



GE  
159 Plastics Avenue  
Pittsfield, MA 01201  
USA

*Transmitted Via Overnight Courier*

May 14, 2008

Mr. Richard W. Hull  
U.S. Environmental Protection Agency  
EPA New England  
One Congress Street, Suite 1100  
Boston, Massachusetts 02114-2023

**Re: GE-Pittsfield/Housatonic River Site  
Groundwater Management Area 2 (GEC320)  
Long-Term Monitoring Program  
Addendum to Monitoring Event Evaluation Report for Fall 2007**

Dear Mr. Hull:

On April 15, 2008, the Environmental Protection Agency (EPA) conditionally approved General Electric Company's (GE's) March 2008 report entitled *Groundwater Management Area 2 Long-Term Monitoring Program, Monitoring Event Evaluation Report for Fall 2007* (Fall 2007 Report) for the GE-Pittsfield Housatonic River Site, Pittsfield, Massachusetts. As required by that conditional approval letter, GE is submitting this *Addendum to Groundwater Management Area 2 Long-Term Monitoring Program, Monitoring Event Evaluation Report for Fall 2007* (Fall 2007 Addendum). This letter summarizes each of the conditions set forth in EPA's April 15, 2008 letter and GE's response to those conditions. Additional information is provided in attachments to this letter.

**EPA Condition 1:**

***In accordance with EPA's conditional approval letter dated October 9, 2007, GE shall submit an addendum to the Report including an assessment of the extent and concentration of PCBs and VOCs historically detected in wells at GMA 2 relative to monitoring results from the portions of GMA 1 and GMA 4 which are adjacent to and up gradient of GMA 2. The assessment shall include a determination of the relationship between the GMAs relative to groundwater flow and PCB and VOC concentrations and the need for any modifications to the LTMP. GE shall update and include this assessment with each Long-Term Monitoring Event Evaluation report.***

**GE Response:**

GE's assessment of PCB and VOC concentrations in GMA 2 groundwater relative to the adjacent upgradient portions of GMA 1 and GMA 4 is provided in Attachment A. As discussed in that attachment, the northern (Former Oxbow Area J) portion of GMA 2 is downgradient from parts of both GMA 1 and GMA 4. Certain VOCs and PCBs detected in GMA 2 groundwater have also been observed in monitoring wells along the downgradient edges of the adjacent portions of GMA 1 and GMA 4. However, several other VOCs have only been observed in one of the upgradient GMAs, but not in GMA 2, or they have been observed in GMA 2, but not in the adjacent GMA. All of the commonly detected

constituents were observed at concentrations below the applicable MCP GW-3 standards and UCLs for groundwater, but otherwise the concentrations display no consistent pattern between GMA 2 and the upgradient portions of GMA 1 and GMA 4.

Based on the results of this assessment, GE does not propose any modifications to the ongoing monitoring programs at GMA 1, GMA 2, or GMA 4 at this time. However, GE will continue to assess this area as part of future monitoring event evaluation reports for GMA 2.

\* \* \*

**EPA Condition 2:**

*In Subsection 1.2.2, GE indicates that fill materials have been noted to depths of 7 ft bgs. However, the Pre-Design Investigation Report for the Former Oxbow Areas J & K Removal Action indicates that fill materials were noted to a depth of 9.5 ft bgs in soil boring RAA15J2, and refusal on concrete was noted in soil boring RAA15-C6 at 10 ft bgs. GE shall amend the Report to address this discrepancy.*

**GE Response**

As noted by EPA, depths of fill materials of up to ten feet were recorded during pre-design soil investigations at the Former Oxbow Areas J and K Removal Action Areas which comprise GMA 2. The background description sections of future groundwater monitoring reports will reflect the maximum documented depth of fill materials.

\* \* \*

**EPA Condition 3:**

*In its next groundwater monitoring round submittal, GE shall evaluate the MDEP's revised MCP GW-2 and GW-3 standards which became effective on February 14, 2008, and shall discuss what additional measures will be implemented to address and comply with the revised standards.*

**GE Response**

GE has incorporated the revised standards into the VOC and PCB assessment provided in Attachment A and will utilize the revised standards as a basis for comparison of the spring 2008 sampling results in the next monitoring event evaluation report. In addition, existing historical data from all GMA 2 wells will be evaluated relative to the revised standards. If necessary, GE will propose modifications to the long-term monitoring program to verify compliance with the applicable MCP GW-2 and GW-3 standards.

\* \* \*

**EPA Condition 4:**

*Subsection 4.4.1 indicates that the TCE concentration noted at well OJ-MW-2 was one-half of the MCP Method 1 GW-2 standard during the fall 2007 monitoring round. The TCE concentrations reported for the fall 2002 and fall 2003 monitoring rounds, the two most recent fall monitoring rounds, were 0.012 ppm and 0.015 ppm, respectively. EPA concurs with GE's assessment to continue monitoring well OJ-MW-2 for VOCs as part of the long term monitoring program.*

**GE Response**

This monitoring well was included as a VOC sampling location in the spring 2008 sampling event and an updated evaluation of potential trends in TCE concentrations will be included in the next monitoring event evaluation report.

\* \* \*

**EPA Condition 5:**

*EPA and MDEP do not agree with GE's derivation of GW-3 standards for cobalt and copper. All metals included in MDEP's Method 1 GW-3 standards use a groundwater dilution value (Dgw) of 2.5 rather than the value of 25 used by GE. GE shall recalculate the Method 2 GW-3 values using a Dgw of 2.5, to be consistent with the MCP.*

**GE Response**

Attachment B contains a revised derivation of GW-3 Guidance Values for cobalt and copper utilizing the Dgw required by EPA and is included as a replacement for Appendix G of the Fall 2007 Report. As described more fully in that attachment, the procedures for deriving Method 2 GW-3 standards prescribed by the MCP require various inputs, including the Soil Organic Carbon-Water Partitioning Coefficient (Koc). However, Koc values are not available for either cobalt or copper.

Therefore, as described in Attachment B, GE has calculated low-, mid-, high-range guidance values for copper and cobalt to approximate the range of Method 2 GW-3 standards for these substances. Those values are as follows:

<b>Constituent</b>	<b>Low-Range Guidance Value</b>	<b>Mid-Range Guidance Value</b>	<b>High-Range Guidance Value</b>
Copper	0.225 ppm	2.25 ppm	9 ppm
Cobalt	0.075 ppm	0.75 ppm	3 ppm

Note: ppm = parts per million.

The low-range guidance values were calculated using the Dgw specified by EPA in the above approval condition. In Section 4.5 of the Fall 2007 Report, GE presented a comparison of these values with the baseline analytical results for copper and cobalt at GMA 2. As discussed in that report, the maximum cobalt and copper concentrations observed at GMA 2 (estimated concentrations of 0.0029 ppm and 0.013 ppm, respectively) are an order of magnitude below the respective low-range guidance values. In

addition, the low-range guidance values are above the PQLs for cobalt (0.05 ppm) and copper (generally 0.025 ppm during the baseline monitoring program, with the exception of the spring 2002 sampling event when a PQL of 0.1 ppm was reported by the laboratory), indicating that the non-detected results also could not have exceeded these most conservative low-range guidance values.

Therefore, although GE did not develop definitive Method 2 GW-3 standards for cobalt and copper, it does not appear that such standards are needed at GMA 2. As such, GE does not believe that any additional monitoring or other steps with regard to cobalt or copper are warranted at GMA 2.

