## TABLE 1 - Summary of Soil Analytical Results

| Sample Location | SB-1 | SB-2 | SB-3 | SB-4 |
|---|---|---|---|---|
| Sample Depth, ft. from surface | 0.5-1' | 0.5-1.5' | 0.5-2.0' | 4-5' |
| Collection Date | 06-12-2018 | 06-12-2018 | 06-12-2018 | 06-12-2018 |
| **METALS, total, µg/Kg** | | | | |
| Arsenic | **779** | **935** | **1,990** | **1,690** |
| Barium | **2,930** | **9,610** | **25,800** | **17,100** |
| Cadmium | **54.5** | **78.1** | **158** | **94.0** |
| Chromium | **1,040** | **1,810** | **5,740** | **5,010** |
| Copper | **468** | **1,500** | **1,220** | **2,100** |
| Lead | **1,850** | **10,300** | **6,290** | **8,230** |
| Mercury (Total) | <20.7 | **33.6** | **46.6** | **37.7** |
| Selenium | **135** | <138 | **660 -b** | <182 |
| Silver | <100 | <97.9 | <114 | <103 |
| Zinc | **11,200** | **22,200** | **23,200** | **15,100** |
| **VOC's, µg/Kg** [2] | | | | |
| Analytical Method | SW8260B | SW8260B | SW8260B | SW8260B |
| Analysis Date | 06-15-2018 | 06-15-2018 | 06-15-2018 | 06-15-2018 |
| Tetrachloroethene | <58.6 | **71.2** | <62.4 | <56.8 |
| Each VOC | <MDL | <MDL | <MDL | <MDL |

## TABLE 1 - Summary of Soil Analytical Results

| Sample Location | SB-1 | SB-2 | SB-3 | SB-4 |
|---|---|---|---|---|
| Sample Depth, ft. from surface | 0.5-1' | 0.5-1.5' | 0.5-2.0' | 4-5' |
| Collection Date | 06-12-2018 | 06-12-2018 | 06-12-2018 | 06-12-2018 |
| **PNA's µg/Kg[2]** | | | | |
| EPA Method | 8310 | 8310 | 8310 | 8310 |
| Analysis Date | 06-18-2018 | 06-18-2018 | 06-18-2018 | 06-18-2018 |
| 2-Methylnaphthalene | <383 | <359 | <405 | **9,200 -b** |
| Acenaphthene | <383 | <359 | <405 | **4,270** |
| Acenaphthylene | <383 | <359 | <405 | **711** |
| Anthracene | <383 | <359 | <405 | **7,600** |
| Benz(a)anthracene | <383 | <359 | <405 | **30,200 -c** |
| Benzo(a)pyrene | <383 | **374** | <405 | **25,700 -c** |
| Benzo(b)fluoranthene | <383 | <359 | <405 | **19,600** |
| Benzo(g,h,i)perylene | <383 | <359 | <405 | **10,700** |
| Benzo(k)fluoranthene | <383 | <359 | <405 | **13,300** |
| Chrysene | <383 | <359 | <405 | **20,000** |
| Dibenz(a,h)anthracene | <383 | <359 | <405 | **2,710 -c** |
| Fluoranthene | <383 | **875** | <405 | **62,600 -b** |
| Fluorene | <383 | <359 | <405 | **6,710 -b** |
| Indeno(1,2,3-cd)pyrene | <383 | <359 | <405 | **10,300** |
| Naphthalene | <383 | <359 | <405 | **622** |
| Phenanthrene | <383 | <359 | <405 | **53,400 -b** |
| Pyrene | <383 | **522** | <405 | **35,200** |

MDL: Method Detection Limit. Bold to indicated detected

The individual VOC and PNA compounds are shown on the laboratory report.

Boxed concentration exceeds Part 201 GRCC, as follows:

