Baseline Monitoring Program Proposal for Plant Site 3 Groundwater Management Area

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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 soils, sediment, and groundwater in several Removal Action Areas (RAAs) located in or near Pittsfield, Massachusetts. These RAAs are part of the GE-Pittsfield/Housatonic River Site (the Site).

The CD provides for the performance of numerous Removal Actions at the Site in areas located outside the Housatonic River. Some of those Removal Actions relate to the soils in various RAAs designated in the CD and accompanying *Statement of Work for Removal Actions Outside the River* (SOW) (Appendix E to the CD). Other response actions relate to the groundwater, as well as non-aqueous-phase liquid (NAPL) (if present), in a number of these areas. For groundwater and NAPL, the areas at and near the GE Pittsfield facility have been divided into five Groundwater Management Areas (GMAs), some of which include multiple RAAs, based on the geographical proximity of such RAAs and similarities in hydrogeologic conditions. 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 SOW, with further details presented in Attachment H to the SOW (Groundwater/NAPL Monitoring, Assessment, and Response Programs).

The CD and the SOW require GE to develop and submit a baseline monitoring program proposal for each GMA. GE's baseline monitoring program proposal for the Plant Site 3 GMA (also known as and referred to herein as GMA 4) is presented in this *Baseline Monitoring Program Proposal for Plant Site 3 Groundwater Management Area* (GMA 4 Baseline Monitoring Proposal, or Proposal). As shown on Figure 1, this GMA occupies an area of approximately 80 acres located within the mid-eastern portion of the GE Plant Area.

This Proposal summarizes the currently available hydrogeologic information for GMA 4 and, based on that information, proposes baseline groundwater monitoring activities that will be used to identify and support any future groundwater or NAPL-related response actions at this GMA. This Proposal incorporates the wells that are currently being monitored to evaluate potential groundwater impacts from the two On-Plant Consolidation Areas (OPCAs) which are located within this GMA -- i.e., the Hill 78 and Building 71 Consolidation Areas. This Proposal meets the requirements for baseline monitoring program proposals for GMAs, as set forth in Attachment H to the SOW. As specified in Attachment H, each such proposal must include (where applicable) the following items:

- Summary of historical groundwater data;

- Results of any updated monitoring well inventory performed since 1995 (if available);

- A proposal to conduct baseline monitoring at the wells identified in Attachment H to the SOW, with any additions or modifications proposed by GE;

- A proposal regarding the groundwater constituents to be subject to baseline monitoring, considering initially all compounds listed in Appendix IX of 40 CFR Part 264 plus 2-chloroethylvinyl ether, benzidine, and 1,2-diphenylhydrazine (Appendix IX+3), as applicable to the monitoring objective, with any proposed well-specific limitations based on prior data from such well(s);

- Identification of existing and proposed wells to be monitored for the presence and thickness of NAPL;

- An assessment of existing NAPL recovery systems and/or programs, including proposals to optimize NAPL recovery, if appropriate;

- Proposals regarding other groundwater quality parameters to evaluate intrinsic/natural processes that may mitigate groundwater impacts (if applicable), and regarding wells (if any) to be subject to hydraulic conductivity testing;

- Identification of other potential sources, as well as an evaluation of the need for additional monitoring for potential preferential pathways near occupied buildings;

- Proposed frequency and duration of baseline monitoring activities (including quarterly water level monitoring and semi-annual groundwater quality monitoring for at least two years); and

- A schedule for baseline field activities, assessments, and reporting.

The baseline activities proposed to address the above requirements in this GMA 4 Baseline Monitoring Proposal have been based on information obtained from prior hydrogeologic investigations and prior/ongoing remedial actions. Groundwater conditions within GMA 4 have been studied for approximately 13 years, involving the installation of approximately 40 monitoring wells, 37 which have been sampled on one or more occasions. GE also conducts NAPL monitoring and manual recovery on a routine basis at one well in this GMA. Further, GE has previously performed

several assessments of overall hydrogeologic conditions and potential source areas to satisfy its prior obligations under various state and federal environmental programs. Finally, GE is currently conducting a groundwater monitoring program at 12 wells within this GMA to evaluate potential impacts from the OPCAs. The results of these efforts have also been considered in the preparation of this GMA 4 Baseline Monitoring Proposal.

As part of the preparation of this GMA 4 Baseline Monitoring Proposal, GE has further reviewed the available hydrogeologic data and groundwater/NAPL conditions within GMA 4. The results of this review (summarized herein) generally confirm that the baseline monitoring activities identified in the SOW are sufficient to assess current conditions and support future groundwater-related response actions within GMA 4. However, as described herein, some modifications to the baseline monitoring program described in Attachment H to the SOW have been identified and are proposed.

1.2 Format of Document

The remainder of this GMA 4 Baseline Monitoring Proposal is presented in four sections. Section 2 provides a summary of pertinent background information concerning GMA 4 and a summary of the historical groundwater analytical data. Section 3 discusses the applicable or potentially applicable Performance Standards identified in the CD related to groundwater and NAPL. Section 4 identifies additional baseline data needs and describes the baseline monitoring program proposed by GE to satisfy those data needs. Finally, Section 5 presents the proposed schedule for the baseline field and reporting activities.

2. Background Information

2.1 General

As discussed above, the CD and the SOW provide for the performance of groundwater-related Removal Actions at a number of GMAs. Some of these GMAs include multiple RAAs to reflect the fact that groundwater may flow across several RAAs. The GMAs within the Site and the associated RAAs are detailed in the following table and shown on Figure 1:

Groundwater Management Area (GMA)	GMA Name	Removal Action Area (RAA)
1	Plant Site 1	40s Complex 30s Complex 20s Complex East Street Area 2 – South East Street Area 2 – North East Street Area 1 – South East Street Area 1 – North Lyman Street Area Newell Street Area II Newell Street Area I Silver Lake Area
2	Former Oxbows J and K	Former Oxbow Areas J and K
3	Plant Site 2	Unkamet Brook Area (east of Plastics Avenue)
4	Plant Site 3	Hill 78 Consolidation Area Building 71 Consolidation Area Hill 78 Area – Remainder Unkamet Brook Area (west of Plastics Ave.)
5	Former Oxbows A and C	Former Oxbow Areas A and C

The remainder of this section discusses pertinent background information concerning GMA 4, including a general description of the area which comprises the GMA, the general hydrogeologic setting, the principal potential sources of impact to groundwater in the area, ongoing groundwater and NAPL-related monitoring programs, prior groundwater analytical results, and the most recent inventories regarding the condition of monitoring wells in the GMA.