\* \* \*

The spring 2008 long-term groundwater quality sampling event at GMA 2 was conducted between April 25 and 29, 2008. GE will provide the results of preliminary groundwater analytical data in its monthly reports on overall activities at the GE-Pittsfield/Housatonic River Site. Those reports will also document the schedule for submittal of the *Groundwater Management Area 2 Long-Term Monitoring Program, Monitoring Event Evaluation Report for Spring 2008* (Spring 2008 Report), which is contingent upon receipt of the final analytical data packages from the groundwater sampling events. Specifically, in accordance with the previously-approved reporting schedule for this GMA, the Spring 2008 Report will be submitted within 60 days following receipt of the final laboratory analytical data packages from the spring 2008 sampling event. That report will present the final, validated spring 2008 sampling results and a brief discussion of the results, including the evaluations of the data and any proposals to further modify the long-term monitoring program, if necessary.

If you have any further questions, please feel free to contact me.

Sincerely,



Richard W. Gates  
Remediation Project Manager

Attachments

cc: Dean Tagliaferro, EPA  
Rose Howell, EPA (CD-ROM)  
Tim Conway, EPA\*  
Holly Inglis, EPA (CD-ROM)  
K.C. Mitkevicius, USACE (CD-ROM)  
Linda Palmieri, Weston (2 copies and CD-ROM)  
Anna Symington, MDEP\*  
Jane Rothchild, MDEP\*  
Susan Steenstrup, MDEP (2 copies)  
Thomas Angus, MDEP\*  
Mayor James Ruberto, City of Pittsfield  
Thomas Hickey, Director, PEDDA  
Jeffery Bernstein, BCK Law  
Theresa Bowers, Gradient  
Nancy E. Harper, MA AG  
Dale Young, MA EOEAA  
Michael Carroll, GE \*  
Andrew Silfer, GE (CD-ROM)  
Rod McLaren, GE\*  
James Nuss, ARCADIS  
James Bieke, Goodwin Procter  
John Ciampa, SPECTRA  
Public Information Repositories  
GE Internal Repositories  
Property Owner - Parcel K10-10-3  
Property Owner - Parcel K10-10-4  
Property Owner - Parcel K10-10-5/-6  
Property Owner - Parcel K10-10-33  
Property Owner - Parcel K10-11-1  
Property Owner - Parcel K10-11-2  
Property Owner - Parcel K10-11-3  
Property Owner - Parcel K10-11-5  
Property Owner - Parcel K10-12-1  
Property Owner - Parcel K10-13-1

*\*cover letter only*

ARCADIS

**Attachments**

**Attachment A**

Assessment of the Extent and Concentrations of VOCs and PCBs in GMA 2 Groundwater Relative to Monitoring Results from Downgradient Portions of Adjacent Groundwater Management Areas GMA 1 and GMA 4

## **Attachment A**

### **Assessment of the Extent and Concentrations of VOCs and PCBs in GMA 2 Groundwater Relative to Monitoring Results from Downgradient Portions of Adjacent Groundwater Management Areas GMA 1 and GMA 4**

#### **Groundwater Management Area 2**

#### **General Electric Company - Pittsfield, Massachusetts**

### **1. Introduction**

As required in letters from EPA to GE dated October 9, 2007 and April 15, 2008, GE has conducted an assessment of the extent and concentration of PCBs and VOCs historically detected in wells at GMA 2 relative to monitoring results from the portions of GMA 1 and GMA 4 that are adjacent to and upgradient of GMA 2. This assessment included a determination of the relationship among the three GMAs relative to groundwater flow and a comparison of VOC and PCB concentrations that have historically been detected in groundwater within these areas. Finally, the need for any modifications to the groundwater quality monitoring programs at these GMAs to address the findings of this assessment was evaluated. The following sections summarize the results of this assessment and GE's recommendations in regard to the ongoing groundwater monitoring programs at GMA 1, GMA 2, and GMA 4.

### **2. Groundwater Elevation Monitoring**

Groundwater elevations were collected from the monitoring wells at GMA 2 and the bordering portions of GMA 1 and GMA 4, plus one Housatonic River surface water monitoring point, during the fall 2007 groundwater monitoring elevation event performed between October 30, 2007 and November 1, 2007 at these areas. The fall 2007 groundwater elevation monitoring data from presented in Table A-1 were used to prepare a groundwater elevation contour map for fall 2007 (Figure A-1).

As shown on Figure A-1, groundwater flow patterns at GMA 2 and surrounding areas generally reflect the topography of the site with an overall flow towards the Housatonic River. The northern (Former Oxbow Area J) portion of GMA 2 is downgradient from parts of both GMA 1 and GMA 4. Specifically, groundwater from the eastern portion of GMA 1 appears to flow toward the Housatonic River across the western portion of GMA 2, while groundwater from the western and central portions of GMA 4 appears to flow across the central and eastern sections of GMA 2. A groundwater divide extending northwest to southeast that has been identified across GMA 4 may serve to limit groundwater migration from the eastern portion of GMA 4 toward GMA 2.

### **3. Comparison of VOCs Detected in GMA 2 Groundwater with Upgradient GMAs**

Based on the groundwater flow patterns described above, historical VOC results from bordering downgradient wells at GMA 1 and GMA 4 were selected for comparison with the nearest upgradient wells at GMA 2. Specifically, VOC data from wells from the eastern portion of GMA 1 (i.e., wells ES1-5, ES1-14, and GMA1-18) and the western portion of GMA 4 (i.e., wells H78B-13 and H78B-13R) were compared with data from the western portion of the Former Oxbow Area J portion of GMA 2 (i.e., wells GMA2-1, GMA2-3, and J-1R) and downgradient data from the central (i.e., wells 78-5R and OPCA-MW-2) and eastern (i.e., wells 78-4, H78B-16, and H78B-17R) portions of GMA 4 were compared with data from the eastern portion of the Former Oxbow Area J portion of GMA 2 (i.e., wells GMA2-7 and OJ-MW-2). Although groundwater from wells 78-4, H78B-16, and H78B-17R most likely does not flow across GMA 2 due to the presence of a



groundwater divide between the two areas, GE has included these wells in its analysis as a conservative measure. Summaries of the available historical VOC analytical data from these wells are provided in Tables A-2 through A-15. The recently-revised MCP Method 1 GW-3 standards and UCLs for groundwater are also listed in those tables. Although certain wells included in this assessment are also utilized as GW-2 monitoring points, the MCP GW-2 standards are not applicable to this evaluation of potential groundwater migration between GMAs and are therefore not presented. GE will continue to address any GW-2 groundwater issues on a well-specific basis as part of its groundwater monitoring programs at the GMAs.

VOC data from the downgradient wells at GMA 1 (see Tables A-2 through A-4) exist from wells ES1-5 and ES1-14. No VOCs have been detected in well ES1-14, while five chlorinated VOCs have been observed in well ES1-5. Two of the constituents that have been consistently detected in well ES1-5 (tetrachloroethene [PCE] and trichloroethene [TCE]) have also been sporadically observed at well GMA2-1. However, these constituents have never been detected in well GMA2-3, which is more directly downgradient of well ES1-5 than well GMA2-1. TCE has been detected during all four sampling events conducted at well J-1R, which is the westernmost monitoring well at GMA 2. Vinyl chloride was also observed at well J-1R on one occasion and at well ES1-5 during each sampling event that has been conducted. The primary difference between the GMA 1 and GMA 2 wells is the lack of toluene at GMA 1. Toluene has been observed on at least one occasion at wells GMA2-1, GMA2-3, and J-1R (see Tables A-5 through A-7), and was also detected on one occasion in well H78B-13R at the southwest corner of GMA 4. Aside from toluene, the VOCs historically detected at well H78B-13 and its replacement well H78B-13R are limited to acetone, chlorobenzene, and xylenes, none of which has been detected in the adjacent GMA 2 wells (see Table A-8).

The following table summarizes the observed concentrations of selected VOCs observed within the western portion of GMA 2 and one or more of the upgradient GMAs. Maximum concentrations represent the single highest concentration observed at any of the listed wells within each area. The average concentrations represent the range of average concentrations calculated for each well in the selected areas where the constituent has been detected. Overall, the observed concentrations are at low levels and do not display a significant pattern or variation between areas. As seen in that table, there are both similarities and variations in concentrations of these VOCs between the areas. For some constituents, the maximum concentrations were observed at GMA 2 (i.e., toluene and TCE), while concentrations of other constituents appear to be higher at GMA 1 (i.e., PCE and vinyl chloride).

