GE
159 Plastics Avenue
Pittsfield, MA 01201
USA

Transmitted Via Overnight Courier

July 28, 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 Spring 2006

Dear Mr. Lovely:

In accordance with GE's approved *Groundwater Management Area 2 Baseline Groundwater Quality Interim Report for Fall 2003* (January 2004), enclosed is the *Groundwater Management Area 2 Groundwater Quality Monitoring Interim Report for Spring 2006.* This report summarizes the interim monitoring program activities and presents the results of the groundwater sampling and analysis performed at the Former Oxbows J and K Groundwater Management Area (GMA 2) in spring 2006.

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

Sincerely,

Richard W. Gates

Richard W. Gates
Remediation Project Manager

Enclosure
V:\GE_Pittsfield_CD_GMA_2\Reports and Presentations\GW Qual Rpt Spring 2006\40762196Ltr.doc

cc: Dean Tagliaferro, EPA
Rose Howell, EPA (CD-ROM)
Tim Conway, EPA (cover letter only)
Holly Inglis, EPA (CD-ROM)
K.C. Mitkevicius, USACE (CD-ROM)
Linda Palmieri, Weston (2 hard copies and CD-ROM)
Anna Symington, MDEP (cover letter only)
Jane Rothchild, MDEP (cover letter only)
Susan Steenstrup, MDEP (2 copies)
Thomas Angus, MDEP (cover letter only)
Mayor James Ruberto, City of Pittsfield
Pittsfield Commissioner of Public Health
Thomas Hickey, Director, PEDA
Jeffery Bernstein, Bernstein, Cushner & Kimmel
Theresa Bowers, Gradient
Nancy E. Harper, MA AG
Dale Young, MA EOEA
Michael Carroll, GE (cover letter only)
Andrew Silfer, GE (CD-ROM)
Rod McLaren, GE (cover letter only)
James Nuss, BBL
James Bieke, Goodwin Procter
John Ciampa, SPECTRA
Affected Property Owners
Public Information Repositories
GE Internal Repositories

Groundwater Management Area 2 Groundwater Quality Monitoring Interim Report for Spring 2006

General Electric Company
Pittsfield, Massachusetts

July 2006

BBL®
an ARCADIS company

Table of Contents

Tables

Figures

Appendices

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). The GMA 2 Baseline Monitoring Proposal summarized the hydrogeologic information available at that time for GMA 2 and proposed groundwater monitoring activities for the baseline monitoring period at this GMA. EPA provided conditional approval of the GMA 2 Baseline Monitoring Proposal by letter of September 6, 2001. Thereafter, certain modifications were made to the GMA 5 baseline monitoring program as a result of EPA approval conditions and/or findings during field reconnaissance of the selected monitoring locations and, subsequently, during implementation of the baseline monitoring program.

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 semi-annual reports summarizing the groundwater monitoring results, comparing the groundwater results with applicable Performance Standards, and, as appropriate, proposing modifications to the monitoring program. 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, as the soil-related Removal Actions at the RAA within GMA 2 were not yet complete, 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 at which four complete rounds of baseline sampling had not yet been completed due to previous delays in access. The results of the initial interim sampling event 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.

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 previous round of interim groundwater sampling activities, performed at this GMA in fall 2005, were provided in GE's January 2006 *Groundwater Management Area 2 Groundwater Quality Interim Report for Fall 2005* (Fall 2005 GMA 2 Groundwater Quality Report), which was approved by EPA in a letter dated March 23, 2006. The results of the most recent round of interim groundwater sampling activities conducted in spring 2006 are provided in this

Groundwater Management Area 2 Groundwater Quality Monitoring Interim Report for Spring 2006 (Spring 2006 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, all of these wells, plus a river staff gauge, were monitored for groundwater elevations 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. Figure 3 illustrates groundwater elevation contours developed from data collected during the spring 2006 semi-annual monitoring round. The groundwater elevation data utilized to prepare this figure is provided in Table 3 and Appendix A. As depicted on Figure 3, a relatively steep gradient is observed at the northeast corner of the Former Oxbow J Area as a result of a sharp change in surface topography. 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 periodic flow reversals have been observed during prior monitoring events conducted following periods of heavy precipitation (i.e., fall 2004). These flow reversals are likely short-term in nature due to rapidly rising river conditions and limited to bank areas adjacent to the river. Moreover, it should also be noted that river levels during the fall 2004 monitoring period were artificially elevated due to the presence downstream of a temporary dam related to EPA sediment removal activities.

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. The baseline monitoring program was initiated at GMA 2 in the spring of 2002 and the fall 2003 sampling event constituted the fourth baseline sampling event at most of the wells in GMA 2.

In spring 2003, GE conducted a pre-design soil investigation at the former Oxbow Areas J and K RAA which encompasses GMA 2. The results of that investigation are included in a document titled *Pre-Design Investigation Report for the Former Oxbow Areas J and K Removal Action* (PDI Report), submitted by GE to EPA in July 2003. The PDI Report concluded that additional soil investigations were necessary at this RAA, and the results of those investigations and proposals to address elevated concentrations of PCBs and other (non-PCB) Appendix IX+3 constituents present in certain surface and subsurface soils at this RAA were provided in a

series of follow-up reports, most recently in the *Addendum to Final Removal Design/Removal Action Work Plan for Former Oxbow Areas J and K* (RD/RA Work Plan Addendum), submitted by GE to EPA in April 2006. Where levels of these constituents do not meet applicable Performance Standards, the associated soils will be addressed as part of the removal design/removal action (RD/RA) activities to be conducted at this RAA.

In the Fall 2003 GMA 2 Groundwater Quality Report, GE proposed that an interim groundwater monitoring program be performed until the completion of the soil related Removal Actions at the GMA 2 RAA. As approved by EPA, the interim monitoring program 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 spring 2006 semi-annual groundwater elevation monitoring activities (discussed in Section 2.2 below) between April 13, 2006 and April 19, 2006 and conducted the interim sampling event at GMA 2 from April 14 to April 19, 2006, as described in Section 2.3 below.

1.3 Format of Document

The remainder of this report is presented in four sections. Section 2 describes the groundwater-related activities performed at GMA 2 in spring 2006. Section 3 presents the analytical results obtained during the spring 2006 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 spring 2006 activities, including a comparison to those Performance Standards. Finally, Section 5 proposes certain modifications to the interim groundwater quality monitoring program and 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 spring 2006 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

Spring 2006 groundwater elevation monitoring was performed between April 13, 2006 and April 19, 2006. The groundwater elevation monitoring event involved measurement of groundwater levels at each of the 12 wells listed in Table 3 and at the Housatonic River staff gauge (which was also monitored on a monthly basis). The wells to the north of the Housatonic River (i.e., within former Oxbow Area J) were monitored on April 13, 2006, with the exception of wells J-1R and MW-2, which GE monitored on April 17, 2006. The two to the south of the Housatonic River (i.e., within former Oxbow Area K) that were not sampled (i.e., wells GMA2-5 and GMA2-8) and the river gauge were also monitored on April 17, 2006, while water level data collected at the time of sampling at wells GMA2-4 (April 19, 2006) and GMA2-9 (April 14, 2006) was utilized for groundwater contouring purposes. (As discussed below, well GMA2-4 was initially sampled on April 11, 2006, but resampling was required due to a laboratory handling error.) A summary of all groundwater and river elevation monitoring data collected during spring 2006 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 April 2006 groundwater elevation data presented in Table 3 were used to prepare a groundwater elevation contour map for spring 2006 (Figure 3). As shown on this figure and discussed in Section 1.2 above, the spring 2006 groundwater elevations and flow direction are fairly consistent with previous seasons. Specifically, the groundwater flow directions within the areas north and south of the river banks are generally toward the Housatonic River, with slight variations corresponding to surface topography. Although groundwater elevations were measured over a multi-day period during the spring 2006 monitoring round, data from wells GMA2-1 (in former Oxbow Area J) and GMA2-4 (in former Oxbow Area K) were collected on multiple occasions and do not indicate that groundwater elevations changed significantly over the course of the monitoring round (See Table A-1 in Appendix A). As discussed in Section 5.2, GE will ensure that future semi-annual groundwater elevation data is collected on a single day.

