 0.00 | 720 | 0.01 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Dibenz(a,h)Anthracene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Indeno(1,2,3-cd)Pyrene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| **Other Semi-Volatile Compounds** | | | | | | | | | | |
| bis(2-Ethylhexyl)Phthalate | ND | 0.33 | ND | 0.33 | 160 | 0.18 | ND | 0.33 | 140 | 0.15 |
| Di-n-Butylphthalate | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2,4-Dimethylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4,6-Dinitro-2-methylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2-Methylphenol | ND | | ND | | ND | | ND | | ND | |
| 4-Methylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Phenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Benzoic Acid | ND | 0.23 | ND | 0.23 | 82 | 0.01 | ND | 0.23 | ND | 0.23 |
| 4-Chloroaniline | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Dibenzofuran | ND | | ND | | ND | | ND | | ND | |
| 2-Nitroaniline | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| N-Nitrosodiphenylamine (1) | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |

**Risks to Soil Invertebrates\Area A Downstream and OBDA**
**Equilibrium Partitioning Approach**

| SURFACE SOIL DATA (0-4 FEET) | OBDA 3SD5 Soil Value, ppb | (0-6 in) Toxicity Quotient | 3SD5 Soil Value, ppb | (12-18 in) Toxicity Quotient | 3MW12S Soil Value, ppb | (0-3 feet) Toxicity Quotient | Downstream 2DMW10S Soil Value, ppb | (3-5 feet) Toxicity Quotient | 2DMW11S Soil Value, ppb | (2-4 feet) Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|
| *Total Semi-VOCs* | | *0.90* | | *1.04* | | *0.51* | | *0.90* | | *0.72* |
| **PESTICIDES** | | | | | | | | | | |
| 4,4' DDE | 11000 | 50.00 | 1500 | 6.82 | 27 | 0.12 | ND | 0.07 | ND | 0.07 |
| 4,4' DDD | 99000 | 2571.43 | 11000 | 285.71 | 61 | 1.58 | ND | 0.38 | ND | 0.38 |
| 4,4'-DDT | 1100 | 90.53 | 270 | 22.22 | 24 | 1.98 | ND | 1.20 | ND | 1.20 |
| Beta-BHC | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin Ketone | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methoxychlor | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| *Total Pesticides* | | *2711.96* | | *314.75* | | *3.68* | | *1.64* | | *1.64* |
| **PCBs** | | | | | | | | | | |
| Aroclor 1260 | ND | 0.39 | ND | 0.39 | ND | 0.39 | ND | 0.39 | ND | 0.39 |
| Aroclor 1254 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| *Total PCBs* | | *0.39* | | *0.39* | | *0.39* | | *0.39* | | *0.39* |

**Risks to Soil Invertebrates**
**Equilibrium Partitioning Approach**

| SURFACE SOIL DATA (0-4 FEET) | 2DMW15S (2-4 feet) Soil Value, ppb | Toxicity Quotient | 2DMW16S (2-4 feet) Soil Value, ppb | Toxicity Quotient |
|---|---|---|---|---|
| VOLATILE ORGANIC COMPOUNDS | | | | |
| **Nonchlorinated Aromatics** | | | | |
| Benzene | | 0.00 | | 0.00 |
| Ethylbenzene | ND | 0.00 | ND | 0.00 |
| Toluene | 100 | 0.01 | ND | 0.00 |
| Xylene (total) | ND | 0.00 | ND | 0.00 |
| **Chlorinated Compounds** | | | | |
| Chloromethane | | 0.00 | | 0.00 |
| 1,1-Dichloroethane | | 0.00 | | 0.00 |
| 1,2-Dichloroethane | | 0.00 | | 0.00 |
| 1,1-Dichloroethene | 16 | 0.01 | ND | 0.00 |
| Cis-1,2-dichloroethene | | 0.00 | | 0.00 |
| Trans-1,2-dichloroethene | | 0.00 | | 0.00 |
| Methylene Chloride | ND | 0.00 | ND | 0.00 |
| Tetrachloroethane | | 0.00 | | 0.00 |
| Tetrachloroethene | 58 | 0.04 | ND | 0.00 |
| Trichloroethene | 24 | 0.00 | ND | 0.00 |
| 1,1,1-Trichloroethane | | 0.00 | | 0.00 |
| 1,1,2-Trichloroethane | | 0.00 | | 0.00 |
| Vinyl Chloride | | 0.00 | | 0.00 |
| **Other VOCs** | | | | |
| Acetone | 79 | 0.14 | ND | 0.02 |
| 2-Butanone | ND | 0.01 | ND | 0.01 |
| 4-Methyl-2-Pentanone | | 0.00 | | 0.00 |
| Carbon Disulfide | 7 | | ND | |
| ***Total-VOCs*** | | *0.21* | | *0.03* |
| SEMIVOLATILE COMPOUNDS | | | | |
| **Noncarcinogenic PAHs** | | | | |
| Acenaphthene | ND | 0.02 | ND | 0.02 |

