**Table 4.1.1 EPA Organics and Inorganics Data Qualifiers**

## EPA ORGANICS QUALIFIERS

| | |
|---|---|
| U | Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. |
| J | Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identify compounds (TIC) where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. The assignment of the "J" flag can be the result of any number of QC conditions noted during the validation process including, but not limited to: matrix interference, calibration data, holding times, etc. Also, the "J" qualifier may have been placed on an organic result by the lab due to the value being between the reporting limit and the constituent MDL. |
| N | Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used. |
| P | This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on EPA Form I or equivalent and flagged with a "P". |
| C | This flag applies to pesticide results where the identification has been confirmed by GC/MS. Single component pesticides $\geq$ 10 ng/ul in the final extract shall be confirmed by GC/MS. |
| B | This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified TCL compound. |
| E | This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis. If one or more compounds have a response greater than full scale, the sample or extract should be diluted and reanalyzed. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the EPA Form I or equivalent for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate EPA Form I or equivalent. The EPA Form I or equivalent for the diluted sample shall have the "DL" suffix appended to the sample number. |
| D | This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is reanalyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the EPA Form I or equivalent for the diluted sample, and <u>all</u> concentration values reported on that Form I are flagged with the "D" flag. |
| A | This flag indicates that a TIC is a suspected aldol-condensation product. |

## Table 4.1.1 EPA Organics and Inorganics Data Qualifiers (continued)

### EPA INORGANICS CLP QUALIFIERS

| | |
|---|---|
| B | The reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL), if the analyte was analyzed for but not detected, a "U" must be entered. |
| E | The reported value is estimated because of the presence or interference. An explanatory note must be included under Comments on the Cover Page (if the problem applies to all samples) or on the specific EPA Form I - IN or equivalent (if it is an isolated problem). |
| M | Duplicate injection precision not met. |
| N | Spike sample recovery not within control limits. |
| S | The reported value was determined by the Method of Standard Additions (MSA). |
| W | Post-digestion spike for Furnace AA analysis is out of control limits (85 - 115%), while sample absorbance is less than 50% of spike absorbance. (See Exhibit E) |
| * | Duplicate analysis not within control limits. |
| + | Correlation coefficient for the MSA is less than 0.995. |

## Table 4.1. Target Compound List (TCL) and Target Analyte List (TAL) for the Franklin Steel RFI

**Volatile Organic Compounds on TCL List**

Cloromethane
Bromomethane
Vinyl Chloride
Chloroethane
Methylene Chloride
Acetone
Carbon Disulfide
1,1-Dichloroethene
1,1-Dichloroethane
1,2-Dichloroethene (total)
Chloroform
1,2-Dichloroethane
2-Butanone
1,1,1-Trichloroethane
Carbon tetrachloride
Bromodichloromethane
1,2-Dichloropropane
cis-1,3-Dichloropropene
Trichloroethene
Dibromochloromethane
1,1,2-Trichloroethane
Benzene
Trans-1,3-Dichloropropene
Bromoform
4-Methyl-2-pentanone
2-Hexanone
Tetrachloroethene
1,1,2,2-Tetrchloroethane
Toluene
Chlorobenzene
Ethylbenzene
Styrene
Xylene (total)

**Semivolatile Organic Compounds on TCL List**

Phenol
Bis(2-Chloroethyl)ether
2-Chlorophenol
1,3-Dichlorobenzene
1,4-Dichlorobenzene
1,2-Dichlorobenzene
2-Methylphenol
2,2'-oxybis(1-Chloropropane)
4-Methylphenol
N-Nitroso-di-n-propylamine
Hexachloroethane
Nitrobenzene
Isophorone
2-Nitrophenol
2,4-Dimethylphenol
bis(2-Chloroethoxy)methane
2,4-Dichlorophenol
1,2,4-Trichlorobenzene
Naphthalene
4-Chloroaniline
Hexachlorobutadiene
4-Chloro-3-methylphenol
2-Methylnaphthalene
Hexachlorocyctopentadiene
2,4,6-Trichlorophenol
2,4,5-Trichlorophenol
2-Chloronaphthalene
2-Nitroaniline
Dimethylphthalate
Acanaphthylene
2,6-Dinitrotoluene
3-Nitroaniline
Acenaphthene
2,4-Dinitrophenol
4-Nitrophenol
Dibenzofuran
2,4-Dinitrotoluene
Diethylphthalate
4-Chlorophenyl-phenylether
Fluorene
4-Nitroaniline
4,6-Dinitro-2-methylphenol
N-Nitrosodiphenylamine(1)
4-Bromophenyl-phenylether
Hexachlorobenzene
Pentachlorophenol
Phenenthrene
Anthracene
Carbazole
Di-n-butylphthalate
Fluoranthene
Pyrene
Butylbenzylphthalate
3,3'-Dichlorobenzidine
Benzo(a)anthracene
Chrysene
Bis(2-Ethylhexyl)phthalate
Di-n-octytphthalate
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(a)pyrene
Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene
Benzo(g,h,i)perylene

**Metals on the TAL List**

Antimony
Arsenic
Barium
Beryllium
Cadmium
Calcium
Chromium
Cobalt
Copper
Iron
Lead
Magnesium
Manganese
Mercury
Nickel
Potassium
Selenium
Silver
Sodium
Thallium
Vanadium
Zinc
Cyanide
Aluminum

## Table 4.3.1 Background Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| Background Station<br>Sample Number<br>Date Collected<br>Depth | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S100-SS01<br>ASS01<br>10/23/1993<br>00-01 | S100-SS02<br>ASS02<br>10/23/1993<br>00-01 | S100-SS03<br>ASS03<br>10/23/1993<br>00-01 | S100-SS04<br>ASS04<br>10/23/1993<br>00-01 | S100-SS05<br>ASS05<br>10/23/1993<br>00-01 | S100-SS06<br>ASS06<br>10/23/1993<br>00-01 | S100-SS07<br>ASS07<br>10/23/1993<br>00-01 | SEA-29<br>SEA-29<br>10/01/1989<br>00-01 | SEA-30<br>SEA-30<br>10/01/1989<br>00-01 | SEA-31<br>SEA-31<br>10/01/1989<br>00-01 | SEA-32<br>SEA-32<br>10/01/1989<br>00-01 | SEA-33<br>SEA-33<br>10/01/1989<br>00-01 | SEA-34<br>SEA-34<br>10/01/1989<br>00-01 | SEA-35<br>SEA-35<br>10/01/1989<br>00-01 | SEA-36<br>SEA-36<br>10/01/1989<br>00-01 | SEA-37<br>SEA-37<br>10/01/1989<br>00-01 | SEA-38<br>SEA-38<br>10/01/1989<br>00-01 | SEA-39<br>SEA-39<br>10/01/1989<br>00-01 | SEA-40<br>SEA-40<br>10/01/1989<br>00-01 | SEA-41<br>SEA-41<br>10/01/1989<br>00-01 | SEA-42<br>SEA-42<br>10/01/1989<br>00-01 | SEA-43<br>SEA-43<br>10/01/1989<br>00-01 | SEA-44<br>SEA-44<br>10/01/1989<br>00-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 14900 J | 9880 J | 7850 J | 11500 J | 7990 J | 9510 J | 10000 J | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 9.70 J | 9.40 J | 7.90 J | 14.80 J | 21.90 J | 19.80 J | 19.00 J | 27.08 | 24.63 | 27.10 | 28.54 | 19.20 | 10.36 | 15.47 | 15.91 | 14.95 | 14.23 | 5.73 | 7.56 | 9.70 | 8.96 | 8.32 | 3.69 |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 237.00 J | 145.00 J | 75.20 J | 110.00 J | 99.40 J | 115.00 J | 136.00 J | 50.88 | 88.16 | 118.61 | 188.58 | 215.38 | 158.14 | 98.50 | 127.92 | 158.12 | 252.12 | 117.16 | 101.01 | 112.39 | 57.95 | 154.20 | 97.94 |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 1.10 | 0.88 | 0.46 | 0.72 | 0.61 | 0.66 | 0.72 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | 1.70 | 1.20 J | 0.83 J | | 1.20 J | 0.90 | 0.76 J | | | | | | 1.07 | | | | | | | | | | |
| Calcium (mg/kg) | -- | 16,000 | -- | 4540 | 4000 | 2060 | 1280 | 16000 | 9130 | 12500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 20.60 | 15.60 | 11.90 | 16.10 | 14.30 | 17.10 | 17.00 | 14.49 | 15.73 | 15.92 | 16.94 | 19.23 | 13.24 | 12.42 | 17.07 | 16.42 | 18.98 | 15.91 | 14.95 | 13.84 | 16.94 | 19.74 | 13.18 |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 8.50 | 6.40 | 5.40 | 13.20 | 12.30 | 12.50 | 13.40 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 30.40 | 21.20 | 13.10 | 13.10 | 28.80 | 27.20 | 28.80 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 23700 J | 18000 J | 16700 J | 22000 J | 27900 J | 28700 J | 28800 J | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lead (mg/kg) | 800 | 31.2 | 800 | 26.30 J | 23.20 J | 17.50 J | 24.60 J | 29.20 J | 29.10 J | 21.00 J | 13.87 | 31.20 | 23.22 | 14.37 | 22.68 | 25.58 | 21.27 | 16.32 | 22.50 | 26.41 | 24.83 | 21.89 | 15.29 | 24.11 | 16.14 | 27.18 |
| Magnesium (mg/kg) | -- | 7,030 | -- | 2310 J | 2010 J | 1420 J | 1450 J | 7030 J | 4860 J | 6700 J | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 618.00 J | 184.00 J | 219.00 J | 1200 J | 412.00 J | 470.00 J | 484.00 J | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Mercury (mg/kg) | 310 | 0.05 | 310 | | | | | | | | | | | | | 0.02000 | | | 0.030 | 0.030 | | | | | | 0.050 |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 23.40 | 20.40 | 12.00 | 12.90 | 35.50 | 33.30 | 35.00 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Potassium (mg/kg) | -- | 1,640 | -- | 1640 | 850.00 | 1050 | 888.00 | 1150 | 1280 | 1170 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | 1.20 J | 0.57 J | 0.67 J | 0.87 J | 1.00 J | 0.48 J | 0.65 J | 8.33 | 8.08 | 8.15 | 9.89 | 9.14 | 2.69 | 7.07 | | 7.61 | 8.76 | 8.02 | 1.48 | 7.27 | 7.20 | 8.32 | 8.69 |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | | | | | | | | | | | 0.72 | | | | | | | | | | |
| Thallium (mg/kg) | 67 | 1.2 | 67 | 1.10 J | 1.10 J | 0.75 J | 0.77 J | 1.10 J | 1.20 J | 1.20 J | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 42.70 | 34.30 | 26.90 | 34.70 | 27.70 | 33.80 | 33.20 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 110.00 J | 75.10 J | 62.80 J | 67.30 J | 106.00 J | 108.00 J | 109.00 J | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | 63 | 62,000,000 | 63.00 | | | | 53.00 J | 42.00 J | 47.00 J | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No Volatiles | -- | -- | -- | | | | | | | | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

Blank = Nondetect

-- = Not Available

Shaded and bold = result reported above RFI screening value.

NA = Not Analyzed.

# Table 4.3.2 SWMU S101 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S101<br>Station<br>Sample Number<br>Date Collected<br>Depth | U.S. EPA Region 9 PRG<br>Direct Contact<br>Industrial Soil | Maximum<br>Background<br>Concentration | RFI<br>Screening Value | S101-SB02<br>S101SB02D00<br>08/04/1997<br>00-01 | S101-SB02<br>S101SB02D05<br>08/04/1997<br>05-06 | S101-SB03<br>S101SB03D00<br>08/05/1997<br>00-01 | S101-SB03<br>S101SB03D05<br>08/05/1997<br>05-06 | S101-SB03<br>S101SB03D10<br>08/05/1997<br>10-11 |
|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 12700 | 16000 | 18400 | 23400 | NA |
| Antimony (mg/kg) | 410 | -- | 410 | 5.80 J | | | | NA |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 11.00 | 8.50 | 26.50 | 5.40 | NA |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 295.00 | 114.00 | 276.00 | 177.00 | NA |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 0.73 | 0.70 | 1.10 | 1.10 | NA |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | 3.80 J | | 1.70 J | | NA |
| Calcium (mg/kg) | -- | 16,000 | -- | 28700 | 3240 | 4140 | 3490 | NA |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 48.10 J | 23.30 J | 25.40 J | 23.30 J | NA |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 10.60 | 4.90 | 21.30 | 4.00 | NA |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 50.60 | 24.20 | 33.40 | 17.20 | NA |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 24200 | 25400 | 42000 | 13400 | NA |
| Lead (mg/kg) | 800 | 31.2 | 800 | 167.00 J | 10.00 J | 35.00 J | 13.60 J | NA |
| Magnesium (mg/kg) | -- | 7,030 | -- | 8160 | 3300 | 3200 | 3200 | NA |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 376.00 | 122.00 | 1430 | 127.00 | NA |
| Mercury (mg/kg) | 310 | 0.05 | 310 | 0.140 | 0.061 | 0.110 | 0.050 | NA |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 28.60 | 30.80 | 51.70 | 21.90 | NA |
| Potassium (mg/kg) | -- | 1,640 | -- | 1440 | 1780 | 2270 | 2590 | NA |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | 0.52 | | | | NA |
| Sodium (mg/kg) | -- | -- | -- | 311.00 | 201.00 | 97.70 | 141.00 | NA |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 33.00 | 37.00 | 54.90 | 46.70 | NA |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 602.00 | 105.00 | 143.00 | 83.90 | NA |
| ***Semivolatiles*** | | | | | | | | |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | 220.00 J | | 230.00 J | | NA |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | 63 | 62,000,000 | 720.00 | | | | NA |
| Fluoranthene (ug/kg) | 22,000,000 | -- | 22,000,000 | 48.00 J | | | | NA |
| Phenanthrene (ug/kg) | -- | -- | -- | 42.00 J | | | | NA |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | 48.00 J | | | | NA |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | 1400 | | 1100 | | NA |
| ***Volatiles*** | | | | | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | | | | 44.00 J |
| Acetone (ug/kg) | 54,000,000 | -- | 54,000,000 | | | | | 70.00 J |

Blank = Nondetect

-- = Not Available

Shaded and bold = result reported above RFI screening value.

NA = Not Analyzed.

# Table 4.3.2 SWMU S101 Surface Water Sampling Detectable Analytical Results from the Franklin Steel RFI

| S101 Station / Sample Number / Date Collected | U.S. EPA Region 5 RCRA Ecological Screening Values | Maximum Background Concentration | RFI Screening Value | S101-SW01 BSW01 10/23/1993 | S101-SW02 BSW02 10/23/1993 | S101-SW04 S101SW04 01/31/1995 | S101-SW05 S101-SW05 02/01/1995 | S101-SW06 S101SW06 01/30/1995 | S101-SW07 S101SW07 01/30/1995 | S101-SW08 S101SW08 04/01/1999 | S101-SW10 S101SW10 04/01/1999 | S101-SW11 S101SW11 04/01/1999 | S101-SW13 S101SW13 04/01/1999 | Background S101-SW14 S101SW14 04/01/1999 | S101-SW16 S101SW16 04/01/1999 | S101-SW17 S101SW17 04/01/1999 | S101-SW18 S101SW18 04/01/1999 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | | | | | | | | | | | |
| Aluminum (mg/L) | -- | 1.14 | -- | 4.54 | 1.90 | 2.60 | | 0.27 | 0.40 | 1.10 | 0.88 | 0.58 | 0.86 | 0.130 B | 0.39 | 0.86 | 0.56 |
| Antimony (mg/L) | 0.08 | 0.000259 | 0.08 | 0.01680 | 0.02430 | | | | | | | | | | | | |
| Arsenic (mg/L) | 0.148 | 0.0031 | 0.148 | 0.01680 | 0.00900 | 0.00830 | | | | 0.00680 B | | | | | | 0.00330 B | 0.00370 B |
| Barium (mg/L) | 0.22 | 0.0896 | 0.22 | 0.202 | 0.182 | 0.120 | 0.086 J | 0.079 | 0.085 | 0.22 | 0.089 B | 0.086 B | 0.090 B | 0.084 B | 0.097 B | 0.078 B | 0.076 B |
| Calcium (mg/L) | -- | 70.3 | -- | 79.00 | 56.50 | 45.50 | 67.80 J | 77.00 | 82.80 | 134.00 | 40.60 | 69.20 | 69.60 | 70.30 | 76.10 | 71.50 | 68.30 |
| Chromium (mg/L) | 0.042 | 0.00139 | 0.042 | 0.01180 | 0.01440 | | | | | 0.01500 | | | | | | | |
| Cobalt (mg/L) | 0.024 | 0.00107 | 0.024 | 0.00850 | 0.00600 | | | | | 0.02800 B | | | | | | | |
| Copper (mg/L) | 0.00158 | 0.01 | 0.01 | 0.01810 | 0.02180 | 0.032 | | | | 0.045 | 0.00850 B | 0.190 | 0.00540 B | | | 0.00520 B | 0.00480 B |
| Cyanide (mg/L) | 0.0052 | | 0.0052 | 0.00500 | 0.02950 | 0.060 | | | | 0.050 J | | | | | | | |
| Iron (mg/L) | -- | 2.93 | -- | 10.30 | 3.12 | 3.60 | 0.22 | 1.20 | 1.20 | 2.70 | 1.40 | 0.71 | 1.40 | 0.28 | 1.20 | 2.00 | 1.40 |
| Lead (mg/L) | 0.00117 | 0.0012 | 0.0012 | 0.00870 | 0.02650 | 0.040 | | | 0.00320 | 0.02700 | 0.00510 | | | | | 0.00370 | |
| Magnesium (mg/L) | -- | 23.4 | -- | 22.10 | 12.40 | 8.40 | 14.00 J | 23.00 | 23.70 | 39.90 | 7.50 | 15.50 | 17.70 | 23.40 | 21.90 | 18.20 | 16.80 |
| Manganese (mg/L) | -- | 0.242 | -- | 1.77 | 0.086 | 0.099 | | 0.110 | 0.130 | 0.31 | 0.054 | 0.032 | 0.078 | 0.045 | 0.110 | 0.120 | 0.120 |
| Mercury (mg/L) | 0.0000013 | 0.0000374 | 0.0000374 | 0.00020 | 0.00020 | | | | | | | | | | | 0.00010 B | |
| Nickel (mg/L) | 0.0289 | 0.00466 | 0.0289 | 0.02180 | 0.02580 | | | | | 0.02300 B | | | | | | | |
| Potassium (mg/L) | -- | 5.54 | -- | 5.93 | 8.23 | 8.70 | | | 5.80 | 14.10 | 84.90 | 2.60 B | 3.90 B | 2.80 B | 2.40 B | 4.40 B | 4.30 B |
| Silver (mg/L) | 0.00012 | | 0.00012 | 0.00450 | | | | | | | | | | | | | |
| Sodium (mg/L) | -- | 43 | -- | 7.82 | 187.00 | 595.00 | 151.00 | 45.00 | 92.00 | 953.00 | 105.00 | 187.00 | 75.40 | 43.00 | 26.50 | 68.50 | 112.00 |
| Thallium (mg/L) | 0.01 | 0.0000664 | 0.01 | | | | | | | 0.00160 J | | | | | | | |
| Vanadium (mg/L) | 0.012 | 0.00442 | 0.012 | 0.01760 | 0.01150 | | | | | 0.00740 B | | | | | | | |
| Zinc (mg/L) | 0.0657 | 0.0219 | 0.0657 | 0.138 | 0.122 | 0.31 | | | | 0.49 | 0.170 | 0.150 | 0.091 | | | 0.120 | 0.095 |
| **Semivolatiles** | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene (ug/L) | 330 | | 330 | | | | | | | | 3.00 J | | | | | | |
| 2-Methylphenol (ug/L) | 67 | | 67 | | | 15.00 J | | | | 4.60 J | | | | | | | |
| 4-Methylphenol (ug/L) | 25 | | 25 | 2.00 J | | 39.00 J | | | | 8.10 J | | | | | | | |
| Benzo(a)pyrene (ug/L) | 0.014 | | 0.014 | | | | | | 1.10 J | | | | | | | | |
| Benzo(b)fluoranthene (ug/L) | 9.07 | | 9.07 | | | | | | 2.20 J | | | | | | | | |
| Benzo(k)fluoranthene (ug/L) | -- | | -- | | | | | | 1.20 J | | | | | | | | |
| Butyl benzyl phthalate (ug/L) | 23 | | 23 | | | | | | | | | | | | | | 2.80 J |
| Chrysene (ug/L) | -- | | -- | | | | | | 2.70 J | | | | | | | | |
| Di-n-butyl phthalate (ug/L) | 9.7 | | 9.7 | | | | | | | 3.70 J | | | | | | | |
| Fluoranthene (ug/L) | 1.9 | | 1.9 | | | | | | 7.50 J | | 3.40 J | | | | | | |
| Isophorone (ug/L) | 920 | | 920 | | | 120.00 | | | | 7.10 J | | | | | | | |
| Phenanthrene (ug/L) | 3.6 | | 3.6 | | | 6.60 J | | | 4.40 J | | | | | | | | |
| Phenol (ug/L) | 180 | | 180 | 3.00 J | | 33.00 J | | | | 61.00 | | | | | | | |
| Pyrene (ug/L) | 0.3 | | 0.3 | | | | | | 5.60 J | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L) | 0.3 | | 0.3 | 8.00 J | 2.00 J | | | | | | | | | | | | |
| **Volatiles** | | | | | | | | | | | | | | | | | |
| 2-Butanone (ug/L) | 2200 | | 2200 | | | 350.00 | | 1.60 J | | | | | | | | | |
| 4-Methyl-2-pentanone (ug/L) | 170 | | 170 | | | 50.00 J | | | | | | | | | | | |
| Acetone (ug/L) | 1700 | 26.3 | 1700 | | | 810.00 J | | 6.00 J | 8.40 J | | | | | | | | |

Blank Space = Not detected
-- = Not Available
NS = Not Sampled

**Table 4.3.2A**
**Franklin Steel Company, Inc.**
**Blacklick, Ohio**
**Detectable Sediment Analytical Results Collected by Burgess Niple, Inc.**

| Parameter | Units | U.S. EPA, Region 5, RCRA, Ecological Screening Values for Sediment (8/22/2003) | Maximum Background Concentration | RFI Screening Value | BN-SD-1 10/25/2006 | | BN-SD-2 10/25/2006 | | BN-SD-3 10/25/2006 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | |
| Aluminum | mg/kg | -- | 16,400 | -- | 5390 | M | 3330 | | 8490 | |
| Antimony | mg/kg | -- | ND | -- | < 0.0543 | M | < 0.0572 | | < 0.0751 | |
| Arsenic | mg/kg | 9.790 | 21.2 | 21.2 | **23.8** | **M** | 16.0 | | 10.2 | |
| Barium | mg/kg | -- | 171 | -- | 72.0 | | 62.8 | | 171 | |
| Beryllium | mg/kg | -- | 0.704 | -- | 0.369 | J | 0.347 | J | 0.704 | J |
| Cadmium | mg/kg | 0.990 | 2.3 | 2.3 | 1.15 | J | 1.21 | J | 1.49 | J |
| Calcium | mg/kg | -- | 28,800 | -- | 31900 | M | 46600 | | 5970 | |
| Chromium | mg/kg | 43.4 | 23.7 | 43.4 | 10.2 | | 10.8 | | 12.4 | |
| Cobalt | mg/kg | 50.0 | 13 | 50.0 | 8.38 | | 12.0 | | 10.3 | |
| Copper | mg/kg | 31.6 | 33.8 | 33.8 | 26.8 | B1, M | 33.0 | B1 | 27.5 | B1 |
| Iron | mg/kg | -- | 29,300 | -- | 29400 | M | 20800 | | 21900 | |
| Lead | mg/kg | 35.8 | 34.2 | 35.8 | 17.7 | B1 | 18.1 | B1 | 29.7 | B1 |
| Magnesium | mg/kg | -- | 6,510 | -- | 8010 | M | 14600 | | 2450 | |
| Manganese | mg/kg | -- | 545 | -- | 348 | B1, M | 466 | B1 | 545 | B1 |
| Mercury | mg/kg | 0.174 | 0.0838 | 0.174 | 0.0314 | | 0.0162 | | 0.0838 | |
| Nickel | mg/kg | 22.7 | 42.2 | 42.2 | 28.2 | M | 27.9 | | 28.2 | |
| Potassium | mg/kg | -- | 3,350 | -- | 870 | B1, M | 794 | B1 | 1090 | B1 |
| Selenium | mg/kg | -- | 1.3 | -- | 10.4 | J | 14.4 | J | < 3.40 | |
| Silver | mg/kg | 0.5 | 0.19 | 0.5 | 0.146 | J | 0.196 | J | 0.190 | J |
| Sodium | mg/kg | -- | 333 | -- | 94.1 | B, J | 107 | B, J | 333 | B1 |
| Thallium | mg/kg | -- | 0.463 | -- | 0.688 | J | 0.457 | J | 0.463 | J |
| Vanadium | mg/kg | -- | 78.8 | -- | 15.7 | | 15.9 | | 22.9 | |
| Zinc | mg/kg | 121 | 138 | 138 | 92.7 | M | 133 | | 133 | |
| **Inorganics** | | | | | | | | | | |
| Cyanide | mg/kg | 0.0001 | 0.209 | 0.209 | < 0.144 | | < 0.146 | | 0.209 | M |
| **Volatile Organic Compounds** | | | | | | | | | | |
| Acetone | mg/kg | 0.0099 | 0.0079 | 0.0099 | < 0.00694 | | < 0.00666 | | < 0.00932 | |
| 2-Butanone (MEK) | mg/kg | 0.0424 | ND | 0.0424 | < 0.00196 | | < 0.00188 | | < 0.00263 | |
| Methylene Chloride | mg/kg | 0.159 | 0.121 | 0.159 | **0.194** | **A-01** | 0.103 | A-01 | 0.121 | A-01 |
| Toluene | mg/kg | 1.22 | ND | 1.22 | < 0.000973 | | < 0.000933 | | < 0.00131 | |
| **Semi Volatile Organic Compounds** | | | | | | | | | | |
| Acenaphthene | mg/kg | 0.00671 | ND | 0.00671 | **< 0.0171** | | **0.0217** | **J** | **< 0.0233** | |
| Anthracene | mg/kg | 0.0572 | ND | 0.0572 | 0.0179 | J | **0.101** | **J** | < 0.0206 | |
| Benzo (a) anthracene | mg/kg | 0.108 | ND | 0.108 | **0.141** | **J** | **0.396** | **J** | < 0.0254 | |
| Benzo (b) fluoranthene | mg/kg | 10.4 | 0.038 | 10.4 | 0.310 | I, J | 0.722 | J | < 0.0320 | |
| Benzo (g,h,i) perylene | mg/kg | 0.170 | ND | 0.170 | 0.0373 | I, J | 0.107 | I, J | < 0.0264 | |
| Benzo (k) fluoranthene | mg/kg | 0.240 | ND | 0.240 | 0.126 | I, J | **0.275** | **I, J** | < 0.0278 | |
| Benzo (a) pyrene | mg/kg | 0.150 | ND | 0.150 | **0.172** | **I, J** | **0.383** | **J** | < 0.0256 | |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0.182 | 0.110 | 0.182 | 0.116 | J | **0.279** | **J** | < 0.100 | |
| Butyl benzyl phthalate | mg/kg | 1.970 | ND | 1.970 | < 0.0529 | | 0.0635 | J | < 0.0721 | |
| Carbazole | mg/kg | -- | ND | -- | < 0.0517 | | 0.0855 | J | < 0.0704 | |
| Chrysene | mg/kg | 0.166 | ND | 0.166 | **0.194** | **J** | **0.474** | | < 0.0232 | |
| Dibenzofuran | mg/kg | 0.449 | ND | 0.449 | < 0.0339 | | < 0.0342 | | < 0.0461 | |
| Dibenz (a,h) anthracene | mg/kg | 0.033 | ND | 0.033 | < 0.0214 | I | **0.0415** | **I, J** | < 0.0292 | |
| Di-n-butyl phthalate | mg/kg | -- | ND | -- | < 0.0517 | | < 0.0522 | | < 0.0705 | |
| Fluoranthene | mg/kg | 0.423 | 0.055 | 0.423 | 0.348 | J | **1.00** | | < 0.0251 | |
| Fluorene | mg/kg | 0.0774 | ND | 0.0774 | < 0.0191 | | 0.0341 | J | < 0.0261 | |
| Indeno (1,2,3-cd) pyrene | mg/kg | 0.200 | ND | 0.200 | 0.0384 | I, J | 0.113 | I, J | < 0.0272 | |
| 3&4-Methylphenol (m&p Cresol) | mg/kg | 0.0202* | ND | 0.0202* | **< 0.0402** | | **< 0.0405** | | **< 0.0548** | |
| Naphthalene | mg/kg | 0.176 | ND | 0.176 | < 0.0169 | | 0.0547 | J | < 0.0231 | |
| Phenanthrene | mg/kg | 0.204 | ND | 0.204 | 0.150 | J | **0.573** | | < 0.0212 | |
| Phenol | mg/kg | 0.0491 | ND | 0.0491 | < 0.0361 | | **0.0713** | **J** | **< 0.0492** | |
| Pyrene | mg/kg | 0.195 | 0.040 | 0.195 | **0.403** | | **1.21** | | < 0.0278 | |

-- = Not Available.
ND = Nondetect.
Bold and shaded = exceeds RFI Screening Value.
Bold = reporting limit above RFI Screening Value.
* = Most stringent Ecological Screening Level for m&p Cresol.

Tai A
Franklin Ste. ompany, Inc.
Blacklick, Ohio
Surface Water Analytical Results Collected by Burgess Niple, Inc.

| Parameter | Units | U.S. EPA, Region 5, RCRA, Ecological Screening Values for Sediment (8/22/2003) | Maximum Background Concentration | RFI Screening Value | BN-SW-1 10/25/2006 | BN-SW-2 10/25/2006 | BN-SW-3 10/25/2006 |
|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | |
| Aluminum | mg/L | -- | 1.14 | -- | 0.247 | 0.519 | 1.14 |
| Antimony | mg/L | 0.08 | 0.000259 | 0.08 | 0.000217 J | 0.000278 J | 0.000259 J |
| Arsenic | mg/L | 0.148 | 0.0031 | 0.148 | 0.00344 J | 0.00184 | 0.00310 |
| Barium | mg/L | 0.22 | 0.0896 | 0.22 | 0.0745 B | 0.0637 B | 0.0896 B |
| Beryllium | mg/L | 0.0036 | 0.0000716 | 0.0036 | < 0.0000390 | < 0.0000390 | 0.0000716 J |
| Cadmium | mg/L | 0.00015 | 0.0000553 | 0.00015 | < 0.0000430 | < 0.0000430 | 0.0000553 J |
| Calcium | mg/L | -- | 70.3 | -- | 98.2 | 55.9 | 69.3 |
| Chromium | mg/L | 0.042 | 0.00139 | 0.042 | < 0.000240 | 0.00103 | 0.00139 |
| Cobalt | mg/L | 0.024 | 0.00107 | 0.024 | 0.000596 J | 0.000424 J | 0.00107 |
| Copper | mg/L | 0.00158 | 0.01 | 0.01 | 0.00374 J | 0.00741 J | 0.00885 J |
| Iron | mg/L | -- | 2.93 | -- | 1.66 | 1.18 | 2.93 |
| Lead | mg/L | 0.00117 | 0.0012 | 0.0012 | 0.00106 | 0.000780 J | 0.00120 |
| Magnesium | mg/L | -- | 23.4 | -- | 27.0 | 16.0 | 19.4 |
| Manganese | mg/L | -- | 0.242 | -- | 0.186 | 0.0254 | 0.242 |
| Mercury | mg/L | 0.0000013 | 0.0000374 | 0.0000374 | < 0.0000100 | 0.0000193 J | 0.0000374 J |
| Nickel | mg/L | 0.0289 | 0.00466 | 0.0289 | 0.00246 J | 0.00307 J | 0.00466 J |
| Potassium | mg/L | -- | 5.54 | -- | 3.97 | 4.14 | 5.54 |
| Selenium | mg/L | 0.005 | ND | 0.005 | < 0.00270 RL1, J | < 0.00270 | < 0.00270 J1, RL1 |
| Silver | mg/L | 0.00012 | ND | 0.00012 | < 0.0000160 | < 0.0000160 | < 0.0000160 |
| Sodium | mg/L | -- | 43 | -- | 30.6 B1 | 22.3 B1 | 35.5 B1 |
| Thallium | mg/L | 0.01 | 0.0000664 | 0.01 | < 0.0000170 | 0.0000483 J | 0.0000664 J |
| Vanadium | mg/L | 0.012 | 0.00442 | 0.012 | < 0.00170 | 0.00338 J | 0.00442 J |
| Zinc | mg/L | 0.0657 | 0.0219 | 0.0657 | 0.0321 B | 0.0148 B | 0.0219 B |
| **Inorganics** | | | | | | | |
| Cyanide | mg/L | 0.0052 | ND | 0.0052 | < 0.00350 | < 0.00350 | < 0.00350 |
| **Volatile Organic Compounds** | | | | | | | |
| Acetone | ug/L | 1700 | 26.3 | 1700 | < 6.25 | < 6.25 | 26.3 |
| **Semi Volatile Organic Compounds** | | | | | | | |
| Bis(2-ethylhexyl)phthalate | ug/L | 0.3 | ND | 0.3 | **< 3.11** | **< 3.11** | **< 3.11** |
| 3&4-Methylphenol (m&p Cresol) | ug/L | 25 | ND | 25 | < 2.20 | < 2.20 | < 2.20 |
| Phenol | ug/L | 180 | ND | 180 | < 2.60 | < 2.60 | < 2.60 |

-- = Not Available
Bold and shaded = exceeds RFI Screening Value.
Bold = reporting limit above RFI Screening Value.
ND = Nondetect.

## Table 4.3.3 SWMU S102 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S102<br>Station<br>Sample Number<br>Date Collected<br>Depth | U.S. EPA Region 9 PRG<br>Direct Contact<br>Industrial Soil | Maximum<br>Background<br>Concentration | RFI<br>Screening Value | S102-SB01<br>S102SB01D00<br>08/06/1997<br>00-01 | S102-SB01<br>S102SB01D05<br>08/06/1997<br>05-06 | S102-SB01<br>S102SB01D10<br>08/06/1997<br>10-11 | S102-SB01<br>S102SB01D15<br>08/06/1997<br>15-16 | S102-SB01<br>S102SB01D18<br>08/06/1997<br>18-19 | S102-SB02<br>S102SB02D00<br>08/06/1997<br>00-01 | S102-SB02<br>S102SB02D05<br>08/06/1997<br>05-06 | S102-SB02<br>S102SB02D10<br>08/06/1997<br>10-11 | S102-SB02<br>S102SB02D15<br>08/06/1997<br>15-16 | S102-SS01<br>CSS01<br>10/23/1993<br>00-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Inorganics* | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 1460 | 12600 | 14000 | 5480 | 5250 | 1500 | 13100 | 12500 | 3570 | 2960 J |
| Antimony (mg/kg) | 410 | -- | 410 | | | | | | 2.10 | | | | 3.70 J |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 5.30 | 22.40 | 18.00 | 9.60 | 10.30 | 3.60 | 20.60 | 32.90 | 8.90 | 9.00 J |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 55.90 | 120.00 | 163.00 | 53.00 | 56.80 | 139.00 | 116.00 | 329.00 | 32.70 | 178.00 J |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | | 0.55 | 0.50 | 0.190 | | | 0.65 | 0.54 | | 0.34 |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | | 0.62 | | | | 0.57 | 0.57 | 1.40 | | 1.30 J |
| Calcium (mg/kg) | -- | 16,000 | -- | 201000 | 24100 | 2340 | 47900 | 63400 | 187000 | 10500 | 26600 | 14800 | 196000 |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 6.40 | 18.30 | 19.30 | 9.60 | 10.40 | 17.80 | 17.90 | 18.20 | 7.80 | 26.60 |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 3.40 | 11.70 | 11.50 | 7.30 | 6.70 | 2.50 | 14.20 | 13.30 | 5.10 | 7.20 |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 11.10 | 27.70 | 31.30 | 18.10 | 20.20 | 14.80 | 28.10 | 25.00 | 16.10 | 22.50 |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 7540 | 29600 | 31600 | 17200 | 18200 | 9320 | 31400 | 38800 | 14800 | 26000 J |
| Lead (mg/kg) | 800 | 31.2 | 800 | 16.90 | 58.70 | 13.00 | 9.10 | 11.30 | 56.10 | 23.30 | 23.30 | 8.60 | 301.00 J |
| Magnesium (mg/kg) | -- | 7,030 | -- | 47300 | 8580 | 3590 | 14200 | 12800 | 42800 | 3970 | 4570 | 4940 | 30900 J |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 255.00 | 557.00 | 357.00 | 272.00 | 276.00 | 440.00 | 416.00 | 1190 | 90.30 | 406.00 J |
| Mercury (mg/kg) | 310 | 0.05 | 310 | 0.01100 J | 0.035 J | 0.02800 J | | | 0.042 J | 0.032 J | 0.067 J | | |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 11.10 | 32.80 | 48.60 | 22.40 | 21.50 | 11.20 | 34.50 | 41.70 | 19.80 | 22.40 |
| Potassium (mg/kg) | -- | 1,640 | -- | 409.00 | 2020 | 3510 | 1260 | 1240 | 402.00 | 1800 | 1970 | 812.00 | 731.00 |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | | | 1.90 | | | | | | 0.54 | |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | | | | | | | | 0.52 |
| Sodium (mg/kg) | -- | -- | -- | 187.00 | 501.00 | 466.00 | 284.00 | 184.00 | 482.00 | 289.00 | 181.00 | 210.00 | 551.00 |
| Thallium (mg/kg) | 67 | 1.2 | 67 | | | | | | | | | | 0.79 J |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 7.30 | 39.60 | 40.30 | 16.80 | 17.80 | 6.20 | 39.20 | 38.90 | 14.80 | 12.20 |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 34.40 | 111.00 | 108.00 | 70.60 | 73.20 | 90.70 | 119.00 | 156.00 | 66.40 | 162.00 J |
| *Semivolatiles* | | | | | | | | | | | | | |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | 75.00 J | | | | | | | | | 66.00 J |
| Di-n-octylphthalate (ug/kg) | 25,000,000 | -- | 25,000,000 | | | | | | | | | | 34.00 J |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | | | 43.00 J | | | | |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | 120.00 J | 670.00 | | 210.00 J | | 600.00 | | | | 430.00 J |
| *Volatiles* | | | | | | | | | | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | | 8.00 J | | | | 10.00 J | 10.00 J | | |
| Acetone (ug/kg) | 54,000,000 | -- | 54,000,000 | | 180.00 J | 46.00 | 44.00 J | 19.00 J | | 70.00 | 40.00 J | | |
| Ethylbenzene (ug/kg) | 400,000 | -- | 400,000 | | 25.00 | | | | | | | | |
| Methylene chloride (ug/kg) | 21,000 | -- | 21,000 | | | 3.10 J | 2.90 J | | | | | | |
| Tetrachloroethene (ug/kg) | 1,300 | -- | 1,300 | | | | | | 2.50 J | | | | |
| Xylenes, Total (ug/kg) | 420,000 | -- | 420,000 | | | | | | 2.60 J | | | | |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value
NA = Not Analyzed.

## Table 4.3.4 SWMU S103 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S103 Station | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S103-SB01 | S103-SB01 | S103-SB01 | S103-SB02 | S103-SB02 | S103-SB02 | S103-SB02 | S103-SB03 | S103-SB03 | S103-SB03 | S103-SB03 | S103-SS01 | S103-SS01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | | | | S103SB01D00 | S103SB01D05 | S103SB01D10 | S103SB02D00 | S103SB02D05 | S103SB02D10 | S103SB02D12 | S103SB03D00 | S103SB03D05 | S103SB03D10 | S103SB03D15 | DSS01S | DSS01D |
| Date Collected | | | | 08/07/1997 | 08/07/1997 | 08/07/1997 | 08/07/1997 | 08/07/1997 | 08/07/1997 | 08/07/1997 | 08/07/1997 | 08/07/1997 | 08/07/1997 | 08/07/1997 | 10/23/1993 | 10/23/1993 |
| Depth | | | | 00-01 | 05-06 | 10-11 | 00-01 | 05-06 | 10-11 | 12-13 | 00-01 | 05-06 | 10-11 | 15-16 | 00-01 | 02-03 |
| *Inorganics* | | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 11000 | 10500 | 11300 | 8010 | 11500 | 13800 | 5350 | 8690 | 15600 | 12100 | 3770 | | 15700 J |
| Antimony (mg/kg) | 410 | -- | 410 | | | | 25.30 | | | | 19.10 | | | | 9.70 J | |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 21.90 | 9.10 | 12.90 | 11.00 | 10.20 | 14.70 | 11.90 | 10.80 | 16.90 | 17.10 | 20.70 | | |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 159.00 | 111.00 | 142.00 | 765.00 | 183.00 | 220.00 | 67.60 | 1090 | 151.00 | 119.00 | 68.00 | 364.00 J | |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 0.81 | 0.56 | 0.63 | | 0.63 | 0.67 | 0.35 | | 0.54 | 0.51 | 0.200 | | |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | 0.51 | | 0.50 | 8.80 | 0.58 | 1.30 | 0.64 | 12.80 | | 0.55 | 1.50 | 2.80 | |
| Calcium (mg/kg) | -- | 16,000 | -- | 7740 | 1170 | 2510 | 27400 | 2450 | 13900 | 63400 | 34000 | 13100 | 2540 | 38900 | 20300 J | |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 20.10 J | 14.60 J | 19.00 J | 205.00 J | 23.20 J | 30.90 J | 10.20 J | 166.00 J | 21.40 J | 19.60 J | 9.20 J | 91.40 J | 24.70 J |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 17.90 | 12.90 | 11.70 | 25.50 | 9.30 | 11.70 | 6.20 | 19.50 | 7.80 | 10.60 | 6.80 | | |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 33.50 | 11.60 | 29.80 | 188.00 | 24.30 | 42.60 | 30.80 | 206.00 | 24.00 | 27.90 | 18.90 | 95.20 J | |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 34600 J | 16600 J | 22200 J | 166000 J | 23600 J | 33300 J | 22900 J | 67500 J | 30900 J | 27300 J | 26900 J | 49100 | 35800 |
| Lead (mg/kg) | 800 | 31.2 | 800 | 45.20 J | 18.30 J | 16.40 J | 1110 J | 64.80 J | 66.30 J | 24.60 J | 1010 J | 19.90 J | 16.00 J | 42.30 J | 271.00 J | 36.20 J |
| Magnesium (mg/kg) | -- | 7,030 | -- | 4570 | 1470 | 2690 | 12000 | 1960 | 4470 | 32400 | 7810 | 4790 | 3230 | 14800 | | |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 750.00 J | 532.00 J | 854.00 J | 901.00 J | 675.00 J | 364.00 J | 261.00 J | 562.00 J | 217.00 J | 471.00 J | 302.00 J | | |
| Mercury (mg/kg) | 310 | 0.05 | 310 | 0.046 | 0.038 | 0.058 | 0.120 | 0.049 | 0.046 | 0.046 | 0.110 | 0.049 | 0.049 | 0.032 | | |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 39.80 | 15.90 | 51.80 | 67.40 | 21.70 | 45.90 | 29.60 | 58.80 | 21.20 | 38.30 | 29.20 | | |
| Potassium (mg/kg) | -- | 1,640 | -- | 1680 | 1240 | 2870 | 796.00 | 1300 | 3190 | 1490 | 1150 | 1860 | 3220 | 1130 | | 2230 J |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | 0.86 | 0.88 | | | 0.88 | 1.70 | 2.50 | 4.60 | 0.85 | 0.92 | 1.80 | | |
| Sodium (mg/kg) | -- | -- | -- | 111.00 | 108.00 | 117.00 | 176.00 | 70.80 | 179.00 | 208.00 | 194.00 | 120.00 | 131.00 | 105.00 | | |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 37.60 | 32.50 | 53.90 | 20.30 | 37.10 | 57.20 | 26.80 | 26.30 | 46.00 | 37.20 | 14.00 | | 50.40 J |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 144.00 J | 69.90 J | 131.00 J | 1160 J | 131.00 J | 198.00 J | 118.00 J | 1240 J | 83.90 J | 110.00 J | 112.00 J | 388.00 J | |
| *Semivolatiles* | | | | | | | | | | | | | | | | |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | 130.00 J | | | | 170.00 J | | | | NA | NA |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | | | | 990.00 | | | | 3000 | 570.00 | | 45.00 J | NA | NA |
| *Volatiles* | | | | | | | | | | | | | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | | | | 12.00 J | | | | | | | NA | NA |
| Toluene (ug/kg) | 520,000 | -- | 520,000 | | | | | 5.10 J | | | | | | | NA | NA |

Blank = Nondetect

-- = Not Available

Shaded and bold = result reported above RFI screening value.

NA = Not Analyzed.

# Table 4.3.5 SWMU S104 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S104<br>Station<br>Sample Number<br>Date Collected<br>Depth | U.S. EPA Region 9 PRG<br>Direct Contact<br>Industrial Soil | Maximum<br>Background<br>Concentration | RFI<br>Screening Value | S104-SB01<br>S104SB01D00<br>08/08/1997<br>00-01 | S104-SB01<br>S104SB01D05<br>08/08/1997<br>05-06 | S104-SB01<br>S104SB01D10<br>08/08/1997<br>10-11 | S104-SB01<br>S104SB01D12<br>08/08/1997<br>12-13 | S104-SB02<br>S104SB02D00<br>08/08/1997<br>00-01 | S104-SB02<br>S104SB02D05<br>08/08/1997<br>05-06 | S104-SB02<br>S104SB02D10<br>08/08/1997<br>10-11 | S104-SS01<br>ESS01S<br>10/23/1993<br>00-01 | S104-SS01<br>ESS01D<br>10/23/1993<br>02-03 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Inorganics* | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 8340 | 9970 | 4660 | 5480 | 7700 | 9620 | 6660 | 14200 J | 13400 J |
| Antimony (mg/kg) | 410 | -- | 410 | 3.10 J | | | | 10.50 J | | | 9.80 J | |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 18.60 | 12.80 | 15.20 | 19.60 | 9.50 | 16.70 | 18.70 | 16.1 J | 13.2 |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 308.00 | 111.00 | 87.60 | 63.10 | 615.00 | 132.00 | 76.00 | 564.00 J | 108 J |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 0.40 | 0.32 | 0.24 | 0.41 | | 0.43 | 0.49 | 0.98 | 0.58 |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | 1.60 | | 0.49 | 0.80 | 4.10 | 0.66 | 0.84 | 1.6 | |
| Calcium (mg/kg) | -- | 16,000 | -- | 23500 | 3770 | 53000 | 43600 | 27900 | 31400 | 30800 | 13200 J | 2680 J |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 33.30 | 13.60 | 7.90 | 12.10 | 75.60 | 15.60 | 12.40 | 97.90 J | 24.00 J |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 11.10 | 7.80 | 7.90 | 11.60 | 12.50 | 10.10 | 7.10 | 20.00 | 9.3 |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 50.60 J | 17.00 J | 23.60 J | 23.50 J | 93.70 J | 30.60 J | 21.80 J | 108.00 J | 27.5 J |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 32400 | 22700 | 19600 | 35600 | 38300 | 25500 | 48700 | 43600 | 27800 J |
| Lead (mg/kg) | 800 | 31.2 | 800 | 162.00 J | 26.10 J | 11.10 J | 17.30 J | 579.00 J | 18.50 J | 9.80 J | 810.00 J | 26.1 J |
| Magnesium (mg/kg) | -- | 7,030 | -- | 7610 | 2110 | 14400 | 17900 | 8430 | 9090 | 12700 | 5770 J | 2470 J |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 325.00 | 184.00 | 355.00 | 329.00 | 475.00 | 250.00 | 343.00 | 512 J | 255 J |
| Mercury (mg/kg) | 310 | 0.05 | 310 | 0.085 | 0.089 | 0.030 | 0.01900 | 0.140 | 0.051 | 0.02600 | 1.00 | |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 34.90 | 16.70 | 27.90 | 38.40 | 28.30 | 38.00 | 19.30 | 48.90 J | 22.3 |
| Potassium (mg/kg) | -- | 1,640 | -- | 1210 | 917.00 | 1500 | 1590 | 916.00 | 1990 | 1930 | 2230 J | 1450 J |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | | | | | 0.70 | | 1.50 | 0.74 J | |
| Sodium (mg/kg) | -- | -- | -- | 152.00 | 139.00 | 98.60 | 133.00 | 218.00 | 163.00 | 172.00 | | |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 25.80 | 28.60 | 16.10 | 17.60 | 20.00 | 33.80 | 23.30 | 46.80 J | 42.2 J |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 234.00 | 73.50 | 79.00 | 101.00 | 725.00 | 117.00 | 57.00 | 740.00 J | 111 J |
| *Semivolatiles* | | | | | | | | | | | | |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | 280.00 J | | | | 120.00 J | | | NA | NA |
| Fluoranthene (ug/kg) | 22,000,000 | -- | 22,000,000 | | | | | 46.00 J | | | NA | NA |
| Isophorone (ug/kg) | 510,000 | -- | 510,000 | | | | | 81.00 J | | | NA | NA |
| Phenanthrene (ug/kg) | -- | -- | -- | | | | | 41.00 J | | | NA | NA |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | | 45.00 J | | | NA | NA |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | 1000 J | | | | 770.00 | | | NA | NA |
| *Volatiles* | | | | | | | | | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | NA | 12.00 J | | NA | NA | NA | NA | NA | NA |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value.
NA = Not Analyzed.

## Table 4.3.6 SWMU S105 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S105<br>Station<br>Sample Number<br>Date Collected<br>Depth | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S105-SB01<br>FSB01S<br>10/23/1993<br>03-05 | S105-SB01<br>FSB01D<br>10/23/1993<br>13-15 | S105-SB02<br>S105SB02D00<br>08/07/1997<br>00-01 | S105-SB02<br>S105SB02D05<br>08/07/1997<br>05-06 | S105-SB03<br>S105SB03D00<br>08/07/1997<br>00-01 | S105-SB03<br>S105SB03D05<br>08/07/1997<br>05-06 | S105-SB03<br>S105SB03D10<br>08/07/1997<br>10-11 | S105-SB04<br>S105SB04D00<br>08/06/1997<br>00-01 | S105-SB04<br>S105SB04D05<br>08/06/1997<br>05-06 | S105-SB04<br>S105SB04D10<br>08/06/1997<br>10-11 | S105-SB04<br>S105SB04D15<br>08/06/1997<br>15-16 | S105-SB04<br>S105SB04D18<br>08/07/1997<br>18-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 10500 | 3500 | 2320 | 8320 | 11000 | 9980 | 8970 | 8110 | 10500 | 9920 | 6480 | 6780 |
| Antimony (mg/kg) | 410 | -- | 410 | | | | | | | | 46.00 | | 3.30 | | |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 17.00 J | 7.60 J | 4.80 | 11.90 | 20.00 | 18.40 | 19.50 | 3.30 | 22.40 | **48.00** | 11.40 | 10.70 |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 103.00 | 79.00 | 58.50 | 93.00 | 123.00 | 278.00 | 124.00 | 3860 | 192.00 | 254.00 | 46.10 | 77.70 |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 0.64 | 0.41 | | 0.42 | 0.59 | 0.54 | 0.37 | | 0.40 | 0.31 | | 0.34 |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | 2.40 | 1.50 J | 0.49 | 0.47 | | 1.60 | 0.64 | 79.10 | 1.10 | 2.40 | | 0.50 |
| Calcium (mg/kg) | -- | 16,000 | -- | 13900 J | 79900 | 191000 | 102000 | 6170 | 35300 | 75100 | 182000 | 20800 | 7440 | 5410 | 62800 |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 15.00 | 38.70 | 23.70 J | 28.60 J | 17.00 J | 35.20 J | 18.40 J | **461.00** | 20.60 | 20.90 | 9.80 | 12.30 J |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 11.70 | 5.30 | 3.30 | 8.20 | 12.70 | 12.40 | 8.00 | 33.70 | 11.40 | 9.30 | 6.70 | 7.40 |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 28.20 | 22.40 | 24.90 | 30.20 | 30.30 | 48.60 | 24.60 | 436.00 | 35.80 | 42.20 | 19.50 | 21.90 |
| Cyanide (mg/kg) | 12,000 | -- | 12,000 | | 0.69 J | | | | | | 0.72 | | | | |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 30100 J | 14700 J | 16100 J | 22500 J | 30900 J | 33600 J | 22400 J | 46300 | 33500 | 37800 | 17600 | 20200 J |
| Lead (mg/kg) | 800 | 31.2 | 800 | 13.20 | 48.90 J | 19.80 J | 18.90 J | 16.30 J | 86.90 J | 30.90 J | **4070** | 76.50 | 92.40 | 10.10 | 14.70 J |
| Magnesium (mg/kg) | -- | 7,030 | -- | 6890 J | 22300 J | 39000 | 35700 | 4650 | 16200 | 16300 | 19600 | 7750 | 3000 | 3080 | 12400 |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 598.00 J | 218.00 J | 225.00 J | 226.00 J | 407.00 J | 395.00 J | 418.00 J | 501.00 | 1140 | 532.00 | 163.00 | 345.00 J |
| Mercury (mg/kg) | 310 | 0.05 | 310 | | | 0.100 | 0.043 | 0.051 | 0.050 | 0.02100 | 0.41 J | 0.074 J | 0.059 J | 0.02000 J | 0.02400 |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 37.30 | 22.30 | 27.00 | 29.70 | 40.70 | 44.70 | 28.30 | 257.00 | 38.20 | 55.40 | 25.10 | 30.50 |
| Potassium (mg/kg) | -- | 1,640 | -- | 1240 J | 1210 J | 605.00 | 1160 | 1710 | 2190 | 2090 | 541.00 | 1460 | 1510 | 1100 | 1840 |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | | 0.90 J | | | | | | 9.00 | | 0.54 | 0.54 | 1.50 |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | | | | | | 2.70 | | | | |
| Sodium (mg/kg) | -- | -- | -- | 152.00 | 4970 | 261.00 | 2870 | 87.90 | 241.00 | 2320 | 716.00 | 141.00 | 94.30 | 50.40 | 139.00 |
| Thallium (mg/kg) | 67 | 1.2 | 67 | 0.93 J | 0.49 J | | | | | | | | | | |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 24.00 | 16.40 | 10.70 | 25.20 | 37.80 | 37.10 | 32.20 | 18.00 | 29.80 | 40.50 | 22.90 | 42.00 |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 99.80 J | 72.40 J | 62.90 J | 79.00 J | 110.00 J | 260.00 J | 121.00 J | 5680 | 198.00 | 298.00 | 74.50 | 107.00 J |
| ***Semivolatiles*** | | | | | | | | | | | | | | | |
| 2,4-Dimethylphenol (ug/kg) | 12,000,000 | -- | 12,000,000 | | | | | | | 200.00 J | | | | | |
| 2-Methylnaphthalene (ug/kg) | -- | -- | -- | | 1300 | | 220.00 J | | | | | | | | |
| 2-Methylphenol (ug/kg) | 31,000,000 | -- | 31,000,000 | | 71.00 J | | | | | 280.00 J | | | | | |
| 4-Methylphenol (ug/kg) | 31,000,000 | -- | 31,000,000 | | 81.00 J | | | | | | | | | | |
| Acenaphthene (ug/kg) | 29,000,000 | -- | 29,000,000 | | 110.00 J | | | | | | | | | | |
| Anthracene (ug/kg) | 100,000,000 | -- | 100,000,000 | | 210.00 J | | | | | | | | | | |
| Benzo(a)anthracene (ug/kg) | 2,100 | -- | 2,100 | | 350.00 J | | | | | | | | | | |
| Benzo(a)pyrene (ug/kg) | 210 | -- | 210 | | 120.00 J | | | | | | | | | | |
| Benzo(b)fluoranthene (ug/kg) | 2,100 | -- | 2,100 | | 180.00 J | | | | | | | | | | |
| Benzo(g,h,i)perylene (ug/kg) | -- | -- | -- | | 67.00 J | | | | | | | | | | |
| Benzo(k)fluoranthene (ug/kg) | 21,000 | -- | 21,000 | | 85.00 J | | | | | | | | | | |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | 190.00 J | | | | |
| Carbazole (ug/kg) | 86,000 | -- | 86,000 | | 330.00 J | | | | | | | | | | |
| Chrysene (ug/kg) | 210,000 | -- | 210,000 | | 390.00 | | | | | | | | | | |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | -- | 62,000,000 | | | | | | | | 1300 | | | | |
| Dibenzofuran (ug/kg) | 1,600,000 | -- | 1,600,000 | | 72.00 J | | | | | | | | | | |
| Dimethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | 230.00 J | | | | | | | | | | |
| Fluoranthene (ug/kg) | 22,000,000 | -- | 22,000,000 | | 950.00 | | | | | 41.00 J | 50.00 J | | | | |
| Fluorene (ug/kg) | 26,000,000 | -- | 26,000,000 | | 170.00 J | | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene (ug/kg) | 2,100 | -- | 2,100 | | 55.00 J | | | | | | | | | | |
| Naphthalene (ug/kg) | 190,000 | -- | 190,000 | | 2600 | | 280.00 J | | | | | | | | |
| Phenanthrene (ug/kg) | -- | -- | -- | | 1000 | | | | | | 71.00 J | | | | |
| Phenol (ug/kg) | 100,000,000 | -- | 100,000,000 | | 260.00 J | | 160.00 J | | | | 160.00 J | | | | |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | | 630.00 | | | | | 47.00 J | 56.00 J | | | | |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | | 2000 | 120.00 J | 1100 | | 140.00 J | 290.00 J | 1600 | 110.00 J | 47.00 J | | |
| ***Volatiles*** | | | | | | | | | | | | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | | | | | | 77.00 J | | | 7.80 J | | |
| 4-Methyl-2-pentanone (ug/kg) | 47,000,000 | -- | 47,000,000 | | | | | | | 25.00 J | | | | | |
| Acetone (ug/kg) | 54,000,000 | -- | 54,000,000 | | | | | | | 440.00 J | | | 68.00 | 21.00 J | |
| Chlorobenzene (ug/kg) | 530,000 | -- | 530,000 | | 3900 | | 1700 | | | | | | | | |
| Ethylbenzene (ug/kg) | 400,000 | -- | 400,000 | 16.00 | 40000 | | 22000 | | | 110.00 J | | | | | |
| Methylene chloride (ug/kg) | 21,000 | -- | 21,000 | | | | | | | 11.00 J | | | | | |
| Tetrachloroethene (ug/kg) | 1,300 | -- | 1,300 | | 1200 J | | | | | | | | | | |
| Toluene (ug/kg) | 520,000 | -- | 520,000 | | 40000 | | 27000 | | | 110.00 J | | | | | |
| Xylenes, Total (ug/kg) | 420,000 | -- | 420,000 | 6.00 | 140000 | | 93000 | | | 130.00 J | | | | | |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value.
NA = Not Analyzed.

## Table 4.3.7 SWMU S106 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S106 Station / Sample Number / Date Collected / Depth | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S106-SB01 GSB01S 10/23/1993 03-05 | Duplicate S106-SB01 SBD02 10/23/1993 03-05 | S106-SB02 S106SB02D00 08/06/1997 00-01 | S106-SB02 S106SB02D05 08/06/1997 05-06 | S106-SB02 S106SB02D10 08/06/1997 10-11 | S106-SB02 S106SB02D12 08/06/1997 12-13 | S106-SB03 S106SB03D00 08/05/1997 00-01 | S106-SB03 S106SB03D05 08/05/1997 05-06 | S106-SB03 S106SB03D10 08/05/1997 10-11 | S106-SB04 S106SB04D00 08/05/1997 00-01 | S106-SB04 S106SB04D05 08/05/1997 05-06 | S106-SB04 S106SB04D116 08/05/1997 5-6 | S106-SB05 S106SB05D00 08/05/1997 00-01 | S106-SB05 S106SB05D05 08/05/1997 05-06 | S106-SB05 S106SB05D10 08/05/1997 10-11 | S106-SB06 S106SB06D00 08/05/1997 00-01 | S106-SB06 S106SB06D05 08/05/1997 05-06 | S106-SB07 S106SB07D00 08/05/1997 00-01 | S106-SB07 S106SB07D05 08/05/1997 05-06 | S106-SB07 S106SB07D08 08/05/1997 08-09 | S106-SS01 GSS01S 09/22/1993 00-01 | S106-SS01 GSS01D 09/22/1993 02-03 | S106-SS02 GSS02 10/23/1993 00-01 | S106-SS03 GSS03 10/23/1993 00-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 10600 | 9020 | 2140 | 3830 | 8380 | 10800 | 3490 | 12800 | 8830 | 9380 | 14300 | 17400 | 4890 | 29900 | 6050 | 3150 | 8040 | 1180 | 15800 | 9600 | 924.00 J | 16400 J | 10900 J | 12000 J |
| Antimony (mg/kg) | 410 | -- | 410 | | | 20.50 | 7.50 | | | 12.30 J | | 2.90 J | 5.80 J | 2.60 J | | 10.10 J | | | 38.60 J | 4.50 J | | | | 10.20 J | | 61.40 J | 49.80 J |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 23.10 J | 23.6 J | 2.80 | 6.60 | 34.60 | 28.00 | 4.10 | 16.60 | 20.70 | 20.20 | 12.90 | 11.9 | 8.40 | 11.70 | **45.10** | 6.60 | 12.30 | 2.90 | 9.10 | 13.70 | 2.90 | 15.60 | 1.70 J | 7.60 J |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 125.00 | 135 | 968.00 | 520.00 | 188.00 | 112.00 | 1320 | 130.00 | 90.20 | 273.00 | 242.00 | 209 | 354.00 | 364.00 | 44.70 | 994.00 | 159.00 | 158.00 | 130.00 | 154.00 | 154.00 J | 238.00 J | 4130 J | 3380 J |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 0.77 | 0.78 | | | 0.50 | 0.52 | 0.22 | 0.89 | 0.70 | 0.94 | 0.98 | 1.3 | 0.41 | 1.80 | 0.59 | 0.38 | 0.68 | 0.31 | 1.00 | 0.73 | 0.180 | 0.99 | 0.25 | 0.50 |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | 3.00 | 3.3 | 12.60 | 25.30 | 0.95 | 0.70 | 7.80 J | 1.10 J | 0.91 J | 2.60 J | 2.20 J | 1.9 J | 4.50 J | 2.50 J | 1.80 J | 13.40 J | 1.60 J | 0.82 J | 1.00 J | 1.40 J | 3.20 | | 47.70 J | 29.30 J |
| Calcium (mg/kg) | -- | 16,000 | -- | 5310 J | 31000 J | 238000 | 235000 | 2380 | 3240 | 186000 | 40400 | 21700 | 8310 | 6440 | 3420 | 200000 | 6770 | 35000 | 61800 | 4250 | 321000 | 2630 | 29600 | 318000 J | 17200 J | 142000 J | 127000 J |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 17.10 | 21.7 | 71.20 | 39.50 | 12.00 | 17.10 | 144.00 J | 16.50 J | 13.60 J | 27.30 J | 33.80 J | 20.4 J | 49.10 J | 30.70 J | 16.70 J | 141.00 J | 17.70 J | 5.60 J | 17.40 J | 15.10 J | 24.80 J | 37.30 J | **1120 J** | 391.00 J |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 12.60 | 10.1 | 7.80 | 6.10 | 12.40 | 9.40 | 11.50 | 15.50 | 12.90 | 16.30 | 10.70 | 8.4 | 9.00 | 10.60 | 10.00 | 18.40 | 8.70 | 1.70 | 6.10 | 7.20 | 6.40 | 13.90 | 41.40 | 45.00 |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 29.00 | 32.5 | 77.40 | 50.50 | 34.50 | 34.10 | 235.00 | 27.60 | 31.90 | 40.30 | 34.50 | 25.0 | 43.50 | 46.10 | 36.10 | 179.00 | 24.90 | 7.50 | 23.60 | 25.80 | 0.74 J | 37.50 J | 835.00 J | 377.00 J |
| Cyanide (mg/kg) | 12,000 | -- | 12,000 | | | | | | | | | | | | | | | | 0.80 | | | | | | 0.41 J | 0.34 | 1.40 |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 31000 J | 31800 J | 11500 | 11900 | 43500 | 35900 | 22200 | 27300 | 41800 | 26600 | 26100 | 22700 | 13000 | 30300 | 26300 | 12000 | 19500 | 5610 | 22100 | 24700 | 6250 | 34000 | 29300 J | 46700 J |
| Lead (mg/kg) | 800 | 31.2 | 800 | 16.90 | 76.3 | **830.00** | 362.00 | 18.80 | 32.50 | 769.00 J | 22.40 J | 17.90 J | 143.00 J | 93.90 J | 27.4 J | 272.00 J | 20.60 J | 18.90 J | **846.00 J** | 30.70 J | 12.10 J | 13.90 J | 22.50 J | 203.00 J | 97.00 J | **2190 J** | **4310 J** |
| Magnesium (mg/kg) | -- | 7,030 | -- | 3680 J | 11500 J | 33200 | 24400 | 1930 | 2490 | 32700 | 11300 | 12400 | 4340 | 3200 | 2830 | 22300 | 5210 | 15400 | 26700 | 2720 | 14000 | 3140 | 5550 | 31900 J | 5120 J | 11700 J | 12800 J |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 455.00 J | 514 J | 184.00 | 228.00 | 1070 | 374.00 | 319.00 | 1060 | 262.00 | 271.00 | 1070 | 353 | 355.00 | 1170 | 180.00 | 279.00 | 372.00 | 258.00 | 123.00 | 263.00 | 274.00 J | 455.00 J | 227.00 J | 397.00 J |
| Mercury (mg/kg) | 310 | 0.05 | 310 | | | 0.02700 J | 0.032 J | 0.066 J | 0.060 J | 0.78 | 0.041 | 0.031 | 0.110 | 0.170 | 0.057 | 0.140 | 0.100 | 0.037 | 0.31 | 0.120 | 0.064 | 0.052 | 0.038 | | | | 0.140 |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 41.00 | 40.2 | 25.70 | 19.10 | 39.90 | 41.10 | 58.20 | 40.80 | 49.10 | 42.40 | 41.30 | 25.8 | 24.60 | 66.70 | 46.10 | 44.00 | 32.70 | 8.50 | 27.20 | 29.10 | 16.00 J | 38.50 J | 73.40 | 99.70 |
| Potassium (mg/kg) | -- | 1,640 | -- | 1840 J | 2060 | 358.00 | 623.00 | 1230 | 1800 | 422.00 | 1720 | 2140 | 1500 | 1520 | 1990 | 874.00 | 2820 | 2010 | 613.00 | 1140 | 366.00 | 2070 | 1480 | 334.00 J | 2800 J | 581.00 J | 848.00 J |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | | | 2.10 | 0.59 | | | 1.20 | | 1.30 | 0.60 | | | | | 2.40 | 1.70 | | | | | | | 0.64 J | 4.50 J |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | 1.40 | 0.50 | | | 2.00 | | | | 0.31 | | | | | | | | | 1.20 | 1.10 | | 11.20 | 20.20 |
| Sodium (mg/kg) | -- | -- | -- | 128.00 | 199 | 287.00 | 218.00 | 72.50 | 75.20 | 405.00 | 76.80 | 124.00 | 586.00 | 405.00 | 401 | 503.00 | 118.00 | 192.00 | 695.00 | 497.00 | 151.00 | 71.40 | 64.70 | | 840.00 | 2100 J | 927.00 J |
| Thallium (mg/kg) | 67 | 1.2 | 67 | 1.50 J | 1.6 J | | | | | | | | | | | | | | | | | | | | 0.61 J | | |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 26.90 | 27.3 | 7.20 | 13.60 | 36.50 | 46.40 | 9.60 | 40.90 | 26.60 | 29.10 | 40.00 | 48.5 | 17.20 | 74.30 | 36.20 | 137.00 | 25.10 | | 43.40 | 27.90 | 7.70 J | 56.70 J | 20.90 J | 17.90 J |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 136.00 J | 183 J | 585.00 | 630.00 | 137.00 | 159.00 | 933.00 | 109.00 | 126.00 | 231.00 | 162.00 | 125 | 261.00 | 248.00 | 146.00 | 1140 | 163.00 | 30.00 | 106.00 | 106.00 | 97.10 J | 157.00 J | 5380 J | 6740 J |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | 210.00 J | | | | | | | | 61.00 J | | | |
| Benzo(a)anthracene (ug/kg) | 2,100 | -- | 2,100 | | | 120.00 J | | | | | | | | | | | | | | 140.00 J | | | | | | | |
| Benzo(a)pyrene (ug/kg) | 210 | -- | 210 | | | 40.00 J | | | | | | | | | | | | | | 190.00 J | | | | | | | |
| Benzo(b)fluoranthene (ug/kg) | 2,100 | -- | 2,100 | | | 170.00 J | | | | | | | | | | | | | | 290.00 J | | | | | | 210.00 J | 82.00 J |
| Benzo(g,h,i)perylene (ug/kg) | -- | -- | -- | | | 56.00 J | | | | | | | | | | | | | | 130.00 J | | | | | | 120.00 J | |
| Benzo(k)fluoranthene (ug/kg) | 21,000 | -- | 21,000 | | | 54.00 J | | | | | | | | | | | | | | 87.00 J | | | | | | | |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | 120.00 J | 390 | | | | | 84.00 J | | | 590.00 J | | | 2200 | | | 8000 J | 1900 | | | | 92.00 J | | 480.00 J | 2000 |
| Chrysene (ug/kg) | 210,000 | -- | 210,000 | | | 150.00 J | | | | | | | | | | | | | | 220.00 J | | | | 44.00 J | | 87.00 J | 78.00 J |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | -- | 62,000,000 | | | | | | | | | | | | | 210.00 J | | | | | | | | 310.00 J | | 130.00 J | 100.00 J |
| Di-n-octylphthalate (ug/kg) | 25,000,000 | -- | 25,000,000 | | | | | | | | | | | | | | | | | | | | | 1360 | | 730.00 J | 170.00 J |
| Diethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | 210.00 J | | | | | | | |
| Fluoranthene (ug/kg) | 22,000,000 | -- | 22,000,000 | | | 350.00 | | | | 61.00 J | | | | | | 63.00 J | | | 3200 J | 94.00 J | | | | | | 89.00 J | 90.00 J |
| Indeno(1,2,3-cd)pyrene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | 96.00 J | | | | | | | |
| Isophorone (ug/kg) | 510,000 | -- | 510,000 | | | | | | | | | | | | | | | | | | | | | | | 95.00 J | |
| N-Nitrosodiphenylamine (ug/kg) | 350,000 | -- | 350,000 | | | | | | | | | | | | | 130.00 J | | | | | | | | 73.00 J | | | |
| Naphthalene (ug/kg) | 190,000 | -- | 190,000 | | | | | | | | | | | | | 800.00 | | | 4400 J | | | | | 190.00 J | | 310.00 J | 100.00 J |
| Phenanthrene (ug/kg) | -- | -- | -- | | | 230.00 J | | | | | | | | | | 150.00 J | | | 4300 J | | | | | 59.00 J | | 110.00 J | 110.00 J |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | 290.00 J | | | | 100.00 J | | | | | | 85.00 J | | | 2700 J | 120.00 J | | | | | | | 91.00 J |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | 1000 | 4900 | 240.00 J | 110.00 J | | | 770.00 | | | 8200 | 1900 | 79 J | 9500 | 940.00 | | 86000 | 8400 E | 300.00 J | | 140.00 J | 7200 | | 2600 | 7200 |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethene, Total (ug/kg) | 230,000 | -- | 230,000 | | | | | | | | | | | | | | 9.00 J | | | | | | | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | | | | | | | 29.00 J | | | 34.00 | 14 J | 140.00 J | 29.00 J | | 81.00 J | | | | | | | | |
| 4-Methyl-2-pentanone (ug/kg) | 47,000,000 | -- | 47,000,000 | | | | | | | | | | | | | | | | | | | | | 87.00 J | | | |
| Acetone (ug/kg) | 54,000,000 | -- | 54,000,000 | | | | | 20.00 J | 22.00 J | | 150.00 J | 49.00 J | 32.00 | 150.00 | 64 | 940.00 | 130.00 J | 46.00 | 400.00 | 73.00 | | 24.00 J | 15.00 J | 1100 | 47.00 J | | |
| Benzene (ug/kg) | 1,400 | -- | 1,400 | | | | | | | | | | | | | | | | | 12.00 | | | | | | | |
| Chlorobenzene (ug/kg) | 530,000 | -- | 530,000 | | | | | | | | | | | | | | | | 62.00 | | | | | | | | |
| Ethylbenzene (ug/kg) | 400,000 | -- | 400,000 | | | | | | | | | | | | | 1200 | 12.00 J | 5.80 J | 1100 | | | | | 660.00 | 69.00 | | |
| Methylene chloride (ug/kg) | 21,000 | -- | 21,000 | | | | | | | | | 3.20 J | | | | | | | | | | | | 11.00 J | | 42.00 J | 4.00 J |
| Tetrachloroethene (ug/kg) | 1,300 | -- | 1,300 | | | | | | | | | | | | | | | | | | 29.00 J | | | | | | 5.00 J |
| Toluene (ug/kg) | 520,000 | -- | 520,000 | | | | | | | | | | | | | 150.00 | 7.10 J | 3.40 J | 1700 | 3.00 J | | | | 390.00 | 3.00 J | 5.00 J | |
| Vinyl chloride (ug/kg) | 750 | -- | 750 | | | | | | | | | | | | | | 4.00 J | | | | | | | | | | |
| Xylenes, Total (ug/kg) | 420,000 | -- | 420,000 | | | | | | | | | | | 2.70 J | 5.1 J | 2000 | 19.00 J | 11.00 J | 3400 | | | | | 1700 | 5.00 J | 6.00 J | |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value.
NA = Not Analyzed.

## Table 4.3.8 SWMU S107 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S107 Station / Sample Number / Date Collected / Depth | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S107-SB03 S107SB03D0 03/20/1998 00-01 | S107-SB03 S107SB03D5 03/20/1998 05-06 | S107-SB03 S107SB03D10 03/20/1998 10-11 | S107-SB03 S107SB03D12 03/20/1998 12-13 | S107-SB04 S107SB04D0 03/20/1998 00-01 | S107-SB04 S107SB04D5 03/20/1998 05-06 | S107-SB04 S107SB04D10 03/20/1998 10-11 | S107-SB04 S107SB04D12 03/20/1998 12-13 | S107-SB05 S107SB05D0 03/21/1998 00-01 | S107-SB05 S107SB05D5 03/21/1998 05-06 | S107-SB05 S107SB05D10 03/21/1998 10-11 | S107-SB05 S107SB05D12 03/21/1998 12-13 | S107-SB06 S107SB06D0 03/19/1998 00-01 | S107-SB06 S107SB06D5 03/19/1998 05-06 | S107-SB06 S107SB06D8 03/19/1998 08-09 | S107-SB07 S107SB07D0 03/20/1998 00-01 | S107-SB07 S107SB07D5 03/20/1998 05-06 | S107-SB07 S107SB07D10 03/20/1998 10-11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Inorganics* | | | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 4870 | 7480 | 8370 | 14800 | 5140 | 9000 | 5890 | 5780 | 2050 | 11700 | 7630 | 10800 | 7490 | 7310 | 10500 | 3520 | 9190 | 6600 |
| Antimony (mg/kg) | 410 | -- | 410 | | | | | 4.70 J | | | | | | | | | | | 90.10 J | | 7.00 J |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 7.00 | 16.40 | 17.30 | 8.30 | 16.10 | 22.60 | 13.80 | **29.90** | 3.70 | 8.00 | 13.80 | 11.10 | 14.30 | 11.20 | 14.20 | 7.70 | 20.30 | 21.70 |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 186.00 | 90.90 | 103.00 | 80.90 | 177.00 | 111.00 | 57.20 | 43.80 | 77.60 J | 210.00 J | 72.80 J | 109.00 J | 94.00 | 101.00 | 68.30 | 951.00 | 173.00 | 129.00 |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 0.22 | 0.47 | 0.51 | 0.47 | 0.44 | 0.54 B | 0.34 | 0.37 | 0.110 | 0.47 | 0.41 | 0.180 | 0.25 | 0.37 | 0.55 | | 0.51 | 0.37 |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | 14.00 | | 0.98 | | 1.60 | 0.71 | 0.82 | 2.30 | | | 0.57 | | | 1.80 | | 6.00 | 1.00 | 2.10 |
| Calcium (mg/kg) | -- | 16,000 | -- | 91800 | 16000 | 38900 | 52100 | 82000 | 15300 | 23600 | 31700 | 134000 | 2900 | 66500 | 65500 | 45800 | 128000 | 27900 | 185000 | 2560 | 26000 |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 31.70 J | 11.90 J | 12.80 J | 22.70 J | 36.60 J | 15.30 J | 10.10 J | 10.90 J | 7.50 J | 17.60 J | 12.80 J | 18.90 J | 12.90 | 10.30 | 15.20 | 135.00 J | 16.30 J | 24.30 J |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 10.80 | 9.20 | 10.00 | 11.10 | 8.30 | 12.50 | 8.10 | 9.00 | 2.30 J | 11.70 J | 9.60 J | 11.60 J | 8.00 | 6.20 | 9.20 | 10.20 | 12.30 | 9.70 |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 49.50 | 41.10 | 27.10 | 31.10 | 42.40 | 35.30 | 28.40 | 32.50 | 8.20 J | 28.30 J | 27.80 J | 29.60 J | 24.00 | 18.40 | 27.30 | 409.00 | 35.80 | 45.80 |
| Cyanide (mg/kg) | 12,000 | -- | 12,000 | | | | | | | | | | | | | | | | | | |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 12200 | 26600 | 23900 | 26900 | 27500 | 28600 | 26000 | 32700 | 5350 | 19000 | 22900 | 25000 | 18700 | 16100 | 26300 | 13400 | 30400 | 27600 |
| Lead (mg/kg) | 800 | 31.2 | 800 | 249.00 | 18.30 | 11.70 | 12.00 | 134.00 | 13.70 | 11.40 | 14.90 | 15.80 J | 17.80 J | 11.20 J | 11.60 J | 20.90 | 8.00 | 10.90 | 878.00 | 17.70 | 106.00 |
| Magnesium (mg/kg) | -- | 7,030 | -- | 24700 | 8800 | 10300 | 16100 | 18300 | 9290 | 10500 | 9990 | 35100 | 3480 | 12000 | 19700 | 13200 | 18900 | 11200 | 19600 | 3030 | 9750 |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 202.00 | 253.00 | 358.00 | 515.00 | 442.00 | 360.00 | 278.00 | 268.00 | 166.00 | 250.00 | 253.00 | 483.00 | 433.00 | 273.00 | 347.00 | 267.00 | 463.00 | 322.00 |
| Mercury (mg/kg) | 310 | 0.05 | 310 | | | | | | 0.037 B | | | 0.036 | 0.051 | | 0.030 | 0.047 | 0.040 | 0.038 | | | |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 19.70 | 30.60 | 32.50 | 33.40 | 18.80 | 41.90 | 33.80 | 39.60 | 8.30 | 40.10 | 31.50 | 33.20 | 19.50 | 20.80 | 32.70 | 16.70 | 48.10 | 48.90 |
| Potassium (mg/kg) | -- | 1,640 | -- | 813.00 | 1510 | 1980 | 3390 | 670.00 | 2390 | 1710 | 1770 | 579.00 | 1540 | 2170 | 2400 | 1340 | 2260 | 3220 | 449.00 | 1730 | 1660 |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | 0.86 | 0.57 | | 1.30 | 1.20 | | 2.10 | 2.30 | | | 1.00 | | | 0.72 | 3.00 | 2.20 | 0.90 | 2.30 |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | | | | | | | | | | | | | | | | |
| Sodium (mg/kg) | -- | -- | -- | 167.00 | 57.00 | 68.80 | 122.00 | 128.00 | 78.50 B | 104.00 | 99.10 | 258.00 | 82.90 | 106.00 | 140.00 | 176.00 | 132.00 | 142.00 | 172.00 | 73.90 | 84.50 |
| Thallium (mg/kg) | 67 | 1.2 | 67 | | 1.00 | 0.63 | | | 1.10 B | 0.73 | 0.76 | | 0.73 | 0.55 | 0.34 | 0.42 | 0.28 | 0.73 | | 0.72 | 1.40 |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 17.70 | 27.70 | 30.80 | 36.90 | 17.50 | 36.20 | 26.90 | 26.10 | 9.50 J | 32.10 J | 25.80 J | 26.10 J | 24.80 | 25.10 | 43.60 | 11.30 | 27.70 | 43.10 |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 213.00 | 104.00 | 112.00 | 79.00 | 597.00 | 123.00 | 107.00 | 120.00 | 77.20 | 108.00 | 99.40 | 67.10 | 83.00 | 62.70 | 93.90 | 2100 | 121.00 | 363.00 |
| *Semivolatiles* | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene (ug/kg) | -- | -- | -- | | | | | 55.00 J | | | | | | | | | | | | | |
| Anthracene (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | |
| Benzo(a)anthracene (ug/kg) | 2,100 | -- | 2,100 | 150.00 J | | | | | | | | | | | | | | | | | |
| Benzo(a)pyrene (ug/kg) | 210 | -- | 210 | 150.00 J | | | | | | | | | | | | | | | | | |
| Benzo(b)fluoranthene (ug/kg) | 2,100 | -- | 2,100 | 150.00 J | | | | 72.00 J | | | | | | | | | | | | | |
| Benzo(g,h,i)perylene (ug/kg) | -- | -- | -- | 58.00 J | | | | | | | | | | | | | | | | | |
| Benzo(k)fluoranthene (ug/kg) | 21,000 | -- | 21,000 | 57.00 J | | | | | | | | | | | | | | | | | |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | 250.00 J | | | | | | | | | | | 36000 | | 8100 J |
| Carbazole (ug/kg) | 86,000 | -- | 86,000 | | | | | | | | | | | | | | | | | | |
| Chrysene (ug/kg) | 210,000 | -- | 210,000 | 180.00 J | | | | 59.00 J | | | | | | | | | | | | | |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | 63 | 62,000,000 | | | | | | | | | | | | | | | | | | |
| Di-n-octylphthalate (ug/kg) | 25,000,000 | -- | 25,000,000 | | | | | | | | | | | | | | | | | | |
| Dibenzofuran (ug/kg) | 1,600,000 | -- | 1,600,000 | | | | | | | | | | | | | | | | | | |
| Diethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | |
| Dimethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | |
| Fluoranthene (ug/kg) | 22,000,000 | -- | 22,000,000 | 170.00 J | | | | 64.00 J | | | | | | | | | | | | | |
| Fluorene (ug/kg) | 26,000,000 | -- | 26,000,000 | | | | | | | | | | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene (ug/kg) | 2,100 | -- | 2,100 | 55.00 J | | | | | | | | | | | | | | | | | |
| Isophorone (ug/kg) | 510,000 | -- | 510,000 | | | | | | | | | | | | | | | | | | |
| Naphthalene (ug/kg) | 190,000 | -- | 190,000 | | | | | | | | | | | | | | | | | | |
| Phenanthrene (ug/kg) | -- | -- | -- | 84.00 J | | | | 63.00 J | | | | | | | | | | | | | |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | 230.00 J | | | | 91.00 J | | | | 43.00 J | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | 200.00 J | | | | 3600 | | | | 210.00 J | | | | | | | **2300000** | 410.00 | 73000 |
| *Volatiles* | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane (ug/kg) | 1,200,000 | -- | 1,200,000 | | | | | | | | | | | | | | | | | | 13.00 J |
| 1,1,2-Trichloroethane (ug/kg) | 1,600 | -- | 1,600 | | | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethane (ug/kg) | 1,700,000 | -- | 1,700,000 | | | | | | | | | | | | | | | | 580.00 J | 13.00 | 180.00 |
| 1,1-Dichloroethene (ug/kg) | 410,000 | -- | 410,000 | | | | | | | | | | | | | | | | | | 2.90 J |
| 1,2-Dichloroethene, Total (ug/kg) | 230,000 | -- | 230,000 | | | | | | | | | | | | | | | | 60.00 J | 1.60 J | 6.30 J |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | | | | | | | | | | | | | | | | | |
| 4-Methyl-2-pentanone (ug/kg) | 47,000,000 | -- | 47,000,000 | | | | | | | | | | | | | | | | | | |
| Benzene (ug/kg) | 1,400 | -- | 1,400 | | | | | | | | | | | | | | | | | | 8.20 J |
| Carbon disulfide (ug/kg) | 720,000 | -- | 720,000 | | | | | | | | | | | | | | | | | | |
| Chlorobenzene (ug/kg) | 530,000 | -- | 530,000 | | | | | | | | | | | | | | | | | | 5.20 J |
| Chloroform (ug/kg) | 470 | -- | 470 | | | | | | | | | | | | | | | | | | |
| Chloromethane (ug/kg) | 160,000 | -- | 160,000 | | | | | | | | | | | | | | | | 860.00 J | | |
| Ethylbenzene (ug/kg) | 400,000 | -- | 400,000 | | | | | | | | | | | | | | | | 4700 | | 74.00 |
| Methylene chloride (ug/kg) | 21,000 | -- | 21,000 | 10.00 J | 1.90 J | 4.60 J | 19.00 | 8.90 | 7.50 | 25.00 | | | | | | | | | 710.00 J | 12.00 | 140.00 |
| Styrene (ug/kg) | 1,700,000 | -- | 1,700,000 | | | | | | | | | | | | | | | | | | |
| Tetrachloroethene (ug/kg) | 1,300 | -- | 1,300 | | | | | | | | | | | | | | | | 120.00 J | | 4.00 J |
| Toluene (ug/kg) | 520,000 | -- | 520,000 | | 0.70 J | | | | | | | | | | | | | | 7400 | 1.80 J | 450.00 |
| Trichloroethene (ug/kg) | 110 | -- | 110 | | | | | | | | | | | | | | | | **690.00 J** | | 30.00 |
| Vinyl chloride (ug/kg) | 750 | -- | 750 | | | | | | | | | | | | | | | | | | |
| Xylenes, Total (ug/kg) | 420,000 | -- | 420,000 | | 1.90 J | | | | | | | | | | | | | | 19000 | | 340.00 |
| *PCB/Pesticide* | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1254 (ug/kg) | 740 | -- | 740 | | | | | 44.00 | | | | | | | | | | | | | |
| delta-BHC (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value.
NA = Not Analyzed.