2.2 Description of Plant Site 3 Groundwater Management Area

GMA 4 encompasses the Hill 78 and Building 71 Consolidation Areas, the remainder of the Hill 78 Area, and the portion of the Unkamet Brook Area (as defined in the CD and SOW) located to the west of Plastics Avenue, as shown on Figure 1. This area includes the eastern portion of GE's Pittsfield facility, which is generally bounded by Tyler Street/Tyler Street Extension to the north, Merrill Road to the south, Plastics Avenue to the east, and New York Avenue to the west. The center of this area also contains a generating facility owned by the Pittsfield Generating Company. The western portion of this GMA is mostly unpaved, with few buildings. The two consolidation areas are located along the northwest border of the GMA. The eastern part of the GMA is mostly paved or covered by Buildings OP-1 and OP-2. Figure 2 provides an aerial photograph of this area.

2.3 Hydrogeologic Setting

2.3.1 General

Over 40 monitoring wells and associated soil borings have been installed across GMA 4. Data collected at the time of soil boring/monitoring well installations (e.g., lithologic descriptions of the subsurface materials) and subsequent groundwater monitoring at many of these locations have produced an extensive database of hydrogeologic information from which this GMA 4 Baseline Monitoring Proposal has been prepared. Although variations to the hydrogeologic setting within GMA 4 exist depending on the specific location, the available data support a general assessment of subsurface conditions and groundwater hydraulics within GMA 4 and are sufficient for the purposes of this GMA 4 Baseline Monitoring Proposal.

The overburden deposits within GMA 4 primarily consist of unconsolidated sediments of glacial origin, which have been deposited in a broad bedrock valley occupied by the Housatonic River and Unkamet Brook. In general, four hydrogeologic units are present within GMA 4. These units are briefly described below.

Fill Materials/Surficial Soils

These shallow deposits extend from ground surface to depths of up to approximately 30 feet beneath the former Hill 78 Landfill. The ground surface at GMA 4 generally consists of topsoil, recent alluvial sediments, or soil cover materials utilized for consolidation activities. Fill has been placed at several portions of this area and is currently being added as part of GE's on-plant consolidation activities. The nature of the fill materials is variable, but can be generally classified into several distinct groupings based on the locations and types of materials present. These categories of fill materials include:

- Sand, gravel, boulders, and general construction/demolition debris (glass, ceramics, brick, wood, concrete, slag, asphalt, and metal) that were previously placed within the former Hill 78 Landfill;

- Silt, sand, cinders, wood, metal, and brick debris located to the north of the Pittsfield Generating Company and at the former soil stockpile area near New York Avenue and Merrill Road;

- White, semi-cohesive fill material found at a reported lime disposal area near New York Avenue and Merrill Road;

- General fill consisting of silt, sand, metal, brick, and asphalt in the vicinity of the OP parking lot to the south of the Pittsfield Generating Company; and

- Materials that have been excavated or otherwise removed as part of response actions performed under the CD and placed within the Hill 78 and Building 71 OPCAs pursuant to the CD. To date, these materials include excavated soils from the Allendale School Removal Action, excavated sediments and bank soils from the Upper ½Mile Reach Reach Removal Action, and (in the Building 71 OPCA) building demolition debris from Building 71.

Glacial Outwash

This unit consists primarily of fine to coarse sand containing approximately 20 percent silt and between 10 and 20 percent fine to medium gravel. These deposits are thickest to the south toward the Housatonic River valley, and thin to the north. Glacial outwash is absent from the upland areas along the northern border of the GMA.

Glacial Till

The till unit underlies the outwash deposits (where present) and consists of approximately 50 feet of dense sand containing varying amounts of silt, gravel, and rock fragments. The top of till surface exhibits substantial relief across the GMA, ranging in elevation from over 1,030 feet in the northern portion to less than 970 feet to the southwest. A prominent trough in the till surface is extends northwest to southeast across the center of the GMA. Figure 3 presents a top of till contour map. As shown on that map, the till surface also descends to the east toward Unkamet Brook.

Bedrock

Bedrock beneath GMA 4 consists of tan-beige calcitic, quartzose, and dolomitic marble associated with the Stockbridge Formation. Bedrock is encountered within this GMA at depths between 60 and 90 feet, based on the logs of six industrial

supply wells (ASW-1 through ASW-6) which have been installed within bedrock at this GMA and utilized by the Pittsfield Generating Company. Well ASW-1 was decommissioned in 1999 during construction of the Building 71 OPCA.

2.3.2 Groundwater Flow

Groundwater at GMA 4 generally flows south toward the Housatonic River and is primarily influenced by the existing topography. The contours are relatively uniform, except for a relatively localized flow variation in the vicinity of the former Hill 78 Landfill. Additionally, groundwater along the eastern edge of the GMA contains an easterly flow component along the topography in this area, toward Unkamet Brook. Figure 4 illustrates average water table elevations and flow directions at GMA 4.

Most of the existing monitoring wells within GMA 4 are screened within shallow deposits to monitor the upper primary water-bearing unit within the GMA. Groundwater is present in unconfined conditions at depths ranging from less than 5 feet to nearly 30 feet below ground surface. However, the depth to water at most locations is between 10 and 15 feet.

The horizontal hydraulic gradients are variable within GMA 4, as indicated in Table 3. Monitoring of well pairs or closely-spaced shallow and deep well clusters at GMA 4 indicate that the vertical component of the hydraulic gradient is slightly downward.

2.4 Potential Sources of Impacts to Groundwater Quality

There are several potential sources of constituents potentially affecting groundwater quality within GMA 4. Based on current information, these sources may include the following:

- the Former Hill 78 Landfill;
- light non-aqueous-phase liquid (LNAPL) observed at well H78B-8R; and
- various other minor localized potential source areas.

These sources or potential sources have been addressed during past investigation and remedial activities conducted by GE and are described below.

Former Hill 78 Landfill - This approximate 3.5-acre landfill existed in the western portion of GMA 4 and was originally created in the early 1940s as a disposal area for soils excavated during the construction of Buildings OP-1 and OP-2. GE

utilized the former Hill 78 Landfill at different periods up to 1990 for the disposal of additional construction/demolition debris and other solid wastes such as gravel, wood, metals, brick, glass, asphalt, paper, and ceramic materials. In 1990, GE discontinued the disposal of all materials at the former Hill 78 Landfill, except for plowed snow (although GE eventually ceased placement of snow at the landfill as well).