**Risks to Soil Invertebrates**
**Equilibrium Partitioning Approach**

| SURFACE SOIL DATA (0-4 FEET) | 2DMW15S (2-4 feet) Soil Value, ppb | Toxicity Quotient | 2DMW16S (2-4 feet) Soil Value, ppb | Toxicity Quotient |
|---|---|---|---|---|
| Acenaphthylene | ND | 0.18 | ND | 0.18 |
| Anthracene | ND | 0.03 | ND | 0.03 |
| Fluoranthene | ND | 0.01 | ND | 0.01 |
| Fluorene | ND | 0.06 | ND | 0.06 |
| 2-Methylnaphthalene | | 0.00 | | 0.00 |
| Naphthalene | ND | 0.00 | ND | 0.00 |
| Phenanthrene | ND | 0.01 | ND | 0.01 |
| Pyrene | ND | 0.01 | ND | 0.01 |
| **Carcinogenic PAHs** | | | | |
| Benzo(a)Anthracene | ND | 0.00 | ND | 0.00 |
| Benzo(a)Pyrene | ND | 0.00 | ND | 0.00 |
| Benzo(b)Fluoranthene | ND | 0.00 | ND | 0.00 |
| Benzo(g,h,i)Perylene | ND | 0.00 | ND | 0.00 |
| Benzo(k)Fluoranthene | ND | 0.00 | ND | 0.00 |
| Chrysene | ND | 0.00 | ND | 0.00 |
| Dibenz(a,h)Anthracene | | 0.00 | | 0.00 |
| Indeno(1,2,3-cd)Pyrene | ND | 0.00 | ND | 0.00 |
| **Other Semi-Volatile Compounds** | | | | |
| bis(2-Ethylhexyl)Phthalate | ND | 0.33 | ND | 0.33 |
| Di-n-Butylphthalate | | 0.00 | | 0.00 |
| 2,4-Dimethylphenol | | 0.00 | | 0.00 |
| 4,6-Dinitro-2-methylphenol | | 0.00 | | 0.00 |
| 2-Methylphenol | ND | | ND | |
| 4-Methylphenol | | 0.00 | | 0.00 |
| Phenol | | 0.00 | | 0.00 |
| Benzoic Acid | ND | 0.23 | ND | 0.23 |
| 4-Chloroaniline | | 0.00 | | 0.00 |
| Dibenzofuran | ND | | ND | |
| 2-Nitroaniline | | 0.00 | | 0.00 |
| N-Nitrosodiphenylamine (1) | | 0.00 | | 0.00 |

**Risks to Soil Invertebrates**
**Equilibrium Partitioning Approach**

| SURFACE SOIL DATA (0-4 FEET) | 2DMW15S (2-4 feet) Soil Value, ppb | Toxicity Quotient | 2DMW16S (2-4 feet) Soil Value, ppb | Toxicity Quotient |
|---|---|---|---|---|
| ***Total Semi-VOCs*** | | *0.90* | | *0.90* |
| **PESTICIDES** | | | | |
| 4,4' DDE | ND | 0.07 | 28 | 0.13 |
| 4,4' DDD | ND | 0.38 | ND | 0.38 |
| 4,4'-DDT | ND | 1.20 | 74 | 6.09 |
| Beta-BHC | | 0.00 | | 0.00 |
| Endrin | | 0.00 | | 0.00 |
| Endrin Ketone | | 0.00 | | 0.00 |
| Methoxychlor | | 0.00 | | 0.00 |
| ***Total Pesticides*** | | *1.64* | | *6.60* |
| **PCBs** | | | | |
| Aroclor 1260 | ND | 0.39 | ND | 0.39 |
| Aroclor 1254 | | 0.00 | | 0.00 |
| ***Total PCBs*** | | *0.39* | | *0.39* |

# APPENDIX F-4
# RISKS TO SOIL INVERTEBRATES FROM GROUND WATER - AREA A
# CALCULATIONS

**Risks to Soil Invertebrates due to Ground Water**
**SHALLOW OVERBURDEN WELLS GROUNDWATER DATA**

| | | | AREA A WETLAND 2WMW3S | | |
|---|---|---|---|---|---|
| | Acute Criterion, ug/l | Chronic Criterion, ug/l | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | |
| **Nonchlorinated Aromatics** | | | | | |
| Benzene | 3000 | 500 | | 0.00 | 0.00 |
| Ethylbenzene | 22500 | 3750 | | 0.00 | 0.00 |
| Toluene | 3810 | 635 | | 0.00 | 0.00 |
| Xylene (total) | 4050 | 675 | ND | 0.00 | 0.00 |
| **Chlorinated Compounds** | | | | | |
| Chloromethane | | | | | |
| 1,1-Dichloroethane | 3480 | 580 | | 0.00 | 0.00 |
| 1,2-Dichloroethane | 11800 | 2000 | | 0.00 | 0.00 |
| 1,1-Dichloroethene | 3480 | 580 | | 0.00 | 0.00 |
| 1,2-Dichloroethene (Total) | 3480 | 580 | | 0.00 | 0.00 |
| Methylene Chloride | 68000 | 11000 | | 0.00 | 0.00 |
| Tetrachloroethane | 9320 | 2400 | | 0.00 | 0.00 |
| Tetrachloroethene | 528 | 84 | | 0.00 | 0.00 |
| Trichloroethene | 4500 | 2190 | | 0.00 | 0.00 |
| 1,1,1-Trichloroethane | 5400 | 900 | | 0.00 | 0.00 |
| 1,1,2-Trichloroethane | 5400 | 900 | | 0.00 | 0.00 |
| Vinyl Chloride | | | | 0.00 | 0.00 |
| **Other VOCs** | | | | | |
| Acetone | 30000 | 5000 | | 0.00 | 0.00 |
| 2-Butanone | 30000 | 5000 | | 0.00 | 0.00 |
| 4-Methyl-2-Pentanone | | | | 0.00 | 0.00 |
| Carbon Disulfide | | | | 0.00 | 0.00 |
| ***Total Index VOCs*** | | | | *0.00* | *0.00* |
| **SEMIVOLATILE COMPOUNDS** | | | | | |
| **Noncarcinogenic PAHs** | | | | | |
| Acenaphthene | 1300 | 86 | | 0.00 | 0.00 |
| Acenaphthylene | 250 | 13 | | 0.00 | 0.00 |
| Anthracene | 250 | 13 | | 0.00 | 0.00 |