a - drinking water; b - GSI protection; c- direct contact

## TABLE 1 - Summary of Soil Analytical Results

| | | | Groundwater Protection | | Indoor Air | Ambient Air | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hazardous Substance | Chemical Abstract Service Number | Statewide Default Background Levels | Drinking Water Protection | Surface Water Interface Protection (GSIP) | Volatilization to Indoor Air Inhalation | Infinite Source Volatile Soil Inhalation Criteria (VSIC) | Particulate Soil Inhalation Criteria & RBSLs | Direct Contact | Soil Saturation Concentration Screening Levels |
| METALS, total, µg/Kg | | | | | | | | | |
| Arsenic (B) | 744038-2 | 5,800 | 5,800 | 5,800 | NLV | NLV | 720,000 | 7,600 | NA |
| Barium (B) | 744039-3 | 75,000 | 1,300,000 | 440,000 (G) | NLV | NLV | 330,000,000 | 37,000,000 | NA |
| Cadmium (B) | 7440439 | 1,200 | 6,000 | 3,000 (G,X) | NLV | NLV | 1,700,000 | 550,000 | NA |
| Chromium (B, H) | 18540-29-9 | 18,000 (total) | 30,000 | 5,010 | NLV | NLV | 260,000 | 2,500,000 | NA |
| Copper (B) | 7440508 | 32,000 | 5,800,000 | 75,000 (G) | NLV | NLV | 130,000,000 | 20,000,000 | NA |
| Lead (B) | 7439921 | 21,000 | 700,000 | 2,500,000(G,X) | NLV | NLV | 100,000,000 | 400,000 | NA |
| Mercury (Total) (B,Z) | Varies | 130 | 1,700 | 130 | 48,000 | 52,000 | 20,000,000 | 160,000 | NA |
| Selenium (B) | 7782492 | 410 | 4,000 | 410 | NLV | NLV | 130,000,000 | 2,600,000 | NA |
| Silver (B) | 7440224 | 1,000 | 4,500 | 1,000 | NLV | NLV | 6,700,000 | 2,500,000 | NA |
| Zinc (B) | 7440666 | 47,000 | 2,400,000 | 170,000 (G) | NLV | NLV | ID | 170,000,000 | NA |
| VOC's, µg/Kg - Only detected VOCs Listed. | | | The remaining VOC's are below MDLs. The MDLs are lower than their Part 201 GRCC. | | | | | | |
| Tetrachlorenthene | 127184 | NA | 100 | 1,200 (X) | 11,000 | 170,000 | 2,700,000,000 | 200,000 (C) | 88,000 |
| POLYNUCLEAR AROMATIC HYDROCARBONS, µg/Kg | | | The remaining PNA's are below MDLs. The MDLs are lower than their Part 201 GRCC. | | | | | | |
| 2-Methylnaphthalene | 91576 | NA | 57,000 | 4,200 | 2,700,000 | 1,500,000 | 670,000,000 | 8,100,000 | NA |
| Acenaphthene | 83329 | NA | 300,000 | 8,700 | 190,000,000 | 81,000,000 | 14,000,000 | 41,000,000 | NA |
| Acenaphthylene | 208968 | NA | 5,900 | ID | 1,600,000 | 2,200,000 | 2,300,000,000 | 1,600,000 | NA |
| Anthracene | 120127 | NA | 41,000 | ID | 1,000,000,000 | 1,400,000,000 | 67,000,000,000 | 230,000,000 | NA |
| Benz(a)anthracene | 56553 | NA | NLL | NLL | NLV | NLV | ID | 20,000 | NA |
| Benzo(a)pyrene | 50328 | NA | NLL | NLL | NLV | NLV | 1,500,000 | 2,000 | NA |
| Benzo(b)fluoranthene | 205992 | NA | NLL | NLL | ID | ID | ID | 20,000 | NA |
| Benzo(g,h,i)perylene | 191242 | NA | NILL | NILL | NLV | NLV | 800,000,000 | 2,500,000 | NA |
| Benzo(k)fluoranthene | 207089 | NA | NLL | NLL | NLV | NLV | ID | 200,000 | NA |
| Chrysene | 218019 | <359 | NLL | NLL | ID | ID | ID | 2,000,000 | NA |
| Dibenz(a,h)anthracene | 53703 | **374** | NLL | NLL | NLV | NLV | ID | 2,000 | NA |
| Fluoranthene | 206440 | NA | 730,000 | 5,500 | 1,000,000,000 (D) | 740,000,000 | 9,300,000,000 | 46,000,000 | NA |
| Fluorene | 86737 | NA | 390,000 | 5,300 | 580,000,000 | 130,000,000 | 9,300,000,000 | 27,000,000 | NA |
| Indeno(1,2,3-cd)pyrene | 193395 | NA | NLL | NLL | NLV | NLV | ID | 20,000 | NA |
| Naphthalene | 91203 | NA | 35,000 | 730 | 250,000 | 300,000 | 200,000,000 | 16,000,000 | NA |
| Phenanthrene | 85018 | NA | 56,000 | 2,100 | 2,800,000 | 160,000 | 6,700,000 | 1,600,000 | NA |
| Pyrene | 129000 | NA | 480,000 | ID | 1,000,000,000 (D) | 650,000,000 | 6,700,000,000 | 29,000,000 | NA |

Footnotes

| | |
|---|---|
| 1 | To evaluate lead soil direct contact exposure, 75,000 µg/Kg represents a total lead concentration below which the fine and coarse lead fractions are not required. For the evaluation of the direct contact pathway for lead, analysis of lead in the fine fraction is required because the fine fraction (defined as less than 250 microns in size) is most relevant for the direct contact pathway. In addition, lead concentrations in the fine fraction can be higher than the concentration in the total soil sample. |
| 2 | Regarding the PNA's and VOC's, only the detected compound are presented on this table. See laboratory reports for full list of compounds tested. |
| B | Background, as defined in R 299.5701(b), may be substituted if higher than the calculated cleanup criterion. |
| C | Value presented is a screening level based on the chemical-specific generic soil saturation concentration (Csat). |
| D | Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb). |
| G | GSIP criterion calculated using hardness of 150 mg/L for surface water. |
| H | Valence-specific chromium data (Cr III and Cr VI) shall be compared to the corresponding valance-specific cleanup criteria. |
| M | Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit. |
| X | The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. |
| Z | Mercury is typically measured as total mercury. The generic cleanup criteria, however, are based on data for different species of mercury. |
| DD | Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact criteria are protective for a pregnant adult receptor |
| "MDL" | means the method detection limit for the analysis. |
| "NA" | means a criterion or value is not available or, in the case of background and CAS numbers, not applicable. |
| ID | Insufficient Data to develop criterion. |
| NL | criterion Not Listed in MDEQ tables. |
| NLV | hazardous substance is Not Likely to Volatilize under most conditions. |
| VI | Volatilization to indoor air |