2.3 Groundwater Sampling and Analysis

The spring 2006 interim sampling event was performed between April 14 and April 19, 2006. Well GMA2-4 was initially sampled on April 11, 2006, but that well was re-sampled on April 19, 2006 due to a laboratory handling error with the initial sample, and the analytical results from the latter sampling date are utilized in this report. As shown on Table 1, groundwater samples were collected from the three groundwater monitoring wells scheduled for interim sampling. 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 spring 2006 monitoring event is provided below:

PARAMETER	UNITS	RANGE
Turbidity	Nephelometric turbidity units (NTU)	1 – 3
pH	pH units	6.33 – 8.13
Specific Conductivity	Millisiemens per centimeter	0.318 – 1.260

PARAMETER	UNITS	RANGE
Oxidation-Reduction Potential	Millivolts	-54.1 – 179.6
Dissolved Oxygen	Milligrams per liter	2.93 – 6.38
Temperature	Degrees Celsius	7.68 – 10.72

As shown above, for this sampling event, the final groundwater turbidity levels were very low (none greater than 3 NTU), and 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 of PCBs using the EPA Method 8082. 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. (No GW-2 wells are included in the interim monitoring program, so 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 spring 2006 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 spring 2006 interim groundwater quality analytical results is presented in this section. Table 5 provides a comparison of the concentrations of filtered PCBs 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

Filtered groundwater samples were collected from three monitoring wells (GMA2-1, GMA2-4, and GMA2-9) and analyzed for PCBs as part of the spring 2006 interim sampling event. The PCB analytical results are summarized in Table C-1 of Appendix C. PCB Aroclor 1254 was detected in the filtered samples collected from wells GMA2-1 and GMA2-9, and PCB Aroclor 1260 was detected in a duplicate sample from well GMA2-1. No PCBs were detected in well GMA2-4. Where detected, total filtered PCB concentrations ranged from 0.000076 ppm at well GMA2-9 to an estimated concentration of 0.0023 ppm in the duplicate sample for well GMA2-1 (the estimated total PCB concentration of the original sample from this well was 0.00033 ppm). Note that the sample results from well GMA 2-1 were "J" qualified as a result of the data validation review.

As discussed in Section 4.3.1 below, the groundwater samples from well GMA2-1 contained PCBs at estimated concentrations above the applicable MCP Method 1 GW-3 standard of 0.0003 ppm during spring 2006, while the remaining groundwater samples contained no PCBs (well GMA2-4) or showed concentrations below the GW-3 standard (GMA2-9).

4. Assessment of Results

4.1 General

This report constitutes the third interim monitoring report and is the seventh 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 spring 2006 groundwater quality sampling event, supplemented with historical groundwater analytical data when applicable.

4.2 Groundwater Quality Performance Standards

The Performance Standards 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. One of these, GW-1 groundwater, applies to groundwater that is a current or potential source of potable drinking water. None of the groundwater at any of the GMAs at the Site is classified as GW-1. However, the remaining MCP groundwater categories are applicable to GMA 2 and are described below:

- GW-2 groundwater is defined as groundwater that is a potential source of vapors to the indoor air of buildings. Groundwater is classified as GW-2 if it is located within 30 feet of an existing occupied building and has an average annual depth to groundwater of 15 feet or less. Although GW-2 monitoring was performed during the initial baseline monitoring program, none of the GW-2 monitoring wells is included in the interim monitoring program for GMA 2. Moreover, there is no GW-2 standard for PCBs.

- 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 be ultimately discharged to surface water. In accordance with the CD and SOW, all groundwater at GMA 2 is considered as GW-3.

The CD and SOW allow for the establishment of standards for GW-2 and 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. 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 standard for PCBs (the only constituent sampled in the spring 2006 sampling event) is listed in Table 6. (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 both GW-2 (310 CMR 40.0983(2)) and GW-3 (310 CMR 40.0983(4)) groundwater. For such constituents 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-2 and/or 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-2 and/or GW-3 standards may be used in lieu of the Method 1 (or Method 2) standards. Of course, whichever method is used to establish such groundwater standards, GW-2 standards will be applied to GW-2 groundwater and GW-3 standards will be applied to GW-3 groundwater.

On January 9, 2006, MDEP approved revised Method 1 numerical standards for a number of constituents in groundwater. The revised standards became effective on April 3, 2006. GE previously proposed to incorporate the revised MCP Method 1 Groundwater Standards into future data assessments once implemented, and this report constitutes the first report at this GMA for which those standards will be used. However, for PCBs (which was the only constituent analyzed for in spring 2006), the Method 1 standards are unchanged from prior values. Therefore, GE has continued to utilize the current MCP Method 1 standards for PCBs for its assessment of the spring 2006 data and GE used the revised MCP Method 1 standards in its re-assessment (in Section 5.1.1 below) of all baseline and interim groundwater quality data collected to date.

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

1 At monitoring wells designated as compliance points to assess GW-2 groundwater (i.e., groundwater located at an average depth of 15 feet or less from the ground surface and within 30 feet of an existing occupied building), groundwater quality shall achieve any of the following:

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

b. alternative risk-based GW-2 standards developed by GE and approved by EPA as protective against unacceptable risks due to volatilization and transport of volatile chemicals from groundwater to the indoor air of nearby occupied buildings; or

c. a condition, based on a demonstration approved by EPA, in which constituents in the groundwater do not pose an unacceptable risk to occupants of nearby occupied buildings via volatilization and transport to the indoor air of such buildings.

2 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 monitoring wells at GMA 2 have been designated as the future 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 2.2, three wells (GMA2-1, GMA2-4, and GMA2-9) were sampled as part of the interim groundwater quality monitoring program for GMA 2 conducted in spring 2006. Two of these wells, GMA2-4 and GMA2-9, are designated as future GW-3 compliance points.

4.3 Groundwater Quality – Spring 2006

For the purpose of generally assessing current groundwater conditions, the analytical results from the spring 2006 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 spring 2006 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 MCP Method 1 GW-3 standards, while Table 6 presents a comparison of the concentrations of detected constituents with the groundwater UCLs.

4.3.1 Groundwater Results Relative to GW-3 Performance Standards

Filtered groundwater samples were collected from three of the ten monitoring wells at this GMA that are designated as GW-3 perimeter monitoring points and analyzed for PCBs. The spring 2006 groundwater analytical results for all detected PCB Aroclors in the wells sampled and a comparison of the total PCB results with the MCP Method 1 GW-3 standard of 0.0003 ppm are presented in Table 5. Although that table provides a comparison of the spring 2006 analytical results from all three GW-3 monitoring wells that were sampled, only two of those wells (i.e., downgradient GW-3 perimeter wells GMA2-4 and GMA2-9, as discussed above) have been designated as future compliance points for the GW-3 standards.

The comparisons set forth in Table 5 show that the estimated filtered PCB sample results from one of the three GW-3 locations that were sampled were slightly above the MCP Method 1 GW-3 standard for PCBs. Specifically, the estimated total PCB concentration in the sample from well GMA2-1 (0.00033J ppm) was slightly above the MCP Method 1 GW-3 standard of 0.0003 ppm, while the estimated total PCB concentration in a duplicate sample result from that well (0.0023J ppm) was also above the standard. PCB concentrations in excess of the MCP Method 1 GW-3 standard were previously detected in filtered samples collected from this well during prior sampling events, including the most recent event in fall 2005. It should also be noted that although PCBs were not detected in well GMA2-4, the detection limit for PCB Aroclor 1254 was elevated to a level above the MCP Method 1 GW-3 standard for total PCBs following validation of the data (see Appendix E). As discussed in Section 4.4 below, GE's proposed response to the exceedance at well GMA2-1 is to

continue to sample this well, along with wells GMA2-4 and GMA2-9, in the interim monitoring program, and to perform a supplemental sampling round at well GMA2-1 to further assess PCB concentrations at this location.

4.3.2 Comparison to Upper Concentration Limits

The spring 2006 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.

4.4 Overall Assessment of Groundwater Analytical Results

Graphs illustrating historical total filtered PCB concentrations for all wells sampled during the spring 2006 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. Some minor fluctuations in PCB concentrations have been observed between monitoring events in these wells, but no clear trend is evident in the data collected to date. Although there was an increase in the estimated PCB concentration observed in a duplicate sample collected from GMA2-1, the original estimated sample concentration (0.00033J ppm) was comparable to levels detected during fall 2005 (0.00038 ppm).