<b>Constituent</b>	<b>GMA 2 - West (Wells GMA2-1, GMA2-3, and J-1R)</b>	<b>GMA 1- East (Wells ES1-5, ES1-14, and GMA1-18)</b>	<b>GMA 4 - West (Wells H78B-13 and H78B-13R)</b>
Tetrachloroethene (PCE)	Maximum: 0.0022 ppm Average: 0.0013 ppm	Maximum: 0.0069 ppm Average: 0.0043 ppm	Not Detected
Toluene	Maximum: 0.0029 ppm Average: 0.00212 – 0.0022 ppm	Not Detected	Maximum: 0.0017 ppm Average: 0.0023 ppm
Trichloroethene (TCE)	Maximum: 0.062 ppm Average: 0.00393 – 0.0195 ppm	Maximum: 0.035 ppm Average: 0.0258 ppm	Not Detected
Vinyl Chloride	Maximum: 0.0014 ppm Average: 0.0011 ppm	Maximum: 0.0054 ppm Average: 0.00443 ppm	Not Detected

Several VOCs detected in downgradient monitoring wells across the central (see Tables A-9 and A-10) to eastern (see Tables A-11 through A-13) portions of GMA 4 have not been seen at the adjacent portion of GMA 2. On the eastern side of GMA 2, no VOCs have been detected in well GMA2-7 (Table A-14), while TCE is the only VOC that has been observed in well OJ-MW-2 (Table A-15). No TCE has been detected in the nearest upgradient wells in the central portion of GMA 4. However, TCE has been detected in several of the eastern GMA 4 wells located to the northeast of well OJ-MW-2, but to the east of the groundwater divide that separates these two areas. Although no monitoring wells are located within the railroad property between GMAs 2 and 4, the pattern of TCE detections in GMA 4 appears to be following a trough in the glacial till surface that slopes to the east of, and away from, GMA 2.

The following table summarizes the observed concentrations of TCE observed within the eastern portion of GMA 2 and the upgradient portions of GMA 4. The TCE concentrations detected in the eastern portion GMA 4 are significantly higher than those seen at GMA 2.

<b>Constituent</b>	<b>GMA 2 - East (Wells GMA2-7 and OJ-MW-2)</b>	<b>GMA 4 – Central (Wells 78-5R and OPCA-MW-2)</b>	<b>GMA 4 –East (Wells 78-4, H78B-16, and H78B-17R)</b>
Trichloroethene	Maximum: 0.015 ppm Average: 0.00994 ppm	Not Detected	Maximum: 0.22 ppm Average: 0.045 – 0.135 ppm

#### **4. Comparison of PCBs Detected in GMA 2 Groundwater With Upgradient GMAs**

Historical PCB results from the same groupings of downgradient GMA 1 and GMA 4 wells and upgradient GMA 2 wells described above were compared to assess any potential relationship between these areas. Summaries of the available historical PCB analytical data from these wells and the recently-revised MCP Method 1 GW-3 standards and UCLs for Groundwater are also provided in Tables A-2 through A-15.

PCBs (primarily Aroclor-1254) have been detected in each of the eastern GMA 1 wells and western GMA 4 wells during most of the sampling events where groundwater was analyzed for this constituent. Although the GMA 2 dataset contains a slightly greater percentage of sampling rounds where no PCBs were recorded within the western portion of the GMA, each well in this area has contained PCBs during approximately half of the times analyzed. Aroclor-1254 was the only PCB Aroclor detected in this part of GMA 2, with the exception of a single sampling event at well GMA2-1 where Aroclor-1260 was identified. Aroclor 1260 was also reported at GMA 1 well ES1-5 on three occasions, but not at any of the other upgradient wells in this area.

The following table summarizes the observed total concentrations of PCBs observed within the western portion of GMA 2 and one or more of the upgradient GMAs. As with the VOC summary tables presented above, maximum concentrations represent the single highest total PCB concentration observed at any of the listed wells within each area. The average concentrations represent the range of average concentrations calculated for each well in the selected areas where PCBs have been detected. As seen in that table, the highest PCB concentration in a filtered sample was detected at GMA 2, while the highest unfiltered concentration was found at GMA 1. Maximum PCB concentrations at GMA 4 were an order of magnitude below either area. However, the average PCB concentrations calculated for all three areas fall within the same general range.

<b>Constituent</b>	<b>GMA 2 – West (Wells GMA2-1, GMA2-3, and J-1R)</b>	<b>GMA 1- East (Wells ES1-5, ES1-14, and GMA1-18)</b>	<b>GMA 4 - West (Wells H78B-13 and H78B-13R)</b>
Total PCBs (Filtered Samples)	Maximum: 0.0023 ppm Average: 0.000033 – 0.000434 ppm	Maximum: 0.00067 ppm Average: 0.000059 – 0.000225 ppm	Maximum: 0.000071 ppm Average: 0.0000458 ppm
Total PCBs (Unfiltered Samples)	Maximum: 0.0016 ppm Average: 0.000167 – 0.000825 ppm	Maximum: 0.0032 ppm Average: 0.000102 – 0.00146 ppm	Maximum: 0.00037 ppm Average: 0.00014 ppm

PCB Aroclors 1254 and 1260 have each been detected on multiple occasions at wells within the central and eastern portions of GMA 4, with Aroclor-1254 being more commonly observed. PCBs have only sporadically been detected in the eastern portion of GMA 2. Out of eight samples analyzed (four filtered/unfiltered sample sets from wells GMA2-7 and OJ-MW-2, respectively), Aroclor-1254 was detected in two filtered samples from well GMA2-7 and Aroclor-1260 was identified in a single unfiltered sample from well OJ-MW-2. All other PCB results from this area were non-detect.

The following table summarizes the observed concentrations of PCBs observed within the eastern portion of GMA 2 and the upgradient portions of GMA 4. The PCB concentrations in groundwater at this portion of GMA 2 are considerably less than those observed within the nearest wells at GMA 4.

<b>Constituent</b>	<b>GMA 2 - East (Wells GMA2-7and OJ-MW-2)</b>	<b>GMA 4 – Central (Wells 78-5R and OPCA-MW-2)</b>	<b>GMA 4 –East (Well H78B-17R)</b>
Total PCBs (Filtered Samples)	Maximum: 0.00014 ppm Average: 0.000063 ppm	Maximum: 0.00093 ppm Average: 0.0000363 – 0.000124 ppm	Maximum: 0.000068 ppm Average: 0.0000418 ppm
Total PCBs (Unfiltered Samples)	Maximum: 0.000031 ppm Average: 0.0000325 ppm	Maximum: 0.00061 ppm Average: 0.0000358 – 0.000141 ppm	Maximum: 0.000248 ppm Average: 0.000151 ppm

## 5. Conclusions

Although certain constituents detected in GMA 2 groundwater have also been observed in monitoring wells along the downgradient edges of adjacent GMAs 1 and 4, a clear connection between these GMAs cannot be verified based on the available data. Several VOCs have only been observed in one of the upgradient GMAs and not in GMA 2, or vice versa. VOC and PCB concentrations vary between these areas with no apparent pattern and are sometimes higher within GMA 2 than within potential upgradient source areas within GMAs 1 and 4. However, all of the commonly detected constituents were observed at relatively low concentrations in comparison to the applicable MCP GW-3 standards and UCLs for groundwater. As such, no modifications to the groundwater monitoring programs at GMAs 1, 2, or 4 is proposed at this time. GE will continue to compare future analytical results from these GMAs and will document its findings in future monitoring reports for GMA 2.