## Table 4.3.8 SWMU S107 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S107 Station | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S107-SB08 | S107-SB08 | S107-SB08 | S107-SB09 | S107-SB09 | S107-SB09 | S107-SB10 | S107-SB10 | S107-SB10 | S107-SB11 | S107-SB11 | S107-SB11 | S107-SB12 | S107-SB12 | S107-SB12 | S107-SB13 | Duplicate S107-SB13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | | | | S107SB08D0 | S107SB08D5 | S107SB08D10 | S107SB09D0 | S107SB09D5 | S107SB09D10 | S107SB10D0 | S107SB10D5 | S107SB10D10 | S107SB11D0 | S107SB11D5 | S107SB11D10 | S107SB12D0 | S107SB12D5 | S107SB12D8 | S107SB13D0 | S107SB13D1 |
| Date Collected | | | | 03/21/1998 | 03/21/1998 | 03/21/1998 | 03/21/1998 | 03/21/1998 | 03/21/1998 | 03/21/1998 | 03/21/1998 | 03/21/1998 | 03/21/1998 | 03/21/1998 | 03/21/1998 | 03/20/1998 | 03/20/1998 | 03/20/1998 | 03/23/1998 | 03/23/1998 |
| Depth | | | | 00-01 | 05-06 | 10-11 | 00-01 | 05-06 | 10-11 | 00-01 | 05-06 | 10-11 | 00-01 | 05-06 | 10-11 | 00-01 | 05-06 | 08-09 | 00-01 | 00-01 |
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 1490 | 9240 | 6340 | 612.00 | 7240 | 5380 | 3420 | 8350 | 4920 | 5790 | 9020 | 6660 | 3680 | 8770 | 5080 | 1380 | 1220 |
| Antimony (mg/kg) | 410 | -- | 410 | 15.20 J | | | | | | 5.60 J | | | 4.30 J | | | 8.30 J | 2.70 J | | 4.00 J | 4.00 J |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 4.10 | 14.40 | 15.70 | 2.20 | 14.30 | 15.90 | 11.30 | 20.10 | 13.50 | 14.10 | 18.40 | 12.20 | 3.70 | 40.50 | 14.80 | 2.60 | 3.00 |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 501.00 J | 128.00 J | 76.30 J | 91.70 J | 104.00 J | 62.90 J | 479.00 J | 125.00 J | 65.70 J | 508.00 J | 86.30 J | 53.60 J | 5400 | 193.00 | 45.80 | 355.00 J | 404.00 J |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | | 0.47 | 0.39 | | 0.39 | 0.21 | 0.60 | 0.59 | 0.28 | 0.60 | 0.55 | 0.39 | 0.31 | 0.46 | 0.31 | | |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | 3.40 | 0.95 | | | 0.81 | | 38.60 | 0.68 | | 1.50 | | 0.58 | 1.50 | 0.77 | 1.20 | 0.99 | 0.98 |
| Calcium (mg/kg) | -- | 16,000 | -- | 259000 | 60700 | 44000 | 314000 | 49800 | 36400 | 10800 | 28200 | 53000 | 42500 | 36600 | 24800 | 150000 | 5360 | 62100 | 284000 | 278000 |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 75.70 J | 15.10 J | 14.30 J | 6.30 J | 12.80 J | 9.40 J | 114.00 J | 15.80 J | 10.80 J | 70.30 J | 16.20 J | 12.80 J | 109.00 J | 22.50 J | 9.10 J | 59.40 J | 59.60 J |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 8.70 J | 8.90 J | 9.30 J | 1.00 J | 8.70 J | 7.30 J | 23.70 J | 13.70 J | 10.90 J | 25.90 J | 11.10 J | 9.50 J | 0.87 | 16.60 | 10.00 | 6.80 J | 6.80 J |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 50.10 J | 23.30 J | 24.80 J | 5.10 J | 27.30 J | 23.50 J | 45.70 J | 30.70 J | 30.10 J | 58.80 J | 28.20 J | 28.70 J | 29.10 | 45.70 | 29.70 | 39.40 J | 59.80 J |
| Cyanide (mg/kg) | 12,000 | -- | 12,000 | | | | | | | 0.84 | | | | | | | | | | |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 10800 | 23900 | 24700 | 3320 | 22600 | 21200 | 16300 | 28000 | 21300 | 26000 | 26500 | 20800 | 8880 | 47900 | 19100 | 9120 | 10700 |
| Lead (mg/kg) | 800 | 31.2 | 800 | 342.00 J | 11.20 J | 10.50 J | 9.00 J | 9.20 J | 13.20 J | 531.00 J | 18.50 J | 11.40 J | 417.00 J | 15.00 J | 11.90 J | 453.00 | 47.80 | 12.10 | 225.00 J | 213.00 J |
| Magnesium (mg/kg) | -- | 7,030 | -- | 27700 | 10600 | 15500 | 31800 | 17200 | 15800 | 3770 | 10000 | 19300 | 9280 | 13400 | 9680 | 15800 | 2760 | 13500 | 21000 | 18900 |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 214.00 | 304.00 | 175.00 | 194.00 | 305.00 | 245.00 | 246.00 | 491.00 | 398.00 | 195.00 | 270.00 | 410.00 | 195.00 | 714.00 | 212.00 | 313.00 | 252.00 |
| Mercury (mg/kg) | 310 | 0.05 | 310 | 0.40 | 0.043 | 0.033 | 0.049 | 0.036 | 0.044 | 0.63 | 0.038 | 0.031 | 0.130 | 0.034 | 0.032 | | | | 0.050 | 0.061 |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 11.10 | 32.30 | 34.00 | 5.30 | 32.80 | 28.60 | 20.00 | 43.00 | 34.70 | 23.90 | 39.40 | 35.40 | 15.40 | 58.40 | 34.60 | 14.60 | 16.30 |
| Potassium (mg/kg) | -- | 1,640 | -- | 198.00 | 2580 | 2010 | 204.00 | 1680 | 1230 | 721.00 | 2610 | 1530 | 785.00 | 2740 | 2260 | 518.00 | 1290 | 1450 | 328.00 | 276.00 |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | | | 1.90 | | | | 4.10 | 0.90 | 0.64 | 1.10 | | 0.93 | 0.85 | 1.60 | 1.30 | | |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | | | | | | | | | | | | | | | |
| Sodium (mg/kg) | -- | -- | -- | 139.00 | 107.00 | 102.00 | 164.00 | 85.90 | 98.80 | 111.00 | 107.00 | 97.10 | 182.00 | 119.00 | 106.00 | 146.00 | 70.40 | 119.00 | 165.00 | 158.00 |
| Thallium (mg/kg) | 67 | 1.2 | 67 | | 0.81 | 0.61 | | 1.10 | 0.52 | | 1.50 | 0.80 | 1.00 | 1.50 | 0.74 | | 0.54 | 0.44 | 0.41 | |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 5.80 J | 32.60 J | 23.90 J | 4.90 J | 24.30 J | 23.20 J | 12.90 J | 31.30 J | 17.30 J | 26.10 J | 40.00 J | 27.00 J | 12.80 | 38.30 | 21.90 | 7.00 J | 6.70 J |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 241.00 | 82.70 | 86.50 | 23.10 | 91.90 | 98.90 | 472.00 | 117.00 | 84.90 | 263.00 | 155.00 | 80.90 | 195.00 | 195.00 | 115.00 | 211.00 | 275.00 |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | 8000 J | 260.00 J | | | |
| Anthracene (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | |
| Benzo(a)anthracene (ug/kg) | 2,100 | -- | 2,100 | | 120.00 J | | | | | | | | | | | | | | | |
| Benzo(a)pyrene (ug/kg) | 210 | -- | 210 | | | | | | | | | | | | | | | | | |
| Benzo(b)fluoranthene (ug/kg) | 2,100 | -- | 2,100 | | 87.00 J | | | | | | | | | | | | | | | |
| Benzo(g,h,i)perylene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | |
| Benzo(k)fluoranthene (ug/kg) | 21,000 | -- | 21,000 | | | | | | | | | | | | | | | | | |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | 69.00 J | | 6500 J | 270.00 J | | | |
| Carbazole (ug/kg) | 86,000 | -- | 86,000 | | | | | | | | | | | | | | | | | |
| Chrysene (ug/kg) | 210,000 | -- | 210,000 | | 120.00 J | | | | | | | | | | | | | | | |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | 63 | 62,000,000 | | | | 62.00 J | | | | | | | | | 8600 J | 440.00 J | | | |
| Di-n-octylphthalate (ug/kg) | 25,000,000 | -- | 25,000,000 | | | | | | | | | | 83000 J | | | | | | | |
| Dibenzofuran (ug/kg) | 1,600,000 | -- | 1,600,000 | | | | | | | | | | | | | | | | | |
| Diethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | 1500 J | 71.00 J | | | |
| Dimethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | |
| Fluoranthene (ug/kg) | 22,000,000 | -- | 22,000,000 | | 310.00 J | | | | | | | | | | | | | | | |
| Fluorene (ug/kg) | 26,000,000 | -- | 26,000,000 | | | | | | | | | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | |
| Isophorone (ug/kg) | 510,000 | -- | 510,000 | | | | | | | | | | | | | | | | | |
| Naphthalene (ug/kg) | 190,000 | -- | 190,000 | | | | | | | | | | | | | 17000 | 450.00 J | | | |
| Phenanthrene (ug/kg) | -- | -- | -- | | 70.00 J | | | | | | | | | | | | | | | |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | | 180.00 J | | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | 16000 | | | 250.00 J | | 280.00 J | 19000 | 85.00 J | | 1300000 | 2700 | 150.00 J | 110000 | 4300 | 110.00 J | 56000 | 2800 |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane (ug/kg) | 1,200,000 | -- | 1,200,000 | | | | | | | | | | 36.00 | | | | | | | |
| 1,1,2-Trichloroethane (ug/kg) | 1,600 | -- | 1,600 | | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethane (ug/kg) | 1,700,000 | -- | 1,700,000 | | | | | | 1.50 J | | | | 74.00 | 1.70 J | | | | | | |
| 1,1-Dichloroethene (ug/kg) | 410,000 | -- | 410,000 | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethene, Total (ug/kg) | 230,000 | -- | 230,000 | | | | | | | | | | 56.00 | | | 1200 J | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | 15.00 J | | | | | | | | | | | | | | | |
| 4-Methyl-2-pentanone (ug/kg) | 47,000,000 | -- | 47,000,000 | | | | | | | | | | | | | | | | 16.00 J | |
| Benzene (ug/kg) | 1,400 | -- | 1,400 | | 0.56 J | | | | | | | | | | | | | | | |
| Carbon disulfide (ug/kg) | 720,000 | -- | 720,000 | | 0.50 J | | | | | | | | 7.60 J | | | | | | | |
| Chlorobenzene (ug/kg) | 530,000 | -- | 530,000 | | | | | | | | | | 120.00 | 0.43 J | | | | | | |
| Chloroform (ug/kg) | 470 | -- | 470 | | | | | | | | | | | | | | | | | |
| Chloromethane (ug/kg) | 160,000 | -- | 160,000 | | | | | | | | | | | | | | | | | |
| Ethylbenzene (ug/kg) | 400,000 | -- | 400,000 | | | | | | | | | | 13.00 J | | | 210000 | 51.00 | | 2.80 J | |
| Methylene chloride (ug/kg) | 21,000 | -- | 21,000 | 2.20 J | 3.00 J | 3.40 J | 1.90 J | | | | 2.40 J | 2.60 J | 15.00 J | | | 1300 J | | 5.70 J | 2.50 J | |
| Styrene (ug/kg) | 1,700,000 | -- | 1,700,000 | | | | | | | | | | | | | | | | 5.30 J | |
| Tetrachloroethene (ug/kg) | 1,300 | -- | 1,300 | 1.20 J | | | | | | 1.30 J | | | 8.50 J | | | | | | | |
| Toluene (ug/kg) | 520,000 | -- | 520,000 | 0.56 J | 4.00 J | 0.41 J | | | | 0.51 J | 2.10 J | | 5.90 J | 2.40 J | | 310000 | 110.00 | 1.20 J | 23.00 | 25.00 J |
| Trichloroethene (ug/kg) | 110 | -- | 110 | | | | | | | 2.70 J | 1.30 J | | 21.00 J | | | | | | 7.00 | 39.00 J |
| Vinyl chloride (ug/kg) | 750 | -- | 750 | | | | | | | | | | | | | | | 0.63 J | | |
| Xylenes, Total (ug/kg) | 420,000 | -- | 420,000 | | 3.00 J | | | 1.90 J | | | 1.30 J | | 260.00 | 2.10 J | | 220000 | 310.00 | 1.00 J | 14.00 | 38.00 J |
| ***PCB/Pesticide*** | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1254 (ug/kg) | 740 | -- | 740 | | | | | | | 1000 | | | | | | | | | | |
| delta-BHC (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | 3.50 J | | |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value.
NA = Not Analyzed.

## Table 4.3.8 SWMU S107 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S107 Station / Sample Number / Date Collected / Depth | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S107-SB13 S107SB13D5 03/21/1998 05-06 | S107-SB13 S107SB13D10 03/21/1998 10-11 | S107-SB14 S107SB14D0 03/23/1998 00-01 | S107-SB14 S107SB14D5 03/21/1998 05-06 | S107-SB14 S107SB14D10 03/21/1998 10-11 | S107-SS01 HSS01S 10/23/1993 00-01 | S107-SS01 HSS01D 10/23/1993 02-03 | S107-SS02 HSS02S 10/23/1993 00-01 | S107-SS02 HSS02D 10/23/1993 02-03 | S107-SS03 HSS03S 10/23/1993 00-01 | S107-SS03 HSS03D 10/23/1993 02-03 | S107-SS04 HSS04S 10/23/1993 00-01 | S107-SS04 HSS04D 10/23/1993 02-03 | S107-SS05 HSS05S 10/23/1993 00-01 | S107-SS05 HSS05D 10/23/1993 02-03 | S100-SS08 ASS08 10/23/1993 00-01 | S100-SS09 ASS09 10/23/1993 00-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 8080 | 4480 | 2650 | 9890 J | 5140 | 5280 J | 14500 J | 11300 J | 16300 J | 4130 J | 22400 J | 3540 J | 18000 J | 3690 J | 17200 J | 8500 | 6640 |
| Antimony (mg/kg) | 410 | -- | 410 | | | | | 3.10 J | 6.00 J | 2.50 J | 1.90 J | | 6.50 J | | 4.90 J | 2.10 J | 8.80 J | 2.10 J | | 2.00 J |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 22.90 | 18.40 | 3.90 | 22.90 | 45.70 | 15.50 J | 11.50 J | 15.30 J | 56.10 J | 10.50 J | 13.30 J | 9.00 J | 36.00 J | 13.00 J | 22.40 J | 9.40 J | 10.10 J |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 138.00 J | 185.00 J | 263.00 J | 106.00 J | 44.40 J | 188.00 J | 127.00 J | 116.00 J | 86.00 J | 122.00 J | 121.00 J | 390.00 J | 106.00 J | 628.00 J | 70.60 J | 84.80 | 180.00 |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 0.60 | 0.29 | 0.100 | 0.58 | 0.42 | 0.74 | 0.87 | 0.62 | 0.85 | 0.58 | 0.77 | 0.66 | 0.82 | 0.60 | 0.83 | 0.51 | 0.67 |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | | 1.30 | 1.40 | | 0.96 | 2.80 J | | | | | | 7.70 J | | 3.50 J | | | 0.88 J |
| Calcium (mg/kg) | -- | 16,000 | -- | 2210 | 66100 | 184000 | 2380 J | 24000 | 74300 J | 2310 J | 11400 J | 1720 J | 159000 J | 1830 J | 2240 J | 1290 J | 22200 J | 1070 J | 1200 J | 26400 J |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 14.90 J | 8.80 J | 39.80 J | 16.90 J | 10.10 J | 24.30 J | 22.90 J | 23.90 J | 22.10 J | 30.40 J | 27.60 J | 83.40 J | 24.70 J | 71.70 | 26.10 J | 14.00 J | 31.70 J |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 13.40 J | 7.30 J | 6.20 J | 9.10 J | 7.60 J | 8.70 | 13.50 | 10.50 | 8.70 | 9.30 | 7.40 | 7.40 | 8.60 | 26.50 | 7.20 | 10.50 J | 10.90 J |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 30.00 J | 23.40 J | 31.90 J | 36.80 | 28.60 J | 20.30 J | 21.80 J | 22.80 J | 32.00 J | 17.80 J | 30.00 J | 45.90 J | 27.10 J | 36.20 J | 32.60 J | 20.40 J | 35.10 J |
| Cyanide (mg/kg) | 12,000 | -- | 12,000 | | | | | | | | | | | | 1.20 | | | | | |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 29500 | 20400 | 11900 | 39900 J | 44500 | 15400 J | 29400 J | 27900 J | 32200 J | 58700 J | 34000 J | 7800 J | 34500 J | 11100 J | 41000 J | 17000 J | 23600 J |
| Lead (mg/kg) | 800 | 31.2 | 800 | 14.40 J | 12.70 J | 139.00 J | 21.10 J | 36.90 J | 81.60 J | 23.30 J | 51.80 J | 16.30 J | 121.00 J | 20.70 J | 472.00 J | 21.60 J | 273.00 J | 19.60 J | 21.20 J | 228.00 J |
| Magnesium (mg/kg) | -- | 7,030 | -- | 2410 | 17000 | 40300 | 2520 J | 10900 | 17700 J | 2440 J | 5910 J | 2800 J | 25500 J | 3390 J | 753.00 J | 2700 J | 11300 J | 2440 J | 1230 J | 11100 J |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 549.00 | 786.00 | 190.00 | 273.00 J | 330.00 | 343.00 J | 832.00 J | 582.00 J | 96.20 J | 453.00 J | 172.00 J | 52.20 J | 196.00 J | 56.10 J | 152.00 J | 548.00 | 825.00 |
| Mercury (mg/kg) | 310 | 0.05 | 310 | 0.056 | 0.037 | 0.072 | 0.070 | 0.052 | 0.170 | | | | | | 41.40 | | 0.180 | | | |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 47.90 | 38.20 | 13.50 | 49.40 J | 50.10 | 18.00 | 24.10 | 19.70 | 26.30 | 18.70 | 21.40 | 13.60 | 24.40 | 16.00 | 22.40 | 11.40 J | 16.20 J |
| Potassium (mg/kg) | -- | 1,640 | -- | 1870 | 1190 | 512.00 | 1900 | 1820 | 932.00 J | 2100 J | 1540 J | 2040 J | 870.00 J | 1870 J | 597.00 J | 2000 J | 700.00 J | 1830 J | 791.00 | 752.00 |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | 0.50 | 0.94 | | 0.70 | 4.00 | 0.25 J | | | | 0.86 | | 4.50 J | | 0.36 J | 0.87 | 0.190 J | 0.160 J |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | | | | 0.75 | | | | 1.10 | | | 0.51 | 0.52 | 0.66 | | |
| Sodium (mg/kg) | -- | -- | -- | 70.60 | 104.00 | 281.00 | 58.70 | 121.00 | 386.00 J | | | 383.00 J | | | | | | 402.00 J | | |
| Thallium (mg/kg) | 67 | 1.2 | 67 | 0.97 | 1.30 | | 2.40 | 1.40 | | 0.61 | 0.66 | 1.20 | 0.120 | 0.75 | | 0.49 | 0.31 | 0.68 | 0.51 | 0.40 |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 30.60 J | 28.80 J | 11.00 J | 39.90 J | 40.80 J | 20.40 J | 48.90 J | 39.50 J | 51.40 J | 17.80 J | 55.30 | 14.60 J | 56.30 J | 15.30 J | 67.80 J | 24.60 J | 22.40 J |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 124.00 | 122.00 | 227.00 | 178.00 | 159.00 | 118.00 J | 77.80 J | 224.00 J | 81.10 J | 217.00 J | 78.30 J | 413.00 J | 88.90 J | 304.00 J | 78.60 J | 62.00 J | 226.00 J |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene (ug/kg) | -- | -- | -- | | | | | | 100.00 J | | | | | | | | | | 160.00 J | 510.00 |
| Anthracene (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | 220.00 J |
| Benzo(a)anthracene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | 860.00 |
| Benzo(a)pyrene (ug/kg) | 210 | -- | 210 | | | | | | 62.00 J | | | | 160.00 J | | | | | | | 810.00 |
| Benzo(b)fluoranthene (ug/kg) | 2,100 | -- | 2,100 | | | | | | 94.00 J | | | | 210.00 J | | 1900 J | | | | | 1200 |
| Benzo(g,h,i)perylene (ug/kg) | -- | -- | -- | | | | | | 56.00 J | | | | | | | | | | | 500.00 |
| Benzo(k)fluoranthene (ug/kg) | 21,000 | -- | 21,000 | | | | | | 45.00 J | | | | | | | | | | | 490.00 |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | 520.00 J | | | 180.00 J | | | | 180.00 J | | 16000 | 37.00 J | | | | 150.00 J |
| Carbazole (ug/kg) | 86,000 | -- | 86,000 | | | | | | | | | | | | | | | | | 200.00 J |
| Chrysene (ug/kg) | 210,000 | -- | 210,000 | | | | | | 100.00 J | | 470.00 J | | 160.00 J | | 2000 J | | | | | 950.00 |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | 63 | 62,000,000 | | | | | | 190.00 J | 44.00 J | | | 110.00 J | | | 55.00 J | | 68.00 J | 63.00 J | 110.00 J |
| Di-n-octylphthalate (ug/kg) | 25,000,000 | -- | 25,000,000 | | | | | | | | | | | | | | | | | 52.00 J |
| Dibenzofuran (ug/kg) | 1,600,000 | -- | 1,600,000 | | | | | | | | | | | | | | | | 47.00 J | 160.00 J |
| Diethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | |
| Dimethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | 930.00 | | | | | | | |
| Fluoranthene (ug/kg) | 22,000,000 | -- | 22,000,000 | | | | | | 78.00 J | | | | 240.00 J | | 4900 J | 42.00 J | 10000 J | | | 2300 |
| Fluorene (ug/kg) | 26,000,000 | -- | 26,000,000 | | | | | | | | | | | | | | | | | 92.00 J |
| Indeno(1,2,3-cd)pyrene (ug/kg) | 2,100 | -- | 2,100 | | | | | | 45.00 J | | | | | | | | | | | 490.00 |
| Isophorone (ug/kg) | 510,000 | -- | 510,000 | | | | | | 290.00 J | | | | | | | | | | | |
| Naphthalene (ug/kg) | 190,000 | -- | 190,000 | | | 670.00 J | | | 69.00 J | | | | | | | | | | 120.00 J | 370.00 J |
| Phenanthrene (ug/kg) | -- | -- | -- | | | | | | 82.00 J | | | | 150.00 J | | 2600 J | | | | 120.00 J | 1400 |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | | | 100.00 J | | 460.00 J | | 200.00 J | | 4600 J | | 10000 J | | | 1400 |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | | 59.00 J | 4600 | | | 4800 J | 120.00 J | 950.00 J | | 12000 | 52.00 J | 160000 J | 1400 J | 1000000 | 1700 J | | 1400 |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane (ug/kg) | 1,200,000 | -- | 1,200,000 | | | | | | | | | | | | 7.00 | | 48.00 | | | |
| 1,1,2-Trichloroethane (ug/kg) | 1,600 | -- | 1,600 | | | | | | | | | | | | | | 10.00 | | | |
| 1,1-Dichloroethane (ug/kg) | 1,700,000 | -- | 1,700,000 | | | | | | | | | | | | 3.00 J | | 26.00 | | | |
| 1,1-Dichloroethene (ug/kg) | 410,000 | -- | 410,000 | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethene, Total (ug/kg) | 230,000 | -- | 230,000 | | | | | | | | | | | | 3.00 J | | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | | | | | 13.00 J | 17.00 J | 12.00 J | 6.00 J | 5.00 J | | 3.00 J | 15.00 J | | 30.00 J | | |
| 4-Methyl-2-pentanone (ug/kg) | 47,000,000 | -- | 47,000,000 | | | | | | | | | | | | | | | | | |
| Benzene (ug/kg) | 1,400 | -- | 1,400 | | | | | | | | | | | | | | | | | |
| Carbon disulfide (ug/kg) | 720,000 | -- | 720,000 | | | | | | | | | | | | | | | | | |
| Chlorobenzene (ug/kg) | 530,000 | -- | 530,000 | | | | | | | | | | | | | | 23.00 | | | |
| Chloroform (ug/kg) | 470 | -- | 470 | | | 1.90 J | | | | | | | | | | | | | | |
| Chloromethane (ug/kg) | 160,000 | -- | 160,000 | | | | | | | | | | | | | | | | | |
| Ethylbenzene (ug/kg) | 400,000 | -- | 400,000 | | | | | | 100.00 | | 11.00 | | | | 16.00 | 6.00 | 120.00 | 13.00 | | |
| Methylene chloride (ug/kg) | 21,000 | -- | 21,000 | 2.40 J | | | | | | | 4.00 J | 4.00 J | 5.00 J | 5.00 J | 8.00 | | 6.00 J | | | |
| Styrene (ug/kg) | 1,700,000 | -- | 1,700,000 | | | | | | | | | | | | | | | | | |
| Tetrachloroethene (ug/kg) | 1,300 | -- | 1,300 | | | | | | | | | | | | 6.00 | | | | | |
| Toluene (ug/kg) | 520,000 | -- | 520,000 | 3.20 J | 0.61 J | | | 2.60 J | 2.00 J | | | | | | 6.00 | | 280.00 | | | |
| Trichloroethene (ug/kg) | 110 | -- | 110 | | | 0.66 J | | | | | | | | | | | | | | |
| Vinyl chloride (ug/kg) | 750 | -- | 750 | | | | | | | | | | | | | | | | | |
| Xylenes, Total (ug/kg) | 420,000 | -- | 420,000 | 0.96 J | | | | 1.20 J | 430.00 | 4.00 J | | | | | 21.00 | | 18.00 | | | |
| ***PCB/Pesticide*** | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1254 (ug/kg) | 740 | -- | 740 | | | | | | | | | | | | | | | | | |
| delta-BHC (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value.
NA = Not Analyzed.

# Table 4.3.9 SWMU S108 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S108 Station / Sample Number / Date Collected / Depth | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S108-SB05 S108SB05D5 03/19/1998 05-06 | S108-SB05 S108SB05D8 03/19/1998 08-09 | S108-SB06 S108SB06D5 03/17/1998 05-06 | S108-SB06 S108SB06D7 03/17/1998 07-08 | S108-SB07 S108SB07D5 03/18/1998 05-06 | S108-SB07 S108SB07D7 03/18/1998 07-08 | S108-SB08 S108SB08D10 03/14/1998 10-11 | S108-SB08 S108SB08D5 03/14/1998 05-06 | S108-SB09 S108SB09D10 03/16/1998 10-11 | S108-SB09 S108SB09D5 03/16/1998 05-06 | S108-SB09 S108SB09D7 03/16/1998 07-08 | S108-SB10 S108SB10D10 03/14/1998 10-11 | S108-SB10 S108SB10D5 03/14/1998 05-06 | S108-SB11 S108SB11D5 03/14/1998 05-06 | S108-SB11 S108SB11D8 03/14/1998 08-09 | S108-SB12 S108SB12D5 03/18/1998 05-06 | S108-SB12 S108SB12D7 03/18/1998 07-08 | S108-SB13 S108SB13D5 03/14/1998 05-06 | S108-SB13 S108SB13D7 03/14/1998 07-08 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 6280 | 7370 | 10300 | 10400 | 8830 | 5970 | 8190 | 9400 | 8600 | 12900 | 7590 | 5410 | 18200 | 10700 | 8200 | 7670 | 6400 | 9610 | 7180 |
| Antimony (mg/kg) | 410 | -- | 410 | | | | | | | | | | | | 2.90 J | | | | | | 6.70 J | |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | **43.30** | 14.00 | **53.60** | **34.70** | **34.30** | 27.00 | 15.40 | 17.80 | 17.30 | 27.00 | 15.40 | **36.30** | **31.50** | 20.40 | 16.00 | 22.70 | 14.50 | 20.40 | 20.40 |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 98.70 | 35.20 | 271.00 J | 94.10 J | 88.30 J | 58.90 J | 76.50 J | 85.70 J | 63.80 J | 131.00 J | 116.00 J | 78.30 J | 449.00 J | 120.00 J | 107.00 J | 98.20 J | 145.00 J | 261.00 J | 61.80 J |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 0.37 | 0.39 | 0.70 | 0.61 | 0.52 | 0.45 | 0.45 | 0.54 | 0.46 | 0.62 | 0.48 | 0.32 | 0.94 | 0.62 | 0.45 | 0.43 | 0.43 | 0.57 | 0.37 |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | 1.30 | | 0.83 | | 0.82 | | 0.62 | 1.10 | 0.75 | | | 1.70 | 4.80 | 0.75 | | 0.71 | | 1.90 | |
| Calcium (mg/kg) | -- | 16,000 | -- | 38000 | 43400 | 2450 J | 5640 J | 2910 J | 16500 J | 58100 | 41300 | 35500 | 3220 | 65300 | 72000 | 4160 | 34300 | 56000 | 33100 J | 30300 J | 13900 | 38300 |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 10.70 | 11.50 | 15.60 J | 18.30 J | 12.50 J | 10.10 J | 12.20 J | 15.00 J | 13.60 J | 17.70 J | 12.30 J | 8.90 J | 24.40 J | 16.70 J | 13.00 J | 13.10 J | 10.30 J | 71.80 J | 12.40 J |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 11.20 | 7.50 | 20.00 | 12.40 | 8.40 | 8.50 | 12.10 | 10.10 | 11.60 | 9.40 | 9.10 | 9.20 | 24.00 | 11.00 | 9.40 | 10.70 | 9.80 | 10.40 | 9.40 |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 34.90 | 26.00 | 40.40 J | 34.20 J | 34.30 J | 36.30 J | 33.00 | 30.60 | 30.10 | 39.60 | 27.80 | 34.00 | 25.80 | 33.00 | 25.60 | 32.70 J | 26.10 J | 42.50 | 33.00 |
| Cyanide (mg/kg) | 12,000 | -- | 12,000 | | | | | | | | | | | | | | | | | | | |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 47900 | 19900 | 56800 J | 38400 J | 43700 J | 32800 J | 27600 | 28400 | 24200 | 47400 | 25100 | 44100 | 36500 | 27400 | 23500 | 28700 J | 22800 J | 28000 | 26500 |
| Lead (mg/kg) | 800 | 31.2 | 800 | 14.50 | 10.50 | 19.20 J | 24.70 J | 15.10 J | 16.30 J | 12.40 | 12.90 | 11.30 | 15.70 | 9.30 | 31.20 | 18.20 | 13.90 | 10.30 | 13.50 J | 11.20 J | 271.00 | 11.90 |
| Magnesium (mg/kg) | -- | 7,030 | -- | 20000 | 14700 | 2270 | 3020 | 2210 | 9070 | 14900 | 10700 | 13500 | 2880 | 12400 | 9660 | 4020 | 12600 | 19200 | 10900 | 12700 | 5700 | 13200 |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 443.00 | 256.00 | 1110 J | 273.00 J | 300.00 J | 314.00 J | 412.00 | 303.00 | 301.00 | 142.00 | 309.00 | 244.00 | 2670 | 355.00 | 301.00 | 175.00 J | 138.00 J | 434.00 | 211.00 |
| Mercury (mg/kg) | 310 | 0.05 | 310 | 0.048 | 0.033 | 0.049 | 0.045 | 0.060 | 0.065 | | 0.030 | 0.02400 | 0.036 | | 0.045 | 0.065 | 0.02500 | | 0.030 | 0.02700 | 0.094 | 0.035 |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 38.90 | 23.70 | 64.00 J | 55.70 J | 43.00 J | 43.00 J | 32.70 | 38.50 | 35.00 | 37.10 | 29.60 | 44.30 | 65.60 | 38.60 | 29.30 | 46.90 J | 36.30 J | 40.70 | 32.00 |
| Potassium (mg/kg) | -- | 1,640 | -- | 1780 | 2400 | 2100 | 2230 | 1730 | 1700 | 2740 | 2550 | 2840 | 2300 | 2510 | 1810 | 2020 | 3276 | 2680 | 1980 | 1650 | 2180 | 2120 |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | 2.90 | 0.71 | 1.60 | 0.94 | 1.60 | 2.60 | 1.20 | 1.60 | 1.30 | 1.90 | 1.30 | 2.80 | 1.30 | 1.30 | 0.83 | 2.10 | 0.90 | 1.70 | 2.00 |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | | | | | | | | | | | | | | | | | |
| Sodium (mg/kg) | -- | -- | -- | 103.00 | 112.00 | 116.00 | 97.60 | 218.00 | 191.00 | 132.00 | 123.00 | 159.00 | 136.00 | 143.00 | 203.00 | 79.60 | 125.00 | 141.00 | 141.00 | 117.00 | 113.00 | 112.00 |
| TOC - Total Organic Carbon (mg/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | |
| Thallium (mg/kg) | 67 | 1.2 | 67 | | 0.44 | 1.30 | 2.00 | 2.40 | 0.43 | 0.34 | 0.47 | 0.90 | 0.40 | 0.44 | 0.34 | 1.30 | 0.65 | | 1.30 | 0.88 | 0.97 | 0.50 |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 38.90 | 24.80 | 44.60 | 46.50 | 42.70 | 35.40 | 29.80 | 31.70 | 31.30 | 45.60 | 27.40 | 41.50 | 52.60 | 51.10 | 29.10 | 29.50 | 19.30 | 36.90 | 24.10 |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 137.00 | 69.20 | 184.00 J | 165.00 J | 169.00 J | 146.00 J | 70.40 | 107.00 | 76.30 | 132.00 | 80.50 | 150.00 | 199.00 | 115.00 | 83.10 | 134.00 J | 96.30 J | 173.00 | 93.10 |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dimethylphenol (ug/kg) | 12,000,000 | -- | 12,000,000 | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | |
| 2-Methylphenol (ug/kg) | 31,000,000 | -- | 31,000,000 | | | | | | | | | | | | | | | | | | | |
| 4-Methylphenol (ug/kg) | | | | | | | | | | | | | | | | | | | | | | |
| Acenaphthene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | | | | | | | | | | | | | | | | 490.00 J |
| Acenaphthylene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | 640.00 J |
| Anthracene (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | 1700 J |
| Benzo(a)anthracene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | | | **6200** |
| Benzo(a)pyrene (ug/kg) | 210 | -- | 210 | | | | | | | | | | | | | | | | | | | **5100** |
| Benzo(b)fluoranthene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | | | **5900** |
| Benzo(g,h,i)perylene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | 1400 J |
| Benzo(k)fluoranthene (ug/kg) | 21,000 | -- | 21,000 | | | | | | | | | | | | | | | | | | | 2800 |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | 62.00 J | | | | | | | | | | 3700 J | |
| Carbazole (ug/kg) | 86,000 | -- | 86,000 | | | | | | | | | | | | | | | | | | | |
| Chrysene (ug/kg) | 210,000 | -- | 210,000 | | | | | | | | | | | | | | | | | | | 5300 |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | -- | 62,000,000 | | | | | | | | | | | | | | | | | | | |
| Di-n-octylphthalate (ug/kg) | 25,000,000 | -- | 25,000,000 | | | | | | | | | | | | | | | | | | | |
| Dibenzo(a,h)anthracene (ug/kg) | 210 | -- | 210 | | | | | | | | | | | | | | | | | | | **450.00 J** |
| Dibenzofuran (ug/kg) | 1,600,000 | -- | 1,600,000 | | | | | | | | | | | | | | | | | | | 270.00 J |
| Dimethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | |
| Fluoranthene (ug/kg) | 22,000,000 | -- | 22,000,000 | | | | | | | | | | | | | | | | | | | 11000 |
| Fluorene (ug/kg) | 26,000,000 | -- | 26,000,000 | | | | | | | | | | | | | | | | | | | 1100 J |
| Indeno(1,2,3-cd)pyrene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | | | 240.00 J |
| Isophorone (ug/kg) | 510,000 | -- | 510,000 | | | | | | | | | | | | | | | | | | | |
| Naphthalene (ug/kg) | 190,000 | -- | 190,000 | | | | | | | | | | | | | | | | | | | |
| Phenanthrene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | 6300 |
| Phenol (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | | | | | | | | | | | | | | | | 9900 |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | | | | | | | 87.00 J | 520.00 | | | | 68.00 J | | | | | | 43000 | 330.00 J |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethane (ug/kg) | 1,700,000 | -- | 1,700,000 | | | | 3.00 J | | 4.40 J | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane (ug/kg) | 600 | -- | 600 | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethane (ug/kg) | 230,000 | -- | 230,000 | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethene, Total (ug/kg) | 1,200,000 | -- | 1,200,000 | | | | 2.50 J | | | | | | | | | | | | | | | |
| 1-Propanol (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | | | | | | | | | | | | | | | | | | |
| Acetone (ug/kg) | 54,000,000 | -- | 54,000,000 | | | | 9.00 J | | 15.00 J | | | 13.00 J | | | | | | | | 10.00 J | | |
| Benzene (ug/kg) | 1,400 | -- | 1,400 | | | | | | | | | | | | | | | | | | | |
| Carbon disulfide (ug/kg) | 720,000 | -- | 720,000 | | | | | | | | | | | 0.99 J | | | | | | | | |
| Chloroethane (ug/kg) | 6,500 | -- | 6,500 | | | | | | | | | | | | | | | | | | | |
| Chloromethane (ug/kg) | 160,000 | -- | 160,000 | | | | | | | | | | | | | | | | | | | |
| Ethylbenzene (ug/kg) | 400,000 | -- | 400,000 | | | | | | | | | | | | | | | | | | | |
| Tetrachloroethene (ug/kg) | 1,300 | -- | 1,300 | | | | | | | | | | | | | | | | | | | |
| Toluene (ug/kg) | 520,000 | -- | 520,000 | | | | | | | | | | | | | | | | | | | |
| Trichloroethene (ug/kg) | 110 | -- | 110 | | | | | | | | | | | | | | | | | | | |
| Vinyl chloride (ug/kg) | 750 | -- | 750 | | | | | | | | | | | | | | | | | | | |
| Xylenes, Total (ug/kg) | 420,000 | -- | 420,000 | | | | | | | | | | | | | | | | | | | 0.95 J |
| ***PCB/Pesticide*** | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1248 (ug/kg) | 740 | -- | 740 | | 20.00 | | | | | | | | | | | | | | | | | |
| Aroclor 1254 (ug/kg) | 740 | -- | 740 | | | | | | | | | | | | | | | | | | | |
| Methoxychlor (ug/kg) | 3,100,000 | -- | 3,100,000 | | | | | | | | | | | | | | | | | | | |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value.
NA = Not Analyzed.

## Table 4.3.9 SWMU S108 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S108 Station Sample Number Date Collected Depth | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S108-SB14 S108SB14D5 03/19/1998 05-06 | S108-SB14 S108SB14D7 03/19/1998 07-08 | S108-SB15 S108SB15D5 03/21/1998 05-06 | S108-SB15 S108SB15D7 03/21/1998 07-08 | S108-SB16 S108SB16D5 03/19/1998 05-06 | S108-SB16 S108SB16D7 03/19/1998 07-08 | S108-SB17 S108SB17D5 03/19/1998 05-06 | S108-SB17 S108SB17D7 03/19/1998 07-08 | S108-SB18 S108SB18D5 03/18/1998 05-06 | S108-SB18 S108SB18D7 03/18/1998 07-08 | S108-SB19 S108SB19D5 03/19/1998 05-06 | S108-SB19 S108SB19D7 03/19/1998 07-08 | S108-SB20 S108SB20D5 03/19/1998 05-06 | S108-SB20 S108SB20D7 03/19/1998 07-08 | S108-SB21 S108SB21D5 03/18/1998 05-06 | S108-SB21 S108SB21D7 03/18/1998 07-08 | S108-SB22 S108SB22D5 03/18/1998 05-06 | S108-SB22 S108SB22D7 03/18/1998 07-08 | S108-SB23 S108SB23D5 03/18/1998 05-06 | S108-SB23 S108SB23D7 03/18/1998 07-08 | S108-SB24 S108SB24D10 03/18/1998 10-11 | S108-SB24 S108SB24D5 03/18/1998 05-06 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 8830 | 7330 | 7700 | 5700 | 22900 | 10700 | 9460 | 6890 | 6560 | 8940 | 5860 | 12300 | 6320 | 6670 | 10900 | 8840 | 9800 | 7300 | 10000 | 7540 | 8840 | 7580 |
| Antimony (mg/kg) | 410 | -- | 410 | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 20.50 | 23.10 | **39.00** | 14.80 | 17.20 | 27.00 | **36.10** | 18.60 | 24.80 | 9.90 | **30.80** | **50.50** | 25.30 | **41.30** | **31.70** | **30.50** | 15.30 | **28.70** | 21.20 | 16.70 | 19.10 | 21.70 |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 229.00 | 148.00 | 154.00 J | 41.10 J | 187.00 | 118.00 | 162.00 | 94.40 | 122.00 J | 101.00 J | 174.00 | 277.00 | 146.00 | 108.00 | 185.00 J | 244.00 J | 107.00 J | 146.00 J | 259.00 J | 105.00 J | 93.60 J | 116.00 J |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 0.50 | 0.48 | 0.48 | 0.34 | 0.84 | 0.67 | 0.64 | 0.36 | 0.43 | 0.55 | 0.38 | 0.81 | 0.39 | 0.50 | 0.56 | 0.48 | 0.36 | 0.46 | 0.55 | 0.48 | 0.55 | 0.44 |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | 0.84 | 1.10 | | | | | 0.81 | 0.80 | 0.73 | | 1.00 | 1.70 | 1.20 | 0.61 | 0.63 | 1.40 | | | | 0.79 | 0.58 | 0.84 |
| Calcium (mg/kg) | -- | 16,000 | -- | 37700 | 33100 | 2590 | 42800 | 3510 | 2380 | 27406 | 31000 | 43400 J | 24200 J | 18300 | 23300 | 63100 | 22900 | 25500 J | 45200 J | 27600 J | 67600 J | 38400 J | 14400 J | 33000 J | 47600 J |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 12.90 | 12.20 | 13.60 J | 9.90 J | 29.90 | 16.70 | 14.00 | 11.30 | 10.60 J | 13.70 J | 9.70 | 15.50 | 10.70 | 11.00 | 15.20 J | 12.80 J | 14.70 J | 11.90 J | 14.50 J | 11.80 J | 13.50 J | 12.50 J |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 13.40 | 11.30 | 12.50 J | 9.50 J | 10.20 | 8.50 | 17.70 | 10.80 | 8.70 | 9.20 | 11.00 | 12.20 | 14.40 | 10.00 | 9.70 | 11.20 | 8.50 | 7.90 | 16.10 | 12.30 | 11.40 | 10.40 |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 27.60 | 28.90 | 34.40 J | 30.10 J | 28.80 | 38.40 | 45.50 | 29.30 | 25.20 J | 30.50 J | 35.60 | 41.90 | 32.00 | 31.30 | 27.40 J | 30.20 J | 25.50 J | 26.30 J | 30.80 J | 30.80 J | 31.90 J | 30.20 J |
| Cyanide (mg/kg) | 12,000 | -- | 12,000 | | | | | | | | | | | | | | | | | | | | | | |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 26000 | 29000 | 51800 | 21600 | 31000 | 36700 | 39300 | 25000 | 28800 J | 24100 J | 30600 | 67200 | 30300 | 34900 | 32600 J | 33400 J | 22800 J | 29600 J | 26100 J | 24200 J | 26700 J | 26600 J |
| Lead (mg/kg) | 800 | 31.2 | 800 | 11.40 | 14.30 | 24.00 J | 10.40 J | 20.10 | 20.60 | 15.20 | 11.30 | 11.00 J | 14.70 J | 13.80 | 23.70 | 14.20 | 13.70 | 19.90 J | 16.60 J | 14.50 J | 12.10 J | 13.10 J | 13.00 J | 12.30 J | 14.40 J |
| Magnesium (mg/kg) | -- | 7,030 | -- | 15800 | 14400 | 2330 | 14400 | 4310 | 2700 | 5570 | 12600 | 15800 | 11900 | 10800 | 13100 | 14400 | 9770 | 11400 | 13200 | 13000 | 28600 | 14700 | 7390 | 11400 | 13400 |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 836.00 | 205.00 | 481.00 | 369.00 | 307.00 | 305.00 | 355.00 | 293.00 | 252.00 J | 132.00 J | 287.00 | 864.00 | 607.00 | 259.00 | 381.00 J | 1620 J | 168.00 J | 317.00 J | 921.00 J | 202.00 J | 282.00 J | 294.00 J |
| Mercury (mg/kg) | 310 | 0.05 | 310 | 0.041 | 0.039 | 0.034 | 0.036 | 0.066 | 0.077 | 0.051 | 0.041 | 0.02700 | 0.054 | 0.048 | 0.077 | 0.043 | 0.042 | 0.032 | 0.033 | 0.035 | 0.033 | 0.033 | 0.035 | 0.040 | 0.031 |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 38.10 | 37.80 | 44.30 | 33.80 | 37.80 | 37.90 | 51.90 | 34.00 | 34.50 J | 36.90 J | 44.50 | 55.70 | 44.00 | 36.80 | 35.20 J | 41.70 J | 31.20 J | 30.70 J | 49.80 J | 47.60 J | 39.60 J | 39.90 J |
| Potassium (mg/kg) | -- | 1,640 | -- | 2690 | 2110 | 1720 | 1780 | 2370 | 1750 | 1890 | 1820 | 1770 | 2440 | 1330 | 2380 | 1700 | 1960 | 2350 | 2390 | 1780 | 1940 | 2790 | 2040 | 2280 | 1670 |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | 1.60 | 2.10 | | | 0.91 | 1.30 | 1.50 | 1.80 | 1.00 | 1.10 | 1.10 | 2.30 | 0.81 | 3.00 | 0.60 | 1.80 | | 1.10 | 0.56 | 1.20 | 0.76 | |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | | | | | | | | | | | | | | | | | | | | |
| Sodium (mg/kg) | -- | -- | -- | 152.00 | 105.00 | 111.00 | 114.00 | 71.00 | 62.40 | 110.00 | 108.00 | 129.00 | 137.00 | 80.20 | 108.00 | 140.00 | 83.80 | 151.00 | 144.00 | 115.00 | 151.00 | 153.00 | 106.00 | 144.00 | 134.00 |
| TOC - Total Organic Carbon (mg/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | |
| Thallium (mg/kg) | 67 | 1.2 | 67 | 0.53 | 0.83 | 1.10 | | 1.20 | 0.95 | 1.40 | 0.96 | 1.30 | 0.86 | 1.00 | 0.70 | 0.90 | 0.67 | 2.20 | 1.10 | 1.50 | 1.40 | 1.40 | 1.40 | 1.60 | 1.10 |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 32.20 | 27.00 | 30.60 J | 19.20 J | 71.80 | 44.30 | 38.20 | 27.00 | 25.60 | 33.70 | 26.30 | 42.50 | 29.30 | 32.40 | 38.70 | 33.20 | 29.00 | 32.00 | 29.60 | 30.00 | 29.70 | 29.50 |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 99.00 | 119.00 | 116.00 | 77.30 | 101.00 | 170.00 | 134.00 | 96.40 | 106.00 J | 115.00 J | 171.00 | 172.00 | 159.00 | 105.00 | 140.00 J | 180.00 J | 100.00 J | 101.00 J | 112.00 J | 116.00 J | 107.00 J | 125.00 J |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dimethylphenol (ug/kg) | 12,000,000 | -- | 12,000,000 | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylphenol (ug/kg) | 31,000,000 | -- | 31,000,000 | | | | | | | | | | | | | | | | | | | | | | |
| 4-Methylphenol (ug/kg) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acenaphthene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | | | | | | | | | | | | | | | | | | | |
| Acenaphthylene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | |
| Anthracene (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | | | | |
| Benzo(a)anthracene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | | | | | | |
| Benzo(a)pyrene (ug/kg) | 210 | -- | 210 | | | | | | | | | | | | | | | | | | | | | | |
| Benzo(b)fluoranthene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | | | | | | |
| Benzo(g,h,i)perylene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | |
| Benzo(k)fluoranthene (ug/kg) | 21,000 | -- | 21,000 | | | | | | | | | | | | | | | | | | | | | | |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | | | | |
| Carbazole (ug/kg) | 86,000 | -- | 86,000 | | | | | | | | | | | | | | | | | | | | | | |
| Chrysene (ug/kg) | 210,000 | -- | 210,000 | | | | | | | | | | | | | | | | | | | | | | |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | -- | 62,000,000 | | | | | | | | | | | | | | | | | | | | | | |
| Di-n-octylphthalate (ug/kg) | 25,000,000 | -- | 25,000,000 | | | | | | | | | | | | | | | | | | | | | | |
| Dibenzo(a,h)anthracene (ug/kg) | 210 | -- | 210 | | | | | | | | | | | | | | | | | | | | | | |
| Dibenzofuran (ug/kg) | 1,600,000 | -- | 1,600,000 | | | | | | | | | | | | | | | | | | | | | | |
| Dimethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | | | | |
| Fluoranthene (ug/kg) | 22,000,000 | -- | 22,000,000 | | | | | | | | | | | | | | | | | | | | | | |
| Fluorene (ug/kg) | 26,000,000 | -- | 26,000,000 | | | | | | | | | | | | | | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | | | | | | |
| Isophorone (ug/kg) | 510,000 | -- | 510,000 | | | | | | | | | | | | | | | 84.00 J | 150.00 J | | | | | | |
| Naphthalene (ug/kg) | 190,000 | -- | 190,000 | | | | | | | | | | | | | | | | | | | | | | |
| Phenanthrene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | |
| Phenol (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | | | | |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | | | | | | | | | | | | | 41.00 J | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | | | | | | | | | | | | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethane (ug/kg) | 1,700,000 | -- | 1,700,000 | | | | | | | | | | | | | | | | | | | | | 49.00 J | |
| 1,1,1-Trichloroethane (ug/kg) | 600 | -- | 600 | | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethane (ug/kg) | 230,000 | -- | 230,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethene, Total (ug/kg) | 1,200,000 | -- | 1,200,000 | | | 5.60 J | | | | | | | | | | | | | | | | | | | |
| 1-Propanol (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | | | | | | | | | | | | | | | | | | | | 14.00 J | |
| Acetone (ug/kg) | 54,000,000 | -- | 54,000,000 | | | | | | | | | | 21.00 J | | | | | | 36.00 J | | | | | 110.00 J | |
| Benzene (ug/kg) | 1,400 | -- | 1,400 | | | | | | | | | | | | | | | | | | | | | 3.60 J | |
| Carbon disulfide (ug/kg) | 720,000 | -- | 720,000 | | | | | | | | | | | | | | | | | | | | | | |
| Chloroethane (ug/kg) | 6,500 | -- | 6,500 | | | | | | | | | | | | | | | | 3.00 J | | | | | | |
| Chloromethane (ug/kg) | 160,000 | -- | 160,000 | | | | | | | | | | | | | | | | | | | | | | |
| Ethylbenzene (ug/kg) | 400,000 | -- | 400,000 | | | | | | | | | | | | | | | | | | | | | 15.00 J | |
| Tetrachloroethene (ug/kg) | 1,300 | -- | 1,300 | | | | | | | | | | | | | | | | | | | | | | |
| Toluene (ug/kg) | 520,000 | -- | 520,000 | | | | | | | | | | | | | | | | | | | | | | |
| Trichloroethene (ug/kg) | 110 | -- | 110 | | | | | | | | | | | | | | | | | | | | | | |
| Vinyl chloride (ug/kg) | 750 | -- | 750 | | | 33.00 | | | | | | | | | | | | | | | | | | | |
| Xylenes, Total (ug/kg) | 420,000 | -- | 420,000 | | | | | | | | | | | | | | | | | | | | | | |
| ***PCB/Pesticide*** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1248 (ug/kg) | 740 | -- | 740 | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1254 (ug/kg) | 740 | -- | 740 | | | | | | | | | | | | | | | | | | | | | | |
| Methoxychlor (ug/kg) | 3,100,000 | -- | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value.
NA = Not Analyzed.

## Table 4.3.9 SWMU S108 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S108 Station / Sample Number / Date Collected / Depth | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S108-SB24 S108SB24D7 03/18/1998 07-08 | S108-SB25 S108SB25D5 03/18/1998 05-06 | S108-SB25 S108SB25D7 03/18/1998 07-08 | S108-SB26 S108SB26D10 03/21/1998 10-11 | S108-SB26 S108SB26D5 03/21/1998 05-06 | OX-SS01 XSS01-05 02/07/1995 04-06 | OX-SS01 XSS01-10 02/07/1995 08-10 | OX-SS01 XSS01-14 2/7/1995 12-14 | OX-SS01 XSS01-14 02/08/1995 12-14 | OX-SS02 XSS02-05 02/09/1995 04-06 | OX-SS02 XSS02-12 02/09/1995 10-12 | OX-SS03 XSS03-05 02/07/1995 04-06 | OX-SS03 XSS03-12 02/07/1995 10-12 | OX-SS04 XSS04-05 02/07/1995 04-06 | OX-SS04 XSS04-10 02/08/1995 08-10 | OX-SS05 XSS05-05 02/07/1995 04-06 | OX-SS05 XSS05-12 02/07/1995 10-12 | OX-SS06 XSS06-05 02/07/1995 04-06 | OX-SS06 XSS06-10 02/07/1995 08-10 | S100-SS10 ASS10 10/23/1993 00-01 | S100-SS11 ASS11 10/23/1993 00-01 | S100-SS12 ASS12 10/23/1993 00-01 | S100-SS13 ASS13 10/23/1993 00-01 | S100-SS14 ASS14 10/23/1993 00-01 | S108-SS01 ISS01S 09/21/1993 00-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 8640 | 12500 | 9020 | 6010 | 8620 | | 8320 J | 6096 J | | | 9060 J | | 6700 J | | 7260 J | | 6050 J | | | 10800 | 9000 | 8220 | 10300 | 8430 | 10200 J |
| Antimony (mg/kg) | 410 | -- | 410 | | | | | | | | | | | | | | | | | | | | | 5.00 J | 11.10 J | 3.30 J | 3.00 J | 3.90 J |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 18.10 | 9.80 | 25.00 | 14.20 | 24.60 | | | | | | 13.60 J | | | | 22.60 J | | | | 12.90 J | 12.50 J | 15.10 J | 12.90 J | 15.90 J | 14.70 J | 8.80 |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 122.00 J | 164.00 J | 107.00 J | 48.10 J | 92.90 J | 96.40 J | 131.00 J | 32.40 J | 137 J | 137.00 J | 95.90 J | 130.00 J | 79.00 J | 119.00 J | 123.00 J | 165.00 J | 77.90 J | 184.00 J | 59.80 J | 108.00 | 579.00 | 527.00 | 1140 | 813.00 | 372.00 J |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 0.56 | 0.55 | 0.60 | 0.34 | 0.57 | | | | | | | 0.79 | | | | 0.92 | | 0.70 | | 0.81 | 0.70 | 0.66 | 0.74 | 0.66 | 0.78 |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | | 1.10 | | 0.69 | | | | | | | | | | | | | | | | | 3.20 J | 4.60 J | 3.50 J | 0.95 J | 0.89 |
| Calcium (mg/kg) | -- | 16,000 | -- | 24600 J | 64900 J | 28000 J | 24600 | 6330 | | 81700 J | 65600 J | | | 62200 J | | | | | | | | 62900 J | 1470 J | 19500 J | 38800 J | 10800 J | 18400 J | 15200 J |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 14.10 J | 16.20 J | 14.10 J | 15.60 J | 14.60 J | | | | | | | | | | | 21.20 | 9.40 | | | 15.80 J | 69.10 J | 74.90 J | 67.70 J | 62.80 J | 128.00 J |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 12.20 | 6.90 | 12.50 | 10.60 J | 10.00 J | | | 8.50 | | | | | 7.90 | 9.90 | 8.60 | | | | | 7.20 J | 11.90 J | 11.80 J | 7.90 J | 9.50 J | 13.50 |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 29.40 J | 21.40 J | 33.70 J | 29.30 J | 29.40 J | 22.60 | 33.30 | 23.30 | 32.3 | 32.30 | 31.70 | 40.70 | 25.60 | 30.50 | 24.80 | 37.60 | 26.80 | 40.40 | 34.00 | 23.70 J | 260.00 J | 89.20 J | 34.10 J | 40.60 J | 531.00 J |
| Cyanide (mg/kg) | 12,000 | -- | 12,000 | | | | | | | | | | | | | | | | | | | | | 0.71 J | 0.91 J | 1.90 J | | 1.10 J |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 27100 J | 18600 J | 31100 J | 22500 | 31300 | | | | | | | | 50900 J | | | | | | | 22200 J | 34900 J | 26900 J | 22800 J | 26300 J | 38300 |
| Lead (mg/kg) | 800 | 31.2 | 800 | 13.00 J | 10.30 J | 14.50 J | 12.20 J | 14.40 J | 23.80 | 12.20 | 10.50 | 13.6 | 13.60 | 10.00 | 10.80 | 10.90 | 18.80 | | | 10.70 | 15.30 | 10.40 | 17.50 J | 674.00 J | **1070 J** | 610.00 J | 284.00 J | **972.00 J** |
| Magnesium (mg/kg) | -- | 7,030 | -- | 9220 | 11500 | 11200 | 9170 | 3970 | | | | | | | | | | | | | | | 1480 J | 5210 J | 11000 J | 4720 J | 7260 J | 4660 J |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 343.00 J | 265.00 J | 245.00 J | 362.00 | 198.00 | 363.00 J | 369.00 J | 246.00 J | 397 J | 397.00 J | 459.00 J | 479.00 J | 572.00 J | 305.00 J | 282.00 J | 280.00 J | 251.00 J | 638.00 J | 343.00 J | 364.00 | 394.00 | 393.00 | 423.00 | 462.00 | 898.00 J |
| Mercury (mg/kg) | 310 | 0.05 | 310 | 0.032 | 0.039 | 0.035 | 0.045 | 0.051 | | | | | | | | | | | | | | | | | 0.160 | 0.160 | 0.140 | 0.160 |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 42.70 J | 26.50 J | 44.80 J | 37.60 | 38.90 | | | | | | | 50.90 | | | | 41.80 | | 54.50 | | 14.80 J | 29.30 J | 28.70 J | 16.40 J | 21.50 J | 28.30 J |
| Potassium (mg/kg) | -- | 1,640 | -- | 2080 | 2770 | 2430 | 2000 | 1690 | | | | | | | | | | | | | | | 1000 | 1140 | 1030 | 1250 | 951.00 | 1120 J |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | 0.79 | | 0.87 | 1.20 | | | | | | | | | 0.91 J | | 1.80 J | | 3.70 J | | 0.69 J | | | | 1.20 J | | 0.26 J |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sodium (mg/kg) | -- | -- | -- | 132.00 | 153.00 | 122.00 | 97.40 | 56.40 | | | | | | | | | | | | | | | | | | | | |
| TOC - Total Organic Carbon (mg/kg) | -- | -- | -- | | | | | | | | | | | | 4600 | | | | | | | | | | | | | |
| Thallium (mg/kg) | 67 | 1.2 | 67 | 0.73 | 1.30 | 1.20 | 1.30 | 1.90 | | | | 1.4 | 1.40 | | | | | | | | 1.30 | | 0.56 | 0.66 | 0.48 | 0.63 | 0.50 | 0.23 J |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 35.70 | 34.60 | 40.40 | 21.90 J | 35.80 J | | | | | | | | | | | 69.20 | | | | 31.70 J | 26.70 J | 25.30 J | 33.60 J | 24.70 J | 35.80 J |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 111.00 J | 79.60 J | 115.00 J | 89.70 | 107.00 | 79.50 | | 67.40 | 98.6 | 98.60 | 69.20 | | 63.60 | 98.20 | 74.20 | | 90.90 | | 81.30 | 68.40 J | 627.00 J | 660.00 J | 197.00 J | 228.00 J | 1330 J |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dimethylphenol (ug/kg) | 12,000,000 | -- | 12,000,000 | | | | | 72.00 J | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | 44.00 J | | | 310.00 J | 340.00 J | 94.00 J | 130.00 J | 440.00 J | |
| 2-Methylphenol (ug/kg) | 31,000,000 | -- | 31,000,000 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-Methylphenol (ug/kg) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acenaphthene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | | | | | | | | | | | | | | | | | | 47.00 J | | | | |
| Acenaphthylene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | |
| Anthracene (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzo(a)anthracene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | | | | | 150.00 J | 120.00 J | | | |
| Benzo(a)pyrene (ug/kg) | 210 | -- | 210 | | | | | | | | | | | | | | | | | | | | | 220.00 J | 160.00 J | 62.00 J | 120.00 J | |
| Benzo(b)fluoranthene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | | | | | 120.00 J | 100.00 J | | | |
| Benzo(g,h,i)perylene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | 76.00 J | | | |
| Benzo(k)fluoranthene (ug/kg) | 21,000 | -- | 21,000 | | | | | | | | | | | | | | | | | | | | | 270.00 J | 930.00 | 640.00 | 1400 | 480.00 J |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbazole (ug/kg) | 86,000 | -- | 86,000 | | | | | | | | | | | | | | | | | | | | 42.00 J | 180.00 J | 130.00 J | 57.00 J | 86.00 J | |
| Chrysene (ug/kg) | 210,000 | -- | 210,000 | | | | | | | | 3800 | | | | | | | 3800 | | | 4800 | | 48.00 J | 220.00 J | 170.00 J | 870.00 | 220.00 J | 290.00 J |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | -- | 62,000,000 | | | | | | | | | | | | | | | | | | | | | 71.00 J | 240.00 J | 54.00 J | | |
| Di-n-octylphthalate (ug/kg) | 25,000,000 | -- | 25,000,000 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dibenzo(a,h)anthracene (ug/kg) | 210 | -- | 210 | | | | | | | | | | | | | | | | | | | | 84.00 J | 73.00 J | | | | |
| Dibenzofuran (ug/kg) | 1,600,000 | -- | 1,600,000 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dimethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | | | 200.00 J | 180.00 J | 71.00 J | 170.00 J | |
| Fluoranthene (ug/kg) | 22,000,000 | -- | 22,000,000 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fluorene (ug/kg) | 26,000,000 | -- | 26,000,000 | | | | | | | | | | | | | | | | | | | | | 87.00 J | 72.00 J | | | |
| Indeno(1,2,3-cd)pyrene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | | | | | | 130.00 J | 190.00 J | 340.00 J | |
| Isophorone (ug/kg) | 510,000 | -- | 510,000 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Naphthalene (ug/kg) | 190,000 | -- | 190,000 | | | 87.00 J | | | | | | | | | | | | | | | | | 230.00 J | 270.00 J | 140.00 J | 180.00 J | 310.00 J | |
| Phenanthrene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | 180.00 J | 280.00 J | 120.00 J | 66.00 J | 170.00 J | |
| Phenol (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | | | | | | | | | | | | | | | | | | 170.00 J | 160.00 J | 70.00 J | 140.00 J | |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | | 52.00 J | | 62.00 J | | | | | | | | | | | | | | | | | 2300 | 5700 | 5700 | 5800 | 5200 |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethane (ug/kg) | 1,700,000 | -- | 1,700,000 | | | 61.00 J | | | | | | | | | | | | | | | | | | | | | | 27.00 |
| 1,1,1-Trichloroethane (ug/kg) | 600 | -- | 600 | | | | | | | | | | | | | | | | | | | | | | | 16.00 | | |
| 1,2-Dichloroethane (ug/kg) | 230,000 | -- | 230,000 | | | 2.70 J | | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethene, Total (ug/kg) | 1,200,000 | -- | 1,200,000 | | | 68.00 J | | | | | | | | | | | | | | | | | | | | | | 270.00 |
| 1-Propanol (ug/kg) | -- | -- | -- | | | | | | | | | | | | 6.00 | | | | | | | | | | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | | | | | | | | | | | | | | | | | | | | | | | | 5.00 J |
| Acetone (ug/kg) | 54,000,000 | -- | 54,000,000 | | | 48.00 J | | | | | | | | | | | | | | | | | | | | | | |
| Benzene (ug/kg) | 1,400 | -- | 1,400 | | | 2.70 J | | | | | | | | | | | | | | | | | | | | | | |
| Carbon disulfide (ug/kg) | 720,000 | -- | 720,000 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloroethane (ug/kg) | 6,500 | -- | 6,500 | | | 12.00 | | | | | | | | | | | | | | | | | | | | | | |
| Chloromethane (ug/kg) | 160,000 | -- | 160,000 | | | 12.00 J | | | | | | | | | | | | | | | | | | | | | | |
| Ethylbenzene (ug/kg) | 400,000 | -- | 400,000 | | | 74.00 J | | | | | | | | | | | | | | | | | | | | | 2.00 J | 300.00 |
| Tetrachloroethene (ug/kg) | 1,300 | -- | 1,300 | | | 6.30 J | | | | | | | | | | | | | | | | | | | | | | |
| Toluene (ug/kg) | 520,000 | -- | 520,000 | | | 4.30 J | | | | | | | | | | | | | | | | | | | | | | 16.00 |
| Trichloroethene (ug/kg) | 110 | -- | 110 | | | 12.00 J | | | | | | | | | | | | | | | | | | | | | | |
| Vinyl chloride (ug/kg) | 750 | -- | 750 | | | | | | | | | | | | | | | | | | | | | | | | | 15.00 |
| Xylenes, Total (ug/kg) | 420,000 | -- | 420,000 | | | 45.00 J | | | | | | | | | | | | | | | | | | | | | | |
| ***PCB/Pesticide*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1248 (ug/kg) | 740 | -- | 740 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1254 (ug/kg) | 740 | -- | 740 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Methoxychlor (ug/kg) | 3,100,000 | -- | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | | | | |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value.
NA = Not Analyzed.

## Table 4.3.9 SWMU S108 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S108 Station / Sample Number / Date Collected / Depth | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S108-SS01 ISS01D 09/21/1993 02-03 | S108-SS02 ISS02D 09/22/1993 02-03 | S108-SS02 ISS02S 09/22/1993 00-01 | S108-SS03 ISS03D 09/22/1993 02-03 | S108-SS03 ISS03S 09/22/1993 00-01 | S108-SS04 ISS04D 09/21/1993 02-03 | S108-SS04 ISS04S 09/21/1993 00-01 | S108-SS05 S108SS05-01 09/22/1997 01-02 | S108-SS05 S108SS05-01A 09/22/1997 03-04 | S108-SS06 S108SS06-01 09/22/1997 00-01 | S108-SS06 S108SS06-01A 09/22/1997 3-4 | S108-SS07 S108SS07-01 09/22/1997 00-01 | S108-SS07 S108SS07-01A 09/22/1997 03-04 | S108-SS08 S108SS08-01 09/22/1997 00-01 | S108-SS08 S108SS08-01A 09/22/1997 03-04 | S108-SS09 S108SS09-01 09/23/1997 00-01 | S108-SS09 S108SS09-01A 09/23/1997 03-04 | S108-SS10 S108SS10-01 09/24/1997 00-01 | S108-SS10 S108SS10-01A 09/24/1997 3-4 | S108-SS11 S108SS11-01 09/24/1997 00-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 9630 J | 21300 J | 9330 J | 16900 J | 6870 J | 12900 J | 7180 J | 7920 | | 9450 | | 6310 | | 7420 | | 8260 | | 6940 | | 3090 |
| Antimony (mg/kg) | 410 | -- | 410 | | | 7.10 J | | 3.90 J | | 7.70 J | 2.80 J | | 8.50 J | | | | | | 8.00 J | | 21.90 J | | 23.20 J |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 6.80 | 10.00 | 9.80 | 10.80 | 15.50 | 12.90 | 10.10 | 14.50 | | 11.20 | | 9.10 | | 10.60 | | 13.20 | | 14.90 | | 6.30 |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 72.30 J | 260.00 J | 370.00 J | 261.00 J | 270.00 J | 61.50 J | 369.00 J | 148.00 | | 1380 | | 224.00 | | 199.00 | | 421.00 J | | 1050 J | | 210.00 J |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 0.46 | 1.40 | 0.69 | 1.10 | 0.59 | 0.44 | 0.58 | 0.42 | | | | 0.29 | | 0.51 | | 0.35 | | | | |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | | 0.80 | 2.30 | 0.48 | 2.20 | | 1.50 | 1.40 | | 11.00 | | 2.90 | | 1.70 | | 4.80 J | | 17.80 J | | 3.90 J |
| Calcium (mg/kg) | -- | 16,000 | -- | 823.00 J | 5810 J | 54400 J | 3980 J | 60900 J | 1490 J | 50700 J | 35100 | | 48000 | | 98800 | | 8140 | | 73200 | | 112000 | | 92300 |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 15.00 J | 28.10 J | 62.00 J | 21.00 J | 39.90 J | 18.70 J | 72.90 J | 34.60 | | 126.00 | | 44.80 | | 128.00 | | 64.90 | | 118.00 J | | 42.80 J |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 8.00 | 10.40 | 10.30 | 9.10 | 8.70 | 7.30 | 11.20 | 9.20 | | 17.60 | | 12.00 | | 9.00 | | 11.00 | | 19.30 | | 4.80 |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 10.20 J | 38.40 J | 60.90 J | 25.10 J | 32.40 J | 19.40 J | 162.00 J | 46.20 | | 118.00 | | 93.50 | | 34.20 | | 82.40 J | | 177.00 | | 37.40 |
| Cyanide (mg/kg) | 12,000 | -- | 12,000 | | | 0.70 J | | 0.45 | | 1.50 J | | | | | | | 0.66 | | 1.70 | | | | 1.30 |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 15900 J | 30900 J | 27000 J | 24700 J | 21900 J | 23900 J | 38900 | 23500 | | 36400 | | 28000 | | 15000 | | 23200 | | 46700 | | 8780 |
| Lead (mg/kg) | 800 | 31.2 | 800 | 20.50 J | 16.20 J | 240.00 | 18.80 J | 165.00 J | 24.60 J | 705.00 J | 138.00 | | **968.00** | | 113.00 | | 783.00 | | 304.00 | | **1020** | | 249.00 |
| Magnesium (mg/kg) | -- | 7,030 | -- | 1430 J | 3950 J | 12500 J | 2550 J | 15400 J | 2200 J | 13500 J | 12100 | | 10800 | | 16500 | | 2270 | | 25000 | | 10800 | | 35400 |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 380.00 J | 546.00 J | 423.00 J | 651.00 J | 423.00 J | 222.00 J | 413.00 J | 341.00 | | 380.00 | | 521.00 | | 337.00 | | 408.00 | | 581.00 | | 211.00 |
| Mercury (mg/kg) | 310 | 0.05 | 310 | | | 0.27 | | 0.150 | | | 0.093 | | 0.088 | | 0.130 | | 0.130 | | 0.25 | | 0.150 | | 0.200 |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 10.40 J | 41.70 J | 27.80 J | 28.20 J | 21.90 J | 18.10 J | 26.40 J | 24.30 | | 37.30 | | 39.10 | | 18.50 | | 32.20 | | 48.40 | | 12.40 |
| Potassium (mg/kg) | -- | 1,640 | -- | 780.00 J | 2170 J | 1390 J | 1940 J | 1570 J | 1140 J | 1280 J | 1140 | | 1100 | | 644.00 | | 765.00 | | 1080 | | 997.00 | | 559.00 |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | | | 0.190 J | | | | | 0.70 | | 3.80 | | 0.98 | | 1.10 | | 1.50 | | 4.00 | | 0.65 |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | 1.60 | | | | 1.20 | | | 0.53 | | | | | | | | | | |
| Sodium (mg/kg) | -- | -- | -- | | | | | | | 818.00 | 380.00 | | 185.00 | | 236.00 | | 97.70 | | 181.00 | | 1030 | | 150.00 |
| TOC - Total Organic Carbon (mg/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | |
| Thallium (mg/kg) | 67 | 1.2 | 67 | 0.47 J | 1.00 J | 0.41 J | 0.70 J | 0.45 J | 0.48 J | 0.31 J | 0.70 | | 0.94 | | | | 0.74 | | | | | | |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 28.60 J | 68.40 J | 31.10 J | 48.00 J | 31.30 J | 37.20 J | 26.50 J | 25.80 | | 26.90 | | 19.60 | | 25.00 | | 26.80 | | 19.90 | | 13.90 |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 50.20 J | 141.00 J | 570.00 J | 109.00 J | 329.00 J | 74.60 J | 1150 J | 438.00 | | 1410 | | 260.00 | | 167.00 | | 628.00 | | 1770 | | 1130 |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dimethylphenol (ug/kg) | 12,000,000 | -- | 12,000,000 | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene (ug/kg) | -- | -- | -- | | | 130.00 J | 230.00 J | 40.00 J | | | | | | | | | | | | | | | |
| 2-Methylphenol (ug/kg) | 31,000,000 | -- | 31,000,000 | | | | | | | | | | | | | | | | | | | | |
| 4-Methylphenol (ug/kg) | | | | | | | | | | | | | | | | | | | | | | | |
| Acenaphthene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | | | | | | | | | | | | | | | | | |
| Acenaphthylene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | |
| Anthracene (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | 120.00 J | | | | | | | | | | | | | | | |
| Benzo(a)anthracene (ug/kg) | 2,100 | -- | 2,100 | | | | | 310.00 J | | | 38.00 J | | | | | | | | 120.00 J | | | | |
| Benzo(a)pyrene (ug/kg) | 210 | -- | 210 | | | 96.00 J | | **320.00 J** | | | | | | | | | | | 110.00 J | | | | |
| Benzo(b)fluoranthene (ug/kg) | 2,100 | -- | 2,100 | | | 140.00 J | | 380.00 | | | | | | | | | | | 200.00 J | | | | |
| Benzo(g,h,i)perylene (ug/kg) | -- | -- | -- | | | 76.00 J | | 180.00 J | | | | | | | | | | | | | | | |
| Benzo(k)fluoranthene (ug/kg) | 21,000 | -- | 21,000 | | | 70.00 J | | 290.00 J | | | | | | | | | | | | | | | |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | 830.00 | | 240.00 J | 100.00 J | 1800 | 130.00 J | | 310.00 J | | 990.00 J | | | | 750.00 J | | 460.00 J | | 3100 J |
| Carbazole (ug/kg) | 86,000 | -- | 86,000 | | | | | 50.00 J | | | | | | | | | | | | | | | |
| Chrysene (ug/kg) | 210,000 | -- | 210,000 | | | 150.00 J | | 430.00 | | | 59.00 J | | | | | | | | 150.00 J | | | | |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | -- | 62,000,000 | 79.00 J | 84.00 J | 560.00 | 78.00 J | 150.00 J | 43.00 J | 290.00 J | | | | | 2400 | | | | 120.00 J | | | | |
| Di-n-octylphthalate (ug/kg) | 25,000,000 | -- | 25,000,000 | | | 180.00 J | | 59.00 J | | 98.00 J | | | | | | | | | | | | | |
| Dibenzo(a,h)anthracene (ug/kg) | 210 | -- | 210 | | | | | | | | | | | | | | | | | | | | |
| Dibenzofuran (ug/kg) | 1,600,000 | -- | 1,600,000 | | | | | | | | | | | | | | | | | | | | |
| Dimethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | | |
| Fluoranthene (ug/kg) | 22,000,000 | -- | 22,000,000 | | | 170.00 J | | 770.00 | | 110.00 J | 43.00 J | | | | | | | | 230.00 J | | | | |
| Fluorene (ug/kg) | 26,000,000 | -- | 26,000,000 | | | | | 38.00 J | | | | | | | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene (ug/kg) | 2,100 | -- | 2,100 | | | 66.00 J | | 160.00 J | | | | | | | | | | | | | | | |
| Isophorone (ug/kg) | 510,000 | -- | 510,000 | | | 73.00 J | | | | | | | | | | | | | | | | | |
| Naphthalene (ug/kg) | 190,000 | -- | 190,000 | 86.00 J | | 110.00 J | 140.00 J | | | | | | | | | | | | | | | | |
| Phenanthrene (ug/kg) | -- | -- | -- | | | 150.00 J | 77.00 J | 450.00 | | 77.00 J | | | 63.00 J | | | | | | 150.00 J | | | | |
| Phenol (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | | |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | 160.00 J | | 550.00 | | 150.00 J | 65.00 J | | | | | | | | 230.00 J | | | | |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | | | 5600 | 440.00 | 1700 | 1600 | 5200 | 1600 | | 2800 | | 2200 | | 7100 | | 4900 | | 8900 | | 22000 |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethane (ug/kg) | 1,700,000 | -- | 1,700,000 | 6.00 | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane (ug/kg) | 600 | -- | 600 | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethane (ug/kg) | 230,000 | -- | 230,000 | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethene, Total (ug/kg) | 1,200,000 | -- | 1,200,000 | 95.00 | | | | | | | | | | | | | | | | | | | |
| 1-Propanol (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | 7.00 J | | | | | | | | | | | 12.00 J | | 29.00 | | | | | |
| Acetone (ug/kg) | 54,000,000 | -- | 54,000,000 | | 29.00 J | | | 3.00 J | | | | 42.00 | | | | 74.00 | | 170.00 | | | | | |
| Benzene (ug/kg) | 1,400 | -- | 1,400 | | | | | | | | | | | | | | | | | | | | |
| Carbon disulfide (ug/kg) | 720,000 | -- | 720,000 | | | | | | | | | | | | | 0.58 J | | 3.50 J | | 1.50 J | | | |
| Chloroethane (ug/kg) | 6,500 | -- | 6,500 | | | | | | | | | | | | | | | | | | | | |
| Chloromethane (ug/kg) | 160,000 | -- | 160,000 | | | | | | | | | | | | | | | | | | | | |
| Ethylbenzene (ug/kg) | 400,000 | -- | 400,000 | | | | 3100 | 2.00 J | | | | | | | | | | | | | | | |
| Tetrachloroethene (ug/kg) | 1,300 | -- | 1,300 | 9.00 | | | | | | | | | | | | | | | | | | | |
| Toluene (ug/kg) | 520,000 | -- | 520,000 | 3.00 J | | | | | | | | | | | | | | | | | | | |
| Trichloroethene (ug/kg) | 110 | -- | 110 | | | | | | | | | | | | | | | | | | | | |
| Vinyl chloride (ug/kg) | 750 | -- | 750 | | | | | | | | | | | | | | | | | | | | |
| Xylenes, Total (ug/kg) | 420,000 | -- | 420,000 | 29.00 | | | 12000 | 10.00 | | | | | | | | | | | | | | | |
| ***PCB/Pesticide*** | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1248 (ug/kg) | 740 | -- | 740 | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1254 (ug/kg) | 740 | -- | 740 | | | | | | | | | | | | | | 450.00 | | **840.00** | | | | |
| Methoxychlor (ug/kg) | 3,100,000 | -- | 3,100,000 | | | | | | | | | | | | | | | | | | | | |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value.
NA = Not Analyzed.

