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Transmitted Via Overnight Courier

January 30, 2006

Mr. William P. Lovely, Jr. (MC HBO)
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 (GECD320)
Groundwater Quality Interim Report for Fall 2005

Dear Mr. Lovely:

In accordance with GE's approved *Baseline Monitoring Program Proposal for Former Oxbow Areas J and K Groundwater Management Area* (February 2001) and *Groundwater Management Area 2 Baseline Groundwater Quality Interim Report for Fall 2003* (January 2004), enclosed is the *Groundwater Management Area 2 Groundwater Quality Interim Report for Fall 2005.* This report summarizes activities performed as part of the Former Oxbows J and K Groundwater Management Area (GMA 2) interim groundwater quality monitoring program during fall 2005, including the results of the latest groundwater sampling and analysis round at GMA 2 and semi-annual groundwater elevation monitoring conducted since spring 2004.

Please call Andrew Silfer or me if you have any questions regarding this report.

Sincerely,

Richard W. Gates /pfp

Richard W. Gates
Remediation Project Manager

Enclosure
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cc: Dean Tagliaferro, EPA
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Groundwater Management Area 2 Groundwater Quality Monitoring Interim Report for Fall 2005

General Electric Company
Pittsfield, Massachusetts

January 2006

BBL®
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

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1. Introduction

1.1 General

On October 27, 2000, a Consent Decree (CD) executed in 1999 by the General Electric Company (GE), the United States Environmental Protection Agency (EPA), the Massachusetts Department of Environmental Protection (MDEP), and several other government agencies was entered by the United States District Court for the District of Massachusetts. The CD governs (among other things) the performance of response actions to address polychlorinated biphenyls (PCBs) and other hazardous constituents in soil, sediment, and groundwater in several Removal Action Areas (RAAs) located in or near Pittsfield, Massachusetts that collectively comprise the GE-Pittsfield/Housatonic River Site (the Site). For groundwater and non-aqueous-phase liquid (NAPL), the RAAs at and near the GE Pittsfield facility have been divided into five separate Groundwater Management Areas (GMAs), which are illustrated on Figure 1. These GMAs are described, together with the Performance Standards established for the response actions at and related to them, in Section 2.7 of the *Statement of Work for Removal Actions Outside the River* (SOW) (Appendix E to the CD), with further details presented in Attachment H to the SOW (Groundwater/NAPL Monitoring, Assessment, and Response Programs). This report relates to the Former Oxbows J and K Groundwater Management Area, also known as and referred to herein as GMA 2.

In February 2001, GE submitted a *Baseline Monitoring Program Proposal for Former Oxbow Areas J and K Groundwater Management Area* (GMA 2 Baseline Monitoring Proposal). EPA provided conditional approval of the GMA 2 Baseline Monitoring Proposal by letter of September 6, 2001, and GE subsequently submitted an Addendum to that proposal by letter of September 21, 2001, incorporating the conditions in EPA's letter.

The baseline monitoring program, which was initiated in spring 2002, consisted of four semi-annual groundwater quality sampling events (with intervening quarterly groundwater elevation monitoring) followed by preparation and submittal of reports summarizing the groundwater monitoring results and, as appropriate, proposing modifications to the monitoring program. The baseline reports also compared the groundwater results with applicable Performance Standards. The fourth baseline monitoring report for GMA 2, entitled *Groundwater Management Area 2 Baseline Groundwater Quality Interim Report for Fall 2003* (Fall 2003 GMA 2 Groundwater Quality Report), was submitted to EPA on January 30, 2004.

Section 6.1.3 of Attachment H to the SOW provides that if the two-year "baseline" period ends prior to the completion of soil-related response actions at all the RAAs in a GMA, GE may make a proposal to EPA to modify and/or extend the Baseline Monitoring Program based on the results of the initial assessment and the estimated timing of future response actions at the RAAs in the GMA. The approved GMA 2 Baseline Monitoring Proposal also allows GE to propose a modification and/or extension of the baseline monitoring program based on the results of the initial assessment and the estimated timing of future response actions.

Therefore, the Fall 2003 GMA 2 Groundwater Quality Report contained a proposal to modify and extend baseline groundwater quality monitoring activities at GMA 2 (under a program referred to as the interim monitoring program) until such time as the soil-related Removal Actions at the GMA 2 RAA are completed and the specific components of a long-term groundwater quality monitoring program are determined. EPA conditionally approved the Fall 2003 GMA 2 Groundwater Quality Report by letter dated May 13, 2004. Under the approved interim monitoring program, annual water quality sampling (alternating between the spring and fall seasons) and semi-annual water level monitoring at selected GMA 2 wells were initiated in spring 2004. In addition to the wells sampled under the approved interim monitoring program, a fourth round of baseline sampling was also performed at two GMA 2 wells (GMA2-7 and OJ-MW-2) at which four complete rounds of baseline sampling had not yet been completed due to previous delays in access.

As part of the interim groundwater quality monitoring program, GE is required to submit reports after each groundwater sampling event to summarize the groundwater monitoring results and related activities and, as appropriate, propose modifications to the monitoring program. The results of the initial round of interim groundwater sampling activities performed at this GMA in May 2004 were provided in GE's July 2004 *Groundwater Management Area 2 Groundwater Quality Interim Report for Spring 2004* (Spring 2004 GMA 2 Groundwater Quality Report), which was conditionally approved by EPA in a letter dated November 10, 2004. The results of the most recent round of interim groundwater sampling activities conducted in fall 2005 are provided in this *Groundwater Management Area 2 Groundwater Quality Monitoring Interim Report for Fall 2005* (Fall 2005 GMA 2 Groundwater Quality Report).

1.2 Background Information

GMA 2 encompasses the Former Oxbow Areas J and K RAA, comprised of approximately 8.5 acres adjacent to the Housatonic River, located approximately 2,500 feet upstream of the Newell Street Bridge (Figures 1 and 2). This GMA contains a combination of non-GE-owned commercial areas, residential properties, and recreational areas. Certain portions of this GMA originally consisted of land associated with oxbows or low-lying areas of the Housatonic River. As shown on Figure 1 and 2, the Housatonic River flows through the central portion of this GMA, separating the two Former Oxbow Areas J and K. Rechannelization and straightening of the Housatonic River in the early 1940s by the City of Pittsfield and the United States Army Corps of Engineers (USACE) separated several such oxbows and low-lying areas from the active course of the river. These oxbows and low-lying areas were subsequently filled with various materials from a variety of sources, resulting in the current surface elevations and topography.

Former Oxbow Area J encompasses an area of approximately 6 acres located north of the Housatonic River, south of East Street, and between Fasce Street and Commercial Street. Commercial businesses occupy a portion of this area along East Street. The west side of this portion of GMA 2 consists of a wooded recreational area and footpath, and the rights-of-way for undeveloped Longview Terrace and Zeno Street. The remainder of Former Oxbow Area J contains commercial properties and small, wooded recreational areas.

Former Oxbow Area K encompasses an area of approximately 3.3 acres south of the Housatonic River, across from the eastern portion of Former Oxbow Area J and generally to the northeast of Ventura Avenue. This area consists of a large open field on the south side of the river, and the right-of-way for Longview Terrace. The majority of this generally flat area is undeveloped and covered with grass and low brush. However, residential properties occupy a portion of this area along Ventura Avenue.

The baseline monitoring program at this GMA involved a total of 12 monitoring wells (Figure 2). Under the baseline monitoring program, groundwater elevations were measured at these wells and a river staff gauge on a quarterly basis, while 11 of the wells were sampled on a semi-annual basis for analysis of PCBs and/or certain non-PCB constituents listed in Appendix IX of 40 CFR Part 264, plus three additional constituents -- benzidine, 2-chloroethylvinyl ether, and 1,2-diphenyhydrazine (Appendix IX+3). The specific groundwater quality parameters for each individual well were selected based on the monitoring objectives of the well. Monitoring

for the presence of NAPL is also performed as part of the routine groundwater elevation monitoring activities at this GMA. However, no NAPL has been observed within any of the monitoring wells in GMA 2.

Groundwater flow patterns at GMA 2 generally reflect the topography of the site with flow generally towards the Housatonic River. Figures 3 through 5 illustrate groundwater elevation contours developed from data collected during the three semi-annual monitoring rounds (i.e., fall 2004, spring 2005, and fall 2005) performed since submittal of the Spring 2004 GMA 2 Groundwater Quality Report. The groundwater elevation data utilized to prepare these figures are provided in Table 3 and Appendix A. As depicted on Figures 3 through 5, groundwater elevations and flow direction display a fairly consistent pattern within GMA 2. A relatively steep gradient is observed at the northeast corner of the Former Oxbow J Area as a result of a change in topography between well OJ-MW-1 and wells GMA2-7 and OJ-MW-2. The hydraulic head gradually decreases toward the Housatonic River, corresponding to a general decrease in the ground surface topography. As expected, the direction of groundwater flow along the north and south river banks is toward the Housatonic River. However, it should be noted that there may be periodic flow reversals, as observed during the fall 2004 monitoring event. These flow reversals are likely short-term in nature due to rapidly rising river conditions and limited to bank areas adjacent to the river. The presence of a temporary dam utilized since fall 2003 at a location downstream of the Lyman Street bridge (approximately one mile downstream from GMA 2) may have affected water levels at near the GMA 2 river gauge during the fall 2004 monitoring event. During certain high flow events within the river (e.g., fall 2004 and fall 2005), the direction of groundwater flow may be away from the river across portions of the river banks.

As discussed in Section 1.1 above, the CD and the SOW provide for the performance of groundwater-related Removal Actions at the GMAs, including the implementation of groundwater monitoring, assessment, and recovery programs. In general, these programs consist of a baseline monitoring program conducted over a period of at least two years to establish existing groundwater conditions and a long-term monitoring program performed to assess groundwater conditions over time and to verify the attainment of the Performance Standards for groundwater.

After the fourth baseline sampling event at most of the wells in GMA 2 in fall 2003, GE proposed that an interim groundwater monitoring program be performed until the soil-related Removal Actions at this RAA are complete. As subsequently modified and as approved by EPA, this interim monitoring program for GMA 2 currently consists of annual sampling (beginning in spring 2004 and alternating between the spring and fall

seasons) performed at three monitoring wells for select constituents, as shown on Table 1. Semi-annual groundwater elevation measurement is also performed at all of the original baseline monitoring program wells and at a surface water gauge located on the Housatonic River.

GE performed the fall 2004 and spring 2005 groundwater elevation monitoring and provided the results of that monitoring in the relevant monthly status reports to EPA. GE performed the fall 2005 interim sampling event at GMA 2 from November 3 to November 4, 2005 as described in Section 2.3 below.

1.3 Format of Document

The remainder of this report is presented in five sections. Section 2 describes the groundwater-related activities performed at GMA 2 in fall 2004, spring 2005, and fall 2005. Section 3 presents the analytical results obtained during the fall 2005 sampling event. Section 4 provides a summary of the applicable groundwater quality Performance Standards identified in the CD and SOW, and provides an assessment of the results of the fall 2005 activities, including a comparison to those Performance Standards. Section 5 proposes modifications to the interim groundwater quality program that will be conducted until such time as the soil-related Removal Actions at the RAA which GMA 2 encompasses are completed. Finally, Section 6 presents the schedule for future field and reporting activities related to groundwater quality at GMA 2.

2. Field and Analytical Procedures

2.1 General

The activities conducted as part of the interim groundwater monitoring program at GMA 2, and summarized herein, primarily involved the measurement of groundwater levels at the locations shown on Figure 2, and collection and analysis of groundwater samples at select monitoring wells within GMA2, as described in Table 1. A summary of construction details for those wells included in the fall 2005 monitoring is provided in Table 2 and the field sampling data are presented in Appendix B. This section discusses the field procedures used to measure site groundwater levels and collect groundwater samples, as well as the methods used to analyze the samples. All activities were performed in accordance with GE's approved *Field Sampling Plan/Quality Assurance Project Plan* (FSP/QAPP).