**Table A-1**  
**Fall 2007 Groundwater Elevation Monitoring Data**

**Addendum to Monitoring Event Evaluation Report for Fall 2007**  
**Groundwater Management Area 2 Long-Term Monitoring Program**  
**General Electric Company - Pittsfield, Massachusetts**

Well Name	Measuring Point Elev (Ft.)	Date	Depth to Water (feet BMP)	Corrected Water Elev. (feet)
<b>GMA 1 - East Street Area 1-South</b>				
139R	986.91	11/2/2007	11.05	975.86
GMA1-18	998.29	11/2/2007	7.25	991.04
<b>GMA 1 - East Street Area 2-North</b>				
ES1-5	1,023.33	10/30/2007	41.11	982.22
ES1-20	1,001.56	10/30/2007	15.84	985.72
<b>GMA 2 - Former Oxbow Area J</b>				
GMA2-1	991.36	11/1/2007	15.51	975.85
GMA2-2	991.19	11/1/2007	17.60	973.59
GMA2-3	991.48	11/1/2007	15.35	976.13
GMA2-6	989.73	11/1/2007	15.37	974.36
GMA2-7	989.64	11/1/2007	15.21	974.43
J-1R	988.25	11/1/2007	14.95	973.30
OJ-MW-1	994.47	11/1/2007	12.78	981.69
OJ-MW-2	991.64	11/1/2008	13.45	978.19
<b>GMA 2 - Former Oxbow Area K</b>				
GMA2-4	983.41	11/1/2007	9.31	974.10
GMA2-5	985.85	11/1/2007	10.25	975.60
GMA2-8	982.30	11/1/2007	8.56	973.74
GMA2-9	981.29	11/1/2007	7.88	973.41
<b>GMA 4 - Plant Site 3</b>				
78-4	998.55	10/31/2007	12.80	985.75
78-5R	997.36	10/31/2007	5.34	992.02
GMA4-1	1,012.35	10/31/2007	23.76	988.59
GMA4-4	999.64	10/31/2007	14.11	985.53
GMA4-5	993.34	10/31/2007	12.46	980.88
H78B-13R	992.93	10/31/2007	12.64	980.29
H78B-15	1,012.68	10/31/2007	15.40	997.28
H78B-16	999.33	10/31/2007	12.80	986.53
H78B-17R	1,000.31	10/31/2007	13.76	986.55
NY-3	1,005.49	10/31/2007	16.85	988.64
OPCA-MW-3	1,014.83	10/31/2007	21.95	992.88
OPCA-MW-4	1,018.67	10/31/2007	13.65	1,005.02
OPCA-MW-6	1,022.31	10/31/2007	19.80	1,002.51
<b>Housatonic River (Foot Bridge)</b>				
GMA2-SG-1	989.82	11/2/2007	17.05	972.77

**Notes:**

1. ft BMP - feet Below Measuring Point.
2. A survey reference point was established on the Oxbow J & K foot bridge for staff gauge GMA2-SG-1. The "Depth to Water" value(s) provided in the above table refer to the vertical distance from the surveyed reference point to the water surface.

**Table A-2  
Summary Of Historical Groundwater Analytical Results For VOCs And PCBs  
Eastern Portion GMA 1 - Well ES1-5**

**Addendum To Monitoring Event Evaluation Report For Fall 2007  
Groundwater Management Area 2 Long Term Monitoring Program  
General Electric Company - Pittsfield, Massachusetts  
(Results are presented in parts per million, ppm)**

Parameter	Sample ID: Date Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>Volatiles Organics</b>										
1,1-Dichloroethane		20	100	1/4	0.0043	0.0043	0.00250	0.00295	0.00286	0.000900
Tetrachloroethene		30	100	4/4	0.0021	0.0069	0.00395	0.00423	0.00370	0.00240
trans-1,2-Dichloroethene		50	100	4/4	0.038	0.094	0.0580	0.0620	0.0574	0.0276
Trichloroethene		5	50	4/4	0.016	0.035	0.0260	0.0258	0.0243	0.00964
Vinyl Chloride		50	100	4/4	0.0026	0.0054	0.00485	0.00443	0.00426	0.00128
Total VOCs		Not Listed	Not Listed	4/4	0.066	0.14	0.0925	0.0978	0.0941	0.0314
<b>PCBs-Unfiltered</b>										
Aroclor-1254		Not Applicable	Not Listed	4/4	0.00017	0.0012	0.000760	0.000723	0.000586	0.000423
Aroclor-1260		Not Applicable	Not Listed	3/4	0.000082	0.002	0.000451	0.000734	0.000258	0.000918
Total PCBs		Not Applicable	0.1	4/4	0.000252	0.0032	0.00119	0.00146	0.000996	0.00129
<b>PCBs-Filtered</b>										
Aroclor-1254		Not Listed	Not Listed	6/8	0.000028	0.00067	0.0000990	0.000185	0.000102	0.000220
Aroclor-1260		Not Listed	Not Listed	3/8	0.000062	0.00018	0.0000330	0.0000646	0.0000513	0.0000540
Total PCBs		0.01	0.1	7/8	0.000068	0.00067	0.000155	0.000225	0.000154	0.000209

**Notes:**

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered and unfiltered) and volatiles.
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.

**Table A-3  
Summary Of Historical Groundwater Analytical Results For VOCs And PCBs  
Eastern Portion GMA 1 - Well ES1-14**

**Addendum To Monitoring Event Evaluation Report For Fall 2007  
Groundwater Management Area 2 Long Term Monitoring Program  
General Electric Company - Pittsfield, Massachusetts  
(Results are presented in parts per million, ppm)**

Parameter	Sample ID: Date Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>Volatile Organics</b>										
None Detected		--	--	0/4	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>PCBs-Unfiltered</b>										
Aroclor-1254		Not Applicable	Not Listed	1/4	0.00031	0.00031	0.0000330	0.000102	0.0000578	0.000139
Total PCBs		Not Applicable	0.1	1/4	0.00031	0.00031	0.0000330	0.000102	0.0000578	0.000139
<b>PCBs-Filtered</b>										
Aroclor-1254		Not Listed	Not Listed	3/4	0.000042	0.00041	0.0000570	0.000139	0.0000800	0.000181
Total PCBs		0.01	0.1	3/4	0.000042	0.00041	0.0000570	0.000139	0.0000800	0.000181

Notes:

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered and unfiltered) and volatiles.
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.

**Table A-4  
 Summary Of Historical Groundwater Analytical Results For PCBs  
 Eastern Portion GMA 1 - Well GMA1-18**

**Addendum To Monitoring Event Evaluation Report For Fall 2007  
 Groundwater Management Area 2 Long Term Monitoring Program  
 General Electric Company - Pittsfield, Massachusetts  
 (Results are presented in parts per million, ppm)**

Parameter	Sample ID: Date Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>PCBs-Filtered</b>										
Aroclor-1254		Not Listed	Not Listed	3/4	0.000042	0.00011	0.0000470	0.0000593	0.0000531	0.0000347
Total PCBs		0.01	0.1	3/4	0.000042	0.00011	0.0000470	0.0000593	0.0000531	0.0000347

Notes:

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered).
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.