## Table 4.3.9 SWMU S108 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S108 Station | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S108-SS11 | S108-SS12 | S108-SS12 | S108-SS13 | S108-SS13 | S108-SS14 | S108-SS14 | S108-SS15 | S108-SS15 | S108-SS16 | S108-SS16 | S108-SS17 | S108-SS17 | S108-SS18 | Duplicate S108-SS18 | S108-SS18 | Duplicate S108-SB18 | S108-SS19 | S108-SS19 | S108-SS20 | S108-SS20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | | | | S108SS11-01A | S108SS12-01 | S108SS12-01A | S108SS13-01 | S108SS13-01A | S108SS14-01 | S108SS14-01A | S108SS15-01 | S108SS15-01A | S108SS16-01 | S108SS16-01A | S108SS17-01 | S108SS17-01A | S108SS18-01 | S108SS18-D01 | S108SS18-01A | S108SS18-D01A | S108SS19-01 | S108SS19-01A | S108SS20-01 | S108SS20-01A |
| Date Collected | | | | 09/24/1997 | 09/23/1997 | 09/23/1997 | 09/24/1997 | 09/24/1997 | 09/23/1997 | 09/23/1997 | 09/23/1997 | 09/23/1997 | 09/24/1997 | 09/24/1997 | 09/24/1997 | 09/24/1997 | 09/23/1997 | 09/23/1997 | 09/23/1997 | 09/23/1997 | 09/23/1997 | 09/23/1997 | 09/23/1997 | 09/23/1997 |
| Depth | | | | 03-04 | 00-01 | 3-4 | 00-01 | 03-04 | 00-01 | 3-4 | 00-01 | 03-04 | 00-01 | 3-4 | 00-01 | 03-04 | 00-01 | 0-1 | 03-04 | 3-4 | 00-01 | 3-4 | 00-01 | 3-4 |
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | | 5570 | | 5790 | | 16600 | | 7990 | | 4460 | | 4470 | | 9230 | 9360 | | | 6950 | | 6640 | |
| Antimony (mg/kg) | 410 | -- | 410 | | 20.80 J | | 10.50 J | | 2.70 J | | 74.60 J | | 8.60 J | | 15.90 J | | 16.40 J | 8.3 J | | | 7.10 J | | 1.90 J | |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | | 14.20 | | 14.60 | | 26.20 | | 12.30 | | 6.20 | | 7.90 | | 14.20 | 14.4 | | | 10.40 | | 10.40 | |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | | 262.00 J | | 216.00 J | | 90.80 J | | 1410 J | | 709.00 J | | 429.00 J | | 474.00 J | 288 J | | | 534.00 J | | 150.00 J | |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | | 0.36 | | 0.33 | | 0.74 | | 0.31 | | | | | | 0.48 | 0.45 | | | | | 0.21 | |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | | 3.40 J | | 3.40 J | | 0.59 J | | 46.00 J | | 7.50 J | | 3.50 J | | 5.50 J | 2.4 J | | | 3.70 J | | 1.10 J | |
| Calcium (mg/kg) | -- | 16,000 | -- | | 56600 | | 15100 | | 2550 | | 34800 | | 191000 | | 99100 | | 25500 | 24500 | | | 55700 | | 93800 | |
| Chromium (mg/kg) | 450 | 20.6 | 450 | | 112.00 | | 98.00 J | | 29.20 | | 313.00 | | 79.80 J | | 118.00 J | | 63.00 | | | | 53.00 | | 25.20 | |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | | 9.60 | | 7.30 | | 13.80 | | 14.00 | | 10.80 | | 6.50 | | 16.20 | 36.5 | | | 10.80 | | 6.60 | |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | | 56.20 J | | 41.10 | | 45.50 J | | 158.00 J | | 109.00 | | 56.30 | | 48.10 J | 10.6 | | | 72.80 J | | 24.60 J | |
| Cyanide (mg/kg) | 12,000 | -- | 12,000 | | 2.20 | | 2.70 | | 2.50 | | 2.60 | | | | 0.78 | | 0.89 | 36.5 J | | | | | | |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | | 23400 | | 13800 | | 41700 | | 66900 | | 39600 | | 13200 | | 36700 | 0.59 | | | 28700 | | 17700 | |
| Lead (mg/kg) | 800 | 31.2 | 800 | | 481.00 | | 402.00 | | 42.50 | | **1840** | | 493.00 | | 543.00 | | 270.00 | 29500 | | | 339.00 | | 74.90 | |
| Magnesium (mg/kg) | -- | 7,030 | -- | | 11800 | | 3010 | | 3200 | | 8880 | | 26300 | | 34200 | | 7200 | 139 | | | 15200 | | 36300 | |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | | 259.00 | | 233.00 | | 214.00 | | 269.00 | | 326.00 | | 216.00 | | 1630 | 5246 | | | 471.00 | | 357.00 | |
| Mercury (mg/kg) | 310 | 0.05 | 310 | | 0.092 | | 0.099 | | 0.051 | | 0.200 | | 0.089 | | 0.110 | | 0.130 | 614 | | | 0.070 | | 0.058 | |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | | 21.60 | | 15.60 | | 43.20 | | 44.70 | | 28.50 | | 18.00 | | 27.90 | 0.14 | | | 27.10 | | 20.20 | |
| Potassium (mg/kg) | -- | 1,640 | -- | | 640.00 | | 709.00 | | 2510 | | 1260 | | 638.00 | | 530.00 | | 1080 | 22.1 | | | 841.00 | | 1010 | |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | | | | 2.00 | | 1.10 | | 4.30 | | 0.80 | | 1.20 | | 0.60 | 1050 | | | 3.10 | | | |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | | | | | | | | 1.10 | | | | | 0.66 | | | | | | |
| Sodium (mg/kg) | -- | -- | -- | | 136.00 | | 165.00 | | 138.00 | | 187.00 | | 287.00 | | 97.40 | | 288.00 | | | | 703.00 | | 115.00 | |
| TOC - Total Organic Carbon (mg/kg) | -- | -- | -- | | | | | | | | | | | | | | | 266 | | | | | | |
| Thallium (mg/kg) | 67 | 1.2 | 67 | | | | | | 1.10 | | | | | | | | 1.10 | 0.77 | | | | | | |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | | 19.60 | | 19.10 | | 62.10 | | 27.50 | | 14.50 | | 15.80 | | 31.30 | 31.0 | | | 21.60 | | 22.50 | |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | | 428.00 | | 375.00 | | 153.00 | | 1460 | | 824.00 | | 2070 | | 483.00 | 289 | | | 585.00 | | 153.00 | |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dimethylphenol (ug/kg) | 12,000,000 | -- | 12,000,000 | | | | | | | | | | | | 1100 J | | | | | | | | | |
| 2-Methylnaphthalene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylphenol (ug/kg) | 31,000,000 | -- | 31,000,000 | | | | | | | | | | | | 820.00 J | | | | | | | | | |
| 4-Methylphenol (ug/kg) | | | | | | | | | | | | | | | | | | | | | | | | |
| Acenaphthene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | | | | | | | | | | | | | | | | | | |
| Acenaphthylene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | |
| Anthracene (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | | | | | | | | |
| Benzo(a)anthracene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | | | | 50.00 J | |
| Benzo(a)pyrene (ug/kg) | 210 | -- | 210 | | | | | | | | | | | | | | | | | | | | | |
| Benzo(b)fluoranthene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | | | | 100.00 J | |
| Benzo(g,h,i)perylene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | 54.00 J | |
| Benzo(k)fluoranthene (ug/kg) | 21,000 | -- | 21,000 | | | | | | | | | | | | | | | | | | | | | |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | 7600 J | | 2900 | | 9200 J | | 5300 J | | 280.00 J | | | | 2100 J | | | | 380.00 | | 330.00 J | |
| Carbazole (ug/kg) | 86,000 | -- | 86,000 | | | | | | | | | | | | | | | | | | | | | |
| Chrysene (ug/kg) | 210,000 | -- | 210,000 | | | | 51.00 J | | | | | | | | | | | | | | | | 110.00 J | |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | -- | 62,000,000 | | | | 120.00 J | | | | | | | | | | | | | | | | 72.00 J | |
| Di-n-octylphthalate (ug/kg) | 25,000,000 | -- | 25,000,000 | | | | | | | | | | | | | | | | | | | | | |
| Dibenzo(a,h)anthracene (ug/kg) | 210 | -- | 210 | | | | | | | | | | | | | | | | | | | | | |
| Dibenzofuran (ug/kg) | 1,600,000 | -- | 1,600,000 | | | | | | | | | | | | | | | | | | | | | |
| Dimethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | 71.00 J | | | | | | | | | | | |
| Fluoranthene (ug/kg) | 22,000,000 | -- | 22,000,000 | | | | 61.00 J | | | | | | | | | | | | | | 41.00 J | | 91.00 J | |
| Fluorene (ug/kg) | 26,000,000 | -- | 26,000,000 | | | | | | | | | | | | | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | | | | | | | | | | | 48.00 J | |
| Isophorone (ug/kg) | 510,000 | -- | 510,000 | | | | 160.00 J | | 2900 J | | | | | | 3400 | | | | | | | | | |
| Naphthalene (ug/kg) | 190,000 | -- | 190,000 | | | | | | | | | | | | | | | | | | | | | |
| Phenanthrene (ug/kg) | -- | -- | -- | | | | 66.00 J | | | | | | 61.00 J | | | | | | | | | | 58.00 J | |
| Phenol (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | 420.00 | | | | | | | | | | | | | | | | | |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | 73.00 J | | | | | | | | | | | | | | 57.00 J | | 110.00 J | |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | | 54000 | | 26000 | | 67000 | | 36000 | | 1100 | | 18000 | | 25000 | **230000** | | | 1400 | | 2400 | |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethane (ug/kg) | 1,700,000 | -- | 1,700,000 | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane (ug/kg) | 600 | -- | 600 | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethane (ug/kg) | 230,000 | -- | 230,000 | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethene, Total (ug/kg) | 1,200,000 | -- | 1,200,000 | | | | | | | | | | | | | | | | | | | | | |
| 1-Propanol (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | | | | | | | | | | | | | | | | | | | | |
| Acetone (ug/kg) | 54,000,000 | -- | 54,000,000 | | | | | | | | | | | | | 16.00 J | | | | | | | | |
| Benzene (ug/kg) | 1,400 | -- | 1,400 | | | | | | | | | | | | | | | | | | | | | |
| Carbon disulfide (ug/kg) | 720,000 | -- | 720,000 | 1.20 J | | | | 2.20 J | | | | 0.96 J | | | | 3.60 J | | | 2.30 J | | | | | |
| Chloroethane (ug/kg) | 6,500 | -- | 6,500 | | | | | | | | | | | | | | | | | | | | | |
| Chloromethane (ug/kg) | 160,000 | -- | 160,000 | | | | | | | | | | | | | | | | | | | | | |
| Ethylbenzene (ug/kg) | 400,000 | -- | 400,000 | | | | | | | | | | | | | | | | | | | | | |
| Tetrachloroethene (ug/kg) | 1,300 | -- | 1,300 | | | | | | | | | | | | | | | | | | | | | |
| Toluene (ug/kg) | 520,000 | -- | 520,000 | | | | | | | | | | | | | | | | | | | | | |
| Trichloroethene (ug/kg) | 110 | -- | 110 | | | | | | | | | | | | | | | | | | | | | |
| Vinyl chloride (ug/kg) | 750 | -- | 750 | | | | | | | | | | | | | | | | | | | | | |
| Xylenes, Total (ug/kg) | 420,000 | -- | 420,000 | | | | | | | | | | | | | | | | | | | | | |
| ***PCB/Pesticide*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1248 (ug/kg) | 740 | -- | 740 | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1254 (ug/kg) | 740 | -- | 740 | | | | | | | | | | | | | | | | | | 180.00 | | | |
| Methoxychlor (ug/kg) | 3,100,000 | -- | 3,100,000 | | | | | | | | | | | | | | | | | | 44.00 | | | |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value.
NA = Not Analyzed.

## Table 4.3.9 SWMU S108 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S108 Station<br>Sample Number<br>Date Collected<br>Depth | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S108-SS21<br>S108SS21-01<br>09/23/1997<br>00-01 | S108-SS21<br>S108SS21-01A<br>09/23/1997<br>03-04 | S108-SS22<br>S108SS22-01<br>09/23/1997<br>00-01 | S108-SS22<br>S108SS22-01A<br>09/23/1997<br>03-04 | S108-SS23<br>S108SS23-01<br>09/23/1997<br>00-01 | S108-SS23<br>S108SS23-01A<br>09/23/1997<br>03-04 | S108-SS24<br>S108SS24-01<br>09/23/1997<br>00-01 | S108-SS24<br>S108SS24-01A<br>09/23/1997<br>3-4 | S108-SS25<br>S108SS25-01<br>09/23/1997<br>00-01 | Duplicate<br>S108-SS25<br>S108SS25-D01<br>09/23/1997<br>0-1 | S108-SS25<br>S108SS25-01A<br>09/23/1997<br>3-4 | Duplicate<br>S108-SS25<br>S108SS25-D01A<br>09/23/1997<br>3-4 | S108-SS26<br>S108SS04-01<br>09/22/1997<br>00-01 | S108-SS26<br>S108SS04-01A<br>09/22/1997<br>03-04 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 8000 | | 6920 | | 9070 | | 9030 | | 6040 | 6210 | | | 5490 | |
| Antimony (mg/kg) | 410 | -- | 410 | 12.30 J | | 4.10 J | | 7.90 J | | | | 3.30 J | 4.3 J | | | 4.90 J | |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 14.00 | | 11.20 | | 12.50 | | 19.10 | | 12.80 | 11.1 | | | 9.90 | |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 792.00 J | | 296.00 J | | 1660 J | | 168.00 J | | 310.00 J | 349 J | | | 259.00 | |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 0.32 | | 0.36 | | 0.34 | | 0.51 | | 0.21 | 0.17 | | | 0.33 | |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | 4.80 J | | 2.20 J | | 1.70 J | | 0.85 J | | 2.90 J | 2.6 J | | | 1.90 | |
| Calcium (mg/kg) | -- | 16,000 | -- | 13000 | | 94800 | | 15900 | | 10200 | | 70500 | 73500 | | | 35100 | |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 85.20 | | 37.20 | | 159.00 | | 21.50 | | 34.10 | 47.7 | | | 33.80 | |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 12.40 | | 14.40 | | 9.00 | | 11.60 | | 8.70 | 8.4 | | | 7.40 | |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 57.40 J | | 49.00 J | | 33.80 J | | 36.80 J | | 51.30 J | 56.2 J | | | 31.20 | |
| Cyanide (mg/kg) | 12,000 | -- | 12,000 | 1.30 | | 0.72 | | 4.00 | | | | 0.73 | | | | 0.77 | |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 30300 | | 22200 | | 21600 | | 32900 | | 25200 | 25800 | | | 24100 | |
| Lead (mg/kg) | 800 | 31.2 | 800 | 391.00 | | 158.00 | | 685.00 | | 76.30 | | 181.00 | 222 | | | 141.00 | |
| Magnesium (mg/kg) | -- | 7,030 | -- | 4090 | | 35000 | | 4310 | | 4240 | | 21300 | 23400 | | | 7820 | |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 659.00 | | 1160 | | 310.00 | | 450.00 | | 362.00 | 312 | | | 246.00 | |
| Mercury (mg/kg) | 310 | 0.05 | 310 | 0.120 | | 0.063 | | 0.130 | | 0.046 | | 0.040 | 0.061 | | | 0.140 | |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 27.40 | | 19.30 | | 19.10 | | 31.10 | | 25.00 | 25.4 | | | 17.20 | |
| Potassium (mg/kg) | -- | 1,640 | -- | 740.00 | | 742.00 | | 1150 | | 1170 | | 969.00 | 997 | | | 703.00 | |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | 1.30 | | | | | | 0.98 | | | 0.52 | | | 0.96 | |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | | | | | | | | | | | | |
| Sodium (mg/kg) | -- | -- | -- | 83.50 | | 165.00 | | 49.90 | | 65.10 | | 107.00 | 121 | | | 97.70 | |
| TOC - Total Organic Carbon (mg/kg) | -- | -- | -- | | | | | | | | | | | | | | |
| Thallium (mg/kg) | 67 | 1.2 | 67 | | | 0.48 | | 0.42 | | 0.50 | | | | | | 0.60 | |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 26.70 | | 24.10 | | 30.10 | | 32.00 | | 21.40 | 23.1 | | | 18.40 | |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 472.00 | | 215.00 | | 192.00 | | 169.00 | | 323.00 | 348 | | | 250.00 | |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | |
| 2,4-Dimethylphenol (ug/kg) | 12,000,000 | -- | 12,000,000 | | | | | | | | | | 130 J | | | | |
| 2-Methylnaphthalene (ug/kg) | -- | -- | -- | | | | | | | | | | 100 J | | | | |
| 2-Methylphenol (ug/kg) | 31,000,000 | -- | 31,000,000 | | | | | | | | | | | | | | |
| 4-Methylphenol (ug/kg) | | | | | | | | | | | | | 290 J | | | | |
| Acenaphthene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | | | | | | | | | | | |
| Acenaphthylene (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | |
| Anthracene (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | |
| Benzo(a)anthracene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | 83 J | | | | |
| Benzo(a)pyrene (ug/kg) | 210 | -- | 210 | | | | | | | | | | 95 J | | | | |
| Benzo(b)fluoranthene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | 150 J | | | | |
| Benzo(g,h,i)perylene (ug/kg) | -- | -- | -- | | | | | | | | | | 59 J | | | | |
| Benzo(k)fluoranthene (ug/kg) | 21,000 | -- | 21,000 | | | | | | | | | | 43 J | | | | |
| Butyl benzyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | 1100 J | | 150.00 J | | 860.00 J | | 41.00 J | | 900.00 J | 2200 | | | 270.00 J | |
| Carbazole (ug/kg) | 86,000 | -- | 86,000 | | | | | | | | | | | | | | |
| Chrysene (ug/kg) | 210,000 | -- | 210,000 | | | | | | | | | | 160 J | | | | |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | -- | 62,000,000 | | | | | 840.00 J | | | | | 41 J | | | | |
| Di-n-octylphthalate (ug/kg) | 25,000,000 | -- | 25,000,000 | | | | | | | | | | | | | | |
| Dibenzo(a,h)anthracene (ug/kg) | 210 | -- | 210 | | | | | | | | | | | | | | |
| Dibenzofuran (ug/kg) | 1,600,000 | -- | 1,600,000 | | | | | | | | | | | | | | |
| Dimethyl phthalate (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | | | | | | |
| Fluoranthene (ug/kg) | 22,000,000 | -- | 22,000,000 | | | | | | | | | | 200 J | | | 290.00 J | |
| Fluorene (ug/kg) | 26,000,000 | -- | 26,000,000 | | | | | | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene (ug/kg) | 2,100 | -- | 2,100 | | | | | | | | | | 53 J | | | | |
| Isophorone (ug/kg) | 510,000 | -- | 510,000 | | | | | | | | | 1600 J | | | | | |
| Naphthalene (ug/kg) | 190,000 | -- | 190,000 | | | | | | | | | | 190 J | | | 140.00 J | |
| Phenanthrene (ug/kg) | -- | -- | -- | | | | | | | | | | 140 J | | | | |
| Phenol (ug/kg) | 100,000,000 | -- | 100,000,000 | | | | | | | | | 4400 | 80 J | | | | |
| Pyrene (ug/kg) | 29,000,000 | -- | 29,000,000 | | | | | | | | | | 200 J | | | 350.00 J | |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | 17000 | | 5200 | | 13000 | | 290.00 J | | 12000 | 2800 | | | 5000 | |
| ***Volatiles*** | | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethane (ug/kg) | 1,700,000 | -- | 1,700,000 | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane (ug/kg) | 600 | -- | 600 | | | | | | | | | | | | | | |
| 1,2-Dichloroethane (ug/kg) | 230,000 | -- | 230,000 | | | | | | | | | | | | | | |
| 1,2-Dichloroethene, Total (ug/kg) | 1,200,000 | -- | 1,200,000 | | | | | | | | | | | | | | |
| 1-Propanol (ug/kg) | -- | -- | -- | | | | | | | | | | | | | | |
| 2-Butanone (ug/kg) | 110,000,000 | -- | 110,000,000 | | | | | | | | | | | | | | 23.00 J |
| Acetone (ug/kg) | 54,000,000 | -- | 54,000,000 | | 250.00 | | | | | | | | | | | | |
| Benzene (ug/kg) | 1,400 | -- | 1,400 | | | | | | | | | | | | | | |
| Carbon disulfide (ug/kg) | 720,000 | -- | 720,000 | | | | 1.50 J | | | | | | | 3.2 J | | | |
| Chloroethane (ug/kg) | 6,500 | -- | 6,500 | | | | | | | | | | | | | | |
| Chloromethane (ug/kg) | 160,000 | -- | 160,000 | | | | | | | | | | | | | | |
| Ethylbenzene (ug/kg) | 400,000 | -- | 400,000 | | 110.00 | | | | 3500 J | | | | | | | | |
| Tetrachloroethene (ug/kg) | 1,300 | -- | 1,300 | | | | | | | | | | | | | | |
| Toluene (ug/kg) | 520,000 | -- | 520,000 | | 12.00 J | | | | 6500 | | | | | | | | |
| Trichloroethene (ug/kg) | 110 | -- | 110 | | | | | | | | | | | | | | |
| Vinyl chloride (ug/kg) | 750 | -- | 750 | | | | | | | | | | | | | | |
| Xylenes, Total (ug/kg) | 420,000 | -- | 420,000 | | 920.00 | | | | 320000 | | | | | | | | |
| ***PCB/Pesticide*** | | | | | | | | | | | | | | | | | |
| Aroclor 1248 (ug/kg) | 740 | -- | 740 | | | | | | | | | | | | | | |
| Aroclor 1254 (ug/kg) | 740 | -- | 740 | | | | | | | | | | | | | | |
| Methoxychlor (ug/kg) | 3,100,000 | -- | 3,100,000 | | | | | | | | | | | | | | |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value.
NA = Not Analyzed.

## Table 4.3.10 SWMU S109 Soil Sampling Detectable Analytical Results from the Franklin Steel RFI

| S109 - Soil<br>Station<br>Sample Number<br>Date Collected<br>Depth | U.S. EPA Region 9 PRG Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | S109-SB09<br>S109SB09D116<br>08/12/1997<br>05-06 | S109-SB09<br>S109SB09D10<br>03/24/1998<br>10-11 | S109-SB10<br>S109SB10D05<br>08/13/1997<br>05-06 | S109-SB10<br>S109SB10D12<br>08/13/1997<br>12-13 | S109-SS01<br>JSS01<br>10/23/1993<br>00-01 | S109-SS02<br>JSS02<br>10/23/1993<br>00-01 | S109-SS03<br>JSS03<br>10/23/1993<br>00-01 | S109-SS04<br>JSS04<br>10/23/1993<br>00-01 | S109-SS05<br>S109SS05<br>06/27/1996<br>00-01 | S109-SS06<br>S109SS06<br>06/27/1996<br>00-01 | S109-SS07<br>S109SS07<br>06/27/1996<br>00-01 | S109-SS08<br>S109SS08<br>06/27/1996<br>00-01 | S109-SS09<br>S109SS09<br>06/27/1996<br>00-01 | S109-SS10<br>S109SS10<br>06/27/1996<br>00-01 | S109-SS11<br>S109SS11<br>06/27/1996<br>00-01 | S109-SS13<br>S109SS13<br>06/27/1996<br>00-01 | S109-SS14<br>S109SS14<br>06/27/1996<br>00-01 | S109-SS15<br>S109SS15<br>06/27/1996<br>00-01 | S109-SS17<br>S109SS17<br>06/27/1996<br>00-01 | S109-SS18<br>S109SS18<br>06/27/1996<br>00-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/kg) | 100,000 | 14,900 | 100,000 | 9380 | | 11500 | 6490 | 8120 J | 11700 J | 13200 J | 14000 J | 13600 | 13000 | 12200 | 10800 | 10400 | 17500 | 12800 | 13700 | 11900 | 10600 | 14700 | 9890 |
| Antimony (mg/kg) | 410 | -- | 410 | | | | | | | | | | | | | | | | | | | | |
| Arsenic (mg/kg) | 1.6 | 28.54 | 28.54 | 20.80 | | 18.70 | 13.30 | 12.10 J | 16.30 J | 9.90 J | 20.50 J | 13.20 J | 10.90 J | 13.40 J | 9.10 J | 7.60 J | 10.40 J | 12.00 J | 10.30 J | 12.80 J | 9.50 J | 14.20 J | 16.00 J |
| Barium (mg/kg) | 67,000 | 252.12 | 67,000 | 135.00 | | 132.00 | 65.70 | 71.90 J | 93.50 J | 145.00 J | 191.00 J | 161.00 | 414.00 | 147.00 | 107.00 | 115.00 | 139.00 | 60.20 | 72.00 | 76.20 | 71.50 | 90.90 | 113.00 |
| Beryllium (mg/kg) | 1,900 | 1.1 | 1,900 | 0.59 | | 0.61 | 0.37 | 0.46 | 0.75 | 0.70 | 0.86 | 0.85 | 0.76 | 0.64 | 0.76 | 0.78 | 0.97 | | | 0.62 | | 0.99 | 0.90 |
| Cadmium (mg/kg) | 450 | 1.7 | 450 | 0.98 | | 0.73 | | 0.61 J | | 0.58 J | 1.30 J | 0.82 | 1.30 | 0.89 | 0.65 | 0.74 | 0.86 | | | | | 0.79 | |
| Calcium (mg/kg) | -- | 16,000 | -- | 35600 | | 38400 | 27800 | 584.00 | 1630 | 1990 | 11400 | 8970 | 6990 | 11200 | 2000 | 2340 | 7930 | | 2280 | | | 1980 | 787.00 |
| Chromium (mg/kg) | 450 | 20.6 | 450 | 15.40 | | 16.70 | 11.60 | 12.10 | 18.20 | 16.80 | 20.00 | 24.20 J | 42.50 J | 15.70 J | 13.60 J | 18.40 J | 23.30 J | 17.70 J | 17.40 J | 16.90 J | 13.80 J | 21.50 J | 13.50 J |
| Cobalt (mg/kg) | 1,900 | 14.8 | 1,900 | 12.50 | | 12.60 | 9.60 | 10.70 | 8.60 | 11.50 | 13.00 | 10.00 | 12.60 | 8.80 | 7.40 | 11.30 | 9.20 | 9.70 | 9.10 | 10.90 J | 12.90 | 13.80 | 17.40 |
| Copper (mg/kg) | 41,000 | 30.4 | 41,000 | 31.40 | | 31.50 | 26.00 | 10.70 | 15.50 | 12.30 | 28.30 | 27.30 | 47.20 | 21.60 | 13.50 | 20.40 | 25.50 | 18.10 | 17.90 | 13.80 J | 10.70 | 21.50 | 12.30 |
| Iron (mg/kg) | 100,000 | 28,800 | 100,000 | 26600 J | | 28200 | 23600 | 15300 J | 34500 J | 23100 J | 30000 J | 27100 | 25300 | 22900 | 19100 | 32500 | 26300 | 21400 | 22800 | 20400 | 21900 | 82300 | 27600 |
| Lead (mg/kg) | 800 | 31.2 | 800 | 14.00 | | 16.30 | 14.00 | 29.90 J | 19.90 J | 14.10 J | 20.00 J | 23.50 J | 120.00 J | 20.10 J | 22.70 J | 27.60 J | 25.00 J | 24.90 J | 19.20 J | 47.40 J | 18.00 J | 34.70 J | 25.10 J |
| Magnesium (mg/kg) | -- | 7,030 | -- | 11100 | | 9860 | 11800 | 1070 J | 1670 J | 1760 J | 5450 J | 5050 | 3970 | 5980 | 1550 | 1830 | 3840 | 1840 | 2710 | 1630 | 1430 | 2510 | 1190 |
| Manganese (mg/kg) | 19,000 | 1,200 | 19,000 | 404.00 J | | 443.00 | 421.00 | 539.00 J | 576.00 J | 550.00 J | 753.00 J | 331.00 | 395.00 | 300.00 | 447.00 | 686.00 | 341.00 | 299.00 | 305.00 | 577.00 | 987.00 | 1220 | 1540 |
| Mercury (mg/kg) | 310 | 0.05 | 310 | | 0.038 | 0.037 | 0.031 | | | | | | 0.170 | | | | | | | | | | |
| Nickel (mg/kg) | 20,000 | 35.5 | 20,000 | 42.90 | | 44.20 | 31.60 | 9.60 | 12.70 | 13.50 | 36.50 | 31.20 J | 29.10 J | 25.50 J | 12.30 J | 21.10 J | 32.20 J | 18.90 J | 21.30 J | 15.50 J | 15.90 J | 34.80 J | 17.70 J |
| Potassium (mg/kg) | -- | 1,640 | -- | 2460 | | 2840 | 1480 | 602.00 | 833.00 | 905.00 | 1500 | 1570 | 1410 | 1780 | 779.00 | 989.00 | 2440 | 1580 | 1530 | 1010 | 806.00 | 1260 | |
| Selenium (mg/kg) | 5,100 | 870 | 5,100 | | | | | 0.66 J | 0.94 J | | | | | | | | | | | | | | |
| Silver (mg/kg) | 5,100 | 0.72 | 5,100 | | | | 0.30 | | | | | | | | | | | | | | | | |
| Sodium (mg/kg) | -- | -- | -- | 103.00 J | | 127.00 | 87.80 | | | 242.00 | | | | | | | | | | | | | |
| Thallium (mg/kg) | 67 | 1.2 | 67 | 1.40 | | | | 0.83 J | 0.89 J | 0.79 J | 1.20 J | | | | | | | | | | | | |
| Vanadium (mg/kg) | 1,000 | 42.7 | 1,000 | 38.60 | | 45.00 | 23.60 | 22.70 | 42.40 | 38.00 | 42.10 | 40.90 | 38.20 | 39.10 | 33.60 | 33.80 | 57.70 | 40.60 | 42.50 | 36.20 | 33.10 | 45.40 | 37.50 |
| Zinc (mg/kg) | 100,000 | 110 | 100,000 | 113.00 | | 123.00 | 81.90 | 49.90 J | 56.60 J | 44.70 J | 111.00 J | 111.00 J | 113.00 J | 80.30 J | 62.00 J | 88.70 J | 113.00 J | 73.50 J | 70.30 J | 62.50 J | 49.80 J | 137.00 J | 57.00 J |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene (ug/kg) | -- | -- | -- | | | | | | | | | 190.00 J | 300.00 J | | 160.00 J | 350.00 J | | | | | | | 42.00 J |
| Di-n-butyl phthalate (ug/kg) | 62,000,000 | -- | 62,000,000 | | | | | 62.00 J | 46.00 J | | | | | | | | | | | | | | |
| Dibenzofuran (ug/kg) | 1,600,000 | -- | 1,600,000 | | | | | | | | | | | | 46.00 J | | | | | | | | |
| Naphthalene (ug/kg) | 190,000 | -- | 190,000 | | | | | | | | | | 210.00 J | | 110.00 J | | | | | | | | |
| Phenanthrene (ug/kg) | -- | -- | -- | | | | | | | | | | 160.00 J | | 92.00 J | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/kg) | 120,000 | -- | 120,000 | | | | | 330.00 J | | | | | 320.00 J | | 92.00 J | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | | | | | |
| Acetone (ug/kg) | 54,000,000 | -- | 54,000,000 | | | | | | | | | | | | | | | | | | | | |

Blank = Nondetect
-- = Not Available
Shaded and bold = result reported above RFI screening value.
NA = Not Analyzed.

**Table 4.4.1**
**Franklin Steel Company, Inc.**
**Blacklick, Ohio**
**Area of Concern A Analytical Soil Results**

| Parameter | Units | U.S. EPA Region 9 Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | SE<br>A-GP-5 (0-1.5')<br>10/16/06 | A-GP-5A (3-4')<br>10/16/06 | NE<br>A-GP-6 (0-1')<br>10/16/06 | A-GP-6A (3-4')<br>10/16/06 |
|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | |
| Aluminum | mg/kg | 100,000 | 14,900 | 100,000 | 4710 | 11600 B | 1860 | 11700 |
| Antimony | mg/kg | 410 | -- | 410 | 0.609 J | < 0.0631 | 1.00 J | < 0.0601 |
| Arsenic | mg/kg | 1.6 | 28.54 | 28.54 | 12.3 | 18.3 | 2.64 | 5.92 |
| Barium | mg/kg | 67,000 | 252.12 | 67,000 | 276 | 132 | 182 | 164 |
| Beryllium | mg/kg | 1,900 | 1.1 | 1,900 | 0.568 J | 0.450 J | < 0.0965 | 0.666 J |
| Cadmium | mg/kg | 450 | 1.7 | 450 | 1.21 J | < 0.136 | 2.37 J | 0.177 J |
| Calcium | mg/kg | -- | 16,000 | -- | 48100 | 2380 | 155000 | 2550 |
| Chromium | mg/kg | 450 | 20.6 | 450 | 87.9 | 13.6 | 45.2 | 15.0 |
| Cobalt | mg/kg | 1,900 | 14.8 | 1,900 | 12.8 | 12.3 | 11.4 | 6.81 |
| Copper | mg/kg | 41,000 | 30.4 | 41,000 | 28.2 | 21.5 | 48.9 | 20.7 |
| Iron | mg/kg | 100,000 | 28,800 | 100,000 | 17900 | 20600 | 26400 | 25000 |
| Lead | mg/kg | 800 | 31.2 | 800 | 379 B | 11.5 B, J | 207 B | 17.8 B |
| Magnesium | mg/kg | -- | 7,030 | -- | 16100 | 2080 | 35600 | 2200 |
| Manganese | mg/kg | 19,000 | 1,200 | 19,000 | 259 | 85.8 | 304 | 140 |
| Mercury | mg/kg | 310 | 0.05 | 310 | 0.0420 | 0.0690 | 0.0457 | 0.0435 |
| Nickel | mg/kg | 20,000 | 35.5 | 20,000 | 18.0 | 16.6 | 21.7 | 16.1 |
| Potassium | mg/kg | -- | 1,640 | -- | 560 | 813 | 184 J | 749 |
| Selenium | mg/kg | 5,100 | 870 | 5,100 | 15.3 J | 5.43 J | 8.23 J | < 2.73 |
| Silver | mg/kg | 5,100 | 0.72 | 5,100 | 0.0798 J | 0.267 J | 0.230 J | 0.132 J |
| Sodium | mg/kg | -- | -- | -- | 67.4 J | 37.5 J | 37.5 J | 158 J |
| Thallium | mg/kg | 67 | 1.2 | 67 | 0.318 J | 0.874 J | 0.135 J | 0.467 J |
| Vanadium | mg/kg | 1,000 | 42.7 | 1,000 | 16.7 | 22.7 | 8.68 J | 28.0 |
| Zinc | mg/kg | 100,000 | 110 | 100,000 | 265 | 68.4 | 299 | 76.6 |
| **Inorganics** | | | | | | | | |
| Cyanide | mg/kg | 12,000 | -- | 12,000 | 13.4 | < 0.156 | 1.79 | < 0.155 |
| **Volatile Organic Compounds** | | | | | | | | |
| Acetone | mg/kg | 54,000 | -- | 54,000 | < 0.00703 | 0.0557 J | < 0.00698 | 0.151 |
| Benzene | mg/kg | 1.4 | -- | 1.4 | 0.00134 J | < 0.000965 | < 0.000929 | < 0.000941 |
| 2-Butanone (MEK) | mg/kg | 110,000 | -- | 110,000 | < 0.00198 | 0.00691 J | < 0.00197 | 0.0218 J |
| Chloroethane | mg/kg | 6.5 | -- | 6.5 | < 0.00128 | < 0.00132 | < 0.00127 | 0.00408 J |
| 1,1-Dichloroethane | mg/kg | 1,700 | -- | 1,700 | 0.00342 J | 0.0194 | < 0.00100 | 0.0730 |
| 2-Hexanone | mg/kg | -- | -- | -- | < 0.00336 | < 0.00346 | < 0.00333 | 0.0132 J |
| Methylene Chloride | mg/kg | 21 | -- | 21 | < 0.00187 | 0.00389 J | < 0.00186 | 0.0131 |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 47,000 | -- | 47,000 | < 0.00265 | < 0.00273 | < 0.00263 | 0.00654 J |
| 1,1,1-Trichloroethane | mg/kg | 1,200 | -- | 1,200 | 0.0151 | < 0.000953 | 0.00158 J | < 0.000929 |
| **Semi Volatile Organic Compounds** | | | | | | | | |
| Anthracene | mg/kg | 100,000 | -- | 100,000 | < 0.0154 | < 0.0165 | 0.210 J | < 0.0164 |
| Benzo (a) anthracene | mg/kg | 2.1 | -- | 2.1 | < 0.0189 | < 0.0203 | 0.257 J | < 0.0201 |
| Benzo (b) fluoranthene | mg/kg | 2.1 | -- | 2.1 | 0.0540 J | < 0.0256 | 0.990 | < 0.0254 |
| Benzo (g,h,i) perylene | mg/kg | -- | -- | -- | < 0.0197 | < 0.0211 | 0.512 | < 0.0210 |
| Benzo (k) fluoranthene | mg/kg | 21 | -- | 21 | < 0.0207 | < 0.0222 | 0.279 J | < 0.0221 |
| Benzo (a) pyrene | mg/kg | 0.21 | -- | 0.21 | < 0.0191 | < 0.0205 | **0.491** | < 0.0203 |
| Bis(2-ethylhexyl)phthalate | mg/kg | 120 | -- | 120 | 0.348 J | < 0.0801 | 1.53 | < 0.0796 |
| Butyl benzyl phthalate | mg/kg | 100,000 | -- | 100,000 | 0.644 | < 0.0576 | 1.09 | < 0.0572 |
| 4-Chloro-3-methylphenol | mg/kg | -- | -- | -- | 0.0969 J | < 0.0544 | < 0.0507 | < 0.0541 |
| Chrysene | mg/kg | 210 | -- | 210 | < 0.0173 | < 0.0185 | 0.281 J | < 0.0184 |
| Dibenz (a,h) anthracene | mg/kg | 0.21 | -- | 0.21 | < 0.0217 | < 0.0233 | 0.0763 J | < 0.0232 |
| Di-n-butyl phthalate | mg/kg | 62,000 | 0.063 | 62,000 | 0.396 J | < 0.0564 | 0.185 J | 0.0670 J |
| 2,4-Dimethylphenol | mg/kg | 12,000 | -- | 12,000 | 0.141 J | < 0.0444 | 7.38 | < 0.0441 |
| 4,6-Dinitro-2-methylphenol | mg/kg | 62 | -- | 62 | 0.316 J | < 0.0414 | < 0.0385 | 0.340 J |
| 2,4-Dinitrophenol | mg/kg | 1,200 | -- | 1,200 | < 0.290 | 0.508 J | < 0.289 | < 0.309 |
| Fluoranthene | mg/kg | 22,000 | -- | 22,000 | 0.0422 J | < 0.0201 | 0.553 | < 0.0199 |
| Indeno (1,2,3-cd) pyrene | mg/kg | 2.1 | -- | 2.1 | < 0.0203 | < 0.0217 | 0.442 | < 0.0216 |
| Isophorone | mg/kg | 510 | -- | 510 | < 0.0456 | < 0.0489 | 0.0482 J | < 0.0486 |
| 2-Methylnaphthalene | mg/kg | -- | -- | -- | < 0.0685 | < 0.0735 | 0.229 J | < 0.0730 |
| 2-Methylphenol (o-Cresol) | mg/kg | 31,000 | -- | 31,000 | 0.244 J | < 0.0416 | 9.37 | < 0.0413 |
| 3&4-Methylphenol (m&p Cresol) | mg/kg | 31,000 | -- | 31,000 | 0.258 J | < 0.0438 | 9.49 | < 0.0435 |
| Naphthalene | mg/kg | 190 | -- | 190 | 0.0472 J | < 0.0184 | 0.0870 J | < 0.0183 |
| Nitrobenzene | mg/kg | 100 | -- | 100 | 0.0543 J | < 0.0530 | < 0.0493 | < 0.0526 |
| 4-Nitrophenol | mg/kg | -- | -- | -- | < 0.0740 | 0.143 J | < 0.0738 | < 0.0788 |
| Pentachlorophenol | mg/kg | 9.0 | -- | 9.0 | < 0.0387 | 0.162 J | < 0.0386 | < 0.0412 |
| Phenanthrene | mg/kg | -- | -- | -- | < 0.0158 | < 0.0169 | 0.298 J | < 0.0168 |
| Phenol | mg/kg | 100,000 | -- | 100,000 | 0.213 J | < 0.0394 | 6.00 | < 0.0391 |
| Pyrene | mg/kg | 29,000 | -- | 29,000 | 0.0468 J | < 0.0222 | 0.629 | < 0.0220 |

-- = Not Available.
Bold and shaded = exceeds RFI Screening Value.

**Table 4.4.2**
**Franklin Steel Company, Inc.**
**Blacklick, Ohio**
**Area of Concern B Analytical Soil Results**

| Parameter | Units | U.S. EPA Region 9 Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | B-GP-7 (0-1') 10/16/06 | B-GP-8 (0-1') 10/16/06 | B-GP-9 (0-1') 10/16/06 |
|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | |
| Aluminum | mg/kg | 100,000 | 14,900 | 100,000 | 6180 | 3210 | 7140 |
| Antimony | mg/kg | 410 | -- | 410 | 0.242 J | 0.743 J | < 0.0526 |
| Arsenic | mg/kg | 1.6 | 28.54 | 28.54 | 11.5 | **93.7** | 16.8 |
| Barium | mg/kg | 67,000 | 252.12 | 67,000 | 225 | 286 | 161 |
| Beryllium | mg/kg | 1,900 | 1.1 | 1,900 | 0.786 J | 1.16 | 0.520 J |
| Cadmium | mg/kg | 450 | 1.7 | 450 | 1.16 J | 2.58 J | 1.33 J |
| Calcium | mg/kg | -- | 16,000 | -- | 62500 | 25700 | 24100 |
| Chromium | mg/kg | 450 | 20.6 | 450 | 33.8 | 28.4 | 20.6 |
| Cobalt | mg/kg | 1,900 | 14.8 | 1,900 | 10.4 | 4.79 | 10.3 |
| Copper | mg/kg | 41,000 | 30.4 | 41,000 | 40.7 | 44.4 | 35.1 |
| Iron | mg/kg | 100,000 | 28,800 | 100,000 | 33800 | 16400 | 27400 |
| Lead | mg/kg | 800 | 31.2 | 800 | 76.9 B | 118 B | 67.7 B |
| Magnesium | mg/kg | -- | 7,030 | -- | 14000 | 10500 | 6510 |
| Manganese | mg/kg | 19,000 | 1,200 | 19,000 | 536 | 226 | 422 |
| Mercury | mg/kg | 310 | 0.05 | 310 | 0.0688 | 0.0636 | 0.412 |
| Nickel | mg/kg | 20,000 | 35.5 | 20,000 | 36.9 | 13.9 | 34.1 |
| Potassium | mg/kg | -- | 1,640 | -- | 762 | 717 | 860 |
| Selenium | mg/kg | 5,100 | 870 | 5,100 | 5.63 J | 11.5 J | 11.8 J |
| Silver | mg/kg | 5,100 | 0.72 | 5,100 | 0.270 J | 0.0546 J | 0.131 J |
| Sodium | mg/kg | -- | -- | -- | 76.8 J | 340 | 229 |
| Thallium | mg/kg | 67 | 1.2 | 67 | 0.371 J | 0.403 J | 0.652 J |
| Vanadium | mg/kg | 1,000 | 42.7 | 1,000 | 18.3 | 13.5 | 22.2 |
| Zinc | mg/kg | 100,000 | 110 | 100,000 | 153 | 76.4 | 170 |
| **Inorganics** | | | | | | | |
| Cyanide | mg/kg | 12,000 | -- | 12,000 | 1.22 | 1.04 | 0.229 |

-- = Not Available.
Bold and shaded = exceeds RFI Screening Value.

**Ta 4.3**
**Franklin Steel Company, Inc.**
**Blacklick, Ohio**
**Area of Concern C Analytical Soil Results**

| Parameter | Units | U.S. EPA Region 9 Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | C-GP-10 (0-2') 10/16/06 | | C-GP-11 (0-1') 10/16/06 | | C-GP-11A (1-2') 10/16/06 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | |
| Aluminum | mg/kg | 100,000 | 14,900 | 100,000 | 3140 | | 2410 | | 5590 | |
| Antimony | mg/kg | 410 | -- | 410 | 2.12 | | 1.41 | | 0.0512 | J |
| Arsenic | mg/kg | 1.6 | 28.54 | 28.54 | 6.71 | | 6.50 | | 8.38 | |
| Barium | mg/kg | 67,000 | 252.12 | 67,000 | 961 | | 688 | | 292 | |
| Beryllium | mg/kg | 1,900 | 1.1 | 1,900 | 0.251 | J | 0.417 | J | 0.494 | J |
| Cadmium | mg/kg | 450 | 1.7 | 450 | 3.42 | J | 2.01 | J | 1.17 | J |
| Calcium | mg/kg | -- | 16,000 | -- | 123000 | | 102000 | | 5830 | |
| Chromium | mg/kg | 450 | 20.6 | 450 | 134 | | 89.6 | | 30.8 | |
| Cobalt | mg/kg | 1,900 | 14.8 | 1,900 | 8.20 | | 6.35 | | 13.5 | |
| Copper | mg/kg | 41,000 | 30.4 | 41,000 | 47.6 | | 36.8 | | 21.4 | |
| Iron | mg/kg | 100,000 | 28,800 | 100,000 | 22800 | | 19200 | | 19600 | |
| Lead | mg/kg | 800 | 31.2 | 800 | 542 | B | 418 | B | 192 | B |
| Magnesium | mg/kg | -- | 7,030 | -- | 33600 | | 25800 | | 2480 | |
| Manganese | mg/kg | 19,000 | 1,200 | 19,000 | 392 | | 482 | | 525 | |
| Mercury | mg/kg | 310 | 0.05 | 310 | 0.361 | | 0.254 | | 0.193 | |
| Nickel | mg/kg | 20,000 | 35.5 | 20,000 | 24.9 | | 15.7 | | 20.2 | |
| Potassium | mg/kg | -- | 1,640 | -- | 571 | | 430 | | 656 | |
| Selenium | mg/kg | 5,100 | 870 | 5,100 | 5.97 | J | 7.95 | J | 3.34 | J |
| Silver | mg/kg | 5,100 | 0.72 | 5,100 | 0.189 | J | 0.0886 | J | 0.0843 | J |
| Sodium | mg/kg | -- | -- | -- | 1280 | | 300 | | 227 | |
| Thallium | mg/kg | 67 | 1.2 | 67 | 0.397 | J | 0.292 | J | 0.361 | J |
| Vanadium | mg/kg | 1,000 | 42.7 | 1,000 | 10.7 | | 9.46 | | 17.9 | |
| Zinc | mg/kg | 100,000 | 110 | 100,000 | 334 | | 229 | | 106 | |
| **Inorganics** | | | | | | | | | | |
| Cyanide | mg/kg | 12,000 | -- | 12,000 | 0.901 | M | 0.622 | | 2.64 | |

-- = Not Available.
Bold and shaded = exceeds RFI Screening Value.

**Table 4.4.4**
**Franklin Steel Company, Inc.**
**Blacklick, Ohio**
**Area of Concern D Analytical Soil Results**

| Parameter | Units | U.S. EPA Region 9 Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | D-GP-12 (0-1') 10/16/06 | |
|---|---|---|---|---|---|---|
| **Metals** | | | | | | |
| Aluminum | mg/kg | 100,000 | 14,900 | 100,000 | 6120 | |
| Antimony | mg/kg | 410 | -- | 410 | 0.0872 | J |
| Arsenic | mg/kg | 1.6 | 28.54 | 28.54 | 16.9 | |
| Barium | mg/kg | 67,000 | 252.12 | 67,000 | 157 | |
| Beryllium | mg/kg | 1,900 | 1.1 | 1,900 | 0.564 | J |
| Cadmium | mg/kg | 450 | 1.7 | 450 | 0.651 | J |
| Calcium | mg/kg | -- | 16,000 | -- | 8970 | |
| Chromium | mg/kg | 450 | 20.6 | 450 | 18.3 | |
| Cobalt | mg/kg | 1,900 | 14.8 | 1,900 | 8.22 | |
| Copper | mg/kg | 41,000 | 30.4 | 41,000 | 18.0 | |
| Iron | mg/kg | 100,000 | 28,800 | 100,000 | 20900 | |
| Lead | mg/kg | 800 | 31.2 | 800 | 53.7 | B |
| Magnesium | mg/kg | -- | 7,030 | -- | 3030 | |
| Manganese | mg/kg | 19,000 | 1,200 | 19,000 | 332 | |
| Mercury | mg/kg | 310 | 0.05 | 310 | 0.0919 | |
| Nickel | mg/kg | 20,000 | 35.5 | 20,000 | 19.6 | |
| Potassium | mg/kg | -- | 1,640 | -- | 679 | |
| Selenium | mg/kg | 5,100 | 870 | 5,100 | 6.60 | J |
| Silver | mg/kg | 5,100 | 0.72 | 5,100 | 0.134 | J |
| Sodium | mg/kg | -- | -- | -- | 424 | |
| Thallium | mg/kg | 67 | 1.2 | 67 | 0.491 | J |
| Vanadium | mg/kg | 1,000 | 42.7 | 1,000 | 22.9 | |
| Zinc | mg/kg | 100,000 | 110 | 100,000 | 104 | |
| **Inorganics** | | | | | | |
| Cyanide | mg/kg | 12,000 | -- | 12,000 | 2.77 | |
| **Volatile Organic Compounds** | | | | | | |
| Dibromochloromethane | mg/kg | 2.6 | -- | 2.6 | 0.00111 | J |
| 2-Hexanone | mg/kg | -- | -- | -- | 0.0111 | J |
| Methylene Chloride | mg/kg | 21 | -- | 21 | 0.00921 | J |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 47,000 | -- | 47,000 | 0.00617 | J |
| Tetrachloroethene | mg/kg | 1.3 | -- | 1.3 | 0.00136 | J |
| **Semi Volatile Organic Compounds** | | | | | | |
| Benzo (b) fluoranthene | mg/kg | 2.1 | -- | 2.1 | 0.0467 | J |
| Bis(2-ethylhexyl)phthalate | mg/kg | 120 | -- | 120 | 2.35 | |
| Butyl benzyl phthalate | mg/kg | 100,000 | -- | 100,000 | 0.233 | J |
| Di-n-butyl phthalate | mg/kg | 62,000 | 0.063 | 62,000 | 0.179 | J |
| Di-n-octyl phthalate | mg/kg | 25,000 | -- | 25,000 | 0.390 | |
| Fluoranthene | mg/kg | 22,000 | -- | 22,000 | 0.0521 | J |
| 2-Methylnaphthalene | mg/kg | -- | -- | -- | 0.0814 | J |
| Naphthalene | mg/kg | 190 | -- | 190 | 0.0689 | J |
| Phenanthrene | mg/kg | -- | -- | -- | 0.108 | J |
| Phenol | mg/kg | 100,000 | -- | 100,000 | 0.0335 | J |
| Pyrene | mg/kg | 29,000 | -- | 29,000 | 0.0843 | J |

-- = Not Available.
Bold and shaded = exceeds RFI Screening Value.

**Table 4.4.5**
**Franklin Steel Company, Inc.**
**Blacklick, Ohio**
**Area of Concern E Analytical Soil Results**

| Parameter | Units | U.S. EPA Region 9 Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | E-GP-13 (0-1') 10/16/06 | | E-GP-14 (0-1') 10/16/06 | |
|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | |
| Aluminum | mg/kg | 100,000 | 14,900 | 100,000 | 683 | | 11200 | |
| Antimony | mg/kg | 410 | -- | 410 | 0.776 | J | < 0.00469 | |
| Arsenic | mg/kg | 1.6 | 28.54 | 28.54 | 2.46 | | 1.52 | |
| Barium | mg/kg | 67,000 | 252.12 | 67,000 | 88.0 | | 104 | |
| Beryllium | mg/kg | 1,900 | 1.1 | 1,900 | < 0.0846 | | 0.661 | J |
| Cadmium | mg/kg | 450 | 1.7 | 450 | 1.04 | J | 0.699 | J |
| Calcium | mg/kg | -- | 16,000 | -- | 247000 | | 2600 | |
| Chromium | mg/kg | 450 | 20.6 | 450 | 15.7 | | 17.4 | |
| Cobalt | mg/kg | 1,900 | 14.8 | 1,900 | 1.02 | J | 15.6 | |
| Copper | mg/kg | 41,000 | 30.4 | 41,000 | 17.6 | | 25.6 | |
| Iron | mg/kg | 100,000 | 28,800 | 100,000 | 7950 | | 32800 | |
| Lead | mg/kg | 800 | 31.2 | 800 | 39.6 | B | 26.9 | B |
| Magnesium | mg/kg | -- | 7,030 | -- | 42600 | | 2800 | |
| Manganese | mg/kg | 19,000 | 1,200 | 19,000 | 163 | | 633 | |
| Mercury | mg/kg | 310 | 0.05 | 310 | 0.0100 | | 0.105 | |
| Nickel | mg/kg | 20,000 | 35.5 | 20,000 | 7.78 | | 32.9 | |
| Potassium | mg/kg | -- | 1,640 | -- | 119 | J | 804 | |
| Selenium | mg/kg | 5,100 | 870 | 5,100 | 8.13 | J | < 2.70 | |
| Silver | mg/kg | 5,100 | 0.72 | 5,100 | 0.197 | J | 0.00958 | J |
| Sodium | mg/kg | -- | -- | -- | 46.4 | J | 269 | |
| Thallium | mg/kg | 67 | 1.2 | 67 | 0.149 | J | 0.0573 | J |
| Vanadium | mg/kg | 1,000 | 42.7 | 1,000 | 6.66 | J | 29.2 | |
| Zinc | mg/kg | 100,000 | 110 | 100,000 | 305 | | 104 | |
| **Volatile Organic Compounds** | | | | | | | | |
| Ethylbenzene | mg/kg | 400 | -- | 400 | < 0.000882 | | 0.00124 | J |
| Methylene Chloride | mg/kg | 21 | -- | 21 | 0.00821 | J | < 0.00190 | |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 47,000 | -- | 47,000 | 0.00602 | J | < 0.00270 | |
| Toluene | mg/kg | 520 | -- | 520 | < 0.000821 | | 0.00973 | |
| Xylenes, total | mg/kg | 420 | -- | 420 | < 0.00261 | | 0.00516 | J |
| **Semi Volatile Organic Compounds** | | | | | | | | |
| Anthracene | mg/kg | 100,000 | -- | 100,000 | 0.0322 | J | < 0.0156 | |
| Benzo (b) fluoranthene | mg/kg | 2.1 | -- | 2.1 | 0.0430 | J | < 0.0241 | |
| Bis(2-ethylhexyl)phthalate | mg/kg | 120 | -- | 120 | 0.387 | | < 0.0757 | |
| 4-Bromophenyl phenyl ether | mg/kg | -- | -- | -- | < 0.0285 | | < 0.0324 | |
| Butyl benzyl phthalate | mg/kg | 100,000 | -- | 100,000 | 0.136 | J | < 0.0544 | |
| Di-n-butyl phthalate | mg/kg | 62,000 | 0.063 | 62,000 | 0.0707 | J | 0.443 | |
| 4,6-Dinitro-2-methylphenol | mg/kg | 62 | -- | 62 | 0.282 | J | 0.325 | J |
| Di-n-octyl phthalate | mg/kg | 25,000 | -- | 25,000 | 0.0732 | J | < 0.0681 | |
| Phenanthrene | mg/kg | -- | -- | -- | 0.0328 | J | < 0.0160 | |
| Pyrene | mg/kg | 29,000 | -- | 29,000 | 0.0334 | J | < 0.0210 | |

-- = Not Available.
Bold and shaded = exceeds RFI Screening Value.

**Table 4.4.6**
**Franklin Steel Company, Inc.**
**Blacklick, Ohio**
**Area of Concern F Analytical Soil Results**

| Parameter | Units | U.S. EPA Region 9 Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | F-GP-15 (0-1') 10/16/06 | F-GP-16 (0-1') 10/16/06 | F-GP-17 (0-1') 10/16/06 | F-GP-18 (0-1') 10/16/06 | F-GP-19 (0-1') 10/16/06 | F-HA-1 (0-1') 10/18/06 | F-HA-2 (0-1') 10/18/06 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | |
| Aluminum | mg/kg | 100,000 | 14,900 | 100,000 | 2310 | 369 | 4130 | 3320 | 3060 M, B | 5470 M | 8500 |
| Antimony | mg/kg | 410 | -- | 410 | 5.89 | 0.605 J | 117 | 8.92 | 3.92 | 6.40 M | 11.9 |
| Arsenic | mg/kg | 1.6 | 28.54 | 28.54 | 1.59 J | 1.72 J | < 0.436 | 2.24 | 2.22 RL1, J | 3.61 M | 1.36 J |
| Barium | mg/kg | 67,000 | 252.12 | 67,000 | 899 | 161 | 1320 | 1860 | 1180 M | 1240 M | 3020 |
| Beryllium | mg/kg | 1,900 | 1.1 | 1,900 | < 0.0883 | < 0.0909 | < 0.0891 | < 0.167 RL7 | < 0.0860 | 0.243 J | < 0.133 |
| Cadmium | mg/kg | 450 | 1.7 | 450 | 23.5 | 0.706 J | 13.0 | 47.0 | 14.0 | 6.30 J | 38.2 |
| Calcium | mg/kg | -- | 16,000 | -- | 227000 | 315000 | 225000 | 139000 | 184000 | 130000 M | 179000 |
| Chromium | mg/kg | 450 | 20.6 | 450 | 124 | 19.9 | 181 | 207 | 140 M | 122 M, B | **732 B** |
| Cobalt | mg/kg | 1,900 | 14.8 | 1,900 | 9.38 | 0.807 J | 19.1 | 31.6 | 14.0 | 20.0 | 50.9 |
| Copper | mg/kg | 41,000 | 30.4 | 41,000 | 103 | 13.0 | 254 | 440 | 649 M | 8210 M, B | 694 B |
| Iron | mg/kg | 100,000 | 28,800 | 100,000 | 10600 | 3890 | 14400 | **154000** | 28600 M | 35900 M | 26800 |
| Lead | mg/kg | 800 | 31.2 | 800 | 619 B | 71.7 B | **4610 B** | 758 | 588 M, B | 720 B, M | **2860 B** |
| Magnesium | mg/kg | -- | 7,030 | -- | 41600 | 19900 | 31400 | 20700 | 40000 | 11100 M | 17000 |
| Manganese | mg/kg | 19,000 | 1,200 | 19,000 | 221 | 203 | 198 | 674 | 253 | 301 B, M | 489 B |
| Mercury | mg/kg | 310 | 0.05 | 310 | 0.109 | 0.00977 | 0.0363 | 0.506 | 0.602 | 0.135 M | 0.182 |
| Nickel | mg/kg | 20,000 | 35.5 | 20,000 | 29.6 | 6.97 | 29.5 | 87.2 | 40.1 M | 57.0 M | 468 |
| Potassium | mg/kg | -- | 1,640 | -- | 206 | 90.1 J | 198 | 370 | 289 | 486 M | 482 |
| Selenium | mg/kg | 5,100 | 870 | 5,100 | 14.4 J | 4.25 J | 7.01 J | < 4.45 RL7 | 4.80 M, J | 42.9 B, M | 24.1 B, J |
| Silver | mg/kg | 5,100 | 0.72 | 5,100 | 2.01 | 0.429 J | 1.84 | 3.46 | 8.62 | 2.94 | 2.74 |
| Sodium | mg/kg | -- | -- | -- | 199 | 71.3 J | 463 | 266 RL7, J | 229 | 328 B, J | 701 B |
| Thallium | mg/kg | 67 | 1.2 | 67 | 0.189 J | 0.142 J | 0.0988 J | 0.139 J | 0.138 J | 0.234 J | 0.207 J |
| Vanadium | mg/kg | 1,000 | 42.7 | 1,000 | 10.8 | 6.07 J | 10.6 | 38.6 | 15.1 | 41.5 M | 32.4 |
| Zinc | mg/kg | 100,000 | 110 | 100,000 | 1270 | 108 | 2350 | 3030 | 1080 M | 5220 M | 6000 |
| **Inorganics** | | | | | | | | | | | |
| Cyanide | mg/kg | 12,000 | -- | 12,000 | < 0.124 | < 0.135 | < 0.123 | 0.930 | < 0.126 | 0.220 | 0.758 |
| **Semi Volatile Organic Compounds** | | | | | | | | | | | |
| Anthracene | mg/kg | 100,000 | -- | 100,000 | 0.0565 J | < 0.0140 | 0.100 J | < 1.36 M13 | < 0.0136 M | 0.0161 J | 0.0374 J |
| Benzo (a) anthracene | mg/kg | 2.1 | -- | 2.1 | < 0.0173 | < 0.0173 | < 0.0171 | < 1.67 M13 | < 0.0167 M | 0.0204 I, J | 0.0272 J |
| Benzo (b) fluoranthene | mg/kg | 2.1 | -- | 2.1 | < 0.0218 | < 0.0218 | < 0.0215 | < 2.11 M13 | 0.0366 M,J | < 0.0239 I | < 0.0324 I |
| Bis(2-ethylhexyl)phthalate | mg/kg | 120 | -- | 120 | 0.751 | 0.261 J | 0.985 | 14.0 M13,J | 0.985 M | 0.626 I | 1.08 |
| Butyl benzyl phthalate | mg/kg | 100,000 | -- | 100,000 | 0.112 J | 0.0637 J | 0.182 J | 6.93 M13,J | 0.196 M,J | 0.146 I, J | 0.229 J |
| Chrysene | mg/kg | 210 | -- | 210 | < 0.0158 | < 0.0158 | < 0.0156 | < 1.53 M13 | < 0.0153 M | < 0.0173 I | 0.0262 J |
| Di-n-butyl phthalate | mg/kg | 62,000 | 0.063 | 62,000 | 0.104 J | < 0.0480 | 0.0707 J | < 4.65 M13 | < 0.0464 M | 0.0544 J | 0.0966 J |
| Diethyl phthalate | mg/kg | 100,000 | -- | 100,000 | < 0.0351 | < 0.0351 | < 0.0347 | < 3.40 M13 | < 0.0339 M | 0.0827 J | < 0.0521 |
| 2,4-Dimethylphenol | mg/kg | 12,000 | -- | 12,000 | < 0.0378 | < 0.0378 | < 0.0374 | < 3.66 M13 | 0.302 M,J | < 0.0415 | < 0.0562 |
| Dimethyl phthalate | mg/kg | 100,000 | -- | 100,000 | < 0.0346 | < 0.0346 | < 0.0343 | < 3.36 M13 | 0.0858 M,J | < 0.0380 | < 0.0515 |
| 4,6-Dinitro-2-methylphenol | mg/kg | 62 | -- | 62 | 0.289 J | 0.299 J | 0.289 J | < 3.42 M13 | < 0.0341 M | < 0.0387 | < 0.0524 |
| Di-n-octyl phthalate | mg/kg | 25,000 | -- | 25,000 | 0.189 J | < 0.0615 | 0.164 J | 7.34 M13,J | 0.195 M,J | < 0.0674 I | < 0.0913 I |
| Fluoranthene | mg/kg | 22,000 | -- | 22,000 | < 0.0171 | < 0.0171 | 0.0339 J | < 1.66 M13 | 0.0391 M,J | 0.0258 J | 0.0519 J |
| Isophorone | mg/kg | 510 | -- | 510 | 0.0516 J | < 0.0417 | 0.0526 J | < 4.04 M13 | < 0.0402 M | < 0.0457 | < 0.0619 |
| 2-Methylnaphthalene | mg/kg | -- | -- | -- | < 0.0626 | < 0.0626 | 0.0885 J | < 6.07 M13 | < 0.0605 M | < 0.0687 | < 0.0931 |
| 2-Methylphenol (o-Cresol) | mg/kg | 31,000 | -- | 31,000 | < 0.0354 | < 0.0354 | < 0.0350 | < 3.43 M13 | 0.332 M,J | < 0.0388 | < 0.0526 |
| 3&4-Methylphenol (m&p Cresol) | mg/kg | 31,000 | -- | 31,000 | < 0.0373 | < 0.0373 | < 0.0369 | < 3.61 M13 | 0.528 M | < 0.0409 | 0.119 J |
| Naphthalene | mg/kg | 190 | -- | 190 | 0.0637 J | < 0.0157 | 0.107 J | < 1.52 M13 | 0.0798 M,J | 0.0992 J | 0.0631 J |
| N-Nitrosodiphenylamine | mg/kg | 350 | -- | 350 | < 0.0379 | < 0.0379 | < 0.0374 | < 3.67 M13 | < 0.0366 M | < 0.0415 | 0.370 J |
| Phenanthrene | mg/kg | -- | -- | -- | 0.0578 J | < 0.0144 | 0.102 J | < 1.40 M13 | 0.0549 M,J | 0.0917 J | 0.0908 J |
| Phenol | mg/kg | 100,000 | -- | 100,000 | 0.0438 J | < 0.0335 | 0.0672 J | < 3.25 M13 | 0.444 M | 0.128 J | 0.172 J |
| Pyrene | mg/kg | 29,000 | -- | 29,000 | < 0.0189 | < 0.0189 | 0.0688 J | < 1.83 M13 | 0.0467 M,J | 0.132 I, J | 0.121 J |

-- = Not Available.
Bold and shaded = exceeds RFI Screening Value.

**Table 4.4.7**
**Franklin Steel Company, Inc.**
**Blacklick, Ohio**
**Area of Concern G Analytical Soil Results**

| Parameter | Units | U.S. EPA Region 9 Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | G-Comp-1 (0-1') 10/16/06 | | G-Comp-2 (0-1') 10/16/06 | |
|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | |
| Aluminum | mg/kg | 100,000 | 14,900 | 100,000 | 726 | B | 703 | B |
| Antimony | mg/kg | 410 | -- | 410 | 7.65 | M | 1.23 | |
| Arsenic | mg/kg | 1.6 | 28.54 | 28.54 | 2.48 | | 1.76 | RL1, J |
| Barium | mg/kg | 67,000 | 252.12 | 67,000 | 66.6 | | 64.6 | |
| Beryllium | mg/kg | 1,900 | 1.1 | 1,900 | < 0.0852 | | < 0.0871 | |
| Cadmium | mg/kg | 450 | 1.7 | 450 | 0.497 | J | 0.284 | J |
| Calcium | mg/kg | -- | 16,000 | -- | 181000 | | 180000 | |
| Chromium | mg/kg | 450 | 20.6 | 450 | 11.4 | | 16.9 | |
| Cobalt | mg/kg | 1,900 | 14.8 | 1,900 | 1.50 | J | 0.964 | J |
| Copper | mg/kg | 41,000 | 30.4 | 41,000 | 22.9 | | 20.4 | |
| Iron | mg/kg | 100,000 | 28,800 | 100,000 | 6050 | | 5290 | |
| Lead | mg/kg | 800 | 31.2 | 800 | 8.20 | B, J | 6.42 | B, J |
| Magnesium | mg/kg | -- | 7,030 | -- | 74700 | | 73700 | |
| Manganese | mg/kg | 19,000 | 1,200 | 19,000 | 205 | | 186 | |
| Mercury | mg/kg | 310 | 0.05 | 310 | 0.0713 | | 0.0895 | |
| Nickel | mg/kg | 20,000 | 35.5 | 20,000 | 11.2 | | 19.6 | |
| Potassium | mg/kg | -- | 1,640 | -- | 258 | | 221 | |
| Selenium | mg/kg | 5,100 | 870 | 5,100 | 10.4 | J | 11.9 | J |
| Silver | mg/kg | 5,100 | 0.72 | 5,100 | 0.353 | J | 0.242 | J |
| Sodium | mg/kg | -- | -- | -- | 217 | | 179 | |
| Thallium | mg/kg | 67 | 1.2 | 67 | 0.242 | J | 0.0963 | J |
| Vanadium | mg/kg | 1,000 | 42.7 | 1,000 | 8.37 | J | 11.1 | |
| Zinc | mg/kg | 100,000 | 110 | 100,000 | 93.2 | | 83.7 | |
| **Inorganics** | | | | | | | | |
| Cyanide | mg/kg | 12,000 | -- | 12,000 | 0.355 | | < 0.124 | |
| **Volatile Organic Compounds** | | | | | | | | |
| Methylene Chloride | mg/kg | 21 | -- | 21 | 0.0110 | | 0.176 | |
| **Semi Volatile Organic Compounds** | | | | | | | | |
| Benzo (a) anthracene | mg/kg | 2.1 | -- | 2.1 | < 0.331 | M13 | 0.0676 | J |
| Benzo (b) fluoranthene | mg/kg | 2.1 | -- | 2.1 | 0.732 | M13,I, J | 0.0387 | J |
| Benzo (g,h,i) perylene | mg/kg | -- | -- | -- | < 0.344 | M13,I | < 0.0173 | |
| Benzo (k) fluoranthene | mg/kg | 21 | -- | 21 | 0.763 | M13,I, J | 0.0390 | J |
| Bis(2-ethylhexyl)phthalate | mg/kg | 120 | -- | 120 | 4.16 | M13,J | 2.10 | |
| Butyl benzyl phthalate | mg/kg | 100,000 | -- | 100,000 | < 0.940 | M13 | 0.223 | J |
| Di-n-butyl phthalate | mg/kg | 62,000 | 0.063 | 62,000 | < 0.919 | M13 | 0.170 | J |
| Dimethyl phthalate | mg/kg | 100,000 | -- | 100,000 | < 0.663 | M13 | 0.0620 | J |
| 4,6-Dinitro-2-methylphenol | mg/kg | 62 | -- | 62 | 1.18 | M13,J | 0.204 | J |
| Di-n-octyl phthalate | mg/kg | 25,000 | -- | 25,000 | < 1.18 | M13,I | 0.400 | |
| Fluoranthene | mg/kg | 22,000 | -- | 22,000 | 0.863 | M13,J | < 0.0165 | |
| Hexachloroethane | mg/kg | 120 | -- | 120 | < 0.736 | M13 | 0.0632 | J |
| 4-Nitroaniline | mg/kg | 82 | -- | 82 | < 0.861 | M13 | 0.0591 | J |
| 4-Nitrophenol | mg/kg | -- | -- | -- | 2.29 | M13,J | 0.129 | J |
| Pentachlorophenol | mg/kg | 9.0 | -- | 9.0 | < 0.677 | M13 | 0.133 | J |
| Phenanthrene | mg/kg | -- | -- | -- | 0.669 | M13,J | 0.0500 | J |
| Phenol | mg/kg | 100,000 | -- | 100,000 | < 0.642 | M13 | 0.142 | J |
| Pyrene | mg/kg | 29,000 | -- | 29,000 | 0.900 | M13,J | 0.0381 | J |

-- = Not Available.
Bold and shaded = exceeds RFI Screening Value.

**Table 4.4.9**
**Franklin Steel Company, Inc.**
**Blacklick, Ohio**
**Area of Concern I Analytical Soil Results**

| Parameter | Units | U.S. EPA Region 9 Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | I-HA-7 (0-1') 10/18/06 | |
|---|---|---|---|---|---|---|
| **Metals** | | | | | | |
| Aluminum | mg/kg | 100,000 | 14,900 | 100,000 | 7930 | |
| Antimony | mg/kg | 410 | -- | 410 | 0.0697 | J |
| Arsenic | mg/kg | 1.6 | 28.54 | 28.54 | 9.66 | |
| Barium | mg/kg | 67,000 | 252.12 | 67,000 | 114 | |
| Beryllium | mg/kg | 1,900 | 1.1 | 1,900 | 0.531 | J |
| Cadmium | mg/kg | 450 | 1.7 | 450 | 0.795 | J |
| Calcium | mg/kg | -- | 16,000 | -- | 23500 | |
| Chromium | mg/kg | 450 | 20.6 | 450 | 16.6 | B |
| Cobalt | mg/kg | 1,900 | 14.8 | 1,900 | 5.82 | |
| Copper | mg/kg | 41,000 | 30.4 | 41,000 | 23.4 | B |
| Iron | mg/kg | 100,000 | 28,800 | 100,000 | 22800 | |
| Lead | mg/kg | 800 | 31.2 | 800 | 37.6 | B |
| Magnesium | mg/kg | -- | 7,030 | -- | 3120 | |
| Manganese | mg/kg | 19,000 | 1,200 | 19,000 | 241 | B |
| Mercury | mg/kg | 310 | 0.05 | 310 | 0.0949 | |
| Nickel | mg/kg | 20,000 | 35.5 | 20,000 | 14.0 | |
| Potassium | mg/kg | -- | 1,640 | -- | 517 | |
| Selenium | mg/kg | 5,100 | 870 | 5,100 | 16.5 | B, J |
| Silver | mg/kg | 5,100 | 0.72 | 5,100 | 1.48 | |
| Sodium | mg/kg | -- | -- | -- | 149 | B, J |
| Thallium | mg/kg | 67 | 1.2 | 67 | 0.411 | J |
| Vanadium | mg/kg | 1,000 | 42.7 | 1,000 | 23.7 | |
| Zinc | mg/kg | 100,000 | 110 | 100,000 | 119 | |
| **Volatile Organic Compounds** | | | | | | |
| Methylene Chloride | mg/kg | 21 | -- | 21 | 0.00507 | J |
| **Semi Volatile Organic Compounds** | | | | | | |
| Benzo (a) anthracene | mg/kg | 2.1 | -- | 2.1 | 0.0255 | J |
| Benzo (b) fluoranthene | mg/kg | 2.1 | -- | 2.1 | 0.0496 | I, J |
| Benzo (a) pyrene | mg/kg | 0.21 | -- | 0.21 | 0.0255 | I, J |
| Bis(2-ethylhexyl)phthalate | mg/kg | 120 | -- | 120 | 1.96 | |
| Butyl benzyl phthalate | mg/kg | 100,000 | -- | 100,000 | 0.267 | J |
| Chrysene | mg/kg | 210 | -- | 210 | 0.0372 | J |
| Di-n-butyl phthalate | mg/kg | 62,000 | 0.063 | 62,000 | 0.0908 | J |
| Dimethyl phthalate | mg/kg | 100,000 | -- | 100,000 | 0.619 | |
| Fluoranthene | mg/kg | 22,000 | -- | 22,000 | 0.0500 | J |
| Isophorone | mg/kg | 510 | -- | 510 | 0.120 | J |
| 2-Methylnaphthalene | mg/kg | -- | -- | -- | 0.0748 | J |
| Naphthalene | mg/kg | 190 | -- | 190 | 0.0580 | J |
| Phenanthrene | mg/kg | -- | -- | -- | 0.0511 | J |
| Phenol | mg/kg | 100,000 | -- | 100,000 | 0.291 | J |
| Pyrene | mg/kg | 29,000 | -- | 29,000 | 0.0770 | J |

-- = Not Available.
Bold and shaded = exceeds RFI Screening Value.

**Table 4.4.10**
**Franklin Steel Company, Inc.**
**Blacklick, Ohio**
**Area of Concern J Analytical Soil Results**

| Parameter | Units | U.S. EPA Region 9 Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | J-HA-3 (0-1') 10/18/06 | | J-HA-4 (0.0-0.5') 10/18/06 | | J-HA-5 (0-1') 10/18/06 | | J-HA-6 (0-1') 10/18/06 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | |
| Aluminum | mg/kg | 100,000 | 14,900 | 100,000 | 6190 | | 7090 | | 7170 | | 3440 | |
| Antimony | mg/kg | 410 | -- | 410 | 0.665 | J | 14.2 | | 0.216 | J | 1.89 | |
| Arsenic | mg/kg | 1.6 | 28.54 | 28.54 | 13.7 | | 4.62 | | 15.3 | | 9.08 | |
| Barium | mg/kg | 67,000 | 252.12 | 67,000 | 448 | | 3120 | | 83.3 | | 415 | |
| Beryllium | mg/kg | 1,900 | 1.1 | 1,900 | 0.473 | J | < 0.194 | RL3 | 0.483 | J | 0.606 | J |
| Cadmium | mg/kg | 450 | 1.7 | 450 | 6.40 | | 63.0 | | 0.796 | J | 6.09 | J |
| Calcium | mg/kg | -- | 16,000 | -- | 53000 | | 51200 | | 18500 | | 33900 | |
| Chromium | mg/kg | 450 | 20.6 | 450 | 105 | B | **546** | **B** | 16.4 | B | 70.4 | B |
| Cobalt | mg/kg | 1,900 | 14.8 | 1,900 | 10.0 | | 45.1 | | 8.62 | | 6.57 | |
| Copper | mg/kg | 41,000 | 30.4 | 41,000 | 105 | B | 641 | B | 22.9 | B | 62.7 | B |
| Iron | mg/kg | 100,000 | 28,800 | 100,000 | 25800 | | **165000** | | 21900 | | 13200 | |
| Lead | mg/kg | 800 | 31.2 | 800 | 635 | B | **5060** | **B** | 62.7 | B | 588 | B |
| Magnesium | mg/kg | -- | 7,030 | -- | 16300 | | 7770 | | 5120 | | 12700 | |
| Manganese | mg/kg | 19,000 | 1,200 | 19,000 | 265 | B | 816 | B | 289 | B | 203 | B |
| Mercury | mg/kg | 310 | 0.05 | 310 | 0.0441 | | 0.0518 | | 0.0917 | | 0.0781 | |
| Nickel | mg/kg | 20,000 | 35.5 | 20,000 | 31.1 | | 129 | | 20.3 | | 17.9 | |
| Potassium | mg/kg | -- | 1,640 | -- | 973 | | 451 | | 631 | | 721 | |
| Selenium | mg/kg | 5,100 | 870 | 5,100 | 11.9 | B, J | 9.40 | B, RL3, J | 8.84 | B, J | 17.4 | B, J |
| Silver | mg/kg | 5,100 | 0.72 | 5,100 | 0.380 | J | 1.60 | | 0.179 | J | 0.139 | J |
| Sodium | mg/kg | -- | -- | -- | 757 | B | 386 | B, RL3, J | 187 | B, J | 413 | B |
| Thallium | mg/kg | 67 | 1.2 | 67 | 0.637 | J | 0.150 | J | 0.514 | J | 0.272 | J |
| Vanadium | mg/kg | 1,000 | 42.7 | 1,000 | 18.4 | | 13.7 | RL3, J | 20.8 | | 16.3 | |
| Zinc | mg/kg | 100,000 | 110 | 100,000 | 693 | | 6150 | | 114 | | 797 | |
| **Inorganics** | | | | | | | | | | | | |
| Cyanide | mg/kg | 12,000 | -- | 12,000 | 0.369 | | 0.609 | | 0.731 | | 1.47 | |

-- = Not Available.
Bold and shaded = exceeds RFI Screening Value.

**Table 4.4.11**
**Franklin Steel Company, Inc.**
**Blacklick, Ohio**
**Area of Concern K Analytical Soil Results**

| Parameter | Units | U.S. EPA Region 9 Direct Contact Industrial Soil | Maximum Background Concentration | RFI Screening Value | K-GP-1 (0-1') 10/16/06 | K-GP-2 (0-1') 10/16/06 | K-GP-3 (0-1') 10/16/06 | K-GP-3A (2-4') 10/16/06 | K-GP-4 (0-1') 10/16/06 |
|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | |
| Aluminum | mg/kg | 100,000 | 14,900 | 100,000 | 7100 M | 15000 | 12600 | 7910 B | 9540 |
| Antimony | mg/kg | 410 | -- | 410 | < 0.0525 M | < 0.0582 | < 0.0546 | < 0.0568 | < 0.0542 |
| Arsenic | mg/kg | 1.6 | 28.54 | 28.54 | 16.7 | 13.1 | 12.9 | 19.7 | 14.2 |
| Barium | mg/kg | 67,000 | 252.12 | 67,000 | 161 M | 57.3 | 77.8 | 127 | 231 |
| Beryllium | mg/kg | 1,900 | 1.1 | 1,900 | 0.951 | 0.561 J | 0.440 J | 0.598 J | 0.694 J |
| Cadmium | mg/kg | 450 | 1.7 | 450 | 0.517 J | 0.167 J | 0.329 J | 1.14 J | 0.535 J |
| Calcium | mg/kg | -- | 16,000 | -- | 7850 M | 1800 | 1910 | 2630 | 3820 |
| Chromium | mg/kg | 450 | 20.6 | 450 | 11.3 | 16.7 | 15.9 | 13.0 | 12.9 |
| Cobalt | mg/kg | 1,900 | 14.8 | 1,900 | 19.1 | 4.94 | 7.27 | 22.5 | 8.02 |
| Copper | mg/kg | 41,000 | 30.4 | 41,000 | 15.2 | 19.5 | 16.4 | 33.1 | 36.0 |
| Iron | mg/kg | 100,000 | 28,800 | 100,000 | 22100 M | 27700 | 27700 | 29600 | 33100 |
| Lead | mg/kg | 800 | 31.2 | 800 | 28.8 M | 13.0 B, J | 19.1 B | 15.1 B, J | 49.3 B |
| Magnesium | mg/kg | -- | 7,030 | -- | 3170 M | 2290 | 2500 | 3130 | 3570 |
| Manganese | mg/kg | 19,000 | 1,200 | 19,000 | 2720 M | 168 | 274 | 913 | 181 |
| Mercury | mg/kg | 310 | 0.05 | 310 | 0.0220 | 0.0218 | 0.0180 | 0.0289 | 0.0328 |
| Nickel | mg/kg | 20,000 | 35.5 | 20,000 | 16.4 | 14.1 | 15.1 | 63.0 | 31.7 |
| Potassium | mg/kg | -- | 1,640 | -- | 486 M | 615 | 566 | 1030 | 762 |
| Selenium | mg/kg | 5,100 | 870 | 5,100 | 4.80 J | 2.94 J | < 2.47 | < 2.56 | < 2.49 |
| Silver | mg/kg | 5,100 | 0.72 | 5,100 | 0.144 J | 0.132 J | 0.0832 J | 0.103 J | 0.158 J |
| Sodium | mg/kg | -- | -- | -- | 66.1 J | 134 J | 41.2 J | < 8.31 | < 8.09 |
| Thallium | mg/kg | 67 | 1.2 | 67 | 0.368 J | 0.437 J | 0.306 J | 0.802 J | 0.730 J |
| Vanadium | mg/kg | 1,000 | 42.7 | 1,000 | 27.1 | 30.1 | 29.2 | 25.5 | 19.9 |
| Zinc | mg/kg | 100,000 | 110 | 100,000 | 56.2 M | 51.2 | 48.3 | 107 | 83.3 |
| **Volatile Organic Compounds** | | | | | | | | | |
| Methylene Chloride | mg/kg | 21 | -- | 21 | 0.00688 J | 0.0100 J | 0.00754 J | 0.00370 J | 0.00735 M,J |
| **Semi Volatile Organic Compounds** | | | | | | | | | |
| Benzo (b) fluoranthene | mg/kg | 2.1 | -- | 2.1 | 0.0592 M,J | < 0.0232 | < 0.0226 | < 0.0231 | < 0.0231 |
| Benzo (g,h,i) perylene | mg/kg | -- | -- | -- | 0.0376 M,J | < 0.0192 | < 0.0186 | < 0.0191 | < 0.0191 |
| Benzo (a) pyrene | mg/kg | 0.21 | -- | 0.21 | 0.0363 M,J | < 0.0186 | < 0.0181 | < 0.0185 | < 0.0185 |
| Bis(2-ethylhexyl)phthalate | mg/kg | 120 | -- | 120 | 0.186 M,J | < 0.0728 | < 0.0707 | < 0.0724 | < 0.0724 |
| Chrysene | mg/kg | 210 | -- | 210 | 0.0343 M,J | < 0.0168 | < 0.0164 | < 0.0168 | < 0.0168 |
| Di-n-butyl phthalate | mg/kg | 62,000 | 0.063 | 62,000 | 0.0513 M,J | < 0.0512 | 0.217 J | < 0.0509 | < 0.0509 |
| 4,6-Dinitro-2-methylphenol | mg/kg | 62 | -- | 62 | < 0.0353 M | < 0.0376 | 0.310 J | < 0.0374 | < 0.0374 |
| Fluoranthene | mg/kg | 22,000 | -- | 22,000 | 0.0510 M,J | 0.0278 J | < 0.0177 | < 0.0181 | < 0.0181 |
| Fluorene | mg/kg | 26,000 | -- | 26,000 | < 0.0178 M | < 0.0189 | 0.0399 J | < 0.0188 | < 0.0188 |
| 2-Methylnaphthalene | mg/kg | -- | -- | -- | 0.110 M,J | < 0.0668 | < 0.0649 | < 0.0664 | < 0.0664 |
| Naphthalene | mg/kg | 190 | -- | 190 | 0.0340 M,J | < 0.0167 | < 0.0163 | < 0.0166 | < 0.0167 |
| Phenanthrene | mg/kg | -- | -- | -- | 0.0565 M,J | 0.0265 J | < 0.0150 | < 0.0153 | < 0.0153 |
| Pyrene | mg/kg | 29,000 | -- | 29,000 | 0.0477 M,J | 0.0223 J | < 0.0196 | < 0.0200 | < 0.0201 |

-- = Not Available.
Bold and shaded = exceeds RFI Screening Value.

**Table 4.4.12**
**Franklin Steel Company, Inc.**
**Blacklick, Ohio**
**Area of Concern L Analytical Sediment Results**

| Parameter | CAS # | Units | U.S. EPA, Region 5, RCRA, Ecological Screening Values for Sediment (8/22/2003) | Maximum Background Concentration | RFI Screening Value | L-HA-8 (0-1') 10/18/06 | | L-HA-9 (0-1') 10/18/06 | |
|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | -- | 16,400 | -- | 8940 | | 5810 | |
| Antimony | 7440-36-0 | mg/kg | -- | -- | -- | 0.103 | J | < 0.0601 | |
| Arsenic | 7440-38-2 | mg/kg | 9.790 | 21.2 | 21.2 | 7.74 | | 16.1 | |
| Barium | 7440-39-3 | mg/kg | -- | 171 | -- | 280 | | 124 | |
| Beryllium | 7440-41-7 | mg/kg | -- | 0.704 | -- | 0.755 | J | 0.456 | J |
| Cadmium | 7440-43-9 | mg/kg | 0.990 | 2.3 | 2.3 | **3.06** | **J** | 1.16 | J |
| Calcium | 7440-70-2 | mg/kg | -- | 28,800 | -- | 31200 | | 33700 | |
| Chromium | 7440-47-3 | mg/kg | 43.4 | 23.7 | 43.4 | 28.4 | B | 11.0 | B |
| Cobalt | 7440-48-4 | mg/kg | 50.0 | 13 | 50.0 | 8.51 | | 10.7 | |
| Copper | 7440-50-8 | mg/kg | 31.6 | 33.8 | 33.8 | **46.4** | **B** | 28.6 | B |
| Iron | 7439-89-6 | mg/kg | -- | 29,300 | -- | 21100 | | 24100 | |
| Lead | 7439-92-1 | mg/kg | 35.8 | 34.2 | 35.8 | **102** | **B** | 19.5 | B |
| Magnesium | 7439-95-4 | mg/kg | -- | 6,510 | -- | 9700 | | 10700 | |
| Manganese | 7439-96-5 | mg/kg | -- | 545 | -- | 342 | B | 478 | B |
| Mercury | 7439-97-6 | mg/kg | 0.174 | 0.0838 | 0.174 | 0.137 | | 0.0319 | |
| Nickel | 7440-02-0 | mg/kg | 22.7 | 42.2 | 42.2 | 28.6 | | 34.8 | |
| Potassium | 7440-09-7 | mg/kg | -- | 3,350 | -- | 875 | | 810 | |
| Selenium | 7782-49-2 | mg/kg | -- | 1.3 | -- | 15.7 | B, J | 14.5 | B, J |
| Silver | 7440-22-4 | mg/kg | 0.5 | 0.19 | 0.5 | 0.293 | J | 0.177 | J |
| Sodium | 7440-23-5 | mg/kg | -- | 333 | -- | 135 | B, J | 110 | B, J |
| Thallium | 7440-28-0 | mg/kg | -- | 0.463 | -- | 0.469 | J | 0.773 | J |
| Vanadium | 7440-62-2 | mg/kg | -- | 78.8 | -- | 22.3 | | 19.8 | |
| Zinc | 7440-66-6 | mg/kg | 121 | 138 | 138 | **301** | | 101 | |
| **Inorganics** | | | | | | | | | |
| Cyanide | 57-12-5 | mg/kg | -- | 0.209 | -- | 0.818 | | < 0.147 | |
| **Semi Volatile Organic Compounds** | | | | | | | | | |
| Anthracene | 120-12-7 | mg/kg | 0.0572 | -- | 0.0572 | 0.0431 | J | < 0.0154 | |
| Benzo (a) anthracene | 56-55-3 | mg/kg | 0.108 | -- | 0.108 | **0.328** | **J** | < 0.0189 | |
| Benzo (b) fluoranthene | 205-99-2 | mg/kg | 10.4 | 0.038 | 10.4 | 0.921 | I | < 0.0239 | |
| Benzo (g,h,i) perylene | 191-24-2 | mg/kg | 0.170 | -- | 0.170 | **0.201** | **I, J** | < 0.0197 | |
| Benzo (k) fluoranthene | 207-08-9 | mg/kg | 0.240 | -- | 0.240 | **0.338** | **I, J** | < 0.0207 | |
| Benzo (a) pyrene | 50-32-8 | mg/kg | 0.150 | -- | 0.150 | **0.493** | **I** | < 0.0191 | |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | -- | 0.110 | -- | 0.680 | | < 0.0748 | |
| Butyl benzyl phthalate | 85-68-7 | mg/kg | 1.970 | -- | 1.970 | 0.169 | J | < 0.0538 | |
| Chrysene | 218-01-9 | mg/kg | 0.166 | -- | 0.166 | **0.471** | **J** | < 0.0173 | |
| Dibenz (a,h) anthracene | 53-70-3 | mg/kg | 0.033 | -- | 0.033 | **0.0680** | **I, J** | < 0.0218 | |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | -- | -- | -- | 0.0809 | J | 0.0562 | J |
| Fluoranthene | 206-44-0 | mg/kg | 0.423 | 0.055 | 0.423 | **0.790** | | < 0.0187 | |
| Indeno (1,2,3-cd) pyrene | 193-39-5 | mg/kg | 0.200 | -- | 0.200 | 0.192 | I, J | < 0.0203 | |
| Naphthalene | 91-20-3 | mg/kg | 0.176 | -- | 0.176 | 0.0356 | J | < 0.0172 | |
| Phenanthrene | 85-01-8 | mg/kg | 0.20 | -- | 0.20 | **0.307** | **J** | < 0.0158 | |
| Phenol | 108-95-2 | mg/kg | 0.0491 | -- | 0.0491 | **0.0507** | **J** | < 0.0367 | |
| Pyrene | 129-00-0 | mg/kg | 0.195 | 0.040 | 0.195 | **1.07** | | < 0.0207 | |

-- = Not Available.
Bold and shaded = exceeds RFI Screening Value.

