O'BRIEN & GERE
ENGINEERS, INC.



May 1, 2001

Mr. Timothy DiGiuilio, P.E.
NYSDEC
Division of Solid and Hazardous Waste
Bureau of Radiation and Hazardous Waste
50 Wolf Road
Albany, NY 12233-7010

Re: Former Allied Specialty Chemical Site
Tonawanda, NY

File: 1163/26080 #2

Dear Mr. DiGiuilio:

The purpose of this letter is to transmit the analytical results of sediment sampling conducted at the Former Allied Specialty Chemicals Site in Tonawanda, New York as part of Task 1 of the Interim Remedial Measures (IRM) Work Plan.

In accordance with Task 1 – Storm Sewer Evaluation of the IRM Work Plan and the New York State Department of Environmental Conservation (NYSDEC) correspondence dated June 12, 2000 providing conditional approval of the IRM Work Plan, removal of sediments in the immediate vicinity of the inlet and outfall areas of the 36-inch and 48-inch diameter sewers was conducted. The excavations were conducted to remove potentially contaminated sediments from the inlet and outfall areas, as well as to provide a basin to allow sediment generated during the sewer cleaning to settle at the outfall area.

Pursuant to the NYSDEC correspondence dated June 12, 2000, samples were collected from the inlet and outfall area of the 36-inch diameter sewer (Inlet A and Outfall #1) and 48-inch diameter sewer (Inlet B and Outfall #2) subsequent to the excavations. The samples were analyzed in accordance with NYSDEC ASP procedures for volatile organic compounds (VOCs) using USEPA Method 8260B, semivolatile organic compounds (SVOCs) using USEPA Method 8270C, metals using USEPA Method 6010B, mercury using USEPA Method 7471, and cyanide using USEPA Method 9010B/9014. The samples from Inlets A and B were collected approximately 0.5 ft below the bottom of each sewer pipe. The samples from Outfalls #1 and #2 were collected approximately 1-ft below the bottom of each sewer pipe.

The VOC, SVOC, and metals (including cyanide) analytical data are provided on Tables 1, 2, and 3, respectively. As shown on Table 1, VOCs were detected at both inlet areas (Inlets A and B), and both outfall areas (Outfalls #1 and #2). Regarding the 36-inch sewer, the data indicate that total VOC concentrations were higher at Inlet A (170 µg/Kg) than Outfall #1 (146 µg/Kg). Conversely, the data associated with the 48-inch diameter sewer indicate that the total VOC concentrations at Inlet B (estimated at 2 µg/Kg) were less than at Outfall #2 (1,116.7 µg/Kg). The elevated VOCs detected in

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the sample from Outfall #2 are likely associated with an observed tar-like material in the vicinity of the outfall.

As shown on Table 2, SVOCs were detected in both the inlet and outfall samples. The majority of the SVOCs detected are polynuclear aromatic hydrocarbons (PAHs) typically derived from incomplete combustion and tar-like substances. The PAHs detected in the samples include the following compounds: acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. Total PAH concentrations were higher at the outfalls than at the inlets.

As shown on Table 3, metals were detected in both inlet and outfall samples. In evaluating the metals analytical data, those metals that were greater than one half an order of magnitude higher in the outfall samples, as compared to the inlet samples, were considered site-related. Based on this evaluation, calcium was the only metal constituent that was detected at a concentration greater than one half an order of magnitude in the outfall sample (Outfall #2) compared to the inlet sample (Inlet B). In general, the metals concentrations are higher at the inlets than the outfalls, suggesting an off-site origin. Cyanide was not detected in the inlet or outfall samples.

A comparison between VOC, SVOC, and metals analytical results for sediment samples collected during May 1999 as part of a voluntary site investigation (O'Brien & Gere Engineers, Inc., letter report dated November 9, 1999), and the recent sediment sampling (November 2000), is provided on Table 4. The data shown on Table 4 is summarized as follows:

- Total VOC concentrations were lower during November 2000 compared to May 1999.
- Total PAH concentrations were lower during November 2000 compared to May 1999 at Inlet A and Outfall #2, and higher at Inlet B and Outfall #1.
- The total concentration of other SVOCs was generally higher during November 2000 compared to May 1999, with the exception of Outfall #2.
- Metals concentrations that were greater than one half an order of magnitude in the outfall samples compared to the inlet samples were considered to be site-related. During the May 1999 sampling, concentrations of calcium at Outfall #2, mercury at Outfalls #1 and #2, and cyanide at Outfalls #1 and #2 were considered to be site-related. During the November 2000 sampling, the concentrations of mercury was lower at Inlet A, Outfalls #1 and #2, and higher at Inlet B compared to the May 1999 data, and cyanide was not detected.