The SOW requires that interim response actions must be proposed for baseline sampling results which exceed Method 1 GW-3 standards at downgradient perimeter monitoring wells, in which: (a) such an exceedance had not previously been detected, or (b) there was a previous exceedance of the Method 1 GW-3 standard and the groundwater concentration is greater than or equal to 100 times the GW-3 standard (if the exceedance was not previously addressed). These interim response actions may include: (1) further assessment activities, such as resampling, increasing the sampling frequency to quarterly, additional well installation, and/or continuing the baseline monitoring program; (2) active response actions; and/or (3) the conduct of a site-specific risk evaluation and proposal of alternative risk-based GW-3 Performance Standards.

The only well where the Method 1 GW-3 standard for PCBs was exceeded based on estimated results (i.e., well GMA2-1) is not designated as a downgradient perimeter well. Although the concentration of PCBs in the duplicate sample collected at this location is greater than previously observed during prior monitoring rounds, this is not the first GW-3 exceedance at this well and the concentration is less than 100 times the MCP Method 1

GW-3 standard (the detected PCB concentration in the original sample is similar to those previously observed). Nonetheless, GE's proposed response to the spring 2006 PCB results at well GMA2-1 is to continue to monitor this well under the approved schedule for the interim groundwater sampling program. Moreover, based on the discrepancy in reported PCB concentrations between the duplicate samples collected from this well in spring 2006, GE proposes to collect a supplemental sample in fall 2006 for filtered PCB analysis to further evaluate whether PCB concentrations are changing at this well. Based on the results of that additional sampling, GE may propose to increase the sampling frequency at this location, return to the approved schedule for the interim groundwater sampling program, or make another proposal.

5. Evaluation of Interim Groundwater Monitoring Program and Schedule of Future Activities

5.1 General

In spring 2004, GE initiated the interim groundwater monitoring program to be conducted until completion of the ongoing soil-related Removal Actions at the at the Former Oxbow Area J&K 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 discussion of potential modifications to the interim groundwater monitoring program that were considered as part of the preparation of this report. First, in response to the recent revisions to the MCP Method 1 standards and UCLs for groundwater that became effective on April 3, 2006, GE has re-evaluated the historical data from all baseline monitoring program wells to assess whether modifications to the interim monitoring program to address changes in the numerical standards are necessary. Second, GE has evaluated whether any modifications to the interim monitoring program are warranted based on the results of the spring 2006 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 a proposed fall 2006 supplemental sampling event, the upcoming fall 2007 interim monitoring event, and associated reporting activities. A summary of the anticipated interim sampling program is provided in Table 7.

5.1.1 Review of Historical Data Relative to MCP Standards

In the Fall 2003 GMA 2 Groundwater Quality Report, GE presented an evaluation of the baseline monitoring results from GMA 2 and proposed to retain certain wells for selected analyses in the interim monitoring program to provide additional data to assist in the determination of whether long-term monitoring would be necessary. Generally speaking, wells that contained constituent concentrations near the values of the future Performance Standards (i.e., average concentrations ranging from greater than 50% of an applicable MCP Method 1 Standard to slightly above the standard) were retained for interim monitoring. Groundwater quality monitoring was proposed to be discontinued at locations where constituent concentrations were well below the applicable MCP

Method 1 Standards, as it was apparent that such locations either would not be included in a long-term monitoring program.

In light of the recent revisions to the MCP that became effective on April 3, 2006, GE has repeated this evaluation, comparing all baseline and interim groundwater quality data to the new MCP Method 1 Standards. Utilizing the same inclusion criteria utilized in fall 2003 at GMA 2 (and at the other GMAs once their two-year baseline monitoring periods were completed), GE's assessment indicated that the modified MCP Method 1 standards do not suggest a need to resume sampling at any of the baseline wells not already included in the interim monitoring program.

5.1.2 Response to Spring 2006 Sampling Results

As discussed in Sections 4.3.1 and 4.4, exceedances of the GW-3 standard for PCBs (based on estimated results) were observed in the filtered groundwater sample and a duplicate filtered sample from well GMA2-1 in spring 2006, as shown in Table 5. In addition, the detection limit for PCB Aroclor 1254 in the sample from well GMA2-4 was elevated to a level above the GW-3 standard for total PCBs. Since the filtered PCB results for these wells have previously exceeded the GW-3 Performance Standards during certain prior sampling events, GE proposes to continue the interim sampling and analysis for filtered PCBs at wells GMA2-1 and GMA2-4. GE will also continue to sample for PCBs at well GMA2-9, to further assess historical exceedances of GW-3 standards at this location. However, as discussed in Section 4.4, GE proposes to collect an additional filtered groundwater sample from well GMA2-1 for PCB analysis in fall 2006, in response to disparate estimated concentrations of PCBs above the GW-3 standard detected in duplicate samples in spring 2006. Based on the results of that additional sampling, GE may propose to increase the sampling frequency at this location, return to the annual schedule for the interim groundwater sampling program, or make another proposal. Finally, GE will 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 Field Activities Schedule

If approved by EPA, GE will conduct the proposed supplemental sampling at well GMA2-1 discussed in Section 5.1.2 above in October 2006. The next full interim groundwater quality sampling round is scheduled for October 2007. Groundwater elevation monitoring at GMA 2 will continue to be performed on a semi-annual

basis. The upcoming fall 2006 round is scheduled for October 2006 and the next spring round will be conducted in April 2007. All groundwater elevation data from GMA 2 will be collected on a single day during the semi-annual monitoring events to facilitate the preparation of groundwater elevation contour maps for each monitoring event.

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.

5.3 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 a Supplemental Groundwater Quality Letter Report to EPA by January 31, 2007. That letter will present and discuss the validated results of the fall 2006 supplemental sampling event and propose further modifications to the interim sampling program based on those results, if necessary.

GE will submit the Fall 2007 Interim Groundwater Quality Monitoring Report for GMA 2 by January 31, 2008, in accordance with the reporting schedule approved by EPA. That report will present the final, validated fall 2007 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

BBL®
an ARCADIS company

TABLE 1
SPRING 2006 GROUNDWATER QUALITY MONITORING PROGRAM

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR SPRING 2006
GENERAL ELECTRIC COMPANY-PITTSFIELD, MASSACHUSETTS

Well Number	Monitoring Well Usage	Sampling Schedule	Spring 2006 Analyses	Comments
GMA2-1	GW-3 Perimeter (Upgradient)	Annual	PCBs	See Note 1
GMA2-4	GW-3 Perimeter (Compliance Point)	Annual	PCBs	See Note 1
GMA2-9	GW-3 Perimeter (Compliance Point)	Annual	PCBs	See Note 1

Notes:

1. All analyses for PCBs conducted under the annual interim monitoring program were performed on filtered samples only.

TABLE 2
MONITORING WELL CONSTRUCTION

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR SPRING 2006
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
GROUNDWATER ELEVATION DATA - SPRING 2006

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR SPRING 2006
GENERAL ELECTRIC COMPANY-PITTSFIELD, MASSACHUSETTS

Well Number	Location	Spring 2006 [(4)] Groundwater Elevation
GMA2-1	Oxbow Area J	976.03
GMA2-2	Oxbow Area J	973.91
GMA2-3	Oxbow Area J	976.97
GMA2-4	Oxbow Area K	974.44
GMA2-5	Oxbow Area K	976.20
GMA2-6	Oxbow Area J	974.79
GMA2-7	Oxbow Area J	974.99
GMA2-8	Oxbow Area K	974.00
GMA2-9	Oxbow Area K	973.75
J-1R	Oxbow Area J	973.47
OJ-MW-1	Oxbow Area J	982.77
OJ-MW-2	Oxbow Area J	977.54
Staff Gauge	Housatonic River	972.98

Notes:

1. Spring 2006 Groundwater elevation data collected on 4/13-19/2006.
2. River elevation was measured on 4/17/2006.

TABLE 4
FIELD PARAMETER MEASUREMENTS - SPRING 2006

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR SPRING 2006
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	3.00	7.68	8.13	1.260	179.6	3.54
GMA 2-4	1.00	10.72	6.33	0.489	-54.1	2.93
GMA 2-9	3.00	9.12	6.61	0.318	172.9	6.38

Notes:

1. Measurements collected during spring 2006 groundwater sampling event performed between April 11 and April 17, 2006.
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 SPRING 2006
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in parts per million, ppm)

Parameter / Sample ID: / Date Collected:	MCP Method 1 GW-3 Standards	GMA2-1 04/17/06	GMA2-4 04/19/06	GMA2-9 04/14/06
PCBs-Filtered				
Aroclor-1254	Not Listed	0.00033 J [0.0016 J]	ND(0.00085)	0.000076
Aroclor-1260	Not Listed	ND(0.000065) J [0.00070 J]	ND(0.000065)	ND(0.000065)
Total PCBs	0.0003	0.00033 J [0.0023 J]	ND(0.00085)	0.000076

Notes:
1. Samples were collected by Blasland, Bouck & Lee, Inc., and submitted to SGS Environmental Services, Inc. for analysis of PCBs.
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. ND - Analyte was not detected. The number in parenthesis is the associated detection limit.
4. Field duplicate sample results are presented in brackets.
5. Only those constituents detected in one or more samples are summarized.
6. Shading indicates that value exceeds GW-3 Standards.