## Table 4.5 Groundwater Sampling Detectable Analytical Results form the Franklin Steel RFI

| S101<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | S101-MW01<br>197S101GW01<br>05/08/1997 | S101-MW01<br>297S101GW01<br>07/30/1997 | S101-MW01<br>397S101GW01<br>10/28/1997 | S101-MW01<br>497S101GW01<br>01/07/1998 | S101-MW01<br>198S101GW01<br>03/25/1998 | S101-MW01<br>298S101MW01<br>06/30/1998 | S101-MW01<br>S101-MW01<br>10/01/1998 | S101-MW01<br>S101MW01-1<br>03/12/1999 | S101-MW01<br>S101MW01-2<br>06/04/1999 | S101-MW01<br>S101MW01-3<br>09/02/1999 | S101-MW01<br>S101MW01-10<br>03/22/2000 | S101-MW01<br>S101MW01-20<br>06/09/2000 | S101-MW01<br>S101-MW01-30<br>10/26/2000 | S101-MW01<br>S101MW01-41<br>04/04/2001 | S101-MW01<br>S101MW01-1001<br>10/09/2001 | S101-MW01<br>S101MW01-13<br>01/16/2003 | S101-MW01<br>S101MW01-14<br>12/23/2003 | Duplicate<br>S300-MW01<br>S300MW01-14<br>12/23/2003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/L) | 47.9 | 0.2 (S) | | **9.00** | **22.80** | **9.20** | **12.50** | **101.00** | **84.50** | **54.70** | **58.60** | **50.60** | **14.10** | **7.8 J** | **23.4** | **6.9** | **11.8** | **26.4** | **17.1** | **15.2** |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | | 0.0030 B | | 0.0041 B | 0.0047 B | | 0.0038 B |
| Arsenic (mg/L) | 0.1 | 0.01 | **0.037 J** | **0.033 J** | **0.052** | **0.032** | **0.040** | **0.22** | **0.200** | **0.170** | **0.110** | **0.091** | **0.044** | **0.023** | **0.051** | **0.025** | **0.022** | **0.035** | **0.02** | **0.021** |
| Barium (mg/L) | 1 | 2 | 0.54 | 0.36 | 0.52 | 0.29 | 0.34 | **2.40** | **2.10** | 1.60 | 1.30 | 1.10 | 0.42 | 0.31 | 0.53 | 0.27 | 0.25 | 0.49 | 0.28 J | 0.27 J |
| Beryllium (mg/L) | 0.003 | 0.004 | | | | | | 0.00510 | 0.00440 | 0.00410 B | 0.00260 B | | | | 0.00082 B | | | 0.0013 B | 0.0005 B | 0.00055 B |
| Cadmium (mg/L) | 0.01 | 0.005 | | | | | | **0.01500** | **0.01100** | 0.00650 | 0.00550 | 0.00470 B | | 0.0031 B | 0.0020 B | 0.0034 B | 0.0027 B | 0.0036 B | 0.0035 B | 0.0033 B |
| Calcium (mg/L) | 657 | -- | 156.00 | 135.00 | 153.00 | 135.00 | 152.00 | 668.00 | 520.00 | 430.00 | 317.00 | 349.00 | 175.00 | 188 | 166 | 144 | 122 | 146 J | 112 J | 99.3 J |
| Chromium (mg/L) | 0.39 | 0.1 | 0.656 J | 0.02200 | 0.051 | 0.02100 | 0.02900 | **0.23** | **0.22** | **0.150** | **0.130** | **0.110** | 0.02990 | 0.019 | 0.044 | 0.013 | 0.021 | 0.049 | 0.03 | 0.028 |
| Cobalt (mg/L) | 0.055 | -- | | 0.01300 | 0.02500 B | 0.01100 B | | 0.140 | 0.130 | 0.079 | 0.062 | 0.053 | 0.01200 B | | 0.015 B | 0.0069 B | 0.0099 B | 0.023 B | 0.012 B | 0.012 B |
| Copper (mg/L) | 0.62 | 1.3 | 0.062 | 0.02900 | 0.067 | 0.048 | 0.033 | 0.39 | 0.33 | 0.21 | 0.170 | 0.120 | 0.035 | 0.030 | 0.042 | 0.026 | 0.031 | 0.062 | 0.036 | 0.034 |
| Cyanide (mg/L) | 0.007 | 0.2 | | | | | | | | | | | | | | | | | | |
| Iron (mg/L) | 152 | 0.3 (S) | **56.50** | **28.30** | **53.60** | **21.50** | **32.50** | **290.00** | **287.00** | **183.00** | **149.00** | **122.00** | **33.80** | **18.0 J** | **43.4** | **15.3** | **23.1** | **51.5** | **27.5** | **26.1** |
| Lead (mg/L) | 0.077 | 0.015 | **0.056** | **0.02900 J** | **0.052** | **0.02200** | **0.037** | **0.32** | **0.31** | **0.23** | **0.170** | **0.130** | **0.031** | **0.017** | **0.051** | **0.020** | **0.031** | **0.066** | **0.036** | **0.033** |
| Magnesium (mg/L) | 118 | -- | 60.90 | 45.50 J | 53.50 | 46.00 | 49.60 | 190.00 | 166.00 | 132.00 | 108.00 | 90.60 | 60.80 | 57.8 | 60.3 | 50.8 | 44.0 | 52.9 J | 40 J | 37.4 J |
| Manganese (mg/L) | 4.2 | 0.05 (S) | **1.10** | **0.74** | **0.96** | **0.58** | **0.85** | **6.20** | **5.50** | **3.40** | **2.80** | **2.80** | **0.64** | **0.64** | **0.71** | **0.42** | **0.52** | **0.99 J** | **0.45** | **0.42** |
| Mercury (mg/L) | 0.00021 | 0.002 | | 0.000055 | | | | 0.00026 | 0.00027 | 0.00022 | 0.00015 B | | | | | | | | | |
| Nickel (mg/L) | 0.38 | 0.1 (OH) | 0.089 | 0.047 | 0.094 | 0.044 | 0.046 | **0.49 J** | **0.39** | **0.24** | **0.190** | **0.160** | 0.042 | 0.031 B | 0.060 | 0.028 B | 0.031 B | 0.073 | 0.039 B | 0.038 B |
| Potassium (mg/L) | 17.2 | -- | 13.40 | 6.10 | 11.60 | 6.10 | 6.30 | 28.80 J | 24.80 | 17.10 | 19.50 | 17.70 | 7.60 | 6.0 J | 11.9 | 4.8 B | 6.7 | 11.2 J | 7.8 J | 7 J |
| Selenium (mg/L) | 0.012 | 0.05 | | 0.00200 J | | | | 0.00670 | 0.00910 | 0.00900 | 0.00520 | 0.00490 B | | | 0.0071 | | | | | |
| Silver (mg/L) | 0.005 | 0.1 (S) | | | | | | | | | | | | | | | | | | |
| Sodium (mg/L) | 128 | -- | 90.80 | 159.00 | 143.00 | 95.10 | 53.10 | 107.00 | 117.00 | 56.50 | 101.00 | 100.00 | 137.00 | 143 | 173 | 147 | 98.2 | 78.5 | 58.2 J | 50.8 |
| Thallium (mg/L) | 0.0069 | 0.002 | | **0.00260 J** | **0.00370** | 0.00120 B | 0.00160 | **0.01300 J** | **0.00480 J** | **0.00860** | **0.00660 J** | **0.00450 J** | | | **0.0030 J** | | 0.0018 J | **0.0025** | 0.00096 B | 0.0018 |
| Vanadium (mg/L) | 0.4 | -- | 0.120 | 0.032 | 0.092 | 0.034 B | 0.043 | 0.31 | 0.29 | 0.190 | 0.200 | 0.180 | 0.051 | 0.023 B | 0.083 | 0.024 B | 0.040 B | 0.089 | 0.056 | 0.052 |
| Zinc (mg/L) | 0.6 | 5 (S) | 0.29 J | 0.140 | 0.30 | 0.160 J | 0.190 | 1.50 | 1.40 | 1.00 | 0.72 | 0.56 | 0.140 | 0.16 J | 0.20 | 0.10 | 0.14 | 0.28 | 0.18 | 0.18 |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L) | 2.9 | 0.2 (S) | | 0.130 | 0.130 B | | | 0.083 | 0.083 | **0.59** | | | | **2.4** | | | 0.030 B | | | |
| Antimony Filtered (mg/l) | 0.03 | 0.006 | | | | | | | | | | | | | 0.0039 B | | 0.0030 B | 0.0049 B | 0.0033 B | |
| Arsenic (Filtered) (mg/L) | 0.008 | 0.01 | 0.00940 | **0.01600 J** | **0.01800** | **0.01200** | 0.00660 | **0.01700** | **0.02000** | 0.00920 B | **0.01700** | **0.01900** | 0.00950 B | **0.012** | **0.016** | **0.014** | **0.014** | 0.0089 B | 0.007 B | 0.0094 B |
| Barium (Filtered) (mg/L) | 0.54 | 2 | 0.150 | 0.21 | 0.21 | 0.160 B | 0.110 | 0.21 | 0.190 | 0.140 B | 0.190 B | 0.23 | | 0.67 | 0.61 | 0.18 B | 0.13 B | 0.11 B | 0.11 B J | 0.12 B J |
| Beryllium (Filtered) (mg/L) | 0.25 | 0.004 | | | | | | | | | | | **0.22** | | | | | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | | | | | | | | | | 0.00043 B |
| Calcium (Filtered) (mg/L) | 715 | -- | 98.30 | 109.00 | 104.00 | 107.00 | 84.30 | 98.20 | 94.80 | 102.00 | 115.00 | 116.00 J | 135.00 | 153 | 131 | 130 | 103 | 95.3 J | 100 J | 106 J |
| Cobalt (Filtered) (mg/L) | 0.027 | -- | | | | | | | | | | | | | | 0.0015 B | 0.0015 B | | | 0.0017 B |
| Copper (Filtered) (mg/L) | 0.018 | 1.3 | | | | | | | 0.00330 | | | | | | | | | | | |
| Iron (Filtered) (mg/L) | 16.4 | 0.3 (S) | **1.90** | **2.20** | **1.60** | **2.00** | **1.30** | **1.30** | **1.50** | **1.60** | **2.10** | **2.00** | **3.10** | **2.8** | **3.4** | **2.9** | **2.8** | **2.6** | **2.5 J** | **2.6 J** |
| Lead (Filtered) (mg/L) | 0.0042 | 0.015 | 0.00200 | | | | | | | | | | | | | | | | | |
| Magnesium (Filtered) (mg/L) | 117 | -- | 35.30 | 34.70 J | 34.00 | 34.90 | 27.00 | 33.70 | 28.90 | 31.60 | 37.00 | 36.10 | 44.30 | 46.1 | 44.0 | 45.0 | 35.9 | 32.7 J | 34.1 J | 37.6 J |
| Manganese (Filtered) (mg/L) | 3.3 | 0.05 (S) | **0.25** | **0.27** | **0.24** | **0.22** | **0.190** | **0.28** | **0.24** | **0.180** | **0.24** | **0.26** | **0.21** | **0.21** | **0.22** | **0.21** | **0.20** | **0.15 J** | **0.14** | **0.16** |
| Mercury (Filtered) (mg/L) | 0.00023 | 0.002 | | 0.000032 | | | | | | | | | | | | | | | | |
| Nickel (Filtered) (mg/L) | 0.28 | 0.1 (OH) | | 0.01800 | 0.02000 B | 0.01500 B | | | 0.02000 | | | 0.01500 B | 0.01100 B | 0.013 B | | 0.012 B | 0.0065 B | 0.0059 B | 0.0072 B | 0.0079 B |
| Potassium (Filtered) (mg/L) | 6.9 | -- | 1.60 | 2.30 | 2.60 B | 1.90 B | 1.20 | 1.90 J | 1.90 | 1.30 B | 1.70 B | 2.40 B | 2.10 B | 2.9 B | 2.7 B | 1.9 B | 2.2 B | 1.7 B J | 1.6 B J | 1.7 B J |
| Sodium (Filtered) (mg/L) | 122 | -- | 99.30 | 164.00 | 149.00 | 96.50 | 47.80 | 111.00 | 116.00 | 36.10 | 107.00 | 117.00 | 131.00 | 162 | 183 | 142 | 100 | 70.2 | 70.1 J | 80.6 |
| Thallium (Filtered) (mg/L) | 0.0013 | 0.002 | | | | | | 0.00130 | | | | | | | | | | | 0.000097 B | 0.00011 B |
| Zinc (Filtered) (mg/L) | 0.16 | 5 (S) | | 0.035 | 0.01700 B | 0.01800 J | 0.01500 | | 0.040 | | | | | 0.14 | 0.11 | | | | | |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | | |
| No Semivolatiles | -- | -- | | | | | | | | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | | |
| Acetone (ug/L) | -- | -- | | | | | | | | | | | | 2.0 J | | | | | | |
| Carbon disulfide (ug/L) | 0.26 | -- | | | | | 0.130 J | 0.35 J | | | 0.140 J | | | | | | | | | |
| Chloroethane (ug/L) | 2.5 | -- | | | 0.52 J | | 0.39 J | 0.34 J | 0.38 J | | | | | | | | | | | |
| Methylene chloride (ug/L) | -- | 5 | | | | | 0.46 J | | | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006).
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

# Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S105<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | S105-MW01<br>198S105GW01<br>03/26/1998 | S105-MW01<br>298S105MW01<br>07/02/1998 | S105-MW01<br>S105-MW01<br>10/01/1998 | Duplicate<br>S105-MW01<br>S105MW02-4<br>12/17/1998 | S105-MW01<br>S105MW01-1<br>03/12/1999 | S105-MW01<br>S105MW01-2<br>06/03/1999 | S105-MW01<br>S105MW01-3<br>09/02/1999 | S105-MW01<br>S105MW01-10<br>03/22/2000 | S105-MW01<br>S105MW01-20<br>06/09/2000 | S105MW01<br>S105MW01<br>10/27/2000 | S105-MW01<br>S105MW01-41<br>04/04/2001 | S105-MW01<br>S105-MW01-1001<br>10/10/2001 | S105-MW01<br>S105MW01-13<br>01/16/2003 | S105-MW01<br>S105-MW01-14<br>12/23/2003 | S105-MW01<br>S105-MW01<br>11/11/2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | |
| Aluminum (mg/L ) | 47.9 | 0.2 (S) | **79.80** | **34.10 J** | **77.30** | **2.20 J** | **48.20** | **33.60** | **37.50** | **12.20** | **5.1 J** | **12.6** | **4.9** | **11.7** | **16.5** | **28.1** | **14.7** |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | | | | 0.0029 B | | | 0.0038 B | 0.0042 B | |
| Arsenic (mg/L ) | 0.1 | 0.01 | 0.190 | 0.065 | 0.170 | 0.01500 | 0.110 | 0.060 | 0.064 | 0.02400 | 0.017 | 0.026 | 0.019 | 0.024 | 0.033 | 0.051 | 0.027 |
| Barium (mg/L ) | 1 | 2 | 0.96 | 0.45 | 1.00 | 0.50 | 0.66 | 0.46 | 0.44 | 0.25 | 0.26 | 0.26 | 0.22 | 0.25 | 0.30 | 0.56 J | 0.25 |
| Beryllium (mg/L ) | 0.003 | 0.004 | 0.00570 | | 0.00420 | | 0.00370 B | 0.00210 B | 0.00160 B | | | 0.00065 B | | 0.00055 B | 0.00071 B | 0.0011 B | 0.00068 B |
| Cadmium (mg/L ) | 0.01 | 0.005 | 0.01500 | 0.00510 | 0.01200 | 0.00550 | 0.00750 | 0.00460 B | 0.00460 B | | | 0.0012 B | 0.0047 B | 0.0016 B | 0.0032 B | 0.47 | 0.029 |
| Calcium (mg/L ) | 657 | -- | 499.00 | 250.00 | 695.00 | 379.00 | 389.00 | 276.00 | 257.00 | 138.00 | 172 | 126 | 124 | 137 | 165 J | 191 J | 131 |
| Chromium (mg/L ) | 0.39 | 0.1 | 0.150 | 0.059 | 0.140 | | 0.083 | 0.052 | 0.059 | 0.01800 | 0.011 | 0.019 | | 0.017 | 0.023 | 0.053 | 0.021 |
| Cobalt (mg/L ) | 0.055 | -- | 0.100 | 0.039 | 0.100 | | 0.055 | 0.031 B | 0.035 B | 0.01200 B | | 0.014 B | 0.011 B | 0.012 B | 0.017 B | 0.037 B | 0.016 B |
| Copper (mg/L ) | 0.62 | 1.3 | 0.56 | 0.21 | 0.45 | 0.02100 B | 0.26 | 0.140 | 0.140 | 0.042 | 0.033 | 0.039 | 0.020 B | 0.042 | 0.063 | 0.13 | 0.047 J |
| Cyanide (mg/L ) | 0.007 | 0.2 | | | | | 0.00800 B | | | | | | | | | | |
| Iron (mg/L ) | 152 | 0.3 (S) | **279.00** | **89.80** | **254.00 L** | **7.10** | **146.00** | **83.70** | **95.00** | **26.80** | **11.1 J** | **29.7** | **13.2** | **25.6** | **34.6** | **74.5** | **31.9** |
| Lead (mg/L ) | 0.077 | 0.015 | 0.25 | 0.096 | 0.23 | 0.02800 | 0.140 | 0.067 | 0.074 | 0.02100 | 0.019 | 0.024 | 0.014 | 0.020 | 0.033 | 0.12 | 0.025 |
| Magnesium (mg/L ) | 118 | -- | 121.00 | 64.00 | 144.00 | 55.70 | 105.00 | 64.10 | 69.50 | 39.30 | 45.6 | 39.7 | 35.9 | 40.5 | 47.2 J | 56.6 J | 40.9 |
| Manganese (mg/L ) | 4.2 | 0.05 (S) | **4.00** | **1.60** | **4.80 L** | **2.10** | **2.30** | **1.80** | **1.70** | **0.80** | **0.91** | **0.92** | **0.94** | **0.82** | **1.1 J** | **1.5** | **0.88** |
| Mercury (mg/L ) | 0.00021 | 0.002 | 0.00044 | 0.00015 | 0.00028 | 0.00008 J | 0.00022 | 0.00023 | 0.000098 B | | | | | | | 0.000069 B | |
| Nickel (mg/L ) | 0.38 | 0.1 (OH) | 0.33 | 0.120 | 0.32 L | | 0.200 | 0.098 | 0.110 | 0.030 B | 0.018 B | 0.034 B | 0.013 B | 0.029 B | 0.045 | 0.091 | 0.035 B |
| Potassium (mg/L ) | 17.2 | -- | 18.90 | 11.20 J | 18.40 | 2.00 J | 12.30 | 10.60 | 11.30 | 5.10 | 2.6 J | 5.5 | 2.9 B | 5.2 | 6.7 J | 8.6 J | 6.1 |
| Selenium (mg/L ) | 0.012 | 0.05 | | | 0.00540 | | 0.00650 | 0.00710 | | | | | | | | | |
| Sodium (mg/L ) | 128 | -- | 10.00 | 7.70 J | 11.20 | 8.00 | 11.00 | 11.60 | 11.10 | 12.00 | 13.1 | 7.9 | 10.5 | 12.6 | 8.3 | 9 J | 8.1 |
| Thallium (mg/L ) | 0.0069 | 0.002 | 0.00920 | 0.00340 | 0.00630 | | 0.00690 | 0.00380 | 0.00280 J | | 0.00080 J | 0.0022 | | 0.0019 B | | 0.0027 | 0.0011 J |
| Vanadium (mg/L ) | 0.4 | -- | 0.34 | 0.150 | 0.34 | | 0.200 | 0.160 | 0.170 | 0.056 | 0.016 B | 0.054 | 0.021 B | 0.047 B | 0.073 | 0.11 | 0.058 |
| Zinc (mg/L ) | 0.6 | 5 (S) | 1.40 | 0.48 | 1.20 L | | 0.77 | 0.35 | 0.39 | 0.120 | 0.13 J | 0.13 | 0.097 | 0.12 | 0.17 | 0.61 | 0.15 |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L ) | 2.9 | 0.2 (S) | 0.150 | | | | | | | | 0.18 B | | | | | | |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | | 0.0024 B | | | | | |
| Arsenic (Filtered) (mg/L ) | 0.008 | 0.01 | 0.00830 | | 0.00710 | 0.01100 | 0.00750 B | 0.01000 | | 0.01100 | 0.011 | 0.012 | 0.014 | 0.012 | 0.015 | 0.011 | 0.013 |
| Barium (Filtered) (mg/L ) | 0.54 | 2 | 0.160 | 0.170 | 0.160 | 0.180 B | 0.150 B | 0.160 B | 0.180 B | | 0.60 | 0.48 | 0.19 B | 0.17 B | 0.18 B | 0.16 B J | 0.17 B |
| Beryllium (Filtered) (mg/L ) | 0.25 | 0.004 | | | | | | | | 0.160 B | | | | | | | |
| Calcium (Filtered) (mg/L ) | 715 | -- | 100.00 | 106.00 | 108.00 | 100.00 | 97.10 | 111.00 | 113.00 J | 112.00 | 114 | 101 | 117 | 108 | 108 J | 109 J | 108 |
| Cobalt (Filtered) (mg/l) | 0.027 | -- | | | | | | | | | | 0.0029 B | 0.0043 B | 0.0035 B | 0.0021 B | 0.0027 B | 0.0015 B |
| Copper (Filtered) (mg/L ) | 0.018 | 1.3 | 0.00470 | | | | | | | | | | | | | | |
| Iron (Filtered) (mg/L ) | 16.4 | 0.3 (S) | **1.40** | | **1.20** | **1.20** | **1.20** | **1.40** | **1.40** | **2.50** | **2.3** | **2.4** | **3.8** | **2.7** | **3.0** | **2.2 J** | **2.6** |
| Magnesium (Filtered) (mg/L ) | 117 | -- | 26.90 | 28.20 | 26.80 | 26.30 | 24.60 | 29.60 | 29.70 | 30.40 | 30.6 | 29.6 | 33.0 | 30.4 | 29.3 J | 28.9 J | 30.3 |
| Manganese (Filtered) (mg/L ) | 3.3 | 0.05 (S) | **0.52** | **0.38** | **0.52** | **0.43** | **0.27** | **0.40** | **0.42** | **0.50** | **0.55** | **0.57** | **0.68** | **0.57** | **0.47 J** | **0.57** | **0.45** |
| Mercury (Filtered) (mg/L ) | 0.00023 | 0.002 | 0.000095 | | | | | 0.00011 B | | | | | | | | | |
| Potassium (Filtered) (mg/L ) | 6.9 | -- | 1.60 | 1.70 J | 1.40 | 1.30 J | 1.20 B | 1.40 B | 1.40 B | 1.30 B | 1.1 B | 1.1 B | 1.4 B | 1.4 B | 1.5 B J | 1.5 B J | 1.5 B |
| Sodium (Filtered) (mg/L ) | 122 | -- | 8.20 | 7.00 J | 6.90 | 7.50 | 6.40 | 9.00 | 8.20 | 8.10 | 13.2 | 10.4 | 8.7 | 8.2 | 8.7 | 9.2 J | 8.9 |
| Thallium (Filtered) (mg/L) | 0.0013 | 0.002 | | | | | | | | | | | | | | 0.00006 B | |
| Zinc (Filtered) (mg/L ) | 0.16 | 5 (S) | 0.01400 | | 0.047 | | | | | | 0.13 | 0.12 | | | | | |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | |
| No Semivolatiles | -- | -- | | | | | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | | | | |
| 2-Butanone (ug/l) | -- | -- | | | | | | | | | | | | | | 0.63 J | |
| 4-Methyl-2-pentanone (ug/l) | -- | -- | | | | | | | | | | | | | | 2.2 J | |
| Acetone (ug/L ) | -- | -- | | | | | | 7.80 J | | | | | | | | | |
| Carbon disulfide (ug/L ) | 0.26 | -- | | | | | 0.33 J | | | | | | | | | | |
| Methylene chloride (ug/L ) | -- | 5 | | 6.70 | | | | | | | | 0.51 J B | | | | | |
| Toluene (ug/L ) | 0.25 | 1,000 | | | 0.28 J | | 0.22 J | | | | | | | | | | 0.48 J |
| Xylenes (total) (ug/L) | -- | 10,000 | | | | | | | | | | | | | | | 0.65 J |
| Styrene (ug/L) | -- | 100 | | | | | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006).
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S107 Station Sample Number Date Collected | Maximum Background Concentration | U.S. EPA MCL | S107-PZ01 197S107GW01 05/08/1997 | S107-PZ01 297S107GW01 07/30/1997 | S107-PZ01 397S107GW01 10/28/1997 | S107-PZ01 497S107GW01 01/07/1998 | S107-PZ01 198S107GW01 03/25/1998 | S107-PZ01 298S107PZ01 07/02/1998 | S107-PZ01 S107-PZ01 09/30/1998 | S107-PZ01 S107PZ01-1 03/12/1999 | S107-PZ01 S107PZ01-2 06/03/1999 | S107-PZ01 S107PZ01-3 09/01/1999 | S107-PZ01 S107PZ01-10 03/22/2000 | S107-PZ01 S107PZ01-20 06/08/2000 | S107-MW02 197S107GW02 05/07/1997 | S107-MW02 297S107GW02 07/29/1997 | S107-MW02 397S107GW02 10/28/1997 | S107-MW02 497S107GW02 01/07/1998 | S107-MW02 198S107GW02 03/25/1998 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/L) | 47.9 | 0.2 (S) | | 0.110 | **0.22** | 0.120 B | **0.39** | | 0.095 | 0.110 B | **1.00** | **0.24** | | **0.26** | **1.40 J** | **3.30** | **7.40** | **5.40** | **0.40** |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | | | | | | |
| Arsenic (mg/L) | 0.1 | 0.01 | | **0.01500 J** | **0.01100** | **0.01200** | **0.01400** | | **0.01300** | **0.01300** | **0.01600** | **0.01400** | **0.01600** | **0.013** | | 0.00480 | **0.01500** | 0.00980 B | |
| Barium (mg/L) | 1 | 2 | 0.26 | 0.32 | 0.27 | 0.31 | 0.32 | 0.32 | 0.35 | 0.35 | 0.34 | 0.33 | 0.35 | 0.35 | | 0.083 | 0.120 B | 0.100 B | 0.058 |
| Beryllium (mg/L) | 0.003 | 0.004 | | | | | | | | 0.00110 B | | | | | | | | | |
| Cadmium (mg/L) | 0.01 | 0.005 | | | | | | | | | | | | | | | | | |
| Calcium (mg/L) | 657 | -- | 101.00 | 108.00 | 99.50 | 104.00 | 113.00 | 115.00 | 111.00 | 106.00 | 110.00 | 124.00 J | 119.00 | 126 | 119.00 | 130.00 | 111.00 | 130.00 | 134.00 |
| Chromium (mg/L) | 0.39 | 0.1 | | | | | | | | | | | | | | 0.00570 | 0.01400 | | |
| Cobalt (mg/L) | 0.055 | -- | | | | | | | | | | | | | | 0.01400 | 0.01200 B | 0.01300 B | |
| Copper (mg/L) | 0.62 | 1.3 | | | | | | | | | | | | | | | 0.01200 B | 0.02000 B | 0.00440 |
| Iron (mg/L) | 152 | 0.3 (S) | **5.40** | **6.20** | **5.80** | **5.50** | **6.00** | **6.50** | **5.40** | **4.70** | **7.80** | **6.80** | **6.10** | **6.4** | **3.40** | **5.30** | **14.70** | **12.80** | **1.10** |
| Lead (mg/L) | 0.077 | 0.015 | | | | | | | | | | | | | 0.00360 | 0.00340 J | 0.00670 | 0.00890 | |
| Magnesium (mg/L) | 118 | -- | 48.00 | 45.60 J | 42.70 | 45.10 | 45.90 | 49.70 | 46.20 | 44.70 | 47.10 | 52.80 J | 52.40 | 53.4 | 37.90 | 40.20 | 32.60 | 40.40 | 39.60 |
| Manganese (mg/L) | 4.2 | 0.05 (S) | **0.073** | **0.058** | **0.059** | 0.047 | **0.051** | **0.056** | **0.052** | 0.035 | **0.096** | **0.084 J** | 0.046 | **0.059** | **0.45** | **0.71** | **0.63** | **0.57** | **0.086** |
| Mercury (mg/L) | 0.00021 | 0.002 | | | | | | | | | 0.00016 B | | | | | 0.000049 | | | |
| Nickel (mg/L) | 0.38 | 0.1 (OH) | | | | | | | | | | | | | | | 0.02700 B | 0.02900 B | |
| Potassium (mg/L) | 17.2 | -- | | 1.90 | 2.20 B | 2.00 B | 1.90 | 2.20 J | 1.90 | 1.80 B | 1.90 B | 1.80 J | 1.90 B | 2.2 B | | 3.00 | 4.70 B | 3.80 B | 1.90 |
| Selenium (mg/L) | 0.012 | 0.05 | | | | | | | | | | | | | | | | | |
| Sodium (mg/L) | 128 | -- | 10.80 | 13.10 | 12.70 | 11.30 | 11.40 | 11.00 J | 11.40 | 10.30 | 12.10 | 11.70 J | 12.10 | 13.2 | 33.10 | 52.20 | 26.90 | 31.70 | 53.50 |
| Thallium (mg/L) | 0.0069 | 0.002 | | | | | | | | | | | | 0.00080 J | | | 0.00140 B | 0.00110 B | |
| Vanadium (mg/L) | 0.4 | -- | | | | | | | | | | | | | | 0.01100 | 0.02800 B | 0.02200 B | |
| Zinc (mg/L) | 0.6 | 5 (S) | | 0.100 | 0.040 B | 0.01600 J | 0.200 | | | 0.02600 B | | 0.01200 J | | 0.022 | | 0.038 | 0.098 | 0.120 J | 0.041 |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L) | 2.9 | 0.2 (S) | | | | | | | | | | | | 0.10 B | | 0.078 | | | |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | | 0.00250 | | | | |
| Arsenic (Filtered) (mg/L) | 0.008 | 0.01 | 0.01000 | **0.01300 J** | **0.01200** | **0.01500** | **0.01500** | | **0.01100** | **0.01400** | **0.01600** | **0.01500** | **0.01500** | **0.012** | 0.044 | 0.052 | 0.047 B | 0.043 B | 0.054 |
| Barium (Filtered) (mg/L) | 0.54 | 2 | 0.28 | 0.37 | 0.32 | 0.34 | 0.35 | 0.34 | 0.35 | 0.37 | 0.40 | 0.35 | | 0.70 | | | | | |
| Beryllium (Filtered) (mg/L) | 0.25 | 0.004 | | | | | | | | | | | **0.36** | | | | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | | | | | | | | | |
| Calcium (Filtered) (mg/L) | 715 | -- | 103.00 | 120.00 | 113.00 | 108.00 | 116.00 | 119.00 | 106.00 | 110.00 | 126.00 | 122.00 J | 120.00 | 113 | 121.00 | 126.00 | 111.00 | 116.00 | 151.00 |
| Cobalt (Filtered) (mg/L) | 0.027 | -- | | | | | | | | | | | | | | 0.00600 | 0.00580 B | | |
| Copper (Filtered) (mg/L) | 0.018 | 1.3 | | | | | | | | | | | | | | | | | 0.044 |
| Iron (Filtered) (mg/L) | 16.4 | 0.3 (S) | **5.00** | **6.20** | **5.70** | **5.20** | **5.30** | **6.10** | **5.10** | **4.80** | **6.40** | **6.10 J** | **6.00** | **5.6** | | | | | |
| Lead (Filtered) (mg/L) | 0.0042 | 0.015 | | | | | | | | | | | | | | | | | |
| Magnesium (Filtered) (mg/L) | 117 | -- | 48.50 | 51.40 J | 48.40 | 47.20 | 47.30 | 50.90 | 44.50 | 46.20 | 55.10 | 51.90 | 53.30 | 50.0 | 38.70 | 39.30 | 31.10 | 34.00 | 44.60 |
| Manganese (Filtered) (mg/L) | 3.3 | 0.05 (S) | **0.065** | **0.057** | **0.055** | 0.044 | 0.042 | 0.050 | 0.047 | 0.038 | 0.031 | 0.046 | 0.040 | 0.047 | **0.24** | **0.36** | **0.24** | **0.130** | 0.039 |
| Mercury (Filtered) (mg/L) | 0.00023 | 0.002 | | 0.000026 | | | | | | | | | | | 0.000072 | 0.00005 | | | |
| Nickel (Filtered) (mg/L) | 0.28 | 0.1 (OH) | | | | | | | | | | | | | | | | | |
| Potassium (Filtered) (mg/L) | 6.9 | -- | 2.00 | 2.10 | 2.20 B | 2.10 B | 1.90 | 2.20 J | 1.80 | 1.80 B | 1.90 B | 1.80 B | 1.90 B | 1.8 B | 1.70 | 1.90 | 2.00 B | 1.80 B | 2.00 |
| Selenium (Filtered) (mg/L) | 0.005 | 0.05 | | | | | | | | | | | | | | | | 0.00380 B | |
| Sodium (Filtered) (mg/L) | 122 | -- | 10.90 | 12.90 | 12.70 | 11.00 | 11.80 | 11.10 J | 11.10 | 10.60 | 12.90 | 12.10 | 12.30 | 14.8 | 32.10 | 50.90 | 25.10 | 30.00 | 59.10 |
| Thallium (Filtered) (mg/L) | 0.0013 | 0.002 | | | | | | | | | | | | 0.13 | 0.034 | 0.02000 | 0.01900 B | 0.040 J | 0.043 |
| Zinc (Filtered) (mg/L) | 0.16 | 5 (S) | | | | | | | | | | | | | | | | | |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L) | 10 | 6 | 4.80 J | 1.50 J | | | | | 3.80 J | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | |
| Carbon disulfide (ug/L) | 0.26 | -- | | | | | | | | 0.26 J | | | | | | | | | |
| Methylene chloride (ug/L) | -- | 5 | | | | | | | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006).
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S107<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | S107-MW02<br>298S107MW02<br>06/29/1998 | Duplicate<br>S107-MW12<br>298S107MW12<br>06/29/1998 | S107-MW02<br>S107-MW02<br>09/30/1998 | Duplicate<br>S107-MW02<br>S107-MW02-6<br>09/30/1998 | S107-MW02<br>S107MW02-1<br>03/10/1999 | S107-MW02<br>S107MW02-2<br>06/03/1999 | S107-MW02<br>S107MW02-3<br>09/01/1999 | S107-MW02<br>S107MW02-10<br>03/21/2000 | S107-MW02<br>S107MW02-20<br>06/08/2000 | S107-MW02<br>S107-MW02-30<br>10/26/2000 | Duplicate<br>S107-MW02<br>S301-MW02-30<br>10/26/2000 | S107-MW02<br>S107MW02-41<br>04/03/2001 | S107-MW02<br>S107MW02-1001<br>10/09/2001 | S107-MW02<br>S107MW02-13<br>01/15/2003 | S107-MW02<br>S107MW02-14<br>12/24/2003 | S107-MW02<br>S107MW02<br>11/11/2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/L) | 47.9 | 0.2 (S) | **1.70** | **1.10** | **34.70** | **23.80** | **3.40** | **3.50** | | **0.61 J** | **17.0** | **3.9** | **1.9** | **17.3** | **3.6** | **14.1** | **9.5** | **0.83** |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | | 0.0031 B | | | |
| Arsenic (mg/L) | 0.1 | 0.01 | 0.00540 | 0.00600 | **0.096** | **0.080** | **0.01100** | 0.00720 B | | 0.00460 B | **0.044** | 0.0074 B | 0.0053 B | **0.045** | 0.0067 B | **0.049** | **0.028** | |
| Barium (mg/L) | 1 | 2 | 0.081 | 0.078 | 0.47 | 0.37 | 0.085 B | 0.076 B | 0.040 B | 0.056 B | 0.30 | 0.11 B | 0.094 B | 0.27 | 0.11 B | 0.20 | 0.17 B J | 0.077 B |
| Beryllium (mg/L) | 0.003 | 0.004 | | | 0.00250 | 0.00170 | 0.00074 B | | | | 0.0015 B | 0.00069 B | 0.00066 B | 0.0014 B | | 0.0013 B | | |
| Cadmium (mg/L) | 0.01 | 0.005 | | | | 0.00380 | | | | | | 0.0017 B | 0.0028 B | 0.0021 B | 0.00066 B | 0.0017 B J | 0.00055 B | 0.00034 B |
| Calcium (mg/L) | 657 | -- | 116.00 | 113.00 | 195.00 | 155.00 | 168.00 | 127.00 | 119.00 J | 248.00 | 153 | 155 | 156 | 180 | 142 | 193 J | 175 J | 193 |
| Chromium (mg/L) | 0.39 | 0.1 | | | 0.075 | 0.051 | 0.00810 B | | | | 0.030 | | | 0.028 | 0.0053 B | 0.024 | 0.016 | |
| Cobalt (mg/L) | 0.055 | -- | | | 0.055 | 0.046 | | | | | 0.017 B | 0.017 B | 0.016 B | 0.015 B | 0.0050 B | 0.019 B J | 0.018 B | 0.0046 B |
| Copper (mg/L) | 0.62 | 1.3 | 0.00990 | 0.00870 | 0.070 | 0.069 | 0.01100 B | | | 0.00770 B | 0.037 | 0.019 B | 0.018 B | 0.033 | 0.0093 B | 0.030 J | 0.017 B | |
| Iron (mg/L) | 152 | 0.3 (S) | **4.90** | **4.90** | **106.00** | **86.70** | **10.50** | **7.70** | | **2.80** | **44.4** | **12.6** | **8.7** | **43.0** | **7.5** | **48.5 J** | **31.1** | **3.1** |
| Lead (mg/L) | 0.077 | 0.015 | 0.00300 | 0.00310 | **0.045** | **0.038** | 0.00750 | | | 0.00300 | **0.022** | 0.013 | 0.014 | **0.016** | | **0.018** | 0.0096 | |
| Magnesium (mg/L) | 118 | -- | 35.00 | 33.90 | 60.40 | 50.00 | 51.90 | 39.30 | 35.70 J | 67.80 | 41.5 | 47.6 | 48.1 | 52.0 | 43.2 | 56.3 J | 54.7 J | 53.8 |
| Manganese (mg/L) | 4.2 | 0.05 (S) | **0.25** | **0.24** | **3.30** | **2.30** | **0.23** | **0.23** | **0.21 J** | **0.190** | **0.89** | **2.4** | **2.1** | **0.99** | **0.54** | **0.88 J** | **1.6** | **0.61** |
| Mercury (mg/L) | 0.00021 | 0.002 | | | 0.00010 | | | | | | | | | | | | | |
| Nickel (mg/L) | 0.38 | 0.1 (OH) | 0.01500 | 0.01600 | **0.150** | **0.130** | 0.01900 B | | | 0.02700 B | 0.067 | 0.049 | 0.046 | 0.058 | 0.022 B | 0.061 | 0.052 | 0.012 B |
| Potassium (mg/L) | 17.2 | -- | 2.10 J | 1.90 J | 12.60 | 9.10 | 3.00 B | 2.90 B | 1.90 J | 4.50 B | 7.6 | 3.9 B | 3.2 B | 7.5 | 3.7 B | 6.5 J | 5 J | 3.3 B |
| Selenium (mg/L) | 0.012 | 0.05 | | | 0.00560 | | 0.00580 | | | | 0.0050 | | | 0.0048 B | | | | |
| Sodium (mg/L) | 128 | -- | 28.20 J | 27.00 J | 26.90 | 26.50 | 67.30 | 50.50 | 44.40 J | 128.00 | 58.1 | 55.8 | 56.7 | 123 | 88.0 | 75.0 | 61.6 J | 70.6 |
| Thallium (mg/L) | 0.0069 | 0.002 | | | 0.00200 | **0.00210** | 0.00120 B | | | | 0.0016 J | **0.0069 J** | **0.0039 J** | | | | 0.00057 B | |
| Vanadium (mg/L) | 0.4 | -- | 0.00790 | | 0.150 | 0.100 | 0.01200 B | 0.01200 B | | | 0.065 | 0.012 B | 0.0067 B | 0.062 | 0.012 B | 0.052 | 0.03 B | 0.0025 B |
| Zinc (mg/L) | 0.6 | 5 (S) | 0.091 | 0.051 | | 0.43 | 0.079 | | | 0.074 | 0.31 | 0.14 | 0.13 | 0.21 | 0.061 | 0.19 | 0.13 | 0.021 |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L) | 2.9 | 0.2 (S) | | | | | | | **1.20** | | **0.38** | | | 0.047 B | | | | |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | | 0.0048 B | | | 0.0048 B | | | |
| Arsenic (Filtered) (mg/L) | 0.008 | 0.01 | | | | | | | 0.00460 B | | | | | | | | | |
| Barium (Filtered) (mg/L) | 0.54 | 2 | 0.050 | 0.054 | 0.041 | 0.046 | 0.032 B | 0.039 B | 0.089 B | | 0.50 | 0.42 | 0.12 B | 0.055 B | 0.072 B | 0.046 B | 0.056 B J | 0.058 B |
| Beryllium (Filtered) (mg/L) | 0.25 | 0.004 | | | | | | 0.00080 B | 0.00093 B | **0.046 B** | | | | | | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | | | | 0.00041 B | | | | |
| Calcium (Filtered) (mg/L) | 715 | -- | 114.00 | 122.00 | 94.10 | 100.00 | 176.00 | 140.00 | 178.00 J | 226.00 | 155 | 138 | 144 | 176 | 154 | 202 J | 196 J | 178 |
| Cobalt (Filtered) (mg/L) | 0.027 | -- | | | | | | | | | | | | | | | 0.0068 B | 0.0015 B |
| Copper (Filtered) (mg/L) | 0.018 | 1.3 | | | | | | | 0.01300 B | | | | | | | | | |
| Iron (Filtered) (mg/L) | 16.4 | 0.3 (S) | | | 0.075 | 0.075 | | | **3.10 J** | | **0.53** | **0.66** | | | | | **0.4 J** | 0.069 B |
| Lead (Filtered) (mg/L) | 0.0042 | 0.015 | | | | | | | 0.00420 | | | | | | | | | |
| Magnesium (Filtered) (mg/L) | 117 | -- | 34.30 | 36.60 | 27.50 | 29.20 | 53.70 | 42.20 | 58.90 | 60.70 | 39.0 | 40.9 | 42.9 | 47.4 | 46.4 | 55.2 J | 59.5 J | 49.3 |
| Manganese (Filtered) (mg/L) | 3.3 | 0.05 (S) | **0.084** | **0.086** | **0.30** | **0.26** | **0.056** | **0.150** | **0.65** | **0.082** | **0.28** | **0.12** | **0.12** | **0.28** | **0.27** | **0.34 J** | **1.1** | **0.26** |
| Mercury (Filtered) (mg/L) | 0.00023 | 0.002 | | | | | | 0.00013 B | | | | | | | | | | |
| Nickel (Filtered) (mg/L) | 0.28 | 0.1 (OH) | | | | | | | 0.02800 B | 0.01900 B | 0.013 B | | | 0.012 B | 0.0096 B | 0.0069 B | 0.02 B | 0.0079 B |
| Potassium (Filtered) (mg/L) | 6.9 | -- | 1.70 J | 1.80 J | 1.60 | 1.60 | 2.00 B | 1.90 B | 2.50 B | 4.10 B | 2.2 B | 2.5 B | 2.8 B | 2.1 B | 2.7 B | 2.5 B J | 2.4 B J | 2.8 B |
| Selenium (Filtered) (mg/L) | 0.005 | 0.05 | | | | | 0.00500 | | | | | | | | | | | |
| Sodium (Filtered) (mg/L) | 122 | -- | 27.00 J | 28.80 J | 22.20 | 22.90 | 65.70 | 55.30 | 46.90 | 120.00 | 63.2 | 58.5 | 56.2 | 122 | 93.3 | 83.5 | 70.6 J | 65.2 |
| Thallium (Filtered) (mg/L) | 0.0013 | 0.002 | | | | | 0.00110 J | | | | | | | | | | 0.0001 B | |
| Zinc (Filtered) (mg/L) | 0.16 | 5 (S) | | | | | | | 0.110 | 0.064 | 0.16 | 0.16 | 0.041 | | 0.015 B | | 0.013 B | |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L) | 10 | 6 | | | | | **18.00** | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | |
| Carbon disulfide (ug/L) | 0.26 | -- | | | | | | 0.180 J | | | | | | | | | | |
| Methylene chloride (ug/L) | -- | 5 | | | | | | | 0.140 J | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006).
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S108<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | S108-PZ01<br>197S108GW01<br>05/08/1997 | S108-PZ01<br>297S108GW01<br>07/30/1997 | S108-PZ01<br>397S108GW01<br>10/27/1997 | S108-PZ01<br>497S108GW01<br>01/07/1998 | S108-PZ01<br>198S108GW01<br>03/25/1998 | S108-PZ01<br>298S108PZ01<br>06/29/1998 | S108-PZ01<br>S108-PZ01<br>10/01/1998 | S108-PZ01<br>S108PZ01-1<br>03/09/1999 | S108-PZ01<br>S108PZ01-2<br>06/03/1999 | S108-PZ01<br>S108PZ01-3<br>09/01/1999 | S108-PZ01<br>S108PZ01-10<br>03/21/2000 | S108-PZ01<br>S108PZ01-20<br>06/08/2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | |
| Aluminum (mg/L) | 47.9 | 0.2 (S) | | **23.80** | **3.00** | **3.10** | **8.40** | **0.49** | **1.70** | **0.47** | **1.50** | **4.00** | **0.130 J** | **0.37** |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | 0.00440 | | | 0.00480 B | | |
| Arsenic (mg/L) | 0.1 | 0.01 | | 0.01000 J | 0.00600 B | 0.00469 B | **0.01100** | | | | | | | |
| Barium (mg/L) | 1 | 2 | | 0.44 | 0.190 B | 0.170 B | 0.31 | 0.190 | 0.160 | 0.150 B | 0.150 B | 0.170 B | 0.130 B | 0.092 B |
| Beryllium (mg/L) | 0.003 | 0.004 | | | | | | | | | | | | |
| Cadmium (mg/L) | 0.01 | 0.005 | | | | | | | | | | | | |
| Calcium (mg/L) | 657 | -- | 109.00 | 161.00 | 126.00 | 115.00 | 129.00 | 118.00 | 112.00 | 134.00 | 117.00 | 158.00 J | 248.00 | 213 |
| Chromium (mg/L) | 0.39 | 0.1 | | 0.037 | 0.00970 B | | 0.01500 | | | | | 0.00820 B | | |
| Cobalt (mg/L) | 0.055 | -- | | 0.01700 | | | | | | | | | | |
| Copper (mg/L) | 0.62 | 1.3 | | 0.042 | 0.00730 B | 0.02300 B | 0.02500 | 0.00910 | 0.01600 | 0.00320 B | | 0.02500 | | |
| Cyanide (mg/L) | 0.007 | 0.2 | | | | | | | | | | | | |
| Iron (mg/L) | 152 | 0.3 (S) | **5.20** | **44.50** | **9.50** | **7.50** | **22.50** | **4.70** | **6.90** | **3.80** | **5.10** | **16.50** | **6.00** | **4.6** |
| Lead (mg/L) | 0.077 | 0.015 | | 0.02600 J | 0.00580 | 0.00270 B | 0.01400 | | 0.00500 | | | 0.01400 | | |
| Magnesium (mg/L) | 118 | -- | 32.40 | 47.20 J | 35.20 | 32.20 | 38.30 | 33.40 | 30.50 | 35.90 | 32.10 | 42.30 J | 66.90 | 56.6 |
| Manganese (mg/L) | 4.2 | 0.05 (S) | **0.26** | **0.89** | **0.33** | **0.31** | **0.56** | **0.29** | **0.26** | **0.33** | **0.28** | **0.59 J** | **0.64** | **0.65** |
| Mercury (mg/L) | 0.00021 | 0.002 | | 0.000051 | | | | | | | | 0.01700 B | | |
| Nickel (mg/L) | 0.38 | 0.1 (OH) | | 0.047 | | | 0.02200 | | | | | | | |
| Potassium (mg/L) | 17.2 | -- | | 10.40 | 3.20 B | 3.10 B | 4.70 | 1.40 J | 2.10 | 1.80 B | 2.30 B | 3.30 J | 3.70 B | 3.2 B |
| Selenium (mg/L) | 0.012 | 0.05 | | | | | | | | | | | | |
| Sodium (mg/L) | 128 | -- | 25.80 | 30.70 | 32.20 | 29.20 | 27.10 | 22.60 J | 23.60 | 38.10 | 40.50 | 49.90 J | 58.80 | 88.0 |
| Thallium (mg/L) | 0.0069 | 0.002 | | | | | | | | | | | | 0.00060 J |
| Vanadium (mg/L) | 0.4 | -- | | 0.086 | 0.01000 B | 0.01000 B | 0.02900 | | | | | 0.01500 B | | |
| Zinc (mg/L) | 0.6 | 5 (S) | | 0.160 | 0.042 B | 0.045 J | 0.082 | 0.02800 | 0.057 | 0.030 B | | 0.058 J | | 0.018 B |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L) | 2.9 | 0.2 (S) | | | | | | | | | 0.120 B | | | 0.10 B |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | |
| Arsenic (Filtered) (mg/L) | 0.008 | 0.01 | 0.00230 | 0.00260 J | | | | | | | | | | 0.48 |
| Barium (Filtered) (mg/L) | 0.54 | 2 | 0.150 | 0.160 | 0.150 B | 0.130 B | 0.160 | 0.180 | 0.150 | 0.053 B | 0.130 B | 0.190 B | | |
| Beryllium (Filtered) (mg/L) | 0.25 | 0.004 | | | | | | | | | | | **0.130 B** | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | | | | |
| Calcium (Filtered) (mg/L) | 715 | -- | 126.00 | 130.00 | 122.00 | 103.00 | 115.00 | 115.00 | 119.00 | 103.00 | 114.00 | 130.00 J | 239.00 | 216 |
| Chromium (Filtered) (mg/L) | 0.005 | 0.1 | | | 0.00630 B | | | | | | | | | |
| Cobalt (Filtered) (mg/L) | 0.027 | -- | | | | | | | | | | | | |
| Copper (Filtered) (mg/L) | 0.018 | 1.3 | | | | 0.00470 B | | | | | | | | |
| Iron (Filtered) (mg/L) | 16.4 | 0.3 (S) | **4.00** | **4.20** | **3.60** | **2.80** | **3.40** | **3.80** | **3.20** | **3.00** | **2.70** | **3.30 J** | **5.40** | **4.0** |
| Magnesium (Filtered) (mg/L) | 117 | -- | 37.20 | 36.30 J | 34.00 | 28.50 | 31.50 | 31.90 | 31.90 | 34.40 | 31.10 | 35.10 | 64.50 | 57.7 |
| Manganese (Filtered) (mg/L) | 3.3 | 0.05 (S) | **0.29** | **0.33** | **0.24** | **0.22** | **0.25** | **0.26** | **0.22** | **0.120** | **0.24** | **0.22** | **0.63** | **0.67** |
| Mercury (Filtered) (mg/L) | 0.00023 | 0.002 | | 0.000021 | | | | | 0.000076 | | | | | |
| Nickel (Filtered) (mg/L) | 0.28 | 0.1 (OH) | | | | | | | | | | | | |
| Potassium (Filtered) (mg/L) | 6.9 | -- | 1.60 | 1.70 | 2.00 B | 1.70 B | 1.60 | 1.30 J | 1.60 | 1.80 B | 1.70 B | 1.90 B | 3.60 B | 3.2 B |
| Selenium (Filtered) (mg/L) | 0.005 | 0.05 | | | | | | | | | | | | |
| Sodium (Filtered) (mg/L) | 122 | -- | 27.20 | 30.60 | 31.30 | 27.50 | 25.50 | 22.90 J | 23.30 | 39.10 | 39.60 | 49.20 | 57.40 | 92.7 |
| Thallium (Filtered) (mg/L) | 0.0013 | 0.002 | | | | | | | | | | | | |
| Vanadium (Filtered) (mg/L) | 0.025 | -- | | | | | | | | | | | | 0.14 |
| Zinc (Filtered) (mg/L) | 0.16 | 5 (S) | | | | 0.053 J | 0.01800 | | 0.058 | | | | | |
| ***Semivolatiles*** | | | | | | | | | | | | | | |
| Fluoranthene (ug/L) | 2.5 | -- | | | | | **36.00** | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L) | 10 | 6 | | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | |
| 2-Butanone (ug/L) | -- | -- | | | | | | | | | | | | |
| Acetone (ug/L) | -- | -- | | | | | | | | | | | | |
| Benzene (ug/L) | -- | 5 | | | | | | | | | | | | |
| Carbon disulfide (ug/L) | 0.26 | -- | | | | | | | | | | 0.37 J | | |
| Chloroethane (ug/L) | 2.5 | -- | | | | | | | | | | | | |
| Methylene chloride (ug/L) | -- | 5 | | | | | | | | | | | | |
| Toluene (ug/L) | 0.25 | 1,000 | | | | | | | | | | | | |
| Xylenes (total) (ug/L) | -- | 10,000 | | | | | | | | | | | | |
| Styrene (ug/L) | -- | 100 | | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006).
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S108 Station Sample Number Date Collected | Maximum Background Concentration | U.S. EPA MCL | S108-PZ02 197S108GW02 05/08/1997 | S108-PZ02 297S108GW02 07/30/1997 | S108-PZ02 397S108GW02 10/28/1997 | S108-PZ02 497S108GW02 01/07/1998 | S108-PZ02 198S108GW02 03/27/1998 | S108-PZ02 298S108PZ02 07/01/1998 | S108-PZ02 S108-PZ02 10/01/1998 | S108-PZ02 S108PZ02-1 03/12/1999 | S108-PZ02 S108PZ02-2 06/04/1999 | S108-PZ02 S108PZ02-3 09/02/1999 | S108-PZ02 S108PZ02-10 03/22/2000 | S108-PZ02 S108PZ02-20 06/08/2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | |
| Aluminum (mg/L ) | 47.9 | 0.2 (S) | | **3.10** | **1.00** | **1.40** | **1.10** | **0.44** | **0.37** | **0.88** | | | **0.94** | **6.4** |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | |
| Arsenic (mg/L ) | 0.1 | 0.01 | | 0.00620 J | 0.00410 B | 0.00320 B | 0.00450 | 0.00420 | | 0.00450 B | | | 0.00330 B | **0.011** |
| Barium (mg/L ) | 1 | 2 | | 0.110 | 0.099 B | 0.084 B | 0.072 | 0.089 | 0.091 | 0.073 B | 0.090 B | 0.110 B | 0.076 B | 0.14 B |
| Beryllium (mg/L ) | 0.003 | 0.004 | | | | | | | | 0.00100 B | | | | |
| Cadmium (mg/L ) | 0.01 | 0.005 | | | | | | | | | | | | |
| Calcium (mg/L ) | 657 | -- | 75.70 | 103.00 | 94.70 | 83.50 | 84.90 | 97.30 | 106.00 | 74.30 | 108.00 | 126.00 | 89.40 | 150 |
| Chromium (mg/L ) | 0.39 | 0.1 | | 0.00649 | | | | | | | | | | 0.012 |
| Cobalt (mg/L ) | 0.055 | -- | | | | | | | | | | | | |
| Copper (mg/L ) | 0.62 | 1.3 | | 0.00780 | | | | 0.00920 | 0.036 | 0.00460 B | | 0.02800 | | 0.018 B |
| Cyanide (mg/L ) | 0.007 | 0.2 | | | | | | | | | | | | |
| Iron (mg/L ) | 152 | 0.3 (S) | **1.30** | **8.20** | **3.30** | **3.40** | **2.70** | **2.30** | **2.20** | **3.00** | **1.80** | **2.20** | **3.80** | **16.3** |
| Lead (mg/L ) | 0.077 | 0.015 | | 0.00470 J | 0.00220 B | | | | | | | | | 0.010 |
| Magnesium (mg/L ) | 118 | -- | 39.10 | 47.00 J | 44.40 | 40.30 | 40.50 | 49.70 | 49.90 | 34.70 | 52.00 | 60.50 | 43.90 | 60.2 |
| Manganese (mg/L ) | 4.2 | 0.05 (S) | **0.46** | **0.66** | **0.55** | **0.45** | **0.41** | **0.44** | **0.50** | **0.36** | **0.47** | **0.55** | **0.37** | **0.71** |
| Mercury (mg/L ) | 0.00021 | 0.002 | | 0.000028 | | | | | | | | | | |
| Nickel (mg/L ) | 0.38 | 0.1 (OH) | | | | | | | | | | | | 0.018 B |
| Potassium (mg/L ) | 17.2 | -- | | 2.30 | 1.90 B | 1.80 B | 1.20 | 1.10 | 1.30 | 1.20 B | 0.92 B | 1.50 B | 1.40 B | 3.7 B |
| Selenium (mg/L ) | 0.012 | 0.05 | | | | | | 0.00450 | | | | | | |
| Sodium (mg/L ) | 128 | -- | 7.50 | 10.80 | 11.80 | 8.00 | 7.10 | 8.80 | 9.20 | 8.50 | | 11.50 | 8.20 | 10.3 |
| Thallium (mg/L ) | 0.0069 | 0.002 | | | | | | | | | | | | 0.0013 J |
| Vanadium (mg/L ) | 0.4 | -- | | 0.01400 | | 0.00610 B | | | | | | | | 0.030 B |
| Zinc (mg/L ) | 0.6 | 5 (S) | | 0.045 | 0.032 B | 0.02400 J | | 0.047 | 0.053 | 0.037 B | | | 0.01900 B | 0.11 L |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L ) | 2.9 | 0.2 (S) | | 0.040 | | | | | | | | | | 0.19 B |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | |
| Arsenic (Filtered) (mg/L ) | 0.008 | 0.01 | | 0.00310 J | | | 0.00320 | 0.00370 | | | 0.00360 B | | | 0.47 |
| Barium (Filtered) (mg/L ) | 0.54 | 2 | 0.068 | 0.094 | 0.086 B | 0.072 B | 0.067 | 0.086 | 0.088 | 0.068 B | 0.092 B | 0.100 B | **0.076 B** | |
| Beryllium (Filtered) (mg/L ) | 0.25 | 0.004 | | | | | | | | | | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | | | | |
| Calcium (Filtered) (mg/L ) | 715 | -- | 79.10 | 104.00 | 90.30 | 81.90 | 86.10 | 95.90 | 106.00 | 79.80 | 113.00 | 122.00 J | 100.00 | 112 |
| Chromium (Filtered) (mg/L ) | 0.005 | 0.1 | | | | | | | | | | | | |
| Cobalt (Filtered) (mg/L) | 0.027 | -- | | | | | | | | | | | | |
| Copper (Filtered) (mg/L ) | 0.018 | 1.3 | | | | | | | 0.01200 | | | | | |
| Iron (Filtered) (mg/L ) | 16.4 | 0.3 (S) | **1.10** | **1.70** | **1.30** | **1.30** | **1.30** | **1.50** | **1.60** | **1.10** | **1.80** | **1.90** | **1.70** | **1.9** |
| Magnesium (Filtered) (mg/L ) | 117 | -- | 41.40 | 49.50 J | 42.70 | 39.70 | 41.30 | 49.60 | 50.20 | 37.70 | 54.30 | 58.70 | 49.20 | 52.1 |
| Manganese (Filtered) (mg/L ) | 3.3 | 0.05 (S) | **0.48** | **0.58** | **0.49** | **0.42** | **0.39** | **0.45** | **0.50** | **0.35** | **0.48** | **0.53** | **0.43** | **0.36** |
| Mercury (Filtered) (mg/L ) | 0.00023 | 0.002 | | 0.000021 | | | | | | | | | | |
| Nickel (Filtered) (mg/L ) | 0.28 | 0.1 (OH) | | | | | | | | | | | | |
| Potassium (Filtered) (mg/L ) | 6.9 | -- | 1.10 | 1.40 | 1.40 B | 1.20 B | 0.94 | 0.92 J | 1.20 | 0.96 B | 0.95 B | 1.40 B | 1.20 B | 0.87 B |
| Selenium (Filtered) (mg/L ) | 0.005 | 0.05 | | | | | | | 0.00410 | | | | | |
| Sodium (Filtered) (mg/L ) | 122 | -- | 8.10 | 10.70 | 11.10 | 7.80 | 7.10 | 8.20 | 9.50 | 5.90 | | 11.00 | 9.00 | 10.9 |
| Thallium (Filtered) (mg/L ) | 0.0013 | 0.002 | | | | | | | | | | | | |
| Vanadium (Filtered) (mg/L ) | 0.025 | -- | | | | | | | 0.044 | | | | 0.01800 B | 0.13 |
| Zinc (Filtered) (mg/L ) | 0.16 | 5 (S) | | | 0.02600 B | | | | | | | | | |
| ***Semivolatiles*** | | | | | | | | | | | | | | |
| Fluoranthene (ug/L ) | 2.5 | -- | | | | | | | | | 4.00 J | | | |
| bis(2-Ethylhexyl) phthalate (ug/L ) | 10 | 6 | | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | |
| 2-Butanone (ug/L ) | -- | -- | | | | | | | | | | | | |
| Acetone (ug/L ) | -- | -- | | | | | | | | | | | | |
| Benzene (ug/L ) | -- | 5 | | | | | | | | | | | | |
| Carbon disulfide (ug/L ) | 0.26 | -- | | | | | | | | | | | | |
| Chloroethane (ug/L ) | 2.5 | -- | | | | | | | | | | | | |
| Methylene chloride (ug/L ) | -- | 5 | | | | | | | | | | | | |
| Toluene (ug/L ) | 0.25 | 1,000 | | | | | | | | | | | | |
| Xylenes (total) (ug/L) | -- | 10,000 | | | | | | | | | | | | |
| Styrene (ug/L) | -- | 100 | | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006
(S) = *U. S. EPA Secondary Drinking Water Regulations (2006).*
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S108 Station Sample Number Date Collected | Maximum Background Concentration | U.S. EPA MCL | S108-MW03 197S108GW03 05/07/1997 | S108-MW03 297S108GW03 07/30/1997 | S108-MW03 397S108GW03 10/28/1997 | S108-MW03 497S108GW03 01/07/1998 | S108-MW03 198S108GW03 03/25/1998 | S108-MW03 298S108MW03 07/02/1998 | S108-MW03 S108-MW03 10/01/1998 | S108-MW03 S108MW03-1 03/11/1999 | S108-MW03 S108MW03-2 06/03/1999 | S108-MW03 S108MW03-3 09/01/1999 | S108-MW03 S108MW03-10 03/22/2000 | S108-MW03 S108MW03-200 06/06/2000 | S108-MW03 S108MW03 10/27/2000 | S108-MW03 S108MW03-41 04/04/2001 | S108-MW03 S108MW03-1001 10/09/2001 | S108-MW03 S108MW03-13 01/15/2003 | S108-MW03 S108MW03-14 12/24/2003 | S108-MW03 S108MW03 11/11/2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/L) | 47.9 | 0.2 (S) | **8.40 J** | **4.90** | **11.30** | **3.40** | **0.34** | **11.70 J** | **27.30** | **13.10** | **30.50** | **0.69** | **4.60** | **19.4** | **0.60** | **4.3** | **7.5** | **23.8** | **28.1** | **0.38** |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | | | | 0.0038 B | 0.0064 B | | |
| Arsenic (mg/L) | 0.1 | 0.01 | 0.01000 | 0.00690 J | 0.01900 | 0.00530 B | 0.00330 | 0.02800 | 0.006 | 0.038 | 0.064 | 0.00540 B | 0.00380 B | 0.034 | | 0.0073 B | 0.015 | 0.041 | 0.07 | |
| Barium (mg/L) | 1 | 2 | 0.26 | 0.29 | 0.40 | 0.23 | 0.22 | 0.35 | 0.59 | 0.48 | 0.67 | 0.32 | 0.30 | 0.49 | 0.29 | 0.33 | 0.45 | 0.75 | 1.23 | 0.35 |
| Beryllium (mg/L) | 0.003 | 0.004 | | | | | | | 0.00160 | 0.00160 B | 0.00230 B | | | | | | | 0.0018 B | 0.0018 B | |
| Cadmium (mg/L) | 0.01 | 0.005 | | | | | | | 0.00950 | 0.00500 | 0.00980 | | | 0.0048 B | 0.00049 B | | 0.0026 B | 0.0093 J | 0.0089 | |
| Calcium (mg/L) | 657 | -- | 92.60 | 107.00 | 105.00 | 87.90 | 103.00 | 128.00 | 184.00 | 183.00 | 207.00 | 239.00 J | 128.00 | 158 | 125 | 138 | 166 | 212 J | 186 J | 157 |
| Chromium (mg/L) | 0.39 | 0.1 | 0.01400 | 0.01000 | 0.02400 | | | 0.02600 | 0.060 | 0.032 | 0.063 | | | 0.037 | 0.0025 B | | 0.015 | 0.046 | 0.059 | |
| Cobalt (mg/L) | 0.055 | -- | | | 0.01100 B | | | | 0.037 | 0.02200 B | 0.036 B | | | 0.016 B | 0.0023 B | 0.0047 B | 0.0093 B | 0.028 B J | 0.03 B | 0.0014 B |
| Copper (mg/L) | 0.62 | 1.3 | | 0.01300 | 0.030 | | | 0.045 | 0.110 | 0.051 | 0.097 | 0.00940 B | 0.00960 B | 0.045 | | 0.012 B | 0.033 | 0.075 J | 0.089 | |
| Cyanide (mg/L) | 0.007 | 0.2 | | | | | | | | | | | | | | | | | | |
| Iron (mg/L) | 152 | 0.3 (S) | **13.20** | **10.60** | **20.10** | **7.00** | **3.60** | **30.50** | **69.20** | **36.90** | **71.20** | **6.60** | **10.40** | **40.5** | **5.6** | **10.1** | **21.7** | **48.1 J** | **99.6** | **5.4** |
| Lead (mg/L) | 0.077 | 0.015 | 0.01200 | 0.00660 J | 0.02100 | 0.00430 | | 0.030 | 0.067 | 0.040 | 0.058 | 0.01400 | 0.00530 | 0.029 | 0.0034 | 0.0072 | 0.018 | 0.043 | 0.062 | |
| Magnesium (mg/L) | 118 | -- | 31.90 | 34.00 J | 35.00 | 28.20 | 30.20 | 42.20 | 61.70 | 54.30 | 68.80 | 65.70 J | 41.20 | 54.7 | 42.9 | 45.6 | 56.3 | 71.3 J | 63.6 J | 49.9 |
| Manganese (mg/L) | 4.2 | 0.05 (S) | **0.28** | **0.31** | **0.44** | **0.25** | **0.23** | **0.54** | **1.10** | **0.86** | **1.10** | **0.88 J** | **0.37** | **0.78** | **0.35** | **0.44** | **0.56** | **1.1 J** | **0.97** | **0.34** |
| Mercury (mg/L) | 0.00021 | 0.002 | | 0.000042 | | | | 0.00013 | 0.00029 | 0.00024 | 0.00030 | | | 0.00018 B | | | 0.00010 B | | 0.00011 B | |
| Nickel (mg/L) | 0.38 | 0.1 (OH) | | | 0.042 | 0.00930 B | | 0.066 | 0.100 | 0.087 | 0.140 | 0.01800 B | 0.01200 B | 0.061 | | 0.011 B | 0.035 B | 0.10 | 0.14 | |
| Potassium (mg/L) | 17.2 | -- | | 3.90 | 6.90 | 3.30 B | 1.70 | 6.60 J | 11.70 | 6.60 | 12.20 | 2.20 J | 3.60 B | 9.2 | 2.6 B | 3.6 B | 5.3 | 10.8 J | 12.8 J | 2.3 B J |
| Selenium (mg/L) | 0.012 | 0.05 | | | | | | | 0.01000 | 0.00900 | 0.01600 | | | | | | | 0.0054 | 0.014 | |
| Sodium (mg/L) | 128 | -- | 17.40 | 22.90 | 20.90 | 18.10 | 19.20 | 17.20 J | 20.10 | 17.80 | 19.80 | 19.80 J | 23.20 | 21.1 | 24.8 | 30.1 | 36.4 | 43.5 | 53.8 J | 59.9 |
| Thallium (mg/L) | 0.0069 | 0.002 | | 0.00130 J | 0.00270 | | | 0.00330 | 0.00570 | 0.00470 J | 0.00850 | | | | | | 0.0017 B | 0.0040 | 0.0061 | |
| Vanadium (mg/L) | 0.4 | -- | 0.087 | 0.049 | 0.110 | 0.02900 B | | 0.120 | 0.31 | 0.130 | 0.34 | | 0.046 B | 0.22 | 0.0063 B | 0.041 B | 0.079 | 0.27 | 0.33 | |
| Zinc (mg/L) | 0.6 | 5 (S) | 0.067 | 0.066 | 0.150 | 0.044 J | 0.01500 | 0.25 | 0.54 | 0.31 | 0.44 | 0.092 J | 0.047 | 0.24 | | 0.063 | 0.21 | 0.41 | 0.44 | |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L) | 2.9 | 0.2 (S) | 0.061 J | | | | | | 0.068 | 0.96 | 0.098 B | | | | 0.0031 B | | 0.0037 B | | | |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | | | | | 0.0023 B | | |
| Arsenic (Filtered) (mg/L) | 0.008 | 0.01 | 0.00140 | 0.00200 J | | | | | | | 0.00340 B | | | | | | | | | |
| Barium (Filtered) (mg/L) | 0.54 | 2 | 0.21 | 0.27 | 0.22 | 0.200 | 0.23 | 0.23 | 0.200 | 0.21 | 0.25 | 0.24 | | 0.23 | 0.59 | 0.28 | 0.36 | 0.29 | 0.27 J | 0.35 |
| Beryllium (Filtered) (mg/L) | 0.25 | 0.004 | | | | | | | | 0.00082 B | | | 0.24 | | | | | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | | | | | | | | | | |
| Calcium (Filtered) (mg/L) | 715 | -- | 94.70 | 114.00 | 92.70 | 88.80 | 106.00 | 101.00 | 93.90 | 92.70 | 117.00 | 116.00 J | 125.00 | 116 | 120 | 142 | 153 | 147 J | 150 J | 155 |
| Chromium (Filtered) (mg/L) | 0.005 | 0 J | | | | | | | | | | | | | | 0.0017 B | | | .0021 B | 0.0011 B |
| Cobalt (Filtered) (mg/L) | 0.027 | -- | | | | | | | | | | | | | | | | | | |
| Copper (Filtered) (mg/L) | 0.018 | 1.3 | | | | | | | | | | | | | | | | | | |
| Iron (Filtered) (mg/L) | 16.4 | 0.3 (S) | **2.20** | **2.70** | **2.00** | **1.90** | **2.20** | **2.10** | **1.60** | **2.50** | **2.10** | **2.10 J** | **2.50** | **1.9** | **2.8** | **2.5** | **3.3** | **2.6 J** | **1.7 J** | **3.7** |
| Magnesium (Filtered) (mg/L) | 117 | -- | 31.50 | 35.60 J | 29.20 | 28.10 | 31.90 | 31.10 | 28.40 | 27.90 | 36.50 | 35.50 | 39.40 | 37.8 | 40.8 | 46.0 | 50.0 | 46.2 J | 46 J | 49.8 |
| Manganese (Filtered) (mg/L) | 3.3 | 0.05 (S) | **0.21** | **0.27** | **0.24** | **0.21** | **0.22** | **0.21** | **0.23** | **0.22** | **0.25** | **0.27** | **0.31** | **0.40** | **0.31** | **0.38** | **0.35** | **0.42 J** | **0.41** | **0.34** |
| Mercury (Filtered) (mg/L) | 0.00023 | 0.002 | 0.000069 | 0.000021 | | | | | | | 0.00011 B | | | | | | | | | 0.000054 B |
| Nickel (Filtered) (mg/L) | 0.28 | 0.1 (OH) | | | | | | | | | | | | | | 0.0022 B | | | 0.005 B | |
| Potassium (Filtered) (mg/L) | 6.9 | -- | 1.40 | 1.90 | 1.90 B | 1.70 B | 1.50 | 1.80 J | 1.40 | 1.80 B | 1.70 B | 1.60 B | 1.70 B | 1.7 B | 1.8 B | 2.0 B | 2.4 B | 2.5 B J | 2.7 B J | 2.3 B J |
| Selenium (Filtered) (mg/L) | 0.005 | 0.05 | | | | | | | 0.00420 | 0.00570 | | | | | | | | | | 0.0042 B |
| Sodium (Filtered) (mg/L) | 122 | -- | 18.00 | 24.30 | 19.70 | 16.80 | 18.80 | 17.80 J | 16.00 | 16.20 | 18.00 | 19.00 | 19.60 | 20.4 | 26.4 | 29.5 | 35.3 | 47.7 | 63.3 J | 59.3 |
| Thallium (Filtered) (mg/L) | 0.0013 | 0.002 | | | | | | | | | | | | | | | | | 0.000067 B | |
| Vanadium (Filtered) (mg/L) | 0.025 | -- | | | | | | | | 0.00810 B | | | | | | | | | | |
| Zinc (Filtered) (mg/L) | 0.16 | 5 (S) | | 0.01500 | 0.01600 B | 0.01800 J | 0.01500 | | 0.044 | 0.043 B | | 0.01400 B | | | 0.11 | | | | | |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | | |
| Fluoranthene (ug/L) | 2.5 | -- | | | | | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L) | 10 | 6 | | | | | | | | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (ug/L) | -- | -- | | | | | | | | | | | | 0.97 J | | | | | | |
| Acetone (ug/L) | -- | -- | | | | | | | | | | | | | | | | 2.2 J | | |
| Benzene (ug/L) | -- | 5 | | | | | | | | | 0.120 J | 0.130 J | | | | | | | | |
| Carbon disulfide (ug/L) | 0.26 | -- | | | | | | | | | | | | | | | | | | |
| Chloroethane (ug/L) | 2.5 | -- | | | | | | | | | | | | | | | | | | |
| Methylene chloride (ug/L) | -- | 5 | | | | | | | | | | | | | | | | | | |
| Toluene (ug/L) | 0.25 | 1,000 | | | | | | | | | | | | | | | | | | |
| Xylenes (total) (ug/L) | -- | 10,000 | | | | | | | | | | | | | | | | | | 0.6 J |
| Styrene (ug/L) | -- | 100 | | | | | | | | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S108<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | S108-MW04<br>198S108GW04<br>03/25/1998 | S108-MW04<br>298S108MW04<br>07/02/1998 | S108-MW04<br>S108-MW04<br>10/01/1998 | S108-MW04<br>S108MW04-1<br>03/11/1999 | S108-MW04<br>S108MW04-2<br>06/03/1999 | S108-MW04<br>S108MW04-3<br>09/02/1999 | S108-MW04<br>S108MW04-10<br>03/22/2000 | S108-MW04<br>S108MW04-20<br>06/09/2000 | S108-MW04<br>S108MW04<br>10/27/2000 | S108-MW04<br>S108MW04-41<br>04/04/2001 | S108-MW04<br>S108MW04-100i<br>10/10/2001 | S108-MW04<br>S108MW04-13<br>01/16/2003 | S108-MW04<br>S108MW04-14<br>12/23/2003 | S108-MW04<br>S108MW04<br>11/11/2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | |
| Aluminum (mg/L) | 47.9 | 0.2 (S) | **26.50** | **27.60 J** | **25.00** | **10.40** | **21.80** | **13.10** | **9.50** | **7.7 J** | **14.4** | **3.3** | **16.4** | **10.1** | **27.2** | **17.5** |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | | | 0.0036 B | | 0.0036 B | | 0.004 B | |
| Arsenic (mg/L) | 0.1 | 0.01 | **0.065** | **0.073** | **0.071** | **0.035** | **0.045** | **0.032** | **0.01700** | **0.018** | **0.035** | **0.014** | **0.039** | **0.026** | **0.065** | **0.044** |
| Barium (mg/L) | 1 | 2 | 0.69 | 0.65 | 0.48 | 0.38 | 0.52 | 0.35 | 0.31 | 0.30 | 0.42 | 0.19 B | 0.28 | 0.28 | 0.44 J | 0.26 |
| Beryllium (mg/L) | 0.003 | 0.004 | 0.00160 | | 0.00100 | 0.00120 B | 0.00190 B | | | | 0.00078 B | 0.00060 B | | | 0.0006 B | 0.00075 B |
| Cadmium (mg/L) | 0.01 | 0.005 | 0.00450 | | | | 0.00380 B | | | | 0.0018 B | | 0.0023 B | 0.00076 B | 0.0022 B | 0.0021 B J |
| Calcium (mg/L) | 657 | -- | 377.00 | 440.00 | 360.00 | 261.00 | 290.00 | 272.00 | 251.00 | 338 | 314 | 238 | 338 | 247 J | 462 J | 296 |
| Chromium (mg/L) | 0.39 | 0.1 | 0.064 | 0.063 | 0.056 | 0.02700 | 0.047 | 0.02700 | 0.01700 | 0.014 | 0.028 | | 0.027 | 0.045 | 0.073 | 0.035 |
| Cobalt (mg/L) | 0.055 | -- | 0.031 | 0.038 | 0.032 | | 0.02400 B | | 0.01000 B | 0.012 B | 0.018 B | 0.0063 B | 0.019 B | 0.011 B | 0.028 B | 0.017 B |
| Copper (mg/L) | 0.62 | 1.3 | 0.110 | 0.120 | 0.098 | 0.056 | 0.074 | 0.050 | 0.02900 | 0.026 | 0.046 | 0.013 B | 0.055 | 0.027 | 0.081 | 0.046 |
| Cyanide (mg/L) | 0.007 | 0.2 | | | | | | | | | | | | | | |
| Iron (mg/L) | 152 | 0.3 (S) | **93.20** | **111.00** | **84.60** | **51.90** | **75.80** | **46.50** | **26.30** | **27.8 J** | **49.1** | **16.2** | **44.0** | **28.5** | **77.7** | **40.9** |
| Lead (mg/L) | 0.077 | 0.015 | **0.150** | **0.130** | **0.087** | **0.049** | **0.061** | **0.035** | **0.02000** | **0.035** | **0.045** | 0.015 | **0.034** | **0.010** | **0.059** | **0.033** |
| Magnesium (mg/L) | 118 | -- | 109.00 | 113.00 | 108.00 | 75.40 | 88.50 | 79.90 | 73.80 | 90.2 | 97.0 | 64.6 | 106 | 73.6 J | 129 J | 91.9 |
| Manganese (mg/L) | 4.2 | 0.05 (S) | **1.80** | **2.40** | **1.60** | **0.98** | **1.20** | **0.91** | **0.70** | **1.1** | **1.2** | **0.54** | **1.2** | **0.77 J** | **1.7** | **1** |
| Mercury (mg/L) | 0.00021 | 0.002 | 0.00017 | 0.00015 | 0.00014 | 0.00011 B | | | | 0.00014 B | | | | | | 0.000076 B |
| Nickel (mg/L) | 0.38 | 0.1 (OH) | **0.120** | **0.140** | **0.120** | 0.069 | 0.096 | 0.066 | 0.050 | 0.063 | 0.074 | 0.041 | 0.069 | 0.072 | **0.112** | 0.069 |
| Potassium (mg/L) | 17.2 | -- | 10.20 | 11.10 J | 10.30 | 5.50 | 9.50 | 7.40 | 7.50 | 8.1 J | 9.9 | 5.2 | 10.3 | 7.6 J | 11.5 J | 8.5 J |
| Selenium (mg/L) | 0.012 | 0.05 | | | | 0.00710 | 0.00770 | | | | | | | | | |
| Sodium (mg/L) | 128 | -- | 149.00 | 141.00 J | 166.00 | 128.00 | 186.00 | 197.00 | 207.00 | 209 | 218 | 178 | 234 | 206 | 179 J | 198 |
| Thallium (mg/L) | 0.0069 | 0.002 | **0.00300** | **0.00320 J** | **0.00260 J** | **0.00260** | **0.00260 J** | | | 0.0020 J | **0.0040 J** | | | | 0.0017 | 0.00081 B |
| Vanadium (mg/L) | 0.4 | -- | 0.100 | 0.110 | 0.110 | 0.040 B | 0.110 | 0.057 | 0.038 B | 0.030 B | 0.052 | 0.015 B | 0.055 | 0.033 B | 0.087 | 0.053 |
| Zinc (mg/L) | 0.6 | 5 (S) | 0.57 | 0.90 | 0.42 | 0.25 | 0.30 | 0.180 | 0.170 | 0.18 J | 0.20 | 0.12 | 0.21 | 0.10 | 0.28 | 0.16 |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L) | 2.9 | 0.2 (S) | 0.070 | | | 0.110 B | 0.070 B | | | 0.16 B | | | | | | 1.2 |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | 0.0072 B | | 0.0043 B | | | |
| Arsenic (Filtered) (mg/L) | 0.008 | 0.01 | 0.00430 | | 0.00930 | | 0.00500 B | | | 0.0042 B | 0.0088 B | 0.0073 B | **0.015** | **0.012** | **0.014** | **0.018** |
| Barium (Filtered) (mg/L) | 0.54 | 2 | 0.150 | 0.170 | 0.160 | 0.150 B | 0.170 B | 0.190 B | | 0.61 | 0.53 | 0.12 B | 0.14 B | 0.14 B | 0.084 B J | 0.1 B |
| Beryllium (Filtered) (mg/L) | 0.25 | 0.004 | | | | 0.00078 B | | | **0.190 B** | | | | | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | 0.00042 B | | | | | |
| Calcium (Filtered) (mg/L) | 715 | -- | 189.00 | 169.00 | 160.00 | 145.00 | 151.00 | 159.00 J | 194.00 | 228 | 178 | 231 | 186 | 190 J | 213 J | 205 |
| Chromium (Filtered) (mg/L) | 0.005 | 0.1 | | | | | | | | | | | | | | |
| Cobalt (Filtered) (mg/L) | 0.027 | -- | | | | | | | | | 0.0023 B | 0.0036 B | 0.0025 B | 0.0013 B | 0.0017 B | 0.0015 B |
| Copper (Filtered) (mg/L) | 0.018 | 1.3 | | | 0.00390 | | | | | | | | | | | |
| Iron (Filtered) (mg/L) | 16.4 | 0.3 (S) | **4.80** | **4.60** | **4.10** | **4.00** | **4.30** | **3.90** | **3.40** | **4.0** | **2.8** | **5.7** | **2.9** | **4.7** | **5 J** | **3.9** |
| Magnesium (Filtered) (mg/L) | 117 | -- | 56.00 | 51.80 | 47.60 | 43.30 | 47.60 | 47.60 | 56.00 | 62.9 | 54.6 | 64.7 | 55.9 | 56.0 J | 60.5 J | 63.5 |
| Manganese (Filtered) (mg/L) | 3.3 | 0.05 (S) | **0.22** | **0.21** | **0.150** | **0.130** | **0.160** | **0.31** | **0.34** | **0.38** | **0.25** | **0.37** | **0.21** | **0.24 J** | **0.23** | **0.16** |
| Mercury (Filtered) (mg/L) | 0.00023 | 0.002 | | | | | | | | | | | | | | 3.9E-05 B |
| Nickel (Filtered) (mg/L) | 0.28 | 0.1 (OH) | 0.035 | 0.035 | 0.036 | 0.02700 B | 0.02800 B | 0.02900 B | 0.02900 B | 0.041 | 0.032 B | 0.036 B | 0.030 B | 0.030 B | 0.029 B | 0.029 B |
| Potassium (Filtered) (mg/L) | 6.9 | -- | 3.90 | 4.20 J | 3.60 | 2.80 B | 3.50 B | 4.00 B | 4.10 B | 5.7 | 6.1 | 4.6 B | 5.6 | 5.0 J | 4.7 B J | 4.8 B J |
| Selenium (Filtered) (mg/L) | 0.005 | 0.05 | | | 0.00410 | | | | | | | | | | | |
| Sodium (Filtered) (mg/L) | 122 | -- | 153.00 | 158.00 J | 177.00 | 131.00 | 200.00 | 207.00 | 201.00 | 214 | 228 | 200 | 241 | 231 | 193 J | 236 |
| Thallium (Filtered) (mg/L) | 0.0013 | 0.002 | | | | | | | | **0.012 J** | | | | | 0.000073 B | |
| Vanadium (Filtered) (mg/L) | 0.025 | -- | | | | | | | | | | | | | | |
| Zinc (Filtered) (mg/L) | 0.16 | 5 (S) | 0.02900 | | 0.046 | 0.02500 B | | | 0.01700 B | 0.20 | 0.16 | 0.023 | 0.017 B | | | |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | |
| Fluoranthene (ug/L) | 2.5 | -- | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L) | 10 | 6 | | | | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | | | |
| 2-Butanone (ug/L) | -- | -- | | | | | | | | | | | | | | |
| Acetone (ug/L) | -- | -- | | | | | | | | | | | | | | |
| Benzene (ug/L) | -- | 5 | | | | | | | | | | | | | | |
| Carbon disulfide (ug/L) | 0.26 | -- | | | | 0.42 J | | | | | | | | | | |
| Chloroethane (ug/L) | 2.5 | -- | | | | | | | | | | | | | | |
| Methylene chloride (ug/L) | -- | 5 | 0.48 J | | | | | | | | | 0.37 J B | | | | |
| Toluene (ug/L) | 0.25 | 1,000 | | | | | | | | | | | | | | 0.2 J |
| Xylenes (total) (ug/L) | -- | 10,000 | | | | | | | | | | | | | | 0.49 J |
| Styrene (ug/L) | -- | 100 | | | | | | | | | | | | | | 0.68 J |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
*NS = Not Sampled*
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S108<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | S108-MW05<br>198S108GW05<br>03/27/1998 | S108-MW05<br>298S108MW05<br>07/01/1998 | S108-MW05<br>S108-MW05<br>09/29/1998 | S108-MW05<br>S108MW05-1<br>03/09/1999 | S108-MW05<br>S108MW05-2<br>06/02/1999 | S108-MW05<br>S108MW05-3<br>09/01/1999 | Duplicate<br>S108-MW05<br>S301MW05-4<br>12/21/1999 | S108-MW05<br>S108MW05-10<br>03/24/2000 | S108-MW05<br>S108MW05-20<br>06/08/2000 | S108-MW05<br>S108-MW05-30<br>10/26/2000 | S108-MW05<br>S108MW05-41<br>04/04/2001 | S108-MW05<br>S108MW05-1001<br>10/09/2001 | S108-MW05<br>S168MW05-13<br>01/14/2003 | S108-MW05<br>S108MW05-14<br>12/22/2003 | Duplicate<br>S300-MW05<br>S300MW05-14<br>12/22/2003 | S108-MW05<br>S108MW05<br>11/11/2004 | Duplicate<br>S108-MW05<br>S300MW01<br>11/11/2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/L) | 47.9 | 0.2 (S) | **36.60** | **29.70** | | **53.40** | **38.90** | **16.90** | **2.00** | **6.50 J** | **7.0** | **24.0** | **6.0** | **11.0** | 16.9 | **7.3** | **9.4** | **5.2** | **4.4** |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | | | | 0.0034 B | | 0.0034 B | | | | | |
| Arsenic (mg/L) | 0.1 | 0.01 | 0.050 | 0.034 | | 0.067 | 0.036 | 0.01700 | 0.00410 B | 0.00550 B | 0.0058 B | 0.018 | 0.0067 B | 0.0093 B | 0.012 | 0.005 B | 0.0091 B | 0.0029 B | 0.003 B |
| Barium (mg/L) | 1 | 2 | 0.74 | 0.70 | 0.150 | 0.91 | 0.67 | 0.32 | 0.39 | 0.49 | 0.44 | 0.50 | 0.34 | 0.33 | 0.38 | 0.21 J | 0.23 J | 0.21 | 0.2 |
| Beryllium (mg/L) | 0.003 | 0.004 | 0.00240 | | | 0.00280 B | 0.00160 B | 0.00079 B | | | | 0.00074 B | | 0.00070 B | 0.0014 B | | | | |
| Cadmium (mg/L) | 0.01 | 0.005 | 0.00680 | 0.00750 | | 0.00730 | 0.00370 B | | | | | 0.0010 B | | 0.0013 B | 0.0013 B J | 0.00065 B | 0.00081 B | 0.00075 B J | 0.00085 B J |
| Calcium (mg/L) | 657 | -- | 288.00 | 344.00 | 81.70 | 317.00 | 199.00 | 115.00 J | 166.00 | 203.00 | 121 | 135 | 113 | 111 | 184 J | 94.8 J | 95.9 J | 92.9 | 94.9 |
| Chromium (mg/L) | 0.39 | 0.1 | 0.061 | 0.044 | | 0.081 | 0.056 | 0.02500 | | 0.00950 B | 0.0094 B | 0.038 | | 0.014 | 0.021 | 0.0096 B | 0.013 | 0.0068 B | 0.006 B |
| Cobalt (mg/L) | 0.055 | -- | 0.041 | 0.036 | | 0.052 | 0.02900 B | | | | | 0.014 B | 0.0037 B | 0.0078 B | 0.017 B J | 0.0047 B | 0.0061 B | 0.0031 B | 0.0025 B |
| Copper (mg/L) | 0.62 | 1.3 | 0.120 | 0.110 | 0.049 | 0.150 | 0.087 | 0.036 | 0.02000 B | 0.032 | 0.012 B | 0.040 | 0.014 B | 0.026 | 0.047 J | 0.013 B | 0.016 B | 0.011 B | 0.011 B |
| Cyanide (mg/L) | 0.007 | 0.2 | | | | | | | 0.00600 B | 0.00250 B | 0.0037 B | | | | | | | | |
| Iron (mg/L) | 152 | 0.3 (S) | **95.20** | **75.80** | **0.61** | **134.00** | **69.00** | **31.30** | **12.40** | **23.80** | **12.7** | **39.8** | **12.0** | **20.3** | 33.5 J | **13.6** | **16.7** | **10** | **9** |
| Lead (mg/L) | 0.077 | 0.015 | 0.059 | 0.051 | | 0.075 | 0.039 | 0.01800 | 0.01000 | 0.01800 | 0.0058 | 0.023 | 0.0072 | 0.010 | 0.020 | 0.0056 | 0.0064 | 0.0042 | 0.0032 |
| Magnesium (mg/L) | 118 | -- | 90.90 | 111.00 | 20.80 | 103.00 | 72.90 | 34.90 J | 48.00 | 62.40 | 37.4 | 46.7 | 35.7 | 37.8 | 55.1 J | 30.2 J | 32.1 J | 30.5 | 30.9 |
| Manganese (mg/L) | 4.2 | 0.05 (S) | **2.10** | **2.50** | **0.30** | **2.70** | **1.30** | **0.73 J** | **0.73** | **1.10** | **0.32** | **0.75** | **0.40** | **0.47** | **1.2 J** | **0.27** | **0.3** | **0.24** | **0.24** |
| Mercury (mg/L) | 0.00021 | 0.002 | | | | 0.00014 B | 0.00017 B | | | | | | | 0.000070 B | | | | 0.0001 B | |
| Nickel (mg/L) | 0.38 | 0.1 (OH) | 0.150 | 0.110 J | 0.01600 | 0.190 | 0.100 | 0.050 | 0.01500 B | 0.02900 B | 0.024 B | 0.070 | 0.015 B | 0.029 B | 0.047 | 0.016 B | 0.02 B | 0.011 B | 0.0091 B |
| Potassium (mg/L) | 17.2 | -- | 12.70 | 11.00 J | 2.10 | 18.20 | 11.90 | 6.70 J | 2.90 B | 4.90 B | 5.1 | 11.0 | 4.0 B | 5.8 | 7.4 J | 4.1 B J | 4.9 B J | 2.8 B J | 2.5 B J |
| Selenium (mg/L) | 0.012 | 0.05 | | 0.00610 | | 0.00590 | 0.00530 | | | | | | | | | | | | 0.004 B |
| Sodium (mg/L) | 128 | -- | 35.90 | 28.40 | 5.40 | 47.90 | 42.00 | 30.30 J | 58.90 | 76.10 | 90.6 | 88.6 | 55.7 | 46.4 | 16.1 | 11 J | 10.5 | 9.4 | 9.4 |
| Thallium (mg/L) | 0.0069 | 0.002 | 0.00450 | 0.00390 | | 0.00370 | 0.00420 | | 0.00060 J | | | 0.0027 J | | 0.0020 J | | 0.00038 B | 0.00046 B | 0.0002 B | 0.00017 B |
| Vanadium (mg/L) | 0.4 | -- | 0.140 | 0.110 | | 0.21 | 0.160 | 0.071 | 0.00930 B | 0.02600 B | 0.029 B | 0.10 | 0.025 B | 0.044 B | 0.064 | 0.029 B | 0.037 B | 0.02 B | 0.018 B |
| Zinc (mg/L) | 0.6 | 5 (S) | 0.68 | 0.50 | 0.057 | 0.74 | 0.34 | 0.140 J | 0.093 | 0.29 | 0.085 | 0.20 | 0.15 | 0.11 | 0.23 | 0.05 | 0.065 | 0.035 | 0.031 |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L) | 2.9 | 0.2 (S) | | 0.076 | | | | | | 0.130 B | 0.11 B | | | 0.072 B | | | | | 0.033 B |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | | 0.0049 B | | | | | 0.0048 B | | |
| Arsenic (Filtered) (mg/L) | 0.008 | 0.01 | 0.00510 | | | 0.00430 B | 0.00310 B | 0.00300 B | | | | | 0.0039 B | | | | | | |
| Barium (Filtered) (mg/L) | 0.54 | 2 | 0.32 | 0.35 | 0.150 | 0.37 | 0.36 | 0.36 | 0.37 | | 0.38 | 0.69 | 0.29 | 0.24 | 0.22 | 0.16 B J | 0.18 B J | 0.19 B | 0.19 B |
| Beryllium (Filtered) (mg/L) | 0.25 | 0.004 | | | | | | | | 0.40 | | | | | | | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | | | | | | | | | |
| Calcium (Filtered) (mg/L) | 715 | -- | 121.00 | 117.00 | 83.50 | 121.00 | 116.00 | 124.00 J | 116.00 | 118.00 | 109 | 89.3 | 91.1 | 82.0 | 97.9 J | 87.6 J | 92.4 J | 94.8 | 97 |
| Chromium (Filtered) (mg/L) | 0.005 | 0.1 | | | | | | | | | | | | | | | | | |
| Cobalt (Filtered) (mg/L) | 0.027 | -- | | | | | | | | | | | | | | | | | |
| Copper (Filtered) (mg/L) | 0.018 | 1.3 | | | | | | | | | | | | | | | | | |
| Iron (Filtered) (mg/L) | 16.4 | 0.3 (S) | **3.00** | **2.50** | **0.57** | **2.50** | **2.70** | **2.60 J** | **2.40** | **2.90** | **2.8** | **2.2** | **2.3** | **2.2** | **2.3 J** | **1.9 J** | **2.3 J** | **2.3** | **2.4** |
| Magnesium (Filtered) (mg/L) | 117 | -- | 37.50 | 39.00 | 21.30 | 37.10 | 42.00 | 38.00 | 36.30 | 35.50 | 32.7 | 28.8 | 29.2 | 26.6 | 30.5 J | 26.8 J | 29.5 J | 30.2 | 30.8 |
| Manganese (Filtered) (mg/L) | 3.3 | 0.05 (S) | **0.190** | **0.190** | **0.30** | **0.190** | **0.180** | **0.190** | **0.180** | **0.190** | **0.17** | **0.14** | **0.15** | **0.14** | **0.15 J** | **0.13** | **0.14** | **0.15** | **0.15** |
| Mercury (Filtered) (mg/L) | 0.00023 | 0.002 | | | | | | | | | | | | | | | | 0.0001 B | |
| Nickel (Filtered) (mg/L) | 0.28 | 0.1 (OH) | | | | | | | | | 0.0097 B | | 0.0027 B | 0.0025 B | | | | | |
| Potassium (Filtered) (mg/L) | 6.9 | -- | 1.60 | 1.40 J | 1.90 | 1.60 B | 1.90 B | 1.90 B | 2.20 B | 2.30 B | 2.1 B | 2.0 B | 1.7 B | 1.6 B | 1.6 B J | 1.4 B J | 1.5 B J | 1.2 B J | 1.2 B J |
| Selenium (Filtered) (mg/L) | 0.005 | 0.05 | | | 0.00450 | | | | | | | | | | | | | | |
| Sodium (Filtered) (mg/L) | 122 | -- | 35.40 | 26.30 | 4.80 | 48.10 | 43.00 | 52.30 | 63.30 | 77.90 | 87.7 | 98.3 | 55.6 | 43.1 | 17.8 | 10.6 J | 10.7 | 10.1 | 10.2 |
| Thallium (Filtered) (mg/L) | 0.0013 | 0.002 | | | | | | | | | | | | | | | 0.000025 B | | |
| Vanadium (Filtered) (mg/L) | 0.025 | -- | | | | | | | | | | | | | | | | | |
| Zinc (Filtered) (mg/L) | 0.16 | 5 (S) | | | 0.043 | 0.052 | | | | 0.066 | | 0.13 | | | | | 0.021 | | |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | | |
| Fluoranthene (ug/L) | 2.5 | -- | | | | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L) | 10 | 6 | | | | | | | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (ug/L) | -- | -- | | | | | | | 0.64 J | | | | | | | | | | |
| Acetone (ug/L) | -- | -- | | | | | | | 2.30 J | | | | | | | | | | |
| Benzene (ug/L) | -- | 5 | | | | | | | 0.120 J | | | | | | | | | | |
| Carbon disulfide (ug/L) | 0.26 | -- | | 0.25 J | | | | | | | | | | | | | | | |
| Chloroethane (ug/L) | 2.5 | -- | | | 1.60 J | | | | | | | | | | | | | | |
| Methylene chloride (ug/L) | -- | 5 | | | | | | | | | | | | | | | | | |
| Toluene (ug/L) | 0.25 | 1,000 | | | | | | | 0.056 J | | | | | | | | | | |
| Xylenes (total) (ug/L) | -- | 10,000 | | | | | | | | | | | | | | | | | |
| Styrene (ug/L) | -- | 100 | | | | | | | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S108 Station Sample Number Date Collected | Maximum Background Concentration | U.S. EPA MCL | S108-MW06D 198S109GW07 03/27/1998 | S108-MW06D 298S108MW06 07/01/1998 | S108-MW06D S108-MW06D 09/29/1998 | S108-MW06D S108MW06-4 12/16/1998 | S108-MW06D S108MW06D-1 03/09/1999 | S108-MW06D S108MW06D-2 06/02/1999 | S108-MW06D S108MW06D-3 09/01/1999 | S108-MW06D S108MW06D-4 12/21/1999 | Duplicate S108-MW06D S302MW06D-4 12/21/1999 | S108-MW06D S108MW06D-10 05/24/2000 | S108-MW06D S108MW06D-20 06/08/2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | |
| Aluminum (mg/L ) | 47.9 | 0.2 (S) | **56.80** | **7.20** | **54.20** | **1.40** | **4.70** | **10.70** | **1.00** | **0.48** | **0.56** | 0.096 J | 1.7 |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | | | | | |
| Arsenic (mg/L ) | 0.1 | 0.01 | 0.096 | 0.01800 | 0.140 | 0.01200 | 0.01900 | 0.02400 | 0.01600 | 0.01700 | 0.01600 | 0.01500 | 0.017 |
| Barium (mg/L ) | 1 | 2 | 0.97 | 0.35 | 1.30 | 0.25 | 0.31 | 0.41 | 0.29 | 0.32 | 0.31 | 0.30 | 0.33 |
| Beryllium (mg/L ) | 0.003 | 0.004 | 0.00410 | | 0.00320 | 0.00071 J | | | | | | | |
| Cadmium (mg/L ) | 0.01 | 0.005 | 0.00880 | | 0.00630 | | | | | | | | |
| Calcium (mg/L ) | 657 | -- | 264.00 | 116.00 | 350.00 | 100.00 | 115.00 | 126.00 | 129.00 J | 121.00 | 118.00 | 112.00 | 127 |
| Chromium (mg/L ) | 0.39 | 0.1 | 0.110 | 0.01400 | 0.140 | | 0.01000 | 0.01800 | | | | | |
| Cobalt (mg/L ) | 0.055 | -- | 0.069 | | 0.051 | | | | | | | | |
| Copper (mg/L ) | 0.62 | 1.3 | 0.200 | 0.032 | 0.200 | 0.01100 B | 0.02000 B | 0.02900 | 0.01600 B | 0.00370 B | 0.00420 B | | |
| Cyanide (mg/L ) | 0.007 | 0.2 | | | | | | | | | | | |
| Iron (mg/L ) | 152 | 0.3 (S) | **356.00** | **18.50** | **175.00** | **5.20** | **16.30** | **22.20** | **8.10** | **4.60** | **4.80** | 3.30 | 6.3 |
| Lead (mg/L ) | 0.077 | 0.015 | 0.120 | 0.01700 | 0.099 | 0.00310 | 0.01400 | 0.01800 | 0.00800 | | | | 0.0024 B |
| Magnesium (mg/L ) | 118 | -- | 82.30 | 38.20 | 125.00 | 29.30 | 34.50 | 41.50 | 38.00 J | 36.90 | 35.90 | 32.80 | 37.1 |
| Manganese (mg/L ) | 4.2 | 0.05 (S) | **2.40** | **0.39** | **2.70** | **0.110** | **0.29** | **0.37** | **0.22 J** | **0.100** | **0.100** | **0.087** | **0.14** |
| Mercury (mg/L ) | 0.00021 | 0.002 | 0.00120 | | 0.00021 | | | 0.00012 B | | | | | |
| Nickel (mg/L ) | 0.38 | 0.1 (OH) | 0.21 | | 0.27 | | 0.02100 B | 0.02800 B | | | | | 0.010 B |
| Potassium (mg/L ) | 17.2 | -- | 15.00 | 3.40 J | 31.20 | 1.90 B | 2.70 B | 3.60 B | 1.60 J | 1.90 B | 1.90 B | 1.80 B | 2.3 B |
| Selenium (mg/L ) | 0.012 | 0.05 | | | 0.01200 | | | | | | | | |
| Sodium (mg/L ) | 128 | -- | 25.20 | 23.00 | 8.90 | 25.20 | 26.90 | 31.00 | 29.70 J | 32.60 | 31.50 | 33.00 | 34.4 |
| Thallium (mg/L ) | 0.0069 | 0.002 | 0.00560 | 0.00170 | 0.00680 | | | | | | | | 0.00070 J |
| Vanadium (mg/L ) | 0.4 | -- | 0.24 | 0.033 | 0.23 | | 0.02500 B | 0.059 | | | | | 0.0082 B |
| Zinc (mg/L ) | 0.6 | 5 (S) | 1.10 | 0.086 | 0.72 | | 0.078 | 0.120 | 0.042 J | | 0.01700 B | 0.02800 | 0.020 |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L ) | 2.9 | 0.2 (S) | | | 0.058 | | | | | | | | 0.10 B |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | | | |
| Arsenic (Filtered) (mg/L ) | 0.008 | 0.01 | 0.00990 | 0.00930 | | 0.01200 | 0.01300 | 0.01500 | 0.01600 | 0.01400 | 0.01400 | 0.01400 | 0.015 |
| Barium (Filtered) (mg/L ) | 0.54 | 2 | 0.23 | 0.28 | 0.051 | 0.26 | 0.27 | 0.32 | 0.29 | 0.30 | 0.30 | 0.31 | 0.31 |
| Beryllium (Filtered) (mg/L ) | 0.25 | 0.004 | | | | | | | | | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | | | |
| Calcium (Filtered) (mg/L ) | 715 | -- | 110.00 | 107.00 | 100.00 | 108.00 | 107.00 | 116.00 | 119.00 J | 115.00 | 113.00 | 115.00 | 120 |
| Chromium (Filtered) (mg/L ) | 0.005 | 0.1 | | | | | | | | | | | |
| Cobalt (Filtered) (mg/L) | 0.027 | -- | | | | | | | | | | | |
| Copper (Filtered) (mg/L ) | 0.018 | 1.3 | | | 0.01400 | 0.01700 B | | | | | | | |
| Iron (Filtered) (mg/L ) | 16.4 | 0.3 (S) | **2.80** | **3.10** | **1.60** | **3.10** | **3.80** | **3.30** | **3.50 J** | **3.60** | **3.60** | **3.30** | 3.4 |
| Magnesium (Filtered) (mg/L ) | 117 | -- | 32.80 | 34.70 | 32.90 | 31.70 | 31.40 | 36.60 | 35.20 | 35.00 | 34.30 | 33.70 | 35.0 |
| Manganese (Filtered) (mg/L ) | 3.3 | 0.05 (S) | **0.150** | **0.140** | **0.130** | **0.094** | **0.089** | **0.089** | **0.086** | **0.088** | **0.085** | **0.088** | 0.089 |
| Mercury (Filtered) (mg/L ) | 0.00023 | 0.002 | | | | | | | | | | | |
| Nickel (Filtered) (mg/L ) | 0.28 | 0.1 (OH) | | | | | | | | | | | |
| Potassium (Filtered) (mg/L ) | 6.9 | -- | 2.00 | 1.50 J | 1.40 | 1.40 B | 1.20 B | 1.60 B | 1.40 B | 1.70 B | 1.70 B | 1.80 B | 1.7 B |
| Selenium (Filtered) (mg/L ) | 0.005 | 0.05 | | | 0.00430 | | | | | | | | |
| Sodium (Filtered) (mg/L ) | 122 | -- | 25.50 | 23.70 | 6.30 | 25.00 | 25.40 | 29.00 | 30.50 | 31.00 | 31.20 | 33.90 | 33.5 |
| Thallium (Filtered) (mg/L ) | 0.0013 | 0.002 | | 0.00100 | | | | | | | | | |
| Vanadium (Filtered) (mg/L ) | 0.025 | -- | | | | | | | | | | | |
| Zinc (Filtered) (mg/L ) | 0.16 | 5 (S) | | | 0.054 | | 0.054 | | | | | | |
| ***Semivolatiles*** | | | | | | | | | | | | | |
| Fluoranthene (ug/L ) | 2.5 | -- | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L ) | 10 | 6 | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | |
| 2-Butanone (ug/L ) | -- | -- | | | | | | | | | | | |
| Acetone (ug/L ) | -- | -- | | | | | | | | | | | |
| Benzene (ug/L ) | -- | 5 | | | | | | | | | | | |
| Carbon disulfide (ug/L ) | 0.26 | -- | | 0.32 J | | | | | | | | | |
| Chloroethane (ug/L ) | 2.5 | -- | | | | | | | | | | | |
| Methylene chloride (ug/L ) | -- | 5 | | | | | | 0.170 J | | | | | |
| Toluene (ug/L ) | 0.25 | 1,000 | | | | | | | | | | | |
| Xylenes (total) (ug/L) | -- | 10,000 | | | | | | | | | | | |
| Styrene (ug/L) | -- | 100 | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

# Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S109<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | S109-PZ01<br>197S109GW01<br>05/07/1997 | S109-PZ01<br>297S109GW01<br>07/29/1997 | S109-PZ01<br>397S109GW01<br>10/27/1997 | S109-PZ01<br>497S109GW01<br>01/06/1998 | S109-PZ01<br>198S109GW01<br>03/25/1998 | S109-PZ01<br>298S109PZ01<br>06/30/1998 | S109-PZ01<br>S109-PZ01<br>09/29/1998 | S109-PZ01<br>S109PZ01-1<br>03/09/1999 | S109-PZ01<br>S109PZ01-2<br>06/03/1999 | S109-PZ01<br>S109PZ01-3<br>08/31/1999 | S109-PZ01<br>S109PZ01-10<br>03/21/2000 | S109-PZ01<br>S109PZ01-20<br>06/08/2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | |
| Aluminum (mg/L ) | 47.9 | 0.2 (S) | **0.65 J** | **0.68** | **21.90** | **0.43** | **1.30** | **0.57** | **72.90** | **0.22** | **3.70** | | | **0.26** |
| Antimony (mg/L ) | 0.03 | 0.006 | | | | | | | | | **0.041 B** | | | |
| Arsenic (mg/L ) | 0.1 | 0.01 | | 0.00220 | **0.02900** | | 0.00350 | | **0.110** | | | | | |
| Barium (mg/L ) | 1 | 2 | 0.23 | 0.26 | 0.38 | 0.27 | 0.25 | 0.29 | 1.10 | 0.26 | 0.31 | 0.27 | 0.27 | 0.38 |
| Beryllium (mg/L ) | 0.003 | 0.004 | | | | | | | **0.00430** | | | | | |
| Cadmium (mg/L ) | 0.01 | 0.005 | | | | | | | **0.01300** | | | | | |
| Calcium (mg/L ) | 657 | -- | 86.70 | 95.80 | 174.00 | 94.40 | 91.20 | 108.00 | 388.00 | 101.00 | 156.00 | 125.00 | 93.90 | 138 |
| Chromium (mg/L ) | 0.39 | 0.1 | | | 0.065 | | | | **0.130** | | 0.01000 | | | |
| Cobalt (mg/L ) | 0.055 | -- | | | 0.02000 B | | | | 0.091 | | | | | |
| Copper (mg/L ) | 0.62 | 1.3 | | | 0.063 | | 0.00610 | | 0.27 | | | | | |
| Cyanide (mg/L ) | 0.007 | 0.2 | | | 0.01200 | | | | | | | | | |
| Iron (mg/L ) | 152 | 0.3 (S) | **2.50** | **2.80** | **54.00** | **2.40** | **3.80** | **2.80** | **205.00** | **2.00** | **2.40** | **2.80** | **1.70** | **2.8** |
| Lead (mg/L ) | 0.077 | 0.015 | | 0.00170 | **0.035** | | | | **0.140** | | | | | |
| Magnesium (mg/L ) | 118 | -- | 26.40 | 29.60 | 42.60 | 26.50 | 27.50 | 34.10 | 133.00 | 29.20 | 38.70 | 36.30 | 26.30 | 38.9 |
| Manganese (mg/L ) | 4.2 | 0.05 (S) | **0.150** | **0.180** | **1.40** | **0.190** | **0.180** | **0.21** | **3.90** | **0.190** | **0.22** | **0.23** | **0.180** | **0.27** |
| Mercury (mg/L ) | 0.00021 | 0.002 | | 0.000035 | | | | | 0.00016 | | 0.00011 B | | | |
| Nickel (mg/L ) | 0.38 | 0.1 (OH) | | | 0.070 | | | | **0.31** | | | | | |
| Potassium (mg/L ) | 17.2 | -- | | 1.70 | 9.20 | 2.30 J | 2.10 | 1.60 J | 24.60 | 1.60 B | 1.80 B | 1.30 B | 2.00 B | 2.3 B |
| Selenium (mg/L ) | 0.012 | 0.05 | | | | | | | 0.01400 | | | | | |
| Sodium (mg/L ) | 128 | -- | 18.10 | 19.30 | 7.50 | 33.00 | 21.90 | 20.80 | 35.20 | 26.90 | 19.60 | 21.90 | 49.10 | 49.6 |
| Thallium (mg/L ) | 0.0069 | 0.002 | | | **0.00310** | | | | **0.00620 J** | | | | | 0.00060 J |
| Vanadium (mg/L ) | 0.4 | -- | | | 0.082 | | 0.01100 | | 0.26 | | | | | |
| Zinc (mg/L ) | 0.6 | 5 (S) | | 0.02600 | 0.29 | | 0.033 | | 1.00 | 0.02100 B | | | 0.02200 | 0.016 B |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L ) | 2.9 | 0.2 (S) | 0.047 J | | | | | 0.110 | 0.076 | | 0.067 B | | | **0.34** |
| Antimony (Filtered) (mg/l) | 0.03 | 0.006 | | | | | | | | | | | | |
| Arsenic (Filtered) (mg/L ) | 0.008 | 0.01 | 0.00310 | 0.00450 | | | | | | | | | | |
| Barium (Filtered) (mg/L ) | 0.54 | 2 | 0.22 | 0.30 | 0.160 B | 0.25 | 0.25 | 0.31 | 0.33 | 0.21 | 0.30 | 0.26 | | 0.38 |
| Beryllium (Filtered) (mg/L ) | 0.25 | 0.004 | | | | | | | | | | | **0.27** | |
| Calcium (Filtered) (mg/L ) | 715 | -- | 87.00 | 114.00 | 79.60 | 89.70 | 92.60 | 116.00 | 117.00 | 80.20 | 129.00 | 118.00 | 92.10 | 140 |
| Chromium (Filtered) (mg/L ) | 0.005 | 0.1 | | | | | | | | | | | | |
| Copper (Filtered) (mg/L ) | 0.018 | 1.3 | | | | | | | 0.00720 | | | | | |
| Iron (Filtered) (mg/L ) | 16.4 | 0.3 (S) | **1.40** | **1.90** | **0.93** | **1.60** | **1.60** | **2.10** | **1.80** | **1.40** | **2.30** | **2.30** | **1.60** | **2.5** |
| Magnesium (Filtered) (mg/L ) | 117 | -- | 26.40 | 35.10 | 20.40 | 25.10 | 27.90 | 36.60 | 35.00 | 23.10 | 38.20 | 34.20 | 26.00 | 39.2 |
| Manganese (Filtered) (mg/L ) | 3.3 | 0.05 (S) | **0.150** | **0.200** | **0.29** | **0.180** | **0.170** | **0.21** | **0.200** | **0.150** | **0.23** | **0.22** | **0.180** | **0.27** |
| Mercury (Filtered) (mg/L ) | 0.00023 | 0.002 | 0.000051 | 0.000036 | | | 0.000089 | | | | 0.00010 B | | | |
| Nickel (Filtered) (mg/L ) | 0.28 | 0.1 (OH) | | | | | | | | | | | | |
| Potassium (Filtered) (mg/L ) | 6.9 | -- | 1.40 | 1.80 | 2.20 B | 2.00 J | 1.50 | 1.60 J | 1.60 | 1.20 B | 1.70 B | 1.20 B | 2.00 B | 2.3 B |
| Selenium (Filtered) (mg/L ) | 0.005 | 0.05 | | | | | | | 0.00600 | | | | | |
| Sodium (Filtered) (mg/L ) | 122 | -- | 19.60 | 21.70 | 4.90 B | 31.90 | 21.30 | 21.80 | 31.30 | 23.40 | 19.40 | 20.80 | 48.80 | 50.7 |
| Thallium (Filtered) (mg/L ) | 0.0013 | 0.002 | | | | | | | | | | | | |
| Vanadium (Filtered) (mg/L) | 0.025 | -- | | | | | | | | | | | | |
| Zinc (Filtered) (mg/L ) | 0.16 | 5 (S) | | | 0.01500 B | | | | 0.050 | | | | | 0.036 |
| ***Semivolatiles*** | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L ) | 10 | 6 | 1.20 J | | | | | | | | | | | |
| Diethyl phthalate (ug/L) | 2.5 | -- | | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | |
| 1,1-Dichloroethane (ug/L ) | 0.25 | -- | | | | | | | | | | | | |
| Acetone (ug/L ) | -- | -- | | | | | | | | | | | | |
| Carbon disulfide (ug/L ) | 0.26 | -- | | | | | | | | | | | | |
| Chloroethane (ug/L ) | 2.5 | -- | | | | | | | | | | | | |
| Chloroform (ug/L ) | 0.25 | 80 | | | | | | | | | | | | |
| Vinyl chloride (ug/L) | 0.5 | 2 | | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006).
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S109 Station Sample Number Date Collected | Maximum Background Concentration | U.S. EPA MCL | S109-PZ02 197S109GW02 05/07/1997 | S109-PZ02 297S109GW02 07/29/1997 | S109-PZ02 397S109GW02 10/27/1997 | S109-PZ02 497S109GW02 01/06/1998 | Duplicate S109-GW03 497S109GW03 01/06/1998 | S109-PZ02 198S109GW02 03/24/1998 | S109-PZ02 298S109PZ02 06/30/1998 | S109-PZ02 S109-PZ02 09/29/1998 | S109-PZ02 S109PZ02-1 03/08/1999 | S109-PZ02 S109PZ02-2 06/01/1999 | S109-PZ02 S109PZ02-3 08/31/1999 | S109-PZ02 S109PZ02-10 03/22/2000 | S109-PZ02 S109PZ02-20 06/07/2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | |
| Aluminum (mg/L ) | 47.9 | 0.2 (S) | | **0.66** | **2.20** | **0.31** | **0.22** | **0.34** | **0.29** | **0.54** | 0.170 B | | **120.00** | 0.130 B | **0.37** |
| Antimony (mg/L ) | 0.03 | 0.006 | | | | | | | | | | | **0.110** | | |
| Arsenic (mg/L ) | 0.1 | 0.01 | | | 0.00610 B | | | 0.00360 | | | | | | | |
| Barium (mg/L ) | 1 | 2 | | 0.140 | 0.26 | 0.29 | 0.25 | 0.120 | 0.150 | 0.23 | 0.110 B | 0.150 B | 1.30 | 0.110 B | 0.11 B |
| Beryllium (mg/L ) | 0.003 | 0.004 | | | | | | | | | | | 0.00350 B | | |
| Cadmium (mg/L ) | 0.01 | 0.005 | | | | | | | | | | | **0.00730** | | |
| Calcium (mg/L ) | 657 | -- | 63.20 | 74.10 | 95.20 | 90.10 | 89.00 | 78.10 | 76.70 | 96.40 | 79.80 | 89.20 | 858.00 | 111.00 | 99.3 |
| Chromium (mg/L ) | 0.39 | 0.1 | | | 0.00540 B | | | | | | | | **0.31** | | |
| Cobalt (mg/L ) | 0.055 | -- | | | | | | | | | | | 0.097 | | |
| Copper (mg/L ) | 0.62 | 1.3 | | | 0.00450 B | | | | | 0.00490 | | | 0.30 | | |
| Cyanide (mg/L ) | 0.007 | 0.2 | | | | | | | | | | | | | |
| Iron (mg/L ) | 152 | 0.3 (S) | **0.55** | **1.60** | **4.70** | **1.30** | **2.10** | **1.10** | **0.79** | **3.10** | 0.30 | **0.31** | **245.00** | 0.22 | **0.57** |
| Lead (mg/L ) | 0.077 | 0.015 | | | 0.00390 | | | | | | | | **0.160** | | |
| Magnesium (mg/L ) | 118 | -- | 16.90 | 20.40 | 27.60 | 23.40 | 24.90 | 18.40 | 21.20 | 27.60 | 19.40 | 22.30 | 123.00 | 26.00 | 23.9 |
| Manganese (mg/L ) | 4.2 | 0.05 (S) | **0.200** | **0.27** | **0.190** | **0.32** | **0.180** | **0.25** | **0.27** | **0.190** | **0.23** | **0.31** | **6.40** | **0.170** | **0.18** |
| Mercury (mg/L ) | 0.00021 | 0.002 | | 0.000023 | | | | | | | | | | | |
| Nickel (mg/L ) | 0.38 | 0.1 (OH) | | | | | | | | | | | **0.32** | | |
| Potassium (mg/L ) | 17.2 | -- | | 1.90 | 2.90 B | 2.30 J | 2.10 J | 1.60 | 1.50 J | 1.80 | 1.30 B | 1.60 B | 33.50 | 1.70 B | 1.9 B |
| Selenium (mg/L ) | 0.012 | 0.05 | | | | | | | | | | | 0.01100 | | |
| Sodium (mg/L ) | 128 | -- | | 5.90 | 26.90 | 4.80 B | 33.30 | 5.70 | 4.00 | 26.00 | 4.10 B | | 15.60 | 3.40 B | 4.7 B |
| Thallium (mg/L ) | 0.0069 | 0.002 | | | | | | | | | | | **0.00580 J** | | |
| Vanadium (mg/L ) | 0.4 | -- | | | 0.01800 B | | | | | | | | 0.40 | | |
| Zinc (mg/L ) | 0.6 | 5 (S) | | 0.01400 | 0.041 B | | | 0.01800 | | 0.045 | 0.044 B | | 1.10 | 0.02300 | |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L ) | 2.9 | 0.2 (S) | | | | | | | 0.099 | | | | | | |
| Antimony (Filtered) (mg/l) | 0.03 | 0.006 | | | | | | | | | | | 0.00350 B | | |
| Arsenic (Filtered) (mg/L ) | 0.008 | 0.01 | | 0.00270 | 0.00320 B | | | | | | | | | | |
| Barium (Filtered) (mg/L ) | 0.54 | 2 | 0.100 | 0.130 | 0.26 | 0.170 B | 0.25 | 0.110 | 0.150 | 0.24 | 0.110 B | 0.150 B | 0.200 | | 0.11 B |
| Beryllium (Filtered) (mg/L ) | 0.25 | 0.004 | | | | | | | | | | | | **0.110 B** | |
| Calcium (Filtered) (mg/L ) | 715 | -- | 64.00 | 73.00 | 98.70 | 87.00 | 88.30 | 73.90 | 77.80 | 106.00 | 83.90 | 88.50 | 109.00 | 119.00 | 97.0 |
| Chromium (Filtered) (mg/L ) | 0.005 | 0.1 | | | | | | | | | | | | | |
| Copper (Filtered) (mg/L ) | 0.018 | 1.3 | | | | | | 0.00450 | | | | | | | |
| Iron (Filtered) (mg/L ) | 16.4 | 0.3 (S) | **0.40** | **0.65** | **1.80** | **1.10** | **1.60** | **0.43** | **0.54** | **2.10** | **0.140** | 0.26 | **1.40** | | |
| Magnesium (Filtered) (mg/L ) | 117 | -- | 17.00 | 20.30 | 28.20 | 22.70 | 24.80 | 17.20 | 21.30 | 30.20 | 20.50 | 22.20 | 28.30 | 28.20 | 23.9 |
| Manganese (Filtered) (mg/L ) | 3.3 | 0.05 (S) | **0.21** | **0.26** | **0.180** | **0.31** | **0.180** | **0.23** | **0.27** | **0.200** | **0.24** | **0.31** | **0.33** | **0.190** | **0.20** |
| Mercury (Filtered) (mg/L ) | 0.00023 | 0.002 | 0.000047 | 0.000023 | | | | | 0.000089 | | | | | | |
| Nickel (Filtered) (mg/L ) | 0.28 | 0.1 (OH) | | | | | | | | | | | | | |
| Potassium (Filtered) (mg/L ) | 6.9 | -- | 1.50 | 1.60 | 2.00 B | 2.10 J | 2.00 J | 1.40 | 1.50 J | 2.30 | 1.40 B | 1.60 B | 2.90 B | 1.70 B | 1.8 B |
| Selenium (Filtered) (mg/L ) | 0.005 | 0.05 | | | | | | | | | | | | | |
| Sodium (Filtered) (mg/L ) | 122 | -- | | 4.40 | 25.70 | 4.70 B | 32.00 | 5.30 | 4.00 | 27.80 | 4.20 B | | 9.60 | 3.90 B | 5.5 |
| Thallium (Filtered) (mg/L ) | 0.0013 | 0.002 | | | | | | | | | | | | | |
| Vanadium (Filtered) (mg/L) | 0.025 | -- | | | | | | | | | | | | | |
| Zinc (Filtered) (mg/L ) | 0.16 | 5 (S) | | | | | | 0.043 | | 0.034 | | | | | |
| ***Semivolatiles*** | | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L ) | 10 | 6 | 2.10 J | | | | | | | | | | | | |
| Diethyl phthalate (ug/L) | 2.5 | -- | | | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | | |
| 1,1-Dichloroethane (ug/L ) | 0.25 | -- | | | | | | | | 0.29 J | | | | | |
| Acetone (ug/L ) | -- | -- | | | | | | | | | | | | | |
| Carbon disulfide (ug/L ) | 0.26 | -- | | | | | | | | | | | | | |
| Chloroethane (ug/L ) | 2.5 | -- | | | | | | | | 24.00 | | | | | |
| Chloroform (ug/L ) | 0.25 | 80 | | | | | | | | | | | | | |
| Vinyl chloride (ug/L) | 0.5 | 2 | | | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006).
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S109<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | S109-MW05D<br>198S109GW05<br>03/24/1998 | S109-MW05D<br>298S109MW05<br>06/30/1998 | Duplicate<br>S109-MW15<br>298S109MW15<br>06/30/1998 | S109-MW05D<br>S109-MW05<br>09/29/1998 | S109-MW05D<br>S109MW05-1<br>03/10/1999 | S109-MW05D<br>S109MW05-3<br>08/31/1999 | S109-MW05D<br>S109MW05-2<br>06/03/1999 | S109-MW05D<br>S109MW05-10<br>03/21/2000 | S109-MW05<br>S109MW05-20<br>06/08/2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | |
| Aluminum (mg/L ) | 47.9 | 0.2 (S) | **0.91** | **6.10** | **6.00** | **7.20** | **3.60** | **0.75** | **2.30** | 0.110 J | 0.14 B |
| Antimony (mg/L ) | 0.03 | 0.006 | | | | | | | | | |
| Arsenic (mg/L ) | 0.1 | 0.01 | | 0.00940 | 0.00910 | **0.01200** | 0.00670 B | 0.00370 B | 0.00540 B | 0.00400 B | |
| Barium (mg/L ) | 1 | 2 | 0.28 | 0.35 | 0.37 | 0.33 | 0.33 | 0.29 | 0.28 | 0.33 | 0.34 |
| Beryllium (mg/L ) | 0.003 | 0.004 | | | | | 0.00078 B | | | | |
| Cadmium (mg/L ) | 0.01 | 0.005 | | | | | | | | | |
| Calcium (mg/L ) | 657 | -- | 110.00 | 114.00 | 115.00 | 131.00 | 116.00 | 101.00 | 100.00 | 106.00 | 112 |
| Chromium (mg/L ) | 0.39 | 0.1 | | 0.01000 | 0.01000 | 0.01300 | | | | | |
| Cobalt (mg/L ) | 0.055 | -- | | | | | | | | | |
| Copper (mg/L ) | 0.62 | 1.3 | | 0.034 | 0.032 | 0.034 | 0.01200 B | | | | |
| Cyanide (mg/L ) | 0.007 | 0.2 | | | | | | | | 0.00260 J | |
| Iron (mg/L ) | 152 | 0.3 (S) | **1.90** | **12.30** | **12.70** | **18.30** | **8.00** | **2.50** | **3.60** | 1.60 | **1.5** |
| Lead (mg/L ) | 0.077 | 0.015 | | 0.01200 | 0.01300 | **0.01700** | 0.00650 | | | | |
| Magnesium (mg/L ) | 118 | -- | 31.50 | 40.30 | 41.00 | 44.80 | 37.40 | 31.00 | 30.30 | 32.20 | 33.8 |
| Manganese (mg/L ) | 4.2 | 0.05 (S) | **0.29** | **0.32** | **0.32** | **0.39** | **0.25** | **0.170** | **0.180** | **0.180** | **0.19** |
| Mercury (mg/L ) | 0.00021 | 0.002 | | | | | | | | | |
| Nickel (mg/L ) | 0.38 | 0.1 (OH) | | | | **0.033** | | | | | |
| Potassium (mg/L ) | 17.2 | -- | 2.10 | 3.00 J | 2.90 J | 3.80 | 2.40 B | 0.99 B | 1.70 B | 1.60 B | 1.4 B |
| Selenium (mg/L ) | 0.012 | 0.05 | | 0.00440 | | 0.00730 | 0.00830 | | | | |
| Sodium (mg/L ) | 128 | -- | 11.40 | 9.70 | 9.40 | 12.80 | 12.30 | 10.10 | 10.80 | 11.00 | 10.7 |
| Thallium (mg/L ) | 0.0069 | 0.002 | | 0.00160 | 0.00180 | | 0.00190 B | | | | 0.00080 J |
| Vanadium (mg/L ) | 0.4 | -- | | 0.035 | 0.034 | 0.046 | 0.02100 B | | 0.01000 B | | |
| Zinc (mg/L ) | 0.6 | 5 (S) | 0.01600 | 0.110 | 0.086 | 0.170 | 0.080 | | | 0.01900 B | |
| ***Inorganics (Filtered)*** | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L ) | 2.9 | 0.2 (S) | | | 0.088 | | | | 0.076 B | | 0.11 B |
| Antimony (Filtered) (mg/l) | 0.03 | 0.006 | | | | | | | | | |
| Arsenic (Filtered) (mg/L ) | 0.008 | 0.01 | 0.00300 | | 0.00330 | | | | | | |
| Barium (Filtered) (mg/L ) | 0.54 | 2 | 0.26 | 0.34 | 0.36 | 0.29 | 0.28 | 0.31 | 0.31 | | 0.34 |
| Beryllium (Filtered) (mg/L ) | 0.25 | 0.004 | | | | | | | | **0.32** | |
| Calcium (Filtered) (mg/L ) | 715 | -- | 104.00 | 98.70 | 113.00 | 99.70 | 90.30 | 106.00 | 101.00 | 102.00 | 112 |
| Chromium (Filtered) (mg/L ) | 0.005 | 0.1 | 0.00900 | | | | | | | | |
| Copper (Filtered) (mg/L ) | 0.018 | 1.3 | | | | | | | | | |
| Iron (Filtered) (mg/L ) | 16.4 | 0.3 (S) | **1.00** | **1.00** | **1.10** | **1.20** | **1.10** | **1.50** | **1.40** | **1.40** | **1.5** |
| Magnesium (Filtered) (mg/L ) | 117 | -- | 29.50 | 32.70 | 37.10 | 30.10 | 26.90 | 32.10 | 31.00 | 31.00 | 33.9 |
| Manganese (Filtered) (mg/L ) | 3.3 | 0.05 (S) | **0.27** | **0.21** | **0.24** | **0.200** | **0.160** | **0.180** | **0.170** | **0.180** | **0.20** |
| Mercury (Filtered) (mg/L ) | 0.00023 | 0.002 | | | | | | | 0.00014 B | | |
| Nickel (Filtered) (mg/L ) | 0.28 | 0.1 (OH) | | | | | | | | | |
| Potassium (Filtered) (mg/L ) | 6.9 | -- | 1.80 | 1.10 J | 1.30 J | 1.30 | 1.10 B | 0.76 B | 1.20 B | 1.50 B | 1.4 B |
| Selenium (Filtered) (mg/L ) | 0.005 | 0.05 | | | | | | | | | |
| Sodium (Filtered) (mg/L ) | 122 | -- | 11.70 | 8.90 | 10.40 | 11.10 | 8.60 | 10.40 | 9.80 | 10.70 | 10.7 |
| Thallium (Filtered) (mg/L ) | 0.0013 | 0.002 | | | | | | | | | |
| Vanadium (Filtered) (mg/L) | 0.025 | -- | | | | | | | | | |
| Zinc (Filtered) (mg/L ) | 0.16 | 5 (S) | | | 0.100 | 0.043 | | | | | |
| ***Semivolatiles*** | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L ) | 10 | 6 | **9.60 J** | | | | | | | | |
| Diethyl phthalate (ug/L) | 2.5 | -- | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | |
| 1,1-Dichloroethane (ug/L ) | 0.25 | -- | | | | | | | | | |
| Acetone (ug/L ) | -- | -- | | | | | | | 8.50 J | | |
| Carbon disulfide (ug/L ) | 0.26 | -- | | | | | | | | | |
| Chloroethane (ug/L ) | 2.5 | -- | | | | | | | | | |
| Chloroform (ug/L ) | 0.25 | 80 | 0.97 J | | | | | | | | |
| Vinyl chloride (ug/L) | 0.5 | 2 | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006).
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S109<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | S109-MW06<br>198S109GW06<br>03/24/1998 | S109-MW06<br>298S109MW06<br>06/30/1998 | S109-MW06<br>S109-MW06<br>09/29/1998 | S109-MW06<br>S109MW06-1<br>03/09/1999 | S109-MW06<br>S109MW06-2<br>06/01/1999 | Duplicate<br>S109-MW06<br>S302MW06-2<br>06/01/1999 | S109-MW06<br>S109MW06-3<br>09/01/1999 | S109-MW06<br>S109MW06-10<br>03/21/2000 | S109-MW06<br>S109MW06-20<br>06/08/2000 | S109-MW06<br>S109-MW06-30<br>10/26/2000 | S109-MW06<br>S109MW06-41<br>04/05/2001 | S109-MW06<br>S109MW06-1001<br>10/09/2001 | S109-MW06<br>S109MW06-13<br>01/14/2003 | S109-MW06<br>S109MW06-14<br>12/22/2003 | S109-MW06<br>S109MW06<br>11/11/2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | |
| Aluminum (mg/L ) | 47.9 | 0.2 (S) | **98.80** | **47.70** | **59.40** | **25.10** | **10.40** | **12.80** | **2.60** | **1.70 J** | **25.3** | 39.5 | 21.6 | 9.2 | 28.8 | **20.5** | **14.5** |
| Antimony (mg/L ) | 0.03 | 0.006 | | | | | | | | | | 0.0074 B | | 0.0042 B | 0.0043 B | 0.0031 B | |
| Arsenic (mg/L ) | 0.1 | 0.01 | **0.24** | **0.077** | **0.160** | **0.029** | **0.01600** | **0.02000** | 0.00980 B | 0.00360 B | **0.042** | **0.044** | **0.027** | **0.013** | **0.038** | **0.029** | **0.021** |
| Barium (mg/L ) | 1 | 2 | 1.50 | 0.85 | 1.20 | 0.86 | 0.69 | 0.68 | 0.51 | 0.26 | 1.2 | 1.1 | 0.90 | 0.45 | 1.0 | 0.93 J | 0.73 |
| Beryllium (mg/L ) | 0.003 | 0.004 | **0.00660** | | 0.00370 | 0.00160 B | | 0.00069 B | 0.00098 B | | 0.0019 B | 0.0017 B | 0.0012 B | | 0.0021 B | 0.00098 B | 0.001 B |
| Cadmium (mg/L ) | 0.01 | 0.005 | **0.02800** | 0.00990 | **0.02400** | **0.00950** | | | **0.00680** | | **0.0060** | **0.0053** | 0.0045 B | 0.0020 B | **0.0086 J** | 0.0039 B | 0.0035 B J |
| Calcium (mg/L ) | 657 | -- | 345.00 | 196.00 | 286.00 | 219.00 | 236.00 | 229.00 | 210.00 J | 185.00 | 196 | 88.6 | 184 | 100 | 152 J | 99.5 J | 122 |
| Chromium (mg/L ) | 0.39 | 0.1 | **0.200** | 0.076 | **0.110** | 0.046 | 0.01600 | 0.01900 | | 0.094 | 0.042 | 0.075 | 0.034 | 0.014 | 0.044 | 0.032 | 0.024 |
| Cobalt (mg/L ) | 0.055 | -- | 0.110 | 0.042 | 0.081 | 0.035 B | | | | | 0.021 B | 0.019 B | 0.013 B | 0.0059 B | 0.024 B J | 0.014 B | 0.011 B |
| Copper (mg/L ) | 0.62 | 1.3 | 0.39 | 0.150 | 0.27 | 0.120 | 0.01700 B | 0.02100 B | 0.02400 B | 0.01400 B | 0.073 | 0.071 | 0.050 | 0.022 B | 0.078 J | 0.048 | 0.039 |
| Cyanide (mg/L ) | 0.007 | 0.2 | | | | | | | | | | | | | | | |
| Iron (mg/L ) | 152 | 0.3 (S) | **283.00** | **95.10** | **192.00** | **92.20** | **22.10** | **25.10** | **18.20** | **9.20** | **55.0** | **60.0** | **40.4** | **19.7** | 55.6 J | **45.5** | **32.6** |
| Lead (mg/L ) | 0.077 | 0.015 | **0.25** | **0.084** | **0.170** | **0.071** | **0.01800** | **0.01900** | **0.01700** | 0.00430 | **0.041** | **0.045** | **0.024** | 0.0091 | **0.041** | **0.03** | **0.021** |
| Magnesium (mg/L ) | 118 | -- | 126.00 | 68.10 | 104.00 | 69.80 | 54.00 | 56.80 | 59.70 J | 53.70 | 64.3 | 36.5 | 61.4 | 33.3 | 51.7 J | 31.9 J | 37.2 |
| Manganese (mg/L ) | 4.2 | 0.05 (S) | **3.70** | **1.50** | **2.80** | **1.50** | **1.10** | **1.10** | **1.10 J** | **0.49** | **1.0** | **0.69** | **0.71** | **0.33** | **0.96 J** | **0.51** | **0.51** |
| Mercury (mg/L ) | 0.00021 | 0.002 | 0.00025 | 0.00018 | 0.00034 | 0.00018 B | | | | | 0.00012 B | | | | | | 0.000094 B |
| Nickel (mg/L ) | 0.38 | 0.1 (OH) | **0.65** | **0.26 J** | **0.46** | **0.200** | 0.057 | 0.069 | 0.059 | 0.02600 B | **0.11** | **0.14** | 0.067 | 0.036 B | **0.12** | 0.077 | 0.058 |
| Potassium (mg/L ) | 17.2 | -- | 32.90 | 16.70 J | 22.60 | 10.00 | 5.70 | 6.60 | 3.00 J | 3.10 B | 11.9 | 17.0 | 9.9 | 6.0 | 11.4 J | 9.5 J | 6.6 J |
| Selenium (mg/L ) | 0.012 | 0.05 | 0.043 | 0.01600 | 0.035 | 0.01400 | | | | | 0.0092 | 0.015 | | | 0.0078 | 0.0058 | 0.0063 |
| Sodium (mg/L ) | 128 | -- | 33.50 | 26.40 | 32.40 | 33.00 | 41.30 | 41.80 | 36.20 J | 52.10 | 81.8 | 87.4 | 101 | 118 | 52.2 | 85.6 J | 60.7 |
| Thallium (mg/L ) | 0.0069 | 0.002 | **0.01500 J** | **0.00980** | **0.01300** | **0.00700** | 0.00150 J | 0.00210 J | | | **0.0040 J** | **0.0075** | | **0.0022 J** | **0.0036** | **0.0025** | 0.002 |
| Vanadium (mg/L ) | 0.4 | -- | 0.85 | 0.39 | 0.45 | 0.180 | 0.096 | 0.110 | 0.01800 B | 0.01300 B | 0.24 | 0.41 | 0.21 | 0.084 | 0.28 | 0.19 | 0.15 |
| Zinc (mg/L ) | 0.6 | 5 (S) | 1.70 | 0.59 | 1.30 | 0.55 | 0.170 | 0.140 | 0.25 J | 0.066 | 0.35 | 0.34 | 0.20 | 0.098 | 0.41 | 0.22 | 0.16 |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L ) | 2.9 | 0.2 (S) | 0.071 | 0.060 | 0.062 | | | | | | 0.14 B | **0.41** | 0.042 B | | | | 0.048 B |
| Antimony (Filtered) (mg/l) | 0.03 | 0.006 | | | | | | | | | | 0.0033 B | | 0.0032 B | | | |
| Arsenic (Filtered) (mg/L ) | 0.008 | 0.01 | 0.00440 | | | | | | 0.00330 B | | | | | | | | |
| Barium (Filtered) (mg/L ) | 0.54 | 2 | 0.34 | 0.35 | 0.36 | 0.42 | 0.40 | 0.41 | 0.37 | | 0.78 | 0.60 | 0.44 | 0.19 B | 0.15 B | 0.14 B J | 0.22 |
| Beryllium (Filtered) (mg/L ) | 0.25 | 0.004 | | | | | | | | **0.29** | | | | | | | |
| Calcium (Filtered) (mg/L ) | 715 | -- | 133.00 | 97.10 | 104.00 | 127.00 | 110.00 | 107.00 | 99.50 J | 178.00 | 145 | 56.3 | 198 | 87.4 | 91.1 J | 80.5 J | 117 |
| Chromium (Filtered) (mg/L ) | 0.005 | 0.1 | | | | | | | | | | | | | | | |
| Copper (Filtered) (mg/L ) | 0.018 | 1.3 | | | | | | | | | | | | | | | |
| Iron (Filtered) (mg/L ) | 16.4 | 0.3 (S) | **2.70** | **1.70** | **2.40** | **2.70** | **2.70** | **2.30** | **2.20 J** | **3.40** | **3.1** | **1.4** | 4.5 | **2.5** | **2.2 J** | **1.8 J** | **2.8** |
| Magnesium (Filtered) (mg/L ) | 117 | -- | 38.10 | 31.40 | 30.40 | 37.60 | 32.00 | 31.30 | 28.90 | 50.80 | 41.5 | 17.1 | 59.7 | 27.0 | 25.4 J | 20.9 J | 30.5 |
| Manganese (Filtered) (mg/L ) | 3.3 | 0.05 (S) | **0.40** | **0.22** | **0.22** | **0.25** | **0.22** | **0.21** | **0.21** | **0.38** | **0.29** | **0.13** | **0.36** | **0.17** | **0.17 J** | **0.15** | **0.23** |
| Mercury (Filtered) (mg/L ) | 0.00023 | 0.002 | | | | | | | | | | | | | | | |
| Nickel (Filtered) (mg/L ) | 0.28 | 0.1 (OH) | 0.038 | 0.039 J | 0.058 | 0.02400 B | 0.02800 B | 0.02700 B | 0.02900 B | 0.01400 B | | | 0.0035 B | 0.0064 B | | 0.0044 B | 0.0044 B |
| Potassium (Filtered) (mg/L ) | 6.9 | -- | 2.70 | 1.50 J | 1.70 | 1.50 B | 1.40 B | 1.50 B | 1.60 B | 2.30 B | 2.2 B | 1.9 B | 2.1 B | 2.0 B | 1.8 B J | 1.8 B J | 1.8 B J |
| Selenium (Filtered) (mg/L ) | 0.005 | 0.05 | | | | | | | | | | | | | | | |
| Sodium (Filtered) (mg/L ) | 122 | -- | 32.60 | 26.20 | 27.60 | 35.10 | 39.20 | 38.40 | 36.90 | 50.80 | 92.5 | 102 | 106 | 112 | 65.8 | 89.4 J | 74.5 |
| Thallium (Filtered) (mg/L ) | 0.0013 | 0.002 | | | | | | | | | 0.0010 J | | | | | 0.000016 B | |
| Vanadium (Filtered) (mg/L) | 0.025 | -- | | | | | | | | | | 0.0035 B | | | | | |
| Zinc (Filtered) (mg/L ) | 0.16 | 5 (S) | 0.01400 | | 0.035 | 0.068 | | | | | 0.14 | 0.15 | | | | | |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L ) | 10 | 6 | | | | | | | | | | | | 1.4 J | | | |
| Diethyl phthalate (ug/L) | 2.5 | -- | | | | | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethane (ug/L ) | 0.25 | -- | 3.70 J | 2.80 J | 2.10 J | 4.30 J | 6.30 J | 18.00 J | 5.70 J | 5.70 J | 2.3 J | 4.8 J | 2.7 J | 4.7 J | | 2.1 J | 2.2 J |
| Acetone (ug/L ) | -- | -- | | | | | | | | | | | | | | | |
| Carbon disulfide (ug/L ) | 0.26 | -- | 0.92 J | | | | | | | | | | | | | | |
| Chloroethane (ug/L ) | 2.5 | -- | 230.00 | 170.00 | 220.00 | 280.00 | 400.00 | 480.00 | 460.00 | 220.00 | 300 | 350 | 160 | 200 | 170 | 150 | 190 |
| Chloroform (ug/L ) | 0.25 | 80 | | | | | | | | | | | | | | | |
| Vinyl chloride (ug/L) | 0.5 | 2 | | | | | | | | | | | | | 3.0 J | 7.1 J | 8.3 J |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006).
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S201<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | S201-PZ01<br>197S201GW01<br>05/07/1997 | S201-PZ01<br>297S201GW01<br>07/29/1997 | S201-PZ01<br>397S201GW01<br>10/27/1997 | S201-PZ01<br>497S201GW01<br>01/06/1998 | S201-PZ01<br>198S210GW01<br>03/24/1998 | S201-PZ01<br>298S201PZ01<br>06/30/1998 | S201-PZ01<br>S201-PZ01<br>09/30/1998 | S201-PZ01<br>S201PZ01-4<br>12/15/1998 | S201-PZ01<br>S201PZ01-1<br>03/08/1999 | Duplicate<br>S201-PZ01<br>S301PZ01-1<br>03/08/1999 | S201-PZ01<br>S201PZ01-2<br>06/01/1999 | S201-PZ01<br>S201PZ01-3<br>08/31/1999 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | |
| Aluminum (mg/L ) | 47.9 | 0.2 (S) | | 0.120 | 0.100 B | | 0.077 | **0.98** | 0.110 | **1.10** | | | | **0.86** |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | |
| Arsenic (mg/L ) | 0.1 | 0.01 | | 0.00470 | 0.00460 B | | | 0.00910 | 0.00330 | 0.00700 B | 0.00410 B | 0.00320 B | 0.00510 B | 0.00540 B |
| Barium (mg/L ) | 1 | 2 | | 0.054 | 0.058 B | 0.110 B | 0.059 | 0.074 | 0.061 | 0.073 B | 0.040 B | 0.044 B | 0.043 B | 0.061 B |
| Beryllium (mg/L ) | 0.003 | 0.004 | | | | | | | | | | | | |
| Cadmium (mg/L ) | 0.01 | 0.005 | | | | | | | | | | | | |
| Calcium (mg/L ) | 657 | -- | 98.00 | 104.00 | 110.00 | 130.00 | 144.00 | 122.00 | 118.00 | 152.00 | 150.00 | 161.00 | 131.00 | 125.00 |
| Chromium (mg/L ) | 0.39 | 0.1 | | | | | | | | | | | | |
| Cobalt (mg/L ) | 0.055 | -- | | | | | | | | | | | | |
| Copper (mg/L ) | 0.62 | 1.3 | | | | | | 0.00720 B | | 0.00730 B | | | | |
| Iron (mg/L ) | 152 | 0.3 (S) | **2.10** | **2.30** | **2.10** | **1.40** | **1.80** | **4.30** | **2.50** | **5.80** | **1.10** | **1.20** | **0.83** | **5.00** |
| Lead (mg/L ) | 0.077 | 0.015 | | | | | | | | | | | | |
| Magnesium (mg/L ) | 118 | -- | 32.60 | 38.20 | 36.10 | 42.60 | 39.90 | 41.20 | 37.00 | 46.80 | 39.10 | 42.40 | 38.70 | 41.00 |
| Manganese (mg/L ) | 4.2 | 0.05 (S) | **0.170** | **0.160** | **0.120** | **0.120** | **0.33** | **0.27** | **0.170** | **0.34** | **0.61** | **0.65** | **0.46** | **0.099** |
| Mercury (mg/L ) | 0.00021 | 0.002 | | 0.000028 | | | | | | | | | | |
| Nickel (mg/L ) | 0.38 | 0.1 (OH) | | | | | | | | | 0.01700 B | 0.01900 B | | |
| Potassium (mg/L ) | 17.2 | -- | | 1.70 | 2.00 B | 1.90 J | 1.80 | 2.00 J | 1.80 | 2.40 B | 1.70 B | 1.90 B | 1.90 B | 1.70 B |
| Selenium (mg/L ) | 0.012 | 0.05 | | | | | | 0.00430 B | | | | | | |
| Sodium (mg/L ) | 128 | -- | 7.20 | 6.70 | 6.80 | 8.90 | 6.70 | 5.70 | 6.00 | 8.00 | 5.00 | 5.50 | | 5.40 |
| Thallium (mg/L ) | 0.0069 | 0.002 | | | | | | | | | | | | |
| Vanadium (mg/L ) | 0.4 | -- | | | | | | | | | | | | |
| Zinc (mg/L ) | 0.6 | 5 (S) | | | | | 0.01300 | 0.01700 B | | 0.072 | 0.02100 B | 0.083 | | |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L ) | 2.9 | 0.2 (S) | 0.041 J | 0.100 | | | | | | 0.056 B | | | 0.076 B | |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | |
| Arsenic (Filtered) (mg/L ) | 0.008 | 0.01 | 0.00440 J | 0.00290 | 0.00510 B | | | 0.00330 | | 0.00440 B | 0.00310 B | 0.00470 B | 0.00500 B | 0.00470 B |
| Barium (Filtered) (mg/L ) | 0.54 | 2 | 0.053 | 0.050 | 0.057 B | 0.110 B | 0.055 | 0.068 | 0.059 | 0.065 B | 0.040 B | 0.046 B | 0.041 B | 0.051 B |
| Beryllium (Filtered) (mg/L ) | 0.25 | 0.004 | | | | | | | | | | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | | | | |
| Calcium (Filtered) (mg/L ) | 715 | -- | 98.00 | 99.10 | 107.00 | 124.00 | 138.00 | 135.00 | 117.00 | 147.00 | 147.00 | 171.00 | 127.00 | 128.00 |
| Cobalt (Filtered) (mg/L ) | 0.027 | -- | | | | | | | | | | | | |
| Copper (Filtered) (mg/L ) | 0.018 | 1.3 | | | | | | | | | | | | |
| Iron (Filtered) (mg/L ) | 16.4 | 0.3 (S) | **1.60** | **1.80** | **1.90** | **1.30** | **1.50** | **1.70** | **2.20** | **2.50** | **1.10** | **1.20** | **0.74** | **3.10** |
| Magnesium (Filtered) (mg/L ) | 117 | -- | 32.40 | 36.00 | 35.60 | 46.90 | 37.80 | 45.40 | 36.70 | 44.50 | 38.30 | 44.90 | 37.30 | 41.50 |
| Manganese (Filtered) (mg/L ) | 3.3 | 0.05 (S) | **0.180** | **0.150** | **0.120** | **0.120** | **0.31** | **0.29** | **0.160** | **0.30** | **0.59** | **0.69** | **0.44** | **0.091** |
| Mercury (Filtered) (mg/L ) | 0.00023 | 0.002 | 0.000062 | 0.000025 | | | | | | | | | | |
| Nickel (Filtered) (mg/L ) | 0.28 | 0.1 (OH) | | | | | | | | | 0.01700 B | 0.02000 B | | |
| Potassium (Filtered) (mg/L ) | 6.9 | -- | 1.40 | 1.60 | 2.00 B | 1.90 J | 1.70 | 1.80 J | 1.80 | 2.00 B | 1.70 B | 2.00 B | 1.80 B | 1.40 B |
| Selenium (Filtered) (mg/L ) | 0.005 | 0.05 | | | | | | 0.00410 | | | | | | |
| Sodium (Filtered) (mg/L ) | 122 | -- | 7.10 | 6.60 | 6.10 | 8.30 | 6.20 | 6.40 | 5.90 | 5.90 | 5.00 | 5.70 | | 5.80 |
| Thallium (Filtered) (mg/L ) | 0.0013 | 0.002 | | | | | | | | | | | | |
| Zinc (Filtered) (mg/L ) | 0.16 | 5 (S) | 0.036 | | | | 0.01500 | | | 0.01300 B | 0.043 B | 0.062 | | |
| ***Semivolatiles*** | | | | | | | | | | | | | | |
| 4-Methylphenol (ug/L ) | 2.5 | -- | | | | | | | | | | | | |
| Phenol (ug/L ) | 5 | -- | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L ) | 10 | 6 | 1.20 J | | | | | 5.40 J | **58.00** | **250.00** | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | |
| 1,1-Dichloroethene (ug/L) | 0.25 | -- | | | | | | | | | | | | |
| Carbon disulfide (ug/L ) | 0.26 | -- | | | | | | 0.29 J | | | | | | |
| Chloromethane (ug/L) | 0.5 | -- | | | | | | | | | | | | |
| Methylene chloride (ug/L ) | -- | 5 | | | | | | | | 0.41 J | | | | |
| Toluene (ug/L ) | 0.25 | 1,000 | | | 0.21 J | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006).
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S201<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | Duplicate<br>S201-PZ01<br>S302PZ01-3<br>08/31/1999 | S201-PZ01<br>S201PZ01-4<br>12/20/1999 | S201-PZ01<br>S201PZ01-10<br>03/21/2000 | Duplicate<br>S201-PZ01<br>S302PZ01-10<br>03/21/2000 | S201-PZ01<br>S201PZ01-20<br>06/07/2000 | S201-PZ01<br>S201-PZ01-30<br>10/26/2000 | S201-PZ01<br>S201PZ01-41<br>04/04/2001 | S201-PZ01<br>S201PZ01-1001<br>10/09/2001 | S201PZ01<br>S201PZ01-13<br>01/14/2003 | Duplicate<br>S301PZ01<br>S301PZ01-13<br>01/14/2003 | S201PZ01<br>S201PZ01-14<br>12/22/2003 | S201PZ01<br>S201PZ01<br>11/10/2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | |
| Aluminum (mg/L ) | 47.9 | 0.2 (S) | **0.66** | **0.74** | | | | | | | | | 0.065 B | 0.15 B |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | |
| Arsenic (mg/L ) | 0.1 | 0.01 | 0.00550 B | 0.00520 B | | | | | | 0.0041 B | | 0.0030 B | | |
| Barium (mg/L ) | 1 | 2 | 0.057 B | 0.070 B | 0.02400 B | 0.02300 B | 0.037 B | 0.027 B | 0.023 B | 0.046 B | 0.029 B | 0.030 B | 0.03 B J | 0.033 B |
| Beryllium (mg/L ) | 0.003 | 0.004 | | | | | | | | | | | | |
| Cadmium (mg/L ) | 0.01 | 0.005 | | | | | | 0.00061 B | | | 0.0026 B J | 0.0028 B J | 0.00056 B | 0.0042 B J |
| Calcium (mg/L ) | 657 | -- | 116.00 | 148.00 | 528.00 | 520.00 | 167 | 368 | 186 | 150 | 565 J | 585 J | 194 J | 403 |
| Chromium (mg/L ) | 0.39 | 0.1 | | | | | | | | | | | | |
| Cobalt (mg/L ) | 0.055 | -- | | | 0.02300 B | 0.02300 B | | 0.011 B | 0.0047 B | | 0.0062 B J | 0.0065 B J | 0.0016 B | 0.017 B |
| Copper (mg/L ) | 0.62 | 1.3 | | | | | | | | | | | | 0.0044 B |
| Iron (mg/L ) | 152 | 0.3 (S) | 4.30 | **5.10** | **0.52** | **0.49** | 0.29 | **0.99** | 0.25 | **3.5** | | | 0.13 | 0.12 |
| Lead (mg/L ) | 0.077 | 0.015 | | | | | | | | | | | | |
| Magnesium (mg/L ) | 118 | -- | 37.70 | 49.40 | 95.30 | 94.10 | 42.0 | 68.0 | 45.6 | 50.0 | 163 J | 170 J | 50.8 J | 117 |
| Manganese (mg/L ) | 4.2 | 0.05 (S) | **0.091** | **0.180** | **3.10** | **3.10** | **0.81** | **2.4** | **0.93** | **0.20** | **1.1 J** | **1.1 J** | **0.42** | **1.6** |
| Mercury (mg/L ) | 0.00021 | 0.002 | | | | | | | | | | | | |
| Nickel (mg/L ) | 0.38 | 0.1 (OH) | | | **0.200** | **0.200** | 0.044 | **0.11** | 0.039 B | 0.0065 B | 0.099 | 0.10 | 0.027 B | **0.12** |
| Potassium (mg/L ) | 17.2 | -- | 1.60 B | 2.10 B | 5.80 | 5.90 | 2.8 B | 5.0 | 2.5 B | 2.2 B | 5.6 J | 5.9 J | 2.9 B J | 4 B J |
| Selenium (mg/L ) | 0.012 | 0.05 | | | | | | | | | | | | |
| Sodium (mg/L ) | 128 | -- | 5.50 | 5.00 | 9.70 | 9.80 | 5.6 | 7.4 | 6.9 | 5.7 | 11.7 | 12.2 | 5.5 | 8 |
| Thallium (mg/L ) | 0.0069 | 0.002 | | | | | | | | | | | 0.0004 B | 0.00029 B |
| Vanadium (mg/L ) | 0.4 | -- | | | | | | | | | | | | |
| Zinc (mg/L ) | 0.6 | 5 (S) | | 0.030 | 0.075 L | 0.076 | 0.017 B | 0.064 | 0.027 | | 0.043 | 0.046 | 0.016 B | 0.027 |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L ) | 2.9 | 0.2 (S) | | | | | | | | | | | | |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | 0.0028 B | | 0.0031 B | | | 0.0034 B | |
| Arsenic (Filtered) (mg/L ) | 0.008 | 0.01 | 0.00430 B | | | | | | | | 0.0036 B | | | |
| Barium (Filtered) (mg/L ) | 0.54 | 2 | 0.051 B | 0.063 B | | | 0.036 B | 0.28 | 0.023 B | 0.044 B | 0.029 B | 0.029 B | 0.034 B J | 0.031 B |
| Beryllium (Filtered) (mg/L ) | 0.25 | 0.004 | | | **0.02900 B** | **0.02200 B** | | | | | | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | 0.00034 B | | | 0.0024 B J | 0.0026 B J | 0.00066 B | 0.0034 B J |
| Calcium (Filtered) (mg/L ) | 715 | -- | 129.00 | 143.00 | 658.00 | 496.00 | 163 | 325 | 192 | 144 | 552 J | 560 J | 216 J | 382 |
| Cobalt (Filtered) (mg/L ) | 0.027 | -- | | | 0.02800 B | 0.02200 B | | 0.0092 B | 0.0048 B | | 0.0056 B J | 0.0061 B J | 0.0022 B | 0.019 B |
| Copper (Filtered) (mg/L ) | 0.018 | 1.3 | | | | | | | | | | 0.0063 B J | | |
| Iron (Filtered) (mg/L ) | 16.4 | 0.3 (S) | **3.10** | **3.40** | **0.58** | **0.38** | 0.18 | **1.1** | 0.21 | **3.4** | | | 0.062 B J | |
| Magnesium (Filtered) (mg/L ) | 117 | -- | 41.60 | 47.30 | 121.00 | 90.10 | 41.2 | 61.8 | 46.9 | 48.2 | 161 J | 163 J | 56.6 J | 111 |
| Manganese (Filtered) (mg/L ) | 3.3 | 0.05 (S) | **0.097** | **0.140** | **3.90** | **3.00** | **0.80** | **2.1** | **0.96** | **0.19** | **1.1 J** | **1.1 J** | 0.47 | **1.6** |
| Mercury (Filtered) (mg/L ) | 0.00023 | 0.002 | | | | | | | | | | | | |
| Nickel (Filtered) (mg/L ) | 0.28 | 0.1 (OH) | | | **0.25** | **0.190** | 0.043 | 0.096 | 0.040 | 0.0061 B | 0.096 | 0.099 | 0.03 B | **0.12** |
| Potassium (Filtered) (mg/L ) | 6.9 | -- | 1.40 B | 1.80 B | 7.40 | 5.70 | 2.7 B | 3.6 B | 2.6 B | 2.1 B | 5.6 J | 5.6 J | 3.2 B J | 3.8 B J |
| Selenium (Filtered) (mg/L ) | 0.005 | 0.05 | | | | | | | | | | | | |
| Sodium (Filtered) (mg/L ) | 122 | -- | 5.90 | 5.10 | 11.80 | 9.10 | 5.5 | 8.7 | 7.0 | 5.6 | 11.1 | 11.3 | 6.4 | 7.8 |
| Thallium (Filtered) (mg/L ) | 0.0013 | 0.002 | | | | | | | | | | | 0.00038 B | 0.00029 B |
| Zinc (Filtered) (mg/L ) | 0.16 | 5 (S) | | 0.01500 B | 0.110 | 0.071 | 0.018 B | 0.16 | 0.016 B | 0.012 B | 0.041 | 0.043 | 0.015 B | 0.02 |
| ***Semivolatiles*** | | | | | | | | | | | | | | |
| 4-Methylphenol (ug/L ) | 2.5 | -- | | | | | | | | | | | | |
| Phenol (ug/L ) | 5 | -- | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L ) | 10 | 6 | | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | |
| 1,1-Dichloroethene (ug/L) | 0.25 | -- | | | | | | | | | | | | |
| Carbon disulfide (ug/L ) | 0.26 | -- | | | | | | | | | | | | |
| Chloromethane (ug/L) | 0.5 | -- | | | | | | 0.26 J | | | | | | |
| Methylene chloride (ug/L ) | -- | 5 | | | | | | | | | | | | |
| Toluene (ug/L ) | 0.25 | 1,000 | | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006)
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S201<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | S201-MW02<br>197S201GW02<br>05/07/1997 | S201-MW02<br>297S201GW02<br>07/29/1997 | S201-MW02<br>397S201GW02<br>10/27/1997 | S201-MW02<br>497S201GW02<br>01/06/1998 | S201-MW02<br>198S210GW02<br>03/24/1998 | S201-MW02<br>298S201MW02<br>06/30/1998 | S201-MW02<br>S201-MW02<br>09/28/1998 | S201-MW02<br>S201MW02<br>12/15/1998 | Duplicate<br>S201-MW02<br>S201MW03-4<br>12/15/1998 | S201-MW02<br>S201MW02-1<br>03/08/1999 | S201-MW02<br>S201MW02-2<br>06/01/1999 | Duplicate<br>S201-MW02<br>S301MW02-2<br>06/01/1999 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | |
| Aluminum (mg/L ) | 47.9 | 0.2 (S) | **7.60 J** | **1.70** | **18.30** | **12.50** | **1.00** | **29.80** | **11.10** | **16.40** | **18.50** | 6.30 | **21.40** | **15.50** |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | |
| Arsenic (mg/L ) | 0.1 | 0.01 | **0.01600** | 0.00540 | **0.02500** | **0.01300** | | **0.064** | **0.030** | **0.042** | **0.060** | **0.01200** | **0.031** | **0.02100** |
| Barium (mg/L ) | 1 | 2 | | 0.074 | 0.28 | 0.190 B | 0.064 | 0.70 | 0.41 | 0.48 | 0.63 | 0.180 B | 0.39 | 0.29 |
| Beryllium (mg/L ) | 0.003 | 0.004 | | | | | | | 0.00075 | 0.00160 B | 0.00170 B | | 0.00110 B | |
| Cadmium (mg/L ) | 0.01 | 0.005 | | | | | | **0.00510** | | | | | | |
| Calcium (mg/L ) | 657 | -- | 118.00 | 108.00 | 122.00 | 111.00 | 109.00 | 198.00 | 139.00 | 183.00 | 186.00 | 165.00 | 199.00 | 207.00 |
| Chromium (mg/L ) | 0.39 | 0.1 | | | 0.036 | 0.02700 | | 0.064 | 0.02400 | 0.041 | 0.050 | 0.01700 | 0.037 | 0.02500 |
| Cobalt (mg/L ) | 0.055 | -- | | | 0.01700 B | | | 0.041 | 0.02100 | 0.030 B | 0.034 B | | 0.02000 B | |
| Copper (mg/L ) | 0.62 | 1.3 | | 0.00580 | 0.02900 | 0.01400 B | 0.00320 | 0.110 | 0.082 | 0.058 | 0.078 | 0.01700 B | 0.038 | 0.02100 B |
| Iron (mg/L ) | 152 | 0.3 (S) | **26.50** | **5.70** | **29.20** | **16.30** | **4.10** | **81.60** | **39.90** | **53.80** | **70.40** | **16.20** | **40.10** | **27.10** |
| Lead (mg/L ) | 0.077 | 0.015 | 0.01000 | **0.01900** | 0.01500 | 0.00660 | | **0.040** | **0.041** | **0.033** | **0.041** | 0.00850 | **0.01700** | 0.01200 |
| Magnesium (mg/L ) | 118 | -- | 42.80 | 38.30 | 42.80 | 38.90 | 34.30 | 76.90 | 40.80 | 56.00 | 64.70 | 46.40 | 64.50 | 63.10 |
| Manganese (mg/L ) | 4.2 | 0.05 (S) | **0.35** | **0.140** | **0.52** | **0.30** | **0.140** | **1.30** | **0.76** | **0.93** | **1.06** | **0.59** | **0.79** | **0.69** |
| Mercury (mg/L ) | 0.00021 | 0.002 | | 0.000028 | | | | 0.00012 B | | 0.000082 B | 0.000096 B | | 0.00011 B | |
| Nickel (mg/L ) | 0.38 | 0.1 (OH) | | | 0.047 | 0.02400 B | | **0.110 J** | 0.063 | 0.077 | 0.100 | 0.02500 B | 0.055 | 0.036 B |
| Potassium (mg/L ) | 17.2 | -- | | 2.00 | 9.20 | 6.80 J | 1.70 | 10.70 J | 6.20 | 7.00 | 7.40 | 3.70 B | 9.10 | 7.30 |
| Selenium (mg/L ) | 0.012 | 0.05 | | | | | | 0.00970 | 0.00700 | | | | | |
| Sodium (mg/L ) | 128 | -- | 9.50 | 8.70 | 10.90 | 9.50 | 8.40 | 7.80 | 25.00 | 7.60 | 7.80 | 8.10 | | |
| Thallium (mg/L ) | 0.0069 | 0.002 | | | **0.00240** | | | **0.00450** | | **0.00290** | **0.00390** | | 0.00200 J | 0.00150 J |
| Vanadium (mg/L ) | 0.4 | -- | | 0.00740 | 0.082 | 0.053 | | 0.120 | 0.052 | 0.054 L | 0.070 | 0.02400 B | 0.090 | 0.062 |
| Zinc (mg/L ) | 0.6 | 5 (S) | 0.068 | 0.02700 | 0.130 | 0.091 | 0.02600 | 0.37 | 0.24 | | | 0.080 | 0.140 | 0.099 |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L ) | 2.9 | 0.2 (S) | | 0.047 | 0.130 B | | | | | | | | | 0.055 B |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | |
| Arsenic (Filtered) (mg/L ) | 0.008 | 0.01 | 0.00290 | 0.00200 | 0.00680 B | | | 0.00310 | **0.01200** | | | | | |
| Barium (Filtered) (mg/L ) | 0.54 | 2 | 0.054 | 0.052 | 0.052 B | 0.050 B | 0.056 | 0.059 | 0.26 | 0.050 B | 0.051 B | 0.160 B | 0.063 B | 0.062 B |
| Beryllium (Filtered) (mg/L ) | 0.25 | 0.004 | | | | | | | | | 0.00071 B | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | | | | |
| Calcium (Filtered) (mg/L ) | 715 | -- | 109.00 | 104.00 | 93.00 | 94.40 | 120.00 | 107.00 | 109.00 | 99.40 | 98.70 | 146.00 | 122.00 | 123.00 |
| Cobalt (Filtered) (mg/L ) | 0.027 | -- | | | | | | | | | | | | |
| Copper (Filtered) (mg/L ) | 0.018 | 1.3 | | | | 0.031 | | | 0.083 | | 0.01400 B | | | |
| Iron (Filtered) (mg/L ) | 16.4 | 0.3 (S) | **2.40** | **2.20** | **2.10** | **1.70** | **2.60** | **2.30** | **3.10** | **1.70** | **1.60** | **2.00** | **2.50** | **2.60** |
| Magnesium (Filtered) (mg/L ) | 117 | -- | 39.10 | 37.70 | 31.40 | 32.10 | 38.10 | 39.00 | 31.90 | 32.90 | 32.40 | 39.20 | 40.30 | 39.40 |
| Manganese (Filtered) (mg/L ) | 3.3 | 0.05 (S) | **0.150** | **0.120** | **0.120** | **0.110** | **0.130** | **0.120** | **0.110** | **0.130** | **0.120** | **0.35** | **0.140** | **0.130** |
| Mercury (Filtered) (mg/L ) | 0.00023 | 0.002 | 0.000062 | 0.000024 | | | | | | | | | | 0.00011 B |
| Nickel (Filtered) (mg/L ) | 0.28 | 0.1 (OH) | | | | | | | 0.02700 | | | | | |
| Potassium (Filtered) (mg/L ) | 6.9 | -- | 1.30 | 1.30 | 1.70 B | 1.50 J | 1.50 | 1.20 J | 1.50 | 1.40 B | 1.40 B | 1.20 B | 1.40 B | 1.40 B |
| Selenium (Filtered) (mg/L ) | 0.005 | 0.05 | | | | | | | | | | | | |
| Sodium (Filtered) (mg/L ) | 122 | -- | 7.90 | 7.10 | 7.90 | 6.90 | 8.00 | 6.70 | 25.20 | 5.90 | 6.00 | 6.10 | | |
| Thallium (Filtered) (mg/L ) | 0.0013 | 0.002 | | | | 0.00110 J | | | | | | | | |
| Zinc (Filtered) (mg/L ) | 0.16 | 5 (S) | | | 0.02000 B | 0.030 B | 0.041 | | 0.079 | | | 0.02600 B | | 0.074 |
| ***Semivolatiles*** | | | | | | | | | | | | | | |
| 4-Methylphenol (ug/L ) | 2.5 | -- | | | | | | | | | | | | |
| Phenol (ug/L ) | 5 | -- | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L ) | 10 | 6 | 1.20 J | **8.60 J** | | | | | | | | | | 3.10 J |
| ***Volatiles*** | | | | | | | | | | | | | | |
| 1,1-Dichloroethene (ug/L) | 0.25 | -- | | | | | | | | | | | | |
| Carbon disulfide (ug/L ) | 0.26 | -- | | | | | | 0.31 J | | | | | 0.34 J | 0.32 J |
| Chloromethane (ug/L) | 0.5 | -- | | | | | | | | | | | | |
| Methylene chloride (ug/L ) | -- | 5 | | | | | | | | 0.53 J | 0.33 J | | | |
| Toluene (ug/L ) | 0.25 | 1,000 | | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006)
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| S201<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | S201-MW02<br>S201MW02-3<br>08/31/1999 | S201-MW02<br>S201MW02-10<br>03/21/2000 | S201-MW02<br>S201MW02-20<br>06/07/2000 | Duplicate<br>S201-MW02<br>S302MW02-20<br>06/07/2000 | S201-MW02<br>S201-MW02-30<br>10/26/2000 | S201-MW02<br>S201MW02-41<br>04/03/2001 | Duplicate<br>S201-MW02<br>S301MW02-41<br>04/03/2001 | S201-MW02<br>S201MW02-1001<br>10/09/2001 | Duplicate<br>S301-MW02<br>S301MW02-1001<br>10/09/2001 | S201-MW02R<br>S201MW02R-14<br>12/22/2003 | S201-MW02R<br>S201MW02R<br>11/10/2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | |
| Aluminum (mg/L ) | 47.9 | 0.2 (S) | **17.40** | **5.80 J** | **29.0** | **26.0** | **2.8** | **10** | **8.0** | **11.5** | **10.3** | **45.4** | **32.7** |
| Antimony (mg/L) | 0.03 | 0.006 | | | | | | | | | 0.0026 B | 0.005 B | |
| Arsenic (mg/L ) | 0.1 | 0.01 | **0.032** | 0.01000 | **0.063** | **0.056** | 0.010 | **0.015** | **0.013** | **0.028** | **0.026** | **0.061** | **0.05** |
| Barium (mg/L ) | 1 | 2 | 0.37 | 0.140 B | 0.64 | 0.56 | 0.12 B | 0.23 | 0.18 B | 0.30 | 0.27 | 0.64 J | 0.48 |
| Beryllium (mg/L ) | 0.003 | 0.004 | | | 0.0015 B | 0.0014 B | | 0.00099 B | 0.00058 B | 0.00061 B | 0.00071 B | 0.0021 B | 0.0016 B |
| Cadmium (mg/L ) | 0.01 | 0.005 | | | | | 0.0019 B | 0.0014 B | 0.0011 B | 0.0010 B | 0.0012 B | 0.0035 B | 0.0032 B J |
| Calcium (mg/L ) | 657 | -- | 165.00 | 162.00 | 205 | 183 | 230 | 146 | 138 | 173 | 182 | 452 J | 395 |
| Chromium (mg/L ) | 0.39 | 0.1 | 0.02900 | 0.00910 B | 0.052 | 0.045 | | 0.015 | 0.013 | 0.020 | 0.018 | 0.068 | 0.048 |
| Cobalt (mg/L ) | 0.055 | -- | | | 0.026 B | 0.023 B | 0.0033 B | 0.0064 B | 0.0049 B | 0.011 B | 0.011 B | 0.041 B | 0.035 B |
| Copper (mg/L ) | 0.62 | 1.3 | 0.034 | 0.01400 B | 0.075 | 0.064 | 0.0048 B | 0.020 B | 0.017 B | 0.032 | 0.033 | 0.1 | 0.071 |
| Iron (mg/L ) | 152 | 0.3 (S) | **39.10** | **12.40** | **68.1** | **59.4** | **12.3** | **17.1** | **13.4** | **31.2** | **29.7** | **94.7** | **70** |
| Lead (mg/L ) | 0.077 | 0.015 | **0.02100** | 0.00560 | **0.038** | **0.033** | 0.011 | 0.0083 | 0.0066 | **0.010** | 0.015 | **0.061** | **0.035** |
| Magnesium (mg/L ) | 118 | -- | 55.40 | 47.70 | 64.0 | 57.7 | 63.1 | 50.3 | 47.1 | 62.3 | 64.7 | 76.6 J | 103 |
| Manganese (mg/L ) | 4.2 | 0.05 (S) | **0.63** | **0.59** | **0.98** | **0.87** | **0.80** | **0.35** | **0.31** | **0.56** | **0.59** | **2.5** | **1.8** |
| Mercury (mg/L ) | 0.00021 | 0.002 | | | 0.00013 B | | | | | | 0.000073 B | 0.000099 B | 0.000065 B |
| Nickel (mg/L ) | 0.38 | 0.1 (OH) | 0.051 | 0.02500 B | 0.094 | 0.086 | | 0.023 B | 0.018 B | 0.038 B | 0.038 B | **0.17** | **0.13** |
| Potassium (mg/L ) | 17.2 | -- | 8.20 | 4.70 B | 12.3 | 11.0 | 2.9 B | 5.4 | 4.6 B | 6.2 | 5.8 | 20.6 J | 14.3 J |
| Selenium (mg/L ) | 0.012 | 0.05 | | | 0.0069 | | | | | | | | 0.0052 |
| Sodium (mg/L ) | 128 | -- | 10.20 | 12.20 | 9.9 | 8.9 | 5.9 | 11.0 | 10.1 | 10.3 | 10.8 | 6 J | 6.5 |
| Thallium (mg/L ) | 0.0069 | 0.002 | | | | | **0.0051** | | | **0.0036 J** | **0.0029 J** | **0.004** | **0.0022** |
| Vanadium (mg/L ) | 0.4 | -- | 0.076 | 0.02300 B | 0.12 | 0.11 | 0.011 B | 0.040 B | 0.033 B | 0.048 B | 0.043 B | 0.22 | 0.11 |
| Zinc (mg/L ) | 0.6 | 5 (S) | 0.130 | 0.065 | 0.25 | 0.21 | 0.072 | 0.061 | 0.049 | 0.14 | 0.14 | 0.39 | 0.28 |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L ) | 2.9 | 0.2 (S) | **0.57** | | | | 0.14 B | 0.11 B | 0.079 B | | | | 0.1 B |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | 0.0026 B | | | |
| Arsenic (Filtered) (mg/L ) | 0.008 | 0.01 | 0.00300 B | | 0.0056 B | | | 0.0041 B | | 0.0064 B | | | **0.011** |
| Barium (Filtered) (mg/L ) | 0.54 | 2 | 0.063 B | | 0.051 B | 0.047 B | 0.049 B | 0.056 B | 0.055 B | 0.063 B | 0.056 B | 0.054 B J | 0.057 B |
| Beryllium (Filtered) (mg/L ) | 0.25 | 0.004 | | 0.051 B | | | | | | | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | 0.00031 B | | | | | |
| Calcium (Filtered) (mg/L ) | 715 | -- | 113.00 | 158.00 | 136 | 132 | 120 | 142 | 139 | 137 | 123 | 141 J | 285 |
| Cobalt (Filtered) (mg/L ) | 0.027 | -- | | | | | | | | | | 0.0017 B | 0.0053 B |
| Copper (Filtered) (mg/L ) | 0.018 | 1.3 | | | | | | | | | | | |
| Iron (Filtered) (mg/L ) | 16.4 | 0.3 (S) | **3.00** | **2.10** | **1.6** | **1.7** | **2.0** | **2.2** | **2.4** | **2.8** | **2.5** | **0.36 J** | **0.47** |
| Magnesium (Filtered) (mg/L ) | 117. | -- | 37.10 | 44.80 | 39.7 | 39.4 | 39.3 | 47.6 | 46.6 | 47.8 | 42.7 | 22.9 J | 54.1 |
| Manganese (Filtered) (mg/L ) | 3.3 | 0.05 (S) | **0.130** | **0.51** | **0.32** | **0.30** | **0.26** | **0.22** | **0.21** | **0.15** | **0.14** | **0.59** | **0.59** |
| Mercury (Filtered) (mg/L ) | 0.00023 | 0.002 | | | | | | | | | | | |
| Nickel (Filtered) (mg/L ) | 0.28 | 0.1 (OH) | | 0.01300 B | | | | 0.0038 B | 0.0027 B | 0.0027 B | | 0.016 B | 0.038 B |
| Potassium (Filtered) (mg/L ) | 6.9 | -- | 1.20 B | 2.30 B | 1.8 B | 1.7 B | 1.9 B | 1.7 B | 1.7 B | 1.9 B | 1.7 B | 4.7 B J | 5.8 J |
| Selenium (Filtered) (mg/L ) | 0.005 | 0.05 | | | | | 0.0049 B | | | | | | |
| Sodium (Filtered) (mg/L ) | 122 | -- | 6.10 | 9.40 | 6.6 | 6.4 | 6.5 | 7.8 | 7.5 | 7.0 | 6.2 | 3.7 B J | 7.1 |
| Thallium (Filtered) (mg/L ) | 0.0013 | 0.002 | | | | | | | | | | 0.000058 B | |
| Zinc (Filtered) (mg/L ) | 0.16 | 5 (S) | | 0.01500 B | | | 0.012 B | | | | | | |
| ***Semivolatiles*** | | | | | | | | | | | | | |
| 4-Methylphenol (ug/L ) | 2.5 | -- | | | | | | | | | | | |
| Phenol (ug/L ) | 5 | -- | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L ) | 10 | 6 | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | |
| 1,1-Dichloroethene (ug/L) | 0.25 | -- | | | | | | | | 0.28 J | | | |
| Carbon disulfide (ug/L ) | 0.26 | -- | | | | | | | | | | 0.81 J | |
| Chloromethane (ug/L) | 0.5 | -- | | | | | | | | | | | |
| Methylene chloride (ug/L ) | -- | 5 | | | | | | | | | | | |
| Toluene (ug/L ) | 0.25 | 1,000 | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006)
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| Jefferson Township<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | JEFF-MW1S<br>198J1SGW01<br>03/26/1998 | JEFF-MW1S<br>298JMW1S<br>07/01/1998 | JEFF-MW1S<br>JT-MW-1S<br>09/30/1998 | JEFF-MW1S<br>JTMW1S-4<br>12/17/1998 | JEFF-MW1S<br>JTMW1S-1<br>03/11/1999 | JEFF-MW1S<br>JTMW1S-2<br>06/02/1999 | JEFF-MW1S<br>JTMW1S-3<br>09/02/1999 | JEFF-MW1S<br>JTMW01S-4<br>12/22/1999 | JEFF-MW1S<br>JTMW1S-10<br>03/23/2000 | JT-MW1S<br>JTMW1S-200<br>06/06/2000 | JTMW1S<br>JTMW1S<br>10/27/2000 | JEFF-MW1S<br>JTMW1S-41<br>04/03/2001 | JEFF-MW1S<br>JTMW1S-1001<br>10/10/2001 | JEFF-MW1S<br>JTMW1S-13<br>01/15/2003 | JEFF-MW1S<br>JTMW1S-14<br>12/22/2003 | JEFF-MW1S<br>JTMW1S<br>11/10/2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/L ) | 47.9 | 0.2 (S) | **3.10** | **12.20** | **47.90** | **0.97 J** | **24.20** | **24.40** | **12.90** | **32.50** | **1.10 J** | **4.2** | **40.4** | **2.1** | **10.6** | **8.5** | **0.44** | **10.7** |
| Antimony (mg/l) | 0.03 | 0.006 | | | | | | | | | | | 0.0090 B | | | | | |
| Arsenic (mg/L ) | 0.1 | 0.01 | 0.01000 | 0.040 | 0.100 | 0.00870 B | 0.058 | 0.02900 | 0.02900 | 0.060 | 0.00960 B | 0.0097 B | 0.067 | 0.0075 B | 0.017 | 0.013 | 0.004 B | 0.021 |
| Barium (mg/L ) | 1 | 2 | 0.140 | 0.39 | | 0.120 B | 0.70 | 0.48 | 0.30 | 1.00 | 0.067 B | 0.11 B | 0.83 | 0.10 B | 0.30 | 0.25 | 0.13 B J | 0.29 |
| Beryllium (mg/L ) | 0.003 | 0.004 | | | 0.00300 | | 0.00210 B | 0.00080 B | | 0.00160 B | | | 0.0019 B | | 0.00064 B | 0.00079 B | | 0.00065 B |
| Cadmium (mg/L ) | 0.01 | 0.005 | | | 0.00360 | | | | | | | | | 0.00082 B | 0.00094 B | 0.0030 B J | | |
| Calcium (mg/L ) | 657 | -- | 246.00 | 411.00 | 537.00 | 294.00 | 263.00 | 467.00 | 267.00 | 282.00 | 389.00 | 349 | 272 | 282 | 417 | 550 J | 134 J | 352 |
| Chromium (mg/L ) | 0.39 | 0.1 | | 0.02300 | 0.092 | | 0.041 | 0.033 | 0.01800 | 0.046 | | | 0.054 | 0.0029 B | 0.015 | 0.011 | | 0.015 |
| Cobalt (mg/L ) | 0.055 | -- | | | | | 0.02700 B | | | 0.02700 B | | | 0.027 B | 0.0032 B | 0.0083 B | 0.015 B J | | 0.01 B |
| Copper (mg/L ) | 0.62 | 1.3 | 0.00900 | 0.050 | 0.180 | 0.00430 B | 0.074 | 0.045 | 0.032 | 0.081 | 0.01300 B | 0.016 B | 0.067 | 0.014 B | 0.028 | 0.036 J | | 0.03 |
| Cyanide (mg/L ) | 0.007 | 0.2 | | | | | | | | | | | | | | | | |
| Iron (mg/L ) | 152 | 0.3 (S) | **14.80** | **53.90** | **152.00** | **25.40** | **80.90** | 58.20 | **33.70** | **81.90** | **12.00** | **16.2** | **89.2** | **9.2** | **39.4** | **20.6 J** | **4** | **36.8** |
| Lead (mg/L ) | 0.077 | 0.015 | 0.00220 | 0.02300 | 0.077 | 0.01100 | 0.040 | 0.01800 | 0.01200 | 0.044 | 0.00480 | 0.0091 | 0.048 | 0.0026 B | 0.013 | 0.014 | | 0.014 |
| Magnesium (mg/L ) | 118 | -- | 37.80 | 86.30 | 113.00 | 55.50 | 61.30 | 102.00 | 51.20 | 67.20 | 50.80 | 52.1 | 74.9 | 36.0 | 80.2 | 98.0 J | 40.7 J | 82 |
| Manganese (mg/L ) | 4.2 | 0.05 (S) | **0.71** | **1.40** | **2.90** | **1.10** | **1.40** | **1.60** | **0.65** | **1.50** | **1.90** | **1.4** | **1.6** | **0.98** | **1.0** | **2.7 J** | **0.21** | **1.5** |
| Mercury (mg/L ) | 0.00021 | 0.002 | | | 0.00021 | | 0.00013 B | 0.00010 B | | | | | | | | | | 0.000051 B |
| Nickel (mg/L ) | 0.38 | 0.1 (OH) | | 0.049 J | 0.22 | | 0.100 | 0.052 | 0.031 B | 0.089 | 0.053 | 0.026 B | 0.096 | 0.015 B | 0.026 B | 0.078 | 0.0027 B | 0.033 B |
| Potassium (mg/L ) | 17.2 | -- | 2.50 | 5.70 J | 15.30 | 1.80 J | 9.00 | 9.20 | 6.20 | 12.60 | 4.10 B | 4.2 B | 17.1 | 3.2 B | 6.4 | 7.0 J | 2 B J | 5.3 J |
| Selenium (mg/L ) | 0.012 | 0.05 | | | | | | | | | | | 0.0056 | | | | | |
| Sodium (mg/L ) | 128 | -- | 5.30 | 5.10 | 8.10 | 8.80 | 6.00 | 8.20 | 12.20 | 17.80 | 5.30 | 5.7 | 23.8 | 10 | 17.8 | 5.8 | 8 J | 5.6 |
| Thallium (mg/L ) | 0.0069 | 0.002 | | 0.00230 | 0.00450 | 0.00100 J | 0.00380 | 0.00280 | 0.00090 J | 0.00390 | | | 0.0035 | | 0.0022 | | | |
| Vanadium (mg/L ) | 0.4 | -- | 0.01100 | 0.046 | 0.180 | | 0.094 | 0.096 | 0.049 B | 0.120 | | 0.015 B | 0.15 | 0.0082 B | 0.037 B | 0.031 B | 0.0015 B | 0.039 B |
| Zinc (mg/L ) | 0.6 | 5 (S) | 0.034 | 0.180 | 0.58 | | 0.29 | 0.120 | 0.081 | 0.24 | 0.065 | 0.076 | 0.23 | 0.13 | 0.11 | 0.085 | | 0.076 |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L ) | 2.9 | 0.2 (S) | 0.110 | 0.063 | 0.056 | | 0.110 B | | | | | | | 0.029 B | | | | |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | | | 0.0039 B | | | | 0.0038 B | |
| Arsenic (Filtered) (mg/L ) | 0.008 | 0.01 | | 0.00330 | | 0.00370 B | 0.00300 B | 0.00340 B | | | | | 0.0042 B | | | | | |
| Barium (Filtered) (mg/L ) | 0.54 | 2 | 0.099 | 0.100 | 0.058 | 0.082 B | 0.100 B | 0.130 B | 0.049 B | 0.091 B | | 0.036 B | 0.41 | 0.19 B | 0.085 B | 0.030 B | 0.12 B J | 0.054 B |
| Beryllium (Filtered) (mg/L ) | 0.25 | 0.004 | | | | | 0.00082 B | | | | 0.033 B | | | | | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | | | | | | | | |
| Calcium (Filtered) (mg/L ) | 715 | -- | 258.00 | 361.00 | 288.00 | 203.00 | 204.00 | 498.00 | 285.00 J | 191.00 | 363.00 | 356 | 172 | 317 | 358 | 591 J | 136 J | 364 |
| Cobalt (Filtered) (mg/L) | 0.027 | -- | | | | | | | | | | | | 0.0017 B | | 0.0088 B J | | 0.002 B |
| Copper (Filtered) (mg/L ) | 0.018 | 1.3 | | | 0.01800 | 0.00890 B | | | | | | | | 0.0064 B | | | | |
| Iron (Filtered) (mg/L ) | 16.4 | 0.3 (S) | | | | **8.00** | **6.90** | | | **5.70** | **3.70** | **7.4** | **6.8** | **4.3** | **16.4** | **8.1 J** | 0.24 J | 9.4 |
| Magnesium (Filtered) (mg/L ) | 117 | -- | 38.00 | 59.60 | 44.30 | 31.70 | 31.10 | 85.60 | 46.80 | 30.80 | 43.50 | 44.7 | 28.6 | 37.5 | 62.8 | 105 J | 41.3 J | 76.9 |
| Manganese (Filtered) (mg/L ) | 3.3 | 0.05 (S) | **0.71** | **0.99** | **0.65** | **0.47** | **0.48** | **1.20** | **0.42** | **0.59** | | **1.4** | **0.63** | **1.1** | **0.72** | **2.6 J** | **0.2** | **1.3** |
| Mercury (Filtered) (mg/L ) | 0.00023 | 0.002 | | | | 0.000073 J | | | | | | | | | | | | |
| Nickel (Filtered) (mg/L ) | 0.28 | 0.1 (OH) | | | | | | | | | 0.045 | 0.018 B | | 0.012 B | | 0.057 | | 0.01 B |
| Potassium (Filtered) (mg/L ) | 6.9 | -- | 1.70 | 1.70 J | 1.60 | 1.40 J | 1.30 B | 2.30 B | 1.90 B | 2.20 B | 3.70 B | 2.8 B | 2.2 B | 2.3 B | 2.3 B | 4.1 B J | 1.8 B J | 2 B J |
| Sodium (Filtered) (mg/L ) | 122 | -- | 3.60 | 4.10 | 3.80 | 8.00 | 2.70 B | 4.40 B | 10.60 | 16.00 | 5.30 | 3.9 B | 26.1 | 10.3 | 12.3 | 6.8 | 8.2 J | 5.7 |
| Thallium (Filtered) (mg/L ) | 0.0013 | 0.002 | | | | | | | | | | | | | | | 0.00003 B | 0.00062 B |
| Zinc (Filtered) (mg/L ) | 0.16 | 5 (S) | | | | | 0.030 B | 0.01300 B | | | 0.030 | | 0.13 | 0.096 | | 0.022 | | |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L ) | 10 | 6 | | | | | 10.00 | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | |
| Carbon disulfide (ug/L ) | 0.26 | -- | | | | | | | | 0.26 J | | | | | | | | |
| Chloromethane (ug/L ) | 0.5 | -- | | | | | | | | 0.22 J | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006).
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| Jefferson Township<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | JEFF-MW3S<br>198J3SGW03<br>03/26/1998 | JEFF-MW3S<br>298JMW3S<br>07/01/1998 | JEFF-MW3S<br>JT-MW-3S<br>09/30/1998 | JEFF-MW3S<br>JTMW3S-4<br>12/17/1998 | JEFF-MW3S<br>JTMW3S-1<br>03/11/1999 | JEFF-MW3S<br>JTMW3S-2<br>06/02/1999 | JEFF-MW3S<br>JTMW3S-3<br>09/02/1999 | JEFF-MW3S<br>JTMW03S-4<br>12/22/1999 | JEFF-MW3S<br>JTMW3S-10<br>03/23/2000 | JT-MW3S<br>JTMW3S-200<br>06/06/2000 | JTMW3S<br>JTMW3S<br>10/27/2000 | JEFF-MW3S<br>JTMW3S-41<br>04/03/2001 | JEFF-MW3S<br>JTMW3S-1001<br>10/10/2001 | JEFF-MW3S<br>JTMW3S-13<br>01/15/2003 | JEFF-MW3S<br>JTMW3S-14<br>12/23/2003 | JEFF-MW3S<br>JTMW3S<br>11/10/2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | |
| Aluminum (mg/L) | 47.9 | 0.2 (S) | **3.30** | **2.60** | **0.45** | **25.70 J** | **12.60** | **6.00 L** | **0.71** | **0.65** | **3.40 J** | **0.41** | **1.3** | **0.67** | **0.73** | **0.58** | **1.4** | **1.2** |
| Antimony (mg/l) | 0.03 | 0.006 | | | | | | | | | | | 0.0022 B | | | | | |
| Arsenic (mg/L) | 0.1 | 0.01 | 0.00590 | | | 0.043 | 0.01800 | 0.00940 B | | | 0.00610 B | | 0.0044 B | | 0.0053 B | 0.0031 B | 0.0052 B | 0.014 |
| Barium (mg/L) | 1 | 2 | 0.044 | 0.080 | 0.038 | 0.28 | 0.170 B | 0.098 B | 0.02700 B | 0.02800 B | 0.051 B | 0.031 B | 0.026 B | 0.030 B | 0.027 B | 0.018 B | 0.034 B J | 0.04 B |
| Beryllium (mg/L) | 0.003 | 0.004 | | | | 0.00140 B | 0.00120 B | | | | | | | | | | | |
| Cadmium (mg/L) | 0.01 | 0.005 | | | | 0.00800 | | | | | | | 0.00033 B | 0.0014 B | 0.0013 B | 0.0019 B J | 0.00055 B | 0.0043 B J |
| Calcium (mg/L) | 657 | -- | 255.00 | 309.00 | 375.00 | 471.00 | 223.00 | 350.00 | 380.00 | 372.00 | 290.00 | 515 | 374 | 581 | 536 | 552 J | 590 J | 584 |
| Chromium (mg/L) | 0.39 | 0.1 | | | | 0.038 | 0.01900 | 0.00830 B | | | | | 0.0020 B | 0.0015 B | 0.0015 B | 0.014 | 0.0045 B | 0.39 |
| Cobalt (mg/L) | 0.055 | -- | | | | 0.02700 B | | | | | | | 0.011 B | 0.0041 B | 0.0058 B | 0.054 J | 0.029 B | 0.039 B |
| Copper (mg/L) | 0.62 | 1.3 | 0.01100 | 0.01100 | | 0.100 | 0.042 | 0.01400 B | | | 0.01200 B | | 0.0068 B | | 0.0051 B | 0.032 J | 0.0084 B | 0.62 |
| Cyanide (mg/L) | 0.007 | 0.2 | | | | | | | | | | | | | | | | |
| Iron (mg/L) | 152 | 0.3 (S) | **6.70** | **4.80** | **3.50** | **80.30** | **31.10** | **11.10** | **5.80** | **6.10** | **7.30** | **1.8** | **9.0** | **2.6** | **13.2** | **3.0 J** | **6.4** | **37** |
| Lead (mg/L) | 0.077 | 0.015 | 0.00500 | 0.00340 | | 0.068 | 0.02400 | 0.00610 | | | 0.00330 | | | | | | | 0.0051 |
| Magnesium (mg/L) | 118 | -- | 54.50 | 65.90 | 61.40 | 108.00 | 57.60 | 76.30 | 62.00 | 65.50 | 58.80 | 107 | 62.0 | 118 | 101 | 124 J | 86.8 J | 105 |
| Manganese (mg/L) | 4.2 | 0.05 (S) | **0.21** | **0.31** | **0.82** | **1.70** | **0.43** | **0.71** | **0.79** | **0.76** | **0.44** | **0.96** | **2.3** | **1.0** | **1.0** | **5.3** | **2.8** | **4.2** |
| Mercury (mg/L) | 0.00021 | 0.002 | 0.000098 | | 0.00010 | 0.00013 B | 0.00011 B | | | | | | | | | | | |
| Nickel (mg/L) | 0.38 | 0.1 (OH) | 0.02100 | | 0.02600 | 0.130 | 0.058 | 0.037 B | 0.02000 B | 0.02800 B | 0.02900 B | 0.034 B | 0.060 | 0.037 B | 0.038 B | 0.33 | 0.11 | 0.38 |
| Potassium (mg/L) | 17.2 | -- | 3.70 | 3.30 J | 2.90 | 9.50 J | 6.40 | 4.70 B | 3.00 B | 3.40 B | 4.10 B | 3.9 B | 5.6 | 4.6 B | 5.0 | 11.2 J | 5.5 J | 6.5 J |
| Selenium (mg/L) | 0.012 | 0.05 | | 0.00400 | | | 0.00780 | | | | | | | | | | 0.0053 | |
| Sodium (mg/L) | 128 | -- | 4.70 | 4.10 | 3.80 | 7.40 | 6.60 | 6.60 J | 3.90 B | 3.70 B | 5.30 | 3.5 B | 3.6 B | 4.2 B | 4.3 B | 5.1 | 5.6 J | 5.6 |
| Thallium (mg/L) | 0.0069 | 0.002 | | 0.00100 B | | 0.00400 J | 0.00310 | | | 0.00140 B | | | | | | 0.0019 J | 0.0014 | 0.0016 |
| Vanadium (mg/L) | 0.4 | -- | 0.01200 | 0.00930 | | 0.092 | 0.051 | 0.02700 B | | | 0.01400 B | | 0.0054 B | 0.0021 B | 0.0023 B | 0.0018 B | 0.0049 B | 0.0083 B |
| Zinc (mg/L) | 0.6 | 5 (S) | 0.055 | 0.076 | | 0.41 J | 0.180 | 0.096 J | 0.056 J | 0.038 | 0.052 | 0.028 | 0.043 | 0.030 | 0.062 | 0.091 | 0.056 | 0.11 |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L) | 2.9 | 0.2 (S) | 0.110 | 0.066 | | | 0.089 B | | | | | | | | | | | |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | | | | | | 0.0036 B | | |
| Arsenic (Filtered) (mg/L) | 0.008 | 0.01 | | | | 0.00430 B | | | | | | 0.0035 B | | | | | | |
| Barium (Filtered) (mg/L) | 0.54 | 2 | 0.02000 | 0.066 | 0.031 | 0.02900 B | 0.02900 B | 0.046 B | 0.02200 B | 0.02300 B | | 0.030 B | 0.21 | 0.18 B | 0.020 B | 0.018 B | 0.028 B J | 0.025 B |
| Beryllium (Filtered) (mg/L) | 0.25 | 0.004 | | | | | | | | | 0.002500 B | | | | | | | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | | | | 0.00093 B | | 0.0015 B J | 0.0005 B | 0.0026 B J |
| Calcium (Filtered) (mg/L) | 715 | -- | 243.00 | 321.00 | 338.00 | 369.00 | 208.00 | 352.00 | 391.00 J | 350.00 | 285.00 | 546 | 410 | 551 | 529 | 602 J | 619 J | 715 |
| Cobalt (Filtered) (mg/L) | 0.027 | -- | | | | | | | | | | | 0.011 B | 0.0034 B | 0.0049 B | 0.062 J | 0.027 B | 0.027 B |
| Copper (Filtered) (mg/L) | 0.018 | 1.3 | | | 0.01300 | | | | | | | | | | | | | |
| Iron (Filtered) (mg/L) | 16.4 | 0.3 (S) | 0.130 | **0.76** | **2.20** | **3.00** | | 0.24 | **3.40** | **3.10** | **0.96** | **0.43** | **3.8** | **0.48** | **6.0** | | **2.5 J** | **0.7** |
| Magnesium (Filtered) (mg/L) | 117 | -- | 50.50 | 67.10 | 55.20 | 64.80 | 46.30 | 73.50 | 62.90 | 61.70 | 56.40 | 111 | 66.6 | 113 | 100 | 147 J | 95.7 J | 117 |
| Manganese (Filtered) (mg/L) | 3.3 | 0.05 (S) | **0.140** | **0.29** | **0.76** | **0.74** | **0.085** | **0.59** | **0.80** | **0.73** | **0.39** | **1.0** | **2.4** | **0.94** | **1.0** | **5.6** | **2.8** | **3.3** |
| Mercury (Filtered) (mg/L) | 0.00023 | 0.002 | | | | 0.00014 B | | | | | | | | | | | | 0.000084 B |
| Nickel (Filtered) (mg/L) | 0.28 | 0.1 (OH) | | | 0.02600 | 0.02900 B | | 0.02200 B | 0.02000 B | 0.02300 B | 0.02100 B | 0.034 B | 0.061 | 0.033 B | 0.029 B | 0.34 | 0.11 | 0.17 |
| Potassium (Filtered) (mg/L) | 6.9 | -- | 2.70 | 2.60 J | 2.50 | 2.50 J | 2.30 B | 2.80 B | 2.70 B | 3.10 B | 2.90 B | 4.0 B | 4.6 B | 3.1 B | 4.7 B | 13.2 J | 5.7 J | 6.9 J |
| Sodium (Filtered) (mg/L) | 122 | -- | 5.60 | 3.20 | 4.00 | 3.80 B | 3.80 B | 3.20 B | | 3.60 B | 3.10 B | 3.6 B | 7.0 | 7.1 | 4.2 B | 6.2 | 6.6 J | 6.2 |
| Thallium (Filtered) (mg/L) | 0.0013 | 0.002 | | | | | 0.00120 B | | | 0.00130 B | | | | | | | 0.00085 B | 0.00011 B |
| Zinc (Filtered) (mg/L) | 0.16 | 5 (S) | 0.035 | 0.033 | | | 0.041 B | 0.02200 | 0.02600 | 0.02300 | 0.02800 | 0.027 | 0.15 | 0.15 | 0.017 B | 0.075 | 0.043 | 0.049 |
| ***Semivolatiles*** | | | | | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L) | 10 | 6 | | | | | | | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | | | | | | |
| Carbon disulfide (ug/L) | 0.26 | -- | | | | | | | | | | | | | | | | |
| Chloromethane (ug/L) | 0.5 | -- | | | | | | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006)
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5 Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| Jefferson Township<br>Station<br>Sample Number<br>Date Collected | Maximum Background Concentration | U.S. EPA MCL | JEFF-MW1D<br>198J1DGW02<br>03/26/1998 | JEFF-MW1D<br>298JMW1D<br>07/01/1998 | JEFF-MW1D<br>JT-MW-1D<br>09/30/1998 | JEFF-MW1D<br>JTMW1D-4<br>12/17/1998 | JEFF-MW1D<br>JTMW1D-1<br>03/11/1999 | JEFF-MW1D<br>S302JTMW1D<br>03/11/1999 | JEFF-MW1D<br>JTMW1D-2<br>06/02/1999 | JEFF-MW1D<br>JTMW1D-3<br>09/02/1999 | JEFF-MW1D<br>JTMW01D-4<br>12/22/1999 | JEFF-MW1D<br>JTMW1D-10<br>03/23/2000 | JT-MW1D<br>JTMW1D-200<br>06/06/2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | |
| Aluminum (mg/L ) | 47.9 | 0.2 (S) | 7.90 | **14.50** | **5.20** | **0.94 J** | **5.40** | **4.40** | **2.80** | **4.00** | **3.50** | **0.66** | **0.98** |
| Antimony (mg/l) | 0.03 | 0.006 | | | | | | | | | | | |
| Arsenic (mg/L ) | 0.1 | 0.01 | **0.01900** | **0.01600** | 0.00660 | 0.00330 B | 0.00580 B | 0.00550 B | 0.00580 B | | 0.00460 B | 0.00470 B | 0.0051 B |
| Barium (mg/L ) | 1 | 2 | 0.35 | 0.38 | 0.25 | 0.190 B | 0.24 | 0.23 | 0.23 | 0.21 | 0.180 B | 0.160 B | 0.15 B |
| Beryllium (mg/L ) | 0.003 | 0.004 | | | | | 0.00092 B | 0.00084 B | | | | | |
| Cadmium (mg/L ) | 0.01 | 0.005 | | | | | | | | | | | |
| Calcium (mg/L ) | 657 | -- | 134.00 | 127.00 | 114.00 | 111.00 | 110.00 | 112.00 | 130.00 | 132.00 | 104.00 | 125.00 | 114 |
| Chromium (mg/L ) | 0.39 | 0.1 | 0.01100 | 0.01800 | 0.00780 | | 0.00730 B | | | | | | |
| Cobalt (mg/L ) | 0.055 | -- | | | | | | | | | | | |
| Copper (mg/L ) | 0.62 | 1.3 | 0.02400 | 0.02500 | 0.00890 | | 0.00870 B | 0.00780 B | 0.00710 B | 0.00900 B | 0.00750 B | | |
| Cyanide (mg/L ) | 0.007 | 0.2 | | | | | | | | | | | |
| Iron (mg/L ) | 152 | 0.3 (S) | **23.30** | **24.50** | **11.70** | **6.40** | **12.10** | **11.00** | **7.00** | **10.60** | **8.40** | **5.60** | **4.9** |
| Lead (mg/L ) | 0.077 | 0.015 | 0.01400 | 0.01400 | 0.00570 | 0.00390 | 0.00710 | 0.00600 | | 0.00270 B | 0 00220 B | | |
| Magnesium (mg/L ) | 118 | -- | 43.60 | 45.20 | 34.70 | 33.10 | 33.40 | 33.70 | 39.10 | 40.60 | 33.80 | 39.00 | 36.4 |
| Manganese (mg/L ) | 4.2 | 0.05 (S) | **0.36** | **0.37** | **0.200** | **0.150** | **0.180** | **0.170** | **0.140** | **0.180** | **0.140** | **0.130** | **0.11** |
| Mercury (mg/L ) | 0.00021 | 0.002 | 0.000094 | | | | | | 0.00016 B | | | | |
| Nickel (mg/L ) | 0.38 | 0.1 (OH) | 0.02500 | 0.02800 J | | | | | | | | | |
| Potassium (mg/L ) | 17.2 | -- | 4.20 | 5.90 J | 3.30 | 1.40 J | 3.30 B | 3.00 B | 2.50 B | 2.90 B | 2.90 B | 1.80 B | 1.9 B |
| Selenium (mg/L ) | 0.012 | 0.05 | | | | | | 0.00520 | | | | | |
| Sodium (mg/L ) | 128 | -- | 8.00 | 7.00 | 9.70 | 9.90 | 8.60 | 9.50 | 11.30 | 11.70 | 10.40 | 8.80 | 8.6 |
| Thallium (mg/L ) | 0.0069 | 0.002 | | 0.00130 | | | 0.00100 B | | | | | | |
| Vanadium (mg/L ) | 0.4 | -- | 0.032 | 0.059 | 0.02200 | | 0.02000 B | 0.01800 B | 0.01100 B | 0.01700 B | 0.01400 B | | |
| Zinc (mg/L ) | 0.6 | 5 (S) | 0.110 | 0.110 | | | 0.063 | 0.061 | 0.01500 B | 0.030 | 0.033 | 0.01900 B | |
| ***Inorganics (Filtered)*** | | | | | | | | | | | | | |
| Aluminum (Filtered) (mg/L ) | 2.9 | 0.2 (S) | 0.097 | | 0.110 | | 0.088 B | 0.091 B | | | | | |
| Antimony (Filtered) (mg/L) | 0.03 | 0.006 | | | | | | | | | | | |
| Arsenic (Filtered) (mg/L ) | 0.008 | 0.01 | 0.00480 | 0.00310 | | | | | 0.00330 B | | | 0.00330 B | |
| Barium (Filtered) (mg/L ) | 0.54 | 2 | 0.24 | 0.25 | 0.200 | 0.200 | 0.180 B | 0.180 B | 0.200 | 0.170 B | 0.150 B | | 0.13 B |
| Beryllium (Filtered) (mg/L ) | 0.25 | 0.004 | | | | | 0.00071 B | 0.00069 B | | | | **0.140 B** | |
| Cadmium (Filtered) (mg/L) | 0.0026 | 0.005 | | | | | | | | | | | |
| Calcium (Filtered) (mg/L ) | 715 | -- | 108.00 | 103.00 | 103.00 | 105.00 | 107.00 | 107.00 | 124.00 | 124.00 J | 112.00 | 115.00 | 104 |
| Cobalt (Filtered) (mg/L) | 0.027 | -- | | | | | | | | | | | |
| Copper (Filtered) (mg/L ) | 0.018 | 1.3 | | | | | | | | | | | |
| Iron (Filtered) (mg/L ) | 16.4 | 0.3 (S) | **1.70** | **1.90** | **2.50** | **2.70** | **2.40** | **2.50** | **2.90** | **3.10** | **3.20** | **3.30** | **2.6** |
| Magnesium (Filtered) (mg/L ) | 117 | -- | 31.70 | 32.80 | 29.70 | 31.10 | 31.00 | 30.80 | 41.20 | 36.80 | 35.10 | 35.70 | 32.7 |
| Manganese (Filtered) (mg/L ) | 3.3 | 0.05 (S) | **0.088** | **0.078** | **0.079** | **0.074** | **0.073** | **0.072** | **0.082** | **0.092** | 0.079 | **0.083** | **0.077** |
| Mercury (Filtered) (mg/L ) | 0.00023 | 0.002 | | | | 0.00010 B | | | 0.00023 | | | | |
| Nickel (Filtered) (mg/L ) | 0.28 | 0.1 (OH) | | | | | | | | | | | |
| Potassium (Filtered) (mg/L ) | 6.9 | -- | 1.40 | 1.10 J | 1.20 | 1.10 J | 1.30 B | 1.30 B | 1.60 B | 1.40 B | 1.50 B | 1.50 B | 1.4 B |
| Sodium (Filtered) (mg/L ) | 122 | -- | 9.10 | 7.00 | 8.10 | 7.50 | 7.40 | 7.20 | 9.30 | 9.00 | 8.70 | 8.70 | 8.0 |
| Thallium (Filtered) (mg/L ) | 0.0013 | 0.002 | | | | | | | | | | | |
| Zinc (Filtered) (mg/L ) | 0.16 | 5 (S) | 0.01700 | | | | 0.055 | 0.039 B | | | | | |
| ***Semivolatiles*** | | | | | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate (ug/L ) | 10 | 6 | | 3.00 J | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | | | |
| Carbon disulfide (ug/L ) | 0.26 | -- | | | | | | | | | | | |
| Chloromethane (ug/L ) | 0.5 | -- | | | | | | | | | | | |

MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006)
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Blank Space = Nondetect
-- = Not Available
NS = Not Sampled
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.

## Table 4.5A Groundwater Sampling Detectable Analytical Results from the Franklin Steel RFI

| Parameter | Units | Maximum Background Concentration | MCL [1] | S101-MW01R | | | S105-MW01 | | | S107-MW02 | | | S108-MW03 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 5/5/2006 | 11/9/2006 | 10/10/2007 | 5/5/2006 | 11/10/2006 | 10/10/2007 | 5/5/2006 | 11/9/2006 | 10/10/2007 | 5/5/2006 | 11/9/2006 | 10/10/2007 |
| **Metals** | | | | | | | | | | | | | | | |
| Aluminum | mg/L | 47.9 | 0.2 (S) | -- | **1.57** | **8.87** | **0.42** | **0.528** | **0.206** | <0.10 | < 0.0160 | < 0.1 | 0.2 | < 0.0160 | < 0.1 |
| Aluminum, Dissolved | mg/L | 2.9 | 0.2 (S) | -- | < 0.0119 | **3.34** | <0.10 | < 0.0119 | < 0.1 | <0.10 | < 0.0119 | < 0.1 | <0.10 | < 0.0119 | < 0.1 |
| Antimony | mg/L | 0.03 | 0.006 | -- | 0.000275 | < 0.001 | <0.0010 | 0.0000799 | < 0.001 | <0.0010 | 0.0000710 | < 0.001 | <0.0010 | < 0.0000400 | < 0.001 |
| Antimony, Dissolved | mg/L | 0.03 | 0.006 | -- | 0.000164 | 0.00127 | <0.0010 | < 0.0000400 | < 0.001 | <0.0010 | < 0.0000400 | < 0.001 | <0.0010 | < 0.0000400 | < 0.001 |
| Arsenic | mg/L | 0.1 | 0.01 | -- | **0.0381** | **0.0318** | **0.0139** | **0.0162** | **0.0127** | <0.0050 | < 0.000720 | < 0.005 | <0.0050 | 0.000917 | < 0.005 |
| Arsenic, Dissolved | mg/L | 0.008 | *0.01* | -- | **0.0287** | **0.0254** | **0.0129** | **0.0142** | **0.0147** | <0.0050 | < 0.000720 | < 0.005 | <0.0050 | 0.000776 | < 0.005 |
| Barium | mg/L | 1 | 2 | -- | 0.452 | 0.455 | 0.175 | 0.202 | 0.173 | 0.0501 | 0.0445 | 0.0805 | 0.292 | 0.281 | 0.316 |
| Barium, Dissolved | mg/L | 0.54 | 2 | -- | 0.440 | 0.463 | 0.164 | 0.175 | 0.174 | 0.0479 | 0.0424 | 0.804 | 0.288 | 0.293 | 0.305 |
| Beryllium | mg/L | 0.003 | 0.004 | -- | 0.0000769 | < 0.002 | <0.0010 | < 0.0000390 | < 0.002 | <0.0010 | < 0.0000390 | < 0.002 | <0.0010 | < 0.0000390 | < 0.002 |
| Beryllium, Dissolved | mg/L | 0.25 | 0.004 | -- | < 0.0000390 | < 0.001 | <0.0010 | < 0.0000390 | < 0.001 | <0.0010 | < 0.0000390 | < 0.001 | <0.0010 | < 0.0000390 | < 0.001 |
| Cadmium | mg/L | 0.01 | 0.005 | -- | < 0.0000430 | 0.000803 | **0.0103** | 0.000966 | < 0.0004 | <0.0010 | 0.000135 | < 0.0004 | <0.0010 | < 0.0000430 | < 0.0004 |
| Cadmium, Dissolved | mg/L | 0.0026 | 0.005 | -- | < 0.0000430 | < 0.0004 | <0.0010 | < 0.0000430 | < 0.0004 | <0.0010 | 0.0000514 | < 0.0004 | <0.0010 | < 0.0000430 | < 0.0004 |
| Calcium | mg/L | 657 | -- | -- | 77.7 | 83.3 | 119 | 116 | 118 | 162 | 163 | 149 | 149 | 145 | 151 |
| Calcium, Dissolved | mg/L | 715 | -- | -- | 78.3 | 70.6 | 115 | 116 | 115 | 163 | 152 | 142 | 147 | 136 | 152 |
| Chromium | mg/L | 0.39 | 0.1 | -- | 0.000903 | 0.00281 | <0.0020 | < 0.000500 | < 0.002 | <0.0020 | < 0.000600 | < 0.002 | <0.0020 | < 0.000600 | < 0.002 |
| Chromium, Dissolved | mg/L | 0.005 | 0.1 | -- | < 0.000240 | < 0.002 | <0.0020 | < 0.000240 | < 0.002 | <0.0020 | < 0.000240 | < 0.002 | <0.0020 | < 0.000240 | < 0.002 |
| Cobalt | mg/L | 0.055 | -- | -- | 0.00222 | < 0.005 | <0.0050 | 0.00144 | < 0.005 | <0.0050 | 0.00170 | < 0.005 | <0.0050 | 0.00101 | < 0.005 |
| Cobalt, Dissolved | mg/L | 0.027 | -- | -- | 0.000879 | < 0.005 | <0.0050 | 0.00103 | < 0.005 | <0.0050 | 0.00141 | < 0.005 | <0.0050 | 0.00108 | < 0.005 |
| Copper | mg/L | 0.62 | 1.3 | -- | 0.00582 | 0.00965 | <0.0050 | 0.00244 | < 0.005 | <0.0050 | 0.00203 | < 0.005 | <0.0050 | 0.00161 | < 0.006 |
| Copper, Dissolved | mg/L | 0.018 | 1.3 | -- | 0.00272 | < 0.005 | <0.0050 | < 0.00203 | < 0.005 | <0.0050 | 0.00265 | < 0.005 | <0.0050 | 0.00208 | < 0.005 |
| Iron | mg/L | 152 | 0.3 (S) | -- | **16.2** | **32.5** | **4.21** | **4.87** | **3.25** | <0.10 | 0.0986 | 0.247 | **4.32** | **3.95** | **4.4** |
| Iron, Dissolved | mg/L | 16.4 | 0.3 (S) | -- | **12.6** | **3.65** | **3.1** | **3.45** | **2.74** | <0.10 | 0.0601 | 0.222 | **3.37** | **3.39** | **3.61** |
| Lead | mg/L | 0.077 | 0.015 | -- | 0.00194 | 0.00836 | 0.0016 | 0.00108 | < 0.001 | <0.0010 | 0.0000767 | < 0.001 | <0.0010 | 0.000203 | < 0.001 |
| Lead, Dissolved | mg/L | 0.0042 | 0.015 | -- | < 0.0000670 | 0.0021 | <0.0010 | 0.0000678 | < 0.001 | <0.0010 | 0.0000799 | < 0.001 | <0.0010 | < 0.0000670 | < 0.001 |
| Magnesium | mg/L | 118 | -- | -- | 36.9 | 35.7 | 33.1 | 32.9 | 33.9 | 43.9 | 45.9 | 41.5 | 45.5 | 44.2 | 47 |
| Magnesium, Dissolved | mg/L | 117 | -- | -- | 37.3 | 30 | 31.8 | 32.5 | 33 | 44 | 43.8 | 41.5 | 45.6 | 42.9 | 48.1 |
| Manganese | mg/L | 4.2 | 0.05 (S) | -- | **0.190** | **0.315** | **0.365** | **0.496** | **0.347** | **0.183** | **0.325** | **0.301** | **0.261** | **0.313** | **0.272** |
| Manganese, Dissolved | mg/L | 3.3 | 0.05 (S) | -- | **0.149** | **0.144** | **0.35** | **0.398** | **0.36** | **0.176** | **0.290** | **0.296** | **0.265** | **0.300** | **0.266** |
| Mercury | mg/L | 0.00021 | 0.002 | -- | < 0.0000100 | < 0.0002 | <0.0002 | < 0.0000100 | < 0.0002 | <0.0002 | < 0.0000100 | < 0.0002 | <0.0002 | < 0.0000100 | < 0.0002 |
| Mercury, Dissolved | mg/L | 0.00023 | 0.002 | -- | 0.0000471 | < 0.0002 | <0.0002 | 0.0000253 | < 0.0002 | <0.0002 | 0.0000247 | < 0.0002 | <0.0002 | 0.0000237 | < 0.0002 |
| Nickel | mg/L | 0.38 | 0.1 (OH) | -- | 0.0149 | 0.0133 | <0.0060 | 0.00278 | < 0.005 | 0.0064 | 0.00825 | 0.00859 | <0.0070 | 0.00266 | < 0.006 |
| Nickel, Dissolved | mg/L | 0.28 | 0.1 (OH) | -- | 0.00975 | 0.0123 | <0.0050 | < 0.0000240 | < 0.005 | 0.0066 | 0.00485 | 0.00983 | <0.0070 | 0.000280 | < 0.005 |
| Potassium | mg/L | 17.2 | -- | -- | 2.00 | 4.96 | 1.6 | 1.55 | 1.57 | 2.2 | 2.32 | 2.84 | 2.4 | 2.60 | 2.78 |
| Potassium, Dissolved | mg/L | 6.9 | -- | -- | 1.77 | 3.13 | 1.1 | 1.60 | 1.51 | 2 | 2.43 | 2.9 | 2 | 2.74 | 2.89 |
| Selenium | mg/L | 0.012 | 0.05 | -- | < 0.00270 | < 0.005 | <0.0050 | < 0.00270 | < 0.005 | <0.0050 | < 0.00270 | < 0.005 | <0.0050 | < 0.00270 | < 0.005 |
| Selenium, Dissolved | mg/L | 0.005 | 0.05 | -- | < 0.00298 | < 0.005 | <0.0050 | < 0.00298 | < 0.005 | <0.0050 | < 0.00298 | < 0.005 | <0.0050 | < 0.00298 | < 0.005 |
| Silver | mg/L | 0.005 | 0.1 (S) | -- | 0.0000383 | < 0.0005 | <0.0005 | < 0.0000160 | < 0.0005 | <0.0005 | < 0.0000160 | < 0.0005 | <0.0005 | < 0.0000160 | < 0.0005 |
| Silver, Dissolved | mg/L | 0.005 | 0.1 (S) | -- | < 0.0000160 | < 0.0005 | <0.0005 | < 0.0000160 | < 0.0005 | <0.0005 | < 0.0000160 | < 0.0005 | <0.0005 | < 0.0000160 | < 0.0005 |
| Sodium | mg/L | 128 | -- | -- | 198 | 164 | 9 | 8.57 | 9.39 | 102 | 64.4 | 101 | 52 | 72.9 | 69.9 |
| Sodium, Dissolved | mg/L | 122 | -- | -- | 198 | 190 | 8.7 | 9.79 | 8.97 | 103 | 60.9 | 99 | 61.8 | 71.4 | 72.4 |
| Thallium | mg/L | 0.0069 | 0.002 | -- | 0.000145 | < 0.001 | <0.0010 | 0.0000590 | < 0.001 | <0.0010 | 0.000107 | < 0.001 | <0.0010 | < 0.0000170 | < 0.001 |
| Thallium, Dissolved | mg/L | 0.0013 | 0.002 | -- | 0.000167 | < 0.001 | <0.0010 | 0.0000666 | < 0.001 | <0.0010 | 0.000105 | < 0.001 | <0.0010 | < 0.0000170 | < 0.001 |
| Vanadium | mg/L | 0.4 | -- | -- | 0.00467 | < 0.05 | <0.050 | < 0.00170 | < 0.05 | <0.050 | < 0.00170 | < 0.05 | <0.050 | < 0.00170 | < 0.05 |
| Vanadium, Dissolved | mg/L | 0.025 | -- | -- | < 0.00482 | < 0.05 | <0.050 | < 0.00482 | < 0.05 | <0.050 | < 0.00482 | < 0.05 | <0.050 | < 0.00482 | < 0.05 |
| Zinc | mg/L | 0.6 | 5 (S) | -- | 0.0273 | 0.0471 | <0.050 | 0.00947 | < 0.012 | <0.050 | 0.0112 | 0.0141 | <0.050 | 0.0134 | 0.00918 |
| Zinc, Dissolved | mg/L | 0.16 | 5 (S) | -- | 0.00389 | 0.0149 | <0.050 | 0.00343 | 0.00502 | <0.050 | 0.00940 | 0.0126 | <0.050 | 0.00499 | 0.00783 |
| **Inorganics** | | | | | | | | | | | | | | | |
| Cyanide, Total | mg/L | 0.007 | 0.2 | -- | 0.00740 | < 0.005 | <0.005 | < 0.00350 | < 0.005 | <0.005 | < 0.00350 | < 0.005 | <0.005 | < 0.00350 | < 0.005 |
| **Volatile Organic Compounds** | | | | | | | | | | | | | | | |
| Acetone | ug/L | -- | -- | -- | -- | < 6.25 | -- | -- | < 6.25 | -- | -- | < 6.25 | -- | -- | < 6.25 |
| Chloroethane | ug/L | 2.5 | -- | -- | < 0.446 | 0.54 | <5.0 | < 0.446 | < 0.446 | <5.0 | < 0.446 | < 0.446 | <5.0 | < 0.446 | < 0.446 |
| 1,1 Dichloroethane | ug/L | 0.25 | -- | -- | -- | < 0.468 | -- | -- | < 0.468 | -- | -- | < 0.468 | -- | -- | < 0.468 |
| Vinyl chloride | ug/L | 0.5 | 2 | -- | **2.06** | < 0.54 | <1.0 | < 0.540 | < 0.540 | <1.0 | < 0.540 | < 0.540 | <1.0 | < 0.540 | < 0.54 |
| **SVOC Acids** | | | | | | | | | | | | | | | |
| Phenol | ug/L | 5 | -- | -- | < 2.60 | < 2.60 | <10 | 4.59 | < 2.6 | <10 | < 2.60 | < 2.6 | <10 | < 2.60 | < 2.60 |
| **SVOC Base/Neutrals** | | | | | | | | | | | | | | | |
| Benzo(ghi)perylene | ug/L | 2.5 | -- | -- | < 0.0100 | < 0.0100 | <0.1 | 0.610 | < 0.1 | <0.1 | < 0.0100 | < 0.1 | <0.1 | < 0.0100 | < 0.1 |
| Benzo(a)anthracene | ug/L | -- | -- | -- | -- | 0.14 | -- | -- | < 0.1 | -- | -- | < 0.1 | -- | -- | < 0.1 |
| Benzo(b)fluoranthene | ug/L | -- | -- | -- | -- | 0.21 | -- | -- | < 0.1 | -- | -- | 0.13 | -- | -- | 0.13 |
| Benzo(k)fluoranthene | ug/L | -- | -- | -- | -- | 0.16 | -- | -- | < 0.1 | -- | -- | < 0.1 | -- | -- | < 0.1 |
| Benzo(a)pyrene | ug/L | -- | 0.2 | -- | -- | < 0.0700 | -- | -- | < 0.1 | -- | -- | < 0.1 | -- | -- | < 0.1 |
| Dibenz(a,h)anthracene | ug/L | -- | -- | -- | -- | 0.14 | -- | -- | < 0.1 | -- | -- | < 0.1 | -- | -- | < 0.1 |
| Fluoranthene | ug/L | 2.5 | -- | -- | -- | 0.11 | -- | -- | < 0.1 | -- | -- | < 0.1 | -- | -- | < 0.1 |
| Phenanthrene | ug/L | -- | -- | -- | -- | 0.11 | -- | -- | < 0.1 | -- | -- | < 0.1 | -- | -- | < 0.1 |
| 2,4-Dinitrotoluene | ug/L | 16.6 | -- | -- | < 2.09 | < 2.09 | <10 | < 2.09 | < 2.09 | <10 | 16.6 | < 2.09 | <10 | < 2.09 | < 2.09 |
| bis(2-Ethylhexyl)phthalate | ug/L | 10 | 6 | -- | < 3.11 | 3.38 | <3.11 U | **10.8** | < 3.11 | <3.11 | < 3.11 | < 3.11 | <3.11 | < 3.11 | < 3.11 |
| Fluorene | ug/L | 2.5 | -- | -- | < 0.0200 | < 0.0200 | <0.1 | 0.230 | < 0.1 | <0.1 | < 0.0200 | < 0.1 | <0.1 | < 0.0200 | < 0.1 |
| Indeno(1,2,3)pyrene | ug/L | 2.5 | -- | -- | < 0.0500 | < 0.0500 | <0.1 | 0.390 | < 0.1 | <0.1 | < 0.0500 | < 0.1 | <0.1 | < 0.0500 | < 0.1 |
| Pyrene | ug/L | 2.5 | -- | -- | < 0.0300 | < 0.0300 | <0.1 | < 0.0300 | < 0.1 | <0.1 | < 0.0300 | < 0.1 | <0.1 | 0.240 | < 0.1 |

Notes:

1) MCL = U. S. Environmental Protection Agency (EPA) Primary Maximum Contaminant Level (2006).
(S) = U. S. EPA Secondary Drinking Water Regulations (2006).
(OH) = Ohio EPA Primary Maximum Contaminant Level.
Bold and Shaded = exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
Bold = exceeds U.S. EPA Secondary Drinking Water Regulation.
Bold and Italics = laboratory reporting limit exceeds U.S. or Ohio EPA Primary Maximum Contaminant Level.
-- = not detected or not sampled

TABLE 5.1
CHEMICAL AND PHYSICAL PROPERTIES OF MODELED COPCs
Franklin Steel, Blacklick, Ohio

**Chemical Parameters**

| Chemical CAS Number | | | Ethylbenzene 100-41-4 | 4-Methyl-2-Pentanone 108-10-1 | Toluene 108-88-3 | Chlorobenzene 108-90-7 | Aroclor 1254 11097-69-1 | Bis(2-Ethylhexyl)Phthalate 117-81-7 | Tetrachloroethene 127-18-4 | Xylenes (Isomer Mixture) 1330-20-7 | Benzo(ghi)Perylene 191-24-2 | Indeno(1,2,3-cd)Pyrene 193-39-5 | Benzo(b)Fluoranthene 205-99-2 | Benzo(a)Pyrene 50-32-8 | Dibenz(a,h)Anthracene 53-70-3 | 1,2-Dichloroethylene 540-59-0 | Benz(a)Anthracene 56-55-3 | Acetone 67-64-1 | 2-Butanone 78-93-3 | Trichloroethene 79-01-6 | Phenanthrene 85-01-8 | 2-Methylnaphthalene 91-57-6 | Vinyl Chloride 75-01-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | Definition | Units | | | | | | | | | | | | | | | | | | | | | |
| $MW$ | Molecular Weight | g/mole | 1.06E+02 | 1.00E+02 | 9.21E+01 | 1.13E+02 | 3.26E+02 | 3.91E+02 | 1.66E+02 | 1.06E+02 | 2.76E+02 | 2.76E+02 | 2.52E+02 | 2.52E+02 | 2.78E+02 | 9.69E+01 | 2.28E+02 | 5.81E+01 | 7.21E+01 | 1.31E+02 | 1.78E+02 | 1.42E+02 | 6.25E+01 |
| $S$ | Water Solubility | mg/L 25°C | 1.69E+02 | 1.90E+04 | 5.26E+02 | 4.98E+02 | 4.30E-02 | 2.70E-01 | 2.00E+02 | 1.06E+02 | 2.60E-04 | 1.90E-04 | 1.50E-03 | 1.62E-03 | 2.49E-03 | 3.50E+03 | 9.40E-03 | 1.00E+06 | 2.23E+05 | 1.10E+03 | 1.15E+00 | 2.46E+01 | 1.90E+03 |
| $P_v$ | Vapor pressure | mm Hg 25°C | 9.60E+00 | 1.99E+01 | 2.84E+01 | - | 6.53E-06 | 1.42E-07 | 1.85E+01 | 7.90E+00 | 1.00E-10 | 1.25E-10 | 5.00E-07 | 5.49E-09 | 1.39E-11 | 2.01E+02 | 1.90E-06 | 2.31E+02 | 9.06E+01 | 6.90E+01 | 1.12E-04 | 5.50E-02 | 2.66E+03 |
| $H$ | Henry's Law Constant | atm-m$^3$/mol | 7.88E-03 | 1.38E-04 | 6.64E-03 | 3.11E-03 | 2.83E-04 | 2.70E-07 | 1.77E-02 | 6.63E-03 | 3.31E-07 | 3.48E-07 | 6.57E-07 | 4.57E-07 | 1.23E-07 | 4.08E-03 | 1.20E-05 | 3.97E-05 | 5.69E-05 | 9.85E-03 | 4.23E-05 | 5.18E-04 | 2.70E-02 |
| $Sp_a$ | Air-filled soil porosity | unitless | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 |
| $SP_w$ | Water-filled soil porosity | unitless | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 | 1.50E-01 |
| $\mu$ | Decay Rate (groundwater) | days$^{-1}$ | 5.70E+02 | 1.26E+03 | 5.70E+02 | 2.62E+03 | 9.40E+02 | 1.26E+03 | 1.26E+03 | 5.70E+02 | 1.56E+03 | 1.56E+03 | 1.56E+03 | 3.09E+02 | 1.56E+03 | 1.56E+03 | 5.70E+02 | 1.26E+03 | 1.26E+01 | 9.82E+02 | 1.26E+03 | 5.70E+02 | 1.45E+03 |
| $D_{air}$ | Diffusivity in Air | cm$^2$/s | 9.24E-02 | 9.51E-02 | 9.92E-02 | 8.97E-01 | 5.27E-02 | 4.82E-02 | 7.39E-02 | 9.24E-02 | 5.73E-02 | 5.73E-02 | 6.00E-02 | 6.00E-02 | 5.70E-02 | 9.67E-02 | 6.30E-02 | 1.25E-01 | 1.12E-01 | 8.30E-02 | 7.13E-02 | 7.98E-02 | 1.06E-01 |
| $D_{water}$ | Diffusivity in Water | cm$^2$/s | 7.80E-06 | 7.80E-06 | 8.60E-06 | 8.70E-06 | 5.00E-06 | 3.86E-06 | 8.20E-06 | 9.34E-06 | 5.66E-06 | 5.66E-06 | 5.56E-06 | 9.00E-06 | 5.18E-06 | 9.10E-06 | 9.00E-06 | 1.14E-05 | 9.80E-06 | 9.10E-06 | 9.00E-06 | 7.84E-06 | 1.23E-06 |
| $D_a$ | Apparent Diffusivity | cm$^2$/s | 6.77E-06 | 1.12E-05 | 1.58E-05 | 5.19E-05 | 4.85E-11 | 1.43E-12 | 6.88E-06 | 6.12E-06 | 1.99E-11 | 1.70E-11 | 1.34E-10 | 9.79E-11 | 2.22E-11 | 4.02E-05 | 2.44E-10 | 7.19E-05 | 4.70E-05 | 3.94E-05 | 5.71E-09 | 9.06E-08 | 1.03E-03 |
| $f_{solids}$ | Fraction of Solids | unitless | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 | 5.00E-01 |
| $f_{oc}$ | Fraction Organic Carbon | unitless | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 | 4.60E-02 |
| $log(K_{ow})$ [a] | Log octanol-water partition coefficient | cm$^3$/g | 3.15E+00 | 1.31E+00 | 2.73E+00 | 2.84E+00 | 6.79E+00 | 7.60E+00 | 3.40E+00 | 3.12E+00 | 6.63E+00 | 6.70E+00 | 5.78E+00 | 6.13E+00 | 6.54E+00 | 2.09E+00 | 5.76E+00 | -2.40E-01 | 2.90E-01 | 2.42E+00 | 4.46E+00 | 3.86E+00 | 1.50E+00 |
| $log(K_{oc})$ [b] | Log organic carbon partition coefficient | cm$^3$/g | 3.10E+00 | 1.29E+00 | 2.68E+00 | 2.79E+00 | 6.67E+00 | 7.47E+00 | 3.34E+00 | 3.07E+00 | 6.52E+00 | 6.59E+00 | 5.68E+00 | 6.03E+00 | 6.43E+00 | 2.05E+00 | 5.66E+00 | -2.36E-01 | 2.85E-01 | 2.38E+00 | 4.38E+00 | 3.79E+00 | 1.47E+00 |
| $K_{oc}$ | Organic carbon partition coefficient | cm$^3$/g | 1.25E+03 | 1.94E+01 | 4.83E+02 | 6.19E+02 | 4.73E+06 | 2.99E+07 | 2.20E+03 | 1.17E+03 | 3.29E+06 | 3.86E+06 | 4.81E+05 | 1.06E+06 | 2.69E+06 | 1.13E+02 | 4.60E+05 | 5.81E-01 | 1.93E+00 | 2.39E+02 | 2.42E+04 | 6.23E+03 | 2.98E+01 |
| $K_d$ | Soil-water partition coefficient | cm$^3$/g | 5.75E+01 | 8.93E-01 | 2.22E+01 | 2.85E+01 | 2.18E+05 | 1.36E+06 | 1.01E+02 | 5.37E+01 | 1.51E+05 | 1.77E+05 | 2.21E+04 | 4.88E+04 | 1.24E+05 | 5.22E+00 | 2.11E+04 | 2.67E-02 | 8.87E-02 | 1.10E+01 | 1.11E+03 | 2.87E+02 | 1.37E+00 |

**Site Physical Parameters**

| Parameter | Definition | Units | Assumption | Justification |
|---|---|---|---|---|
| $S_d$ | Depth of source area | ft | 1 to 25.4 feet | impact-specific |
| $S_w$ | Width of source area | ft | various | impact-specific |
| $\alpha_x$ | Longitudinal dispersivities | ft | 70 | site-specific |
| $\alpha_y$ | Transverse dispersivities | ft | 14 | site-specific |
| $\alpha_z$ | Vertical dispersivities | ft | 3 | site-specific |
| $x_{obs}$ | Distance from the source area to the point of observation | ft | various | site-specific |
| $V_{groundwater}$ | Groundwater velocity *(= K x I)* | ft/day | 9.2E-06 | *calculated* |
| $V_{seep}$ | Groundwater seepage velocity *(= K x I/$q_T$)* | ft/day | 2.0E-04 | *calculated* |
| $K$ | Hydraulic conductivity | ft/day | 7.1E-04 | site-specific |
| $I$ | Hydraulic gradient | ft/ft | 0.013 | site-specific |
| $h_{cap}$ | Thickness of capillary fringe | cm | 200 | site-specific |
| $\rho_b$ | Soil bulk density | g/cm$^3$ | 1.6 | site-specific |
| $q_T$ | Total porosity (water filled) | unitless | 0.046 | site-specific |

- = no value
atm-m$^3$/mol = atmosphere per cubic meter per mole
days$^{-1}$ = inverse day
cm$^3$/g = cubic centimeters per gram
cm$^2$/s = square centimeters per second
cm/hour = centimeters per hour
ft = feet
ft$^2$ = square feet
ft$^3$ = cubic feet
ft/day = feet per day
ft/ft = cubic feet per second
g/cm$^3$ = grams per cubic centimeter
g/mole = grams per mole
L/m$^3$ = liters per cubic meter
ASTM = American Society of Testing and Materials
U.S. EPA = United States Environmental Protection Agency
a Values for Log Kow from U.S. EPA Region 9 (2002)
b Calculated from log Kow as described by Di Toro et al. (1991): log Koc = 0.983log Kow + 0.00028.

TABLE 5.2
APPROXIMATE DEPTHS AND AERIAL EXTENTS OF MODELED SOIL
Franklin Steel, Blacklick, Ohio

| Chemical | Depth (ft) | Area ($ft^2$) | Area ($m^2$) |
|---|---|---|---|
| Ethylbenzene | 1.0 | 495 | 150 |
| 4-Methyl-2-Pentanone | 10.5 | 16 | 5.0 |
| Toluene | 1.0 | 495 | 150 |
| Chlorobenzene | 14 | 16 | 5.0 |
| Aroclor 1254 | 4.0 | 32,996 | 9,999 |
| Bis(2-Ethylhexyl)Phthalate | 3.5 | 362,512 | 109,852 |
| Tetrachloroethene | 14 | 16 | 5.0 |
| Xylenes (Isomer Mixture) | 6.0 | 959 | 291 |
| Xylenes (Isomer Mixture) | 16 | 427 | 129 |
| Benzo(ghi)Perylene | 4.8 | 47,710 | 14,458 |
| Indeno(1,2,3-cd)Pyrene | 1.5 | 196 | 59 |
| Benzo(b)Fluoranthene | 6.0 | 83,389 | 25,269 |
| Benzo(a)Pyrene | 3.0 | 1,703 | 516 |
| Benzo(a)Pyrene | 9.0 | 78,932 | 23,919 |
| Benzo(a)Pyrene | 17 | 13,972 | 4,234 |
| 1,2-Dichloroethylene | 4.8 | 7,178 | 2,175 |
| Benz(a)Anthracene | 3.0 | 3,059 | 927 |
| Acetone | 5.6 | 3,608 | 1,093 |
| Acetone | 25.4 | 6,643 | 2,013 |
| 2-Butanone | 10.5 | 16 | 5.0 |
| Trichloroethene | 5.2 | 16 | 5.0 |
| Phenanthrene | 6.0 | 61,285 | 18,571 |
| Phenanthrene | 19 | 3,363 | 1,019 |
| 2-Methylnaphthalene | 7.0 | 17,110 | 5,185 |
| 2-Methylnaphthalene | 20 | 3,991 | 1,210 |

ft = feet
$ft^2$ = square feet
$m^2$ = square meters

TABLE 5.3
INITIAL CONCENTRATIONS OF COPCs MODELED IN SOIL
Franklin Steel, Blacklick, Ohio

| Chemical | Soil Layer | Chemical Concentration (µg/g)[a] |
|---|---|---|
| Ethylbenzene | 1 | 4.8 |
| 4-Methyl-2-Pentanone | 3 | 0.025 |
| Toluene | 1 | 7.0 |
| Chlorobenzene | 3 | 3.9 |
| Aroclor 1254 | 1&2 | 1.0 |
| Bis(2-Ethylhexyl)Phthalate | 1 | 42 |
| Tetrachloroethene | 3 | 1.2 |
| Xylenes (Isomer Mixture) - Deep | 2&3 | 20 |
| Xylenes (Isomer Mixture) - Shallow | 1&2 | 20 |
| Benzo(ghi)Perylene | 1&2 | 1.4 |
| Indeno(1,2,3-cd)Pyrene | N/A | N/A |
| Benzo(b)Fluoranthene | N/A | N/A |
| Benzo(a)Pyrene - Deep | 2&3 | 5.1 |
| Benzo(a)Pyrene - Intermediate | 1&2 | 5.1 |
| Benzo(a)Pyrene - Shallow | 1 | 5.1 |
| Dibenz(a,h)Anthracene | N/A | N/A |
| 1,2-Dichloroethylene | 1&2 | 1.2 |
| Benz(a)Anthracene | N/A | N/A |
| Acetone | 3 | 3.4 |
| 2-Butanone | 3 | 0.077 |
| Trichloroethene | 1&2 | 0.69 |
| Phenanthrene | N/A | N/A |
| 2-Methylnaphthalene | 2&3 | 8.0 |

N/A = chemical not modeled in soil due to high $K_{oc}$ values

µg/g = micrograms per gram

a. Represents average concentration over the entire modeled layer. Concentration term was calculated by dividing the µg/kg concentration by 1,000

TABLE 5.4
MODELED RESULTS FOR COPCs IN SOIL AND GROUNDWATER
Franklin Steel, Blacklick, Ohio

SESOIL/AT123 Model

| Chemical | Maximum Concentration at Origin (µg/L) | Maximum Concentration 480 feet Downgradient (µg/L) | Maximum Contaminant Level (µg/L) |
|---|---|---|---|
| Ethylbenzene | 0.22 | 0.036 | 700 |
| 4-Methyl-2-Pentanone | 0.00031 | 0.000051 | N/A |
| Toluene | 0.57 | 0.19 | 1000 |
| Chlorobenzene | 0.00021 | 0.000030 | N/A |
| Aroclor 1254 | 0.0015 | 0.000034 | N/A |
| Bis(2-Ethylhexyl)Phthalate | 0.85 | 0.0048 | 6 |
| Tetrachloroethene | 0.0074 | 0.00090 | 5 |
| Xylenes (Isomer Mixture) | 11.9 | 4.5 | 10000 |
| Benzo(ghi)Perylene | 1.3 | 0.000045 | N/A |
| Indeno(1,2,3-cd)Pyrene | 0.86 | 0.000092 | N/A |
| Benzo(b)Fluoranthene | 0.73 | 0.00087 | N/A |
| Benzo(a)Pyrene | 0.0057 | 0.000039 | 0.2 |
| 1,2-Dichloroethylene | 4.0 | 2.6 | N/A |
| Benz(a)Anthracene | 0.021 | 0.000092 | N/A |
| Acetone | 0.0029 | 0.0031 | N/A |
| 2-Butanone | 0.11 | 0.0190 | N/A |
| Trichloroethene | 0.0058 | 0.0011 | 5 |
| Phenanthrene | 0.052 | 0.00064 | N/A |
| 2-Methylnaphthalene | 0.0030 | 0.000075 | N/A |

BIOCHLOR Model

| Chemical | Maximum Concentration at Origin (µg/L) | Maximum Concentration 1,462 feet Downgradient (µg/L) | Maximum Contaminant Level (µg/L) |
|---|---|---|---|
| Vinyl Chloride | | | |
| S105-MW01 | 7.1 | 0.015 | 2 |
| S109-MW06 | 9.2 | 0.019 | 2 |

N/A = not available
µg/L = micrograms per liter

TABLE 6-1

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE UNIT 1 - SURFACE SOILS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Soils
Exposure Medium: Surface Soil (0 to 2 feet)
Exposure Point: Active Operations & Trailer Parking Area (i.e., S100-S108 and Area K)

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | |
| Aluminum | 369 | 18,400 | mg/kg | 114/112 | 18,400 | 14,900 | 7,600 | Y | ASL |
| Antimony | 0.0023 | 117 | mg/kg | 97/76 | 117 | -- | 3.1 | Y | ASL |
| Arsenic | 0.22 | 94 | mg/kg | 116/116 | 94 | 29 | 1.6 | Y | ASL |
| Barium | 44 | 5,400 | mg/kg | 118/118 | 5,400 | 252 | 540 | Y | ASL |
| Beryllium | 0.042 | 1.2 | mg/kg | 96/76 | 1.2 | 1.1 | 15 | N | BSL |
| Cadmium | 0.17 | 56 | mg/kg | 64/36 | 56 | 1.7 | 3.7 | Y | ASL |
| Calcium | 123 | 318,000 | mg/kg | 84/77 | 318,000 | 16,000 | -- | N | BSL |
| Chromium | 6.3 | 1,120 | mg/kg | 88/83 | 1,120 | 21 | 210 | Y | ASL |
| Cobalt | 0.81 | 51 | mg/kg | 84/76 | 51 | 15 | 900 | N | BSL |
| Copper | 0.74 | 835 | mg/kg | 88/84 | 835 | 30 | 310 | Y | ASL |
| Cyanide | 0.038 | 4.0 | mg/kg | 92/20 | 4.0 | -- | 120 | N | BSL |
| Iron | 3,320 | 67,500 | mg/kg | 84/76 | 67,500 | 28,800 | 2,300 | Y | ASL |
| Lead | 6.4 | 4,610 | mg/kg | 90/88 | 4,610 | 31 | 400 | Y | ASL |
| Magnesium | 1,230 | 73,700 | mg/kg | 83/75 | 73,700 | 7,030 | -- | N | NTX |
| Manganese | 53 | 1,140 | mg/kg | 87/83 | 1,140 | 1,200 | 180 | Y | ASL |
| Mercury | 0.00021 | 1.0 | mg/kg | 65/38 | 1.0 | 0.050 | 2.3 | N | BSL |
| Nickel | 5.3 | 468 | mg/kg | 85/78 | 468 | 36 | 160 | Y | ASL |
| Potassium | 90 | 3,190 | mg/kg | 84/76 | 3,190 | 1,640 | -- | N | NTX |
| Selenium | 0.16 | 24 | mg/kg | 54/17 | 24 | 9.9 | 39 | N | BSL |
| Silver | 0.0096 | 11 | mg/kg | 92/19 | 11 | -- | 39 | N | BSL |
| Sodium | 4.2 | 4,970 | mg/kg | 71/51 | 4,970 | -- | -- | N | NTX |
| Thallium | 0.057 | 2.4 | mg/kg | 52/12 | 2.4 | 1.2 | 0.52 | Y | ASL |
| Vanadium | 4.9 | 57 | mg/kg | 84/76 | 57 | 43 | 7.8 | Y | ASL |
| Zinc | 23 | 6,000 | mg/kg | 89/86 | 6,000 | 110 | 2,300 | Y | ASL |
| **PCBs** | | | | | | | | | |
| Aroclor 1254 | 44 | 1,000 | µg/kg | 75/2 | 1,000 | -- | 220 | N | BSC |

TABLE 6-1

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE UNIT 1 - SURFACE SOILS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Soils
Exposure Medium: Surface Soil (0 to 2 feet)
Exposure Point: Active Operations & Trailer Parking Area (i.e., S100-S108 and Area K)

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **SVOCs** | | | | | | | | | |
| 2,4-Dimethylphenol | 18 | 7,380 | µg/kg | 106/26 | 7,380 | -- | 120,000 | N | BSL |
| 2-Methylnaphthalene[d] | 30 | 8,000 | µg/kg | 106/37 | 8,000 | -- | 560 | Y | ASL |
| 2-Methylphenol | 17 | 9,370 | µg/kg | 106/25 | 9,370 | -- | 310,000 | N | BSL |
| 4-Methylphenol | 18 | 9,490 | µg/kg | 106/25 | 9,490 | -- | 31,000 | N | BSL |
| Acenaphthene | 7.6 | 770 | µg/kg | 106/25 | 770 | -- | 370,000 | N | BSL |
| Acenaphthylene[e] | 9.2 | 930 | µg/kg | 106/24 | 930 | -- | 37,000 | N | BSL |
| Anthracene | 6.7 | 680 | µg/kg | 106/25 | 680 | -- | 2,200,000 | N | BSL |
| Benzo(a)anthracene | 8.4 | 860 | µg/kg | 106/32 | 860 | -- | 620 | Y | ASL |
| Benzo(a)pyrene | 8.3 | 845 | µg/kg | 106/37 | 845 | -- | 62 | Y | ASL |
| Benzo(b)fluoranthene | 11 | 1,900 | µg/kg | 106/44 | 1,900 | -- | 620 | Y | ASL |
| Benzo(g,h,i)perylene[f] | 8.6 | 870 | µg/kg | 106/34 | 870 | -- | 23,000 | N | BSL |
| Benzo(k)fluoranthene | 9.2 | 915 | µg/kg | 106/32 | 915 | -- | 6,200 | N | BSL |
| Butylbenzylphthalate | 23 | 36,000 | µg/kg | 79/52 | 36,000 | -- | 1,200,000 | N | BSL |
| Carbazole | 23 | 2,325 | µg/kg | 106/26 | 2,325 | -- | 24,000 | N | BSL |
| Chrysene | 7.6 | 2,000 | µg/kg | 106/46 | 2,000 | -- | 62,000 | N | BSL |
| Di-n-butylphthalate | 23 | 8,600 | µg/kg | 106/52 | 8,600 | 63 | 6,200,000 | N | BSL |
| Di-n-octylphthalate | 29 | 83,000 | µg/kg | 106/37 | 83,000 | -- | 240,000 | N | BSL |
| Dibenzo(a,h)anthracene | 9.5 | 76 | µg/kg | 106/24 | 76 | -- | 62 | Y | ASL |
| Dibenzofuran | 15 | 1,520 | µg/kg | 106/28 | 1,520 | -- | 15,000 | N | BSL |
| Diethyl phthalate | 17 | 1,700 | µg/kg | 106/25 | 1,700 | -- | 4,900,000 | N | BSL |
| Dimethyl phthalate | 16 | 1,680 | µg/kg | 106/26 | 1,680 | -- | 10,000,000 | N | BSL |
| Fluoranthene | 8.1 | 10,000 | µg/kg | 54/2 | 10,000 | -- | 230,000 | N | BSL |
| Fluorene | 8.5 | 1,700 | µg/kg | 106/26 | 1,700 | -- | 270,000 | N | BSL |
| Indeno(1,2,3-cd)pyrene | 8.8 | 895 | µg/kg | 106/33 | 895 | -- | 620 | Y | ASL |
| Isophorone | 20 | 3,400 | µg/kg | 106/35 | 3,400 | -- | 510,000 | N | BSL |

TABLE 6-1

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE UNIT 1 - SURFACE SOILS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Soils
Exposure Medium: Surface Soil (0 to 2 feet)
Exposure Point: Active Operations & Trailer Parking Area (i.e., S100-S108 and Area K)

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| N-Nitrosodiphenylamine | 18 | 73 | µg/kg | 106/27 | 73 | -- | 9.5 | Y | ASL |
| Naphthalene | 7.5 | 800 | µg/kg | 106/41 | 800 | -- | 5,600 | N | BSL |
| Phenanthrene[g] | 7.2 | 4,300 | µg/kg | 54/2 | 4,300 | -- | 220,000 | N | BSL |
| Phenol | 16 | 6,000 | µg/kg | 106/28 | 6,000 | -- | 1,800,000 | N | BSL |
| Pyrene | 9.5 | 10,000 | µg/kg | 54/2 | 10,000 | -- | 230,000 | N | BSL |
| bis(2-Ethylhexyl) phthalate | 35 | 86,000 | µg/kg | 97/88 | 86,000 | -- | 35,000 | Y | ASL |
| 4,6-Dinitro-2-methylphenol | 17 | 1,710 | µg/kg | 106/24 | 1,710 | -- | 610 | Y | ASL |
| 2,4-Dinitrophenol | 128 | 398 | µg/kg | 106/24 | 398 | -- | 12,000 | N | BSL |
| Hexachloroethane | 19 | 1,865 | µg/kg | 106/24 | 1,865 | -- | 35,000 | N | BSL |
| 4-Nitroaniline | 21 | 2,180 | µg/kg | 106/24 | 2,180 | -- | 23,000 | N | BSL |
| Nitrobenzene | 21 | 2,185 | µg/kg | 97/88 | 2,185 | -- | 100,000 | N | BSL |
| 4-Nitrophenol[h] | 33 | 129 | µg/kg | 106/24 | 129 | -- | 200 | N | BSL |
| Pentachlorophenol | 17 | 1,715 | µg/kg | 106/24 | 1,715 | -- | 3,000 | N | BSL |
| 4-Chloro-3-methylphenol | 22 | 2,245 | µg/kg | 106/24 | 2,245 | -- | -- | N | NTX |
| **VOCs** | | | | | | | | | |
| 1,1,1-Trichloroethane | 0.39 | 48 | µg/kg | 74/21 | 48 | -- | 120,000 | N | BSL |
| 1,1,2-Trichloroethane | 0.42 | 10 | µg/kg | 74/18 | 10 | -- | 730 | N | BSL |
| 1,1-Dichloroethane | 0.42 | 580 | µg/kg | 74/22 | 580 | -- | 51,000 | N | BSL |
| 1,1-Dichloroethene | 0.37 | 0.46 | µg/kg | 74/17 | 0.46 | -- | 12,000 | N | BSL |
| 1,2-Dichloroethane | 0.48 | 0.59 | µg/kg | 74/17 | 0.59 | -- | 280 | N | BSL |
| 1,2-Dichloroethene, Total | 0.98 | 1,200 | µg/kg | 74/23 | 1,200 | -- | 6,900 | N | BSL |
| 2-Butanone | 0.83 | 140 | µg/kg | 74/24 | 140 | -- | 2,200,000 | N | BSL |
| 4-Methyl-2-pentanone | 1.1 | 87 | µg/kg | 74/19 | 87 | -- | 530,000 | N | BSL |
| Acetone | 2.9 | 1,100 | µg/kg | 74/24 | 1,100 | -- | 1,400,000 | N | BSL |
| Benzene | 0.39 | 1.3 | µg/kg | 74/17 | 1.3 | -- | 640 | N | BSL |
| Carbon disulfide | 0.46 | 7.6 | µg/kg | 74/18 | 7.6 | -- | 36,000 | N | BSL |
| Chlorobenzene | 0.41 | 120 | µg/kg | 74/20 | 120 | -- | 15,000 | N | BSL |

TABLE 6-1

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE UNIT 1 - SURFACE SOILS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Soils
Exposure Medium: Surface Soil (0 to 2 feet)
Exposure Point: Active Operations & Trailer Parking Area (i.e., S100-S108 and Area K)

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| Chloroethane | 0.53 | 0.66 | µg/kg | 74/17 | 0.66 | -- | 3,000 | N | BSL |
| Chloroform | 0.41 | 1.6 | µg/kg | 74/18 | 1.6 | -- | 220 | N | BSL |
| Chloromethane | 0.53 | 860 | µg/kg | 74/18 | 860 | -- | 4,700 | N | BSL |
| Ethylbenzene | 0.44 | 1,200 | µg/kg | 74/29 | 1,200 | -- | 40,000 | N | BSL |
| Methylene chloride | 0.87 | 1,300 | µg/kg | 74/32 | 1,300 | -- | 9,100 | N | BSL |
| Styrene | 0.36 | 5.3 | µg/kg | 74/18 | 5.3 | -- | 170,000 | N | BSL |
| Tetrachloroethene | 0.59 | 300 | µg/kg | 74/27 | 300 | -- | 480 | N | BSL |
| Toluene | 0.41 | 1,700 | µg/kg | 74/34 | 1,700 | -- | 52,000 | N | BSL |
| Trichloroethene | 0.49 | 50 | µg/kg | 74/25 | 50 | -- | 53 | N | BSL |
| Vinyl chloride | 0.62 | 0.76 | µg/kg | 74/17 | 0.76 | -- | 79 | N | BSL |
| Xylenes, Total | 0.51 | 3,400 | µg/kg | 74/37 | 3,400 | -- | 27,000 | N | BSL |
| Dibromochloromethane | 0.38 | 1.1 | µg/kg | 74/17 | 1.1 | -- | 110 | N | BSL |
| 2-Hexanone | 1.4 | 11 | µg/kg | 74/17 | 11 | -- | -- | N | NTX |

Notes:
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
COPC = chemical of potential concern
N = not a COPC; Y = COPC
-- = no data available
[a] Ohio EPA (2004) Use of U.S. EPA Region 9 PRGs as Screening Values in Human Health Risk Assessments (i.e., 10% of non-carcinogenic and 100% of the carcinogenic residential soil values)
[b] Selection Reason: Above Screening Levels (ASL)

Deletion Reason: No Toxicity Information (NTX)
Below Screening Level (BSL)
Below Screening Criteria (<5%) (BSC)

[c] Based on the value for HCH-technical
[d] Based on the value for naphthalene
[e] Based on the value for benzo(b)fluoranthene
[f] Based on the value for pyrene
[g] Based on the value for anthracene
[h] based on the value for nitrobenzene