This former landfill was capped with a geotextile and crushed stone (on top of the landfill) and fill/topsoil (on the side slopes) as part of a Short Term Measure conducted in 1991. Currently, this area (the Hill 78 OPCA) is being utilized for on-plant consolidation of certain materials generated during Removal Actions under the CD -- specifically, materials that contain less than 50 ppm PCBs and thus are considered not regulated under the Toxic Substances Control Act (TSCA), and that are also not characterized as hazardous waste under EPA's regulations pursuant to the Resource Conservation and Recovery Act (RCRA).

LNAPL at Well H78B-8R - The occurrence of LNAPL in this area was initially observed on May 27, 1999, during the collection of groundwater elevation data in the area. GE notified MDEP of this observation in accordance with 310 CMR 40.0313 of the Massachusetts Contingency Plan (MCP) (and in response, MDEP assigned Release Tracking Number 1-12954). As a follow-up to this notification, GE conducted several activities as part of an Immediate Response Action, pursuant to Part 40.0410 of the MCP. These subsequent investigations found that the LNAPL is confined to well H78B-8R. GE submitted an Immediate Response Action Completion Report on July 19, 1999 and currently performs periodic NAPL monitoring and recovery at well H78B-8R. The distribution of LNAPL within the subsurface has remained relatively constant at this area, as LNAPL has not been observed at any other wells within GMA 4. Section 2.5 further describes the current NAPL monitoring program.

Other Potential Source Areas – Various other potential sources, which have been identified at certain portions of GMA 4 during prior investigations, are briefly described below. Most of these potential source areas have been addressed during past investigation and remedial activities conducted by GE.

Building 71 was constructed in 1953 and originally used as a general storage building. In 1979, the building was refurbished to meet TSCA regulations for the storage of drummed materials containing PCBs. This reconstruction included installation of a 26,000-gallon aboveground storage tank in a diked area adjacent to Building 71 for the storage of oil containing PCBs. A sump within the diked area was used to collect stormwater, which was sampled and analyzed for PCBs prior to discharge into the stormwater drainage system. GE removed the oil tank and cleaned the diked area in approximately 1983 to eliminate potential stormwater contamination. Building 71 and the associated diked area were demolished in August 1999. GE is currently utilizing this area (the Building 71 OPCA) for on-plant consolidation of certain TSCA- and/or RCRA-regulated materials generated during Removal Actions under the CD.

Based on aerial photography and historical site information, the southwest corner of the Hill 78 Area adjacent to the New York Avenue/Merrill Road intersection was reportedly utilized as a lime disposal area. The source of the lime has not been documented, but may have been a byproduct from past acetylene gas manufacturing operations. Indications of lime wastes were observed in the soil boring conducted during the installation of well H78B-13.

Four former underground storage tanks (USTs) that were formerly used during ordnance operations have been identified within GMA 4. These units (Tank I.D. Nos. OP1-A1, OP2-01, OP2-02, and OP2A-04) were removed or otherwise taken out of service in accordance with applicable local, state, and federal regulations by the early 1990s. More detailed descriptions of these units and related closure activities performed by GE are contained in GE's January 1995 *MCP Interim Phase II Report and Current Assessment Summary for Unkamet Brook Area /USEPA Area 1*, which has previously been provided to EPA.

2.5 Current NAPL Monitoring Program

GE continues to conduct weekly monitoring and removal activities to address the LNAPL in well H78B-8R (see Figure 4). These activities include the collection of groundwater elevation measurements and monitoring for the presence of LNAPL in this well. If LNAPL is observed in this well at a thickness equal to or exceeding 0.5 feet, it is manually removed. Historic LNAPL recovery data, as well as the existing analytical data for this LNAPL, are summarized in Appendix B. Approximately 2.7 gallons of LNAPL have been removed from well H78B-8R since May 1999. No other occurrences of NAPL have been identified in GMA 4.

Under the CD and SOW, GE is required to continue monitoring, assessment, and response action activities related to NAPL, including the submission of periodic summary reports, until applicable Performance Standards (described in Section 3 of this Proposal) are achieved. As such, these NAPL monitoring and recovery activities will continue to be performed at well H78B-8R following EPA approval and implementation of this GMA 4 Baseline Monitoring Proposal. In addition, the NAPL monitoring and recovery activities at GMA 4 will be documented along with the groundwater quality-related activities in a single report covering all groundwater and NAPL-related activities within GMA 4. That report will be prepared and submitted by GE on a semi-annual basis. Additional discussion regarding future reporting is presented in Section 4.6.

2.6 Current Groundwater Monitoring Program

Groundwater samples are collected on a semi-annual basis from 12 wells (shown on Figure 5) in conjunction with the operation of the OPCAs. A "baseline" sampling event was conducted in June 1999, and the first semi-annual sampling event was initiated in May 2001. Once collected, the samples are analyzed for Appendix IX+3 constituents. The analytical data generated to date are summarized in Appendix A. Under the OPCA program, GE will prepare and submit reports which present the sampling results and required evaluations of those results. Those reports will also include the results of sampling performed by the Pittsfield Generating Company at industrial supply well ASW-5. GE is currently performing the required evaluations of the May 2001 groundwater data in support of the preparation of the first OPCA groundwater monitoring report.

2.7 Summary of Groundwater Analytical Data

Groundwater analytical data from GMA 4 have been previously summarized in a number of reports submitted to EPA and MDEP (the Agencies) under the Massachusetts Contingency Plan (MCP) and RCRA Corrective Action Programs that were in place at the GE facility (and related areas) prior to entry of the CD. The primary documents (excluding routine monitoring reports) which provides the results of past groundwater investigations for areas within GMA 4 are GE's *MCP Interim Phase II Report and Current Assessment Summary for Unkamet Brook Area/ USEPA Area 1* (January 1995) and *MCP Phase II /RCRA Facility Investigation Report for Hill 78 Area /USEPA Area 2* (August 1997).