Data Qualifiers:

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 SPRING 2006
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in parts per million, ppm)

Parameter / Sample ID: / Date Collected:	MCP UCL for Groundwater	GMA2-1 04/17/06	GMA2-4 04/19/06	GMA2-9 04/14/06
PCBs-Filtered				
Aroclor-1254	Not Listed	0.00033 J [0.0016 J]	ND(0.00085)	0.000076
Aroclor-1260	Not Listed	ND(0.000065) J [0.00070 J]	ND(0.000065)	ND(0.000065)
Total PCBs	0.005	0.00033 J [0.0023 J]	ND(0.00085)	0.000076

Notes:

1. Samples were collected by Blasland, Bouck& Lee, Inc., and submitted to SGS Environmental Services, Inc. for analysis of PCBs.
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. ND - Analyte was not detected. The number in parenthesis is the associated detection limit.
4. Field duplicate sample results are presented in brackets.
5. Only those constituents detected in one or more samples are summarized.

Data Qualifiers:

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

TABLE 7
FALL 2006 - 2007 INTERIM GROUNDWATER QUALITY MONITORING PROGRAM

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR SPRING 2006
GENERAL ELECTRIC COMPANY-PITTSFIELD, MASSACHUSETTS

Well Number	Monitoring Well Usage	Sampling Schedule & Analyses			Comments
		Current Annual Analyses	Proposed Supplemental Analyses (Fall 2006 Only)	Proposed Annual Analyses (Next Round: Fall 2007)	
GMA2-1	GW-3 Perimeter (Upgradient)	PCB	PCB	PCB	Average PCB concentration is slightly above GW-3 Standard. Continued interim sampling for PCBs proposed to further assess. Supplemental sampling for PCBs proposed to address PCB concentrations greater than GW-3 Standard observed in spring 2006.
GMA2-4	GW-3 Perimeter (Compliance Point)	PCB	None	PCB	Average PCB concentration is slightly above GW-3 Standard. Continued interim sampling for PCBs proposed to further assess.
GMA2-9	GW-3 Perimeter (Compliance Point)	PCB	None	PCB	Average PCB concentration is slightly above GW-3 Standard. Continued interim sampling for PCBs proposed to further assess.

Notes:

1. The wells proposed for annual groundwater quality sampling will be sampled for the listed parameters on an annual basis, alternating between the spring and fall seasons, during the interim period between the completion of the baseline monitoring program and the initiation of a long-term monitoring program. The next scheduled interim sampling round will be conducted in fall 2007 (although well GMA2-1 is proposed for supplemental sampling in fall 2006).
2. All analyses for PCBs conducted under the interim monitoring program will utilize filtered samples only.

Figures

BBL®
an ARCADIS company

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

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

GMA 2 INTERIM MONITORING PROGRAM

GROUNDWATER MANAGEMENT AREAS

BBL an ARCADIS company

FIGURE 1

SYR-BS-NES AMS SDL LAYERS: ON=*, OFF=*REF*, GW-GEN P: PAGSET/PLT-DL2B
G:\GE_ACTIVE\WJ\30154004\30154B10.DWG SAVED:7/27/2006 6:49 PM LAYOUT:Layout1 PAGESETUP:---- PENTABLE:PLTFULL.CTB PRINTED:7/27/2006 6:56 PM BY:SLINDSAY
PROJECTNAME: ----
XREFS: IMAGES:

FORMER OXBOW AREA J

EAST STREET

GMA2-1

GMA2-3

GMA2-6

GMA2-2

GMA2-7

OJ-MW-1

OJ-MW-2

GMA2-8

GMA2-4

East Branch Housatonic River

J-1R

J-1

SG-1

GMA2-9

GMA2-5

PARKSIDE AVE

VENTURA AVE.

LONGVIEW TER

FORMER OXBOW AREA K

1000 990 982 980 960 950 940

LEGEND:

- GMA 2 BOUNDARY
- FORMER OXBOW/LOW-LYING AREA
- FENCE
- OR MONITORING WELL
- STAFF GAUGE
- GW-3 PERIMETER WELLS SAMPLED SPRING 2006
- 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

GENERAL ELECTRIC COMPANY
PITTSFIELD MASSACHUSETTS

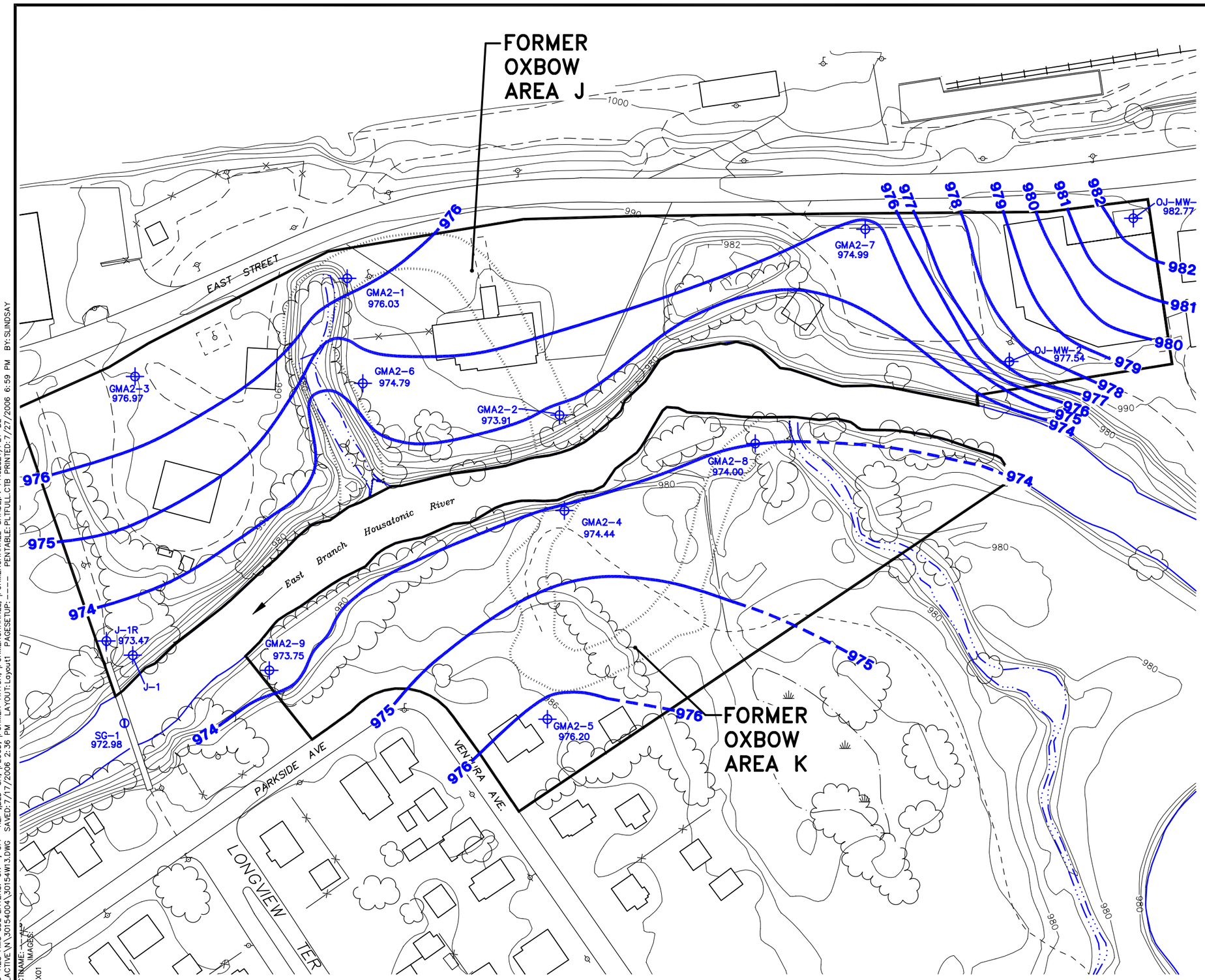
GMA 2 INTERIM MONITORING PROGRAM

MONITORING WELL LOCATIONS

BBL an ARCADIS company

FIGURE 2

SYR-85-NES AMS SDL LAYERS: ON=*,OFF=*REF*,BLD-SHD,IFLOOD,IFORMER-HATCH,IFORMERCHANNEL,IFORMERCHANNEL-SHADE,IPAVED-SHD P: PAGESET/PLT-BL
G:\GE_ACTIVE\N\30154004\30154B07.DWG SAVED:7/27/2006 6:58 PM LAYOUT:Layout1 PAGESETUP:---- PENTABLE:PLTFULL.CTB PRINTED:7/27/2006 6:58 PM BY:SLINDSAY
PROJECTNAME:---
XREFS: IMAGES:
30154X01



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 AND RIVER LEVEL MEASUREMENTS OBTAINED APRIL 13–19, 2006.