**Table A-5  
Summary Of Historical Groundwater Analytical Results For VOCs And PCBs  
Western Portion GMA 2 / Former Oxbow Area J - Well GMA2-1**

**Addendum To Monitoring Event Evaluation Report For Fall 2007  
Groundwater Management Area 2 Long Term Monitoring Program  
General Electric Company - Pittsfield, Massachusetts  
(Results are presented in parts per million, ppm)**

Sample ID: Parameter Date Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>Volatile Organics</b>									
Tetrachloroethene	30	100	1/4	0.0022	0.0022	0.00100	0.00130	0.00122	0.000600
Toluene	40	100	1/4	0.0013	0.0013	0.00250	0.00220	0.00212	0.000600
Trichloroethene	5	50	2/4	0.011	0.062	0.00675	0.0195	0.00808	0.0286
Total VOCs	Not Listed	Not Listed	2/4	0.012	0.064	0.0820	0.0690	0.0526	0.0416
<b>PCBs-Unfiltered</b>									
Aroclor-1254	Not Applicable	Not Listed	4/4	0.00014	0.00094	0.000175	0.000358	0.000251	0.000389
Aroclor-1260	Not Applicable	Not Listed	1/4	0.00022	0.00022	0.0000330	0.0000798	0.0000530	0.0000935
Total PCBs	Not Applicable	0.1	4/4	0.00014	0.00116	0.000175	0.000423	0.000267	0.000519
<b>PCBs-Filtered</b>									
Aroclor-1254	Not Listed	Not Listed	6/10	0.000071	0.0016	0.0000715	0.000223	0.000112	0.000304
Aroclor-1260	Not Listed	Not Listed	1/10	0	0.0007	0.0000330	0.0000706	0.0000461	0.000106
Total PCBs	0.01	0.1	6/10	0.000071	0.0023	0.0000715	0.000256	0.000115	0.000397

Notes:

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered and unfiltered) and volatiles.
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.



**Table A-6  
Summary Of Historical Groundwater Analytical Results For VOCs And PCBs  
Western Portion GMA 2 / Former Oxbow Area J - Well GMA2-3**

**Addendum To Monitoring Event Evaluation Report For Fall 2007  
Groundwater Management Area 2 Long Term Monitoring Program  
General Electric Company - Pittsfield, Massachusetts  
(Results are presented in parts per million, ppm)**

Parameter	Sample ID: Date Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>Volatile Organics</b>										
Toluene		40	100	1/4	0.00098	0.00098	0.00250	0.00212	0.00198	0.000760
Total VOCs		Not Listed	Not Listed	1/4	0.00098	0.00098	0.100	0.0752	0.0315	0.0495
<b>PCBs-Unfiltered</b>										
Aroclor-1254		Not Applicable	Not Listed	2/2	0.00065	0.001	0.000825	0.000825	0.000806	0.000247
Total PCBs		Not Applicable	0.1	2/2	0.00065	0.001	0.000825	0.000825	0.000806	0.000247
<b>PCBs-Filtered</b>										
Aroclor-1254		Not Listed	Not Listed	2/3	0.00056	0.00071	0.000560	0.000434	0.000236	0.000356
Total PCBs		0.01	0.1	2/3	0.00056	0.00071	0.000560	0.000434	0.000236	0.000356

Notes:

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered and unfiltered) and volatiles.
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.

**Table A-7**  
**Summary Of Historical Groundwater Analytical Results For VOCs And PCBs**  
**Western Portion GMA 2 / Former Oxbow Area J - Well J-1R**

**Addendum To Monitoring Event Evaluation Report For Fall 2007**  
**Groundwater Management Area 2 Long Term Monitoring Program**  
**General Electric Company - Pittsfield, Massachusetts**  
**(Results are presented in parts per million, ppm)**

Parameter	Sample ID: Date Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>Volatile Organics</b>										
Toluene		40	100	2/4	0.00067	0.0029	0.00250	0.00214	0.00187	0.00100
Trichloroethene		5	50	4/4	0.002	0.0084	0.00265	0.00393	0.00326	0.00303
Vinyl Chloride		50	100	1/4	0.0014	0.0014	0.00100	0.00110	0.00109	0.000200
Total VOCs		Not Listed	Not Listed	4/4	0.002	0.013	0.00300	0.00525	0.00391	0.00519
<b>PCBs-Unfiltered</b>										
Aroclor-1254		Not Applicable	Not Listed	2/4	0.00024	0.00036	0.000137	0.000167	0.0000985	0.000162
Total PCBs		Not Applicable	0.1	2/4	0.00024	0.00036	0.000137	0.000167	0.0000985	0.000162
<b>PCBs-Filtered</b>										
Aroclor-1254		Not Listed	Not Listed	2/5	0.0001	0.00022	0.0000330	0.0000838	0.0000602	0.0000815
Total PCBs		0.01	0.1	2/5	0.0001	0.00022	0.0000330	0.0000838	0.0000602	0.0000815

Notes:

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered and unfiltered) and volatiles.
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.

**Table A-8  
Summary Of Historical Groundwater Analytical Results For VOCs And PCBs  
Western Portion GMA 4 - Wells H78B-13/H78B-13R**

**Addendum To Monitoring Event Evaluation Report For Fall 2007  
Groundwater Management Area 2 Long Term Monitoring Program  
General Electric Company - Pittsfield, Massachusetts  
(Results are presented in parts per million, ppm)**

Parameter	Sample ID: Date Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>Volatile Organics</b>										
Acetone		50	100	3/5	0.013	0.023	0.0160	0.0130	0.0108	0.00784
Chlorobenzene		1	10	1/5	0.00051	0.00051	0.00250	0.00210	0.00182	0.000890
Toluene		40	100	1/5	0.0012	0.0017	0.00250	0.00230	0.00226	0.000447
Xylenes (total)		5	100	4/5	0.0031	0.013	0.00640	0.00746	0.00661	0.00395
Total VOCs		Not Listed	Not Listed	5/5	0.0031	0.033	0.0170	0.0179	0.0127	0.0135
<b>PCBs-Unfiltered</b>										
Aroclor-1254		Not Applicable	Not Listed	3/4	0.000055	0.00037	0.0000780	0.000140	0.0000927	0.000155
Total PCBs		Not Applicable	0.1	3/4	0.000055	0.00037	0.0000780	0.000140	0.0000927	0.000155
<b>PCBs-Filtered</b>										
Aroclor-1254		Not Listed	Not Listed	2/4	0.000046	0.000071	0.0000395	0.0000458	0.0000434	0.0000179
Total PCBs		0.01	0.1	2/4	0.000046	0.000071	0.0000395	0.0000458	0.0000434	0.0000179

**Notes:**

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered and unfiltered) and volatiles.
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.

**Table A-9  
Summary Of Historical Groundwater Analytical Results For VOCs And PCBs  
Central Portion GMA 4 - Wells 78-5/78-5R**

**Addendum To Monitoring Event Evaluation Report For Fall 2007  
Groundwater Management Area 2 Long Term Monitoring Program  
General Electric Company - Pittsfield, Massachusetts  
(Results are presented in parts per million, ppm)**

Parameter	Sample ID: Date Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>Volatile Organics</b>										
Dichlorodifluoromethane		Not Listed	Not Listed	1/4	0.0006	0.0006	0.00250	0.00203	0.00175	0.000950
Toluene		40	100	1/4	0.00084	0.00084	0.00250	0.00209	0.00190	0.000830
Total VOCs		Not Listed	Not Listed	1/4	0.0014	0.0014	0.100	0.0754	0.0344	0.0493
<b>PCBs-Unfiltered</b>										
Aroclor-1254		Not Applicable	Not Listed	1/4	0.000037	0.000037	0.0000330	0.0000340	0.0000340	0.00000200
Aroclor-1260		Not Applicable	Not Listed	1/4	0.00004	0.00004	0.0000330	0.0000348	0.0000346	0.00000350
Total PCBs		Not Applicable	0.1	2/4	0.000037	0.00004	0.0000350	0.0000358	0.0000356	0.00000340
<b>PCBs-Filtered</b>										
Aroclor-1254		Not Listed	Not Listed	1/4	0.000046	0.000046	0.0000330	0.0000363	0.0000359	0.00000650
Total PCBs		0.01	0.1	1/4	0.000046	0.000046	0.0000330	0.0000363	0.0000359	0.00000650

**Notes:**

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered and unfiltered) and volatiles.
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.