**Risks to Soil Invertebrates due to Ground Water**
**SHALLOW OVERBURDEN WELLS GROUNDWATER DATA**

| | Acute Criterion, ug/l | Chronic Criterion, ug/l | AREA A WETLAND 2WMW3S Conc. ug/l | Hazard Index Acute | Hazard Index Chronic |
|---|---|---|---|---|---|
| Fluoranthene | 250 | 13 | | 0.00 | 0.00 |
| Fluorene | 250 | 13 | | 0.00 | 0.00 |
| 2-Methylnaphthalene | | | | 0.00 | 0.00 |
| Naphthalene | 230 | 62 | | 0.00 | 0.00 |
| Phenanthrene | 600 | 35 | | 0.00 | 0.00 |
| Pyrene | 250 | 13 | | 0.00 | 0.00 |
| **Carcinogenic PAHs** | | | | | |
| Benzo(a)Anthracene | 61 | 3 | | 0.00 | 0.00 |
| Benzo(a)Pyrene | 25 | 1.2 | | 0.00 | 0.00 |
| Benzo(b)Fluoranthene | 600 | 35 | | 0.00 | 0.00 |
| Benzo(g,h,i)Perylene | 25 | 1.2 | | 0.00 | 0.00 |
| Benzo(k)Fluoranthene | 600 | 35 | | 0.00 | 0.00 |
| Chrysene | 250 | 13 | | 0.00 | 0.00 |
| Dibenz(a,h)Anthracene | 25 | 1.2 | | 0.00 | 0.00 |
| Indeno(1,2,3-cd)Pyrene | 25 | 1.2 | | 0.00 | 0.00 |
| **Other Semi-Volatile Compounds** | | | | | |
| bis(2-Ethylhexyl)Phthalate | 94 | 0.3 | | 0.00 | 0.00 |
| Di-n-Butylphthalate | 630 | 105 | | 0.00 | 0.00 |
| 2,4-Dimethylphenol | 212 | | | 0.00 | 0.00 |
| 4,6-Dinitro-2-methylphenol | | | | 0.00 | 0.00 |
| 2-Methylphenol | | | | 0.00 | 0.00 |
| 4-Methylphenol | | | | 0.00 | 0.00 |
| Phenol | 1020 | 256 | | 0.00 | 0.00 |
| Benzoic Acid | 38700 | 6450 | | 0.00 | 0.00 |
| 4-Chloroaniline | | | | 0.00 | 0.00 |
| Dibenzofuran | | | | 0.00 | 0.00 |
| 2-Nitroaniline | | | | 0.00 | 0.00 |
| N-Nitrosodiphenylamine (1) | | | | 0.00 | 0.00 |
| ***Total Index-SVOCs*** | | | | *0.00* | *0.00* |
| **PESTICIDES** | | | | | |

**Risks to Soil Invertebrates due to Ground Water**
**SHALLOW OVERBURDEN WELLS GROUNDWATER DATA**

| | Acute Criterion, ug/l | Chronic Criterion, ug/l | AREA A WETLAND 2WMW3S Conc. ug/l | Hazard Index Acute | Hazard Index Chronic |
|---|---|---|---|---|---|
| 4,4' DDE | 105 | | | 0.00 | 0.00 |
| 4,4' DDD | | | | 0.00 | 0.00 |
| 4,4'-DDT | 1.1 | 0.001 | | 0.00 | 0.00 |
| Beta-BHC | 100 | | | 0.00 | 0.00 |
| Endrin | 0.18 | 0.0023 | | 0.00 | 0.00 |
| Endrin Ketone | | | | 0.00 | 0.00 |
| Methoxychlor | | 0.03 | | 0.00 | 0.00 |
| ***Total Index-pesticides*** | | | | *0.00* | *0.00* |
| **PCBs** | | | | | |
| Aroclor 1260 | 2 | 0.014 | | 0.00 | 0.00 |
| Aroclor 1254 | 2 | 0.014 | | 0.00 | 0.00 |
| ***Total Index-PCBs*** | | | | *0.00* | *0.00* |

**Risks to Soil Invertebrates due to Ground Water**
**SHALLOW OVERBURDEN WELLS GROUNDWATER DATA**

| | | | AREA A WETLAND 2WMW3S | | |
|---|---|---|---|---|---|
| | Acute Criterion, ug/l | Chronic Criterion, ug/l | Conc. ug/l | Hazard Acute | Index Chronic |
| **METALS** | | | | | |
| Aluminum | 950 | 150 | **39.6** | 0.04 | 0.26 |
| Antimony | 900 | 160 | | 0.00 | 0.00 |
| Arsenic | 85 | 4.8 | **7.6** | 0.09 | 1.58 |
| Beryllium | 13 | 0.53 | ND | 0.19 | 4.72 |
| Boron | | | **970** | | |
| Cadmium | 3.9 | 1.1 | **10.6** | 2.72 | 9.64 |
| Copper | 18 | 12 | **6.2** | 0.34 | 0.52 |
| Iron | | 1000 | **75400** | | 75.40 |
| Lead | 82 | 3.2 | ND | 0.03 | 0.78 |
| Manganese | | | **3200** | | |
| Mercury | 2.4 | 0.012 | | 0.00 | 0.00 |
| Nickel | 1400 | 160 | ND | 0.01 | 0.13 |
| Selenium | 260 | 35 | **2.3** | 0.01 | 0.07 |
| Zinc | 120 | 110 | **15.3** | 0.13 | 0.14 |
| ***Total Index-metals*** | | | *ND* | *3.57* | *93.23* |

**Risks to Soil Invertebrates due to Ground Water**
**SHALLOW OVERBURDEN WELLS GROUNDWATER DATA**

| | 2WMW5S | | | 2WMW6S | | | AREA A DOWNSTREAM 2DMW11S | | |
|---|---|---|---|---|---|---|---|---|---|
| | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | | | | |
| Benzene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Ethylbenzene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Toluene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Xylene (total) | 1 | 0.00 | 0.00 | ND | 0.00 | 0.00 | ND | 0.00 | 0.00 |
| **Chlorinated Compounds** | | | | | | | | | |
| Chloromethane | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 1,1-Dichloroethane | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 1,2-Dichloroethane | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 1,1-Dichloroethene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 1,2-Dichloroethene (Total) | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Methylene Chloride | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Tetrachloroethane | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Tetrachloroethene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Trichloroethene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 1,1,1-Trichloroethane | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 1,1,2-Trichloroethane | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Vinyl Chloride | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| **Other VOCs** | | | | | | | | | |
| Acetone | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 2-Butanone | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 4-Methyl-2-Pentanone | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Carbon Disulfide | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| ***Total Index VOCs*** | | *0.00* | *0.00* | | *0.00* | *0.00* | | *0.00* | *0.00* |
| **SEMIVOLATILE COMPOUNDS** | | | | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | | | | |
| Acenaphthene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Acenaphthylene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Anthracene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |

**Risks to Soil Invertebrates due to Ground Water**

| SHALLOW OVERBURDEN WELLS GROUNDWATER DATA | 2WMW5S | | | 2WMW6S | | | AREA A DOWNSTREAM 2DMW11S | | |
|---|---|---|---|---|---|---|---|---|---|
| | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic |
| Fluoranthene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Fluorene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 2-Methylnaphthalene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Naphthalene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Phenanthrene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Pyrene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| **Carcinogenic PAHs** | | | | | | | | | |
| Benzo(a)Anthracene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Benzo(a)Pyrene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Benzo(b)Fluoranthene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Benzo(g,h,i)Perylene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Benzo(k)Fluoranthene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Chrysene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Dibenz(a,h)Anthracene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Indeno(1,2,3-cd)Pyrene | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| **Other Semi-Volatile Compounds** | | | | | | | | | |
| bis(2-Ethylhexyl)Phthalate | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Di-n-Butylphthalate | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 2,4-Dimethylphenol | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 4,6-Dinitro-2-methylphenol | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 2-Methylphenol | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 4-Methylphenol | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Phenol | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Benzoic Acid | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 4-Chloroaniline | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Dibenzofuran | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 2-Nitroaniline | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| N-Nitrosodiphenylamine (1) | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| ***Total Index-SVOCs*** | | *0.00* | *0.00* | | *0.00* | *0.00* | | *0.00* | *0.00* |
| **PESTICIDES** | | | | | | | | | |

**Risks to Soil Invertebrates due to Ground Water**
**SHALLOW OVERBURDEN WELLS GROUNDWATER DATA**

| | 2WMW5S | | | 2WMW6S | | | AREA A DOWNSTREAM 2DMW11S | | |
|---|---|---|---|---|---|---|---|---|---|
| | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic |
| 4,4' DDE | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 4,4' DDD | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 4,4'-DDT | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Beta-BHC | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Endrin | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Endrin Ketone | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Methoxychlor | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| ***Total Index-pesticides*** | | *0.00* | *0.00* | | *0.00* | *0.00* | | *0.00* | *0.00* |
| **PCBs** | | | | | | | | | |
| Aroclor 1260 | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Aroclor 1254 | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| ***Total Index-PCBs*** | | *0.00* | *0.00* | | *0.00* | *0.00* | | *0.00* | *0.00* |

**Risks to Soil Invertebrates due to Ground Water**
**SHALLOW OVERBURDEN WELLS GROUNDWATER DATA**

| | 2WMW5S | | | 2WMW6S | | | AREA A DOWNSTREAM 2DMW11S | | |
|---|---|---|---|---|---|---|---|---|---|
| | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic |
| **METALS** | | | | | | | | | |
| Aluminum | ND | 0.01 | 0.07 | **2060** | 2.17 | 13.73 | ND | 0.01 | 0.07 |
| Antimony | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Arsenic | ND | 0.06 | 1.04 | ND | 0.06 | 1.04 | ND | 0.06 | 1.04 |
| Beryllium | ND | 0.19 | 4.72 | **1** | 0.08 | 1.89 | ND | 0.19 | 4.72 |
| Boron | **1600** | | | **7500** | | | **7500** | | |
| Cadmium | **6.4** | 1.64 | 5.82 | ND | 0.64 | 2.27 | ND | 0.64 | 2.27 |
| Copper | **7.9** | 0.44 | 0.66 | ND | 0.69 | 1.04 | **5** | 0.28 | 0.42 |
| Iron | **44800** | | 44.80 | **3140** | | 3.14 | **101** | | 0.10 |
| Lead | ND | 0.03 | 0.78 | **2.5** | 0.03 | 0.78 | ND | 0.03 | 0.78 |
| Manganese | **8130** | | | **648** | | | **1150** | | |
| Mercury | | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Nickel | ND | 0.01 | 0.13 | **39.7** | 0.03 | 0.25 | **15.2** | 0.01 | 0.10 |
| Selenium | **2.2** | 0.01 | 0.06 | ND | 0.01 | 0.07 | ND | 0.01 | 0.07 |
| Zinc | **12.4** | 0.10 | 0.11 | **136** | 1.13 | 1.24 | **6.7** | 0.06 | 0.06 |
| ***Total Index-metals*** | | *2.50* | *58.18* | | *4.84* | *25.45* | | *1.29* | *9.62* |

**Risks to Soil Invertebrates due to Ground Water**
**SHALLOW OVERBURDEN WELLS GROUNDWATER DATA**

| | OBDA | | | | | |
|---|---|---|---|---|---|---|
| | 2DMW16S | | | 3MW12S | | |
| | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | |
| Benzene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Ethylbenzene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Toluene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Xylene (total) | ND | 0.00 | 0.00 | ND | 0.00 | 0.00 |
| **Chlorinated Compounds** | | | | | | |
| Chloromethane | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 1,1-Dichloroethane | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 1,2-Dichloroethane | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 1,1-Dichloroethene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 1,2-Dichloroethene (Total) | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Methylene Chloride | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Tetrachloroethane | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Tetrachloroethene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Trichloroethene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 1,1,1-Trichloroethane | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 1,1,2-Trichloroethane | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Vinyl Chloride | | 0.00 | 0.00 | | 0.00 | 0.00 |
| **Other VOCs** | | | | | | |
| Acetone | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 2-Butanone | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 4-Methyl-2-Pentanone | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Carbon Disulfide | | 0.00 | 0.00 | | 0.00 | 0.00 |
| ***Total Index VOCs*** | | *0.00* | *0.00* | | *0.00* | *0.00* |
| **SEMIVOLATILE COMPOUNDS** | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | |
| Acenaphthene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Acenaphthylene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Anthracene | | 0.00 | 0.00 | | 0.00 | 0.00 |

**Risks to Soil Invertebrates due to Ground Water**
**SHALLOW OVERBURDEN WELLS GROUNDWATER DATA**

| | OBDA | | | | | |
|---|---|---|---|---|---|---|
| | 2DMW16S | | | 3MW12S | | |
| | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic |
| Fluoranthene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Fluorene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 2-Methylnaphthalene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Naphthalene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Phenanthrene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Pyrene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| **Carcinogenic PAHs** | | | | | | |
| Benzo(a)Anthracene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Benzo(a)Pyrene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Benzo(b)Fluoranthene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Benzo(g,h,i)Perylene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Benzo(k)Fluoranthene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Chrysene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Dibenz(a,h)Anthracene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Indeno(1,2,3-cd)Pyrene | | 0.00 | 0.00 | | 0.00 | 0.00 |
| **Other Semi-Volatile Compounds** | | | | | | |
| bis(2-Ethylhexyl)Phthalate | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Di-n-Butylphthalate | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 2,4-Dimethylphenol | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 4,6-Dinitro-2-methylphenol | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 2-Methylphenol | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 4-Methylphenol | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Phenol | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Benzoic Acid | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 4-Chloroaniline | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Dibenzofuran | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 2-Nitroaniline | | 0.00 | 0.00 | | 0.00 | 0.00 |
| N-Nitrosodiphenylamine (1) | | 0.00 | 0.00 | | 0.00 | 0.00 |
| ***Total Index-SVOCs*** | | *0.00* | *0.00* | | *0.00* | *0.00* |
| **PESTICIDES** | | | | | | |