2.2 Groundwater Elevation Monitoring

Groundwater elevation monitoring for fall 2004, spring 2005, and fall 2005 was performed on October 12, 2004, April 20, 2005, and between October 27, 2005 and November 7, 2005, respectively. The fall 2004 and spring 2005 groundwater elevation monitoring involved measurement of groundwater levels at each of the 12 wells listed in Table 3 and at the Housatonic River staff gauge. The fall 2005 groundwater elevation monitoring round involved measurement of groundwater levels at 11 of the 12 wells listed in Table 3. Groundwater levels were not collected at well GMA2-5 as access could not be coordinated with the property owner on the dates when monitoring was scheduled. Groundwater elevation monitoring for fall 2005 was performed between October 27 and October 28, 2005, with the exception of wells GMA2-4, GMA2-8 and the Housatonic River staff gauge, which could not be measured due to flooding of the river. Those locations were monitored during the first week of November 2005, after river levels reduced to a level that allowed data to be collected. A summary of all groundwater and river elevation monitoring data collected since spring 2004 is provided in Appendix A. In addition, at each of these events, monitoring for the potential presence of NAPL was performed at each well where groundwater elevations were measured. No NAPL was observed during these monitoring events or any of the previous monitoring events at GMA 2.

The groundwater elevation data were used to prepare groundwater elevation contour maps for fall 2004 (Figure 3), spring 2005 (Figure 4), and fall 2005 (Figure 5). As shown on this figure and described in Section 1.2 above, the fall 2005 groundwater elevations and flow direction are fairly consistent with previous seasons. Specifically, the groundwater flow direction along the areas north and south of the river banks is generally toward the Housatonic River, with slight variations corresponding to surface topography. The groundwater elevation contour maps for fall 2004 and spring 2005 show the same general flow patterns observed in fall 2005 and during prior monitoring rounds.

2.3 Groundwater Sampling and Analysis

The fall 2005 interim sampling event was performed between November 3 and 4, 2005. As shown on Table 1, groundwater samples were collected from three groundwater monitoring wells. Well construction information for the monitoring wells at GMA 2 is included in Table 2.

Low-flow sampling techniques, using a bladder pump, were utilized for purging the wells and collection of groundwater samples during this sampling event. Each monitoring well was purged utilizing low-flow sampling techniques until field parameters (including temperature, pH, specific conductivity, oxidation-reduction potential, dissolved oxygen, and turbidity) stabilized. Field parameters were measured in combination with the sampling activities at the monitoring wells. The field parameter measurements are presented in Table 4 and the field sampling data are provided in Appendix B. A general summary of the field measurement results during the fall 2005 monitoring event is provided below:

PARAMETER	UNITS	RANGE
Turbidity	Nephelometric turbidity units (NTU)	3.38 - 14.3
Ph	pH units	6.87 - 7.49
Specific Conductivity	Millisiemens per centimeter	0.383 - 1.328
Oxidation-Reduction Potential	Millivolts	-18.9 - 275.0
Dissolved Oxygen	Milligrams per liter	0.74 - 5.93
Temperature	Degrees Celsius	12.17 - 15.43

As shown above, for this sampling event, none of the final groundwater turbidity levels were greater than 15 NTU, which is well below the target turbidity level of 50 NTU. These results indicate that the sampling and measurement procedures utilized during this sampling event were effective in obtaining groundwater samples with low turbidity.

The collected groundwater samples were submitted to SGS Environmental Services, Inc. in Charleston, West Virginia for laboratory analysis. As shown in Table 1, the samples were submitted for analysis of one or more of the following constituents using the associated EPA methods:

CONSTITUENT	EPA METHOD
PCBs (Filtered Samples)	8082
Cyanide (Filtered Samples)	9014

The results of all these analyses are discussed in Section 3.

Following receipt of the analytical data from the laboratory, the preliminary results were reviewed for completeness and compared to the Massachusetts Contingency Plan (MCP) Method 1 GW-3 standards, and to the MCP Upper Concentration Limits (UCLs) for groundwater. As no GW-2 wells are included in the interim monitoring program, no comparison to GW-2 standards was performed. The preliminary analytical results were presented in the next monthly report on overall activities at the GE-Pittsfield/Housatonic River Site.

Finally, the data were validated in accordance with the FSP/QAPP and the validated results were utilized in the preparation of this report. The data validation report is provided in Appendix E. As discussed in the validation report, 100% of the fall 2005 groundwater quality data are considered to be useable. The validated analytical results are summarized in Section 3 and discussed in Section 4 below.

3. Groundwater Analytical Results

3.1 General

A description of fall 2005 interim groundwater quality analytical results is presented in this section. Table 5 provides a comparison of the concentrations of filtered PCBs and cyanide with the currently applicable GW-3 groundwater quality Performance Standards established in the CD and SOW, while Table 6 presents a comparison of the concentrations of detected constituents with the UCLs for groundwater. An assessment of these results relative to those groundwater quality Performance Standards and UCLs is provided in Section 4.

3.2 Interim Groundwater Quality Results

The following paragraphs provide an overview of the fall 2005 analytical results from the GMA 2 groundwater quality monitoring wells for each constituent group that was analyzed.

3.2.1 PCB Results

Filtered groundwater samples were collected from three monitoring wells (GMA2-1, GMA2-4, and GMA2-9) and analyzed for PCBs as part of the fall 2005 interim sampling event (Table 1). Total filtered PCB concentrations ranged from 0.00032 ppm for well GMA2-1 to 0.00063 ppm in the duplicate sample for well GMA2-9 (the concentration from the original sample from this well was 0.00038 ppm).

3.2.2 Cyanide Results

Filtered groundwater samples were collected from two monitoring wells (GMA2-1 and GMA2-9) and analyzed for cyanide during the fall 2005 interim sampling event. No cyanide was detected in either of these samples.

4. Assessment of Results

4.1 General

This report constitutes the second interim monitoring report and is the sixth groundwater quality monitoring report submitted since commencement of the GMA 2 baseline groundwater monitoring program. The information presented herein is based on the laboratory results obtained during the fall 2005 groundwater quality sampling event, supplemented with historical groundwater analytical data from previous monitoring reports.

4.2 Groundwater Quality Performance Standards

The Performance Standards which are applicable to response actions for groundwater at GMA 2 are set forth in Section 2.7 and Attachment H (Section 4.1) of the SOW. In general, the Performance Standards for groundwater quality are based on the groundwater classification categories designated in the MCP. The MCP identifies three potential groundwater categories that may be applicable to a given site. GW-1 groundwater, applies to groundwater that is a current or potential source of potable drinking water, and GW-2 groundwater applies to groundwater that is a potential source of vapors to the indoor air of buildings. None of the groundwater at any of the GMAs at the Site is classified as GW-1, and no GW-2 wells are included in the interim monitoring program for GMA 2. However, the MCP GW-3 groundwater category is applicable to GMA 2: GW-3 groundwater is defined as groundwater that discharges to surface water. By MCP definition, all groundwater at a site is classified as GW-3 since it is considered to ultimately discharge to surface water. In accordance with the CD and SOW, all groundwater at GMA 2 is considered as GW-3.

The CD and the SOW allow for the establishment of standards for GW-3 groundwater at the GMAs through use of one of three methods, as generally described in the MCP. The first, known as Method 1, consists of the application of pre-established numerical "Method 1" standards set forth in the MCP for both GW-2 and GW-3 groundwater (310 CMR 40.0974). These "default" standards have been developed to be conservative and will serve as the initial basis for evaluating groundwater at GMA 2. The current MCP Method 1 GW-3 standards for the constituents detected in the fall 2005 sampling event are listed in Table 5. (In the event of any discrepancy between the standards listed in these tables and those published in the MCP, the latter will be controlling.) For constituents for which Method 1 standards do not exist, the MCP provides procedures, known as Method 2, for

developing such standards (Method 2 standards) for GW-3 (310 CMR 40.0983(4)) groundwater. For such constituents that are detected in groundwater during the baseline monitoring program, Attachment H to the SOW states that in the Baseline Monitoring Program Final Report, 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. For constituents whose concentrations exceed the applicable Method 1 (or Method 2) standards, GE may develop and propose to EPA alternative GW-3 standards based on a site-specific risk assessment. This procedure is known as Method 3 in the MCP. Upon EPA approval, these alternative risk-based GW-3 standards may be used in lieu of the Method 1 (or Method 2) standards.

On January 9, 2006, MDEP approved revised numerical standards (Wave 2 Standards) for a number of constituents. In approving those standards, MDEP stated that the revised standards are expected to become effective on April 3, 2006. MDEP stated, however, that parties may, at their option, use those revised standards pursuant to 40 CMR 40.0982(7) to characterize risk at a disposal site and the use of these standards will be considered a Method 2 Risk Characterization. For PCBs, the issued Wave 2 standards do not change the current Method 1 standard, but they state that PCBs will be subject to a further change in a spring 2006 proposal by MDEP. For cyanide, the current Method 1 GW-3 standard is 0.010 ppm, and the new Method 1 Wave 2 GW-3 Standard is 0.030 ppm. The UCL for cyanide in groundwater remains unchanged at 2 ppm. Given that, as discussed above, no cyanide was detected at this GMA, there is no need to decide between use of the current standard and the use of the new Wave 2 Standard at the present time. Once the Wave 2 Standards become effective, GE proposes to incorporate those standards into future data assessments at this GMA.

Based on consideration of the above points, the specific groundwater quality Performance Standards for GMA 2 consist of the following:

- Groundwater quality shall ultimately achieve the following standards at the perimeter monitoring wells designated as compliance points for GW-3 standards:

  (a) the Method 1 GW-3 groundwater standards set forth in the MCP (or, for constituents for which no such standards exist, Method 2 GW-3 standards once developed, unless GE provides and EPA approves a rationale for not developing such Method 2 standards); or

(b) alternative risk-based GW-3 standards proposed by GE and approved by EPA as protective against unacceptable risks in surface water due to potential migration of constituents in groundwater.

These Performance Standards are to be applied to the results of the individual monitoring wells included in the monitoring program. Several of the monitoring wells at GMA 2 have been designated as the potential compliance points for attainment of the Performance Standards identified above. These wells were initially identified in the GMA 2 Baseline Monitoring Proposal (although certain modifications were made subsequent to submittal of that proposal as a result of EPA approval conditions, findings during field reconnaissance of the selected wells, or replacement of certain wells during the course of the baseline monitoring program). As described above in Section 2.3, only selected wells were sampled in fall 2005.

4.3 Groundwater Quality – Fall 2005

For the purpose of generally assessing current groundwater conditions, the analytical results from the fall 2005 groundwater sampling event were compared to the groundwater Performance Standards for GMA 2. These Performance Standards are described in Section 4.2 above, and are currently based (on a well-specific basis) on the MCP Method 1 GW-3 standards (as no Method 1 GW-2 wells are included in the interim monitoring program). The following subsections discuss the fall 2005 groundwater analytical results in relation to these Performance Standards, as well as in relation to the MCP UCLs for groundwater. In support of those discussions, Table 5 provides a comparison of the concentrations of detected constituents with the currently applicable GW-3 standards, while Table 6 presents a comparison of the concentrations of detected constituents with the groundwater UCLs.

4.4 Groundwater Results Relative to GW-3 Performance Standards

Groundwater samples were collected from three of the ten monitoring wells at this GMA that are designated as GW-3 perimeter monitoring points. The fall 2005 groundwater analytical results for all detected constituents in the wells sampled and a comparison of those results with MCP Method 1 GW-3 standards are presented in Table 5. Although that table provides a comparison of the fall 2005 analytical results from all three GW-3 monitoring

wells that were sampled in fall 2005, only two of those wells (i.e., downgradient GW-3 perimeter wells GMA2-4 and GMA2-9) have been designated as compliance points for the GW-3 standards.