TABLE 6-2

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE UNIT 1 - SUBSURFACE SOILS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Soils
Exposure Medium: Subsurface Soil (2 feet to 10 feet)
Exposure Point: Active Operations & Trailer Parking Area (i.e., S100-S108 and Area K)

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | |
| Aluminum | 2,650 | 29,900 | mg/kg | 93/86 | 29,900 | 14,900 | 7,600 | Y | ASL |
| Antimony | 0.030 | 7.5 | mg/kg | 98/10 | 7.5 | -- | 3.1 | Y | ASL |
| Arsenic | 3.9 | 56 | mg/kg | 91/84 | 56 | 29 | 1.6 | Y | ASL |
| Barium | 35 | 520 | mg/kg | 95/92 | 520 | 252 | 540 | N | BSL |
| Beryllium | 0.10 | 1.8 | mg/kg | 87/76 | 1.8 | 1.1 | 15 | N | BSL |
| Cadmium | 0.068 | 63 | mg/kg | 87/51 | 63 | 1.7 | 3.7 | Y | ASL |
| Calcium | 1,070 | 321,000 | mg/kg | 117/111 | 321,000 | 16,000 | -- | N | BSL |
| Chromium | 5.6 | 546 | mg/kg | 115/107 | 546 | 21 | 210 | Y | ASL |
| Cobalt | 1.5 | 45 | mg/kg | 116/110 | 45 | 15 | 900 | N | BSL |
| Copper | 7.5 | 641 | mg/kg | 123/123 | 641 | 30 | 310 | Y | ASL |
| Cyanide | 0.067 | 13 | mg/kg | 123/32 | 13 | -- | 120 | N | BSL |
| Iron | 5,610 | 165,000 | mg/kg | 123/114 | 165,000 | 28,800 | 2,300 | Y | ASL |
| Lead | 8.0 | 5,060 | mg/kg | 121/119 | 5,060 | 31 | 400 | Y | ASL |
| Magnesium | 753 | 74,700 | mg/kg | 113/104 | 74,700 | 7,030 | -- | N | NTX |
| Manganese | 52 | 2,720 | mg/kg | 122/122 | 2,720 | 1,200 | 180 | Y | ASL |
| Mercury | 0.0082 | 1 | mg/kg | 90/58 | 1 | 0.050 | 2.3 | N | ASL |
| Nickel | 8.5 | 129 | mg/kg | 115/108 | 129 | 36 | 160 | N | BSL |
| Potassium | 184 | 3,270 | mg/kg | 113/104 | 3,270 | 1,640 | -- | N | NTX |
| Selenium | 0.19 | 43 | mg/kg | 82/42 | 43 | 9.9 | 39 | Y | ASL |
| Silver | 0.055 | 20 | mg/kg | 122/30 | 20 | -- | 39 | N | BSL |
| Sodium | 37.5 | 1,280 | mg/kg | 105/88 | 1,280 | -- | -- | N | NTX |
| Thallium | 0.12 | 2.4 | mg/kg | 80/38 | 2.4 | 1.2 | 0.52 | Y | ASL |
| Vanadium | 7.2 | 137 | mg/kg | 113/104 | 137 | 43 | 7.8 | Y | ASL |
| Zinc | 30 | 6,740 | mg/kg | 120/117 | 6,740 | 110 | 2,300 | Y | ASL |
| **PCBs** | | | | | | | | | |
| Aroclor 1254 | 180 | 450 | µg/kg | 95/2 | 450 | -- | 220 | N | BSC |
| delta-BHC[c] | 3.5 | 3.5 | µg/kg | 95/1 | 3.5 | -- | 32 | N | BSL |
| Methoxychlor | 44 | 44 | µg/kg | 95/1 | 44 | -- | 31,000 | N | BSL |

TABLE 6-2

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE UNIT 1 - SUBSURFACE SOILS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Soils
Exposure Medium: Subsurface Soil (2 feet to 10 feet)
Exposure Point: Active Operations & Trailer Parking Area (i.e., S100-S108 and Area K)

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **SVOCs** | | | | | | | | | |
| 2,4-Dimethylphenol | 22 | 72 | µg/kg | 96/3 | 72 | -- | 120,000 | N | BSL |
| 2-Methylnaphthalene[d] | 37 | 1,300 | µg/kg | 96/7 | 1,300 | -- | 560 | Y | ASL |
| 2-Methylphenol | 21 | 71 | µg/kg | 96/3 | 71 | -- | 310,000 | N | BSL |
| 4-Methylphenol | 22 | 81 | µg/kg | 96/3 | 81 | -- | 31,000 | N | BSL |
| Acenaphthene | 9.3 | 490 | µg/kg | 96/4 | 490 | -- | 370,000 | N | BSL |
| Acenaphthylene[e] | 11 | 640 | µg/kg | 96/4 | 640 | -- | 37,000 | N | BSL |
| Anthracene | 8.2 | 1,700 | µg/kg | 96/4 | 1,700 | -- | 2,200,000 | N | BSL |
| Benzo(a)anthracene | 10 | 350 | µg/kg | 96/6 | 350 | -- | 620 | N | ASL |
| Benzo(a)pyrene | 10 | 190 | µg/kg | 96/6 | 190 | -- | 62 | Y | ASL |
| Benzo(b)fluoranthene | 13 | 290 | µg/kg | 96/6 | 290 | -- | 620 | N | ASL |
| Benzo(g,h,i)perylene[f] | 11 | 1,400 | µg/kg | 96/5 | 1,400 | -- | 23,000 | N | BSL |
| Benzo(k)fluoranthene | 11 | 2,800 | µg/kg | 96/5 | 2,800 | -- | 6,200 | N | BSL |
| Butylbenzylphthalate | 29 | 3,700 | µg/kg | 96/10 | 3,700 | -- | 1,200,000 | N | BSL |
| Carbazole | 28 | 330 | µg/kg | 96/3 | 330 | -- | 24,000 | N | BSL |
| Chrysene | 9.2 | 5,300 | µg/kg | 96/6 | 5,300 | -- | 62,000 | N | BSL |
| Di-n-butylphthalate | 28 | 3,800 | µg/kg | 96/11 | 3,800 | 63 | 6,200,000 | N | BSL |
| Di-n-octylphthalate | 36 | 36 | µg/kg | 96/2 | 36 | -- | 240,000 | N | BSL |
| Dibenzo(a,h)anthracene | 12 | 450 | µg/kg | 96/2 | 450 | -- | 62 | Y | ASL |
| Dibenzofuran | 18 | 270 | µg/kg | 96/4 | 270 | -- | 15,000 | N | BSL |
| Diethyl phthalate | 20 | 210 | µg/kg | 96/4 | 210 | -- | 4,900,000 | N | BSL |
| Dimethyl phthalate | 20 | 230 | µg/kg | 96/3 | 230 | -- | 10,000,000 | N | BSL |
| Fluoranthene | 10 | 11,000 | µg/kg | 96/7 | 11,000 | -- | 230,000 | N | BSL |
| Fluorene | 10 | 1,100 | µg/kg | 96/4 | 1,100 | -- | 270,000 | N | BSL |
| Indeno(1,2,3-cd)pyrene | 11 | 240 | µg/kg | 96/5 | 240 | -- | 620 | N | BSL |
| Isophorone | 24 | 150 | µg/kg | 96/4 | 150 | -- | 510,000 | N | BSL |

TABLE 6-2

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE UNIT 1 - SUBSURFACE SOILS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Soils
Exposure Medium: Subsurface Soil (2 feet to 10 feet)
Exposure Point: Active Operations & Trailer Parking Area (i.e., S100-S108 and Area K)

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| N-Nitrosodiphenylamine | 22 | 22 | µg/kg | 96/2 | 22 | -- | 9.5 | Y | ASL |
| Naphthalene | 9.2 | 2,600 | µg/kg | 96/9 | 2,600 | -- | 5,600 | N | BSL |
| Phenanthrene[g] | 8.4 | 6,300 | µg/kg | 96/6 | 6,300 | -- | 220,000 | N | BSL |
| Phenol | 20 | 260 | µg/kg | 96/4 | 260 | -- | 1,800,000 | N | BSL |
| Pyrene | 11 | 9,900 | µg/kg | 96/7 | 9,900 | -- | 230,000 | N | BSL |
| bis(2-Ethylhexyl) phthalate | 20 | 43,000 | µg/kg | 96/32 | 43,000 | -- | 35,000 | Y | ASL |
| 4,6-Dinitro-2-methylphenol | 21 | 340 | µg/kg | 96/2 | 340 | -- | 610 | N | BSL |
| 2,4-Dinitrophenol | 155 | 508 | µg/kg | 96/2 | 508 | -- | 12,000 | N | BSL |
| Hexachloroethane | 22 | 23 | µg/kg | 96/2 | 23 | -- | 35,000 | N | BSL |
| 4-Nitroaniline | 26 | 26 | µg/kg | 96/2 | 26 | -- | 23,000 | N | BSL |
| Nitrobenzene | 26 | 100 | µg/kg | 96/2 | 100 | -- | 100,000 | N | BSL |
| 4-Nitrophenol[h] | 39 | 143 | µg/kg | 96/2 | 143 | -- | 200 | N | BSL |
| Pentachlorophenol | 21 | 162 | µg/kg | 96/2 | 162 | -- | 3,000 | N | BSL |
| 4-Chloro-3-methylphenol | 27 | 27 | µg/kg | 96/2 | 27 | -- | -- | N | NTX |
| **VOCs** | | | | | | | | | |
| 1,1,1-Trichloroethane | 0.46 | 0.48 | µg/kg | 97/2 | 0.48 | -- | 120,000 | N | BSL |
| 1,1,2-Trichloroethane | 0.51 | 0.52 | µg/kg | 97/2 | 0.52 | -- | 730 | N | BSL |
| 1,1-Dichloroethane | 1.7 | 73 | µg/kg | 97/9 | 73 | -- | 51,000 | N | BSL |
| 1,1-Dichloroethene | 0.45 | 0.46 | µg/kg | 97/2 | 0.46 | -- | 12,000 | N | BSL |
| 1,2-Dichloroethane | 0.58 | 2.7 | µg/kg | 97/3 | 2.7 | -- | 280 | N | BSL |
| 1,2-Dichloroethene, Total | 1.2 | 95 | µg/kg | 97/8 | 95 | -- | 6,900 | N | BSL |
| 2-Butanone | 6.0 | 34 | µg/kg | 97/17 | 34 | -- | 2,200,000 | N | BSL |
| 4-Methyl-2-pentanone | 1.4 | 6.5 | µg/kg | 97/2 | 6.5 | -- | 530,000 | N | BSL |
| Acetone | 9.0 | 250 | µg/kg | 97/25 | 250 | -- | 1,400,000 | N | BSL |
| Benzene | 0.47 | 12 | µg/kg | 97/6 | 12 | -- | 640 | N | BSL |
| Carbon disulfide | 0.50 | 3.7 | µg/kg | 97/14 | 3.7 | -- | 36,000 | N | BSL |
| Chlorobenzene | 0.43 | 3,900 | µg/kg | 97/5 | 3,900 | -- | 15,000 | N | BSL |

TABLE 6-2

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE UNIT 1 - SUBSURFACE SOILS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Soils
Exposure Medium: Subsurface Soil (2 feet to 10 feet)
Exposure Point: Active Operations & Trailer Parking Area (i.e., S100-S108 and Area K)

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| Chloroethane | 0.66 | 12 | µg/kg | 97/4 | 12 | -- | 3,000 | N | BSL |
| Chloroform | 0.49 | 1.9 | µg/kg | 97/3 | 1.9 | -- | 220 | N | BSL |
| Chloromethane | 0.64 | 12 | µg/kg | 97/3 | 12 | -- | 4,700 | N | BSL |
| Ethylbenzene | 0.53 | 3,500 | µg/kg | 97/15 | 3,500 | -- | 40,000 | N | BSL |
| Methylene chloride | 1.9 | 13 | µg/kg | 97/10 | 13 | -- | 9,100 | N | BSL |
| Styrene | 0.43 | 0.45 | µg/kg | 97/2 | 0.45 | -- | 170,000 | N | BSL |
| Tetrachloroethene | 0.71 | 1,200 | µg/kg | 97/5 | 1,200 | -- | 480 | Y | ASL |
| Toluene | 0.50 | 40,000 | µg/kg | 97/19 | 40,000 | -- | 52,000 | N | BSL |
| Trichloroethene | 0.59 | 12 | µg/kg | 97/5 | 12 | -- | 53 | N | BSL |
| Vinyl chloride | 0.63 | 33 | µg/kg | 97/5 | 33 | -- | 79 | N | BSL |
| Xylenes, Total | 0.95 | 920 | µg/kg | 97/20 | 920 | -- | 27,000 | N | BSL |
| Dibromochloromethane | 0.46 | 0.47 | µg/kg | 97/2 | 0.47 | -- | 110 | N | BSL |
| 2-Hexanone | 1.7 | 13 | µg/kg | 97/2 | 13 | -- | -- | N | NTX |

Notes:
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
COPC = chemical of potential concern
N = not a COPC; Y = COPC
-- = no data available
[a] Ohio EPA (2004) Use of U.S. EPA Region 9 PRGs as Screening Values in Human Health Risk Assessments (i.e., 10% of non-carcinogenic and 100% of the carcinogenic residential soil values)
[b] Selection Reason: Above Screening Levels (ASL)

Deletion Reason: No Toxicity Information (NTX)
Below Screening Level (BSL)
Below Screening Criteria (<5%) (BSC)

[c] Based on the value for HCH-technical
[d] Based on the value for naphthalene
[e] Based on the value for benzo(b)fluoranthene
[f] Based on the value for pyrene
[g] Based on the value for anthracene
[h] based on the value for nitrobenzene

TABLE 6-3

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE UNIT 2 - SURFACE SOILS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Soils
Exposure Medium: Surface Soil (0 to 2 feet)
Exposure Point: Inactive Operations Area (i.e., S109 and S201)

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | |
| Aluminum | 7,290 | 21,700 | mg/kg | 31/28 | 21,700 | 14,900 | 7,600 | Y | ASL |
| Arsenic | 6.8 | 74 | mg/kg | 34/34 | 74 | 29 | 1.6 | Y | ASL |
| Barium | 60 | 414 | mg/kg | 31/28 | 414 | 252 | 540 | N | BSL |
| Beryllium | 0.39 | 1.2 | mg/kg | 22/10 | 1.2 | 1.1 | 15 | N | BSL |
| Cadmium | 0.49 | 1.3 | mg/kg | 18/2 | 1.3 | 1.7 | 3.7 | N | BSL |
| Calcium | 584 | 23,900 | mg/kg | 28/22 | 23,900 | 16,000 | -- | N | BSL |
| Chromium | 12 | 43 | mg/kg | 31/28 | 43 | 21 | 210 | N | BSL |
| Cobalt | 6.0 | 17 | mg/kg | 30/26 | 17 | 15 | 900 | N | BSL |
| Copper | 11 | 47 | mg/kg | 31/28 | 47 | 30 | 310 | N | BSL |
| Iron | 15,300 | 82,300 | mg/kg | 31/28 | 82,300 | 28,800 | 2,300 | Y | ASL |
| Lead | 14 | 120 | mg/kg | 31/28 | 120 | 31 | 400 | N | BSL |
| Magnesium | 1,070 | 10,100 | mg/kg | 31/28 | 10,100 | 7,030 | -- | N | NTX |
| Manganese | 169 | 1,540 | mg/kg | 31/28 | 1,540 | 1,200 | 180 | Y | ASL |
| Mercury | 0.13 | 0.17 | mg/kg | 33/3 | 0.17 | 0.050 | 2.3 | N | BSL |
| Nickel | 9.6 | 42 | mg/kg | 31/28 | 42 | 36 | 160 | N | BSL |
| Potassium | 602 | 3,610 | mg/kg | 30/26 | 3,610 | 1,640 | -- | N | NTX |
| Selenium | 0.23 | 0.94 | mg/kg | 34/6 | 0.94 | 870 | 39 | N | BSL |
| Sodium | 242 | 242 | mg/kg | 34/1 | 242 | -- | -- | N | NTX |
| Thallium | 0.66 | 1.2 | mg/kg | 34/8 | 1.2 | 1.2 | 0.52 | Y | ASL |
| Vanadium | 23 | 87 | mg/kg | 31/28 | 87 | 43 | 7.8 | Y | ASL |
| Zinc | 45 | 137 | mg/kg | 31/28 | 137 | 110 | 2,300 | N | BSL |

TABLE 6-3

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE UNIT 2 - SURFACE SOILS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Soils
Exposure Medium: Surface Soil (0 to 2 feet)
Exposure Point: Inactive Operations Area (i.e., S109 and S201)

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **SVOCs** | | | | | | | | | |
| 2-Methylnaphthalene[d] | 42 | 350 | µg/kg | 34/4 | 350 | -- | 560 | N | BSL |
| Butylbenzylphthalate | 210 | 210 | µg/kg | 34/1 | 210 | -- | 1,200,000 | N | BSL |
| Di-n-butylphthalate | 41 | 75 | µg/kg | 34/6 | 75 | 63 | 6,200,000 | N | BSL |
| Dibenzofuran | 46 | 46 | µg/kg | 34/1 | 46 | -- | 15,000 | N | BSL |
| Naphthalene | 110 | 310 | µg/kg | 34/2 | 310 | -- | 5,600 | N | BSL |
| Phenanthrene[g] | 92 | 160 | µg/kg | 34/2 | 160 | -- | 220,000 | N | BSL |
| bis(2-Ethylhexyl) phthalate | 76 | 330 | µg/kg | 34/6 | 330 | -- | 35,000 | N | BSL |

Notes:
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
COPC = chemical of potential concern
N = not a COPC; Y = COPC
-- = no data available
[a] Ohio EPA (2004) Use of U.S. EPA Region 9 PRGs as Screening Values in Human Health Risk Assessments (i.e., 10% of non-carcinogenic and 100% of the carcinogenic residential soil values)
[b] Selection Reason: Above Screening Levels (ASL)

Deletion Reason: No Toxicity Information (NTX)
Below Screening Level (BSL)

[c] Based on the value for HCH-technical
[d] Based on the value for naphthalene
[e] Based on the value for benzo(b)fluoranthene
[f] Based on the value for pyrene
[g] Based on the value for anthracene
[h] based on the value for nitrobenzene

TABLE 6-4

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE UNIT 2 - SUBSURFACE SOILS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Soils
Exposure Medium: Subsurface Soil (2 feet to 10 feet)
Exposure Point: Inactive Operations Area (i.e., S109 and S201)

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | |
| Aluminum | 3,970 | 13,700 | mg/kg | 22/20 | 13,700 | 14,900 | 7,600 | Y | ASL |
| Antimony | 1.900 | 2.1 | mg/kg | 22/2 | 2.1 | -- | 3.1 | N | BSL |
| Arsenic | 13 | 78 | mg/kg | 24/24 | 78 | 29 | 1.6 | Y | ASL |
| Barium | 44 | 207 | mg/kg | 22/20 | 207 | 252 | 540 | N | BSL |
| Beryllium | 0.35 | 0.66 | mg/kg | 22/20 | 0.66 | 1.1 | 15 | N | BSL |
| Cadmium | 0.44 | 2.2 | mg/kg | 18/12 | 2.2 | 1.7 | 3.7 | N | BSL |
| Calcium | 1,870 | 89,100 | mg/kg | 22/20 | 89,100 | 16,000 | -- | N | BSL |
| Chromium | 8.2 | 18 | mg/kg | 22/20 | 18 | 21 | 210 | N | BSL |
| Cobalt | 6.3 | 28 | mg/kg | 22/20 | 28 | 15 | 900 | N | BSL |
| Copper | 20 | 46 | mg/kg | 22/20 | 46 | 30 | 310 | N | BSL |
| Iron | 22,500 | 61,600 | mg/kg | 22/20 | 61,600 | 28,800 | 2,300 | Y | ASL |
| Lead | 11 | 24 | mg/kg | 22/20 | 24 | 31 | 400 | N | BSL |
| Magnesium | 2,410 | 24,800 | mg/kg | 22/20 | 24,800 | 7,030 | -- | N | NTX |
| Manganese | 178 | 1,070 | mg/kg | 22/20 | 1,070 | 1,200 | 180 | Y | ASL |
| Mercury | 0.023 | 0.047 | mg/kg | 14/4 | 0.047 | 0.050 | 2.3 | N | BSL |
| Nickel | 32 | 60 | mg/kg | 22/20 | 60 | 36 | 160 | N | BSL |
| Potassium | 1,170 | 2,840 | mg/kg | 22/10 | 2,840 | 1,640 | -- | N | NTX |
| Selenium | 0.57 | 3.8 | mg/kg | 24/6 | 3.8 | 870 | 39 | N | BSL |
| Silver | 0.30 | 0.30 | mg/kg | 24/1 | 0.30 | -- | 39 | N | BSL |
| Sodium | 47 | 329 | mg/kg | 24/24 | 329 | -- | -- | N | NTX |
| Vanadium | 22 | 51 | mg/kg | 22/20 | 51 | 43 | 7.8 | Y | ASL |
| Zinc | 82 | 198 | mg/kg | 22/20 | 198 | 110 | 2,300 | N | BSL |

TABLE 6-4

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE UNIT 2 - SUBSURFACE SOILS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Soils
Exposure Medium: Subsurface Soil (2 feet to 10 feet)
Exposure Point: Inactive Operations Area (i.e., S109 and S201)

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **SVOCs** | | | | | | | | | |
| bis(2-Ethylhexyl) phthalate | 55 | 55 | µg/kg | 24/1 | 55 | -- | 35,000 | N | BSL |
| **VOCs** | | | | | | | | | |
| Acetone | 7.5 | 15 | µg/kg | 24/2 | 15 | -- | 1,400,000 | N | BSL |

Notes:
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
COPC = chemical of potential concern
N = not a COPC; Y = COPC
-- = no data available
[a] Ohio EPA (2004) Use of U.S. EPA Region 9 PRGs as Screening Values in Human Health Risk Assessments (i.e., 10% of non-carcinogenic and 100% of the carcinogenic residential soil values)
[b] Selection Reason: Above Screening Levels (ASL)

Deletion Reason: No Toxicity Information (NTX)
Below Screening Level (BSL)

[c] Based on the value for HCH-technical
[d] Based on the value for naphthalene
[e] Based on the value for benzo(b)fluoranthene
[f] Based on the value for pyrene
[g] Based on the value for anthracene
[h] based on the value for nitrobenzene

TABLE 6-5

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - STORM WATER HOLDING PONDS - SEDIMENTS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Sediments
Exposure Medium: Sediment
Exposure Point: Active Operations Area - Storm Water Holding Ponds

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | |
| Aluminum | 7,630 | 7,630 | mg/kg | 1/1 | 7,630 | 16,400 | 7,600 | N | BBL |
| Antimony | 6.5 | 6.5 | mg/kg | 1/1 | 6.5 | - | 3.1 | Y | ASL |
| Arsenic | 5.2 | 12 | mg/kg | 2/2 | 12 | 21 | 0.39 | N | BBL |
| Barium | 267 | 388 | mg/kg | 2/2 | 388 | 171 | 540 | N | BSL |
| Beryllium | 0.79 | 0.79 | mg/kg | 1/1 | 0.8 | 0.704 | 15 | N | BSL |
| Cadmium | 4.4 | 8.4 | mg/kg | 2/2 | 8.4 | 2 | 3.7 | N | BBL |
| Calcium | 135,000 | 135,000 | mg/kg | 1/1 | 135,000 | 28,800 | -- | N | NTX |
| Chromium | 52 | 57 | mg/kg | 2/2 | 57 | 24 | 210 | N | BSL |
| Cobalt | 10 | 10 | mg/kg | 1/1 | 10 | 13 | 900 | N | BSL |
| Copper | 62 | 62 | mg/kg | 1/1 | 62 | 33.8 | 310 | N | BSL |
| Cyanide | 0.82 | 0.82 | mg/kg | 1/1 | 0.82 | 0.209 | 120 | N | BSL |
| Iron | 17,700 | 17,700 | mg/kg | 1/1 | 17,700 | 29,300 | 2,300 | N | BBL |
| Lead | 167 | 253 | mg/kg | 2/2 | 253 | 34 | 400 | N | BSL |
| Magnesium | 22,800 | 22,800 | mg/kg | 1/1 | 22,800 | 6,510 | -- | N | NTX |
| Manganese | 478 | 478 | mg/kg | 1/1 | 478 | 545 | 180 | N | BBL |
| Mercury | 0.040 | 0.15 | mg/kg | 2/2 | 0.15 | 0.084 | 2.3 | N | BSL |
| Nickel | 26 | 26 | mg/kg | 1/1 | 26 | 42 | 160 | N | BSL |
| Potassium | 1,850 | 1,850 | mg/kg | 1/1 | 1,850 | 3,350 | -- | N | NTX |
| Selenium | 1.1 | 21 | mg/kg | 2/2 | 21 | 1.30 | 39 | N | BSL |
| Silver | 1.2 | 148 | mg/kg | 2/2 | 148 | 0.190 | 39 | N | BBL |
| Sodium | 81 | 81 | mg/kg | 1/1 | 81 | 333 | -- | N | NTX |
| Thallium | 1.8 | 1.8 | mg/kg | 1/1 | 1.8 | 0.46 | 0.52 | N | BBL |
| Vanadium | 27 | 27 | mg/kg | 1/1 | 27 | 79 | 7.8 | N | BBL |
| Zinc | 503 | 1,070 | mg/kg | 2/2 | 1,070 | 138 | 2,300 | N | BSL |
| **SVOCs** | | | | | | | | | |
| 2-Methylnaphthalene[c] | 790 | 4,410 | µg/kg | 2/2 | 4,410 | -- | 560 | Y | ASL |
| Acenaphthene | 59 | 2,950 | µg/kg | 2/2 | 2,950 | -- | 370,000 | N | BSL |
| Acenaphthylene[d] | 13 | 13 | µg/kg | 1/1 | 13 | -- | 37,000 | N | BSL |
| Anthracene | 66 | 9,140 | µg/kg | 2/2 | 9,140 | -- | 2,200,000 | N | BSL |
| Benzo(a)anthracene | 160 | 24,400 | µg/kg | 2/2 | 24,400 | -- | 620 | Y | ASL |
| Benzo(a)pyrene | 110 | 24,200 | µg/kg | 2/2 | 24,200 | -- | 62 | Y | ASL |
| Benzo(b)fluoranthene | 220 | 28,100 | µg/kg | 2/2 | 28,100 | 38 | 620 | Y | ASL |
| Benzo(g,h,i)perylene[e] | 190 | 5,080 | µg/kg | 2/2 | 5,080 | -- | 23,000 | N | BSL |
| Benzo(k)fluoranthene | 200 | 24,200 | µg/kg | 2/2 | 24,200 | -- | 6,200 | Y | ASL |
| Butylbenzylphthalate | 72 | 4,510 | µg/kg | 2/2 | 4,510 | -- | 1,200,000 | N | BSL |
| Carbazole | 37 | 37 | µg/kg | 1/1 | 37 | -- | 24,000 | N | BSL |
| Chrysene | 170 | 28,900 | µg/kg | 2/2 | 28,900 | -- | 62,000 | N | BSL |
| Di-n-butylphthalate | 2,400 | 2,690 | µg/kg | 2/2 | 2,690 | -- | 6,200,000 | N | BSL |
| Dibenzo(a,h)anthracene | 84 | 84 | µg/kg | 1/1 | 84 | -- | 62 | Y | ASL |
| Dibenzofuran | 36 | 36 | µg/kg | 1/1 | 36 | -- | 15,000 | N | BSL |

TABLE 6-5

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - STORM WATER HOLDING PONDS - SEDIMENTS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Sediments
Exposure Medium: Sediment
Exposure Point: Active Operations Area - Storm Water Holding Ponds

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| Fluoranthene | 260 | 85,900 | µg/kg | 2/2 | 85,900 | 55 | 230,000 | N | BSL |
| Fluorene | 78 | 4,250 | µg/kg | 2/2 | 4,250 | -- | 270,000 | N | BSL |
| Indeno(1,2,3-cd)pyrene | 180 | 5,110 | µg/kg | 2/2 | 5,110 | -- | 620 | Y | ASL |
| Naphthalene | 1,600 | 3,440 | µg/kg | 2/2 | 3,440 | -- | 5,600 | N | BSL |
| Phenanthrene[c] | 150 | 52,900 | µg/kg | 2/2 | 52,900 | -- | 220,000 | N | BSL |
| Pyrene | 250 | 62,200 | µg/kg | 2/2 | 62,200 | 40 | 230,000 | N | BSL |
| bis(2-Ethylhexyl) phthalate | 1,200 | 31,800 | µg/kg | 2/2 | 31,800 | 110 | 35,000 | N | BSL |
| **VOCs** | | | | | | | | | |
| 2-Butanone | 4.3 | 7,280 | µg/kg | 2/2 | 7,280 | -- | 2,200,000 | N | BSL |
| Acetone | 42 | 42 | µg/kg | 1/1 | 42 | 7.9 | 1,400,000 | N | BSL |
| Ethylbenzene | 0.65 | 641 | µg/kg | 2/2 | 641 | 0.00140 | 40,000 | N | BSL |
| Toluene | 636 | 670 | µg/kg | 2/2 | 670 | -- | 52,000 | N | BSL |
| Xylenes, Total | 2,280 | 19,000 | µg/kg | 2/2 | 19,000 | -- | 27,000 | N | BSL |

Notes:
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
COPC = chemical of potential concern
N = not a COPC; Y = COPC
-- = no data available
[a] Ohio EPA (2004) Use of U.S. EPA Region 9 PRGs as Screening Values in Human Health Risk Assessments (i.e., 10% of non-carcinogenic and 100% of the carcinogenic residential soil values)
[b] Selection Reason: Above Screening Levels (ASL)

Deletion Reason: No Toxicity Information (NTX)
Below Screening Level (BSL)
Below Background Level (BBL)

[c] Based on the value for naphthalene
[d] Based on the value for benzo(b)fluoranthene
[e] Based on the value for pyrene
[f] Based on the value for anthracene

TABLE 6-6

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - UNZINGER'S DITCH - SEDIMENTS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Sediments
Exposure Medium: Sediment
Exposure Point: Unzinger's Ditch

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | |
| Aluminum | 1,490 | 20,300 | mg/kg | 39/39 | 20,300 | 16,400 | 7,600 | Y | ASL |
| Antimony | 0.030 | 19 | mg/kg | 39/19 | 19 | - | 3.1 | Y | ASL |
| Arsenic | 3.0 | 38 | mg/kg | 39/39 | 38 | 21 | 0.39 | Y | ASL |
| Barium | 23 | 1,250 | mg/kg | 39/39 | 1,250 | 171 | 540 | Y | ASL |
| Beryllium | 0.13 | 1.0 | mg/kg | 39/35 | 1.0 | 0.70 | 15 | N | BSL |
| Cadmium | 0.38 | 10 | mg/kg | 39/32 | 10 | 2.3 | 3.7 | Y | ASL |
| Calcium | 3,750 | 170,000 | mg/kg | 39/39 | 170,000 | 28,800 | -- | N | NTX |
| Chromium | 4.0 | 164 | mg/kg | 39/39 | 164 | 24 | 210 | N | BSL |
| Cobalt | 2.1 | 29 | mg/kg | 39/38 | 29 | 13 | 900 | N | BSL |
| Copper | 11 | 164 | mg/kg | 39/39 | 164 | 34 | 310 | N | BSL |
| Cyanide | 0.074 | 0.84 | mg/kg | 39/4 | 0.84 | 0 | 120 | N | BSL |
| Iron | 7,890 | 41,900 | mg/kg | 39/39 | 41,900 | 29,300 | 2,300 | Y | ASL |
| Lead | 9.3 | 775 | mg/kg | 39/39 | 775 | 34 | 400 | Y | ASL |
| Magnesium | 1,360 | 32,600 | mg/kg | 39/39 | 32,600 | 6,510 | -- | N | NTX |
| Manganese | 89 | 1,520 | mg/kg | 39/39 | 1,520 | 545 | 180 | Y | ASL |
| Mercury | 0.012 | 0.57 | mg/kg | 39/30 | 0.57 | 0.08 | 2.3 | N | BSL |
| Nickel | 5.0 | 152 | mg/kg | 39/39 | 152 | 42 | 160 | N | BSL |
| Potassium | 184 | 2,290 | mg/kg | 39/39 | 2,290 | 3,350 | -- | N | NTX |
| Selenium | 0.35 | 16 | mg/kg | 39/25 | 16 | 1.3 | 39 | N | BSL |
| Silver | 0.18 | 167 | mg/kg | 39/11 | 167 | 0.19 | 39 | Y | ASL |
| Sodium | 1.0 | 1,200 | mg/kg | 39/28 | 1,200 | 333 | -- | N | NTX |
| Thallium | 0.47 | 10 | mg/kg | 39/14 | 10 | 0.46 | 0.52 | Y | ASL |
| Vanadium | 8.8 | 48 | mg/kg | 39/39 | 48 | 79 | 7.8 | N | BBL |
| Zinc | 58 | 954 | mg/kg | 39/39 | 954 | 138 | 2,300 | N | BSL |
| **SVOCs** | | | | | | | | | |
| 2-Methylnaphthalene[c] | 97 | 940 | µg/kg | 39/5 | 940 | -- | 560 | Y | ASL |
| 4-Methylphenol | 120 | 500 | µg/kg | 39/2 | 500 | -- | 310,000 | N | BSL |
| Acenaphthene | 8.7 | 540 | µg/kg | 39/4 | 540 | -- | 370,000 | N | BSL |
| Acenaphthylene[d] | 11 | 3,600 | µg/kg | 39/2 | 3,600 | -- | 37,000 | N | BSL |
| Anthracene | 7.7 | 3,400 | µg/kg | 39/16 | 3,400 | -- | 2,200,000 | N | BSL |
| Benzo(a)anthracene | 9.5 | 9,900 | µg/kg | 39/24 | 9,900 | -- | 620 | Y | ASL |
| Benzo(a)pyrene | 10 | 16,000 | µg/kg | 39/24 | 16,000 | -- | 62 | Y | ASL |
| Benzo(b)fluoranthene | 12 | 28,000 | µg/kg | 39/26 | 28,000 | 38 | 620 | Y | ASL |
| Benzo(g,h,i)perylene[e] | 10 | 5,100 | µg/kg | 39/23 | 5,100 | -- | 23,000 | N | BSL |
| Benzo(k)fluoranthene | 10 | 12,000 | µg/kg | 39/23 | 12,000 | -- | 6,200 | Y | ASL |
| Butylbenzylphthalate | 27 | 2,100 | µg/kg | 39/12 | 2,100 | -- | 1,200,000 | N | BSL |
| Carbazole | 26 | 860 | µg/kg | 39/14 | 860 | -- | 24,000 | N | BSL |
| Chrysene | 8.7 | 19,000 | µg/kg | 39/26 | 19,000 | -- | 62,000 | N | BSL |
| Di-n-butylphthalate | 56 | 220 | µg/kg | 39/5 | 220 | -- | 6,200,000 | N | BSL |
| Dibenzo(a,h)anthracene | 11 | 1,900 | µg/kg | 39/14 | 1,900 | -- | 62 | Y | ASL |
| Dibenzofuran | 17 | 310 | µg/kg | 39/5 | 310 | -- | 15,000 | N | BSL |

TABLE 6-6

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - UNZINGER'S DITCH - SEDIMENTS

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Sediments
Exposure Medium: Sediment
Exposure Point: Unzinger's Ditch

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| Di-n-octyl phthlate | 3,100 | 3,100 | µg/kg | 39/1 | 3,100 | -- | 240,000 | N | BSL |
| Fluoranthene | 19 | 13,000 | µg/kg | 39/30 | 13,000 | 55 | 230,000 | N | BSL |
| Fluorene | 10 | 540 | µg/kg | 39/7 | 540 | -- | 270,000 | N | BSL |
| Indeno(1,2,3-cd)pyrene | 10 | 6,000 | µg/kg | 39/23 | 6,000 | -- | 620 | Y | ASL |
| Naphthalene | 250 | 790 | µg/kg | 39/3 | 790 | -- | 5,600 | N | BSL |
| Phenanthrene[f] | 7.9 | 7,100 | µg/kg | 39/26 | 7,100 | -- | 220,000 | N | BSL |
| Phenol | 18 | 94 | µg/kg | 39/1 | 94 | -- | 1,800,000 | N | BSL |
| Pyrene | 10 | 9,700 | µg/kg | 39/29 | 9,700 | 40 | 230,000 | N | BSL |
| bis(2-Ethylhexyl) phthalate | 37 | 17,000 | µg/kg | 39/27 | 17,000 | 110 | 35,000 | N | BSL |
| **VOCs** | | | | | | | | | |
| 2-Butanone | 1.0 | 31 | µg/kg | 39/5 | 31 | -- | 2,200,000 | N | BSL |
| Acetone | 3.5 | 54 | µg/kg | 39/7 | 54 | 7.9 | 1,400,000 | N | BSL |
| Carbon disulfide | 0.55 | 3.1 | µg/kg | 39/1 | 3.1 | 0.0015 | 36,000 | N | BSL |
| Chlorobenzene | 0.48 | 1.6 | µg/kg | 39/1 | 1.6 | 0.0013 | 15,000 | N | BSL |
| Ethylbenzene | 0.52 | 2,000 | µg/kg | 39/2 | 2,000 | 0.0014 | 40,000 | N | BSL |
| Tetrachloroethene | 0.69 | 4.0 | µg/kg | 39/1 | 4.0 | 0.0019 | 480 | N | BSL |
| Toluene | 0.49 | 860 | µg/kg | 39/6 | 860 | -- | 52,000 | N | BSL |
| Trichloroethene | 0.58 | 8.0 | µg/kg | 39/1 | 8.0 | -- | 53 | N | BSL |
| Xylenes, Total | 1.5 | 2,100 | µg/kg | 39/3 | 2,100 | 0.0041 | 27,000 | N | BSL |

Notes:
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
COPC = chemical of potential concern
N = not a COPC; Y = COPC
-- = no data available
[a] Ohio EPA (2004) Use of U.S. EPA Region 9 PRGs as Screening Values in Human Health Risk Assessments (i.e., 10% of non-carcinogenic and 100% of the carcinogenic residential soil values)
[b] Selection Reason: Above Screening Levels (ASL)

Deletion Reason: No Toxicity Information (NTX)
Below Screening Level (BSL)
Below Background Level (BBL)

[c] Based on the value for naphthalene
[d] Based on the value for benzo(b)fluoranthene
[e] Based on the value for pyrene
[f] Based on the value for anthracene

TABLE 6-7

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - UNZINGER'S DITCH - SURFACE WATER

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Unzinger's Ditch

Occurance, Di

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | |
| Aluminum | 0.050 | 30 | mg/l | 20/20 | 30 | 1.5 | 3.6 | Y | ASL |
| Antimony | 0.00028 | 0.024 | mg/l | 20/4 | 0.024 | -- | 0.0015 | Y | ASL |
| Arsenic | 0.0018 | 0.017 | mg/l | 20/9 | 0.017 | -- | 0.000045 | Y | ASL |
| Barium | 0.055 | 0.45 | mg/l | 20/20 | 0.45 | 0.12 | 0.26 | Y | ASL |
| Calcium | 41 | 134 | mg/l | 20/20 | 134 | 91 | - | N | NTX |
| Chromium (VI) | 0.00012 | 0.032 | mg/l | 20/5 | 0.032 | -- | 0.11 | N | BSL |
| Cobalt | 0.00042 | 0.009 | mg/l | 20/5 | 0.0085 | -- | 0.73 | N | BSL |
| Copper | 0.0037 | 0.19 | mg/l | 20/13 | 0.19 | 0.010 | 0.15 | Y | ASL |
| Cyanide | 0.0017 | 0.050 | mg/l | 20/4 | 0.050 | -- | 0.073 | N | BSL |
| Iron | 0.22 | 27 | mg/l | 20/20 | 27 | 2.2 | 1.1 | Y | ASL |
| Lead | 0.00078 | 0.061 | mg/l | 20/11 | 0.061 | 0.0010 | 0.015 | Y | ASL |
| Magnesium | 7.5 | 40 | mg/l | 20/20 | 40 | 27 | - | N | NTX |
| Manganese | 0.0025 | 2.6 | mg/l | 20/20 | 2.6 | 0.34 | 0.088 | Y | ASL |
| Mercury | 0.0000050 | 0.00020 | mg/l | 20/4 | 0.00020 | -- | 0.00036 | N | BSL |
| Nickel | 0.0025 | 0.048 | mg/l | 20/6 | 0.048 | -- | 0.073 | N | BSL |
| Potassium | 2.4 | 85 | mg/l | 20/15 | 85 | 6.9 | - | N | NTX |
| Silver | 0.0000080 | 0.0045 | mg/l | 20/1 | 0.0045 | -- | 0.018 | N | BSL |
| Sodium | 7.8 | 953 | mg/l | 20/20 | 953 | 48 | - | N | NTX |
| Thallium | 0.000048 | 0.0016 | mg/l | 20/2 | 0.0016 | -- | 0.00024 | Y | ASL |
| Vanadium | 0.00085 | 0.090 | mg/l | 20/5 | 0.090 | -- | 0.0036 | Y | ASL |
| Zinc | 0.015 | 0.49 | mg/l | 20/16 | 0.49 | -- | 1.1 | N | BSL |

TABLE 6-7

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - UNZINGER'S DITCH - SURFACE WATER

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Unzinger's Ditch

Occurance, Di

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **SVOCs** | | | | | | | | | |
| 2-Methylnaphthalene[c] | 1.2 | 3.0 | µg/l | 20/1 | 3.0 | -- | 0.062 | Y | ASL |
| 2-Methylphenol | 4.6 | 15 | µg/l | 20/2 | 15 | -- | 180 | N | BSL |
| 4-Methylphenol | 1.1 | 39 | µg/l | 20/4 | 39 | -- | 18 | Y | ASL |
| Benzo(a)pyrene | 0.045 | 4.0 | µg/l | 20/2 | 4.0 | -- | 0.0092 | Y | ASL |
| Benzo(b)fluoranthene | 0.39 | 2.2 | µg/l | 20/1 | 2.2 | -- | 0.092 | Y | ASL |
| Benzo(k)fluoranthene | 0.45 | 1.2 | µg/l | 20/1 | 1.2 | -- | 0.92 | Y | ASL |
| Chrysene | 0.47 | 2.7 | µg/l | 20/1 | 2.7 | -- | 9.2 | N | BSL |
| Di-n-Butyl phthalate | 1.6 | 3.7 | µg/l | 20/1 | 3.7 | -- | 360 | N | BSL |
| Fluoranthene | 0.48 | 7.5 | µg/l | 20/3 | 7.5 | -- | 150 | N | BSL |
| Isophorone | 1.0 | 120 | µg/l | 20/2 | 120 | -- | 71 | Y | ASL |
| Phenanthrene | 0.48 | 6.6 | µg/l | 20/2 | 6.6 | -- | - | N | NTX |
| Phenol | 1.3 | 33 | µg/l | 20/3 | 33 | -- | 1,100 | N | BSL |
| Pyrene | 0.47 | 5.9 | µg/l | 20/1 | 5.9 | -- | 18 | N | BSL |
| bis(2-Ethylhexyl) phthalate | 0.40 | 8.0 | µg/l | 20/2 | 8.0 | -- | 4.8 | Y | ASL |
| **VOCs** | | | | | | | | | |
| 2-Butanone | 1.0 | 350 | µg/l | 20/3 | 350 | -- | 700 | N | BSL |
| 4-Methyl-2-pentanone | 0.77 | 50 | µg/l | 20/2 | 50 | -- | 200 | N | BSL |
| Acetone | 3.1 | 810 | µg/l | 20/4 | 810 | -- | 550 | Y | ASL |
| Chloroform | 0.24 | 2.0 | µg/l | 20/1 | 2.0 | -- | 0.17 | Y | ASL |

Notes:
mg/l = milligrams per kilogram
µg/l = micrograms per kilogram
COPC = chemical of potential concern
N = not a COPC; Y = COPC
-- = no data available
[a] Ohio EPA (2004) Use of U.S. EPA Region 9 PRGs as Screening Values in Human Health Risk Assessments (i.e., 10% of non-carcinogenic and 100% of the carcinogenic tap water values)
[b] Selection Reason: Above Screening Levels (ASL)

Deletion Reason: No Toxicity Information (NTX)
Below Screening Level (BSL)

[c] Based on the value for naphthalene

TABLE 6-8

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - STORM WATER HOLDING PONDS - SURFACE WATER

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Active Operations Area - Storm Water Holding Ponds

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | |
| Aluminum | 2.6 | 2.6 | mg/l | 1/1 | 2.6 | 1.5 | 3.6 | N | BSL |
| Arsenic | 0.0083 | 0.0083 | mg/l | 1/1 | 0.0083 | -- | 0.000045 | Y | ASL |
| Barium | 0.12 | 0.12 | mg/l | 1/1 | 0.12 | 0.12 | 0.26 | N | BSL |
| Calcium | 46 | 46 | mg/l | 1/1 | 46 | 91 | - | N | NTX |
| Copper | 0.032 | 0.032 | mg/l | 1/1 | 0.032 | 0.010 | 0.15 | N | BSL |
| Cyanide | 0.060 | 0.060 | mg/l | 1/1 | 0.060 | -- | 0.073 | N | BSL |
| Iron | 3.6 | 3.6 | mg/l | 1/1 | 3.6 | 2.2 | 1.1 | Y | ASL |
| Lead | 0.040 | 0.040 | mg/l | 1/1 | 0.040 | 0.0010 | 0.015 | Y | ASL |
| Magnesium | 8.4 | 8.4 | mg/l | 1/1 | 8.4 | 27 | - | N | NTX |
| Manganese | 0.099 | 0.099 | mg/l | 1/1 | 0.099 | 0.34 | 0.088 | N | BBL |
| Potassium | 8.7 | 8.7 | mg/l | 1/1 | 8.7 | 6.9 | - | N | NTX |
| Sodium | 595 | 595 | mg/l | 1/1 | 595 | 48 | - | N | NTX |
| Zinc | 0.31 | 0.31 | mg/l | 1/1 | 0.31 | -- | 1.1 | N | BSL |

TABLE 6-8

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - STORM WATER HOLDING PONDS - SURFACE WATER

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Active Operations Area - Storm Water Holding Ponds

| Chemical | Minimum Concentration (detections) | Maximum Concentration (detections) | Units | Detection Frequency | Concentration Used for Screening | Background Value | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **SVOCs** | | | | | | | | | |
| 2-Methylphenol | 15 | 15 | µg/l | 1/1 | 15 | -- | 180 | N | BSL |
| 4-Methylphenol | 39 | 39 | µg/l | 1/1 | 39 | -- | 18 | Y | ASL |
| Isophorone | 120 | 120 | µg/l | 1/1 | 120 | -- | 71 | Y | ASL |
| Phenanthrene | 6.6 | 6.6 | µg/l | 1/1 | 6.60 | -- | - | N | NTX |
| Phenol | 33 | 33 | µg/l | 1/1 | 33 | -- | 1,100 | N | BSL |
| **VOCs** | | | | | | | | | |
| 2-Butanone | 350 | 350 | µg/l | 1/1 | 350 | -- | 700 | N | BSL |
| 4-Methyl-2-pentanone | 50 | 50 | µg/l | 1/1 | 50 | -- | 200 | N | BSL |
| Acetone | 810 | 810 | µg/l | 1/1 | 810 | -- | 550 | Y | ASL |

Notes:
mg/l = milligrams per kilogram
µg/l = micrograms per kilogram
COPC = chemical of potential concern
N = not a COPC; Y = COPC
-- = no data available
[a] Ohio EPA (2004) Use of U.S. EPA Region 9 PRGs as Screening Values in Human Health Risk Assessments (i.e., 10% of non-carcinogenic and 100% of the carcinogenic tap water values)
[b] Selection Reason: Above Screening Levels (ASL)

Deletion Reason: No Toxicity Information (NTX)
Below Screening Level (BSL)
Below Background Level (BBL)

[c] Based on the value for naphthalene

TABLE 6-9

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - GROUNDWATER

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Active Operations Area

| Chemical | Minimum Concentration[1] | Maximum Concentration[1] | Units | Detection Frequency | Concentration Used for Screening | Background Value[2] | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **Metals[2]** | | | | | | | | | |
| Aluminum | 0.030 | 2.4 | mg/l | 207/41 | 2.4 | 0.10 | 0.20 | Y | ASL |
| Antimony | 0.0026 | 0.0072 | mg/l | 207/13 | 0.0072 | 0.030 | 0.0060 | N | BBL |
| Arsenic | 0.0020 | 0.029 | mg/l | 207/86 | 0.0287 | 0.0061 | 0.010 | Y | ASL |
| Barium | 0.0268 | 0.78 | mg/l | 207/184 | 0.78 | 0.30 | 2.0 | N | BSL |
| Beryllium | 0.00078 | 0.40 | mg/l | 207/16 | 0.40 | 0.0025 | 0.0040 | Y | ASL |
| Cadmium | 0.00028 | 0.0034 | mg/l | 207/6 | 0.0034 | 0.0025 | 0.0050 | N | BSL |
| Calcium | 56 | 382 | mg/l | 207/199 | 382 | 434 | -- | N | NTX |
| Chromium | 0.0090 | 0.0090 | mg/l | 207/1 | 0.0090 | 0.0050 | 0.10 | N | BSL |
| Cobalt | 0.0011 | 0.028 | mg/l | 207/21 | 0.028 | 0.025 | 0.0073 | Y | ASL |
| Copper | 0.0039 | 0.083 | mg/l | 207/10 | 0.083 | 0.013 | 1.0 | N | BSL |
| Iron | 0.062 | 13 | mg/l | 207/192 | 13 | 5.6 | 0.30 | Y | ASL |
| Lead | 0.0010 | 0.0010 | mg/l | 207/1 | 0.0010 | 0.0015 | 0.015 | N | BSL |
| Magnesium | 17 | 111 | mg/l | 207/199 | 111 | 74 | -- | N | NTX |
| Manganese | 0.031 | 2.1 | mg/l | 207/199 | 2.1 | 0.90 | 0.050 | Y | ASL |
| Mercury | 0.000021 | 0.00014 | mg/l | 207/23 | 0.00014 | 0.00010 | 0.0020 | N | BSL |
| Nickel | 0.0025 | 0.25 | mg/l | 207/47 | 0.25 | 0.020 | 0.0073 | Y | ASL |
| Potassium | 0.92 | 6.1 | mg/l | 207/198 | 6.1 | 3.4 | -- | N | NTX |
| Selenium | 0.0041 | 0.0060 | mg/l | 207/9 | 0.006 | 0.0025 | 0.050 | N | BSL |
| Sodium | 3.4 | 241 | mg/l | 207/194 | 241 | 59 | -- | N | NTX |
| Thallium | 0.000016 | 0.0013 | mg/l | 207/11 | 0.0013 | 0.0010 | 0.0020 | N | BBL |
| Vanadium | 0.00029 | 0.0081 | mg/l | 207/2 | 0.0081 | 0.025 | 0.00036 | N | BBL |
| Zinc | 0.0050 | 0.20 | mg/l | 207/62 | 0.20 | 0.031 | 5.0 | N | BSL |

TABLE 6-9

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - GROUNDWATER

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Active Operations Area

| Chemical | Minimum Concentration[1] | Maximum Concentration[1] | Units | Detection Frequency | Concentration Used for Screening | Background Value[2] | Screening Toxicity Value [a] | COPC Flag | Rationale for Deletion or Selection [b] |
|---|---|---|---|---|---|---|---|---|---|
| **SVOCs** | | | | | | | | | |
| Pyrene | 0.28 | 0.28 | µg/l | 207/1 | 0.28 | 2.5 | 18 | N | BSL |
| bis(2-Ethylhexyl) phthalate | 1.2 | 250 | µg/l | 207/14 | 250 | 10 | 4.8 | Y | ASL |
| **VOCs** | | | | | | | | | |
| 1,1-Dichloroethane | 0.29 | 6.3 | µg/l | 207/13 | 6.3 | 0.25 | 81 | N | BSL |
| 2-Butanone | 0.63 | 0.63 | µg/l | 207/1 | 0.63 | -- | 700 | N | BSL |
| Acetone | 7.8 | 8.5 | µg/l | 207/2 | 8.5 | -- | 550 | N | BSL |
| Carbon disulfide | 0.12 | 0.92 | µg/l | 207/13 | 0.92 | 0.25 | 100 | N | BSL |
| Chloroethane | 0.34 | 300 | µg/l | 207/20 | 300 | 0.50 | 4.6 | Y | ASL |
| Methylene chloride | 0.17 | 6.7 | µg/l | 207/7 | 6.7 | -- | 4.3 | Y | ASL |
| Styrene | 0.60 | 0.68 | µg/l | 207/2 | 0.68 | -- | 100 | N | BSL |
| Toluene | 0.21 | 0.28 | µg/l | 207/3 | 0.28 | 0.25 | 1,000 | N | BSL |
| Vinyl chloride | 2.1 | 8.3 | µg/l | 207/8 | 8.3 | 0.50 | 2.0 | Y | ASL |
| Xylenes, Total | 0.49 | 0.49 | µg/l | 207/1 | 0.49 | -- | 10,000 | N | BSL |

Notes:

1 - Representative groundwater values via analytical results from field filtered samples prior to 2006; and year 2006 and after, using unfiltered results collected by "low-flow" sampling methods.

2 - Background concentration calculated per Ohio EPA DERR-00-RR-039P protocol

mg/l = milligrams per kilogram

µg/l = micrograms per kilogram

COPC = chemical of potential concern

N = not a COPC; Y = COPC

-- = no data available

[a] The lesser of U.S. EPA Region 9 PRGs as Screening Values in Human Health Risk Assessments (i.e., 10% of non-carcinogenic and 100% of the carcinogenic tap water values) or Drinking Water Standards Maximum Contaminant Levels.

[b] Selection Reason: Above Screening Levels (ASL)

Deletion Reason: No Toxicity Information (NTX)
Below Screening Level (BSL)
Below Background Level (BBL)
Below Screening Criteria (<5%) (BSC)

TABLE 6-10

EXPOSURE POINT CONCENTRATION SUMMARY - SOILS - EXPOSURE UNIT 1 (0 to 2 bgs feet)

Franklin Steel, Blacklick, Ohio

| Chemical | Units | Arithmetic Mean | 95 % UCL (lognormal) | Maximum Concentration | High End Exposure | | | Central Tendency Exposure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | EPC Value | EPC Statistic | EPC Rationale | EPC Value | EPC Statistic | EPC Rationale |
| **Metals** | | | | | | | | | | |
| Aluminum | mg/kg | 6,257 | 16,113 | 18,400 | 16,113 | 95% UCL | lower of 95% UCL and Max. | 6,257 | mean | Estimate of central tendency |
| Antimony | mg/kg | 11 | 22 | 117 | 22 | 95% UCL | lower of 95% UCL and Max. | 11 | mean | Estimate of central tendency |
| Arsenic | mg/kg | 11 | 30 | 94 | 30 | 95% UCL | lower of 95% UCL and Max. | 11 | mean | Estimate of central tendency |
| Barium | mg/kg | 659 | 1,450 | 5,400 | 1,450 | 95% UCL | lower of 95% UCL and Max. | 659 | mean | Estimate of central tendency |
| Cadmium | mg/kg | 5.6 | 7.2 | 56 | 7.2 | 95% UCL | lower of 95% UCL and Max. | 5.6 | mean | Estimate of central tendency |
| Chromium | mg/kg | 69 | 108 | 1,120 | 108 | 95% UCL | lower of 95% UCL and Max. | 69 | mean | Estimate of central tendency |
| Copper | mg/kg | 68 | 68 | 835 | 68 | 95% UCL | lower of 95% UCL and Max. | 68 | mean | Estimate of central tendency |
| Iron | mg/kg | 24,734 | 50,950 | 67,500 | 50,950 | 95% UCL | lower of 95% UCL and Max. | 24,734 | mean | Estimate of central tendency |
| Lead | mg/kg | 294 | 569 | 4,610 | 569 | 95% UCL | lower of 95% UCL and Max. | 294 | mean | Estimate of central tendency |
| Manganese | mg/kg | 359 | 752 | 1,140 | 752 | 95% UCL | lower of 95% UCL and Max. | 359 | mean | Estimate of central tendency |
| Nickel | mg/kg | 34 | 72 | 468 | 72 | 95% UCL | lower of 95% UCL and Max. | 34 | mean | Estimate of central tendency |
| Thallium | mg/kg | 0.66 | 1.8 | 2.4 | 1.8 | 95% UCL | lower of 95% UCL and Max. | 0.66 | mean | Estimate of central tendency |
| Vanadium | mg/kg | 26 | 56 | 57 | 56 | 95% UCL | lower of 95% UCL and Max. | 26 | mean | Estimate of central tendency |
| Zinc | mg/kg | 411 | 465 | 6,000 | 465 | 95% UCL | lower of 95% UCL and Max. | 411 | mean | Estimate of central tendency |
| **SVOCs** | | | | | | | | | | |
| 2-Methylnaphthalene | µg/kg | 428 | 475 | 7,380 | 475 | 95% UCL | lower of 95% UCL and Max. | 428 | mean | Estimate of central tendency |
| Benzo(a)anthracene | µg/kg | 85 | 218 | 860 | 218 | 95% UCL | lower of 95% UCL and Max. | 85 | mean | Estimate of central tendency |
| Benzo(a)pyrene | µg/kg | 115 | 287 | 845 | 287 | 95% UCL | lower of 95% UCL and Max. | 115 | mean | Estimate of central tendency |
| Benzo(b)fluoranthene | µg/kg | 215 | 381 | 1,900 | 381 | 95% UCL | lower of 95% UCL and Max. | 215 | mean | Estimate of central tendency |
| Dibenzo(a,h)anthracene | µg/kg | 14 | 12 | 76 | 76 | max. | maximum concentration | 14 | mean | Estimate of central tendency |
| Indeno(1,2,3-cd)pyrene | µg/kg | 90 | 151 | 895 | 151 | 95% UCL | lower of 95% UCL and Max. | 90 | mean | Estimate of central tendency |
| N-Nitrosodiphenylamine | µg/kg | 22 | 23 | 73 | 73 | max. | lower of 95% UCL and Max. | 22 | mean | Estimate of central tendency |
| bis(2-Ethylhexyl) phthalate | µg/kg | 7,322 | 13,426 | 86,000 | 13,426 | 95% UCL | lower of 95% UCL and Max. | 7,322 | mean | Estimate of central tendency |
| 4,6-Dinitro-2-methylphenol | µg/kg | 241 | 727 | 1,710 | 727 | 95% UCL | lower of 95% UCL and Max. | 241 | mean | Estimate of central tendency |

Notes:

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

EPC = Exposure Point Concentration

UCL = Upper Confidence Level

max. = maximum

TABLE 6-11

EXPOSURE POINT CONCENTRATION SUMMARY - SOILS - EXPOSURE UNIT 1 (2 feet bgs to 10 feet bgs)

Franklin Steel, Blacklick, Ohio

| Chemical | Units | Arithmetic Mean | 95 % UCL (lognormal) | Maximum Concentration | High End Exposure | | | Central Tendency Exposure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | EPC Value | EPC Statistic | EPC Rationale | EPC Value | EPC Statistic | EPC Rationale |
| **Metals** | | | | | | | | | | |
| Aluminum | mg/kg | 10,490 | 19,530 | 29,900 | 19,530 | 95% UCL | lower of 95% UCL and Max | 10,490 | mean | Estimate of central tendency |
| Antimony | mg/kg | 3.08 | 7.0 | 7.5 | 6.975 | 95% UCL | lower of 95% UCL and Max | 3.08 | mean | Estimate of central tendency |
| Arsenic | mg/kg | 20 | 41 | 56 | 41 | 95% UCL | lower of 95% UCL and Max | 20 | mean | Estimate of central tendency |
| Cadmium | mg/kg | 4.5 | 6 | 63 | 6 | 95% UCL | lower of 95% UCL and Max. | 4.5 | mean | Estimate of central tendency |
| Chromium | mg/kg | 46 | 96 | 546 | 96 | 95% UCL | lower of 95% UCL and Max | 46 | mean | Estimate of central tendency |
| Copper | mg/kg | 55 | 65 | 641 | 65 | 95% UCL | lower of 95% UCL and Max. | 55 | mean | Estimate of central tendency |
| Iron | mg/kg | 29,561 | 47,450 | 165,000 | 47,450 | 95% UCL | lower of 95% UCL and Max. | 29,561 | mean | Estimate of central tendency |
| Lead | mg/kg | 236 | 459 | 5,060 | 459 | 95% UCL | lower of 95% UCL and Max. | 236 | mean | Estimate of central tendency |
| Manganese | mg/kg | 408 | 698 | 2,720 | 698 | 95% UCL | lower of 95% UCL and Max | 408 | mean | Estimate of central tendency |
| Mercury | mg/kg | 0.09 | 0.17 | 0.78 | 0.17 | 95% UCL | lower of 95% UCL and Max | 0.09 | mean | Estimate of central tendency |
| Selenium | mg/kg | 3.4 | 6.9 | 43 | 7 | 95% UCL | lower of 95% UCL and Max. | 3.4 | mean | Estimate of central tendency |
| Thallium | mg/kg | 0.80 | 2.1 | 2.4 | 2.1 | 95% UCL | lower of 95% UCL and Max. | 0.80 | mean | Estimate of central tendency |
| Vanadium | mg/kg | 30 | 62 | 137 | 62 | 95% UCL | lower of 95% UCL and Max | 30 | mean | Estimate of central tendency |
| Zinc | mg/kg | 421 | 484 | 6,740 | 484 | 95% UCL | lower of 95% UCL and Max. | 421 | mean | Estimate of central tendency |
| **SVOCs** | | | | | | | | | | |
| 2-Methylnaphthalene | µg/kg | 304 | 552 | 1,300 | 552 | 95% UCL | lower of 95% UCL and Max. | 304 | mean | Estimate of central tendency |
| Benzo(a)pyrene | µg/kg | 86 | 285 | 190 | 190 | max. | lower of 95% UCL and Max | 86 | mean | Estimate of central tendency |
| Dibenzo(a,h)anthracene | µg/kg | 158 | 560 | 450 | 450 | max. | lower of 95% UCL and Max. | 158 | mean | Estimate of central tendency |
| N-Nitrosodiphenylamine | µg/kg | 22 | 22 | 22 | 22 | max. | lower of 95% UCL and Max. | 22 | mean | Estimate of central tendency |
| bis(2-Ethylhexyl) phthalate | µg/kg | 2,615 | 4,199 | 43,000 | 4,199 | 95% UCL | lower of 95% UCL and Max. | 2,615 | mean | Estimate of central tendency |
| **VOCs** | | | | | | | | | | |
| Tetrachloroethene | µg/kg | 243 | 21 | 1,200 | 1,200 | max. | maximum concentration | 243 | mean | Estimate of central tendency |

Notes:

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

EPC = Exposure Point Concentration

UCL = Upper Confidence Level

max. = maximum

TABLE 6-12

EXPOSURE POINT CONCENTRATION SUMMARY - SOILS - EXPOSURE UNIT 2 (0 to 2 feet bgs)

Franklin Steel, Blacklick, Ohio

| Chemical | Units | Arithmetic Mean | 95 % UCL (lognormal) | Maximum Concentration | High End Exposure | | | Central Tendency Exposure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | EPC Value | EPC Statistic | EPC Rationale | EPC Value | EPC Statistic | EPC Rationale |
| **Metals** | | | | | | | | | | |
| Aluminum | mg/kg | 11,971 | 18,150 | 21,700 | 18,150 | 95% UCL | lower of 95% UCL and Max. | 11,971 | mean | Estimate of central tendency |
| Arsenic | mg/kg | 14 | 21 | 74 | 20.9 | 95% UCL | lower of 95% UCL and Max. | 14 | mean | Estimate of central tendency |
| Iron | mg/kg | 24,890 | 38,275 | 82,300 | 38,275 | 95% UCL | lower of 95% UCL and Max. | 24,890 | mean | Estimate of central tendency |
| Manganese | mg/kg | 497 | 958 | 1,540 | 958 | 95% UCL | lower of 95% UCL and Max. | 497 | mean | Estimate of central tendency |
| Thallium | mg/kg | 0.88 | 1.1 | 1.2 | 1.120 | 95% UCL | lower of 95% UCL and Max. | 0.88 | mean | Estimate of central tendency |
| Vanadium | mg/kg | 39 | 56 | 87 | 56 | 95% UCL | lower of 95% UCL and Max. | 39 | mean | Estimate of central tendency |

Notes:

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

EPC = Exposure Point Concentration

UCL = Upper Confidence Level

max. = maximum

TABLE 6-13

EXPOSURE POINT CONCENTRATION SUMMARY - SOILS - EXPOSURE UNIT 2 (2 feet bgs to 10 feet bgs)

Franklin Steel, Blacklick, Ohio

| Chemical | Units | Arithmetic Mean | 95 % UCL (lognormal) | Maximum Concentration | High End Exposure | | | Central Tendency Exposure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | EPC Value | EPC Statistic | EPC Rationale | EPC Value | EPC Statistic | EPC Rationale |
| **Metals** | | | | | | | | | | |
| Aluminum | mg/kg | 8,230 | 11,749 | 13,700 | 11,749 | 95% UCL | lower of 95% UCL and Max. | 8,230 | mean | Estimate of central tendency |
| Arsenic | mg/kg | 26 | 53 | 78 | 52.9 | 95% UCL | lower of 95% UCL and Max. | 26 | mean | Estimate of central tendency |
| Iron | mg/kg | 30,736 | 48,363 | 61,600 | 48,363 | 95% UCL | lower of 95% UCL and Max. | 30,736 | mean | Estimate of central tendency |
| Manganese | mg/kg | 436 | 734 | 1,070 | 734 | 95% UCL | lower of 95% UCL and Max. | 436 | mean | Estimate of central tendency |
| Vanadium | mg/kg | 34 | 58 | 51 | 51 | max. | lower of 95% UCL and Max | 34 | mean | Estimate of central tendency |

Notes:

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

EPC = Exposure Point Concentration

UCL = Upper Confidence Level

max. = maximum

TABLE 6-14

EXPOSURE POINT CONCENTRATION SUMMARY - SEDIMENTS - STORM WATER HOLDING PONDS

Franklin Steel, Blacklick, Ohio

| Chemical | Units | Arithmetic Mean | 95 % UCL (lognormal) | Maximum Concentration | High End Exposure | | | Central Tendency Exposure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | EPC Value | EPC Statistic | EPC Rationale | EPC Value | EPC Statistic | EPC Rationale |
| **Metals** | | | | | | | | | | |
| Antimony | mg/kg | 6.5 | - | 6.5 | 6.5 | max. | lower of 95% UCL and Max. | 6.5 | max. | max. [a] |
| **SVOCs** | | | | | | | | | | |
| 2-Methylnaphthalene | µg/kg | 2,600 | 6,220 | 4,410 | 4,410 | max. | lower of 95% UCL and Max. | 2,600 | mean | Estimate of central tendency |
| Benzo(a)anthracene | µg/kg | 12,280 | 36,520 | 24,400 | 24,400 | max. | lower of 95% UCL and Max. | 12,280 | mean | Estimate of central tendency |
| Benzo(a)pyrene | µg/kg | 12,155 | 36,245 | 24,200 | 24,200 | max. | lower of 95% UCL and Max. | 12,155 | mean | Estimate of central tendency |
| Benzo(b)fluoranthene | µg/kg | 14,160 | 42,040 | 28,100 | 28,100 | max. | lower of 95% UCL and Max. | 14,160 | mean | Estimate of central tendency |
| Benzo(k)fluoranthene | µg/kg | 12,200 | 36,200 | 24,200 | 24,200 | max. | lower of 95% UCL and Max. | 12,200 | mean | Estimate of central tendency |
| Dibenzo(a,h)anthracene | µg/kg | 84 | - | 84 | 84 | max. | lower of 95% UCL and Max. | 84 | max. | max. [a] |
| Indeno(1,2,3-cd)pyrene | µg/kg | 2,645 | 7,575 | 5,110 | 5,110 | max. | lower of 95% UCL and Max. | 2,645 | mean | Estimate of central tendency |

Notes:

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

EPC = Exposure Point Concentration

UCL = Upper Confidence Level

max. = maximum

[a] Limited sample quantity, therefore, the maximum detected concentrations was used

TABLE 6-15

EXPOSURE POINT CONCENTRATION SUMMARY - SEDIMENTS - UNZINGER DITCH

Franklin Steel, Blacklick, Ohio

| Chemical | Units | Arithmetic Mean | 95 % UCL (lognormal) | Maximum Concentration | High End Exposure | | | Central Tendency Exposure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | EPC Value | EPC Statistic | EPC Rationale | EPC Value | EPC Statistic | EPC Rationale |
| **Metals** | | | | | | | | | | |
| Aluminum | mg/kg | 7,648 | 15,635 | 20,300 | 15,635 | 95% UCL | lower of 95% UCL and Max. | 7,648 | mean | Estimate of central tendency |
| Antimony | mg/kg | 4.3 | 9.3 | 19 | 9.3 | 95% UCL | lower of 95% UCL and Max. | 4.3 | mean | Estimate of central tendency |
| Arsenic | mg/kg | 16 | 36 | 38 | 36 | 95% UCL | lower of 95% UCL and Max. | 16 | mean | Estimate of central tendency |
| Barium | mg/kg | 236 | 628 | 1,250 | 628 | 95% UCL | lower of 95% UCL and Max. | 236 | mean | Estimate of central tendency |
| Cadmium | mg/kg | 3.7 | 12 | 10 | 10 | max. | lower of 95% UCL and Max. | 3.7 | mean | Estimate of central tendency |
| Iron | mg/kg | 22,191 | 44,200 | 41,900 | 41,900 | max. | lower of 95% UCL and Max. | 22,191 | mean | Estimate of central tendency |
| Lead | mg/kg | 131 | 399 | 775 | 399 | 95% UCL | lower of 95% UCL and Max. | 131 | mean | Estimate of central tendency |
| Manganese | mg/kg | 331 | 648 | 1,520 | 648 | 95% UCL | lower of 95% UCL and Max. | 331 | mean | Estimate of central tendency |
| Silver | mg/kg | 34 | 124 | 167 | 124 | 95% UCL | lower of 95% UCL and Max. | 34 | mean | Estimate of central tendency |
| Thallium | mg/kg | 2.5 | 3.4 | 10 | 3.4 | 95% UCL | lower of 95% UCL and Max | 2.5 | mean | Estimate of central tendency |
| **SVOCs** | | | | | | | | | | |
| 2-Methylnaphthalene | µg/kg | 451 | 1,365 | 940 | 940 | max. | lower of 95% UCL and Max | 451 | mean | Estimate of central tendency |
| Benzo(a)anthracene | µg/kg | 1,284 | 3,170 | 9,900 | 3,170 | 95% UCL | lower of 95% UCL and Max. | 1,284 | mean | Estimate of central tendency |
| Benzo(a)pyrene | µg/kg | 1,648 | 2,990 | 16,000 | 2,990 | 95% UCL | lower of 95% UCL and Max. | 1,648 | mean | Estimate of central tendency |
| Benzo(b)fluoranthene | µg/kg | 2,630 | 4,223 | 28,000 | 4,223 | 95% UCL | lower of 95% UCL and Max. | 2,630 | mean | Estimate of central tendency |
| Benzo(k)fluoranthene | µg/kg | 1,275 | 2,069 | 12,000 | 2,069 | 95% UCL | lower of 95% UCL and Max. | 1,275 | mean | Estimate of central tendency |
| Dibenzo(a,h)anthracene | µg/kg | 361 | 645 | 1,900 | 645 | 95% UCL | lower of 95% UCL and Max. | 361 | mean | Estimate of central tendency |
| Indeno(1,2,3-cd)pyrene | µg/kg | 940 | 1,555 | 6,000 | 1,555 | 95% UCL | lower of 95% UCL and Max. | 940 | mean | Estimate of central tendency |

Notes:

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

EPC = Exposure Point Concentration

UCL = Upper Confidence Level

max. = maximum

TABLE 6-17

EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE WATER - STORM WATER HOLDING PONDS

Franklin Steel, Blacklick, Ohio

| Chemical | Units | Arithmetic Mean | 95 % UCL (lognormal) | Maximum Concentration | High End Exposure | | | Central Tendency Exposure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | EPC Value | EPC Statistic | EPC Rationale | EPC Value | EPC Statistic | EPC Rationale |
| **Metals** | | | | | | | | | | |
| Arsenic | mg/l | 0.0083 | - | 0.0083 | 0.0083 | max. | lower of 95% UCL and Max. | 0.0083 | max. | max. < mean [a] |
| Iron | mg/l | 3.6 | - | 3.6 | 3.6 | max. | lower of 95% UCL and Max. | 3.6 | max. | max. < mean [a] |
| Lead | mg/l | 0.040 | - | 0.040 | 0.040 | max. | lower of 95% UCL and Max. | 0.040 | max. | max. < mean [a] |
| **SVOCs** | | | | | | | | | | |
| 4-Methylphenol | µg/l | 39 | - | 39 | 39 | max. | maximum concentration | 39 | max. | max. < mean [a] |
| Isophorone | µg/l | 120 | - | 120 | 120 | max. | maximum concentration | 120 | max. | max. < mean [a] |
| **VOCs** | | | | | | | | | | |
| Acetone | µg/l | 810 | - | 810 | 810 | max. | maximum concentration | 810 | max. | max. < mean [a] |

Notes:

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

EPC = Exposure Point Concentration

UCL = Upper Confidence Level

max. = maximum

[a] Limited sample quantity, therefore, the maximum detected concentrations was used

TABLE 6-18

EXPOSURE POINT CONCENTRATION SUMMARY - GROUNDWATER

Franklin Steel, Blacklick, Ohio

| Chemical | Units | Arithmetic Mean | 95 % UCL (lognormal) | Maximum Concentration | High End Exposure | | | Central Tendency Exposure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | EPC Value | EPC Statistic | EPC Rationale | EPC Value | EPC Statistic | EPC Rationale |
| **Metals** | | | | | | | | | | |
| Aluminum | mg/l | 0.24 | 0.26 | 2.4 | 0.26 | 95% UCL | lower of 95% UCL and Max | 0.24 | mean | Estimate of central tendency |
| Arsenic | mg/l | 0.0095 | 0.028 | 0.0287 | 0.028 | 95% UCL | lower of 95% UCL and Max. | 0.0095 | mean | Estimate of central tendency |
| Beryllium | mg/l | 0.17 | 0.57 | 0.40 | 0.40 | max. | lower of 95% UCL and Max | 0.17 | mean | Estimate of central tendency |
| Cobalt | mg/l | 0.0050 | 0.0075 | 0.03 | 0.0075 | 95% UCL | lower of 95% UCL and Max. | 0.0050 | mean | Estimate of central tendency |
| Iron | mg/l | 2.6 | 5.9 | 12.60 | 5.9 | 95% UCL | lower of 95% UCL and Max. | 2.59 | mean | Estimate of central tendency |
| Manganese | mg/l | 0.28 | 0.54 | 2.1 | 0.54 | 95% UCL | lower of 95% UCL and Max. | 0.28 | mean | Estimate of central tendency |
| Nickel | mg/l | 0.034 | 0.068 | 0.25 | 0.068 | 95% UCL | lower of 95% UCL and Max. | 0.034 | mean | Estimate of central tendency |
| **SVOCs** | | | | | | | | | | |
| bis(2-Ethythexyl) phthalate | µg/l | 31 | 38 | 250 | 250 | max. | maximum concentration | 31 | mean | Estimate of central tendency |
| **VOCs** | | | | | | | | | | |
| Chloroethane | µg/l | 121 | 536 | 300 | 300 | max. | lower of 95% UCL and Max. | 121 | mean | Estimate of central tendency |
| Methylene chloride | µg/l | 1.3 | 0.72 | 6.7 | 6.7 | max. | maximum concentration | 1.3 | mean | Estimate of central tendency |
| Vinyl chloride | µg/l | 4.6 | 9.7 | 8.3 | 8.3 | max. | maximum concentration | 4.6 | mean | Estimate of central tendency |

Notes:

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

EPC = Exposure Point Concentration

UCL = Upper Confidence Level

max. = maximum

TABLE 6-19

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - SITE WORKER - SOIL

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Surface Soil (0 to 2 feet)
Exposure Point: Active Operations Area
Receptor Population: Site Worker
Receptor Age: Adult

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Surface Soil | IR | Ingestion Rate | mg/day | 100 | USEPA, 2002 | 50 | USEPA, 1997b | "Dose" = IR x Ao x EF x ED x CF x FI x |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 250 | assumption | 195 | assumption | |
| | | ED | Exposure Duration | years | 25 | USEPA, 2002 | 6.6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | FI | Fraction Ingested from Source | unitless | 1.0 | OEPA, 2006 | 1.0 | OEPA, 2006 | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 9,125 | USEPA, 1997b | 2,409 | USEPA, 1997b | |
| Dermal | Surface Soil | SA | Surface Area | $cm^2$ | 3,300 | USEPA, 2002 | 1,506 | USEPA, 1997b | "Dose" = SA x AF x EF x ED x CF x |
| | | AF | Adherence Factor | $mg/cm^2$-day | 0.2 | USEPA, 2001b | 0.2 | USEPA, 2001b | 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 250 | assumption | 195 | assumption | |
| | | ED | Exposure Duration | years | 22 | USEPA, 2002 | 6.6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 9,125 | USEPA, 1997b | 2,409 | USEPA, 1997b | |
| Inhalation | Surface Soil | EF | Exposure Frequency | days/year | 250 | assumption | 195 | assumption | "Dose-c" = |
| | | ED | Exposure Duration | years | 21.9 | USEPA, 2002 | 6.6 | USEPA, 1997b | EF x ED x CF x 1/ATc |
| | | CF | Conversion Factor | µg/mg | 1,000 | by definition | 1,000 | by definition | "Dose-nc" = |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | EF x ED x 1/ATnc |
| | | ATnc | Averaging Time (noncancer) | days | 9,125 | USEPA, 1997b | 2,409 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | Units | HEE | CTE | HEE | CTE |
| "Dose" Ing | kg/kg-day | 3.2E-07 | 3.3E-08 | 9.5E-07 | 3.7E-07 |
| "Dose" Dermal | kg/kg-day | 1.8E-06 | 2.0E-07 | 5.5E-06 | 2.2E-06 |
| "Dose" Inhalation | µg/mg (cancer); unitless (noncancer) | 2.0E+02 | 4.7E+01 | 6.0E-01 | 5.3E-01 |

TABLE 6-20

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - SITE WORKER - SEDIMENT

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Sediment
Exposure Point: Active Operations Area/Storm Water Holding Ponds
Receptor Population: Site Worker
Receptor Age: Adult

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Sediment | IR | Ingestion Rate | mg/day | 100 | USEPA, 2002 | 50 | USEPA, 1997b | "Dose" = IR x Ao x EF x ED x CF x FI x 1/BW x 1/AT |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | |
| | | EF | Exposure Frequency | days/year | 12 | assumption | 12 | assumption | |
| | | ED | Exposure Duration | years | 25 | USEPA, 2002 | 6.6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | FI | Fraction Ing. from Source | unitless | 1.0 | OEPA, 2006 | 1.0 | OEPA, 2006 | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |
| Dermal | Sediment | SA | Surface Area | $cm^2$ | 3,300 | USEPA, 2002 | 1,506 | USEPA, 1997b | "Dose" = SA x AF x EF x ED x CF x 1/BW x 1/AT |
| | | AF | Adherence Factor | $mg/cm^2$-day | 0.2 | USEPA, 2001b | 0.2 | USEPA, 2001b | |
| | | EF | Exposure Frequency | days/year | 12 | assumption | 12 | assumption | |
| | | ED | Exposure Duration | years | 25.0 | USEPA, 2002 | 6.6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | Units | HEE | CTE | HEE | CTE |
| "Dose" Ing | kg/kg-day | 1.5E-08 | 2.0E-09 | 5.2E-08 | 2.3E-08 |
| "Dose" Dermal | kg/kg-day | 1.0E-07 | 1.2E-08 | 3.4E-07 | 1.4E-07 |

TABLE 6-21

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - SITE WORKER - SURFACE WATER

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Surface Water
Exposure Point: Active Operations Area/Storm Water Holding Ponds
Receptor Population: Site Worker
Receptor Age: Adult

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Surface Water | IR | Ingestion Rate | L/day | 0.05 | USEPA, 1989a | 0.05 | USEPA, 1989a | "Dose" = IR x Ao x EF x ED x 1/BW x 1/AT |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | |
| | | EF | Exposure Frequency | days/year | 12 | assumption | 12 | assumption | |
| | | ED | Exposure Duration | years | 25 | USEPA, 2002 | 6.6 | USEPA, 1997b | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |
| Dermal | Surface Water | SA | Surface Area | $cm^2$ | 3,300 | USEPA, 2002 | 1,506 | USEPA, 1997b | "Dose" = SA x EF x ED x ET x CF x 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 12 | assumption | 12 | assumption | |
| | | ED | Exposure Duration | years | 25.0 | USEPA, 2002 | 6.6 | USEPA, 1997b | |
| | | ET | Exposure Time | hr/day | 1.00 | assumption | 1.00 | assumption | |
| | | CF | Conversion Factor | $L/cm^3$ | 0.001 | by definition | 0.001 | by definition | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | Units | HEE | CTE | HEE | CTE |
| "Dose" Ing | L/kg-day | 7.6E-06 | 2.0E-06 | 2.6E-05 | 2.3E-05 |
| "Dose" Dermal | L-hr/kg-cm-day | 5.0E-04 | 6.1E-05 | 1.7E-03 | 6.9E-04 |

TABLE 6-22

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - CONSTRUCTION/UTILITY WORKER - ACTIVE OPERATIONS AREA - SOIL

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Surface Soil (0 to 2 feet)/Subsurface Soil (2 feet to 10 feet)
Exposure Point: Active Operations Area
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Surface Soil | IR | Ingestion Rate | mg/day | 330 | USEPA, 2002 | 50 | USEPA, 1997b | "Dose" = IR x Ao x EF x ED x CF x FI x |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 130 | assumption | 65 | assumption | |
| | | ED | Exposure Duration | years | 21.9 | USEPA, 1997b | 6.6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | FI | Fraction Ingested from Source | unitless | 1.0 | OEPA, 2006 | 1.0 | OEPA, 2006 | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |
| Dermal | Surface Soil | SA | Surface Area | $cm^2$ | 3,300 | USEPA, 2002 | 1,506 | USEPA, 1997b | "Dose" = SA x AF x EF x ED x CF x |
| | | AF | Adherence Factor | $mg/cm^2$-day | 0.3 | USEPA, 2002 | 0.2 | USEPA, 2001b | 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 130 | assumption | 65 | assumption | |
| | | ED | Exposure Duration | years | 22 | USEPA, 1997b | 6.6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |
| Inhalation | Surface Soil | EF | Exposure Frequency | days/year | 130 | assumption | 65 | assumption | "Dose-c" = |
| | | ED | Exposure Duration | years | 21.9 | USEPA, 1997b | 6.6 | USEPA, 1997b | EF x ED x CF x 1/ATc |
| | | CF | Conversion Factor | µg/mg | 1,000 | by definition | 1,000 | by definition | "Dose-nc" = |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | EF x ED x 1/ATnc |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | Units | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | | HEE | CTE | HEE | CTE |
| "Dose" Ing | kg/kg-day | 4.8E-07 | 1.1E-08 | 1.6E-06 | 1.2E-07 |
| "Dose" Dermal | kg/kg-day | 1.4E-06 | 6.6E-08 | 4.9E-06 | 7.5E-07 |
| "Dose" Inhalation | µg/mg (cancer); unitless (noncancer) | 1.0E+02 | 1.6E+01 | 3.6E-01 | 1.8E-01 |

TABLE 6-23

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - CONSTRUCTION/UTILITY WORKER - IN-ACTIVE OPERATIONS AREA - SOIL

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Surface Soil (0 to 2 feet)/Subsurface Soil (2 feet to 10 feet)
Exposure Point: Inactive Operations Area
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Surface Soil | IR | Ingestion Rate | mg/day | 330 | USEPA, 2002 | 50 | USEPA, 1997b | "Dose" = IR x Ao x EF x ED x CF x FI x |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 130 | assumption | 65 | assumption | |
| | | ED | Exposure Duration | years | 21.9 | USEPA, 1997b | 6.6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | FI | Fraction Ingested from Source | unitless | 1.0 | OEPA, 2006 | 1.0 | OEPA, 2006 | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |
| Dermal | Surface Soil | SA | Surface Area | $cm^2$ | 3,300 | USEPA, 2002 | 1,506 | USEPA, 1997b | "Dose" = SA x AF x EF x ED x CF x |
| | | AF | Adherence Factor | $mg/cm^2$-day | 0.3 | USEPA, 2002 | 0.2 | USEPA, 2001b | 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 130 | assumption | 65 | assumption | |
| | | ED | Exposure Duration | years | 22 | USEPA, 1997b | 6.6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |
| Inhalation | Surface Soil | EF | Exposure Frequency | days/year | 130 | assumption | 65 | assumption | "Dose-c" = |
| | | ED | Exposure Duration | years | 21.9 | USEPA, 1997b | 6.6 | USEPA, 1997b | EF x ED x CF x 1/ATc |
| | | CF | Conversion Factor | µg/mg | 1,000 | by definition | 1,000 | by definition | "Dose-nc" = |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | EF x ED x 1/ATnc |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | Units | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | | HEE | CTE | HEE | CTE |
| "Dose" Ing | kg/kg-day | 4.8E-07 | 1.1E-08 | 1.6E-06 | 1.2E-07 |
| "Dose" Dermal | kg/kg-day | 1.4E-06 | 6.6E-08 | 4.9E-06 | 7.5E-07 |
| "Dose" Inhalation | µg/mg (cancer); unitless (noncancer) | 1.0E+02 | 1.6E+01 | 3.6E-01 | 1.8E-01 |