**Risks to Soil Invertebrates due to Ground Water**
**SHALLOW OVERBURDEN WELLS GROUNDWATER DATA**

| | OBDA | | | | | |
|---|---|---|---|---|---|---|
| | 2DMW16S | | | 3MW12S | | |
| | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic |
| 4,4' DDE | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 4,4' DDD | | 0.00 | 0.00 | | 0.00 | 0.00 |
| 4,4'-DDT | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Beta-BHC | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Endrin | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Endrin Ketone | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Methoxychlor | | 0.00 | 0.00 | | 0.00 | 0.00 |
| ***Total Index-pesticides*** | | *0.00* | *0.00* | | *0.00* | *0.00* |
| **PCBs** | | | | | | |
| Aroclor 1260 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Aroclor 1254 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| ***Total Index-PCBs*** | | *0.00* | *0.00* | | *0.00* | *0.00* |

**Risks to Soil Invertebrates due to Ground Water**
**SHALLOW OVERBURDEN WELLS GROUNDWATER DATA**

| | OBDA | | | | | |
|---|---|---|---|---|---|---|
| | 2DMW16S | | | 3MW12S | | |
| | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic | Conc. ug/l | Hazard Index Acute | Hazard Index Chronic |
| **METALS** | | | | | | |
| Aluminum | ND | 0.01 | 0.07 | ND | 0.01 | 0.07 |
| Antimony | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Arsenic | ND | 0.06 | 1.04 | ND | 0.06 | 1.04 |
| Beryllium | ND | 0.19 | 4.72 | ND | 0.19 | 4.72 |
| Boron | **2200** | | | **11000** | | |
| Cadmium | ND | 0.64 | 2.27 | ND | 0.64 | 2.27 |
| Copper | ND | 0.69 | 1.04 | ND | 0.69 | 1.04 |
| Iron | **669** | | 0.67 | **1580** | | 1.58 |
| Lead | ND | 0.03 | 0.78 | ND | 0.03 | 0.78 |
| Manganese | **339** | | | **6010** | | |
| Mercury | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Nickel | **20.5** | 0.01 | 0.13 | **19.7** | 0.01 | 0.12 |
| Selenium | ND | 0.01 | 0.07 | ND | 0.01 | 0.07 |
| Zinc | **22.8** | 0.19 | 0.21 | **14.4** | 0.12 | 0.13 |
| ***Total Index-metals*** | | *1.84* | *11.00* | | *1.77* | *11.83* |

# APPENDIX F-5
# RISKS TO BENTHIC INVERTEBRATES - AREA A
# EQUILIBRIUM PARTITIONING CALCULATIONS

## Risks to Benthic Invertebrates/Equilibrium Partitioning Method

**SEDIMENT DATA**
**AREA A DOWNSTREAM**

| SAMPLE ID: DEPTH (in): | Koc | Chronic Criterion (ppb) | Sediment Quality Criterion (ppb) | Pond Sed. Value, ppb | 2DSD1 Toxicity Quotient | Pond Sed. Value, ppb | 2DSD2 Toxicity Quotient | Pond Sed. Value, ppb | 2DSD4 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD3 Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOLATILE ORGANIC C MPOUNDS** | | | | | | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | | | | | | |
| Benzene | 8.30E+01 | 500 | 2075 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Ethylbenzene | 1.10E+03 | 3750 | 206250 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Toluene | 3.00E+02 | 635 | 9525 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Xylene (total) | 2.40E+02 | 675 | 8100 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Chlorinated Compounds** | | | | | | | | | | | |
| Chloromethane | 2.70E+01 | | 0 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethane | 3.00E+01 | 580 | 870 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,2-Dichloroethane | 1.40E+01 | 2000 | 1400 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethene | 6.50E+01 | 580 | 1885 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Cis-1,2-dichloroethene | 4.90E+01 | 580 | 1421 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Trans-1,2-dichloroethene | 5.90E+01 | 580 | 1711 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methylene Chloride | 8.80E+00 | 11000 | 4840 | ND | 0.00 | 5 | 0.00 | ND | 0.00 | 3 | 0.00 |
| Tetrachloroethane | 1.18E+02 | 2400 | 14160 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Tetrachloroethene | 3.64E+02 | 84 | 1528.8 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Trichloroethene | 1.26E+02 | 2190 | 13797 | ND | 0.00 | 3 | 0.00 | ND | 0.00 | ND | 0.00 |
| 1,1,1-Trichloroethane | 1.52E+02 | 900 | 6840 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1,2-Trichloroethane | 5.60E+01 | 900 | 2520 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Vinyl Chloride | 5.70E+01 | | 0 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Other VOCs** | | | | | | | | | | | |
| Acetone | 2.20E+00 | 5000 | 550 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2-Butanone | 4.50E+00 | 5000 | 1125 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4-Methyl-2-Pentanone | 2.09E+01 | | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Carbon Disulfide | 5.40E+01 | | | ND | | 4 | | ND | | ND | |
| **Total-VOCs** | | | | | **0.00** | | **0.00** | | **0.00** | | **0.00** |
| **SEMIVOLATILE COMP UNDS** | | | | | | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | | | | | | |
| Acenaphthene | 4.60E+03 | 86 | 19780 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 |