The investigations described in the above reports, as well as recent activities associated with the OPCA groundwater sampling program, have produced a substantial amount of groundwater analytical data for GMA 4, involving analytical data from approximately 65 groundwater samples collected from 37 wells since 1980. The groundwater analyses conducted during these investigations are summarized in Table 2, and pertinent groundwater analytical data are summarized in Appendix A. A broader review of this groundwater analytical data indicates that:

- approximately 97% of the samples were analyzed for VOCs;
- approximately 85% of the samples were analyzed for semi-volatile organic compounds (SVOCs);
- approximately 70% of the samples were analyzed for total PCBs and approximately 47% for dissolved PCBs;
- approximately 76% of the samples were analyzed for total inorganics and approximately 50% for dissolved inorganics;
- approximately 80% of the samples were analyzed for polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDDs/PCDFs); and
- approximately 6% of the samples were analyzed for pesticides.

These existing groundwater data were generally collected and analyzed by procedures appropriate for the intended use of the data at the time of the previous investigations. These data were considered in the development of the proposed baseline monitoring activities discussed in Section 4 below. However, the existing database is not being considered at this time for use in assessing achievement of the groundwater Performance Standards or as the basis for proposing to limit the analyte list for the baseline monitoring program. Hence, a complete assessment of the quality of these data for quality assurance/quality control (QA/QC) parameters has not been completed at this time. GE may conduct such an assessment of particular historical data at selected locations in support of proposals for future modifications to the baseline or long-term monitoring programs, and will present the results of any such assessments in the pertinent proposals.

2.8 Prior Monitoring Well Inventories

Attachment H to the SOW requires that the baseline monitoring program proposal for a GMA include the results of monitoring well inventories performed since 1995. Only limited well inventories have been performed within GMA 4 since that time. A summary of those inventories is provided in Table 4. Most of the wells proposed for sampling and analysis as part of this baseline monitoring program were either installed or sampled during MCP Phase II/RCRA corrective action program investigations in the 1996-97 time frame or during the recent OPCA groundwater monitoring program and have generally been found to be in a suitable condition for use. As discussed in Section 4.2.1, GE will perform a new inventory of these wells to obtain an update on their condition since they were last inspected or utilized.

3. Summary of Applicable Performance Standards

3.1 General

This section describes the Performance Standards that are applicable to response actions to address groundwater and NAPL for GMA 4. Those Performance Standards are set forth in Section 2.7 and Attachment H (Section 4.0) of the SOW. They relate primarily to the groundwater quality and NAPL-related conditions that must ultimately be achieved for GMA 4 and the long-term monitoring program that will be performed at this GMA, after completion of the baseline monitoring, to assess achievement of those conditions. However, it is important to understand these Performance Standards in the context of the baseline monitoring program, since they provide the criteria for evaluating the results from that program and for conducting further response actions.

The following sections provide a summary of the applicable Performance Standards for groundwater quality and NAPL, respectively. As noted above, the Performance Standards are set forth in full in Section 2.7 and Attachment H of the SOW.

3.2 Groundwater Quality Performance Standards

In general, the Performance Standards for groundwater quality are based on the groundwater classification categories designated in the MCP (310 CMR 40.0932). 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 groundwater. However, the remaining MCP groundwater categories are applicable to GMA 4 and are described below:

- GW-2 Groundwater - Groundwater is classified as GW-2 if it is located within 30 feet of an existing occupied building and has an average annual depth of 15 feet or less below the ground surface. Under the MCP, VOCs present within GW-2 groundwater represent a potential source of organic vapors to the indoor air of the overlying occupied structures.

- GW-3 Groundwater - By MCP definition, all groundwater at a site is classified as GW-3 since it is considered to be ultimately discharged to surface water.

The CD and the 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 (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 4. The MCP Method 1 standards for GW-2 and GW-3 groundwater are listed in Appendix C. (In the event of any discrepancy between the standards listed in this appendix and those published in the MCP, the latter shall 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, Attachment H to the SOW states that GE must use these MCP procedures or alternate procedures approved by EPA to develop Method 2 standards, 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.

Based on consideration of the above points, the specific groundwater quality Performance Standards for GMA 4 consist of the following:

1. At monitoring wells designated as compliance points to assess GW-2 groundwater (i.e., groundwater located at an average annual 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 developed using procedures in the MCP or approved by EPA (unless GE provides and EPA approves a rationale for not developing such Method 2 standards); or (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 upon 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 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 developed using procedures in the MCP or approved by EPA (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. As discussed in Section 4 of this GMA 4 Baseline Monitoring Proposal, several existing and proposed wells have been selected as the compliance points for attainment of the Performance Standards identified above.

3.3 NAPL Performance Standards

The SOW sets forth the Performance Standards relating to NAPL for all GMAs. Several of these Performance Standards apply to the discharge or potential discharge of NAPL to surface water bodies or to the migration of NAPL around physical containment barriers. At the present time, these particular Performance Standards would not be applicable within GMA 4 because this GMA does not contain any surface waters within the meaning of the Performance Standards or any physical containment barriers. Nevertheless, all the NAPL Performance Standards set forth in the SOW are listed below for completeness and for reference in the event that they should become applicable.

1. Containment, defined as no discharge of NAPL to surface waters and/or sediments, which shall include no sheens on surface water and no bank seeps of NAPL.

2. For areas near surface waters in which there is no physical containment barrier between the wells and the surface water, elimination of measurable NAPL (i.e., detectable with an oil/water interface probe) in wells near the surface water bank that could potentially discharge NAPL into the surface water, in order to prevent such discharge and assist in achieving groundwater quality Performance Standards.

3. For areas adjacent to physical containment barriers, prevention of any measurable LNAPL migration around the ends of the physical containment barriers.

4. For NAPL areas not located adjacent to surface waters, reduction in the amount of measurable NAPL to levels which eliminate the potential for NAPL migration toward surface water discharge areas or beyond GMA boundaries, and which assist in achieving groundwater quality Performance Standards.

5. For NAPL detected in wells designed to assess GW-2 groundwater (i.e., located at average depths of 15 feet or less from the ground surface and within a horizontal distance of 30 feet from an existing occupied building), a demonstration that constituents in the NAPL do not pose an unacceptable risk to occupants of such building via

volatilization and transport to the indoor air of such building. Such demonstration may include assessment activities such as: NAPL sampling, soil gas sampling, desk-top modeling of potential volatilization of chemicals from the NAPL (or associated groundwater) to the indoor air of the nearby occupied buildings, or sampling of the indoor air of such buildings. If necessary, GE shall propose corrective actions, including, but not limited to, containment, recovery, or treatment of NAPL and impacted groundwater.