0 100' 200'

GRAPHIC SCALE

GENERAL ELECTRIC COMPANY
PITTSFIELD MASSACHUSETTS

GMA 2 INTERIM MONITORING PROGRAM

WATER-TABLE CONTOUR MAP - SPRING 2006

BBL an ARCADIS company

FIGURE 3

SYR-85-NES_AMS SDL LAYERS: ON=*, OFF=*REF*|BLD-SH_|FLOOD_|FORMER-HATCH_|FORMERCHANNEL_|FORMERCHANNEL-SHADE,P: PAGESET/PLT-BL
G:\GE_ACTIVE\W\30154004\30154W13.DWG SAVED:7/17/2006 2:36 PM LAYOUT:Layout1 PAGESETUP:------ PENTABLE:PLTFULL.CTB PRINTED:7/27/2006 6:59 PM BY:SUNDSAY
PROJECTNAME: --- XREFS: IMAGES: 30154X01

Appendices

BBL®
an ARCADIS company

Appendix A

Groundwater Elevation Monitoring Data

BBL®
an ARCADIS company

APPENDIX A
GROUNDWATER ELEVATION MONITORING DATA

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR SPRING 2006
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 2-1	991.36	4/13/2006	15.33	976.03
GMA 2-1	991.36	4/17/2006	15.47	975.89
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 2-2	991.19	4/13/2006	17.28	973.91
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 2-3	991.48	4/13/2006	14.51	976.97
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 2-6	989.73	4/13/2006	14.94	974.79
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
GMA 2-7	989.64	4/13/2006	14.65	974.99
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
J-1R	988.25	4/17/2006	14.78	973.47
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-1	994.47	4/13/2006	11.70	982.77
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	11/7/2005	12.60	979.04
MW-2	991.64	4/17/2006	14.10	977.54

APPENDIX A
GROUNDWATER ELEVATION MONITORING DATA

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR SPRING 2006
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

Well Name	Measuring Point Elev (Ft.)	Date	Depth to Water (feet BMP)	Corrected Water Elev. (feet)
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
GMA2-4	983.41	11/4/2005	14.40	969.01
GMA 2-4	983.41	11/7/2005	8.45	974.96
GMA 2-4	983.41	4/11/2006	8.83	974.58
GMA 2-4	983.41	4/19/2006	8.97	974.44
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 2-5	985.85	4/17/2006	9.65	976.20
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 2-8	982.30	4/17/2006	8.30	974.00
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
GMA 2-9	981.29	4/14/2006	7.54	973.75
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
GMA2-SG-1	989.82	12/29/2005	16.23	973.59
GMA2-SG-1	989.82	1/19/2006	12.85	976.97
GMA2-SG-1	989.82	2/22/2006	16.82	973.00
GMA2-SG-1	989.82	4/17/2006	16.84	972.98

Notes:

1. ft BMP - feet Below Measuring Point.
2. NA indicates
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

BBL®
an ARCADIS company

TABLE B-1
SUMMARY OF GROUNDWATER SAMPLING METHODS

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR SPRING 2006
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

Well ID	Sampling Method							Comments
	Spring 2002	Fall 2002	Spring 2003	Fall 2003	Spring 2004	Fall 2005	Spring 2006	
GMA2-1	BP	PP	PP	BP	BP	BP	BP	Fall 2002: Flow-through turbidity meter malfunction; Hach meter used to measure turbidity.
GMA2-4	PP	PP	PP	PP	BP	BP	BP	Spring 2006: 4/11/2006 sample mishandled by laboratory. Well re-sampled on 4/19/2006. Fall 2002: Dissolved oxygen meter malfunction. Spring 2002: Dissolved oxygen meter malfunction.
GMA2-9	BP	PP	PP	PP	BP	BP	BP	Spring 2002: Flow-through turbidity meter malfunction; Hach meter used to measure turbidity.

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
Sampling Personnel JAP / TOR
Date 4/17/14
Weather Overcast 40°F

WELL INFORMATION

Reference Point Marked? (Y) N
Height of Reference Point +3.2 Meas. From (GROUND)
Well Diameter 2"
Screen Interval Depth 13.8-23.8 Meas. From BGS
Water Table Depth 15.47' Meas. From TOC
Well Depth 27.04' Meas. From TOC
Length of Water Column 11.57'
Volume of Water in Well 1.82gal
Intake Depth of Pump/Tubing ~19' Meas. From TOC

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

Redevelop? Y (N)

Sample Time 1215
Sample ID GMA2-1
Duplicate ID GMA-DUP-3
MS/MSD —
Split Sample ID —

Required	Analytical Parameters:	Collected
( )	VOCs (Standard List)	( )
( )	VOCs (Expanded List)	( )
( )	SVOCs	( )
( )	PCBs (Unfiltered)	( )
(X)	PCBs (Filtered)	(X)
( )	Metals/Inorganics (Unfiltered)	( )
( )	Metals/Inorganics (Filtered)	( )
( )	Total Cyanide (Unfiltered)	( )
( )	Total Cyanide (Filtered)	( )
( )	PAC Cyanide (Filtered)	( )
( )	PCDDs/PCDFs	( )
( )	Pesticides/Herbicides	( )
( )	Natural Attenuation	( )
( )	Other (Specify)	( )

EVACUATION INFORMATION

Pump Start Time 1137 (SP)
Pump Stop Time 1231
Minutes of Pumping 55
Volume of Water Removed ~1.56gal
Did Well Go Dry? Y (N)

Evacuation Method: Bailer ( ) Bladder Pump (X)
Peristaltic Pump ( ) Submersible Pump ( ) Other/Specify ( )
Pump Type: System 1
Samples collected by same method as evacuation? (Y) N (specify)

Water Quality Meter Type(s) / Serial Numbers: HACH TURBIDMETER S/N 021000028323
YSI 556 MPS #3 S/N 03C14161

Time	Pump Rate (mL/min.)	Total Gallons Removed	Water Level (ft TIC)	X Temp. (Celsius) [3%]*	✓ pH [0.1 units]*	Sp. Cond. (mS/cm) [3%]*	X Turbidity (NTU) [10% or 1 NTU]*	X DO (mg/l) [10% or 0.1 mg/l]*	✓ ORP (mV) [10 mV]*
1137	100	—	15.67	—	—	—	6	—	—
1145	75	0.159	15.61	9.65	7.66	1.155	10	6.60	192.5
1150	110	0.305	15.67	8.64	7.81	1.168	8	4.53	221.8
1155	110	0.451	15.67	8.02	7.93	1.185	5	4.14	221.0
1200	110	0.597	15.67	7.81	7.99	1.198	4	3.84	205.3
1205	110	0.743	15.67	7.68	8.15	1.234	4	3.68	188.1
1210	110	0.889	15.67	7.62	8.12	1.268	3	3.60	186.0
1213	110	1.035	15.67	7.68	8.13	1.260	3	3.54	179.6

* 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: Clear, odorless, colorless
Final purge: " " "

SAMPLE DESTINATION

Laboratory: SGS
Delivered Via:
Airbill #:

Field Sampling Coordinator: James J. Pastorick

GROUNDWATER SAMPLING LOG

Well No. GMAZ-4
Key No. FX-37
PID Background (ppm) 0
Well Headspace (ppm) 0

Site/GMA Name GE Pittsfield - GMA-2
Sampling Personnel GAR
Date 4/11/06
Weather Cloudy, 65°F