The comparisons set forth in Table 5 show that the filtered PCB sample results from all three of the GW-3 locations that were sampled were slightly above the MCP Method 1 GW-3 standard of 0.0003 ppm for PCBs. PCB concentrations in excess of the MCP Method 1 GW-3 standard were previously detected in filtered samples collected from each of these wells during individual baseline sampling events, which led to the inclusion of these wells in the interim monitoring program. As discussed in Section 4.4 below, GE's proposed response to these exceedances is to continue to sample these wells in the interim monitoring program.

Filtered samples from wells GMA2-1 and GMA2-9 were also analyzed for cyanide in fall 2005. However, as shown in Table 5, no cyanide was detected in either of these samples. GE has reviewed the historical cyanide data from these locations and, as discussed in Section 5.2 below, proposes to discontinue future cyanide analyses under the interim monitoring program.

4.4.1 Comparison to Upper Concentration Limits

The fall 2005 groundwater analytical results have also been compared with the groundwater UCLs specified in the MCP. These comparisons are presented in Table 6. As shown in that table, none of the detected constituents exceeded its respective UCL.

4.5 Overall Assessment of Groundwater Analytical Results

Graphs illustrating historical total filtered PCB concentrations for all wells sampled during the fall 2005 groundwater sampling event at GMA 2 are presented in Appendix D. Based on a review of the concentration versus time graphs presented in Appendix D, it appears that concentrations of PCBs in the GMA 2 wells have remained relatively stable at levels near or below the MCP Method 1 GW-3 standard. Although there was an increase in the PCB concentration detected in the duplicate sample at GMA2-9, the original sample concentration (0.00038 ppm) was comparable to levels detected during fall 2003 (0.00038 ppm). In general, while there were some changes in a few wells, only minor fluctuations in PCB concentrations have been observed between monitoring events in these wells. In most cases, PCB concentrations are comparable to

concentrations observed in the previous fall 2003 baseline sampling event. Filtered PCB concentrations in fall 2003 in wells GMA2-4 and GMA2-9 slightly exceeded GW-3 standards for the first time (0.00032 ppm and 0.00038 ppm, respectively, as compared to a GW-3 standard of 0.0003 ppm), and similar levels were observed in those wells (0.00039 ppm and 0.00038 ppm, with a duplicate of 0.00063 ppm) in fall 2005. The fall 2005 filtered PCB sample in well GMA2-1 (0.00032) slightly exceeded the GW-3 standard but was less than the filtered PCB result obtained in spring 2003 (0.0005 ppm). In sum, PCB concentrations were only slightly above the applicable GW-3 standard in the filtered samples analyzed in fall 2005 and were at levels generally comparable to those detected in 2003.

Cyanide concentrations were found at levels slightly above the Method 1 GW-3 standard of 0.01 ppm in unfiltered samples collected from wells GMA2-1 (0.018 ppm) and GMA2-9 (0.017 ppm) during the initial baseline sampling event in spring 2002. In response to those results, filtered samples were also collected for cyanide analysis beginning in fall 2002. In the five sampling rounds conducted since that time, there have been no exceedances of this criterion in any of the unfiltered or filtered samples. No cyanide has been detected in any of the filtered samples from well GMA2-9, while only one filtered sample from well GMA2-1 (fall 2002) was found to contain cyanide (at a concentration an order of magnitude below the applicable GW-3 standard). Moreover, even the initial unfiltered concentrations that exceeded the GW-3 standards are below the new Wave 2 GW-3 standard for cyanide of 0.03 ppm.

5. Proposed Modifications to Interim Groundwater Monitoring Program

5.1 General

In spring 2004, GE initiated the interim groundwater monitoring program to be conducted until completion of the soil-related Removal Actions at the RAA that comprises GMA 2. Aside from completing baseline sampling events at certain locations that could not be sampled during every round of the initial two-year baseline monitoring program (which was accomplished), the interim monitoring program is designed to obtain additional data from locations where it is not yet clear whether the initial baseline groundwater quality results indicate that the well may require future monitoring in a long-term monitoring program.

This section contains a description of a proposed modification to the interim groundwater monitoring program based on the results of the fall 2005 groundwater sampling event. This section also addresses the schedule for future groundwater quality monitoring activities and reporting for GMA 2. Specifically, this section provides a schedule for the upcoming spring 2006 interim monitoring event and associated reporting activities. A summary of the anticipated spring 2006 interim sampling program is provided in Table 7.

As described above, minor exceedances of the GW-3 standard for PCBs were observed in the filtered groundwater samples from wells GMA2-1, GMA2-4, and GMA2-9 in fall 2005, as shown in Table 5. Since the filtered PCB results for these wells have previously exceeded the GW-3 Performance Standards during certain prior sampling events, GE will continue the interim sampling and analysis for filtered PCBs at wells GMA2-1, GMA2-4 and GMA2-9. GE will also continue to measure groundwater elevations at the 12 wells included in the baseline monitoring program and the river staff gauge located at the foot bridge near the downstream (west) end of the site on a semi-annual basis during the remainder of the interim monitoring program.

5.2 Proposed Modification to Interim Groundwater Quality Monitoring Program

As discussed in Section 4.4 above, interim sampling and analysis for cyanide from wells GMA2-1 and GMA2-9 was performed based largely on results obtained during the initial baseline sampling event in spring 2002, which showed cyanide levels in unfiltered samples at levels slightly above the applicable GW-3 standard. However, since that sampling event, three unfiltered samples and five filtered samples have been analyzed for cyanide

from each of these wells. Since the initial sampling event, cyanide was only detected once in well GMA2-1 (in both filtered and unfiltered samples in fall 2002) and in well GMA2-9 (only in an unfiltered sample in fall 2002). Each of those detections was at a level well below the applicable GW-3 standard. Based on these data, it does not appear that cyanide is a constituent of interest at GMA 2. Therefore, GE proposes that cyanide analysis be eliminated from future interim sampling events at this GMA.

6. Schedule of Future Activities

6.1 General

This section addresses the schedule for future interim groundwater quality monitoring activities and reporting for GMA 2. Specifically, this section provides a schedule for the upcoming interim monitoring event for spring 2006 and associated reporting activities. A summary of the anticipated spring 2006 interim sampling program is provided in Table 7.

6.2 Field Activities Schedule

As previously approved by EPA, groundwater elevation monitoring at GMA 2 will continue on a semi-annual basis, while sampling and analysis under the interim groundwater monitoring program will continue on an annual basis, with a seasonal rotation between fall and spring (with the next sampling event to be conducted in April 2006). This annual sampling pattern will continue under the interim program until the soil removal actions are complete at the Oxbow Areas J and K RAA which GMA 2 encompasses. However, prior to the completion of soil remediation at the entire RAA, GE may make a proposal concerning long-term monitoring at certain areas where these removal activities are complete.

The groundwater sampling and analysis and methods and procedures will continue to be consistent with those used in the baseline groundwater quality monitoring program and GE's approved *Field Sampling Plan/Quality Assurance Project Plan* (FSP/QAPP). Prior to performance of these field activities, GE will provide EPA with 7 days advance notice to allow the assignment of oversight personnel.

6.3 Reporting Schedule

GE will continue to provide the results of preliminary groundwater analytical data in its monthly reports on overall activities at the GE-Pittsfield/Housatonic River Site.

GE will submit the Spring 2006 Interim Groundwater Quality Monitoring Report for GMA 2 by July 31, 2006, in accordance with the reporting schedule approved by EPA. That report will present the final, validated spring

2006 interim sampling results and a brief discussion of the results, including any proposals to further modify the interim monitoring program, if necessary.

Subsequent annual Interim Groundwater Quality Reports for GMA 2 will be submitted by January 31 where sampling activities were performed in the prior fall, or by July 31 where sampling activities were performed in the prior spring.

Tables

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engineers, scientists, economists

TABLE 1
FALL 2005 GROUNDWATER QUALITY MONITORING PROGRAM

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR FALL 2005
GENERAL ELECTRIC COMPANY-PITTSFIELD, MASSACHUSETTS

Well Number	Monitoring Well Usage	Sampling Schedule	Fall 2005 Analyses	Comments
GMA2-1	GW-3 Perimeter (Upgradient)	Annual	PCBs and cyanide	See Notes 1 and 2
GMA2-2	GW-2 Sentinel/ GW-3 Perimeter (Compliance Point)	None	--	See Note 3
GMA2-3	GW-2 Sentinel	None	--	See Note 3
GMA2-4	GW-3 Perimeter (Compliance Point)	Annual	PCBs	See Notes 1 and 2
GMA2-5	GW-2 Sentinel/ GW-3 Perimeter (Upgradient)	None	--	See Note 4
GMA2-6	GW-3 Perimeter (Compliance Point)	None	--	See Note 3
GMA2-7	GW-3 Perimeter (Compliance Point)	None	--	See Note 3
GMA2-8	GW-3 Perimeter (Compliance Point)	None	--	See Note 3
GMA2-9	GW-3 Perimeter (Compliance Point)	Annual	PCBs and cyanide	See Notes 1 and 2
J-1R	GW-3 Perimeter (Compliance Point)	None	--	See Note 3
OJ-MW-2	GW-2 Sentinel/ GW-3 Perimeter (Compliance Point)	None	--	See Note 3

Notes:

1. Wells sampled for annual groundwater quality were sampled for the parameters shown above.
2. All analyses for PCBs and cyanide conducted under the annual interim monitoring program were performed on filtered samples only.
3. Well is monitored for groundwater elevations only during interim monitoring program.
4. Groundwater elevation was not measured in fall 2005 due to inability to coordinate access with property owner.

TABLE 2
MONITORING WELL CONSTRUCTION

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR FALL 2005
GENERAL ELECTRIC COMPANY-PITTSFIELD, MASSACHUSETTS

Well Number	Survey Coordinates		Well Diameter (inches)	Ground Surface Elevation (feet AMSL)	Measuring Point Elevation (feet AMSL)	Depth to Top of Screen (feet BGS)	Screen Length (feet)	Top of Screen Elevation (feet AMSL)	Base of Screen Elevation (feet AMSL)
	Northing	Easting							
GMA2-1	534402.60	135510.20	2.00	988.30	991.36	13.80	10.00	974.50	964.50
GMA2-2	534264.30	135725.00	2.00	988.10	991.19	12.94	10.00	975.16	965.16
GMA2-3	534303.30	135295.50	2.00	991.59	991.48	8.59	10.00	983.00	973.00
GMA2-4	534167.60	135730.00	2.00	980.30	983.41	5.20	10.00	975.10	965.10
GMA2-5	533956.60	135712.80	2.00	986.11	985.85	5.98	10.00	980.13	970.13
GMA2-6	534296.40	135526.00	2.00	986.30	989.73	10.13	10.00	976.17	966.17
GMA2-7	534452.30	136034.50	2.00	989.84	989.64	8.49	10.00	981.35	971.35
GMA2-8	534235.50	135923.10	2.00	978.70	982.30	4.00	10.00	974.70	964.70
GMA2-9	534006.00	135431.40	2.00	978.10	981.29	4.00	10.00	974.10	964.10
J-1R	534035.60	135266.60	2.00	988.61	988.25	11.55	10.00	977.06	967.06
OJ-MW-1	534463.40	136305.70	1.00	994.68	994.47	9.30	10.00	985.38	975.38
OJ-MW-2	534318.38	136180.30	1.00	991.90	991.64	9.60	10.00	982.30	972.30
Staff Gauge	--	--	--	--	989.82	--	--	--	--

Notes:

1. feet AMSL = feet above mean sea level.
2. feet BGS = feet below ground surface.
3. -- indicates that a value does not apply.