4. Proposed Baseline Monitoring Program

4.1 General

This section describes the baseline monitoring activities proposed by GE for groundwater and NAPL within GMA 4. This section has been developed based on a review of the available hydrogeologic information associated with GMA 4 (Section 2), as well as the applicable Performance Standards summarized in Section 3 of this document. As previously indicated, the anticipated baseline monitoring activities for GMA 4 were previously identified in Attachment H to the SOW, and were collectively developed between GE and the Agencies prior to execution of the CD. Since entry of the CD, GE has conducted a further review of the available data related to the hydrogeologic setting and groundwater/NAPL conditions within GMA 4. This review has resulted in certain proposed modifications to the baseline monitoring program initially identified in Attachment H to the SOW. Also, as discussed in Section 4.2.4, GE will conduct additional investigations to assess the potential presence of DNAPL near the glacial till interface.

This section describes GE's proposed baseline monitoring program for groundwater and NAPL at GMA 4, including the modifications to the baseline program identified in Attachment H to the SOW. Specifically, Section 4.2 presents GE's proposed baseline monitoring activities for groundwater at GMA 4, including the evaluations conducted to support those proposed activities, while Section 4.3 describes the proposed NAPL monitoring and recovery activities during the baseline monitoring period. Section 4.4 outlines GE's proposed data assessment activities, and Section 4.5 describes the required notification activities associated with the baseline monitoring activities, as well as the requirements relating to interim response actions, if needed, in accordance with Attachment H to the SOW. Finally, Section 4.6 describes the various reporting requirements that are applicable to the baseline monitoring program.

The Data Quality Objectives (DQOs) for this proposed baseline monitoring program are: (a) to obtain the necessary data on groundwater conditions and NAPL in GMA 4 to meet the baseline monitoring requirements specified in Attachment H to the SOW; (b) to provide a baseline database for the subsequent development and implementation of a long-term monitoring program for this GMA and ultimately for evaluating the impact of soil-related response actions on groundwater quality and assessing achievement of the groundwater quality and NAPL Performance Standards described in Section 3; and (c) to determine the need for interim response actions to the extent required by Attachment H to the SOW.
Upon approval by EPA, the proposed baseline groundwater monitoring and NAPL monitoring/recovery programs described in this section will supersede the preliminary groundwater monitoring program presented in Attachment H to the SOW and the current routine NAPL monitoring/recovery activities and schedule.

4.2 Baseline Groundwater Monitoring

4.2.1 Evaluations and Overview

To develop the baseline groundwater monitoring program for GMA 4, GE reviewed and evaluated a number of factors. It began by reviewing the baseline monitoring program described in Attachment H to the SOW and considering the need for additions or modifications to that program. In this connection, GE considered appropriate locations for both sentinel wells and perimeter wells, as described in Attachment H to the SOW.

Attachment H to the SOW describes two categories of sentinel wells for the GMAs. The first consists of GW-2 sentinel wells, which are wells located within or close to areas where the GW-2 groundwater classification applies (i.e., shallow groundwater near occupied buildings); these wells are to be considered compliance points for GW-2 standards (but not GW-3 standards). The second category consists of general and source area sentinel wells, which are wells located near potential source areas and/or spatially distributed across a GMA; these wells are not considered compliance points for the GW-3 standards but would be used to provide an early indication of groundwater conditions that could exceed the GW-3 standards at downgradient perimeter wells. (Attachment H to the SOW also provides for the establishment, where applicable, of natural attenuation monitoring wells, considered as a special subcategory of general/source area sentinel wells, to assess intrinsic and natural processes that may mitigate groundwater impacts. However, as recognized in Attachment H, these types of wells are not currently applicable to GMA 4.)

Perimeter wells are generally intended to monitor groundwater quality along the outer boundary of a GMA. All downgradient perimeter wells are to be used as compliance points for the GW-3 standards, while upgradient perimeter wells are generally intended to assess the quality of groundwater entering the GMA. In addition, in some cases, perimeter wells located near or upgradient of existing occupied buildings may also be considered GW-2 sentinel wells and will be monitored for compliance with the GW-2 standards.

As noted above, GMA 4 contains a number of wells that are being monitored on a semi-annual basis as part of the OPCA groundwater monitoring program described in Section 2.6. These wells will be incorporated into the GMA 4 baseline monitoring program as GW-2 sentinel wells, general/source area sentinel wells, and/or perimeter wells, as appropriate. Thus, following EPA's approval of this Proposal, these wells will be monitored both for OPCA groundwater monitoring purposes and for the applicable GW-2/GW-3 monitoring purposes under the GMA 4 baseline program, utilizing the same set of groundwater samples and analytical results for both programs. (Further, following EPA's approval of this Proposal, GE will combine the reporting requirements for these two programs into a single document, as discussed in Section 4.6.1 below.)

The groundwater monitoring network identified for GMA 4 in Attachment H to the SOW consisted of 21 existing wells (or proposed wells which have since been installed). These included eight GW-2 sentinel wells, eleven GW-3 perimeter wells (including three OPCA monitoring program wells), eight OPCA monitoring program wells to be utilized as general/source area sentinel wells in the GMA 4 program, and Pittsfield Generating Company water supply well ASW-5. Several of these wells were designated for both GW-2 sentinel and GW-3 perimeter monitoring, or for both GW-2 and general/source area sentinel GW-3 monitoring. GE has further evaluated these monitoring well locations, taking into account the criteria described in Attachment H for selecting sentinel and perimeter well locations. Based on this evaluation, GE has determined that the monitoring well network identified in Attachment H for GMA 4 is appropriate with a few modifications, as discussed in detail in Sections 4.2.2 and 4.2.3 below (for GW-2 and GW-3 monitoring, respectively).

In addition, GE has evaluated the distribution of monitoring well pairs and the need for establishing additional such pairs to assess achievement of the GW-2 and GW-3 standards. While some well pairs were selected for groundwater elevation and/or NAPL monitoring (as discussed in Section 4.2.5), there is no need for use of such well pairs for baseline groundwater quality monitoring at GMA 4, because both the GW-2 and the GW-3 standards at this GMA apply to relatively shallow groundwater (i.e., groundwater with an average annual depth less than 15 feet below the ground surface and near occupied buildings, or groundwater that could discharge to surface water).