Criteria obtained from Michigan Department of Environmental Quality-Remediation Division

The Part 201 groundwater and soil cleanup criteria and screening levels, criteria footnotes and the toxicological and chemical-physical properties of the hazardous substances, obtained from the following rules:

R 299.44 - R 299.50 Generic cleanup criteria (Table 1 - groundwater; Table 2 - soil), effective on December 30, 2013

## TABLE 2 - Summary of Groundwater Analytical Results

| Sample Location | SB-4 (WS-1) |
|---|---|
| Sample Depth, ft. below surface | 5-10' |
| Collection Date | 06-12-2018 |
| **MICHIGAN 10 METALS, total, µg/L** | |
| Arsenic | <1.00 |
| Barium | **51** |
| Cadmium | <0.200 |
| Chromium | <1.00 |
| Copper | <4.00 |
| Lead | <1.00 |
| Mercury (Total) | <0.200 |
| Selenium | <1.00 |
| Silver | <0.200 |
| Zinc | **29.4** |
| **VOC's, µg/L** | |
| Analytical Method: | SW8260B |
| Analysis Date | 06-15-2018 |
| Each VOC | <MDL |
| **PNA's, µg/L** | |
| Analytical Method: | SW8310 |
| Analysis Date | 06-20-2018 |
| Each PNA's | <MDL |

Note: laboratory report shows each VOC and PNA te:
MDL: Method Detection Limit
Bold indicates a detectable concentration.

## TABLE 2 - Summary of Groundwater Analytical Results

| Hazardous Substance | Chemical Abstract Service Number | Drinking Water | Groundwater Surface Water Interface | Groundwater Volatilization to Indoor Air Inhalation | Water Solubility | Flammability and Explosivity Screening Level | Residential Vapor Intrusion (shallow) Screening Level |
|---|---|---|---|---|---|---|---|
| **METALS, TOTAL, µg/L** | | | | | | | NA |
| Arsenic (B) | 7440382 | 10 | 10 | NLV | NA | ID | NA |
| Barium (B) | 7440393 | 2,000 | 674 (G) | NLV | NA | ID | NA |
| Cadmium (B) | 7440439 | 5 | 2.5 (G) | NLV | NA | ID | NA |
| Chromium (B, H) | 16065831 | 100 | 103 (G) | NLV | NA | ID | NA |
| Copper (B) | 7440508 | 1,000 | 13 (G) | NLV | NA | ID | NA |
| Lead (B) | 7439921 | 4 | 14 (G) | NLV | NA | ID | NA |
| Mercury (Total) (B,Z) | Varies | 2 | 0.0013 | 56 (S) | 56 | ID | NA |
| Selenium (B) | 7782492 | 50 | 5 | NLV | NA | ID | NA |
| Silver (B) | 7440224 | 34 | 0.2 (M) | NLV | NA | ID | NA |
| Zinc (B) | 7440666 | 2,400 | 167 (G) | NLV | NA | ID | |
| | | | | | | | |
| **VOLATILE ORGANIC COMPOUNDS, µg/L** | | | | | | | |
| The PNAs were below MDL. The Criteria are compound specific. The MDLs are lower than Part 201 GRCC | | | | | | | |
| **POLYNUCLEAR AROMATICS, µg/L** | | | | | | | |
| The remaining PNAs were below method detection limits. | | | | | | | |

## TABLE 2 - Summary of Groundwater Analytical Results

**Footnotes**

B. Background, as defined in R 299.5701(b), may be substituted if higher than the calculated cleanup criterion.

E Criterion is the aesthetic drinking water value.

G. GSI criterion calculated using the MDEQ spread sheet and hardness of 150 mg/L.

I. Hazardous substance may exhibit the characteristic of ignitability.

L. Criteria for lead are derived using a biologically based model.

M Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.

Q Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.

S Criterion defaults to the hazardous substance-specific water solubility limit.

X The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source.

AA Comparison to these criteria may take into account an evaluation of whether the hazardous substances are adsorbed to particulates rather than dissolved in water and whether filtered groundwater samples were used to evaluate groundwater.

ID Insufficient Data to develop criterion.

NLV Hazardous substance is Not Likely to Volatilize under most conditions.

Criteria obtained from Michigan Department of Environmental Quality-Remediation Division

The Part 201 groundwater and soil cleanup criteria and screening levels, criteria footnotes and the toxicological and chemical-physical properties of the hazardous substances are located in the following rules:
R 299.44 - R 299.50 Generic groundwater cleanup criteria, which became effective on December 30, 2013