TABLE 3
SEMI-ANNUAL GROUNDWATER ELEVATION DATA: FALL 2004 - FALL 2005

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR FALL 2005
GENERAL ELECTRIC COMPANY-PITTSFIELD, MASSACHUSETTS

Well Number	Location	Fall 2004 (1) Groundwater Elevation	Spring 2005 (2) Groundwater Elevation	Fall 2005 (3) Groundwater Elevation
GMA2-1	Oxbow Area J	976.12	976.22	976.71
GMA2-2	Oxbow Area J	975.07	974.46	975.88
GMA2-3	Oxbow Area J	977.63	977.96	979.07
GMA2-4	Oxbow Area K	975.60	975.35	974.96
GMA2-5	Oxbow Area K	976.69	977.15	NM (see Note 4)
GMA2-6	Oxbow Area J	975.34	975.26	976.03
GMA2-7	Oxbow Area J	975.81	975.88	977.21
GMA2-8	Oxbow Area K	975.53	974.98	974.45
GMA2-9	Oxbow Area K	975.13	974.57	975.35
J-1R	Oxbow Area J	974.74	974.01	975.56
OJ-MW-1	Oxbow Area J	983.31	977.82	983.79
OJ-MW-2	Oxbow Area J	978.00	977.96	979.04
Staff Gauge	Housatonic River	975.67	971.32	973.24 (see Note 5)

Notes:

1. Fall 2004 Groundwater elevation data collected on 10/12/2004 .
2. Spring 2005 Groundwater elevation data collected on 4/20/2005 .
3. Fall 2005 Groundwater elevation data collected at all accessible wells on 10/27-28/2005.
   The remaining wells (GMA2-4 and GMA2-8) were monitored on 11/7/2005 .
4. Groundwater elevation was not measured due to inability to coordinate access with property owner.
5. River elevation was measured on 11/7/2005.

TABLE 4
FIELD PARAMETER MEASUREMENTS - FALL 2005

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR FALL 2005
GENERAL ELECTRIC COMPANY-PITTSFIELD, MASSACHUSETTS

Well Number	Turbidity (NTU)	Temperature (Degrees Celsius)	pH (Standard Units)	Specific Conductivity (mS/cm)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)
GMA 2-1	5.00	13.64	6.87	1.328	-18.9	1.10
GMA 2-4	3.38	15.43	6.96	0.603	157.6	0.74
GMA 2-9	14.30	12.17	7.49	0.383	275.0	5.93

Notes:

1. Measurements collected during fall 2005 groundwater sampling event performed between November 3 and November 4, 2005.
2. Well parameters were generally monitored continuously during purging by low-flow techniques. Final parameter readings are presented.
3. NTU - Nephelometric Turbidity Units.
4. mS/cm - Millisiemens per centimeter.
5. mV - Millivolts.
6. mg/L - Milligrams per liter (ppm).

TABLE 5
COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO MCP METHOD 1 GW-3 STANDARDS

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR FALL 2005
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in parts per million, ppm)

Parameter / Sample ID: / Date Collected:	Method 1 GW-3 Standards	GMA2-1 11/03/05	GMA2-4 11/04/05	GMA2-9 11/03/05
PCBs-Filtered				
Aroclor-1254	Not Listed	0.00032	0.00039	0.00038 J [0.00063 J]
Total PCBs	0.0003	0.00032	0.00039	0.00038 J [0.00063 J]
Inorganics-Filtered				
Cyanide	0.01	ND(0.0100)	NA	ND(0.0100) [ND(0.0100)]

Notes:

1. Samples were collected by Blasland, Bouck & Lee, Inc., and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered) and cyanide (filtered).
2. Samples have been validated as per Field Sampling Plan/Quality Assurance Project Plan (FSP/QAPP), General Electric Company, Pittsfield, Massachusetts, Blasland Bouck & Lee, Inc. (approved May 29, 2004 and resubmitted June 19, 2004).
3. NA - Not Analyzed.
4. Field duplicate sample results are presented in brackets.
5. Only those constituents detected in one or more samples are summarized.
6. -- Indicates that all constituents for the parameter group were not detected.
7. Shading indicates that value exceeds the Method 1 GW-3 standard. Wells GMA2-4 and GMA2-9 have been designated as compliance points for the GW-3 standards. Well GMA2-1 has not been so designated.

Data Qualifiers:

Organics

J - Indicates that the associated numerical value is an estimated concentration.

TABLE 6
COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO MCP UCLs FOR GROUNDWATER

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR FALL 2005
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in parts per million, ppm)

Parameter / Sample ID: / Date Collected:	UCL-GW Standards	GMA2-1 11/03/05	GMA2-4 11/04/05	GMA2-9 11/03/05
PCBs-Filtered				
Aroclor-1254	Not Listed	0.00032	0.00039	0.00038 J [0.00063 J]
Total PCBs	0.005	0.00032	0.00039	0.00038 J [0.00063 J]
Inorganics-Filtered				
Cyanide	2	ND(0.0100)	NA	ND(0.0100) [ND(0.0100)]

Notes:
1. Samples were collected by Blasland, Bouck & Lee, Inc., and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered) and cyanide (filtered).
2. Samples have been validated as per Field Sampling Plan/Quality Assurance Project Plan (FSP/QAPP), General Electric Company, Pittsfield, Massachusetts, Blasland Bouck & Lee, Inc. (approved May 29, 2004 and resubmitted June 19, 2004).
3. NA - Not Analyzed.
4. Field duplicate sample results are presented in brackets.
5. Only those constituents detected in one or more samples are summarized.
6. -- Indicates that all constituents for the parameter group were not detected.

Data Qualifiers:

Organics
J - Indicates that the associated numerical value is an estimated concentration.

TABLE 7
SPRING 2006 INTERIM GROUNDWATER QUALITY MONITORING PROGRAM

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR FALL 2005
GENERAL ELECTRIC COMPANY-PITTSFIELD, MASSACHUSETTS

Well Number	Monitoring Well Usage	Sampling Schedule	Spring 2006 Analyses	Comments
GMA2-1	GW-3 Perimeter (Upgradient)	Annual (See Note 1)	PCBs (filtered)	Cyanide analyses of filtered samples proposed to be deleted from interim monitoring program.
GMA2-4	GW-3 Perimeter (Compliance Point)	Annual (See Note 1)	PCBs (filtered)	
GMA2-9	GW-3 Perimeter (Compliance Point)	Annual (See Note 1)	PCBs (filtered)	Cyanide analyses of filtered samples proposed to be deleted from interim monitoring program.

Notes:

1. Wells to be sampled for annual groundwater quality will be sampled for the listed parameters during the interim monitoring period.
   All analyses for PCBs conducted under the interim monitoring program will utilize filtered samples only.

Figures

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engineers, scientists, economists

LEGEND:

GMA1	GMA 1–PLANT SITE 1
GMA2	GMA 2–FORMER OXBOWS J&K
GMA3	GMA 3–PLANT SITE 2
GMA4	GMA 4–PLANT SITE 3
GMA5	GMA 5–FORMER OXBOWS A&C

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 & BOUCK ENGINEERS, P.C. CONSTRUCTION PLANS.
2. NOT ALL PHYSICAL FEATURES SHOWN.
3. SITE BOUNDARIES/LIMITS ARE APPROXIMATE.

0 500' 1000'
APPROXIMATE SCALE

L: ON=*, OFF=REF
P: PAGSET/PLT-DL2B
1/30/06 SYR-85-NES MTK RCA
N/30154004/30154B09.DWG

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

GMA 2 INTERIM MONITORING PROGRAM

GROUNDWATER MANAGEMENT AREAS

BBL BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
1

FORMER OXBOW AREA J

FORMER OXBOW AREA K

EAST STREET

PARKSIDE AVE

VENTURA AVE.

LONGVIEW TER

East Branch Housatonic River

GMA2-1

GMA2-2

GMA2-3

GMA2-4

GMA2-5

GMA2-6

GMA2-7

GMA2-8

GMA2-9

OJ-MW-1

OJ-MW-2

J-1

J-1R

SG-1

1000

990

980

986

982

LEGEND:

- GMA 2 BOUNDARY
- FORMER OXBOW/LOW-LYING AREA
- FENCE
- OR MONITORING WELL
- STAFF GAUGE
- GW-3 PERIMETER WELLS SAMPLED FALL 2005
- GW-3 COMPLIANCE POINT

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.

0 100' 200'

GRAPHIC SCALE

X: 30154X01.DWG
P: PAGESET/PLT-BL
1/30/06 SYR-85-NES LAF RCA
N/30154004/30154B07.DWG

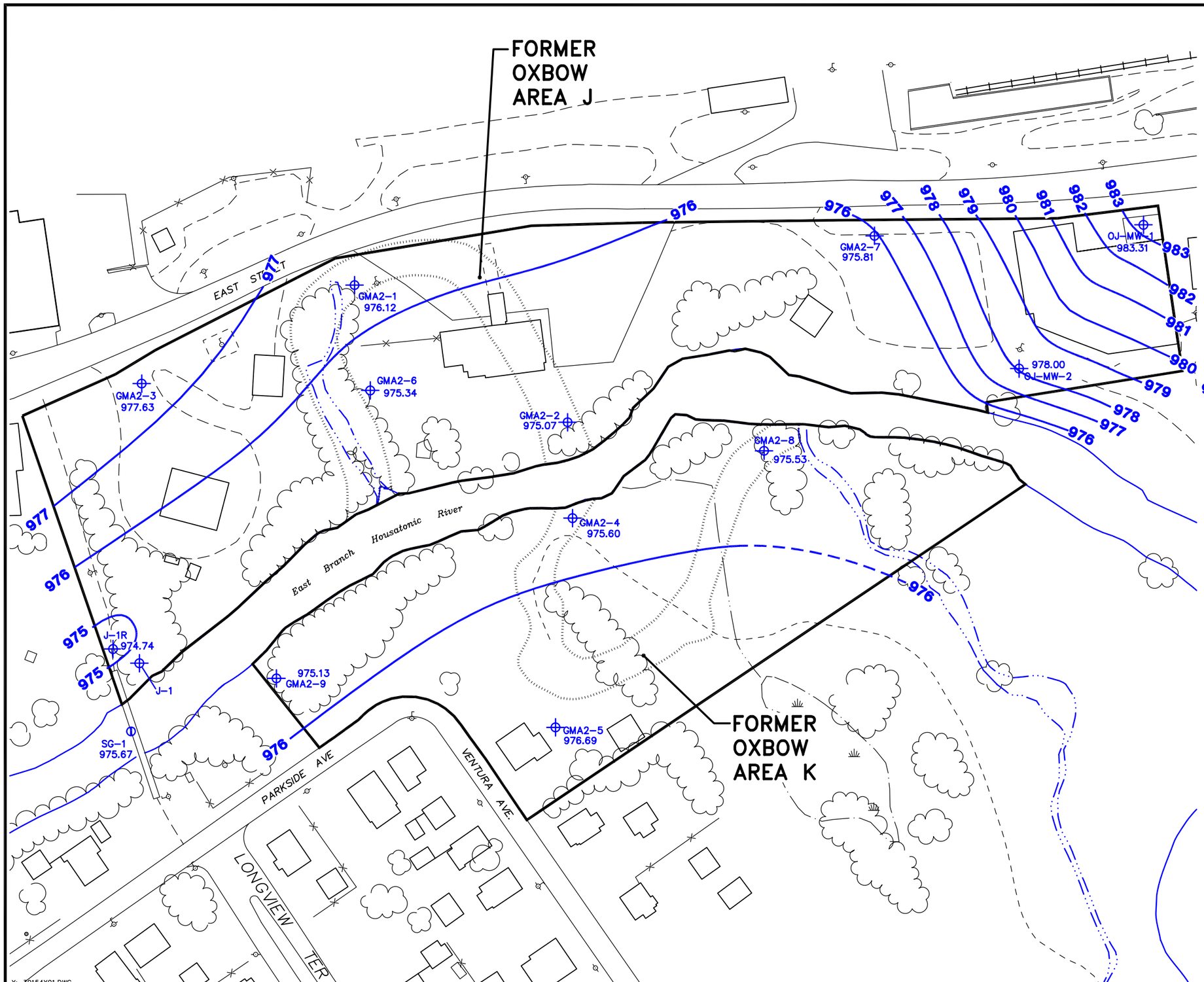
GENERAL ELECTRIC COMPANY
PITTSFIELD MASSACHUSETTS

GMA 2 INTERIM MONITORING PROGRAM

MONITORING WELL LOCATIONS

BBL BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE 2



LEGEND:

- GMA 2 BOUNDARY
- FORMER OXBOW/LOWLAND AREAS
- FENCE
- MONITORING WELL
- STAFF GAUGE
- 976.12 GROUNDWATER ELEVATION (FT AMSL)
- 976 GROUNDWATER ELEVATION CONTOUR (FT AMSL), DASHED WHERE INFERRED

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 12, 2004.