**Table A-10**  
**Summary Of Historical Groundwater Analytical Results For VOCs And PCBs**  
**Central Portion GMA 4 - Well OPCA-MW-2**

**Addendum To Monitoring Event Evaluation Report For Fall 2007**  
**Groundwater Management Area 2 Long Term Monitoring Program**  
**General Electric Company - Pittsfield, Massachusetts**  
**(Results are presented in parts per million, ppm)**

Sample ID: Parameter Date Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>Volatile Organics</b>									
1,1,1-Trichloroethane	20	100	1/15	0.00013	0.00013	0.00250	0.00208	0.00166	0.000883
Chlorobenzene	1	10	1/15	0.0028	0.0028	0.00250	0.00212	0.00183	0.000842
Chloromethane	Not Listed	Not Listed	1/15	0.00033	0.00033	0.00250	0.00226	0.00185	0.00114
Toluene	40	100	3/15	0.001	0.0025	0.00250	0.00205	0.00182	0.000788
Trichlorofluoromethane	Not Listed	Not Listed	1/15	0.0004	0.00041	0.00250	0.00209	0.00179	0.000841
Total VOCs	Not Listed	Not Listed	5/15	0.00053	0.0028	0.100	0.0639	0.0233	0.0473
<b>PCBs-Unfiltered</b>									
Aroclor-1254	Not Applicable	Not Listed	4/7	0.000033	0.00014	0.0000330	0.0000677	0.0000543	0.0000474
Aroclor-1260	Not Applicable	Not Listed	3/7	0.000022	0.00047	0.0000330	0.0000969	0.0000491	0.000165
Total PCBs	Not Applicable	0.1	5/7	0.000022	0.00061	0.0000330	0.000141	0.0000689	0.000212
<b>PCBs-Filtered</b>									
Aroclor-1254	Not Listed	Not Listed	7/14	0.00002	0.00026	0.0000465	0.0000759	0.0000568	0.0000693
Aroclor-1260	Not Listed	Not Listed	1/14	0.00067	0.00067	0.0000330	0.0000818	0.0000443	0.000169
Total PCBs	0.01	0.1	7/14	0.00002	0.00093	0.0000465	0.000124	0.0000622	0.000236

**Notes:**

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered and unfiltered) and volatiles.
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.

**Table A-11**  
**Summary Of Historical Groundwater Analytical Results For VOCs**  
**Eastern Portion GMA 4 - Well 78-4**

**Addendum To Monitoring Event Evaluation Report For Fall 2007**  
**Groundwater Management Area 2 Long Term Monitoring Program**  
**General Electric Company - Pittsfield, Massachusetts**  
**(Results are presented in parts per million, ppm)**

Parameter	Sample ID: Date Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>Volatile Organics</b>										
1,1,1-Trichloroethane		20	100	1/4	0.0016	0.0016	0.00250	0.00228	0.00224	0.000450
1,1-Dichloroethane		20	100	1/4	0.0012	0.0012	0.00250	0.00218	0.00208	0.000650
Chloroform		20	100	1/4	0.0044	0.0044	0.00250	0.00298	0.00288	0.000950
Tetrachloroethene		30	100	1/4	0.0014	0.0014	0.00100	0.00110	0.00109	0.000200
Toluene		40	100	1/4	0.0067	0.0067	0.00250	0.00355	0.00320	0.00210
Trichloroethene		5	50	4/4	0.019	0.081	0.0400	0.0450	0.0381	0.0287
Vinyl Chloride		50	100	2/4	0.0028	0.0078	0.00190	0.00315	0.00216	0.00321
Total VOCs		Not Listed	Not Listed	4/4	0.019	0.096	0.0460	0.0518	0.0431	0.0344

Notes:

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of volatiles.
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.

**Table A-12**  
**Summary Of Historical Groundwater Analytical Results For VOCs**  
**Eastern Portion GMA 4 - Well H78B-16**

**Addendum To Monitoring Event Evaluation Report For Fall 2007**  
**Groundwater Management Area 2 Long Term Monitoring Program**  
**General Electric Company - Pittsfield, Massachusetts**  
**(Results are presented in parts per million, ppm)**

Parameter	Sample ID: ite Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>Volatile Organics</b>										
1,1,1-Trichloroethane		20	100	1/8	0.0014	0.0014	0.00250	0.00268	0.00254	0.00102
1,1-Dichloroethane		20	100	1/8	0.00046	0.00046	0.00250	0.00256	0.00221	0.00122
1,2-Dichloroethane		20	100	3/8	0.00033	0.0028	0.00250	0.00238	0.00190	0.00138
Benzene		10	100	1/8	0.0006	0.0006	0.00250	0.00233	0.00187	0.00139
Chlorobenzene		1	10	7/8	0.00051	0.049	0.00965	0.0168	0.00751	0.0185
Methylene Chloride		50	100	1/8	0.00082	0.00082	0.00250	0.00260	0.00237	0.00113
Tetrachloroethene		30	100	4/8	0.00024	0.0031	0.00110	0.00188	0.00135	0.00156
trans-1,2-Dichloroethene		50	100	2/8	0.0003	0.0012	0.00250	0.00238	0.00191	0.00134
Trichloroethene		5	50	8/8	0.021	0.18	0.0550	0.0784	0.0556	0.0648
Trichlorofluoromethane		Not Listed	Not Listed	1/8	0.00041	0.00041	0.00250	0.00255	0.00217	0.00123
Vinyl Chloride		50	100	7/8	0.00067	0.019	0.00415	0.00697	0.00352	0.00729
Total VOCs		Not Listed	Not Listed	8/8	0.025	0.24	0.0730	0.104	0.0702	0.0891

**Notes:**

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of volatiles.
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.

**Table A-13**  
**Summary Of Historical Groundwater Analytical Results For VOCs And PCBs**  
**Eastern Portion GMA 4 - Well H78B-17R**

**Addendum To Monitoring Event Evaluation Report For Fall 2007**  
**Groundwater Management Area 2 Long Term Monitoring Program**  
**General Electric Company - Pittsfield, Massachusetts**  
**(Results are presented in parts per million, ppm)**

Parameter	Sample ID: Date Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>Volatile Organics</b>										
1,1-Dichloroethene		30	100	2/8	0.00054	0.00088	0.00169	0.00280	0.00157	0.00330
1,2-Dichloroethane		20	100	2/8	0.0031	0.0032	0.00280	0.00391	0.00343	0.00260
Acetone		50	100	1/8	0.0088	0.0088	0.00500	0.00860	0.00716	0.00693
Chloroform		20	100	7/8	0.0049	0.11	0.0305	0.0431	0.0217	0.0418
Methylene Chloride		50	100	1/8	0.0044	0.0044	0.00250	0.00368	0.00319	0.00264
Tetrachloroethene		30	100	5/8	0.0018	0.0043	0.00255	0.00346	0.00280	0.00281
Toluene		40	100	1/8	0.017	0.017	0.00250	0.00556	0.00412	0.00531
trans-1,2-Dichloroethene		50	100	5/8	0.0017	0.0059	0.00355	0.00443	0.00382	0.00271
Trichloroethene		5	50	8/8	0.022	0.22	0.140	0.135	0.115	0.0625
Vinyl Chloride		50	100	2/8	0.0012	0.0014	0.00195	0.00308	0.00219	0.00310
Total VOCs		Not Listed	Not Listed	8/8	0.027	0.33	0.200	0.187	0.154	0.0960
<b>PCBs-Unfiltered</b>										
Aroclor-1254		Not Applicable	Not Listed	4/4	0.000051	0.00018	0.000127	0.000121	0.000107	0.0000638
Aroclor-1260		Not Applicable	Not Listed	2/4	0.000044	0.000078	0.0000385	0.0000470	0.0000440	0.0000213
Total PCBs		Not Applicable	0.1	4/4	0.000051	0.000248	0.000152	0.000151	0.000124	0.0000986
<b>PCBs-Filtered</b>										
Aroclor-1254		Not Listed	Not Listed	3/4	0.000027	0.000068	0.0000360	0.0000418	0.0000392	0.0000182
Total PCBs		0.01	0.1	3/4	0.000027	0.000068	0.0000360	0.0000418	0.0000392	0.0000182

**Notes:**

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered and unfiltered) and volatiles.
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.