Based on the above-described evaluations, a baseline groundwater monitoring program consisting of 22 wells, including 21 existing monitoring wells and one new monitoring well, was selected for GMA 4. This total includes the 12 wells which are also monitored under the OPCA groundwater monitoring program and well ASW-5, which is routinely sampled by the Pittsfield Generating Company. Two soil borings are also proposed to be installed, and potentially converted to monitoring wells, as part of an investigation of subsurface conditions above the till interface to meet a condition of EPA's conditional approval of the *Detailed Work Plan for On-Plant Consolidation Areas*, as discussed in Section 4.2.4. Finally, as discussed in Section 4.2.5, a number of additional wells are proposed to be monitored for groundwater elevation and the presence of NAPL to supplement the hydrologic data collected during the baseline monitoring program. The locations of all these wells (and borings), along with their designations, are depicted on Figure 6 and described in Table 5, and the rationale for their selection is discussed in more detail in Sections 4.2.2 through 4.2.5.

Prior to commencement of this baseline monitoring program, a well inventory/inspection will be conducted for all existing wells included in the program to provide an update on the condition of these wells. For each such well, this inventory/inspection will verify the presence of a well identification marker, the condition of the well head and surface seal, depth to water, and a comparison of measured stickup and total depths to previously recorded values; and any discrepancies between actual and previously reported measurements, as well as any repairs made or items needing repair,

will be noted. Following completion of this inventory, GE will complete any repairs, redevelopment, or resurveying that may be required. If an existing well proposed for inclusion in the baseline monitoring program cannot be suitably repaired or redeveloped, GE will propose a replacement well. In addition, based on observations made during this well inventory, GE may propose to abandon and replace certain other wells or to substitute other wells into the program. Any such proposal will be submitted to EPA for approval in an addendum to this GMA 4 Baseline Monitoring Proposal.

In accordance with Attachment H to the SOW, the baseline monitoring program will be conducted over a period of at least two years and will include water level monitoring on a quarterly basis and groundwater sampling and analysis on a semi-annual basis (except that the wells that are part of the OPCA monitoring program will be monitored for the duration of active operation of the OPCAs). All well installation activities and all groundwater measurement, sampling, and analysis activities will be conducted in accordance with the procedures set out in GE's approved *Field Sampling Plan/Quality Assurance Project Plan* (FSP/QAPP).

4.2.2 GW-2 Monitoring

To establish the GW-2 sentinel/compliance wells, GE first identified, using data available from prior monitoring activities, those areas within GMA 4 where the average annual depth to groundwater is 15 feet or less below ground surface. These shallow groundwater areas were determined by an initial calculation of average groundwater elevation data available from approximately 30 wells within GMA 4. Two areas exhibited an average depth to water of greater than 15 feet:

1. The center of the GMA along the southern boundary of the former Hill 78 Landfill, between well NY-3 to the west of the former landfill and well OPCA-MW-3 to the east; and

2. The parking area located in the southeastern portion of the GMA between wells OPCA-MW-6 and 78-3.

The depth to groundwater across the remainder of GMA 4 appears to be less than 15 feet, although monitoring data are limited at certain locations. Therefore, the average depths to groundwater and determination of areas subject to GW-2 monitoring may be further refined as additional water level data are collected during the quarterly groundwater elevation monitoring activities which will take place as part of the baseline monitoring program.

Once the extent of shallow groundwater was determined, specific GW-2 sentinel/compliance monitoring locations were selected considering the presence of occupied structures within GMA 4 (shown on Figure 5), as well as the existence of potential preferential pathways (i.e., subsurface utilities located below or near the high groundwater elevation table) near the occupied buildings. The potential preferential pathways situated below or within 0.5 feet of the high groundwater

elevation table were identified based on review of GE's July 1997 *Assessment of Potential Preferential Pathways in Unkamet Brook Area/USEPA Area 1*, as well as the preferential pathway assessment contained in GE's August 1997 *MCP Phase II/RCRA Facility Investigation Report for Hill 78 Area/USEPA Area 2*. Such potential preferential pathways (i.e., subsurface utility lines) that are located near occupied buildings within GMA 4 are also depicted on Figure 5.

Based upon the above-described assessment, GE proposes a couple of modifications to the GW-2 monitoring program identified in Attachment H, which consisted of eight GW-2 wells. Those modifications are as follows:

- GE proposes to install and monitor a new well, GMA4-1, as a GW-2 sentinel/compliance well to substitute for well OPCA-MW-3 near the Pittsfield Generating Company Steam Turbine Generator Building. This modification is proposed because initial monitoring data from well OPCA-MW-3 indicate that the depth to groundwater is greater than 15 feet. However, depth to water measurements along the southern perimeter of GMA 4 show a shallower depth to water. Therefore, GE proposes to install a new well along the south side of this building, as shown on Figure 6. GE will continue to monitor well OPCA-MW-3 under its ongoing OPCA groundwater monitoring program and as a general/source area well.

- Well OPCA-MW-5 was damaged during construction and/or snowplowing of an access road to the Building 71 OPCA. GE replaced this well in May 2001 with well OPCA-MW-5R, and will utilize this new well during OPCA and baseline groundwater monitoring activities.

Thus, the proposed GW-2 monitoring program for GMA 4 will consist of eight wells (including seven existing wells and one new well), as identified in Table 5 and on Figure 6. These wells will provide adequate coverage for the existing occupied buildings at GMA 4 and the potential preferential pathways near the occupied buildings. For GW-2 purposes, these wells will be monitored initially for the VOCs listed in Appendix IX of 40 CFR Part 264 plus 2-chloroethylvinyl ether. However, as the baseline monitoring program proceeds, GE may propose to reduce this analyte list at certain well locations if appropriate.

It should be noted that some of these well locations are located more than 30 feet from an existing occupied building and that, in some cases, a single well is used for GW-2 monitoring for more than one building given the configuration of buildings within GMA 4. Such wells will initially be used as compliance points for the GW-2 standards. However, if exceedances of the GW-2 standards are observed in these wells, GE will consider installing new wells closer to (i.e., within 30 feet of) the target building(s) in question and, if appropriate, will propose such new wells to EPA for approval. Upon EPA approval, such new wells will be utilized as GW-2 sentinel/compliance wells, in addition to or in place of the former wells, for the remainder of the baseline monitoring program.