While the recently collected data provides additional indications of sediment impacts in the vicinity of the inlets and outfalls of the sewers, surface water results from the May 1999 investigation indicated that contaminants in the sediments are not having a significant impact on the quality of storm water discharge. The results showed that water quality data for surface water at the inlets and outfalls contained very low concentrations of VOCs, SVOCs, and metals that are orders of magnitude less than the sediment concentrations.

We will proceed with the following actions in accordance with the approved IRM Work Plan:

- Characterization and disposal of sediments generated during the sewer cleaning
- Backfill areas around inlets and outfalls with crushed stone
- Install ground water monitoring wells
- Complete site survey of newly installed wells
- Collect surface water samples

If you have any questions regarding this letter or the project in general, please do not hesitate to contact me at (315) 437-6100.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

James R. Heckathorne, P.E.
Vice President

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cc: David A. Paley, P.E. – Honeywell
Glenn May – NYSDEC
David J. Carnevale – O'Brien & Gere
Donald Canestrari – O'Brien & Gere

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# Table 1
## Honeywell
## Tonawanda, NY
## Volatile Organic Compound Data
## Storm Sediment Samples

| | Sample ID | Outfall #1 | Outfall #1 DUP | Outfall #2 | Storm Inlet A | Storm Inlet B |
|---|---|---|---|---|---|---|
| | Sample Date | 11/15/00 | 11/15/00 | 11/15/00 | 11/15/00 | 11/15/00 |
| | Units | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg |
| Compound | | | | | | |
| 1,1,1-Trichloroethane | | 5 U | 5 U | 3 U | 6 U | 7 U |
| 1,1,2,2-Tetrachloroethane | | 5 U | 5 U | 3 U | 6 U | 7 U |
| 1,1,2-Trichloroethane | | 5 U | 5 U | 3 U | 6 U | 7 U |
| 1,1-Dichloroethane | | 5 U | 5 U | 3 U | 6 U | 7 U |
| 1,1-Dichloroethene | | 5 U | 5 U | 3 U | 6 U | 7 U |
| 1,2-Dichloroethane | | 5 U | 5 U | 3 U | 6 U | 7 U |
| 1,2-Dichloropropane | | 5 U | 5 U | 3 U | 6 U | 7 U |
| 2-Butanone (MEK) | | 22 | 2 J | 13 U | 31 | 28 U |
| 2-Hexanone | | 9 U | 10 U | 6 U | 11 U | 14 U |
| 4-Methyl-2-pentanone (MIBK) | | 9 U | 10 U | 6 U | 11 U | 14 U |
| Acetone | | 55 | 51 | 28 | 120 | 28 U |
| Benzene | | 27 | 22 | 170 | 6 U | 7 U |
| Bromodichloromethane | | 5 U | 5 U | 3 U | 6 U | 7 U |
| Bromoform | | 5 U | 5 U | 3 U | 6 U | 7 U |
| Bromomethane | | 9 U | 10 U | 6 U | 11 U | 14 U |
| Carbon disulfide | | 2 J | 2 J | 0.7 J | 8 | 7 U |
| Carbon tetrachloride | | 5 U | 5 U | 3 U | 6 U | 7 U |
| Chlorobenzene | | 5 U | 5 U | 3 U | 6 U | 7 U |
| Chloroethane | | 9 U | 10 U | 6 U | 11 U | 14 U |
| Chloroform | | 5 U | 5 U | 3 U | 6 U | 7 U |
| Chloromethane | | 9 U | 10 U | 6 U | 11 U | 14 U |
| Dibromochloromethane | | 5 U | 5 U | 3 U | 6 U | 7 U |
| Ethene, 1,2-dichloro-, (E)- | | 2 J | 2 J | 5 | 6 U | 7 U |
| Ethylbenzene | | 5 | 5 J | 300 | 6 U | 7 U |
| Methylene chloride | | 2 J | 2 J | 1 J | 7 J | 2 J |
| Styrene | | 5 U | 5 U | 6 | 6 U | 7 U |
| Tetrachloroethene | | 5 U | 5 U | 1 J | 6 U | 7 U |
| Toluene | | 4 J | 3 J | 100 | 6 U | 7 U |
| Trichloroethene | | 6 | 5 J | 14 | 4 J | 7 U |
| Vinyl chloride | | 1 J | 1 J | 2 J | 11 U | 14 U |
| Xylene (total) | | 11 | 9 | 480 | 6 U | 7 U |
| cis-1,2-Dichloroethene | | 9 | 8 | 10 | 6 U | 7 U |
| cis-1,3-Dichloropropylene | | 5 U | 5 U | 3 U | 6 U | 7 U |
| trans-1,3-Dichloropropene | | 5 U | 5 U | 3 U | 6 U | 7 U |

NOTES: U - Not detected. J - Estimated value. --- - Not analyzed.