0 100' 200'

GRAPHIC SCALE

X: 30154X01.DWG
P: PAGESET/PLT-BL
1/30/06 SYR-85-NES LAF RCA
N/30154004/30154W10.DWG

GENERAL ELECTRIC COMPANY
PITTSFIELD MASSACHUSETTS

GMA 2 INTERIM MONITORING PROGRAM

WATER-TABLE CONTOUR MAP - FALL 2004

BBL BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE 3

FORMER OXBOW AREA J

EAST STREET

PARKSIDE AVE

LONGVIEW TER

VENTURA AVE.

East Branch Housatonic River

FORMER OXBOW AREA K

976.22 GMA2-1

975.26 GMA2-6

GMA2-3 977.96

974.46 GMA2-2

GMA2-4 975.35

GMA2-8 974.98

GMA2-7 975.88

OJ-MW-1 977.82

977.96 OJ-MW-2

J-1R 974.01

J-1

974.57 GMA2-9

SG-1 971.32

GMA2-5 977.15

976 977 976 977 977 972 972 973 974 975 976 977 976 975 974 973 972 972 973 974 975 976 977

LEGEND:

- GMA 2 BOUNDARY
- FORMER OXBOW/LOWLAND AREAS
- FENCE
- MONITORING WELL
- STAFF GAUGE
- 976.22 GROUNDWATER ELEVATION (FT AMSL)
- 976 GROUNDWATER ELEVATION CONTOUR (FT AMSL), DASHED WHERE INFERRED

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 APRIL 20, 2005.

0 100' 200'

GRAPHIC SCALE

X: 30131X01.DWG
P: PAGESET/PLT-BL
1/30/06 SYR-85-NES WLJ RCA
N/30154004/30154W11.DWG

GENERAL ELECTRIC COMPANY
PITTSFIELD MASSACHUSETTS

GMA 2 INTERIM MONITORING PROGRAM

WATER-TABLE CONTOUR MAP - SPRING 2005

BBL BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE 4

FORMER OXBOW AREA J

FORMER OXBOW AREA K

EAST STREET

PARKSIDE AVE

VENTURA AVE.

LONGVIEW TER

East Branch Housatonic River

GMA2-1 976.71

GMA2-2 975.88

GMA2-3 979.07

GMA2-4 974.96

GMA2-5 NM

GMA2-6 976.03

GMA2-7 977.21

GMA2-8 974.45

GMA2-9 975.35

OU-MW-1 983.79

OU-MW-2 979.04

J-1R 975.56

J-1

SG-1 973.24

971 972 973 974 975 976 977 978 979 980 981 982 983

LEGEND:

- GMA 2 BOUNDARY
- FORMER OXBOW/LOWLAND AREAS
- FENCE
- MONITORING WELL
- STAFF GAUGE
- 975.35 GROUNDWATER ELEVATION (FT AMSL)
- 976 GROUNDWATER ELEVATION CONTOUR (FT AMSL), DASHED WHERE INFERRED

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 MEASUREMENTS OBTAINED OCTOBER 27 – NOVEMBER 7, 2005. RIVER LEVEL MEASUREMENT OBTAINED ON NOVEMBER 7, 2005.
7. NM = NOT MEASURED.

0 100' 200'

GRAPHIC SCALE

X: 30131X01.DWG
P: PAGESET/PLT-BL
1/30/06 SYR-85-NES LAF RCA
N/30154004/30154W12.DWG

GENERAL ELECTRIC COMPANY
PITTSFIELD MASSACHUSETTS

GMA 2 INTERIM MONITORING PROGRAM

WATER-TABLE CONTOUR MAP - FALL 2005

BBL BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE 5

Appendices

BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

Appendix A

Groundwater Elevation Monitoring Data

BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

APPENDIX A
GROUNDWATER ELEVATION MONITORING DATA

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR FALL 2005
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

Well Name	Measuring Point Elev (Ft.)	Date	Depth to Water (feet BMP)	Corrected Water Elev. (feet)
Former Oxbow Area J				
GMA 2-1	991.36	10/12/2004	15.24	976.12
GMA 2-1	991.36	4/20/2005	15.14	976.22
GMA 2-1	991.36	9/16/2005	16.58	974.78
GMA 2-1	991.36	10/27/2005	14.65	976.71
GMA 2-1	991.36	11/3/2005	15.00	976.36
GMA 2-2	991.19	10/12/2004	16.12	975.07
GMA 2-2	991.19	4/20/2005	16.73	974.46
GMA 2-2	991.19	10/27/2005	15.31	975.88
GMA 2-3	991.48	10/12/2004	13.85	977.63
GMA 2-3	991.48	4/20/2005	13.52	977.96
GMA 2-3	991.48	10/27/2005	12.41	979.07
GMA 2-6	989.73	10/12/2004	14.39	975.34
GMA 2-6	989.73	4/20/2005	14.47	975.26
GMA 2-6	989.73	10/27/2005	13.70	976.03
GMA 2-7	989.64	10/12/2004	13.83	975.81
GMA 2-7	989.64	4/20/2005	13.76	975.88
GMA 2-7	989.64	10/28/2005	12.43	977.21
J-1R	988.25	10/12/2004	13.51	974.74
J-1R	988.25	4/20/2005	14.24	974.01
J-1R	988.25	10/27/2005	12.69	975.56
MW-1	994.47	10/12/2004	11.16	983.31
MW-1	994.47	4/20/2005	16.65	977.82
MW-1	994.47	10/27/2005	10.68	983.79
MW-2	991.64	10/12/2004	13.64	978.00
MW-2	991.64	4/20/2005	13.68	977.96
MW-2	991.64	10/28/2006	12.60	979.04
Former Oxbow Area K				
GMA 2-4	983.41	10/12/2004	7.81	975.60
GMA 2-4	983.41	4/20/2005	8.06	975.35
GMA 2-4	983.41	9/16/2005	9.76	973.65
GMA 2-4	983.41	11/7/2005	8.45	974.96
GMA 2-5	985.85	10/12/2004	9.16	976.69
GMA 2-5	985.85	4/20/2005	8.70	977.15
GMA 2-8	982.30	10/12/2004	6.77	975.53
GMA 2-8	982.30	4/20/2005	7.32	974.98
GMA 2-8	982.30	11/7/2005	7.85	974.45
GMA 2-9	981.29	10/12/2004	6.16	975.13
GMA 2-9	981.29	4/20/2005	6.72	974.57
GMA 2-9	981.29	9/16/2005	8.30	972.99
GMA 2-9	981.29	10/28/2005	5.94	975.35
GMA 2-9	981.29	11/3/2005	7.06	974.23

APPENDIX A
GROUNDWATER ELEVATION MONITORING DATA

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR FALL 2005
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

Well Name	Measuring Point Elev (Ft.)	Date	Depth to Water (feet BMP)	Corrected Water Elev. (feet)
Housatonic River (Foot Bridge)				
GMA2-SG-1	989.82	10/12/2004	14.15	975.67
GMA2-SG-1	989.82	1/18/2005	15.28	974.54
GMA2-SG-1	989.82	2/28/2005	15.83	973.99
GMA2-SG-1	989.82	4/5/2005	14.95	974.87
GMA2-SG-1	989.82	4/20/2005	18.50	971.32
GMA2-SG-1	989.82	5/25/2005	15.17	974.65
GMA2-SG-1	989.82	6/30/2005	15.69	974.13
GMA2-SG-1	989.82	7/28/2005	17.25	972.57
GMA2-SG-1	989.82	8/31/2005	17.25	972.57
GMA2-SG-1	989.82	9/19/2005	17.25	972.57
GMA2-SG-1	989.82	10/27/2005	NA	NA
GMA2-SG-1	989.82	11/7/2005	16.58	973.24
GMA2-SG-1	989.82	11/29/2005	15.95	973.87

Notes:

1. ft BMP - feet Below Measuring Point.
2. NA indicates information not available.
3. 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.

Appendix B

Field Sampling Data

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TABLE B-1
SUMMARY OF GROUNDWATER SAMPLING METHODS

GROUNDWATER QUALITY INTERIM REPORT FOR FALL 2005
GROUNDWATER MANAGEMENT AREA 2
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

Well ID	Sampling Method						Comments
	Spring 2002	Fall 2002	Spring 2003	Fall 2003	Spring 2004	Fall 2005	
GMA2-1	BP	PP	PP	BP	BP	BP	Fall 2002: Flow-through turbidity meter malfunction; Hach meter used to measure turbidity.
GMA2-2	PP/BA	PP	BP	BP	NS	NS	Fall 2002: Flow-through turbidity meter malfunction; Hach meter used to measure turbidity. Spring 2002: VOCs collected with a disposable teflon bailer.
GMA2-3	PP/BA	PP	PP	PP	NS	NS	Spring 2002: VOCs collected with a disposable teflon bailer.
GMA2-4	PP	PP	PP	PP	BP	BP	Fall 2002: Dissolved oxygen meter malfunction. Spring 2002: Dissolved oxygen meter malfunction.
GMA2-5	PP/BA	PP	PP	PP	NS	NS	Fall 2002: Dissolved oxygen meter malfunction. Spring 2002: VOCs collected with a disposable teflon bailer.
GMA2-6	PP	PP	PP	PP	NS	NS	Spring 2002: Dissolved oxygen meter malfunction.
GMA2-7	PP	PP	NS	PP	PP	NS	Spring 2003: Access to well was denied by property owner.
GMA2-8	PP	PP	PP	PP	NS	NS	Fall 2002: Dissolved oxygen meter malfunction.
GMA2-9	BP	PP	PP	PP	BP	BP	Spring 2002: Flow-through turbidity meter malfunction; Hach meter used to measure turbidity.
J-1R	BP	PP	PP	PP	NS	NS	Fall 2002: Dissolved oxygen meter malfunction. Spring 2002: Dissolved oxygen meter malfunction; Hach meter used to measure turbidity.
OJ-MW-2	PP/BA	PP	NS	PP	PP	NS	Spring 2003: Access to well was denied by property owner. Fall 2002: Well went dry during sampling. Several visits required to collect full sample volume. Spring 2002: VOCs collected with a disposable teflon bailer.

Notes:
BP - Bladder Pump.
PP - Peristaltic Pump.
PP/BA - Peristaltic Pump with Bailer used for VOC sample collection.
NS - Not Sampled.