WELL INFORMATION

Reference Point Marked? (Y) N
Height of Reference Point +3.05' Meas. From Ground
Well Diameter 2"
Screen Interval Depth 5.2-15.2' Meas. From Ground
Water Table Depth 8.87' Meas. From TIC
Well Depth 18.12' Meas. From TIC
Length of Water Column 9.29'
Volume of Water in Well 1.52 gallons
Intake Depth of Pump/Tubing 18.5' 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 15:00
Sample ID GMAZ-4
Duplicate ID —
MS/MSD Collected Here
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)	( )
( )	PAC Cyanide (Dissolved)	( )
( )	PCDDs/PCDFs	( )
( )	Pesticides/Herbicides	( )
( )	Natural Attenuation	( )
( )	Other (Specify)	( )

EVACUATION INFORMATION

Pump Start Time 13:55
Pump Stop Time 15:50
Minutes of Pumping 115
Volume of Water Removed 3.0 gallons
Did Well Go Dry? Y (N)

Evacuation Method: Bailer ( ) Bladder Pump (X)
Peristaltic Pump ( ) Submersible Pump ( ) Other/Specify ( )
Pump Type: Mars chalk - System One
Samples collected by same method as evacuation? (Y) N (specify)

Water Quality Meter Type(s) / Serial Numbers: YSI-556MPS 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]*
14:00	100ml	0.13	8.88	—	—	—	7	—	—
14:10	100ml	0.40	8.86	11.01	6.42	0.481	4	8.74	82.0
14:15	100ml	0.53	8.88	10.05	6.26	0.479	4	4.03	71.6
14:20	100ml	0.66	8.91	9.99	6.28	0.483	3	3.68	44.7
14:25	100ml	0.79	8.90	10.03	6.30	0.485	2	3.67	15.7
14:30	100ml	0.92	8.89	9.94	6.28	0.487	2	3.48	-7.2
14:35	100ml	1.06	8.89	10.34	6.30	0.487	2	3.35	-24.2
14:40	100ml	1.19	8.89	10.39	6.33	0.488	1	3.12	-40.6

* 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: Clear, odorless
Final Purge: Clear, odorless

SAMPLE DESTINATION

Laboratory: SGS
Delivered Via: UPS
Airbill #: NA

Field Sampling Coordinator: [signature]

GROUNDWATER SAMPLING LOG

Well No. GMA 2-4

Site/GMA Name GE Pittsfield - GMA-2
Sampling Personnel GAR
Date 4/11/06
Weather Cloudy, 65°F

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]*
14:45	100ml	1.32	8.90	10.60	6.38	0.488	1	3.02	-51.4
14:50	100ml	1.45	8.89	10.57	6.34	0.489	1	2.97	-53.2
14:55	100ml	1.59	8.89	10.72	6.33	0.489	1	2.93	-54.1

* 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

GROUNDWATER SAMPLING LOG

Well No. GMA2-4
Key No. FX-37
PID Background (ppm) —
Well Headspace (ppm) —

Site/GMA Name GMA2 - PITTSFIELD, MA
Sampling Personnel AES, EPP
Date APRIL 19, 2006
Weather SUNNY, HIGH 40S, SLIGHT BREEZE

WELL INFORMATION

Reference Point Marked? Y N
Height of Reference Point 3.33 - .30 Meas. From GROUND
Well Diameter 2"
Screen Interval Depth ___ Meas. From GROUND
Water Table Depth 8.97 Meas. From TIC
Well Depth 17.86 Meas. From TIC
Length of Water Column ___
Volume of Water in Well ___
Intake Depth of Pump/Tubing ___ Meas. From GROUND

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

Redevelop? Y N

Sample Time ___
Sample ID GMA2-4
Duplicate ID —
MS/MSD —
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)	( )
( )	PAC Cyanide (Dissolved)	( )
( )	PCDDs/PCDFs	( )
( )	Pesticides/Herbicides	( )
( )	Natural Attenuation	( )
( )	Other (Specify)	( )

EVACUATION INFORMATION

Pump Start Time 0920
Pump Stop Time ___
Minutes of Pumping ___
Volume of Water Removed ___
Did Well Go Dry? Y N

Evacuation Method: Bailer ( ) Bladder Pump (X)
Peristaltic Pump ( ) Submersible Pump ( ) Other/Specify ( )
Pump Type: MARSCHALK BLADDER PUMP 51,000 SERIES
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.~~ mL/min)	Total ~~Gallons~~ mL 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]*
0930	150	—	8.97	—	—	—	72	—	—
0935	150	750	9.10	—	—	—	44	—	—
0940	150	1500	9.10	8.89	6.55	0.537	39	7.22	213.4
0945	150	2250	9.10	8.52	6.43	0.530	24	2.52	151.6
0950	150	3000	9.10	8.53	6.43	0.529	21	2.15	98.9
0955	150	3750	9.10	8.48	6.46	0.530	12	1.87	40.5
1000	150	~~4250~~ 4500	9.10	8.32	6.44	0.531	13	1.72	-2.0
1005	150	~~5000~~ 5250	9.10	8.21	6.46	0.531	7	1.61	-13.4

* 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 WELL RESAMPLED DUE TO ERROR WITH LAB. INITIAL PURGE IS COLORLESS.

SAMPLE DESTINATION

Laboratory: SGS WEST VIRGINIA
Delivered Via: COURIER/UPS
Airbill #: ___

Field Sampling Coordinator: [signature]

GROUNDWATER SAMPLING LOG

Well No. GMA2-4

Site/GMA Name GMA2 - PITTSFIELD, MA
Sampling Personnel AES, ERR
Date APRIL 19, 2006
Weather SUNNY, 40s TO 50s, SLIGHT BREEZE

WELL INFORMATION - See Page 1

Time	Pump Rate ~~(L/min.)~~ mL	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]*
1010	150	~~5750~~ 6000	9.10	8.24	6.43	0.581	6	1.52	-23.9
1015	150	~~6250~~ 6500	9.10	8.22	6.39	0.581	5	1.46	-29.9
1020	150	7250	9.10	8.30	6.42	0.581	5	1.44	-33.2
1025	150	8000	9.10	8.24	6.45	0.581	5	1.43	-35.3
SAMPLE TIME		1030							

* 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.

GROUNDWATER SAMPLING LOG

Well No. GMA2-9
Key No. FX-37
PID Background (ppm) _____
Well Headspace (ppm) _____

Site/GMA Name GMA 2
Sampling Personnel JDL / AJS
Date 4/14/06
Weather 60°, Sunny

WELL INFORMATION

Reference Point Marked? (Y) N
Height of Reference Point _____ Meas. From _____
Well Diameter 2"
Screen Interval Depth _____ Meas. From _____
Water Table Depth 7.54 Meas. From TIC
Well Depth 11.12 Meas. From TIC
Length of Water Column _____
Volume of Water in Well _____
Intake Depth of Pump/Tubing ~12 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 1040
Sample ID GMA2-9
Duplicate ID —
MS/MSD —
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)	( )
( )	PAC Cyanide (Dissolved)	( )
( )	PCDDs/PCDFs	( )
( )	Pesticides/Herbicides	( )
( )	Natural Attenuation	( )
( )	Other (Specify)	( )

EVACUATION INFORMATION

Pump Start Time 9:30
Pump Stop Time 1050
Minutes of Pumping 80
Volume of Water Removed ~4 gals
Did Well Go Dry? Y (N)

Evacuation Method: Bailer ( ) Bladder Pump (X)
Peristaltic Pump ( ) Submersible Pump ( ) Other/Specify ( )
Pump Type: 1
Samples collected by same method as evacuation? (Y) N (specify)

Water Quality Meter Type(s) / Serial Numbers: YSI (#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]*
935	180	—	8.06	—	—	—	22	—	—
940	180	—	7.95	—	—	—	22	—	—
945	180		7.92	10.13	6.37	0.311	15	~~11.68~~ ~~0.23~~	162.3
950	180		7.92	9.68	6.43	0.309	12	8.04	170.1
955	180		7.92	9.70	6.48	0.308	10	7.55	173.9
1000	180		7.94	9.15	6.51	0.308	9	7.42	176.4
1005	180		7.94	8.93	6.52	0.308	6	7.09	177.5
1010	180		7.94	8.92	6.52	0.309	4	6.93	179.2