## Risks to Benthic Invertebrates/Equilibrium Partitioning Method

**SEDIMENT DATA**
**AREA A DOWNSTREAM**

| SAMPLE ID: DEPTH (in): | Koc | Chronic Criterion (ppb) | Sediment Quality Criterion (ppb) | Pond Sed. Value, ppb | 2DSD1 Toxicity Quotient | Pond Sed. Value, ppb | 2DSD2 Toxicity Quotient | Pond Sed. Value, ppb | 2DSD4 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD3 Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthylene | 2.50E+03 | 13 | 1625 | ND | 0.18 | ND | 0.18 | ND | 0.18 | ND | 0.18 |
| Anthracene | 1.40E+04 | 13 | 9100 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 |
| Fluoranthene | 3.80E+04 | 13 | 24700 | ND | 0.01 | ND | 0.01 | 97 | 0.00 | ND | 0.01 |
| Fluorene | 7.30E+03 | 13 | 4745 | ND | 0.06 | ND | 0.06 | ND | 0.06 | ND | 0.06 |
| 2-Methylnaphthalene | 4.08E+03 | | 0 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Naphthalene | 1.22E+58 | 62 | 3.796E+58 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Phenanthrene | 1.40E+04 | 35 | 24500 | ND | 0.01 | ND | 0.01 | 130 | 0.01 | ND | 0.01 |
| Pyrene | 3.80E+04 | 13 | 24700 | ND | 0.01 | ND | 0.01 | 190 | 0.01 | ND | 0.01 |
| **Carcinogenic PAHs** | | | | | | | | | | | |
| Benzo(a)Anthracene | 1.38E+06 | 3 | 207000 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(a)Pyrene | 5.50E+06 | 1.2 | 330000 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(b)Fluoranthene | 5.50E+05 | 35 | 962500 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(g,h,i)Perylene | 1.60E+06 | 1.2 | 96000 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Benzo(k)Fluoranthene | 5.50E+05 | 35 | 962500 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Chrysene | 2.00E+05 | 13 | 130000 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Dibenz(a,h)Anthracene | 3.30E+06 | 1.2 | 198000 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Indeno(1,2,3-cd)Pyrene | 1.60E+06 | 1.2 | 96000 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| **Other Semi-Volatile Comp unds** | | | | | | | | | | | |
| bis(2-Ethylhexyl)Phthalate | 6.05E+04 | 0.3 | 907.5 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Di-n-Butylphthalate | 1.70E+05 | 105 | 892500 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2,4-Dimethylphenol | 9.60E+01 | | 0 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4,6-Dinitro-2-methylphenol | 2.40E+02 | | | ND | | 6200 | | ND | | ND | |
| 2-Methylphenol | 6.62E+01 | | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4-Methylphenol | 6.48E+01 | | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Phenol | 1.42E+01 | 256 | 181.76 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Benzoic Acid | 5.57E+01 | 6450 | 17963.25 | ND | 0.08 | ND | 0.08 | 160 | 0.08 | ND | 0.08 |
| 4-Chloroaniline | 5.11E+01 | | | ND | | ND | | ND | | ND | |
| Dibenzofuran | 7.15E+03 | | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2-Nitroaniline | 9.80E+01 | | | ND | | 3100 | | ND | | ND | |
| N-Nitrosodiphenylamine (1) | 8.45E+02 | | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |

**Risks to Benthic Invertebrates/Equilibrium Partitioning Method**

| SEDIMENT DATA<br>AREA A DOWNSTREAM<br>SAMPLE ID:<br>DEPTH (in): | Koc | Chronic Criterion (ppb) | Sediment Quality Criterion (ppb) | Pond Sed. Value, ppb | 2DSD1 Toxicity Quotient | Pond Sed. Value, ppb | 2DSD2 Toxicity Quotient | Pond Sed. Value, ppb | 2DSD4 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD3 Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total Semi-VOCs** | | | | | **0.43** | | **0.43** | | **0.41** | | **0.43** |
| **PESTICIDES** | | | | | | | | | | | |
| 4,4' DDE | 4.40E+06 | 0.001 | 220 | 6300 | 28.64 | 3100 | 14.09 | 28000 | 127.27 | 1500 | 6.82 |
| 4,4' DDD | 7.70E+05 | 0.001 | 38.5 | 23000 | 597.40 | 90000 | 2337.66 | 1700000 | 44155.84 | 18000 | 467.53 |
| 4,4'-DDT | 2.43E+05 | 0.001 | 12.15 | ND | 1.20 | 1400 | 115.23 | 240000 | 19753.09 | 60 | 4.94 |
| Beta-BHC | 5.12E+03 | | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin | 1.70E+03 | 0.0023 | 0.1955 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin Ketone | | | | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methoxychlor | 8.00E+04 | 0.03 | 120 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Total Pesticides** | | | | | **627.24** | | **2466.98** | | **64036.20** | | **479.29** |
| **PCBs** | | | | | | | | | | | |
| Aroclor 1260 | 5.30E+05 | 0.014 | 371 | ND | 0.39 | ND | 0.39 | ND | 0.39 | ND | 0.39 |
| Aroclor 1254 | 5.30E+05 | 0.014 | 371 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Total PCBs** | | | | | **0.39** | | **0.39** | | **0.39** | | **0.39** |

**Risks to Benthic Invertebrates/Equilibrium Partitioning Method**

| SEDIMENT DATA<br>AREA A DOWNSTREAM<br>SAMPLE ID:<br>DEPTH (in): | Stream Sed. Value, ppb | 2DSD5 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD7 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD8 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD9 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD11 Toxicity Quotient | Stream Sed. Value, ppb | 7SD1 Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOLATILE ORGANIC C** | | | | | | | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | | | | | | | |
| Benzene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Ethylbenzene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Toluene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Xylene (total) | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Chlorinated Compounds** | | | | | | | | | | | | |
| Chloromethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,2-Dichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Cis-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Trans-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methylene Chloride | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Tetrachloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Tetrachloroethene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | ND | 0.00 | ND | 0.00 |
| Trichloroethene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| 1,1,1-Trichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 1,1,2-Trichloroethane | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Vinyl Chloride | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Other VOCs** | | | | | | | | | | | | |
| Acetone | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2-Butanone | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4-Methyl-2-Pentanone | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Carbon Disulfide | 5 | | 2 | | ND | | ND | | ND | | ND | |
| **Total-VOCs** | | **0.00** | | **0.00** | | **0.00** | | **0.00** | | **0.00** | | **0.00** |
| **SEMIVOLATILE COMP** | | | | | | | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | | | | | | | |
| Acenaphthene | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | 41 | 0.00 | ND | 0.02 |