GROUNDWATER SAMPLING LOG

Well No. GMA2-1
Key No. FX-37
PID Background (ppm) —
Well Headspace (ppm) —

Site/GMA Name GMA2 - PITTSFIELD, MA
Sampling Personnel AES/JFH
Date 11/3/2025
Weather PARTLY CLOUDY, HIGH 40s

WELL INFORMATION

Reference Point Marked? Y N
Height of Reference Point 3.2-.23 Meas. From GROUND
Well Diameter 2"
Screen Interval Depth 13.8-23.8 Meas. From GROUND
Water Table Depth 15.0' Meas. From TIC
Well Depth 27.18 Meas. From TIC
Length of Water Column 12.18
Volume of Water in Well ~~1.98~~ 1.99 GALLONS
Intake Depth of Pump/Tubing 19.0' Meas. From GROUND

Reference Point Identification:
TIC: Top of Inner (PVC) Casing
TOC: Top of Outer (Protective) Casing
Grade/BGS: Ground Surface

Redeveloped? Y N

Sample Time 1105
Sample ID GMA2-1
Duplicate ID —
MS/MSD GMA2-1
Split Sample ID —

Required	Analytical Parameters:	Collected
( )	VOCs (Std. list)	( )
( )	VOCs (Exp. list)	( )
( )	SVOCs	( )
( )	PCBs (Total)	( )
(X)	PCBs (Dissolved)	(X)
( )	Metals/Inorganics (Total)	( )
( )	Metals/Inorganics (Dissolved)	( )
( )	EPA Cyanide (Dissolved)	( )
(X)	PAC Cyanide (Dissolved)	(X)
( )	PCDDs/PCDFs	( )
( )	Pesticides/Herbicides	( )
( )	Natural Attenuation	( )
( )	Other (Specify)	( )

EVACUATION INFORMATION

Pump Start Time 0955
Pump Stop Time 1135
Minutes of Pumping 100
Volume of Water Removed 6000 mL
Did Well Go Dry? Y N

Evacuation Method: Bailer ( ) Bladder Pump (X)
Peristaltic Pump ( ) Submersible Pump ( ) Other/Specify ( )
Pump Type: MARSCHALK BLADDER PUMP
Samples collected by same method as evacuation? Y N (specify)

Water Quality Meter Type(s) / Serial Numbers: YSI 556 MPS, HACH 2100P TURBIDIMETER

Time	Pump Rate (L/min.)	Total Gallons Removed	Water Level (ft TIC)	Temp. (Celsius) [3%]*	pH [0.1 units]*	Sp. Cond. (mS/cm) [3%]*	Turbidity (NTU) [10% or 1 NTU]*	DO (mg/l) [10% or 0.1 mg/l]*	ORP (mV) [10 mV]*
1000	100	—	15.0	—	—	—	141	—	—
1005	100	500	15.43	—	—	—	117	—	—
1010	100	1000	15.31	—	—	—	80	—	—
1015	100	1500	15.86	—	—	—	68	—	—
1020	100	2000	15.86	—	—	—	38	—	—
1025	100	2500	15.86	13.41	6.68	1.288	21	2.96	1.3
1030	100	3000	15.86	13.96	6.75	1.298	16	1.90	15.3
1035	100	3500	15.86	13.85	6.79	1.318	12	1.22	-19.0

* The stabilization criteria for each field parameter (three consecutive readings collected at 3- to 5-minute intervals) is listed in each column heading.

OBSERVATIONS/SAMPLING METHOD DEVIATIONS INITIAL PURGE HAS SLIGHT ORANGE COLOR, SOME TURBIDITY (PARTICLES).

SAMPLE DESTINATION

Laboratory:
Delivered Via:
Airbill #:

Field Sampling Coordinator:

GROUNDWATER SAMPLING LOG

Well No. GMA2-1

Site/GMA Name GMA2 - PITTSFIELD, MA

Sampling Personnel REG/MFH

Date 11/3/2005

Weather PARTLY CLOUDY, HIGH 40s

WELL INFORMATION - See Page 1

Time	Pump Rate ~~(L/min.)~~	Total Gallons Removed	Water Level (ft TIC)	Temp. (Celsius) [3%]*	pH [0.1 units]*	Sp. Cond. (mS/cm) [3%]*	Turbidity (NTU) [10% or 1 NTU]*	DO (mg/l) [10% or 0.1 mg/l]*	ORP (mV) [10 mV]*
1040	100	4000	15.36	13.51	6.82	1.320	8	1.33	-19.1
1045	100	4500	15.36	13.47	6.83	1.328	6	1.13	-19.0
1050	100	5000	15.36	13.44	6.84	1.329	5	1.12	-19.2
1055	100	5500	15.36	13.59	6.85	1.327	6	1.11	-19.0
1100	100	6000	15.36	13.64	6.87	1.328	5	1.10	-18.9
SAMPLE TIME 1105									

* The stabilization criteria for each field parameter (three consecutive readings collected at 3- to 5-minute intervals) is listed in each column heading.

OBSERVATIONS/SAMPLING METHOD DEVIATIONS SEE NOTES ON PAGE 1.

DTW: 14.40 TIC
TD: 15.13 TIC
3.73

2" ID
vol. in well: 0.61 gal

PAGE 1 OF 1

GROUNDWATER SAMPLING LOG

Well No. GMA2-4

Site/GMA Name GMA-2
Sampling Personnel JAS, SCS
Date 11/4/05
Weather Sunny, 50's

start pump: 922
stop pump: 1045 minutes: 53
Sample time: 1030

WELL INFORMATION - See Page 1 Vol/purge: 1.25 x sample

Sample for: PCBs, dissolved

Time	Pump Rate (L/min.)	Total Gallons Removed	Water Level (ft TIC)	Temp. (Celsius) [3%]*	pH [0.1 units]*	Sp. Cond. (mS/cm) [3%]*	Turbidity (NTU) [10% or 1 NTU]*	DO (mg/l) [10% or 0.1 mg/l]*	ORP (mV) [10 mV]*
940	0.11	0.1		14.31	6.88	0.544	42	6.55	273.0
945	0.11	0.2	14.45	14.56	6.87	0.548	25.8	2.53	21.8
950	0.11	0.3		14.90	6.83	0.551	18.8	1.52	190.6
955	0.11	0.4	14.48	14.87	6.89	0.559	10.8	1.17	184.8
1000	0.11	0.5		15.12	6.89	0.566	7.00	1.01	187.4
1005	0.11	0.6	14.48	15.62	6.90	0.572	6.17	0.89	187.4
1010	0.11	0.8		16.03	6.96	0.583	6.82	0.84	178.1
1015	0.11	0.9		15.95	6.98	0.593	3.76	0.77	166.0
1020	0.11	1.0	14.48	15.48	7.00	0.601	330	0.77	159.0
1025	0.11	1.2	14.48	15.43	6.96	0.603	3.38	0.74	157.6

* The stabilization criteria for each field parameter (three consecutive readings collected at 3- to 5-minute intervals) is listed in each column heading.

OBSERVATIONS/SAMPLING METHOD DEVIATIONS Initial purge: trace orange flocculates, light yellow color, no odor or sheen.

GROUNDWATER SAMPLING LOG

Well No. GMA 2-9
Key No. _____
PID Background (ppm) _____
Well Headspace (ppm) _____

Site/GMA Name GMA-2
Sampling Personnel SA / JCS
Date 11/3/05
Weather mostly sunny, 50s

WELL INFORMATION

Reference Point Marked? (Y) N
Height of Reference Point _____ Meas. From _____
Well Diameter 2 in
Screen Interval Depth _____ Meas. From _____
Water Table Depth 7.06 Meas. From TIC
Well Depth 17.23 Meas. From TIC
Length of Water Column 10.17
Volume of Water in Well 1.665 gal
Intake Depth of Pump/Tubing 12.15 Meas. From TIC

Reference Point Identification:
TIC: Top of Inner (PVC) Casing
TOC: Top of Outer (Protective) Casing
Grade/BGS: Ground Surface

Redevelop? Y (N)

Sample Time 1600
Sample ID GMA2-9
Duplicate ID DUP-4
MS/MSD —
Split Sample ID —

Required	Analytical Parameters:	Collected
( )	VOCs (Std. list)	( )
( )	VOCs (Exp. list)	( )
( )	SVOCs	( )
( )	PCBs (Total)	( )
(✓)	PCBs (Dissolved)	( )
( )	Metals/Inorganics (Total)	( )
( )	Metals/Inorganics (Dissolved)	( )
(✓)	EPA Cyanide (Dissolved)	( )
( )	PAC Cyanide (Dissolved)	( )
( )	PCDDs/PCDFs	( )
( )	Pesticides/Herbicides	( )
( )	Natural Attenuation	( )
( )	Other (Specify)	( )

EVACUATION INFORMATION

Pump Start Time 1508
Pump Stop Time 1625
Minutes of Pumping 30
Volume of Water Removed 0.75 + samples
Did Well Go Dry? Y (N)

Evacuation Method: Bailer ( ) Bladder Pump (✓)
Peristaltic Pump ( ) Submersible Pump ( ) Other/Specify ( )
Pump Type: bladder
Samples collected by same method as evacuation? (Y) N (specify)

Water Quality Meter Type(s) / Serial Numbers: YSI 556 MPS #4

Time	Pump Rate (L/min.)	Total Gallons Removed	Water Level (ft TIC)	Temp. (Celsius) [3%]*	pH [0.1 units]*	Sp. Cond. (mS/cm) [3%]*	Turbidity (NTU) [10% or 1 NTU]*	DO (mg/l) [10% or 0.1 mg/l]*	ORP (mV) [10 mV]*
1512	0.1	0.1	7.29	12.93	7.45	0.393	25.9	9.68	265.0
1517	0.1	0.2		12.78	7.50	0.357	28.6	6.58	269.2
1522	0.1	0.3	7.19	12.58	7.46	0.355	28.2	6.28	272.4
1527	0.1	0.4	7.19	12.46	7.45	0.354	23.7	6.14	273.3
1532	0.1	0.5	7.19	12.38	7.46	0.354	17.5	5.97	275.1
1537	0.1	0.6		12.33	7.47	0.383	15.0	5.93	275.4
1542	0.1	0.7	7.19	12.27	7.47	0.383	14.8	5.97	275.9
1547	0.1	0.75	7.19	12.17	7.49	0.383	14.3	5.93	276.0

* The stabilization criteria for each field parameter (three consecutive readings collected at 3- to 5-minute intervals) is listed in each column heading.

OBSERVATIONS/SAMPLING METHOD DEVIATIONS initial purge: clear, colorless, no odor or sheen
final purge: same

DUP-4 collected

SAMPLE DESTINATION

Laboratory: _____
Delivered Via: _____
Airbill #: _____

Field Sampling Coordinator: _____

Appendix C

Validated Groundwater Analytical Results – Fall 2005

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TABLE C-1
FALL 2005 GROUNDWATER ANALYTICAL RESULTS

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR FALL 2005
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in parts per million, ppm)

Parameter / Sample ID: / Date Collected:	GMA2-1 11/03/05	GMA2-4 11/04/05	GMA2-9 11/03/05
PCBs-Filtered			
Aroclor-1016	ND(0.000065)	ND(0.000065)	ND(0.000065) [ND(0.000065)]
Aroclor-1221	ND(0.000065)	ND(0.000065)	ND(0.000065) [ND(0.000065)]
Aroclor-1232	ND(0.000065)	ND(0.000065)	ND(0.000065) [ND(0.000065)]
Aroclor-1242	ND(0.000065)	ND(0.000065)	ND(0.000065) [ND(0.000065)]
Aroclor-1248	ND(0.000065)	ND(0.000065)	ND(0.000065) [ND(0.000065)]
Aroclor-1254	0.00032	0.00039	0.00038 J [0.00063 J]
Aroclor-1260	ND(0.000065)	ND(0.000065)	ND(0.000065) [ND(0.000065)]
Total PCBs	0.00032	0.00039	0.00038 J [0.00063 J]
Inorganics-Filtered			
Cyanide	ND(0.0100)	NA	ND(0.0100) [ND(0.0100)]

Notes:
1. Samples were collected by Blasland, Bouck & Lee, Inc., and submitted to SGS Environmental Services, Inc. for analysis of PCBs (filtered) and cyanide (filtered).
2. Samples have been validated as per Field Sampling Plan/Quality Assurance Project Plan (FSP/QAPP), General Electric Company, Pittsfield, Massachusetts, Blasland Bouck & Lee, Inc. (approved May 29, 2004 and resubmitted June 19, 2004).
3. NA - Not Analyzed.
4. ND - Analyte was not detected. The number in parentheses is the associated detection limit.
5. Field duplicate sample results are presented in brackets.