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# Table 2
## Honeywell
## Tonawanda, NY
## Semivolatile Organic Compound Data
## Storm Sediment Samples

| | Sample ID | Outfall #1 | Outfall #1 DUP | Outfall #2 | Storm Inlet A | Storm Inlet B |
|---|---|---|---|---|---|---|
| | Sample Date | 11/15/00 | 11/15/00 | 11/15/00 | 11/15/00 | 11/15/00 |
| | Units | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg |
| Compound | | | | | | |
| 1,2,4-Trichlorobenzene | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 1,2-Dichlorobenzene | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 1,3-Dichlorobenzene | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 1,4-Dichlorobenzene | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 2,4,5-Trichlorophenol | | 160000 U | 170000 U | 210000 U | 74000 U | 4600 U |
| 2,4,6-Trichlorophenol | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 2,4-Dichlorophenol | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 2,4-Dimethylphenol | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 2,4-Dinitrophenol | | 160000 U | 170000 U | 210000 U | 74000 U | 4600 U |
| 2,4-Dinitrotoluene | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 2,6-Dinitrotoluene | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 2-Chloronaphthalene | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 2-Chlorophenol | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 2-Methylnaphthalene | | 340 J | 35000 U | 790 J | 15000 U | 52 J |
| 2-Methylphenol | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 2-Nitroaniline | | 160000 U | 170000 U | 210000 U | 74000 U | 4600 U |
| 2-Nitrophenol | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 3,3-Dichlorobenzidine | | 63000 U | 69000 U | 84000 U | 30000 U | 1900 U |
| 3-Nitroaniline | | 160000 U | 170000 U | 210000 U | 74000 U | 4600 U |
| 4,6-Dinitro-2-methylphenol | | 160000 U | 170000 U | 210000 U | 74000 U | 4600 U |
| 4-Bromophenyl phenyl ether | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 4-Chloro-3-methylphenol | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 4-Chloroaniline | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 4-Chlorophenyl phenyl ether | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 4-Methylphenol | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| 4-Nitroaniline | | 160000 U | 170000 U | 210000 U | 74000 U | 4600 U |
| 4-Nitrophenol | | 160000 U | 170000 U | 210000 U | 74000 U | 4600 U |
| Acenaphthene | | 870 J | 780 J | 3200 J | 15000 U | 47 J |
| Acenaphthylene | | 2300 J | 1700 J | 3800 J | 15000 U | 1300 |
| Anthracene | | 43000 | 3400 J | 110000 | 15000 U | 3500 |
| Benzo(a)anthracene | | 130000 | 93000 | 210000 | 260 J | 9200 |
| Benzo(b)fluoranthene | | 170000 | 120000 | 250000 | 580 J | 8900 |
| Benzo(ghi)perylene | | 53000 | 40000 | 87000 | 160 J | 10 J |
| Benzo(k)fluoranthene | | 52000 | 37000 | 110000 | 270 J | 3700 |
| Benzo[a]pyrene | | 120000 | 91000 | 200000 | 300 J | 1300 |

NOTES: U - Not detected. J - Estimated value. --- - Not analyzed. D - Result reported from diluted analysis.



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# Table 2
## Honeywell
## Tonawanda, NY
## Semivolatile Organic Compound Data
## Storm Sediment Samples