TABLE 6-24

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - CONSTRUCTION/UTILITY WORKER - SEDIMENT

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Sediment
Exposure Point: Active Operations Area/Storm Water Holding Ponds
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Sediment | IR | Ingestion Rate | mg/day | 330 | USEPA, 2002 | 50 | USEPA, 1997b | "Dose" = IR x Ao x EF x ED x CF x FI x |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 52 | assumption | 26 | assumption | |
| | | ED | Exposure Duration | years | 21.9 | USEPA, 1997b | 6.6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | FI | Fraction Ing. from Source | unitless | 1.0 | OEPA, 2006 | 1.0 | OEPA, 2006 | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |
| Dermal | Sediment | SA | Surface Area | $cm^2$ | 3,300 | USEPA, 2002 | 1,506 | USEPA, 1997b | "Dose" = SA x AF x EF x ED x CF x |
| | | AF | Adherence Factor | $mg/cm^2$-day | 0.3 | USEPA, 2002 | 0.2 | USEPA, 2001b | 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 52 | assumption | 26 | assumption | |
| | | ED | Exposure Duration | years | 21.9 | USEPA, 1997b | 6.6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | Units | HEE | CTE | HEE | CTE |
| "Dose" Ing | kg/kg-day | 1.9E-07 | 4.4E-09 | 6.5E-07 | 5.0E-08 |
| "Dose" Dermal | kg/kg-day | 5.7E-07 | 2.6E-08 | 2.0E-06 | 3.0E-07 |

TABLE 6-25

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - CONSTRUCTION/UTILITY WORKER - SURFACE WATER

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Surface Water
Exposure Point: Active Operations Area/Storm Water Holding Ponds
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Surface Water | IR | Ingestion Rate | L/day | 0.05 | USEPA, 1989a | 0.05 | USEPA, 1989a | "Dose" = IR x Ao x EF x ED x 1/BW x 1/AT |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | |
| | | EF | Exposure Frequency | days/year | 52 | assumption | 26 | assumption | |
| | | ED | Exposure Duration | years | 21.9 | USEPA, 1997b | 6.6 | USEPA, 1997b | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |
| Dermal | Surface Water | SA | Surface Area | $cm^2$ | 3,300 | USEPA, 2002 | 1,506 | USEPA, 1997b | "Dose" = SA x EF x ED x ET x CF x 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 52 | assumption | 26 | assumption | |
| | | ED | Exposure Duration | years | 21.9 | USEPA, 1997b | 6.6 | USEPA, 1997b | |
| | | ET | Exposure Time | hr/day | 1.00 | assumption | 1.00 | assumption | |
| | | CF | Conversion Factor | $L/cm^3$ | 0.001 | by definition | 0.001 | by definition | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | Units | HEE | CTE | HEE | CTE |
| "Dose" Ing | L/kg-day | 2.9E-05 | 4.4E-06 | 9.9E-05 | 5.0E-05 |
| "Dose" Dermal | L-hr/kg-cm-day | 1.9E-03 | 1.3E-04 | 6.5E-03 | 1.5E-03 |

TABLE 6-26

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - CONSTRUCTION/UTILITY WORKER - GROUND WATER

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Ground Water
Exposure Point: Active Operations Area
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Ground Water | IR | Ingestion Rate | L/day | 0.05 | USEPA, 1989a | 0.05 | USEPA, 1989a | "Dose" = IR x Ao x EF x ED x 1/BW x 1/AT |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | |
| | | EF | Exposure Frequency | days/year | 52 | assumption | 26 | assumption | |
| | | ED | Exposure Duration | years | 21.9 | USEPA, 1997b | 6.6 | USEPA, 1997b | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |
| Dermal | Ground Water | SA | Surface Area | $cm^2$ | 3,300 | USEPA, 2002 | 1,506 | USEPA, 1997b | "Dose" = SA x EF x ED x ET x CF x 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 52 | assumption | 26 | assumption | |
| | | ED | Exposure Duration | years | 21.9 | USEPA, 1997b | 6.6 | USEPA, 1997b | |
| | | ET | Exposure Time | hr/day | 1.00 | assumption | 1.00 | assumption | |
| | | CF | Conversion Factor | $L/cm^3$ | 0.001 | by definition | 0.001 | by definition | |
| | | BW | Body Weight | kg | 71.8 | USEPA, 1997b | 71.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 7,994 | USEPA, 1997b | 2,409 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | Units | HEE | CTE | HEE | CTE |
| "Dose" Ing | L/kg-day | 2.9E-05 | 4.4E-06 | 9.9E-05 | 5.0E-05 |
| "Dose" Dermal | L-hr/kg-cm-day | 1.9E-03 | 1.3E-04 | 6.5E-03 | 1.5E-03 |

TABLE 6-27

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - HYPOTHETICAL CHILD TRESPASSER - SOIL

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Surface Soil (0 to 2 feet)
Exposure Point: Inactive Operations Area
Receptor Population: Hypothetical Trespasser
Receptor Age: Child (6 to 12 years old)

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Surface Soil | IR | Ingestion Rate | mg/day | 200 | USEPA, 2002 | 100 | USEPA, 2001a | "Dose" = IR x Ao x EF x ED x CF x FI x 1/BW x 1/AT |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | |
| | | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | FI | Fraction Ingested from Source | unitless | 0.5 | assumption | 0.5 | assumption | |
| | | BW | Body Weight | kg | 30.8 | USEPA, 1997b | 30.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |
| Dermal | Surface Soil | SA | Surface Area | $cm^2$ | 3,249 | USEPA, 1997b | 2,756 | USEPA, 1997b | "Dose" = SA x AF x EF x ED x CF x 1/BW x 1/AT |
| | | AF | Adherence Factor | $mg/cm^2$-day | 0.20 | USEPA, 2002 | 0.04 | USEPA, 2001b | |
| | | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | BW | Body Weight | kg | 30.8 | USEPA, 1997b | 30.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |
| Inhalation | Surface Soil | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | "Dose-c" = |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | EF x ED x CF x 1/ATc |
| | | CF | Conversion Factor | µg/mg | 1,000 | by definition | 1,000 | by definition | "Dose-nc" = |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | EF x ED x 1/ATnc |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | Units | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | | HEE | CTE | HEE | CTE |
| "Dose" Ing | kg/kg-day | 2.6E-08 | 8.5E-09 | 3.2E-07 | 1.1E-07 |
| "Dose" Dermal | kg/kg-day | 1.7E-07 | 1.9E-08 | 2.1E-06 | 2.4E-07 |
| "Dose" Inhalation | µg/mg (cancer); unitless (noncancer) | 7.9E+00 | 5.3E+00 | 9.9E-02 | 6.6E-02 |

TABLE 6-28

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - HYPOTHETICAL CHILD TRESPASSER - SEDIMENT

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Sediment
Exposure Point: Unzinger's Ditch
Receptor Population: Hypothetical Trespasser
Receptor Age: Child (6 to 12 years old)

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Sediment | IR | Ingestion Rate | mg/day | 200 | USEPA, 2002 | 100 | USEPA, 2001a | "Dose" = IR x Ao x EF x ED x CF x FI x 1/BW x 1/AT |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | |
| | | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | FI | Fraction Ingested from Source | unitless | 0.5 | assumption | 0.5 | assumption | |
| | | BW | Body Weight | kg | 30.8 | USEPA, 1997b | 30.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |
| Dermal | Sediment | SA | Surface Area | $cm^2$ | 3,249 | USEPA, 1997b | 2,756 | USEPA, 1997b | "Dose" = SA x AF x EF x ED x CF x 1/BW x 1/AT |
| | | AF | Adherence Factor | $mg/cm^2$-day | 0.2 | USEPA, 2001b | 0.2 | USEPA, 2001b | |
| | | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | BW | Body Weight | kg | 30.8 | USEPA, 1997b | 30.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | Units | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | | HEE | CTE | HEE | CTE |
| "Dose" Ing | kg/kg-day | 2.6E-08 | 8.5E-09 | 3.2E-07 | 1.1E-07 |
| "Dose" Dermal | kg/kg-day | 1.7E-07 | 9.4E-08 | 2.1E-06 | 1.2E-06 |

TABLE 6-29

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - HYPOTHETICAL CHILD TRESPASSER - SURFACE WATER

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Surface Water
Exposure Point: Unzinger's Ditch
Receptor Population: Hypothetical Trespasser
Receptor Age: Child (6 to 12 years old)

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Surface Water | IR | Ingestion Rate | L/day | 0.05 | USEPA, 1989a | 0.05 | USEPA, 1989a | "Dose" = IR x Ao x EF x ED x 1/BW x 1/AT |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | |
| | | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | |
| | | BW | Body Weight | kg | 30.8 | USEPA, 1997b | 30.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |
| Dermal | Surface Water | SA | Surface Area | $cm^2$ | 3,249 | USEPA, 1997b | 2,756 | USEPA, 1997b | "Dose" = SA x EF x ED x ET x CF x 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | |
| | | ET | Exposure Time | hrs/day | 1 | USEPA, 1997b | 1 | USEPA, 1997b | |
| | | CF | Conversion Factor | $L/cm^3$ | 0.001 | by definition | 0.001 | by definition | |
| | | BW | Body Weight | kg | 30.8 | USEPA, 1997b | 30.8 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | Units | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | | HEE | CTE | HEE | CTE |
| "Dose" Ing | L/kg-day | 1.3E-05 | 8.5E-06 | 1.6E-04 | 1.1E-04 |
| "Dose" Dermal | L-hr/kg-cm-day | 8.3E-04 | 4.7E-04 | 1.0E-02 | 5.9E-03 |

TABLE 6-30

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - HYPOTHETICAL ADOLESCENT TRESPASSER - SOIL

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Surface Soil (0 to 2 feet)
Exposure Point: Inactive Operations Area
Receptor Population: Hypothetical Trespasser
Receptor Age: Adolescent (12 to 18 years old)

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Surface Soil | IR | Ingestion Rate | mg/day | 200 | USEPA, 2002 | 50 | USEPA, 1997b | "Dose" = IR x Ao x EF x ED x CF x FI x |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | FI | Fraction Ingested from Source | unitless | 0.5 | assumption | 0.5 | assumption | |
| | | BW | Body Weight | kg | 56 | USEPA, 1997b | 56 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |
| Dermal | Surface Soil | SA | Surface Area | $cm^2$ | 4,786 | USEPA, 1997b | 4,159 | USEPA, 1997b | "Dose" = SA x AF x EF x ED x CF x |
| | | AF | Adherence Factor | $mg/cm^2$-day | 0.07 | USEPA, 2002 | 0.04 | USEPA, 2001b | 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | BW | Body Weight | kg | 56 | USEPA, 1997b | 56 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |
| Inhalation | Surface Soil | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | "Dose-c" = |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | EF x ED x CF x 1/ATc |
| | | CF | Conversion Factor | µg/mg | 1,000 | by definition | 1,000 | by definition | "Dose-nc" = |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | EF x ED x 1/ATnc |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | Units | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | | HEE | CTE | HEE | CTE |
| "Dose" Ing | kg/kg-day | 1.4E-08 | 2.3E-09 | 1.8E-07 | 2.9E-08 |
| "Dose" Dermal | kg/kg-day | 4.7E-08 | 1.6E-08 | 5.9E-07 | 2.0E-07 |
| "Dose" Inhalation | µg/mg (cancer); unitless (noncancer) | 7.9E+00 | 5.3E+00 | 9.9E-02 | 6.6E-02 |

TABLE 6-31

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - HYPOTHETICAL ADOLESCENT TRESPASSER - SEDIMENT

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Sediment
Exposure Point: Unzinger's Ditch
Receptor Population: Hypothetical Trespasser
Receptor Age: Adolescent (12 to 18 years old)

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Sediment | IR | Ingestion Rate | mg/day | 200 | USEPA, 2002 | 50 | USEPA, 1997b | "Dose" = IR x Ao x EF x ED x CF x FI x 1/BW x 1/AT |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | |
| | | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | FI | Fraction Ingested from Source | unitless | 1.0 | assumption | 1.0 | assumption | |
| | | BW | Body Weight | kg | 56 | USEPA, 1997b | 56 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |
| Dermal | Sediment | SA | Surface Area | $cm^2$ | 4,786 | USEPA, 1997b | 4,159 | USEPA, 1997b | "Dose" = SA x AF x EF x ED x CF x 1/BW x 1/AT |
| | | AF | Adherence Factor | $mg/cm^2$-day | 0.2 | USEPA, 2001b | 0.2 | USEPA, 2001b | |
| | | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | |
| | | CF | Conversion Factor | kg/mg | 1E-06 | by definition | 1E-06 | by definition | |
| | | BW | Body Weight | kg | 56 | USEPA, 1997b | 56 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | Units | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | | HEE | CTE | HEE | CTE |
| "Dose" Ing | kg/kg-day | 2.8E-08 | 4.7E-09 | 3.5E-07 | 5.9E-08 |
| "Dose" Dermal | kg/kg-day | 1.3E-07 | 7.8E-08 | 1.7E-06 | 9.8E-07 |

TABLE 6-32

VALUES AND EQUATIONS USED FOR DOSE CALCULATIONS - HYPOTHETICAL ADOLESCENT TRESPASSER - SURFACE WATER

Franklin Steel, Blacklick, Ohio

Scenario Timeframe: Current and Future
Exposure Medium: Surface Water
Exposure Point: Unzinger's Ditch
Receptor Population: Hypothetical Trespasser
Receptor Age: Adolescent (12 to 18 years old)

| Exposure Route | Exposure Medium | Parameter Code | Parameter Definition | Units | High End Value | High End Rationale/ Reference | Central Tendency Value | Central Tendency Rationale/ Reference | Equation |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Surface Water | IR | Ingestion Rate | L/day | 0.05 | USEPA, 1989a | 0.05 | USEPA, 1989a | "Dose" = IR x Ao x EF x ED x 1/BW x 1/AT |
| | | Ao | Oral Absorption | unitless | 1.0 | assumption | 1.0 | assumption | |
| | | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | |
| | | BW | Body Weight | kg | 56 | USEPA, 1997b | 56 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |
| Dermal | Surface Water | SA | Surface Area | $cm^2$ | 4,786 | USEPA, 1997b | 4,159 | USEPA, 1997b | "Dose" = SA x EF x ED x ET x CF x 1/BW x 1/AT |
| | | EF | Exposure Frequency | days/year | 36 | assumption | 24 | assumption | |
| | | ED | Exposure Duration | years | 6 | USEPA, 1997b | 6 | USEPA, 1997b | |
| | | ET | Exposure Time | hrs/day | 1 | assumption | 1 | assumption | |
| | | CF | Conversion Factor | $L/cm^3$ | 0.001 | by definition | 0.001 | by definition | |
| | | BW | Body Weight | kg | 56 | USEPA, 1997b | 56 | USEPA, 1997b | |
| | | ATc | Averaging Time (cancer) | days | 27,375 | USEPA, 1997b | 27,375 | USEPA, 1997b | |
| | | ATnc | Averaging Time (noncancer) | days | 2,190 | USEPA, 1997b | 2,190 | USEPA, 1997b | |

Notes:

HEE = high end exposure

CTE = central tendency exposure

| | Units | Cancer | | Noncancer | |
|---|---|---|---|---|---|
| | | HEE | CTE | HEE | CTE |
| "Dose" Ing | L/kg-day | 7.0E-06 | 4.7E-06 | 8.8E-05 | 5.9E-05 |
| "Dose" Dermal | L-hr/kg-cm-day | 6.7E-04 | 3.9E-04 | 8.4E-03 | 4.9E-03 |

TABLE 6-33
DERMAL FACTORS
Franklin Steel, Blacklick, Ohio

| Chemical of Potential Concern | Dermal Permeability Coefficient (cm/hr) | Reference | Dermal Absorption Factor (unitless) | Reference |
|---|---|---|---|---|
| **Metals** | | | | |
| Aluminum | 0.0010 | USEPA 2004 (RAGS Part E) | 0.0010 | USEPA 2001b (RAGS Part E) |
| Antimony | 0.0010 | USEPA 2001 (RAGS Part E) | 0.0010 | USEPA Region 4 |
| Arsenic | 0.0010 | USEPA 2004 (RAGS Part E) | 0.030 | USEPA 2004 (RAGS Part E) |
| Barium | 0.0010 | USEPA 2004 (RAGS Part E) | 0.0010 | USEPA 2004 (RAGS Part E) |
| Beryllium | 0.0010 | USEPA 2001 (RAGS Part E) | 0.0010 | USEPA Region 4 |
| Cadmium | 0.0010 | USEPA 2004 (RAGS Part E) | 0.0010 | USEPA 2004 (RAGS Part E) |
| Chromium | 0.0010 | USEPA 2001 (RAGS Part E) | 0.0010 | USEPA Region 4 |
| Cobalt | 0.0004 | USEPA 2004 (RAGS Part E) | 0.0010 | USEPA 2004 (RAGS Part E) |
| Copper | 0.0010 | USEPA 2004 (RAGS Part E) | 0.0010 | USEPA 2004 (RAGS Part E) |
| Iron | 0.0010 | USEPA 2001 (RAGS Part E) | 0.0010 | USEPA Region 4 |
| Lead | 0.00010 | USEPA 2001 (RAGS Part E) | 0.010 | USEPA 1995c |
| Manganese | 0.0010 | USEPA 2001 (RAGS Part E) | 0.0010 | USEPA Region 4 |
| Mercury | 0.24 | USEPA 2004 (RAGS Part E) | 0.0010 | USEPA 2004 (RAGS Part E) |
| Nickel | 0.00020 | USEPA 2004 (RAGS Part E) | 0.0010 | USEPA 2004 (RAGS Part E) |
| Selenium | 0.00100 | USEPA 2001 (RAGS Part E) | 0.0010 | USEPA 2004 (RAGS Part E) |
| Silver | 0.00060 | USEPA 2004 (RAGS Part E) | 0.0010 | USEPA 2004 (RAGS Part E) |
| Thallium | 0.0010 | USEPA 2001 (RAGS Part E) | 0.0010 | USEPA Region 4 |
| Vanadium | 0.0010 | USEPA 2001 (RAGS Part E) | 0.0010 | USEPA Region 4 |
| Zinc | 0.00060 | USEPA 2004 (RAGS Part E) | 0.0010 | USEPA 2004 (RAGS Part E) |
| **PCBs** | | | | |
| Aroclor 1254 | N/A | --- | 0.017 | Calculated from Total Organic Carbon (4.6%) [a] |
| **SVOCs** | | | | |
| 2,4-Dinitrophenol | 0.0022 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| 4,6-Dinitro-2-methylphenol | 0.0037 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| 4-Nitrophenol | 0.0061 | USEPA 2004 (RAGS Part E) | 0.043 | USEPA 2004 (RAGS Part E) |
| 2-Methylnaphthalene | 0.142 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| 4-Methylphenol | 0.0099 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| Benzo(a)anthracene | 0.48 | USEPA 2001b (RAGS Part E) | 0.13 | USEPA 2001b (RAGS Part E) |
| Benzo(a)pyrene | 0.66 | USEPA 2001b (RAGS Part E) | 0.13 | USEPA 2001b (RAGS Part E) |
| Benzo(b)fluoranthene | 0.76 | USEPA 2001b (RAGS Part E) | 0.13 | USEPA 2001b (RAGS Part E) |
| Benzo(k)fluoranthene | 0.76 | USEPA 2001b (RAGS Part E) | 0.13 | USEPA 2001b (RAGS Part E) |
| Dibenzo(a,h)anthracene | 1.1 | USEPA 2001b (RAGS Part E) | 0.13 | USEPA 2001b (RAGS Part E) |
| Indeno(1,2,3-cd)pyrene | 1.1 | USEPA 2001b (RAGS Part E) | 0.13 | USEPA 2001b (RAGS Part E) |
| Isophorone | 0.0035 | USEPA 2001b (RAGS Part E) | 0.10 | USEPA 2001b (RAGS Part E) |
| bis(2-Ethylhexyl)phthalate | 0.68 | USEPA 2001b (RAGS Part E) | 0.10 | USEPA 2001b (RAGS Part E) |
| N-Nitrosodiphenylamine | 0.020 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| Naphthalene | 0.069 | USEPA 2004 (RAGS Part E) | 0.13 | USEPA 2004 (RAGS Part E) |
| **VOCs** | | | | |
| Acetone | 0.00057 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| Chloroethane | 0.0080 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| Chloroform | 0.0089 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| Ethylbenzene | 0.073 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| Methylene chloride | 0.0044 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| Tetrachloroethene | 0.048 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| Toluene | 0.045 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| Trichloroethene | 0.015 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| Vinyl chloride | 0.011 | USEPA 2004 (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |
| Xylenes, Total | 0.047 | USEPA 2001b (RAGS Part E) | 0.010 | USEPA 2004 (RAGS Part E) |

Notes:
N/A = not applicable; total PCBs are not a chemical of potential concern in surface water
PCBs = polychlorinated biphenyls
SVOCs = *semi-volatile organic compounds*
VOCs = volatile organic compounds

[a] dermal absorption factor (unitless) = (-0.1395 x % total organic carbon + 2.1628) / 100

TABLE 6-34
SOIL TO AIR VOLATILIZATION FACTORS
Franklin Steel, Blacklick, Ohio

| ...ical of Potential Concern | Inverse of the mean concentration at the center of a 0.5 square-acre source [a] Q/C | Exposure interval [a] T | Dry soil bulk density [a] $\rho_b$ | Air-filled soil porosity [b] $SP_a$ | Total soil porosity [c] n | Water-filled soil porosity [a] $SP_w$ | Soil particle density [a] $\rho_s$ | Diffusivity in air [d] $D_i$ | Henry's Law Constant [d] H | Diffusivity in water [d] $D_w$ | Soil-water partition coefficient [e] Kd | Soil-organic carbon partition coefficient [d] Koc | Fraction organic carbon in soil [f] foc | Apparent diffusivity [g] $D_A$ | Soil to Air Volatilization Factor [h] VF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $g/m^2$-s per $kg/m^3$ | s | $g/cm^3$ | unitless | unitless | unitless | $g/cm^3$ | $cm^2/s$ | unitless | $cm^2/s$ | $cm^3/g$ | $cm^3/g$ | g/g | $cm^2/s$ | $m^3/kg$ |
| Metals | | | | | | | | | | | | | | | |
| Aluminum | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | 5.57E-06 | 1.50E+01 [d] | NA | 0.046 | NA | NA |
| Antimony | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | 2.45E-02 | 5.57E-06 | 4.50E+01 [d] | NA | 0.046 | NA | NA |
| Arsenic | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 2.90E+01 [d] | NA | 0.046 | NA | NA |
| Barium | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 4.30E+01 [d] | NA | 0.046 | NA | NA |
| Beryllium | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 7.90E+02 [d] | NA | 0.046 | NA | NA |
| Cadmium | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 7.50E+01 [d] | NA | 0.046 | NA | NA |
| Chromium | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 1.80E+06 [d] | NA | 0.046 | NA | NA |
| Cobalt | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 7.72E-02 | NA | 9.57E-06 | 4.50E+01 | NA | 0.046 | NA | NA |
| Copper | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 3.60E+01 [d] | NA | 0.046 | NA | NA |
| Iron, Total | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 2.50E+01 [d] | NA | 0.046 | NA | NA |
| Lead, total | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 9.00E+02 [d] | NA | 0.046 | NA | NA |
| Manganese | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 6.50E+01 [d] | NA | 0.046 | NA | NA |
| Mercury | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0307 | NA | 6.30E-06 | 5.20E+01 [d] | NA | 0.046 | NA | NA |
| Nickel | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 6.50E+01 [d] | NA | 0.046 | NA | NA |
| Selenium | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0772 | 9.74E-03 | 9.57E-06 | 5.00E+00 [d] | NA | 0.046 | NA | NA |
| Silver | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 8.30E+00 [d] | NA | 0.046 | NA | NA |
| Thallium | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 7.10E+01 [d] | NA | 0.046 | NA | NA |
| Vanadium | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 6.20E+01 [d] | NA | 0.046 | NA | NA |
| Zinc | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | NA | NA | NA | 6.20E+01 [d] | NA | 0.046 | NA | NA |
| SVOCs | | | | | | | | | | | | | | | |
| 2,4-Dinitrophenol | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0273 | 3.52E-06 | 9.06E-06 | 1.67E+01 | 3.64E+02 | 0.046 | 3.56E-09 | 2.7E+06 |
| 4,6-Dinitro-2-methylphenol | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0293 | 5.72E-08 | 8.91E-06 | 2.77E+01 | 6.02E+02 | 0.046 | 5.50E-09 | 2.2E+06 |
| 4-Nitrophenol | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0436 | 1.79E-08 | 9.61E-06 | 1.42E+01 | 3.09E+02 | 0.046 | 3.97E-09 | 2.6E+06 |
| 2-Methylnaphthalene | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0480 | 2.12E-02 | 7.84E-06 | 1.37E+02 | 2.98E+03 | 0.046 | 4.96E-07 | 2.3E+05 |
| 4-Methylphenol | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0740 | 4.09E-05 | 1.00E-05 | 2.00E+01 | 4.34E+02 | 0.046 | 1.30E-08 | 1.4E+06 |
| Benzo(a)anthracene | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0510 | 1.37E-04 | 9.00E-06 | 1.83E+04 | 3.98E+05 | 0.046 | 2.84E-11 | 3.1E+07 |
| Benzo(a)pyrene | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0430 | 4.63E-05 | 9.00E-06 | 4.69E+04 | 1.02E+06 | 0.046 | 3.97E-12 | 8.2E+07 |
| Benzo(b)fluoranthene | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0226 | 4.55E-03 | 5.56E-06 | 5.66E+04 | 1.23E+06 | 0.046 | 1.22E-10 | 1.5E+07 |
| Benzo(k)fluoranthene | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0226 | 3.40E-05 | 5.56E-06 | 5.66E+04 | 1.23E+06 | 0.046 | 1.45E-12 | 1.3E+08 |
| Dibenzo(a,h)anthracene | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0202 | 6.00E-07 | 5.19E-06 | 1.75E+05 | 3.80E+06 | 0.046 | 1.80E-13 | 3.9E+08 |
| Indeno(1,2,3-cd)pyrene | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0190 | 6.56E-06 | 5.66E-06 | 1.60E+05 | 3.47E+06 | 0.046 | 7.31E-13 | 1.9E+08 |
| Isophorone | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0623 | 6.60E-06 | 6.75E-06 | 2.15E+00 | 4.68E+01 | 0.046 | 2.99E-08 | 9.5E+05 |
| bis(2-Ethylhexyl)phthalate | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0351 | 1.30E-07 | 3.66E-06 | 5.11E+03 | 1.11E+05 | 0.046 | 4.30E-12 | 7.9E+07 |
| N-Nitrosodiphenylamine | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0312 | 4.96E-05 | 6.35E-06 | 2.83E+02 | 6.15E+03 | 0.046 | 4.97E-10 | 7.3E+06 |
| Naphthalene | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0590 | 1.80E-02 | 7.50E-06 | 8.45E+01 | 1.84E+03 | 0.046 | 8.39E-07 | 1.8E+05 |
| VOCs | | | | | | | | | | | | | | | |
| Acetone | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.124 | 1.62E-03 | 1.14E-05 | 9.11E-02 | 1.98E+00 | 0.046 | 6.87E-05 | 2.0E+04 |
| Chloroethane | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.271 | 4.54E-01 | 1.15E-05 | 1.09E+00 | 2.37E+01 | 0.046 | 6.34E-03 | 2.1E+03 |
| Chloroform | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.104 | 1.50E-01 | 1.00E-05 | 1.61E+00 | 3.50E+01 | 0.046 | 5.96E-04 | 6.7E+03 |
| Ethylbenzene | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0750 | 3.22E-01 | 7.80E-06 | 2.38E+01 | 5.18E+02 | 0.046 | 6.72E-05 | 2.0E+04 |
| Methylene chloride | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.101 | 1.33E-01 | 1.17E-05 | 1.09E+00 | 2.37E+01 | 0.046 | 7.32E-04 | 6.0E+03 |
| Tetrachloroethene | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0720 | 7.24E-01 | 8.20E-06 | 4.91E+00 | 1.07E+02 | 0.046 | 6.73E-04 | 6.3E+03 |
| Toluene | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0870 | 2.71E-01 | 8.60E-06 | 1.23E+01 | 2.68E+02 | 0.046 | 1.26E-04 | 1.5E+04 |
| Trichloroethene | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0790 | 4.03E-01 | 9.10E-06 | 3.11E+00 | 6.77E+01 | 0.046 | 6.43E-04 | 6.4E+03 |
| ...yl chloride | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.1060 | 2.76E-02 | 1.23E-05 | 8.56E-01 | 1.86E+01 | 0.046 | 2.04E-04 | 1.1E+04 |
| ...ylenes, Total | 85.63 | 9.5E+08 | 1.43 | 0.31 | 0.46 | 0.15 | 2.65 | 0.0737 | 7.00E-03 | 9.34E-06 | 2.56E+01 | 5.56E+02 | 0.046 | 1.34E-05 | 1.4E+05 |

Notes:

PCBs = polychlorinated biphenyls

SVOCs = semi-volatile organic compounds

VOCs = volatile organic compounds

[a] USEPA 2001d

[b] Air-filled soil porosity = $n-SP_w$

[c] Total soil porosity = $1-(\rho_b/\rho_s)$

[d] RAIS (Risk Assessment Information Systems chemical factors database), 2002 for all chemicals except benzo(g,h,i)perylene. For benzo(g,h,i)perylene, www.epa.gov/ttn/chief/software/water was used.

[e] Kd = Koc x foc

[f] site specific

[g] $D_A = [(SP_a^{10/3} \times D_i \times H + SP_w^{10/3} \times D_w) / n^2] / (\rho_b \times K_d + SP_w + SP_a \times H)$

[h] $VF = (QC \times (3.14 \times D_A \times T)^{1/2} \times 10^{-4}) / (2 \times \rho_b \times D_A)$

TABLE 6-35
NONCANCER TOXICITY DATA - ORAL/DERMAL
Franklin Steel, Blacklick, Ohio

| Chemical of Potential Concern | Chronic/ Subchronic | Oral RfD Value Applied | Oral to Dermal Adjustment Factor | Adjusted Dermal RfD | Units | Critical Effect/ Target Organ Organ | Combined Uncertainty/Modifying Factors | Sources of RfD |
|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | |
| Aluminum | chronic | 1.0 | 1.0 | 1.0 | mg/kg-day | psychomotor/cognitive impairment | 100 | RAIS |
| Antimony | chronic | 0.00040 | 0.15 | 0.000060 | mg/kg-day | blood glucose and cholesterol | 1000 | IRIS |
| Arsenic | chronic | 0.00030 | 1.0 | 0.00030 | mg/kg-day | hyperpigmentation, keratosis, vascular complications | 3 | IRIS |
| Barium | subchronic | 0.20 | 0.070 | 0.014 | mg/kg-day | nephropathy | 300 | IRIS |
| Beryllium | chronic | 0.0020 | 0.0070 | 0.000014 | mg/kg-day | small intestinal lesions | 300 | IRIS |
| Cadmium | chronic | 0.00050 | 0.050 | 0.000025 | mg/kg-day | proteninura | 10 | IRIS |
| Chromium | chronic | 1.5 | 0.013 | 0.019 | mg/kg-day | NA | 1000 | IRIS |
| Cobalt | chronic | 0.020 | | 0.016 | mg/kg-day | NA | N/A | RAIS |
| Copper | chronic | 0.040 | 1.0 | 0.040 | mg/kg-day | NA | N/A | RAIS |
| Iron | chronic | 0.30 | 0.010 | 0.30 | mg/kg-day | not specified [b] | not specified [c] | NCEA |
| Lead | chronic | N/A | 0.010 | N/A | N/A | N/A | N/A | N/A |
| Manganese | chronic | 0.14 | 0.040 | 0.0056 | mg/kg-day | CNS effects | 1 | IRIS |
| Mercury | chronic | 0.00030 | 1.0 | 0.00030 | mg/kg-day | NA | 30 | RAIS |
| Nickel | chronic | 0.020 | 0.040 | 0.00080 | mg/kg-day | decreased body and organ weight | 300 | RAIS |
| Selenium | chronic | 0.0050 | 1.0 | 0.0022 | mg/kg-day | respiratory/GI tract/CNS | 3 | RAIS |
| Silver | chronic | 0.0050 | 1.0 | 0.0050 | mg/kg-day | skin/argyria | 3 | IRIS |
| Thallium | chronic | 0.000080 | 0.010 | 0.000080 | mg/kg-day | increased levels of SGOT and LHD | 3000 | IRIS |
| Vanadium | chronic | 0.0090 | 0.010 | 0.0090 | mg/kg-day | decreased hair cystine | 100 | IRIS |
| Zinc | chronic | 0.30 | 1.0 | 0.30 | mg/kg-day | decrease in ESOD concentrations | 3 | IRIS |
| **SVOCs** | | | | | | | | |
| 2,4-Dinitrophenol | chronic | N/A | N/A | N/A | N/A | NA | N/A | NA |
| 4,6-Dinitro-2-methylphenol | chronic | N/A | N/A | N/A | N/A | NA | N/A | NA |
| 4-Nitrophenol | chronic | N/A | N/A | N/A | N/A | NA | N/A | NA |
| 2-Methylnaphthalene | chronic | 0.0040 | 1.0 | 0.0040 | mg/kg-day | pulmonary alveolar | 1000 | IRIS |
| 4-Methylphenol | chronic | N/A | N/A | N/A | N/A | NA | NA | IRIS |
| Benz(a)anthracene | chronic | 0.030 | 1.0 | 0.030 | mg/kg-day | NA | N/A | N/A |
| Benzo(a)pyrene | chronic | 0.030 | 1.0 | 0.030 | mg/kg-day | NA | N/A | N/A |
| Benzo(b)fluoranthene | chronic | 0.030 | 1.0 | 0.030 | mg/kg-day | NA | N/A | N/A |
| Benzo(k)fluoranthene | chronic | 0.030 | 1.0 | 0.030 | mg/kg-day | NA | N/A | N/A |
| Dibenz(a,h)anthracene | chronic | 0.030 | 1.0 | 0.030 | mg/kg-day | NA | N/A | N/A |
| Indeno(1,2,3-cd)pyrene | chronic | 0.030 | 1.0 | 0.030 | mg/kg-day | NA | N/A | N/A |
| Isophorone | chronic | 0.20 | 1.0 | 0.20 | mg/kg-day | liver/kidney pathology | 1000 | IRIS |
| bis(2-Ethylhexyl)phthalate | chronic | 0.020 | 1.0 | 0.020 | mg/kg-day | increased relative liver weight | 1000 | IRIS |
| N-Nitrosodiphenylamine | chronic | N/A | N/A | N/A | N/A | bladder tumors | NA | IRIS |
| Naphthalene | chronic | 0.020 | 1.0 | 0.020 | mg/kg-day | terminal body weights | 3000 | IRIS |
| **VOCs** | | | | | | | | |
| Acetone | chronic | 0.90 | 1.0 | 0.90 | mg/kg-day | liver | 1000 | RAIS |
| Chloroethane | chronic | N/A | N/A | N/A | N/A | NA | N/A | RAIS |
| Chloroform | chronic | 0.010 | 1.0 | 0.010 | mg/kg-day | fatty cyst formation | 1000 | IRIS |
| Ethylbenzene | chronic | 0.10 | 1.0 | 0.10 | mg/kg-day | liver and kidney | 1000 | RAIS |
| Methylene chloride | chronic | 0.060 | 1.0 | 0.060 | mg/kg-day | toxicity | 100 | RAIS |
| Tetrachloroethene | chronic | 0.010 | 1.0 | 0.01 | mg/kg-day | hepatotoxicity and weight gain | 1000 | IRIS |
| Toluene | chronic | 0.080 | 1.0 | 0.080 | mg/kg-day | increased kidney weight | 3000 | RAIS |
| Trichloroethene | chronic | 0.00030 | 1.0 | 0.00030 | mg/kg-day | liver, kidney developmental effects | N/A | RAIS |
| Vinyl chloride | chronic | 0.0030 | 1.0 | 0.0030 | mg/kg-day | CNS effects | 30 | IRIS |
| Xylenes, total | chronic | 0.20 | 1.0 | 0.20 | mg/kg-day | decreased body weight, increased mortality | 1000 | IRIS |

Notes:
IRIS = Integrated Risk Information Service (www.epa.gov/iris)
NCEA = National Center for Environmental Assessment
RAIS = Risk Assessment Information System
N/A = not applicable
NA = no data available
RfD = Reference Dose
mg/kg-day = milligrams per kilogram bodyweight per day

[a] The RfD for pyrene was used for all PAHs without verified RfDs.
[b] EPA Region 9 Preliminary Remedial Goal tables cite NCEA as the source of the iron RfD (primary studies were not discussed).
[c] USEPA Region 9 Preliminary Remedial Goal tables cite NCEA as the source of the iron RfD (primary studies were not discussed).

TABLE 6-36
NONCANCER TOXICITY DATA - INHALATION
Franklin Steel, Blacklick, Ohio

| Chemical of Potential Concern | Inhalation RfC Value Applied | Units | Critical Effect/ Target Organ | Combined Uncertainty/Modifying Factors | Source of RfC |
|---|---|---|---|---|---|
| **Metals** | | | | | |
| Aluminum | 0.0050 | $mg/m^3$ | psychomotor/cognitive impairment | 300 | RAIS |
| Antimony | 0.00190 | $mg/m^3$ | NA | N/A | calculated from RfD [a] |
| Arsenic | N/A | N/A | NA | N/A | N/A |
| Barium | 0.00050 | $mg/m^3$ | fetotoxicity | 1000 | RAIS |
| Beryllium | 0.000020 | $mg/m^3$ | Nasal Cavity | 1 | IRIS |
| Cadmium | N/A | N/A | NA | N/A | N/A |
| Chromium | N/A | N/A | NA | N/A | IRIS |
| Cobalt | 0.00002 | mg/m3 | NA | N/A | RAIS |
| Copper | N/A | N/A | NA | N/A | RAIS |
| Iron | 1.0 | $mg/m^3$ | NA | 1 | calculated from RfD [a] |
| Lead | N/A | N/A | NA | N/A | N/A |
| Manganese | 0.000050 | $mg/m^3$ | CNS | 1 | IRIS |
| Mercury | 0.00030 | $mg/m^3$ | hand tremor, memory disturbance, autonomic dysfunction | 30 | IRIS |
| Nickel | N/A | N/A | NA | N/A | RAIS |
| Selenium | N/A | N/A | NA | N/A | RAIS |
| Silver | N/A | N/A | NA | N/A | RAIS |
| Thallium | 0.00040 | $mg/m^3$ | NA | N/A | calculated from RfD [a] |
| Vanadium | 0.043 | $mg/m^3$ | NA | N/A | calculated from RfD [a] |
| Zinc | N/A | N/A | NA | N/A | RAIS |
| **SVOCs** | | | | | |
| 2,4-Dinirtophenol | N/A | N/A | NA | N/A | NA |
| 4,6-Dinitro-2-methylphenol | N/A | N/A | NA | N/A | NA |
| 4-Nitrophenol | N/A | N/A | NA | N/A | NA |
| 2-Methylnaphthalene | N/A | N/A | NA | N/A | IRIS |
| 4-Methylphenol | N/A | N/A | NA | N/A | IRIS |
| Benz(a)anthracene | 0.10 | $mg/m^3$ | NA | N/A | calculated from RfD [a] |
| Benzo(a)pyrene | 0.10 | $mg/m^3$ | NA | N/A | calculated from RfD [a] |
| Benzo(b)fluoranthene | 0.10 | $mg/m^3$ | NA | N/A | calculated from RfD [a] |
| Benzo(k)fluoranthene | 0.10 | $mg/m^3$ | NA | N/A | calculated from RfD [a] |
| Dibenz(a,h)anthracene | 0.10 | $mg/m^3$ | NA | N/A | calculated from RfD [a] |
| Indeno(1,2,3-cd)pyrene | 0.10 | $mg/m^3$ | NA | N/A | calculated from RfD [a] |
| Isophorone | 1.0 | $mg/m^3$ | Liver | N/A | calculated from RfD [a] |
| bis(2-Ethylhexyl)phthalate | 0.10 | $mg/m^3$ | NA | N/A | calculated from RfD [a] |
| N-Nitrosodiphenylamine | N/A | N/A | NA | N/A | IRIS |
| Naphthalene | 0.0030 | $mg/m^3$ | nasel cavity | 3000 | IRIS |
| **VOCs** | | | | | |
| Acetone | N/A | N/A | N/A | N/A | RAIS |
| Chloroethane | 2.9 | $mg/m^3$ | CNS, liver and rapid weight loss | 300 | IRIS |
| Chloroform | 0.01 | mg/m3 | gastrointestinal symptoms | 1000 | RAIS |
| Ethylbenzene | 1.0 | $mg/m^3$ | developmental toxicity | 300 | RAIS |
| Methylene chloride | 3.0 | $mg/m^3$ | toxicity | 100 | RAIS |
| Tetrachloroethene | 0.60 | $mg/m^3$ | tubular cell karyomegaly | 30 | RAIS |
| Toluene | 5.0 | $mg/m^3$ | neurological effects | 10 | RAIS |
| Trichloroethene | 0.040 | $mg/m^3$ | CNS, liver and endocrine system | NA | RAIS |
| Vinyl chloride | 0.10 | mg/m3 | CNS, liver issues | 30 | IRIS |
| Xylenes, total | 0.96 | $mg/m^3$ | CNS effects | 1.0 | IRIS |

Notes:
IRIS = USEPA Integrated Risk Information Service (www.epa.gov/iris)
CNS = central nervous system
N/A = not applicable
NA = no data available
RfC = Reference Concentration
RfD = Reference Dose
$mg/m^3$ = milligrams per cubic meter

[a] RfC = (RfD* 71.8 kg) / (15 $m^3$/day)

TABLE 6-37
CANCER TOXICITY DATA - ORAL/DERMAL
Franklin Steel, Blacklick, Ohio

| Chemical of Potential Concern | Oral Cancer Slope Factor | Body Weight Correction Factor [a] | Adjusted Dermal Cancer Slope Factor | Units | Weight of Evidence/ Cancer Guideline Description | Source |
|---|---|---|---|---|---|---|
| **Metals** | | | | | | |
| Aluminum | N/A | N/A | N/A | N/A | D | RAIS |
| Antimony | N/A | N/A | N/A | N/A | NA | IRIS |
| Arsenic | 1.5 | N/A | 1.5 | $(mg/kg\text{-}day)^{-1}$ | A | IRIS |
| Barium | N/A | N/A | N/A | N/A | D | RAIS |
| Beryllium | 8.4 | N/A | N/A | $(mg/kg\text{-}day)^{-1}$ | B2 | IRIS |
| Cadmium | N/A | N/A | N/A | N/A | B1 | IRIS |
| Chromium | N/A | N/A | N/A | N/A | D | IRIS |
| Cobalt | N/A | N/A | N/A | N/A | NA | RAIS |
| Copper | N/A | N/A | N/A | N/A | D | RAIS |
| Iron | N/A | N/A | N/A | N/A | B2 | IRIS |
| Lead | N/A | N/A | N/A | N/A | B2 | IRIS |
| Manganese | N/A | N/A | N/A | N/A | D | IRIS |
| Mercury | N/A | N/A | N/A | N/A | D | RAIS |
| Nickel | N/A | N/A | N/A | N/A | D | RAIS |
| Selenium | N/A | N/A | N/A | N/A | D | RAIS |
| Silver | N/A | N/A | N/A | N/A | D | RAIS |
| Thallium | N/A | N/A | N/A | N/A | D | IRIS |
| Vanadium | N/A | N/A | N/A | N/A | D | IRIS |
| Zinc | N/A | N/A | N/A | N/A | D | RAIS |
| **SVOCs** | | | | | | |
| 2,4-Dinitrophenol | N/A | N/A | N/A | N/A | NA | NA |
| 4,6-Dinitro-2-methylphenol | N/A | N/A | N/A | N/A | NA | NA |
| 4-Nitrophenol | N/A | N/A | N/A | N/A | NA | NA |
| 2-Methylnaphthalene | N/A | N/A | N/A | N/A | NA | IRIS |
| 4-Methylphenol | N/A | N/A | N/A | N/A | C | IRIS |
| Benz(a)anthracene | 0.73 | 1.0 | 0.74 | $(mg/kg\text{-}day)^{-1}$ | B2 | NCEA |
| Benzo(a)pyrene | 7.3 | 1.0 | 7.4 | $(mg/kg\text{-}day)^{-1}$ | B2 | IRIS |
| Benzo(b)fluoranthene | 0.73 | 1.0 | 0.74 | $(mg/kg\text{-}day)^{-1}$ | B2 | NCEA |
| Benzo(k)fluoranthene | 0.073 | 1.0 | 0.07 | $(mg/kg\text{-}day)^{-1}$ | B2 | NCEA |
| Dibenz(a,h)anthracene | 7.3 | 1.0 | 7.4 | $(mg/kg\text{-}day)^{-1}$ | B2 | IRIS |
| Indeno(1,2,3-cd)pyrene | 0.73 | 1.0 | 0.74 | $(mg/kg\text{-}day)^{-1}$ | B2 | NCEA |
| Isophorone | 0.00095 | 1.0 | 0.0010 | $(mg/kg\text{-}day)^{-1}$ | C | IRIS |
| bis(2-Ethylhexyl)phthalate | 0.014 | 1.0 | 0.014 | $(mg/kg\text{-}day)^{-1}$ | B2 | IRIS |
| N-Nitrosodiphenylamine | 0.0049 | 1.0 | 0.0049 | $(mg/kg\text{-}day)^{-1}$ | B2 | RAIS |
| Naphthalene | N/A | N/A | N/A | N/A | C | IRIS |
| **VOCs** | | | | | | |
| Acetone | N/A | N/A | N/A | N/A | D | RAIS |
| Chloroethane | N/A | N/A | N/A | N/A | NA | RAIS |
| Chloroform | 0.01 | N/A | 0.0061 | $(mg/kg\text{-}day)^{-1}$ | B2 | IRIS |
| Ethylbenzene | N/A | N/A | N/A | N/A | D | RAIS |
| Methylene chloride | 0.0075 | N/A | N/A | $(mg/kg\text{-}day)^{-1}$ | B2 | RAIS |
| Tetrachloroethene | 0.54 | N/A | 0.052 | $(mg/kg\text{-}day)^{-1}$ | C-B2 | RAIS |
| Toluene | N/A | N/A | N/A | N/A | D | RAIS |
| Trichloroethene | 0.40 | N/A | N/A | $(mg/kg\text{-}day)^{-1}$ | B2 | RAIS |
| Vinyl chloride | 1.9 | N/A | N/A | $(mg/kg\text{-}day)^{-1}$ | A | RAIS |
| Xylenes, total | N/A | N/A | N/A | N/A | NA | IRIS |

Notes:
IRIS = Integrated Risk Information System
NCEA = National Cener for Environmental Assessment
RAIS = Risk Assessment Information System
N/A = not applicable
NA = no data available
$(mg/kg\text{-}day)^{-1}$ = per milligram per kilogram bodyweight per day

[a] Body Weight Correction Factor = $(71.8\ kg/70\ kg)^{1/3}$ (USEPA, 1997b)

USEPA Weight of Evidence Group:
A - Human carcinogen
B1 - Probable human carcinogen - indicates that limited human data are available
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans
C - Possible human carcinogen
D - Not classifiable as a human carcinogen
E - Evidence of noncarcinogenicity

TABLE 6-38
CANCER TOXICITY DATA - INHALATION
Franklin Steel, Blacklick, Ohio

| Chemical of Potential Concern | Inhalation UR Value Applied | Units | Weight of Evidence/ Cancer Guideline Description | Source of UR |
|---|---|---|---|---|
| **Metals** | | | | |
| Aluminum | N/A | N/A | NA | RAIS |
| Antimony | N/A | N/A | NA | RAIS |
| Arsenic | 0.0043 | $(\mu g/m^3)^{-1}$ | A | IRIS |
| Barium | N/A | N/A | NA | RAIS |
| Beryllium | 0.00024 | $(\mu g/m^3)^{-1}$ | B2 | IRIS |
| Cadmium | 0.0018 | $(\mu g/m^3)^{-1}$ | B1 | IRIS |
| Chromium | N/A | N/A | D | IRIS |
| Cobalt | 0.0028 | $(\mu g/m^3)^{-1}$ | NA | RAIS |
| Copper | N/A | N/A | NA | RAIS |
| Iron | N/A | N/A | NA | IRIS |
| Lead | N/A | N/A | B2 | IRIS |
| Manganese | N/A | N/A | D | IRIS |
| Mercury | N/A | N/A | D | IRIS |
| Nickel | 0.00024 | $(\mu g/m^3)^{-1}$ | A | IRIS |
| Selenium | N/A | N/A | D | RAIS |
| Silver | N/A | N/A | D | RAIS |
| Thallium | N/A | N/A | D | IRIS |
| Vanadium | N/A | N/A | D | IRIS |
| Zinc | N/A | N/A | D | RAIS |
| **SVOCs** | | | | |
| 2,4-Dinitrophenol | N/A | N/A | NA | NA |
| 4,6-Dinitro-2-methylphenol | N/A | N/A | NA | NA |
| 4-Nitrophenol | N/A | N/A | NA | NA |
| 2-Methylnaphthalene | N/A | N/A | NA | IRIS |
| 4-Methylphenol | N/A | N/A | C | IRIS |
| Benz(a)anthracene | 0.088 | $(\mu g/m^3)^{-1}$ | B2 | RAIS |
| Benzo(a)pyrene | 0.88 | $(\mu g/m^3)^{-1}$ | B2 | RAIS |
| Benzo(b)fluoranthene | 0.088 | $(\mu g/m^3)^{-1}$ | B2 | RAIS |
| Benzo(k)fluoranthene | 0.0088 | $(\mu g/m^3)^{-1}$ | B2 | RAIS |
| Dibenz(a,h)anthracene | 0.88 | $(\mu g/m^3)^{-1}$ | B2 | RAIS |
| Indeno(1,2,3-cd)pyrene | 0.088 | $(\mu g/m^3)^{-1}$ | B2 | RAIS |
| Isophorone | N/A | N/A | C | IRIS |
| bis(2-Ethylhexyl)phthalate | 0.014 | $(\mu g/m^3)^{-1}$ | B2 | IRIS |
| N-Nitrosodiphenylamine | N/A | N/A | B2 | IRIS |
| Naphthalene | N/A | N/A | C | IRIS |
| **VOCs** | | | | |
| Acetone | N/A | N/A | D | RAIS |
| Chloroethane | N/A | N/A | NA | RAIS |
| Chloroform | 0.000023 | $(\mu g/m^3)^{-1}$ | B2 | IRIS |
| Ethylbenzene | 0.0011 | $(\mu g/m^3)^{-1}$ | D | RAIS |
| Methylene chloride | 0.00047 | $(\mu g/m^3)^{-1}$ | B2 | RAIS |
| Tetrachloroethene | 0.058 | $(\mu g/m^3)^{-1}$ | C-B2 | RAIS |
| Toluene | N/A | N/A | D | RAIS |
| Trichloroethene | N/A | N/A | B2 | RAIS |
| Vinyl chloride | 0.30 | $(\mu g/m^3)^{-1}$ | A | RAIS |
| Xylenes, total | N/A | N/A | NA | IRIS |

Notes:
IRIS = Integrated Risk Information System
RAIS = Risk Assessment Information System
N/A = not applicable
NA = not available
UR = Unit Risk
$(\mu g/m^3)^{-1}$ = per microgram per cubic meter

USEPA Weight of Evidence Group:
A - Human carcinogen
B1 - Probable human carcinogen - indicates that limited human data are available
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans
C - Possible human carcinogen
D - Not classifiable as a human carcinogen
E - Evidence of noncarcinogenicity

TABLE 6-39
SUMMARY OF CANCER RISKS AND NONCANCER HAZARDS
Franklin Steel, Blacklick, Ohio

| Exposure Point | Exposure Scenario | Exposure Medium | Central Tendency Noncancer Hazard Quotient | Central Tendency Cancer Risk | | High End Noncancer Hazard Quotient | High End Cancer Risk | |
|---|---|---|---|---|---|---|---|---|
| Active Operations Area | Site worker | Surface Soil | 0.35 | 0.00028 | ( 3E-04 ) | 1.6 | 0.0037 | ( 4E-03 ) |
| | | Sediment | 0.09 | 0.00040 | ( 4E-04 ) | 0.40 | 0.0063 | ( 6E-03 ) |
| | | Surface Water | 0.23 | 0.00058 | ( 6E-04 ) | 1.0 | 0.011 | ( 1E-02 ) |
| | | Total | 0.66 | 0.001 | ( 1E-03 ) | 3.1 | 0.021 | ( 2E-02 ) |
| | Construction/Utility Worker | Surface Soil | 0.12 | 0.00009 | ( 9E-05 ) | 2.4 | 0.0032 | ( 3E-03 ) |
| | | Subsurface Soil | 0.08 | 0.000037 | ( 4E-05 ) | 1.7 | 0.0035 | ( 3E-03 ) |
| | | Sediment | 0.19 | 0.00087 | ( 9E-04 ) | 4.0 | 0.059 | ( 6E-02 ) |
| | | Surface Water | 0.17 | 0.0013 | ( 1E-03 ) | 1.3 | 0.041 | ( 4E-02 ) |
| | | Ground Water | 0.02 | 0.000047 | ( 5E-05 ) | 0.18 | 0.00478 | ( 5E-03 ) |
| | | Total | 0.58 | 0.0023 | ( 2E-03 ) | 10 | 0.11 | ( 1E-01 ) |
| In-Active Operations Area | Construction/Utiltiy Worker | Surface Soil | 0.021 | 0.00000026 | ( 3E-07 ) | 0.41 | 0.000016 | ( 2E-05 ) |
| | | Subsurface Soil | 0.027 | 0.00000050 | ( 5E-07 ) | 0.62 | 0.000041 | ( 4E-05 ) |
| | | Total | 0.048 | 0.00000077 | ( 8E-07 ) | 1.0 | 0.000058 | ( 6E-05 ) |
| | Child Trespasser | Surface Soil | 0.017 | 0.00000019 | ( 2E-07 ) | 0.08 | 0.0000010 | ( 1E-06 ) |
| | | Total | 0.017 | 0.00000019 | ( 2E-07 ) | 0.08 | 0.0000010 | ( 1E-06 ) |
| | Adolescent Trespasser | Surface Soil | 0.005 | 0.000000058 | ( 6E-08 ) | 0.04 | 0.00000049 | ( 5E-07 ) |
| | | Total | 0.005 | 0.000000058 | ( 6E-08 ) | 0.04 | 0.00000049 | ( 5E-07 ) |
| Unzinger's Ditch | Child Trespasser | Sediment | 0.11 | 0.00038 | ( 4E-04 ) | 0.50 | 0.0016 | ( 2E-03 ) |
| | | Surface Water | 0.53 | 0.0044 | ( 4E-03 ) | 2.1 | 0.018 | ( 2E-02 ) |
| | | Total | 0.64 | 0.0048 | ( 5E-03 ) | 2.6 | 0.019 | ( 2E-02 ) |
| | Adolescent Trespasser | Sediment | 0.07 | 0.00027 | ( 3E-04 ) | 0.51 | 0.0015 | ( 2E-03 ) |
| | | Surface Water | 0.40 | 0.0036 | ( 4E-03 ) | 1.6 | 0.014 | ( 1E-02 ) |
| | | Total | 0.47 | 0.0039 | ( 4E-03 ) | 2.1 | 0.016 | ( 2E-02 ) |
| Acceptable Risk or Hazard | | | 1 | 0.00001 | ( 1E-05 ) | 1 | 0.00001 | ( 1E-05 ) |

Notes:
COPCs = chemicals of potential concern

**Table 7.2 Selection Criteria for Ecological Receptors at Franklin Steel Drum Facility**

| Receptor | Selection Criteria (USEPA 1996) | | |
|---|---|---|---|
| | Criterion 1 | Criterion 2 | Criterion 3 |
| | Ecological Relevance | Susceptibility | Represents Management Goals* |
| Aquatic biota (fish and macroinvertebrates) | +++ | +++ | ++ |
| Sediment-dwelling biota (macroinvertebrates) | +++ | +++ | ++ |
| Raccoon (*Procyon lotor*) | ++ | ++ | + |
| Great blue heron (*Ardea herodias*) | +++ | +++ | ++ |

* includes protection of T&E or other special status species
+ = receptor meets criteria
++ = receptor strongly meets criterion
+++ = receptor very strongly meets criterion

**Table 7.3. Analytes Whose Maximum Concentrations Exceeded Ohio Chemical Water Quality Criteria, Screening Benchmarks, or PBT Criteria at Franklin Steel Surface Water and Sediment Exposure Units**

| | Surface Water | | | | Sediment | | | |
|---|---|---|---|---|---|---|---|---|
| Analyte | Unzinger's Ditch, Downstream | Unzinger's Ditch, Upstream | S101 Holding Pond | S201 Wetland | Unzinger's Ditch, Downstream | Unzinger's Ditch, Upstream | S101 Holding Pond | S201 Wetland |
| **Inorganics** | | | | | | | | |
| Aluminum | + | + | + | + | + | + | - | - |
| Antimony | - | - | - | - | + | + | + | - |
| Arsenic | - | - | - | - | + | + | - | - |
| Barium | + | + | + | + | + | + | + | + |
| Beryllium | - | - | - | - | - | + | - | + |
| Cadmium | - | - | - | - | + | + | + | - |
| Calcium | + | + | + | - | + | + | + | - |
| Chromium | - | - | - | - | + | + | + | - |
| Cobalt | - | - | - | - | - | - | - | - |
| Copper | OWQC | OWQC | OWQC | OWQC | + | + | + | - |
| Cyanide | - | - | OWQC | - | - | - | + | - |
| Lead | OWQC | OWQC | OWQC | OWQC | + | + | + | - |
| Magnesium | + | - | + | - | + | + | + | - |
| Manganese | OWQC | - | - | OWQC | - | + | + | - |
| Mercury | OWQC | OWQC | - | - | + | + | + | - |
| Nickel | - | - | - | - | + | - | - | - |
| Potassium | + | + | + | + | - | - | - | - |
| Selenium | - | - | - | - | + | - | - | - |
| Silver | - | - | - | - | - | + | + | - |
| Sodium | + | + | + | - | + | + | + | - |
| Thallium | - | - | - | - | + | + | - | - |
| Vanadium | - | - | - | - | - | - | - | - |
| Zinc | OWQC | OWQC | OWQC | OWQC | + | + | + | - |
| **Organics** | | | | | | | | |
| **Semi-volatiles** | | | | | | | | |
| 2-Methylphenol | - | - | - | - | - | - | - | - |
| 4-Methylphenol | - | - | - | - | + | + | - | - |
| Acenaphthene | - | - | - | - | + | - | - | - |
| Anthracene | - | - | - | - | + | + | - | - |
| Benzo(a)anthracene | - | - | - | - | + | + | + | - |
| Benzo(a)pyrene | + | - | - | - | + | + | + | - |
| Benzo(b)fluoranthene | + | - | - | - | + | + | + | - |
| Benzo(g,h,i)perylene | - | - | - | - | + | + | + | - |
| Benzo(k)fluoranthene | + | - | - | - | + | + | + | - |
| Butyl benzyl phthalate | OWQC | - | - | - | + | + | + | - |
| Carbazole | - | - | - | - | + | + | - | - |
| Chrysene | + | - | - | - | + | + | + | - |
| Di-n-butyl phthalate | - | - | + | - | + | + | + | - |
| Dibenzo(a,h)anthracene | - | - | - | - | + | + | - | - |
| Dibenzofuran | - | - | - | - | + | - | - | - |
| Fluoranthene | OWQC | OWQC | - | - | + | + | + | - |
| Fluorene | - | - | - | - | + | + | - | - |
| Indeno(1,2,3-cd)pyrene | - | - | - | - | + | + | + | - |
| Isophorone | - | - | - | - | - | - | - | - |
| Phenanthrene | + | - | + | - | + | + | + | - |
| Phenol | - | - | - | - | - | + | - | - |
| Pyrene | + | - | - | - | + | + | + | - |
| bis(2-Ethylhexyl) phthalate | OWQC | OWQC | - | - | + | + | + | - |
| Total PAH | - | - | - | - | + | + | + | - |

**Table 7.3. Analytes Whose Maximum Concentrations Exceeded Ohio Chemical Water Quality Criteria, Screening Benchmarks, or PBT Criteria at Franklin Steel Surface Water and Sediment Exposure Units**

| | Surface Water | | | | Sediment | | | |
|---|---|---|---|---|---|---|---|---|
| Analyte | Unzinger's Ditch, Downstream | Unzinger's Ditch, Upstream | S101 Holding Pond | S201 Wetland | Unzinger's Ditch, Downstream | Unzinger's Ditch, Upstream | S101 Holding Pond | S201 Wetland |
| **Volatiles** | | | | | | | | |
| 1,2-Dichloroethene, Total | - | - | - | - | - | - | + | - |
| 2-Butanone | - | - | - | - | - | - | - | - |
| 4-Methyl-2-pentanone | - | - | - | - | - | - | - | - |
| Acetone | - | - | - | - | + | - | - | - |
| Carbon disulfide | - | - | - | - | - | - | - | - |
| Chloroform | - | - | - | - | - | - | - | - |
| Chlorobenzene | - | - | - | - | - | - | - | - |
| Methylene chloride | - | - | - | - | - | - | - | - |
| Tetrachloroethene | - | - | - | - | - | - | - | - |
| Toluene | - | - | - | - | - | - | - | - |
| Trichloroethene | - | - | - | - | - | - | - | - |
| Xylenes, Total | - | - | - | - | - | - | - | - |

" - " = Analyte is not carried forward to receptor screens
" + " = Analyte is carried forward to receptor screens
" OWQC " = Analyte exceeds Ohio chemical water quality criteria (OAC 3745-1) and is retained as an ecoCOC.

**Table 7.4. Policy Goals, Ecological Assessment Endpoints, Measurement Endpoints, and Decision Rules for the Franklin Steel Drum Storage Area**

| Policy Goals | Assessment Endpoint | Measurement Endpoint | Decision Rule |
|---|---|---|---|
| **Policy Goal 1:** The preservation and conservation of T&E species and their critical habitats. | **Assessment Endpoint 1:** Preservation of any state- or federally-designated threatened or endangered species.<br><br>Endpoint Species: None present | **Measurement Endpoint 1:** Modeled contaminant concentrations in prey species based on measured surface water concentrations. | **Decision Rule for Measurement Endpoint 1:** If T&E species are not present, or RME concentrations in environmental media do not contribute to an exceedance of chronic NOAEL with a safety factor of 0.1 (i.e., HQs <0.1), then it is indicated that the contaminant alone is unlikely to cause adverse ecological effects, and, therefore, the T&E species are preserved. If the HQ >0.1, a weight-of-evidence evaluation will be conducted to determine the potential for ecological risk and the need for any additional measurements or calculations. |
| **Policy Goal 2:** The maintenance and protection of aquatic populations and ecosystems. | **Assessment Endpoint 2:** Maintenance of aquatic organisms.<br><br>Endpoint Species: aquatic organisms | **Measurement Endpoint 2:** Measured surface water contaminant concentrations.<br><br>**Measurement Endpoint 3:** Indicators of biological status of stream reaches classified according to OAC 3745-1. | **Decision Rule for Measurement Endpoint 2:** If the HQ is <1, then it is indicated that the contaminant alone is unlikely to cause adverse ecological effects, and therefore, populations of aquatic organisms are maintained. If the HQ >1, a weight-of-evidence evaluation will be conducted to determine the potential for ecological risk and the need for any additional measurements or calculations.<br>**Decision Rule for Measurement Endpoint 3:** If the biota in Unzinger's Ditch do not meet attainment criteria (OAC 3745-1) for the stream segment, a weight-of-evidence evaluation including ecoCOPCs, their HQs, and biological condition will be conducted to determine the potential for ecological risk and the need for any remedial action. |

**Table 7.4. Policy Goals, Ecological Assessment Endpoints, Measurement Endpoints, and Decision Rules for the Franklin Steel Drum Storage Area**

| Policy Goals | Assessment Endpoint | Measurement Endpoint | Decision Rule |
|---|---|---|---|
| **Policy Goal 2 (Continued)** | **Assessment Endpoint 3:** Maintenance of sediment-dwelling organisms.<br><br>Endpoint Species: sediment-dwelling organisms | **Measurement Endpoint 4:** Measured sediment contaminant concentrations.<br><br>**Measurement Endpoint 5:** Indicators of biological status of stream reaches classified according to OAC 3745-1 (same as Measurement Endpoint 3). | **Decision Rule for Measurement Endpoint 4:** If the HQ is <1, then it is indicated that the contaminant alone is unlikely to cause adverse ecological effects, and therefore, populations of sediment-dwelling organisms are maintained. If the HQ >1, a weight-of-evidence evaluation will be conducted to determine the potential for ecological risk and the need for any additional measurements or calculations.<br>**Decision Rule for Measurement Endpoint 5:** If the biota in Unzinger's Ditch do not meet attainment criteria (OAC 3745-1) for the stream segment, a weight-of-evidence evaluation including ecoCOPCs, their HQs, and biological condition will be conducted to determine the potential for ecological risk and the need for any remedial action. |
| | **Assessment Endpoint 4:** Maintenance of water-drinking and fish-eating predator populations for population regulation.<br><br>Endpoint Species: raccoon and great blue heron | **Measurement Endpoint 6:** Measured surface water contaminant concentrations for raccoon and modeled contaminant concentrations in prey fish based on measured surface water concentrations for the great blue heron. | **Decision Rule for Measurement Endpoint 6:** If the HQ is <1, then it is indicated that the contaminant alone is unlikely to cause adverse ecological effects, and therefore, populations of terrestrial predators are maintained. If the HQ >1, a weight-of-evidence evaluation will be conducted to determine the potential for ecological risk and the need for any additional measurements or calculations. |

RME = Reasonable maximum exposure
T&E = Threatened and endangered
NOAEL = No observed adverse effects level
HQ = Hazard quotient
OAC = Ohio Administrative Code

**Table 7.5. Receptor Parameters for Raccoon**

| Parameter | Definition | Receptor: Raccoon (*Procyon lotor*) Value | Reference / Notes |
|---|---|---|---|
| BW | Body weight (kilogram or kg) | 5.98 | Mean all ages, both sexes, Illinois (EPA 1993) |
| HR | Home range (156 Ha), converted to stream length of 1.25 km[a] | 1.25 | Mean, adults, both sexes, Michigan, riverine areas (EPA 1993) |
| TUF | Temporal use factor | 1 | Will be 1 unless a specific value exists for a receptor |
| $IR_F$ | Food ingestion rate (g/g-d = kg/kgBW/d)[b] | 0.299 | EPA (1993) |
| PF | Plant fraction | 0.38 | Average over 4 seasons, Maryland forested bottomland (EPA 1993) |
| AF | Animal fraction | 0.572 | Average over 4 seasons, Maryland forested bottomland (EPA 1993) |
| SF | Soil fraction | 0.094 | EPA (1993) |
| $IR_w$ | Water ingestion rate (g/g-d = L/kgBW/d) | 0.083 | Mean, adult, both sexes (EPA 1993) |

[a]Foraging range calculated by assuming that the home range of 156 Ha is a square with one side along the stream. The length of the side was estimated by taking the square root of the area ($[156 \text{ Ha} \times 10{,}000 \text{ m}^2/\text{Ha}]^{0.5} = 1250 \text{ m} = 1.25 \text{ km}$)

[b] Food ingestion rate (g/g-d) reexpressed as kg/kgBW/d is assumed not to include ingested soil; therefore, PF+AF = 1.0

## Table 7.6 Receptor Parameters for Great Blue Heron

| Parameter | Definition | Receptor: Great blue heron (*Ardea herodias*) | |
|---|---|---|---|
| | | Value | Reference / Notes |
| BW | Body weight (kilogram or kg) | 2.39 | Arithmetic mean, adult, both sexes, location not stated (EPA 1993) |
| HR | Home range (kilometer or km) | 3.1 | Foraging distance, mean, adults, both sexes, South Dakota, stream (EPA 1993) |
| TUF | Temporal use factor | 1 | Will be 1 unless a specific value exists for a receptor |
| $IR_F$ | Food ingestion rate (g/g-d = kg/kgBW/d)[a] | 0.18 | EPA (1993) |
| PF | Plant fraction | 0 | None listed as dietary intake in EPA (1993) |
| AF | Animal fraction | 1 | 98% Aquatic vertebrates, lower Michigan, river (EPA 1993) |
| SF | Soil fraction | 0 | Not reported in EPA (1993); assumed to be negligible |
| $IR_w$ | Water ingestion rate (g/g-d = L/kgBW/d) | 0.045 | Estimated (EPA 1993) |

[a] Food ingestion rate (g/g-d) reexpressed as kg/kgBW/d is assumed not to include ingested soil; therefore, PF+AF = 1.0

**Table 7.1 Overview of Habitats at Franklin Steel Drum Facility**

| Name of Exposure Unit | Length of Foraging Range (miles) | Type of Habitat |
|---|---|---|
| Unzinger's Ditch, Downstream | 0.6 miles | Riparian corridors and tree-lined streams. |
| Unzinger's Ditch, Upstream | 0.5 miles | Riparian corridors and tree-lined streams. |
| S101 Siphon Dam/Outfall 002 | 0.04 miles | A small weed-choked area that discharges to Unzinger's Ditch and Creek |
| S201 Wetland | 0.19 miles | Roughly circular, small emergent wetland with shallow pool of open water surrounded by a ring of herbaceous vegetation. Length of foraging range corresponds to wetland perimeter. |

**Table 7.7. Ecological COPCs in Surface Water and Sediment with HQ >10 (++) and >1 (+) at Franklin Steel Exposure Units**

| Analytes Remaining After the Preliminary Screen[a] | Surface Water | | | | Sediment | | | |
|---|---|---|---|---|---|---|---|---|
| | Unzinger's Ditch, Downstream | Unzinger's Ditch, Upstream | S101 Siphon Dam | S201 Wetland | Unzinger's Ditch, Downstream | Unzinger's Ditch, Upstream | S101 Siphon Dam | S201 Wetland |
| **Inorganics** | | | | | | | | |
| Aluminum | ++ | ++ | ++ | ++ | - | - | - | - |
| Antimony | - | - | - | - | - | - | - | - |
| Arsenic | - | - | - | - | + | + | - | - |
| Barium | ++ | ++ | ++ | ++ | - | - | - | - |
| Beryllium | - | - | - | - | - | - | - | - |
| Cadmium | - | - | - | - | ++ | + | ++ | - |
| Calcium | - | - | - | - | - | - | - | - |
| Chromium | - | - | - | - | + | - | + | - |
| Copper | OWQC | OWQC | OWQC | OWQC | + | + | + | - |
| Cyanide | - | - | OWQC | - | - | - | - | - |
| Lead | OWQC | OWQC | OWQC | OWQC | ++ | + | ++ | - |
| Magnesium | - | - | - | - | - | - | - | - |
| Manganese | OWQC | - | - | OWQC | - | - | - | - |
| Mercury | OWQC | OWQC | - | - | + | + | + | - |
| Nickel | - | - | - | - | + | - | + | - |
| Potassium | - | - | - | - | - | - | - | - |
| Selenium | - | - | - | - | - | - | - | - |
| Silver | - | - | - | - | - | - | - | - |
| Sodium | - | - | - | - | - | - | - | - |
| Thallium | - | - | - | - | - | - | - | - |
| Zinc | OWQC | OWQC | OWQC | OWQC | + | + | + | - |
| **Organics** | | | | | | | | |
| **Semi-volatiles** | | | | | | | | |
| 4-Methylphenol | - | - | - | - | - | - | - | - |
| Acenaphthene | - | - | - | - | - | - | - | - |
| Anthracene | - | - | - | - | ++ | + | ++ | - |
| Benzo(a)anthracene | - | - | - | - | ++ | ++ | ++ | - |
| Benzo(a)pyrene | ++ | - | - | - | ++ | + | ++ | - |
| Benzo(b)fluoranthene | - | - | - | - | - | - | - | - |
| Benzo(g,h,i)perylene | - | - | - | - | - | - | - | - |
| Benzo(k)fluoranthene | - | - | - | - | - | - | - | - |
| Butyl benzyl phthalate | OWQC | - | - | - | - | - | - | - |
| Carbazole | - | - | - | - | - | - | - | - |
| Chrysene | - | - | - | - | ++ | + | ++ | - |
| Di-n-butyl phthalate | - | - | - | - | - | - | - | - |
| Dibenzo(a,h)anthracene | - | - | - | - | ++ | + | - | - |
| Dibenzofuran | - | - | - | - | - | - | - | - |
| Fluoranthene | OWQC | OWQC | - | - | ++ | + | ++ | - |
| Fluorene | - | - | - | - | + | + | - | - |
| Indeno(1,2,3-cd)pyrene | - | - | - | - | - | - | - | - |
| Phenanthrene | - | - | + | - | ++ | + | ++ | - |
| Phenol | - | - | - | - | - | - | - | - |
| Pyrene | ++ | - | - | - | ++ | + | ++ | - |
| bis(2-Ethylhexyl) phthalate | OWQC | OWQC | - | - | - | - | - | - |
| Total PAH | - | - | - | - | ++ | + | + | - |
| **Volatiles** | | | | | | | | |
| 1,2-Dichloroethene, Total | - | - | - | - | - | - | - | - |
| Acetone | - | - | - | - | - | - | - | - |

" - " = COPEC has an HQ <1 or has no TRV
" + " = COPEC has an HQ between 1 and 10
" ++ " = COPEC has an HQ greater than 10

[a] Analytes whose maximum concentrations exceeded the Ohio chemical water quality criteria (OMZH) were retained as ecoCOCs without HQ screening and are designated "OWQC".

**Table 7.8. Measures of Ecological Quality in Upper and Lower Segments of Unzinger's Ditch**

| Environmental Designations | Warmwater Habitat (WWH) | | Limited Resource Water (LRW) |
|---|---|---|---|
| Indices[a] | RM 0.5 | RM 0.1 | RM 0.9 |
| Index of Biotic Integrity (IBI) | 30 | 32 | 12 |
| Macroinvertebrate Richness (Number of taxa) | 14 | 27 | 24 |
| Narrative Description of Macroinvertebrate Community | Very Poor | Very Poor | Poor |
| Qualitative Habitat Evaluation Index (QHEI) | 51 | 57 | 27.5 |
| Hazard Index[b] | Downstream (Mile 0 to discharge point slightly above Mile 0.6) | | Upstream (Discharge point slightly above Mile 0.6 to Mile 1.1 ) |
| Surface water | 165 | | 62 |
| Sediment | 311 | | 77 |
| Raccoon | 0.1 | | 0.1 |
| Heron | 2 | | 2 |

a) As habitat index and biotic scores or richness values increase, community or habitat quality increases.

b) As the hazard index value increases, the risk of contaminant induced stress increases.

TABLE 8.1

SUMMARY OF HUMAN HEALTH SITE SPECIFIC PRGs FOR SOIL, SEDIMENT, SURFACE WATER AND GROUNDWATER COCs

Franklin Steel, Blacklick, Ohio

TABLE 8.1

| COC | Soil Commercial/Industrial PRGs (mg/kg) | | | | |
|---|---|---|---|---|---|
| | Noncancer risk value HQ = 1 Adult Worker | Cancer risk value ELCR = 1E-06 Adult Worker | Cancer risk value ELCR = 1E-05 Adult Worker | ARAR | Background |
| Arsenic | 61 | 3.9 | 39 | NA | 29 |
| 2,4-dinitrophenol* | 204,000 | 5.8 | 58 | NA | ND |
| 4-Nitrophenol* | 204,000 | 5.8 | 58 | NA | ND |
| Benzo(a)anthracene | 6,120 | 7.9 | 79 | NA | ND |
| Benzo(a)pyrene | 6,120 | 0.79 | 7.9 | NA | ND |
| Benzo(b)fluoranthene | 6,120 | 7.9 | 79 | NA | ND |
| Bis(2-ethylhexyl)phthalate | 4,080 | 414 | 4,140 | NA | ND |
| Dibenzo(a,h)fluotanthene | 6,120 | 0.79 | 7.9 | NA | ND |
| Indeno(1,2,3-cd)pyrene | 6,120 | 7.9 | 79 | NA | ND |
| N-nitrosodipheylmine* | 204,000 | 1,163 | 11,633 | NA | ND |
| Naphthalene* | 4,080 | 5.8 | 58 | NA | ND |
| Ethylbenzene* | 20,400 | 5.8 | 58 | NA | ND |
| Trichloroethene* | 61 | 14 | 145 | NA | ND |
| Toluene* | 16,320 | 5.8 | 58 | NA | ND |
| Total, Xylenes* | 40,800 | 5.8 | 58 | NA | ND |
| **COC** | **Sediment Commercial/Industrial PRGs (mg/kg)** | | | | |
| | Noncancer risk value HQ = 1 Adult Worker | Cancer risk value ELCR = 1E-06 Adult Worker | Cancer risk value ELCR = 1E-05 Adult Worker | ARAR | Background |
| Arsenic | 61 | 3.9 | 39 | NA | 21 |
| Benzo(a)anthracene | 6,120 | 7.9 | 79 | NA | ND |
| Benzo(a)pyrene | 6,120 | 0.79 | 7.9 | NA | ND |
| Benzo(b)fluoranthene | 6,120 | 7.9 | 79 | NA | 38 |
| Dibenzo(a,h)fluotanthene | 6,120 | 0.79 | 7.9 | NA | ND |
| Indeno(1,2,3-cd)pyrene | 6,120 | 7.9 | 79 | NA | ND |
| Bis(2-ethylhexyl)phthalate | 4,080 | 414 | 4,140 | NA | ND |
| **COC** | **Surface Water Commercial/Industrial PRGs (ug/L)** | | | | |
| | Noncancer risk value HQ = 1 Adult Worker | Cancer risk value ELCR = 1E-06 Adult Worker | Cancer risk value ELCR = 1E-05 Adult Worker | ARAR | Background |
| Arsenic | 61 | 3.9 | 39 | NA | ND |
| Benzo(a)pyrene | 6,120 | 0.79 | 7.9 | NA | ND |
| Benzo(b)fluoranthene | 6,120 | 7.9 | 79 | NA | ND |
| Benzo(k)fluoranthene | 6,120 | 79 | 794 | NA | ND |
| **COC** | **Groundwater Commercial/Industrial PRGs (ug/L)** | | | | |
| | Noncancer risk value HQ = 1 Adult Worker | Cancer risk value ELCR = 1E-06 Adult Worker | Cancer risk value ELCR = 1E-05 Adult Worker | ARAR | Background |
| Bis(2-ethylhexyl)phthalate | 4,080 | 414 | 4,140 | 6 | 10 |
| Vinyl Chloride | 612 | 2.0 | 20 | 2 | 0.5 |

* Hot Spot detected compounds

COCs = Chemicals of Concern

HQ = Hazard Quotient

ELCR = Excess Lifetime Cancer Risk

PRGs = Preliminary Remediation Goals

NA = Not available

N/A = Not applicable

ND = Not detected



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**Table 8.2. Background, Chemical Water Quality Criteria, and Toxicity-based Benchmarks Used to Establish Site-Specific PRGs for Surface Water at Franklin Steel**

| Ecological COC | Background Concentration[a] (µg/L) | Ohio Chemical Water Quality Criteria (µg/L) | Other Benchmark Concentration (µg/L) | Criterion or Benchmark Source | PRG (µg/L) |
|---|---|---|---|---|---|
| Aluminum | 250 | | 87 | NAWQC (presented by Suter and Tsao 1996) | 250 |
| Barium | 80 | | 4.0 | Tier II chronic benchmark (presented by Suter and Tsao 1996) | 80 |
| Copper | 10 | 9 | | Ohio water quality criteria (OAC 3745-1) | 10 |
| Cyanide | 2 | 12 | | Ohio water quality criteria (OAC 3745-1) | 12 |
| Lead | 1 | 6.4 | | Ohio water quality criteria (OAC 3745-1) | 6.4 |
| Manganese | 50 | 100 | | Ohio water quality criteria (OAC 3745-1) | 100 |
| Mercury | 0.1 | 0.77 | | Ohio water quality criteria (OAC 3745-1) | 0.77 |
| Zinc | 10 | 120 | | Ohio water quality criteria (OAC 3745-1) | 120 |
| Benzo(a)pyrene | None | | 0.014 | Tier II chronic benchmark (presented by Suter and Tsao 1996) | 0.014 |
| Butyl benzyl phthalate | None | 49 | | Ohio water quality criteria (OAC 3745-1) | 49 |
| Fluoranthene | None | 8.9 | | Ohio water quality criteria (OAC 3745-1) | 8.9 |
| Phenanthrene | None | | 6.3 | NAWQC (presented by Suter and Tsao 1996) | 6.3 |
| Pyrene | None | | 0.3 | EPA Region 5 EDQL (EPA 1998) | 0.3 |
| Bis(2-ethylhexyl) phthalate | None | 8.4 | | Ohio water quality criteria (OAC 3745-1) | 8.4 |

[a] From Appendix B Table B.12

**Table 8.2. Background, Chemical Water Quality Criteria, and Toxicity-based Benchmarks Used to Establish Site-Specific PRGs for Surface Water at Franklin Steel**

| Ecological COC | Background Concentration[a] (µg/L) | Ohio Chemical Water Quality Criteria (µg/L) | Other Benchmark Concentration (µg/L) | Criterion or Benchmark Source | PRG (µg/L) |
|---|---|---|---|---|---|
| Aluminum | 250 | | 87 | NAWQC (presented by Suter and Tsao 1996) | 250 |
| Barium | 80 | | 4.0 | Tier II chronic benchmark (presented by Suter and Tsao 1996) | 80 |
| Copper | 10 | 9 | | Ohio water quality criteria (OAC 3745-1) | 10 |
| Cyanide | 2 | 12 | | Ohio water quality criteria (OAC 3745-1) | 12 |
| Lead | 1 | 6.4 | | Ohio water quality criteria (OAC 3745-1) | 6.4 |
| Manganese | 50 | 100 | | Ohio water quality criteria (OAC 3745-1) | 100 |
| Mercury | 0.1 | 0.77 | | Ohio water quality criteria (OAC 3745-1) | 0.77 |
| Zinc | 10 | 120 | | Ohio water quality criteria (OAC 3745-1) | 120 |
| Benzo(a)pyrene | None | | 0.014 | Tier II chronic benchmark (presented by Suter and Tsao 1996) | 0.014 |
| Butyl benzyl phthalate | None | 49 | | Ohio water quality criteria (OAC 3745-1) | 49 |
| Fluoranthene | None | 8.9 | | Ohio water quality criteria (OAC 3745-1) | 8.9 |
| Phenanthrene | None | | 6.3 | NAWQC (presented by Suter and Tsao 1996) | 6.3 |
| Pyrene | None | | 0.3 | EPA Region 5 EDQL (EPA 1998) | 0.3 |
| Bis(2-ethylhexyl) phthalate | None | 8.4 | | Ohio water quality criteria (OAC 3745-1) | 8.4 |

[a] From Appendix B Table B.12

**Table 8.3. Background and Toxicity-based Benchmarks Used to Establish Site-Specific PRGs for Sediment at Franklin Steel**

| Ecological COC | Background Concentration[a] (mg/kg) | Benchmark Concentration (mg/kg) | Benchmark Source | PRG (mg/kg) |
|---|---|---|---|---|
| Arsenic | 21.2 | 9.79 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 21.2 |
| Cadmium | 2.3 | 0.99 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 2.3 |
| Chromium | 23.7 | 43.4 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 43.4 |
| Copper | 33.8 | 31.6 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 33.8 |
| Lead | 34.2 | 35.8 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 35.8 |
| Mercury | 0.07 | 0.18 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 0.18 |
| Nickel | 42.2 | 22.7 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 42.2 |
| Zinc | 138 | 121 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 138 |
| Total PAHs | None | 1.6 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 1.6 |
| Individual PAHs | | | | |
| Anthracene | None | 0.06 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 0.06 |
| Benzo(a)-anthracene | None | 0.11 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 0.11 |

**Table 8.3. Background and Toxicity-based Benchmarks Used to Establish Site-Specific PRGs for Sediment at Franklin Steel**

| Ecological COC | Background Concentration[a] (mg/kg) | Benchmark Concentration (mg/kg) | Benchmark Source | PRG (mg/kg) |
|---|---|---|---|---|
| Benzo(a)pyrene | None | 0.15 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 0.15 |
| Chrysene | None | 0.17 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 0.17 |
| Dibenzo(a,h)-anthracene | None | 0.03 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 0.03 |
| Fluoranthene | None | 0.42 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 0.42 |
| Fluorene | None | 0.08 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 0.08 |
| Phenanthrene | None | 0.20 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 0.20 |
| Pyrene | None | 0.20 | Consensus Threshold Effects Concentration (McDonald et al. 2000) | 0.20 |
| bis(2-ethylhexyl) phthalate | None | 9.3 | Calculated SQB | 9.3 |

[a] From Appendix B Table B.14