Data Qualifiers:

Organics
J - Indicates that the associated numerical value is an estimated concentration.

Appendix D

Historical Groundwater Data

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Historical Groundwater Data

Total PCB Concentrations – Wells Sampled in Fall 2005

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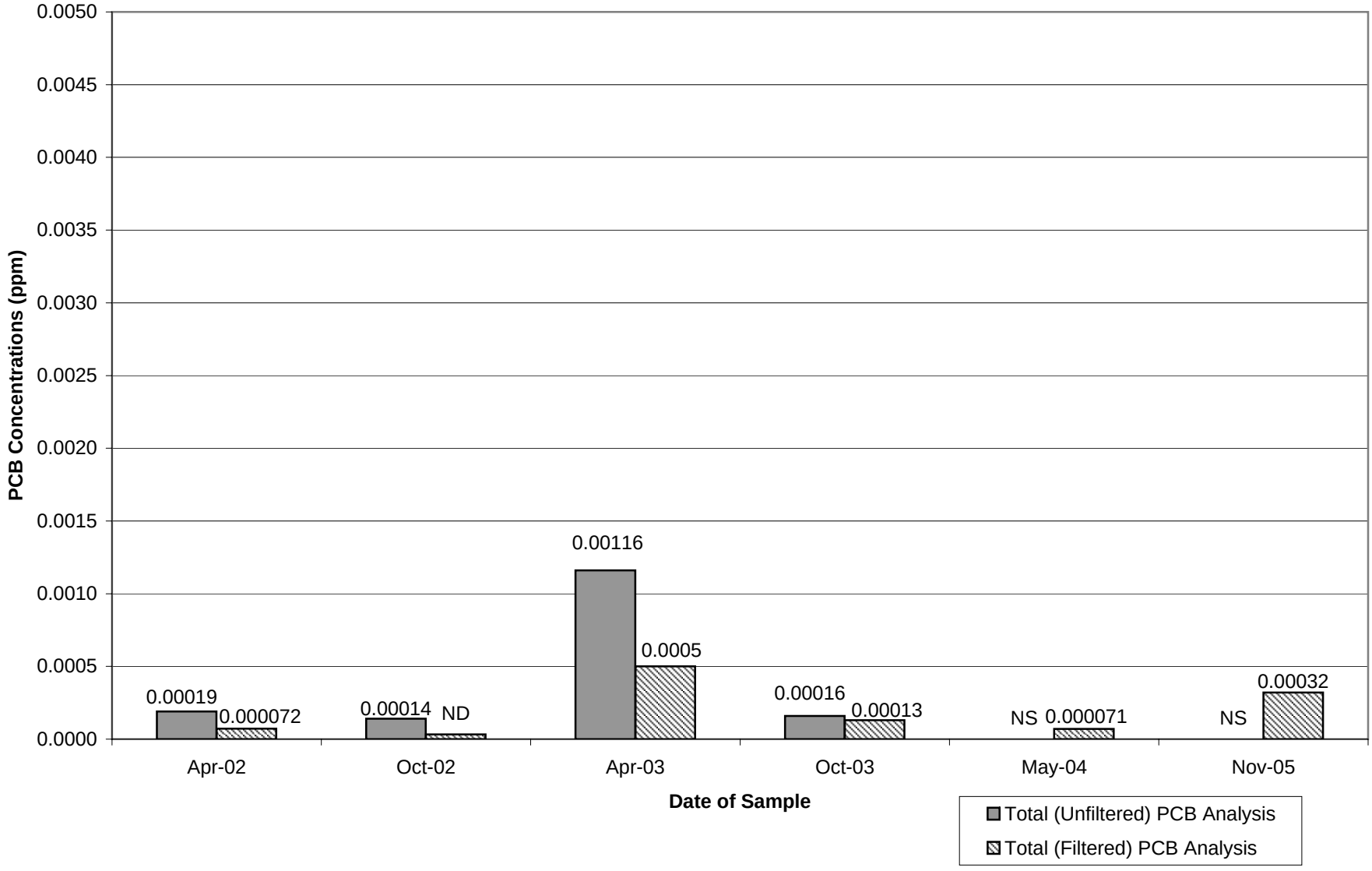
Appendix D

Groundwater Management Area 2
General Electric Company
Pittsfield, Massachusetts

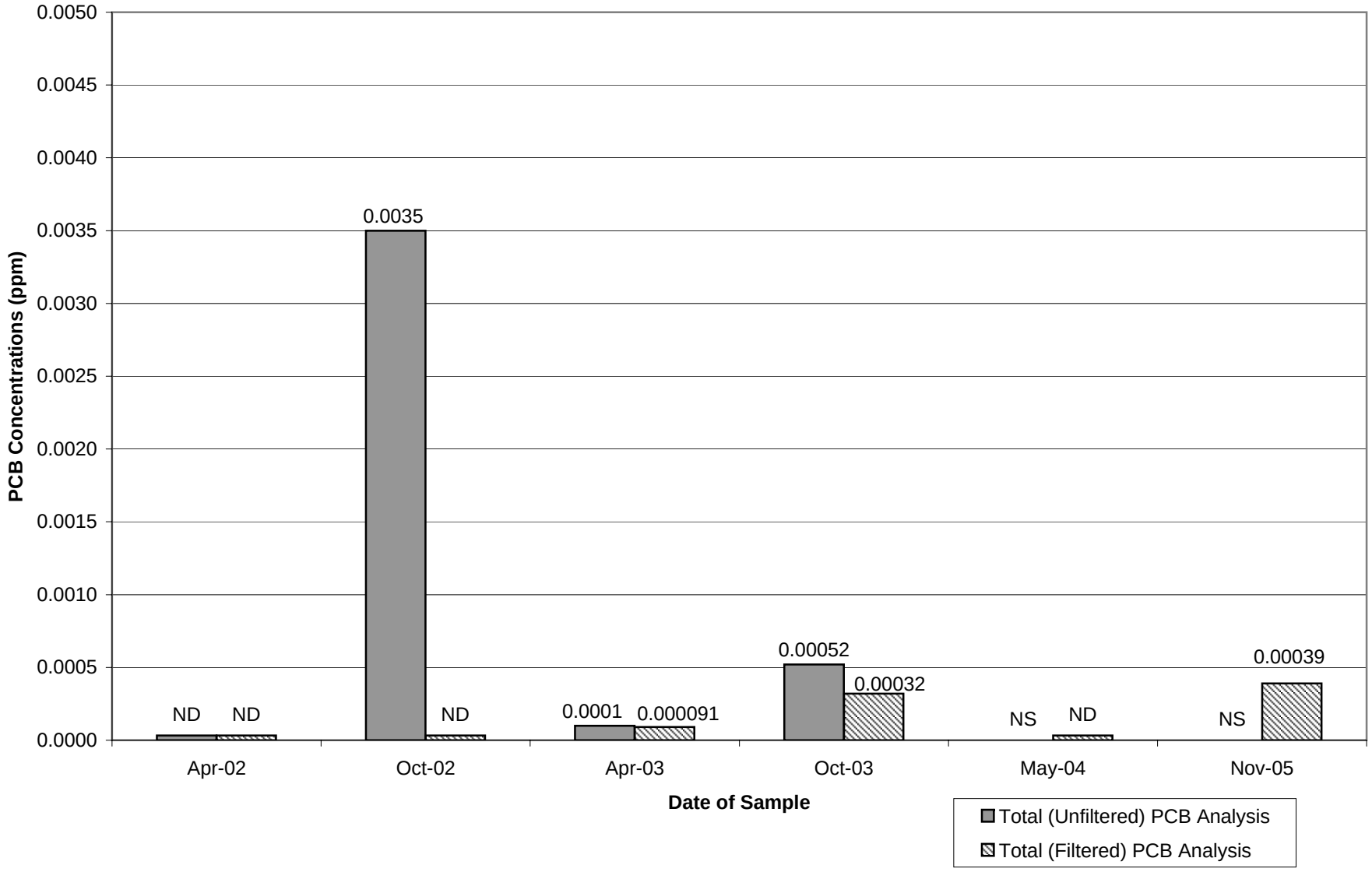
Well GMA2-1 Historical PCB Concentrations



Appendix D

Groundwater Management Area 2
General Electric Company
Pittsfield, Massachusetts

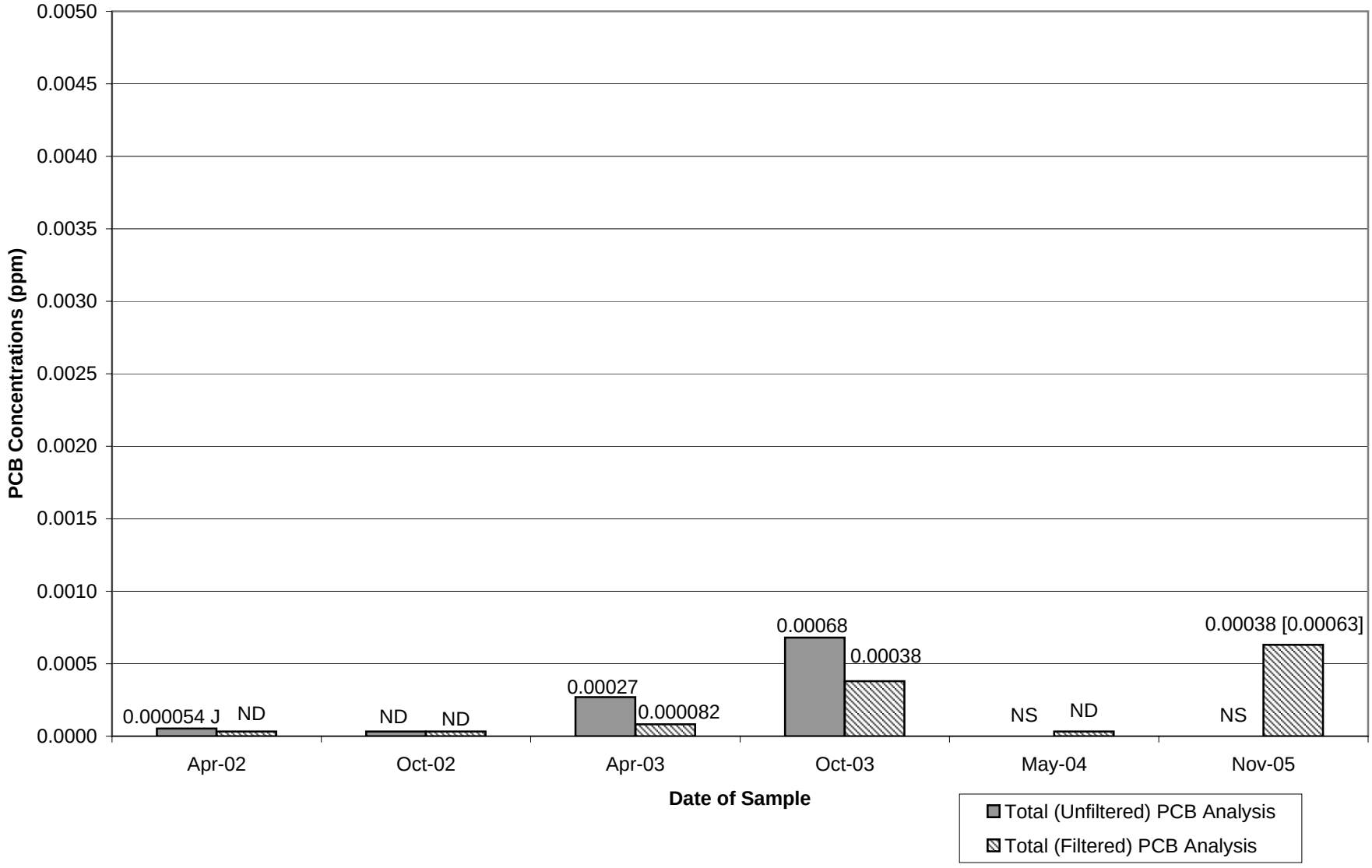
Well GMA2-4 Historical PCB Concentrations



Appendix D

Groundwater Management Area 2
General Electric Company
Pittsfield, Massachusetts

Well GMA2-9 Historical PCB Concentrations



Appendix E

Data Validation Report – Fall 2005

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APPENDIX E
GROUNDWATER SAMPLING DATA VALIDATION REPORT
GROUNDWATER MANAGEMENT AREA 2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

1.0 General

This appendix summarizes the Tier I and Tier II data reviews performed for groundwater samples collected during Remedial Investigation activities at Groundwater Management Area 2 (GMA 2) located in Pittsfield, Massachusetts. The samples were analyzed for polychlorinated biphenyls (PCBs) and cyanide by SGS Environmental Services, Inc. (formerly CT&E) of Charleston, West Virginia. Data validation was performed for five PCB samples and three cyanide samples.