* 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 _____

SAMPLE DESTINATION

Laboratory: _____
Delivered Via: _____
Airbill #: _____

Field Sampling Coordinator: _____

GROUNDWATER SAMPLING LOG

Well No. GMA2-9

Site/GMA Name GMA 2
Sampling Personnel JQ/ASS
Date 4/14/06
Weather

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]*
1015	180		7.94	8.94	6.51	0.310	3	6.81	180.2
1020	180		7.94	9.08	6.58	0.312	3	6.61	178.3
1025	180		7.94	9.11	6.59	0.315	3	6.43	176.9
1030	180		7.94	9.10	6.58	0.319	2	6.40	174.1
1035	180	~4 gals	7.94	9.12	6.61	0.318	3	6.38	172.9

* 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

Appendix C

Validated Groundwater Analytical Results – Spring 2006

BBL®
an ARCADIS company

TABLE C-1
SPRING 2006 GROUNDWATER ANALYTICAL RESULTS

GROUNDWATER MANAGEMENT AREA 2
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR SPRING 2006
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in parts per million, ppm)

Parameter / Sample ID: / Date Collected:	GMA2-1 04/17/06	GMA2-4 04/19/06	GMA2-9 04/14/06
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	0.00033 J [0.0016 J]	ND(0.00085)	0.000076
Aroclor-1260	ND(0.000065) J [0.00070 J]	ND(0.000065)	ND(0.000065)
Total PCBs	0.00033 J [0.0023 J]	ND(0.00085)	0.000076

Notes:
1. Samples were collected by Blasland, Bouck & Lee, Inc., and submitted to SGS Environmental Services, Inc. for analysis of PCBs.
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. ND - Analyte was not detected. The number in parenthesis is the associated detection limit.
4. Field duplicate sample results are presented in brackets.

Data Qualifiers:

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

Appendix D

Historical Groundwater Data

BBL®
an ARCADIS company

Historical Groundwater Data

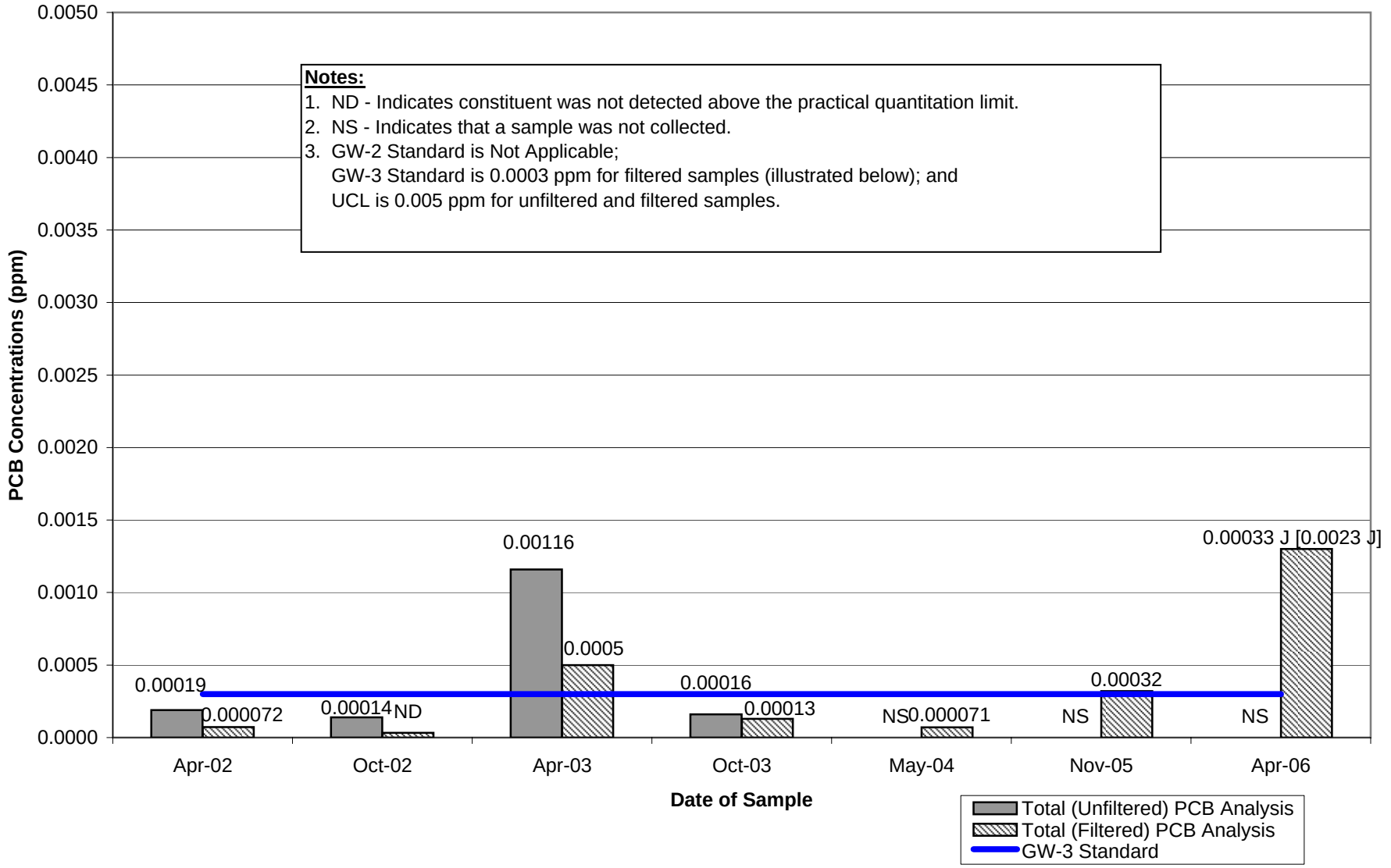
Total PCB Concentrations – Wells Sampled in Spring 2006

BBL®
an ARCADIS company

Appendix D

Groundwater Management Area 2
General Electric Company
Pittsfield, Massachusetts

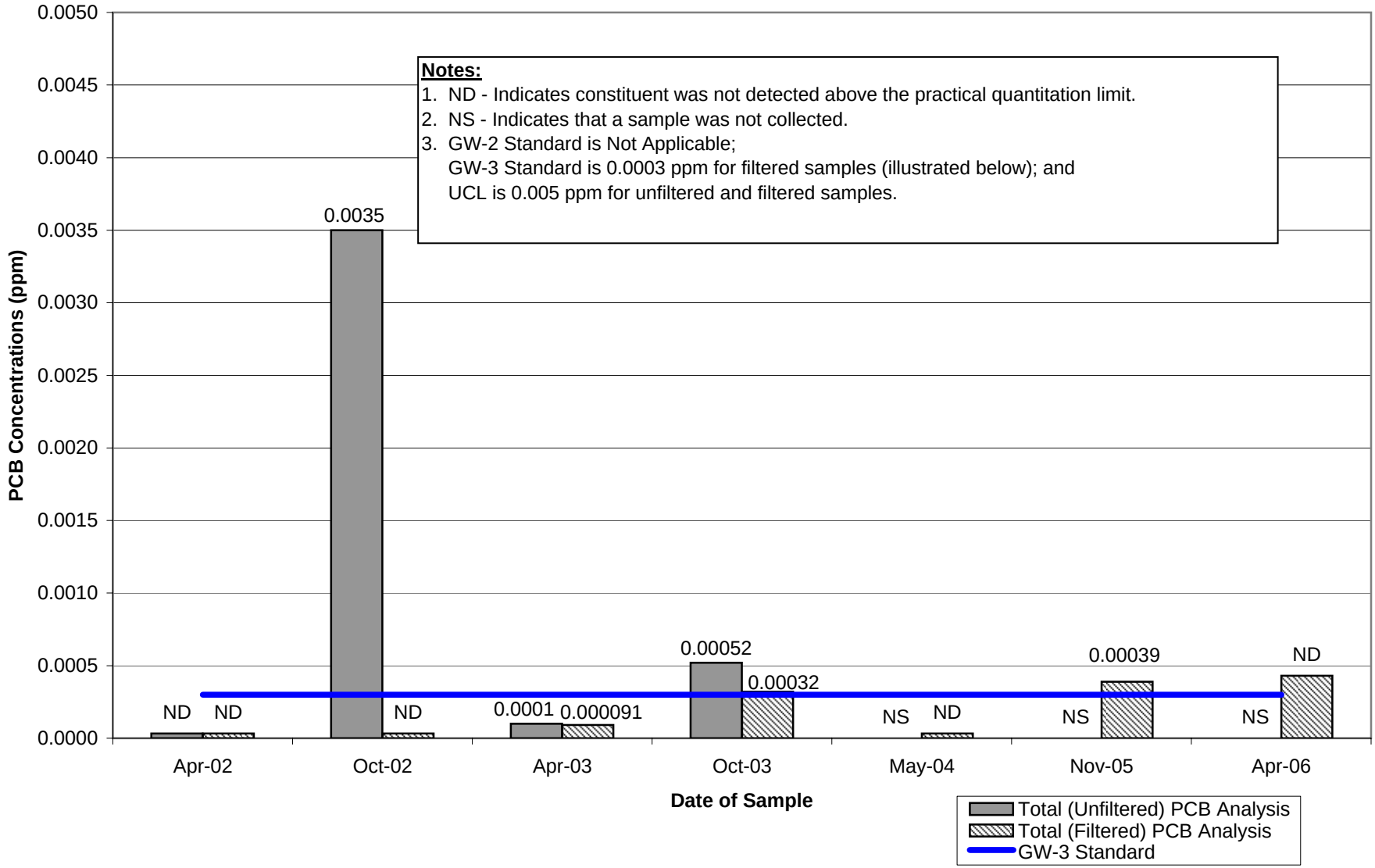
Well GMA2-1 Historical PCB Concentrations