**Table A-14**  
**Summary Of Historical Groundwater Analytical Results For VOCs And PCBs**  
**Eastern Portion GMA 2 / Former Oxbow Area J - Well GMA2-7**

**Addendum To Monitoring Event Evaluation Report For Fall 2007**  
**Groundwater Management Area 2 Long Term Monitoring Program**  
**General Electric Company - Pittsfield, Massachusetts**  
**(Results are presented in parts per million, ppm)**

Parameter	Sample ID: Date Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>Volatile Organics</b>										
None Detected		--	--	0/4	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>PCBs-Unfiltered</b>										
None Detected		--	--	0/4	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>PCBs-Filtered</b>										
Aroclor-1254		Not Listed	Not Listed	2/4	0.000043	0.00014	0.0000395	0.0000630	0.0000515	0.0000517
Total PCBs		0.01	0.1	2/4	0.000043	0.00014	0.0000395	0.0000630	0.0000515	0.0000517

**Notes:**

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered and unfiltered) and volatiles.
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.

**Table A-15**  
**Summary Of Historical Groundwater Analytical Results For VOCs And PCBs**  
**Eastern Portion GMA 2 / Former Oxbow Area J - Well OJ-MW-2**

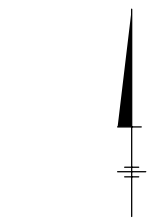
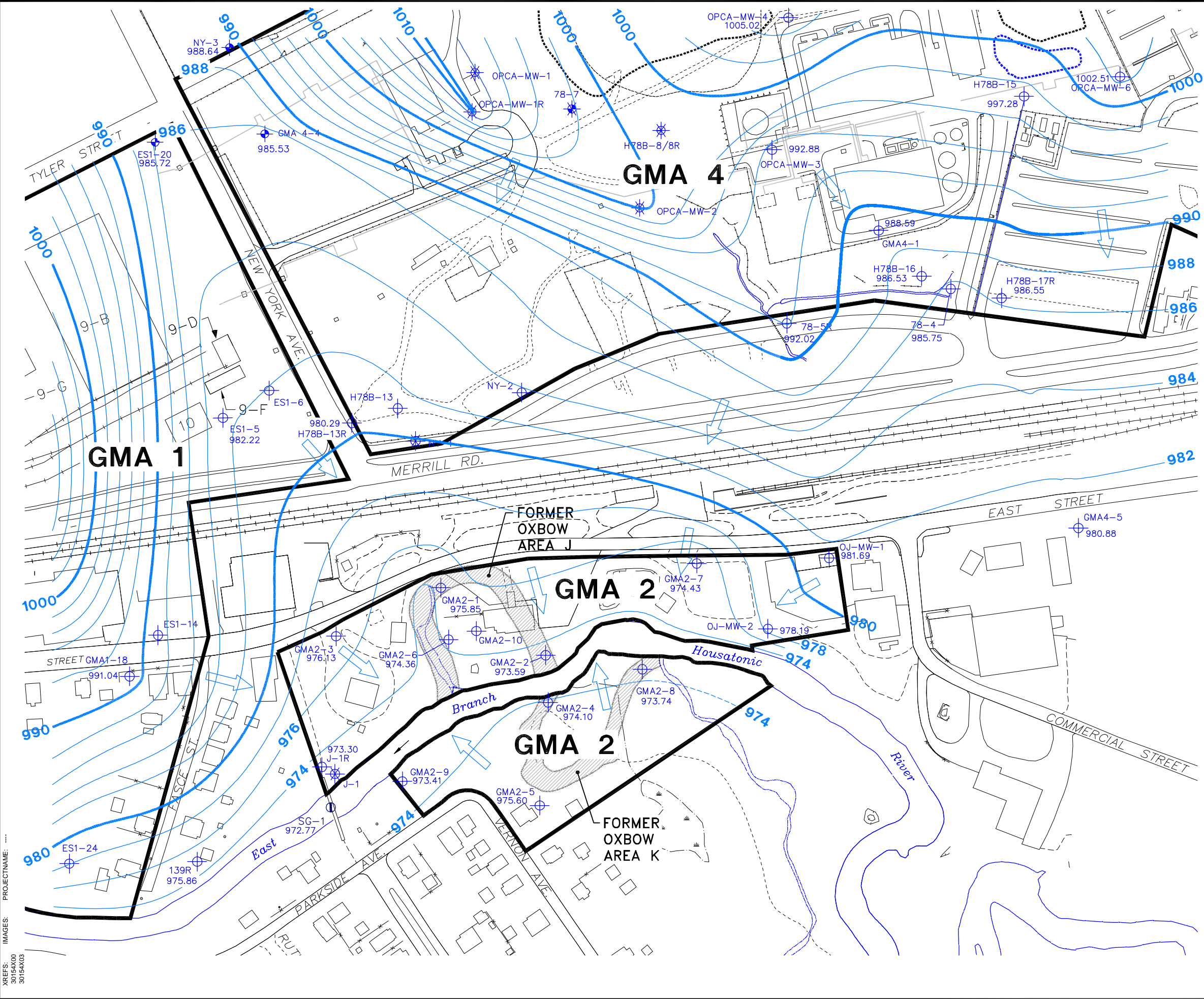
**Addendum To Monitoring Event Evaluation Report For Fall 2007**  
**Groundwater Management Area 2 Long Term Monitoring Program**  
**General Electric Company - Pittsfield, Massachusetts**  
**(Results are presented in parts per million, ppm)**

Parameter	Sample ID: Date Collected:	Method 1 GW-3 Standards	MCP UCL for GroundWater	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
<b>Volatile Organics</b>										
Trichloroethene		5	50	5/5	0.0029	0.015	0.0120	0.00994	0.00822	0.00573
Total VOCs		Not Listed	Not Listed	5/5	0.0029	0.015	0.0120	0.00994	0.00822	0.00573
<b>PCBs-Unfiltered</b>										
Aroclor-1260		Not Applicable	Not Listed	1/4	0.000031	0.000031	0.0000330	0.0000325	0.0000325	0.00000100
Total PCBs		Not Applicable	0.1	1/4	0.000031	0.000031	0.0000330	0.0000325	0.0000325	0.00000100
<b>PCBs-Filtered</b>										
None Detected		--	--	0/4	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Notes:

1. Samples were collected by ARCADIS, and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered and unfiltered) and volatiles.
2. Samples have been validated as per GE's EPA-approved FSP/QAPP, General Electric Company, Pittsfield, Massachusetts.
3. Only those constituents detected in one or more samples are summarized.