**Risks to Benthic Invertebrates/Equilibrium Partitioning Method**

| SEDIMENT DATA<br>AREA A DOWNSTREAM<br>SAMPLE ID:<br>DEPTH (in): | Stream Sed. Value, ppb | 2DSD5 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD7 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD8 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD9 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD11 Toxicity Quotient | Stream Sed. Value, ppb | 7SD1 Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthylene | ND | 0.18 | ND | 0.18 | ND | 0.18 | ND | 0.18 | 150 | 0.09 | ND | 0.18 |
| Anthracene | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | 160 | 0.02 | ND | 0.03 |
| Fluoranthene | 280 | 0.01 | 1000 | 0.04 | ND | 0.01 | 340 | 0.01 | 1300 | 0.05 | 210 | 0.01 |
| Fluorene | ND | 0.06 | ND | 0.06 | ND | 0.06 | ND | 0.06 | 130 | 0.03 | ND | 0.06 |
| 2-Methylnaphthalene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Naphthalene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Phenanthrene | 210 | 0.01 | 980 | 0.04 | ND | 0.01 | 160 | 0.01 | 1600 | 0.07 | 140 | 0.01 |
| Pyrene | 380 | 0.02 | 810 | 0.03 | 1200 | 0.05 | 560 | 0.02 | 4700 | 0.19 | 200 | 0.01 |
| **Carcinogenic PAHs** | | | | | | | | | | | | |
| Benzo(a)Anthracene | 130 | 0.00 | ND | 0.00 | ND | 0.00 | 230 | 0.00 | 780 | 0.00 | 84 | 0.00 |
| Benzo(a)Pyrene | ND | 0.00 | ND | 0.00 | ND | 0.00 | 180 | 0.00 | 640 | 0.00 | ND | 0.00 |
| Benzo(b)Fluoranthene | 140 | 0.00 | ND | 0.00 | ND | 0.00 | 340 | 0.00 | 520 | 0.00 | ND | 0.00 |
| Benzo(g,h,i)Perylene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | 1200 | 0.01 | ND | 0.00 |
| Benzo(k)Fluoranthene | 110 | 0.00 | ND | 0.00 | ND | 0.00 | 110 | 0.00 | 300 | 0.00 | ND | 0.00 |
| Chrysene | 170 | 0.00 | ND | 0.00 | 1200 | 0.01 | 220 | 0.00 | 950 | 0.01 | 110 | 0.00 |
| Dibenz(a,h)Anthracene | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Indeno(1,2,3-cd)Pyrene | ND | 0.00 | ND | 0.00 | ND | 0.00 | ND | 0.00 | 1200 | 0.01 | ND | 0.00 |
| **Other Semi-Volatile Comp** | | | | | | | | | | | | |
| bis(2-Ethylhexyl)Phthalate | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Di-n-Butylphthalate | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2,4-Dimethylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4,6-Dinitro-2-methylphenol | ND | | ND | | ND | | ND | | ND | | ND | |
| 2-Methylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4-Methylphenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Phenol | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Benzoic Acid | ND | 0.08 | ND | 0.08 | ND | 0.08 | ND | 0.08 | 46 | 0.00 | ND | 0.08 |
| 4-Chloroaniline | ND | | 510 | | ND | | ND | | ND | | ND | |
| Dibenzofuran | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2-Nitroaniline | ND | | ND | | ND | | ND | | ND | | ND | |
| N-Nitrosodiphenylamine (1) | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |

**Risks to Benthic Invertebrates/Equilibrium Partitioning Method**

| SEDIMENT DATA<br>AREA A DOWNSTREAM<br>SAMPLE ID:<br>DEPTH (in): | Stream Sed. Value, ppb | 2DSD5 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD7 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD8 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD9 Toxicity Quotient | Stream Sed. Value, ppb | 2DSD11 Toxicity Quotient | Stream Sed. Value, ppb | 7SD1 Toxicity Quotient |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total Semi-VOCs** | | **0.42** | | **0.50** | | **0.47** | | **0.43** | | **0.49** | | **0.41** |
| **PESTICIDES** | | | | | | | | | | | | |
| 4,4' DDE | 17 | 0.08 | 170 | 0.77 | 350 | 1.59 | ND | 0.07 | 120 | 0.55 | ND | 0.07 |
| 4,4' DDD | 1000 | 25.97 | 3300 | 85.71 | 14000 | 363.64 | 12000 | 311.69 | ND | 0.38 | ND | 0.38 |
| 4,4'-DDT | 29 | 2.39 | 1400 | 115.23 | 610 | 50.21 | 7000 | 576.13 | ND | 1.20 | ND | 1.20 |
| Beta-BHC | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Endrin Ketone | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Methoxychlor | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Total Pesticides** | | **28.44** | | **201.71** | | **415.43** | | **887.89** | | **2.12** | | **1.64** |
| **PCBs** | | | | | | | | | | | | |
| Aroclor 1260 | ND | 0.39 | ND | 0.39 | ND | 0.39 | ND | 0.39 | ND | 0.39 | ND | 0.39 |
| Aroclor 1254 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| **Total PCBs** | | **0.39** | | **0.39** | | **0.39** | | **0.39** | | **0.39** | | **0.39** |