Appendix D

Groundwater Management Area 2
General Electric Company
Pittsfield, Massachusetts

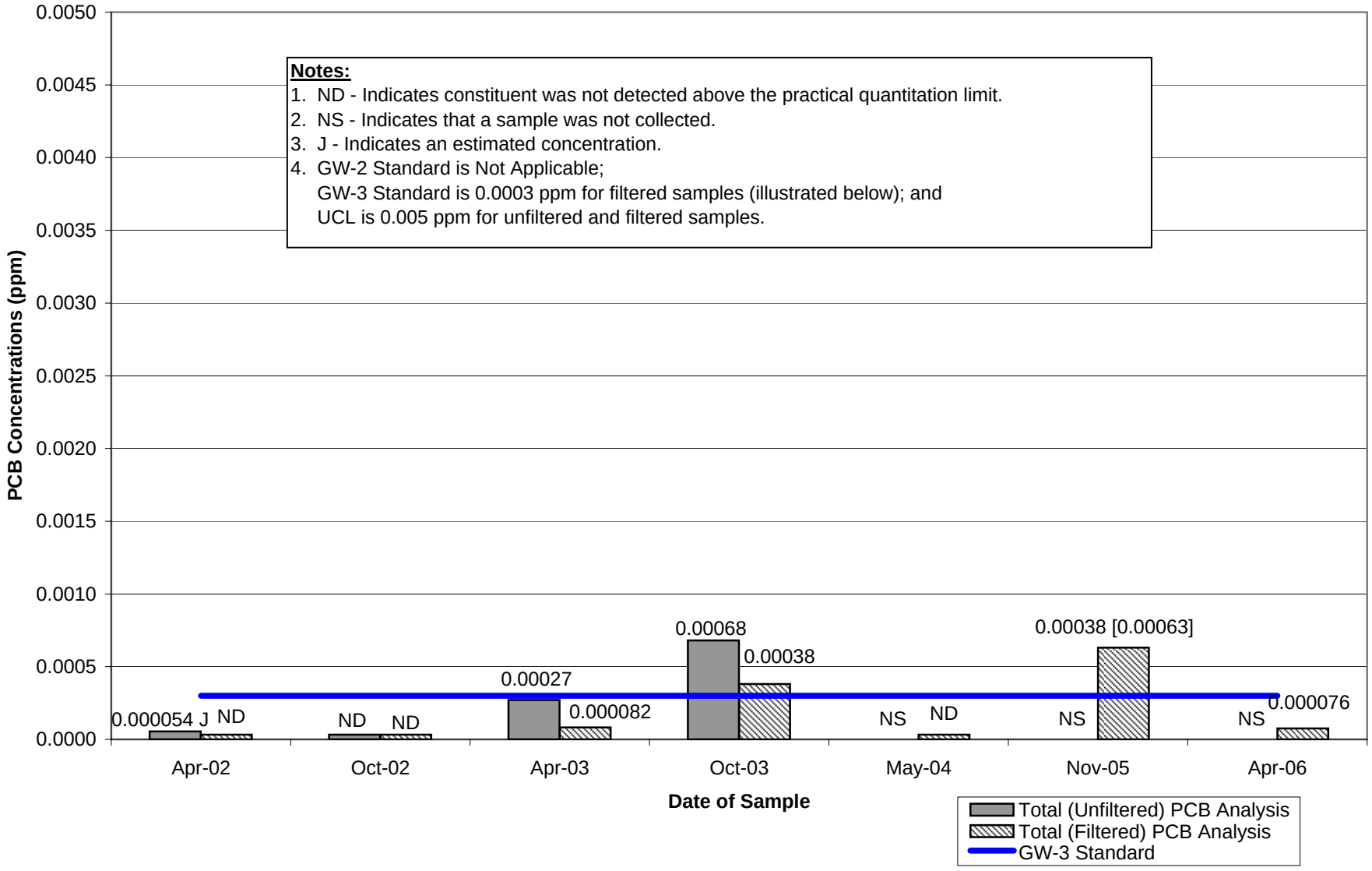
Well GMA2-4 Historical PCB Concentrations



Appendix D

Groundwater Management Area 2
General Electric Company
Pittsfield, Massachusetts

Well GMA2-9 Historical PCB Concentrations



Appendix E

Data Validation Report – Spring 2006

BBL®
an ARCADIS company

APPENDIX E
GROUNDWATER SAMPLING DATA VALIDATION REPORT
GROUNDWATER MANAGEMENT AREA 2 (GMA 2)

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

1.0 General

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

2.0 Data Evaluation Procedures

This attachment 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 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 investigations conducted at this site.

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, the laboratory sample delivery group package was 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 evaluation 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	1	0	0	2	1	1	5
Total	**1**	**0**	**0**	**2**	**1**	**1**	**5**

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 RPD Deviations

Analysis	Compound	Number of Affected Samples	Qualification
PCBs	Aroclor-1254	2	J
	Aroclor-1260	2	J
	Total PCBs	2	J

Blank action levels for organics compounds detected in the associated blanks were calculated at five times the blank concentrations (blank action levels were calculated at 10 times the blank concentration for common laboratory contaminants). Detected sample results that were below the blank action level were qualified with a "U." The compounds detected in the associated blanks which resulted in qualification of sample data, along with the number of affected samples, are presented in the following table.

Compounds Qualified Due to Blank Deviations

Analysis	Compound	Number of Affected Samples	Qualification
PCBs	Aroclor-1254	1	U
	Total PCBs	1	U

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
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 field duplicates and MS/MSD samples. For this analytical program, 15.5% of the data required qualification due to field duplicate RPD deviations. None of the data required qualification due to 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, and surrogate compound recoveries. For this analytical program, none of the data required qualification due to instrument calibration deviations, internal standards, LCS recovery, MS/MSD recovery 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. None of the data required qualification due to holding time deviations.

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.

[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
GROUNDWATER QUALITY MONITORING INTERIM REPORT FOR SPRING 2006
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											
6D0P131	GMA2-9 (Filtered)	4/14/2006	Water	Tier I	No						
6D0P168	GMA2-1 (Filtered)	4/17/2006	Water	Tier II	Yes	Aroclor-1254	Field Duplicate RPD (Water)	131.6%	<50%	0.00033 J	
						Aroclor-1260	Field Duplicate RPD (Water)	200.0%	<50%	ND(0.000065) J	
						Total PCBs	Field Duplicate RPD (Water)	149.8%	<50%	0.00033 J	
6D0P168	GMA-DUP-3 (Filtered)	4/17/2006	Water	Tier II	Yes	Aroclor-1254	Field Duplicate RPD (Water)	131.6%	<50%	0.0016 J	GMA2-1 (Filtered)
						Aroclor-1260	Field Duplicate RPD (Water)	200.0%	<50%	0.00070 J	
						Total PCBs	Field Duplicate RPD (Water)	149.8%	<50%	0.0023 J	
6D0P184	GMA2-4 (Filtered)	4/19/2006	Water	Tier II	Yes	Aroclor-1254	Rinse Blank	-	-	ND(0.00085)	
						Total PCBs	Rinse Blank	-	-	ND(0.00085)	
6D0P184	GMA-2-RB-1 (Filtered)	4/19/2006	Water	Tier II	No						