| | Sample ID | Outfall #1 | Outfall #1 DUP | Outfall #2 | Storm Inlet A | Storm Inlet B |
|---|---|---|---|---|---|---|
| | Sample Date | 11/15/00 | 11/15/00 | 11/15/00 | 11/15/00 | 11/15/00 |
| | Units | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg |
| Compound | | | | | | |
| Bis(2-chloroethoxy)methane | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| Bis(2-chloroethyl)ether | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| Bis(2-chloroisopropyl) ether | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| Bis(2-ethylhexyl)phthalate (BEHP) | | 31000 U | 35000 U | 740 J | 23000 | 69 J |
| Butyl benzyl phthalate | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| Carbazole | | 880 J | 430 J | 1800 J | 15000 U | 29 J |
| Chrysene | | 110000 | 79000 | 210000 | 530 J | 7700 |
| Di-n-butyl phthalate | | 31000 U | 35000 U | 42000 U | 260 J | 11 J |
| Di-n-octyl phthalate | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| Dibenzo(a,h)anthracene | | 1400 J | 1000 J | 2400 J | 15000 U | 80 J |
| Dibenzofuran | | 870 J | 580 J | 2700 J | 15000 U | 29 J |
| Diethyl phthalate | | 31000 U | 35000 U | 42000 U | 15000 U | 55 J |
| Dimethyl phthalate | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| Fluoranthene | | 290000 | 230000 | 480000 | 470 J | 19000 D |
| Fluorene | | 2400 J | 2000 J | 60000 | 15000 U | 1300 |
| Hexachlorobenzene | | 31000 U | 35000 U | 42000 U | 15000 U | 24 J |
| Hexachlorobutadiene | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| Hexachlorocyclopentadiene | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| Hexachloroethane | | 31000 U | 35000 U | 42000 U | 15000 U | 22 J |
| Indeno(1,2,3-cd)pyrene | | 53000 | 39000 | 87000 | 160 J | 1000 |
| Isophorone | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| N-Nitrosodiphenylamine | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| N-Nitrosodipropylamine | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| Naphthalene | | 1700 J | 1400 J | 64000 | 15000 U | 68 J |
| Nitrobenzene | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| Pentachlorophenol | | 160000 U | 170000 U | 210000 U | 74000 U | 4600 U |
| Phenanthrene | | 190000 | 170000 | 340000 | 270 J | 9000 |
| Phenol | | 31000 U | 35000 U | 42000 U | 15000 U | 920 U |
| Pyrene | | 300000 | 230000 | 500000 | 1100 J | 6600 |

NOTES: U - Not detected. J - Estimated value. --- - Not analyzed. D - Result reported from diluted analysis.



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# Table 3
# Honeywell
# Tonawanda, NY
# Inorganic Data
# Storm Sediment Samples

| Compound | Sample ID | Outfall #1 | Outfall #1 DUP | Outfall #2 | Storm Inlet A | Storm Inlet B |
|---|---|---|---|---|---|---|
| | Sample Date | 11/15/00 | 11/15/00 | 11/15/00 | 11/15/00 | 11/15/00 |
| | Units | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg |
| Aluminum | | 14800 | 18600 | 18300 | 17600 | 30000 |
| Antimony | | 0.29 U | 0.31 U | 0.26 J | 0.73 J | 0.46 J |
| Arsenic | | 9.0 | 12.3 | 11.1 | 14.5 | 24.0 |
| Barium | | 69.3 | 100 | 132 | 112 | 125 |
| Beryllium | | 1.4 J | 1.7 J | 3.3 | 1.3 J | 2.6 J |
| Cadmium | | 0.048 U | 0.052 U | 0.058 J | 0.25 J | 1.4 J |
| Calcium | | 10500 | 15900 | 63000 | 46600 | 5680 |
| Chromium | | 38.5 | 50.2 | 18.4 | 41.7 | 69.9 |
| Cobalt | | 6.9 J | 9.3 J | 6.4 | 10.1 J | 19.9 |
| Copper | | 31.2 | 55.8 | 24.0 | 45.9 | 103 |
| Cyanide | | 0.95 U | 1.0 U | 0.63 U | 1.1 U | 1.4 U |
| Iron | | 46700 | 52600 | 21800 | 30200 | 47600 |
| Lead | | 52.1 | 73.0 | 31.1 | 131 | 60.6 |
| Magnesium | | 5010 | 7870 | 12800 | 10400 | 6580 |
| Manganese | | 379 | 506 | 1970 | 562 | 509 |
| Mercury | | 0.18 J | 0.33 | 0.28 | 0.063 J | 0.13 J |
| Nickel | | 22.7 | 37.8 | 14.5 | 29.8 | 55.7 |
| Potassium | | 1920 | 2400 | 1880 | 3180 | 3980 |
| Selenium | | 1.9 | 2.4 | 2.8 | 1.9 | 3.1 |
| Silver | | 0.14 U | 0.15 U | 0.15 J | 0.16 U | 0.20 U |
| Sodium | | 15 J | 228 | 632 | 315 | 21 J |
| Thallium | | 0.82 J | 0.77 U | 0.56 J | 0.82 U | 1.5 J |
| Vanadium | | 26.7 | 35.2 | 19.2 | 31.6 | 53.7 |
| Zinc | | 193 | 255 | 110 | 201 | 605 |

NOTES: U - Not detected. J - Estimated value. --- - Not analyzed.