CITY: SYRACUSE DIV/GROUP: 85 DB: PGL/LAF/DMW LD: DMW PIC: PM: K CORNWELL TM: LVR: ON=OFF-REF  
 G:\CAD\GE-CAD\N-ACT\B0030154\0000000000\DWG\30154M17.DWG LAYOUT: A-1 SAVED: 5/13/2008 12:30 PM ACADVER: 17.05 (LMS TECH) PAGES: 17 PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 5/13/2008 12:30 PM BY: WODARCZYK, DAVID  
 XREFS: IMAGES: PROJECTNAME: 30154X00 30154X03

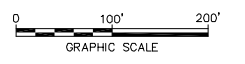


**LEGEND:**

- GMA BOUNDARY
- FORMER OXBOW/LOW-LYING AREA
- FENCE
- MONITORING WELL
- STAFF GAUGE
- DECOMMISSIONED MONITORING WELL
- 976.13 GROUNDWATER ELEVATION (FT AMSL)
- 976 GROUNDWATER ELEVATION CONTOUR (FT AMSL)
- GROUNDWATER FLOW

**NOTES:**

1. MAPPING IS BASED ON AERIAL PHOTOGRAPHS AND PHOTOGRAMMETRIC MAPPING BY LOCKWOOD MAPPING, INC. FLOWN IN APRIL 1990; DATA PROVIDED BY GENERAL ELECTRIC COMPANY AND BLASLAND AND BOUCK ENGINEERS, P.C. CONSTRUCTION PLANS.
2. FORMER RIVER CHANNEL AND LOWLAND AREAS DELINEATED USING THE CITY OF PITTSFIELD'S RECHANNELIZATION MAPPING, 1940.
3. NOT ALL PHYSICAL FEATURES SHOWN.
4. SITE PROPERTY BOUNDARIES ARE APPROXIMATE.
5. ALL MONITORING WELL LOCATIONS ARE APPROXIMATE.
6. GROUNDWATER AND RIVER LEVEL MEASUREMENTS OBTAINED OCTOBER 30 - NOVEMBER 2, 2007.



GENERAL ELECTRIC COMPANY  
 PITTSFIELD, MASSACHUSETTS  
**GMA 2 GROUNDWATER QUALITY  
 MONITORING PROGRAM**

**WATER TABLE CONTOUR MAP -  
 FALL 2007**

**FIGURE  
 A-1**

ARCADIS

**Attachment B**

Revised Derivation of Guidance  
Values for Cobalt and Copper

**Attachment B**  
**Revised Derivation of Guidance Values for Cobalt and Copper**

**Groundwater Management Area 2**  
**General Electric Company - Pittsfield, Massachusetts**

**1. Introduction**

For constituents that are detected in groundwater during the baseline monitoring programs at the GE Pittsfield Groundwater Management Areas for which Method 1 standards do not exist, Attachment H to the SOW states that GE must propose to develop Method 2 standards using the MCP procedures or alternate procedures approved by EPA, or provide a rationale for why such standards need not be developed. EPA's October 9, 2007 conditional approval letter required GE to discuss the baseline analytical results at GMA 2 for cobalt and copper (for which Method 1 GW-3 standards do not exist) and either to develop Method 2 standards using the MCP procedures or alternate procedures approved by EPA, or to provide a rationale for why such standards need not be developed. Appendix G of the *Groundwater Management Area 2 Long-Term Monitoring Program, Monitoring Event Evaluation Report for Fall 2007* (Fall 2007 Report) summarized the procedures performed by GE to determine appropriate Method 2 standards for cobalt and copper. As discussed in that report and reiterated below, certain information required to develop Method 2 standards is not available for cobalt and copper, so GE instead calculated low-, mid-, high-range guidance values for copper and cobalt to approximate the ranges of Method 2 GW-3 standards that could potentially apply these substances.

In the Fall 2007 Report, GE proposed that the mid-range guidance values were the most applicable, as they were derived by utilizing the dilution factor that is applicable to the ranges of soil organic carbon-water partitioning coefficients that were calculated for these two metals, largely based on default values. However, in its April 15, 2008 conditional approval letter for the Fall 2007 Report, EPA did not agree with GE's rationale and required that the calculations be re-submitted using the low-range guidance values. Those calculations are provided below.

**2. Procedures Utilized to Derive Guidance Values**

GE utilized the procedures provided in the MCP (310 CMR 40.0983(4)) to derive low-, mid-, and high-range guidance values reflecting the possible range of Method 2 GW-3 standards for cobalt and copper in groundwater. As described in 310 CMR 40.0983(4), the following information is required to calculate Method 2 GW-3 Standards:

- Ecologically-based Water Quality Criterion for the constituent (i.e., the Fresh Water Chronic Criterion, the Fresh Water Acute Criterion, the Marine Chronic Criterion, and the Marine Acute Criterion); and
- The Soil Organic Carbon-Water Partitioning Coefficient (Koc) for the constituent.

After this information is compiled, the lowest ecologically-based Water Quality Criterion is multiplied by a factor of 10 and then multiplied by:

- A dilution factor of 2.5, if the Koc value for the constituent is less than 1,000;

- A dilution factor of 25, if the Koc value for the constituent is greater than or equal to 1,000, but less than 100,000; or
- A dilution factor of 100, if the Koc value for the constituent is greater than 100,000.

If the resulting concentration is less than or equal to 50 ppm, it represents the MCP Method 2 GW-3 Standard. Otherwise, the standard is adjusted to the ceiling concentration of 50 ppm.

EPA (<http://www.epa.gov/waterscience/criteria/wqcriteria.html>) has established an acute freshwater water quality criterion of 0.013 ppm and a chronic freshwater water quality criterion of 0.009 ppm for copper. While there are no ambient water quality criteria available for cobalt, EPA's Office of Solid Waste and Emergency Response (OSWER) did derive a secondary chronic value for cobalt using the Agency's Tier II methodology. That value is 0.003 ppm (EPA, 1996). While a number of additional ecological toxicity benchmarks are provided in the Oak Ridge National Laboratory's Risk Assessment Information System (RAIS) database (<http://rais.ornl.gov/homepage/benchmark.shtml>), this is the most stringent of the values provided there and therefore provides a conservative starting point for the derivation of a Method 2 GW-3 standard for that metal.

The second step in the prescribed methodology, which is discussed above, is to multiply the selected benchmark by a factor of 10. This calculation results in a value of 0.09 ppm for copper (using the more conservative of the available freshwater criteria) and 0.03 ppm for cobalt.

Finally, the MCP methodology indicates that the value derived in the second step should be multiplied by an additional dilution factor, depending upon the Koc value for the constituent. Koc is the measure of the degree that a particular compound will partition from organic carbon and water when at equilibrium. In general, Koc values are not available for metals. However, as required by EPA in its April 15, 2007 letter, a dilution factor of 2.5 will be utilized in this step.

<b>Constituent</b>	<b>Step 1</b> Selected Criterion	<b>Step 2</b> Criterion * 10	<b>Step 3</b> Step 2 * 2.5
Copper	0.009 ppm	0.09 ppm	0.225 ppm
Cobalt	0.003 ppm	0.03 ppm	0.075 ppm

### 3. Conclusions

It appears that, based on the above calculation, an estimated GW-3 standard of approximately 0.225 ppm may be appropriate for copper and an estimated GW-3 standard of 0.075 ppm may be appropriate for cobalt. Given the lack of Kd or Koc information associated with these two metals, however, the exact magnitude of the most appropriate Method 2 GW-3 standard cannot be determined. Given this uncertainty, GE has utilized the methodology described above to calculate low-, mid-, and high-range guidance values to approximate a range in possible Method 2 GW-3 standards for each substance based on the possible Kocs:

Constituent	Low-Range Guidance Value	Mid-Range Guidance Value	High-Range Guidance Value
	Koc Less Than 1,000 (Step 2*2.5)	Koc Between 1,000 and 100,000 (Step 2*25)	Koc Greater Than 100,000 (Step 2*100)
Copper	0.225 ppm	2.25 ppm	9 ppm
Cobalt	0.075 ppm	0.75 ppm	3 ppm

Thus, the guidance values that GE has developed for copper range from 0.225 ppm to 9 ppm, with a mid-range estimate of 2.25 ppm. For cobalt, the guidance values range from 0.075 ppm to 3 ppm, with a mid-range estimate of 0.75 ppm. As required by EPA, for purposes of this evaluation GE will utilize the low-range guidance values in its comparisons with the groundwater analytical data at GMA 2.

#### 4. References

EPA. 1989. Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A); Interim Final. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA/540/1-88/002. December.

EPA. 1996. ECO Update; Ecotox Thresholds. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/F-95/038. January.

EPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. OSWER 9355.4-24. December.