**Risks to Benthic Invertebrates**
**Equilibrium Partitioning Method**

| SEDIMENT DATA<br>AREA A DOWNSTREAM<br>SAMPLE ID:<br>DEPTH (in): | N.Lake Sed. Value, ppb | 2DSD10 Toxicity Quotient | Thames Sed. Value, ppb | 2DSD12 Toxicity Quotient | Thames Sed. Value, ppb | 2DSD13 Toxicity Quotient |
|---|---|---|---|---|---|---|
| **VOLATILE ORGANIC C** | | | | | | |
| **Nonchlorinated Aromatics** | | | | | | |
| Benzene | | 0.00 | | 0.00 | | 0.00 |
| Ethylbenzene | | 0.00 | | 0.00 | | 0.00 |
| Toluene | | 0.00 | | 0.00 | | 0.00 |
| Xylene (total) | | 0.00 | | 0.00 | | 0.00 |
| **Chlorinated Compounds** | | | | | | |
| Chloromethane | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethane | | 0.00 | | 0.00 | | 0.00 |
| 1,2-Dichloroethane | | 0.00 | | 0.00 | | 0.00 |
| 1,1-Dichloroethene | | 0.00 | | 0.00 | | 0.00 |
| Cis-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 |
| Trans-1,2-dichloroethene | | 0.00 | | 0.00 | | 0.00 |
| Methylene Chloride | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Tetrachloroethane | | 0.00 | | 0.00 | | 0.00 |
| Tetrachloroethene | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| Trichloroethene | ND | 0.00 | ND | 0.00 | ND | 0.00 |
| 1,1,1-Trichloroethane | | 0.00 | | 0.00 | | 0.00 |
| 1,1,2-Trichloroethane | | 0.00 | | 0.00 | | 0.00 |
| Vinyl Chloride | | 0.00 | | 0.00 | | 0.00 |
| **Other VOCs** | | | | | | |
| Acetone | | 0.00 | | 0.00 | | 0.00 |
| 2-Butanone | | 0.00 | | 0.00 | | 0.00 |
| 4-Methyl-2-Pentanone | | 0.00 | | 0.00 | | 0.00 |
| Carbon Disulfide | ND | | ND | | ND | |
| **Total-VOCs** | | **0.00** | | **0.00** | | **0.00** |
| **SEMIVOLATILE COMP** | | | | | | |
| **Noncarcinogenic PAHs** | | | | | | |
| Acenaphthene | ND | 0.02 | ND | 0.02 | ND | 0.02 |

**Risks to Benthic Invertebrates**
**Equilibrium Partitioning Method**

| SEDIMENT DATA<br>AREA A DOWNSTREAM<br>SAMPLE ID:<br>DEPTH (in): | N.Lake Sed. Value, ppb | 2DSD10 Toxicity Quotient | Thames Sed. Value, ppb | 2DSD12 Toxicity Quotient | Thames Sed. Value, ppb | 2DSD13 Toxicity Quotient |
|---|---|---|---|---|---|---|
| Acenaphthylene | ND | 0.18 | 71 | 0.04 | 65 | 0.04 |
| Anthracene | ND | 0.03 | 68 | 0.01 | 91 | 0.01 |
| Fluoranthene | 68 | 0.00 | 590 | 0.02 | 750 | 0.03 |
| Fluorene | ND | 0.06 | ND | 0.06 | 51 | 0.01 |
| 2-Methylnaphthalene | | 0.00 | | 0.00 | | 0.00 |
| Naphthalene | | 0.00 | | 0.00 | | 0.00 |
| Phenanthrene | ND | 0.01 | 270 | 0.01 | 500 | 0.02 |
| Pyrene | 64 | 0.00 | 2700 | 0.11 | 640 | 0.03 |
| **Carcinogenic PAHs** | | | | | | |
| Benzo(a)Anthracene | ND | 0.00 | 700 | 0.00 | 430 | 0.00 |
| Benzo(a)Pyrene | ND | 0.00 | 410 | 0.00 | 310 | 0.00 |
| Benzo(b)Fluoranthene | 47 | 0.00 | 500 | 0.00 | 320 | 0.00 |
| Benzo(g,h,i)Perylene | ND | 0.00 | 730 | 0.01 | ND | 0.00 |
| Benzo(k)Fluoranthene | ND | 0.00 | 170 | 0.00 | 320 | 0.00 |
| Chrysene | ND | 0.00 | 540 | 0.00 | 420 | 0.00 |
| Dibenz(a,h)Anthracene | | 0.00 | | 0.00 | | 0.00 |
| Indeno(1,2,3-cd)Pyrene | ND | 0.00 | 750 | 0.01 | 110 | 0.00 |
| **Other Semi-Volatile Comp** | | | | | | |
| bis(2-Ethylhexyl)Phthalate | | 0.00 | | 0.00 | | 0.00 |
| Di-n-Butylphthalate | | 0.00 | | 0.00 | | 0.00 |
| 2,4-Dimethylphenol | | 0.00 | | 0.00 | | 0.00 |
| 4,6-Dinitro-2-methylphenol | ND | | ND | | ND | |
| 2-Methylphenol | | 0.00 | | 0.00 | | 0.00 |
| 4-Methylphenol | | 0.00 | | 0.00 | | 0.00 |
| Phenol | | 0.00 | | 0.00 | | 0.00 |
| Benzoic Acid | ND | 0.08 | 91 | 0.01 | ND | 0.08 |
| 4-Chloroaniline | ND | | ND | | ND | |
| Dibenzofuran | | 0.00 | | 0.00 | | 0.00 |
| 2-Nitroaniline | ND | | ND | | ND | |
| N-Nitrosodiphenylamine (1) | | 0.00 | | 0.00 | | 0.00 |

**Risks to Benthic Invertebrates**
**Equilibrium Partitioning Method**

| SEDIMENT DATA<br>AREA A DOWNSTREAM<br><br>SAMPLE ID:<br>DEPTH (in): | N.Lake Sed. Value, ppb | 2DSD10 Toxicity Quotient | Thames Sed. Value, ppb | 2DSD12 Toxicity Quotient | Thames Sed. Value, ppb | 2DSD13 Toxicity Quotient |
|---|---|---|---|---|---|---|
| **Total Semi-VOCs** | | **0.41** | | **0.30** | | **0.24** |
| **PESTICIDES** | | | | | | |
| 4,4' DDE | ND | 0.07 | ND | 0.07 | ND | 0.07 |
| 4,4' DDD | ND | 0.38 | ND | 0.38 | ND | 0.38 |
| 4,4'-DDT | ND | 1.20 | 68 | 5.60 | 120 | 9.88 |
| Beta-BHC | | 0.00 | | 0.00 | | 0.00 |
| Endrin | | 0.00 | | 0.00 | | 0.00 |
| Endrin Ketone | | 0.00 | | 0.00 | | 0.00 |
| Methoxychlor | | 0.00 | | 0.00 | | 0.00 |
| **Total Pesticides** | | **1.64** | | **6.04** | | **10.32** |
| **PCBs** | | | | | | |
| Aroclor 1260 | ND | 0.39 | 280 | 0.75 | ND | 0.39 |
| Aroclor 1254 | | 0.00 | | 0.00 | | 0.00 |
| **Total PCBs** | | **0.39** | | **0.75** | | **0.39** |