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**Table 4**

**Former AlliedSignal, Inc.**
**Tonawanda, NY**

**Inlet and Outfall Sediment Sample Summary**

| | Inlet A | | Outfall #1 | | Inlet B | | Outfall #2 | |
|---|---|---|---|---|---|---|---|---|
| **VOCs (ug/Kg)** | 5/11/99 | 11/15/00 | 5/11/99 | 11/15/00 | 5/11/99 | 11/15/00 | 5/11/99 | 11/15/00 |
| 2-Butanone | **2** | **31** | ND | **22** | ND | ND | ND | ND |
| Acetone | **47** | **120** | **95** | **55** | **24** | ND | **110** | **28** |
| Benzene | ND | ND | **27** | **27** | **2** | ND | **780** | **170** |
| Carbon disulfide | ND | **8** | **2** | **2J** | ND | ND | ND | **0.7J** |
| 1,2-DCE | ND | ND | ND | **2J** | ND | ND | ND | **5** |
| Ethylbenzene | ND | ND | **15** | **5** | ND | ND | **2400** | **300** |
| Methylene chloride | **7** | **7J** | **1** | **2J** | ND | **2J** | ND | **1J** |
| Styrene | ND | ND | ND | ND | ND | ND | **900** | **6** |
| Tetrachloroethene | ND | ND | ND | ND | ND | ND | **55** | **1J** |
| Toluene | **400** | ND | **7** | **4J** | ND | ND | **2200** | **100** |
| Trichloroethene | ND | **4J** | **13** | **6** | ND | ND | **37** | **14** |
| Vinyl chloride | ND | ND | ND | **1J** | ND | ND | **1** | **2J** |
| Xylene | ND | ND | ND | **11** | ND | ND | **11000** | **480** |
| cDCE | ND | ND | **35** | **9** | ND | ND | **18** | **10** |
| **Total VOCs** | **456** | **170** | **195** | **146** | **26** | **2J** | **17501.0** | **1116.7** |

| | Inlet A | | Outfall #1 | | Inlet B | | Outfall #2 | |
|---|---|---|---|---|---|---|---|---|
| | 5/11/99 | 11/15/00 | 5/11/99 | 11/15/00 | 5/11/99 | 11/15/00 | 5/11/99 | 11/15/00 |
| **Total PAHs (mg/Kg)** | 65.552 | 4.1 | 176.57 | 1519.67 | 42.494 | 72.705 | 3237.1 | 2717.4 |
| **Other SVOCs (mg/Kg)** | 0.122 | 23.26 | 0.515 | 2.1 | 0.072 | 0.291 | 253 | 6.03 |

| | Inlet A | | Outfall #1 | | Inlet B | | Outfall #2 | |
|---|---|---|---|---|---|---|---|---|
| **Inorganics (mg/Kg)** | 5/11/99 | 11/15/00 | 5/11/99 | 11/15/00 | 5/11/99 | 11/15/00 | 5/11/99 | 11/15/00 |
| Aluminum | 16300 | | 24700 | | | | | |
| Arsenic | 7.3 | | 23.5 | | 11.9 | | 53.5 | |
| Barium | | | | | | 125 | | 132 |
| Beryllium | 1J | | 3.2J | | 1.3J | 2.6J | 2.1J | 3.3 |
| Cadmium | 0.59J | | 1.9J | | 0.7J | | 2J | |
| Calcium | | | | | 12000 | 5680 | 84600 | 63000 |
| Chromium | 28.2 | | 105 | | | | | |
| Cobalt | | | | | 13.6 | | 16.3J | |
| Copper | 33.6 | | 64.3 | | | | | |
| Cyanide | ND | | 17.4 | | ND | | 4.8 | |
| Iron | 33800 | 30200 | 133000 | 46700 | 35300 | | 118000 | |
| Lead | 34.8 | | 87.4 | | 31.1 | | 41.3 | |
| Magnesium | | | | | 7570 | 6580 | 18100 | 12800 |
| Manganese | 523 | | 960 | | 514 | 509 | 1420 | 1970 |
| Mercury | 0.07 | 0.063J | 0.53 | 0.18J | 0.079 | 0.13J | 0.77 | 0.28 |
| Nickel | 24.7 | | 32.1 | | 32.4 | | 39.9 | |
| Selenium | 1.3 | | 6.5 | | 1.3 | | 4.4 | |
| Silver | | | | | | ND | | 0.15J |
| Sodium | | | | | | 21J | | 632 |
| Vanadium | 34.6 | | 43.2 | | | | | |
| Zinc | 125 | | 446 | | | | | |