In addition to the wells identified as GW-2 sentinel wells in Table 5 and on Figure 6, additional GW-2 wells or changes to the existing monitoring program may be proposed if, prior to or during the baseline monitoring program, additional buildings are constructed or now-vacant buildings are occupied at GMA 4. Additionally, if subsequent monitoring indicates that the average annual depth to groundwater at certain wells proposed for GW-2 monitoring is greater than 15 feet, GE may propose to discontinue monitoring at those locations.

4.2.3 GW-3 Monitoring

GE has likewise reviewed the GW-3 monitoring program described in Attachment H to the SOW, which consisted of 11 perimeter monitoring wells and eight general/source area sentinel wells. GE has determined that this monitoring program is appropriate with one minor modification regarding well H78B-15. That well was listed in Attachment H to the SOW as solely a GW-2 sentinel well, but has since been added to the OPCA monitoring program. For that reason, GE proposes to monitor this well as a general/source area sentinel well (in addition to being a GW-2 well).

Thus, the baseline monitoring program for GW-3 monitoring will consist of 11 perimeter wells and nine general/source area sentinel wells, as identified in Table 5 and on Figure 6. The perimeter wells will include seven downgradient perimeter wells, which will be considered compliance points for the GW-3 standards, and four upgradient perimeter wells, which will be used to assess the quality of groundwater entering the GMA. Of these perimeter wells, three downgradient wells (RF-14, RF-15, and 60B) will also be monitored for GW-2 compliance, and three upgradient wells (78-1, 78-6, and NY-4) are also included as upgradient wells in the OPCA monitoring program. The nine general/source area sentinel wells are located within the interior of the GMA and will be used to provide an early indication of groundwater conditions that could exceed the GW-3 standards at downgradient perimeter wells (as well as to assess potential impacts from the OPCAs). All of these nine wells are included in the OPCA monitoring program, and four of them will also be monitored for GW-2 compliance, as shown in Table 5 and on Figure 6.

Initially, all the GW-3 wells will be monitored for all Appendix IX+3 constituents. However, as the baseline monitoring program proceeds, GE may propose to reduce the analyte list at certain well locations if appropriate. For example, depending on the results of the initial round of sampling, GE may propose to eliminate analyses for pesticides/herbicides from future sampling rounds at most of the monitoring wells in this GMA. These compounds have not been detected in the groundwater samples that were analyzed for these parameters during prior sampling events.

4.2.4 Till Interface Investigation

In an April 27, 2000 comment letter related to GE's *Detailed Work Plan for the On-Plant Consolidation Areas* and *Addendum to the Detailed Work Plan for the On-Plant Consolidation Areas*, EPA noted that certain OPCA monitoring wells were not screened within a confining layer or within till, and it thus directed GE to propose a strategy to determine if DNAPL is present in this area. In response, GE stated in letters to EPA dated June 13 and September 8, 2000, that it would submit a proposal for such investigations, including a geophysical survey as well as other investigations to assess the potential presence of DNAPL in the area near the OPCAs. GE will submit its proposal for a geophysical survey separately at a later time (and, as agreed, will not place any materials in the portion of the Hill 78 OPCA subject to this survey until the survey is completed). However, GE is including in this GMA 4 Baseline Monitoring Proposal a proposal for other subsurface investigations to assess whether DNAPL is present in this area.

Specifically, GE proposes to install two soil borings, designated as RAA9-1 and RAA9-2 on Figure 6, drilled to the top of till interface. These borings are located within the till trough identified within the center of this area (shown on Figure 3), where limited prior borings have extended to the till interface. (Other low points of the till surface have been previously investigated and no evidence of DNAPL was observed. For example, well ES1-6 (shown on Figure 3) was installed just outside the western edge of GMA 4 at a low point in the sloping till surface and no DNAPL was observed in the soil boring or during subsequent groundwater measurement.)

If either of these borings indicates the potential presence of DNAPL below the water table (e.g., elevated photoionization detector (PID) readings, sheens, or free product), a monitoring well will be installed at that location with the well screen(s) placed at the depth of concern. In that event, following well installation and development, GE will monitor such well(s) for groundwater elevation and the potential presence of DNAPL as part of the quarterly measurements of groundwater elevations to be performed during this baseline program.

4.2.5 Groundwater Elevation and Hydraulic Monitoring

In accordance with Attachment H to the SOW, during the baseline monitoring period, GE will perform quarterly measurements of groundwater elevations at the wells proposed for groundwater quality monitoring in GMA 4, including the OPCA groundwater monitoring program wells (listed in Table 5). In addition, GE will perform quarterly groundwater elevation monitoring at seven other wells to provide additional information on groundwater flow conditions and vertical gradients. These wells include wells H78B-8, H78B-13, H787B-16, H78B-17R, UB-MW-5, UB-MW-6, and 60A, as shown on Figure 6. Further, GE will continue to collect groundwater elevation data from well H78B-8R as part of the NAPL monitoring program for that well (discussed in Sections 2.5 above and 4.3 below), and will review those data as

appropriate to complement the groundwater elevation data from the baseline quarterly groundwater elevation monitoring events. Finally, as discussed in Section 4.2.4 above, should monitoring wells be installed in either of the two soil borings proposed as part of the till interface investigation, GE will incorporate those wells into the quarterly groundwater elevation monitoring events.

This groundwater elevation monitoring program incorporates a number of existing well pairs (as identified in Table 5). Although one or both wells in such pairs will not be sampled for groundwater quality as part of the baseline monitoring program, several will be monitored for groundwater elevations to provide additional information on vertical hydraulic gradients at GMA 4. In the event that applicable GW-2 or GW-3 standards are exceeded, the vertical gradient data will be assessed to determine the need for monitoring of additional wells screened at different depths.

An extensive amount of hydraulic conductivity data has already been collected at GMA 4, as shown in Table 3. Therefore, GE does not propose to conduct additional hydraulic conductivity testing at this time. Following initiation of the baseline monitoring program, additional hydraulic conductivity testing may be warranted at selected wells and/or well pairs if exceedances of the applicable GW-2 or GW-3 standards are detected and such hydraulic conductivity data have not already been collected. GE will propose additional hydraulic conductivity testing in future baseline monitoring program interim reports, if needed.