2.0 Data Evaluation Procedures

This appendix outlines the applicable quality control criteria utilized during the data review process and any deviations from those criteria. The data review was conducted in accordance with the following documents:

- *Field Sampling Plan/Quality Assurance Project Plan, General Electric Company, Pittsfield, Massachusetts*, Blasland, Bouck & Lee, Inc. (BBL; FSP/QAPP, approved May 25, 2004 and resubmitted June 15, 2004);

- *Region I Tiered Organic and Inorganic Data Validation Guidelines*, USEPA Region I (July 1, 1993);

- *Region I Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses*, USEPA Region I (June 13, 1988) (Modified February 1989);

- *Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, USEPA Region I (February 1, 1988) (Modified November 1, 1988); and

- *Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, USEPA Region I (Draft, December 1996).

A tabulated summary of the Tier I and Tier II data evaluations is presented in Table E-1. Each sample subjected to evaluation is listed in Table E-1 to document that data review was performed, as well as present the highest level of data validation (Tier I or Tier II) that was applied. Samples that required data qualification are listed separately for each parameter (compound or analyte) that required qualification.

The following data qualifiers were used in this data evaluation.

J The compound was positively identified, but the associated numerical value is an estimated concentration. This qualifier is used when the data evaluation procedure identifies a deficiency in the data generation process. This qualifier is also used when a compound is detected at an estimated concentration less than the corresponding practical quantitation limit (PQL).

U The compound was analyzed for, but was not detected. The sample quantitation limit is presented and adjusted for dilution and (for solid samples only) percent moisture. Non-detect sample results are presented as ND(PQL) within this report and in Table E-1 for consistency with documents previously prepared for this investigation.

UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is estimated and may or may not represent the actual level of quantitation. Non-detect sample results that required qualification are presented as ND(PQL) J within this report and in Table E-1 for consistency with documents previously prepared for this investigation.

R Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data should not be used for any qualitative or quantitative purpose.

3.0 Data Validation Procedures

The FSP/QAPP provides (in Section 7.5) that all analytical data will be validated to a Tier I level following the procedures presented in the *Region I Tiered Organic and Inorganic Data Validation Guidelines* (USEPA guidelines). Accordingly, 100% of the analytical data for these investigations were subjected to Tier I review. The Tier I review consisted of a completeness evidence audit, as outlined in the *USEPA Region I CSF Completeness Evidence Audit Program* (USEPA Region I, 7/31/91), to ensure that all laboratory data and documentation were present. In the event data packages were determined to be incomplete, the missing information was requested from the laboratory. Upon completion of the Tier I review, the data packages complied with the USEPA Region I Tier I data completeness requirements.

As specified in the FSP/QAPP, approximately 25% of the laboratory sample delivery group packages were randomly chosen to be subjected to Tier II review. A Tier II review was also performed to resolve data usability limitations identified from laboratory qualification of the data during the Tier I data review. The Tier II data review consisted of a review of all data package summary forms for identification of quality assurance/quality control (QA/QC) deviations and qualification of the data according to the Region I Data Validation Functional Guidelines. The Tier II review resulted in the qualification of data for several samples due to minor QA/QC deficiencies. Additionally, all field duplicates were examined for relative percent difference (RPD) compliance with the criteria specified in the FSP/QAPP. A tabulated summary of the samples subjected to Tier I and Tier II data evaluations is presented in the following table.

Summary of Samples Subjected to Tier I and Tier II Data Validation

Parameter	Tier I Only			Tier I &Tier II			Total
	Samples	Duplicates	Blanks	Samples	Duplicates	Blanks	
PCBs	0	0	0	3	1	1	5
Cyanide	0	0	0	3	0	0	3
Total	**0**	**0**	**0**	**6**	**1**	**1**	**8**

When qualification of the sample data was required, the sample results associated with a QA/QC parameter deviation were qualified in accordance with the procedures outlined in USEPA Region I data validation guidance documents. When the data validation process identified several quality control deficiencies, the cumulative effect of the various deficiencies was employed in assigning the final data qualifier. A summary of the QA/QC parameter deviations that resulted in data qualification is presented below for each analytical method.

4.0 Data Review

Field duplicate samples were analyzed to evaluate the overall precision of laboratory and field procedures. The RPD between field duplicate samples is required to be less than 30% for water sample values greater than five times the PQL for organics. Sample results that exceeded these limits were qualified as estimated (J). The compounds that did not meet field duplicate RPD requirements and the number of samples qualified due to those deviations are presented in the following table.

Compounds Qualified Due to Field Duplicate Deviations

Analysis	Compound	Number of Affected Samples	Qualification
PCBs	Aroclor-1254	2	J
	Total PCBs	2	J

5.0 Overall Data Usability

This section summarizes the analytical data in terms of its completeness and usability for site characterization purposes. Data completeness is defined as the percentage of sample results that have been determined to be usable during the data validation process. The percent usability calculation included analyses evaluated under both the Tier I and Tier II data validation reviews. Data completeness with respect to usability was calculated separately for inorganic and each of the organic analysis. The percent usability calculation also includes quality control samples collected to aid in the evaluation of data usability. Therefore, field/equipment blank, trip blank, and field duplicate data determined to be unusable as a result of the validation process are represented in the percent usability value tabulated in the following table.

Data Usability

Parameter	Percent Usability	Rejected Data
Cyanide	100	None
PCBs	100	None

The data package completeness, as determined from the Tier I data review, was used in combination with the data quality deviations identified during the Tier II data review to determine overall data quality. As specified in the FSP/QAPP, the overall precision, accuracy, representativeness, comparability, and completeness (PARCC) parameters determined from the Tier I and Tier II data reviews were used as indicators of overall data quality. These parameters were assessed through an evaluation of the results of the field and laboratory QA/QC sample analyses to provide a measure of compliance of the analytical data with the Data Quality Objectives (DQOs) specified in the FSP/QAPP. Therefore, the following sections present summaries of the PARCC parameters assessment with regard to the DQOs specified in the FSP/QAPP.

5.1 Precision

Precision measures the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared to their average value. For this investigation, precision was defined as the RPD between duplicate sample results. The duplicate samples used to evaluate precision included laboratory duplicates, field duplicates, and MS/MSD samples. For this analytical program, 4.6% of the data required qualification due to field duplicate RPD deviations. None of the data required qualification due to laboratory duplicate RPD deviations, or MS/MSD RPD deviations.

5.2 Accuracy

Accuracy measures the bias in an analytical system or the degree of agreement of a measurement with a known reference value. For this investigation, accuracy was defined as the percent recovery of QA/QC samples that were spiked with a known concentration of an analyte or compound of interest. The QA/QC samples used to evaluate analytical accuracy included instrument calibration, internal standards, Laboratory Control Standards (LCSs), MS/MSD samples, CRDL samples, and surrogate compound recoveries. For this analytical program, none of the data required qualification due to instrument calibration deviations, internal standards deviations, Laboratory Control Standards (LCSs) recovery deviations, MS/MSD recovery deviations, CRDL recovery deviations, or surrogate compound recovery deviations.

5.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter, which is most concerned with the proper design of the sampling program. The representativeness criterion is best satisfied by making certain that sampling locations are selected properly and a sufficient number of samples are collected. This parameter has been addressed by collecting samples at locations specified in MDEP-approved work plans, and by following the procedures for sample collection/analyses that were described in the FSP/QAPP. Additionally, the analytical program used procedures consistent with USEPA-approved analytical methodology. A QA/QC parameter that is an indicator of the representativeness of a sample is holding time. Holding time criteria are established to maintain the samples in a state that is representative of the in-situ field conditions before analysis. For this analytical program, none of the data required qualification for exceeding holding time requirements.

5.4 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. This goal was achieved through the use of the standardized techniques for sample collection and analysis presented in the FSP/QAPP. The USEPA SW-846[1] analytical methods presented in the FSP/QAPP are updated on occasion by the USEPA to benefit from recent technological advancements in analytical chemistry and instrumentation. In most cases, the method upgrades include the incorporation of new technology that improves the sensitivity and stability of the instrumentation or allows the laboratory to increase throughput without hindering accuracy and precision. Overall, the analytical methods for this investigation have remained consistent in their general approach through continued use of the basic analytical techniques (e.g., sample extraction/preparation, instrument calibration, QA/QC procedures). Through this use of consistent base analytical procedures and by requiring that updated procedures meet the QA/QC criteria specified in the FSP/QAPP, the analytical data from past, present, and future sampling events will be comparable to allow for qualitative and quantitative assessment of site conditions. Through this use of consistent base analytical procedures and by requiring that updated procedures meet the QA/QC criteria specified in the FSP/QAPP, the analytical data from past, present, and future sampling events will be comparable to allow for qualitative and quantitative assessment of site conditions.

[1] Test Methods for evaluating Solid Waste, SW-846, USEPA, Final Update III, December 1996.

5.5 Completeness

Completeness is defined as the percentage of measurements that are judged to be valid or usable to meet the prescribed DQOs. The completeness criterion is essentially the same for all data uses -- the generation of a sufficient amount of valid data. This analytical data set had an overall usability of 100%.

TABLE E - 1
ANALYTICAL DATA VALIDATION SUMMARY
GROUNDWATER MANAGEMENT AREA 2

GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in parts per million, ppm)

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
PCBs											
5K0P102	GMA2-1 (Filtered)	11/3/2005	Water	Tier II	No						
5K0P124	DUP-4 (Filtered)	11/3/2005	Water	Tier II	Yes	Aroclor-1254	Field Duplicate RPD (Water)	49.5%	<30%	0.00063 J	GMA2-9
						Total PCBs	Field Duplicate RPD (Water)	49.5%	<30%	0.00063 J	
5K0P124	GMA2-4 (Filtered)	11/4/2005	Water	Tier II	No						
5K0P124	GMA2-9 (Filtered)	11/3/2005	Water	Tier II	Yes	Aroclor-1254	Field Duplicate RPD (Water)	49.5%	<30%	0.00038 J	
						Total PCBs	Field Duplicate RPD (Water)	49.5%	<30%	0.00038 J	
5K0P124	RINSE BLANK (Filtered)	11/4/2005	Water	Tier II	No						
Cyanides											
5K0P102	GMA2-1 (Filtered)	11/3/2005	Water	Tier II	No						
5K0P124	DUP-4 (Filtered)	11/3/2005	Water	Tier II	No						GMA2-9
5K0P124	GMA2-9 (Filtered)	11/3/2005	Water	Tier II	No						