4.3 Baseline NAPL Monitoring

As previously described in Section 2.5 of this GMA 4 Baseline Monitoring Proposal, GE has conducted and continues to conduct monitoring, assessment, and response action activities related to the presence of NAPL at well H78B-8R within GMA 4. GE proposes to continue these activities during the baseline monitoring program, with limited modifications. These modifications include: (a) monitoring for DNAPL at locations RAA9-1 and/or RAA9-2 if those borings indicate the potential presence of DNAPL and wells are thus required to be installed at such location(s); (b) quarterly groundwater elevation and NAPL monitoring at other wells at or near the location of well H78B-8R, as identified in Section 4.2.5; and (c) the incorporation of the NAPL monitoring and recovery results into a combined semi-annual groundwater quality/NAPL report for this GMA, as discussed in Section 4.6.1. Additional proposals for NAPL characterization and optimization of NAPL recovery will be presented, as appropriate, in those semi-annual reports.

GE has also evaluated the presence of NAPL in relatively shallow groundwater (located at an annual average depth of 15 feet or less below the ground surface) in the vicinity (within 30 feet) of occupied buildings to determine the need for additional NAPL sampling for GW-2 constituents in those areas. Based on this evaluation, including consideration of current NAPL extent and depth, it is concluded that there is no need for additional NAPL sampling to evaluate GW-2

constituents at this time, since adequate analytical data exist on NAPL in this area, and the known location of NAPL is not within 30 feet of an occupied building or within 15 feet of the ground surface. In the future semi-annual reports, GE will continue to assess this issue as necessary, and will evaluate the available NAPL data in consideration of the applicable Performance Standards contained in Attachment H to the SOW.

4.4 Data Quality Assessment

As discussed in Section 2.7 above, the existing groundwater data from GMA 4 have not been fully reviewed for data quality because those data are not being considered at the present time for the purpose of achieving the groundwater quality Performance Standards or for proposals to limit the constituents to be analyzed for in the baseline groundwater monitoring program. In the future, GE may conduct a more thorough assessment of the quality of historical groundwater data at selected locations in support of modifications that may be proposed to the baseline or long-term monitoring programs. GE will present the results of any such data quality assessments in conjunction with the applicable proposals for modification.

All future groundwater analytical data collected during the baseline monitoring program will undergo data validation in accordance with the applicable procedures set forth in the FSP/QAPP. The results will be presented in the pertinent reports submitted on the baseline monitoring program, as described in the next section.

4.5 Notification and Interim Response Actions

Section 6.2 of Attachment H to the SOW establishes requirements relating to GE's notification to EPA and MDEP (the Agencies) of certain findings during the course of the baseline monitoring program. In some circumstances, these notifications are to include proposals for interim response actions to address certain groundwater or NAPL-related issues. This section describes the requirements of Attachment H to the SOW for such notifications and proposals (if required) for interim response actions. It should be noted that although some notification requirements are consistent with the MCP's reporting requirements for releases to surface water or groundwater, the notification and reporting requirements described below are limited to those set forth in Attachment H to the SOW; they do not supersede or negate the MCP's reporting requirements or any other applicable reporting requirements under federal or state law.

4.5.1 Groundwater Quality-Related Notifications

Upon obtaining knowledge of sampling data from a well containing category GW-2 groundwater within 30 feet of an occupied residential structure and having a total VOC concentration equal to or greater than 5 ppm, GE will notify EPA and MDEP within 72 hours unless such exceedence was previously observed and reported to EPA. GE will provide the data from each such event in the next monthly progress report for overall work at the Site. Subsequent exceedances for a given well will also be indicated in the next monthly progress report for the Site.

If an exceedance of a groundwater Upper Concentration Limit (UCL), as set forth in the MCP (310 CMR 40.0996(5)), is indicated in a groundwater sample from any monitoring well, and such an exceedance was not previously observed and reported to EPA, GE will notify the Agencies within 14 days of obtaining knowledge of such results. (For convenience, the UCLs are listed, along with the Method 1 GW-2 and GW-3 standards, in Appendix C.) GE will also provide the data and identify specifically each such exceedance in the next monthly progress report for overall work at the Site. Subsequent exceedances of a UCL for a given well will be identified in the next monthly report. The monthly progress report for overall work at the Site will also identify any wells which were sampled and provide the sampling results for all constituents which exceeded the applicable GW-2 or GW-3 standards.

4.5.2 NAPL-Related Notifications

During the baseline monitoring program, if a NAPL thickness of greater than or equal to 1/2-inch is observed in any monitoring well, GE will notify the Agencies within 72 hours of obtaining knowledge of such a condition, unless such conditions are consistent with the types, nature, and quantities of NAPL which were previously observed and reported to the Agencies. This notification will be followed by written notice to the EPA within 60 days. The written notification will include a proposal to EPA for interim response actions to be conducted, which may include NAPL sampling, additional assessment/monitoring, or NAPL removal activities. Upon EPA approval, GE will conduct the approved interim response actions. If a NAPL thickness of greater than or equal to 1/8-inch, but less than 1/2-inch, is observed in a monitoring well, GE will notify the Agencies in the next monthly progress report, unless the results are consistent with the types, nature, and quantities of NAPL which have previously been observed and reported to the Agencies.

In addition, Attachment H to the SOW sets forth certain notification requirements relating to the discharge of NAPL to surface water. Although these requirements do not appear to be currently applicable within GMA 4, they are set forth below for reference in the event that they should become applicable.

- If NAPL is observed to be discharging to surface water and creating a sheen on the water in a location in which such NAPL discharge was not previously observed or measures are not in place to effectively contain the discharge, GE will notify the Agencies within two hours of obtaining knowledge of such observation. This will be followed by written notice to EPA within seven days. The written notification will include a proposal to EPA for interim response actions to contain such discharge. Upon EPA approval, GE will conduct the approved interim response actions to contain the NAPL discharge.

- If NAPL is observed to be discharging to surface water or creating a sheen on the water in a location in which such NAPL discharge was previously observed and reported to EPA and measures are in place to effectively contain the sheen, GE will notify EPA of the continued presence of such NAPL in the next monthly progress report for overall work at the Site.

4.6 Reporting Requirements

Separate from the notification requirements discussed above, Section 6.3 of Attachment H to the SOW establishes requirements relating to GE's reporting of baseline activities to the Agencies. That section requires GE to submit interim reports on the baseline monitoring program after each round of groundwater quality monitoring, as well as a final report on the overall baseline monitoring program at the conclusion of the program. These reports are described in Sections 4.6.1 and 4.6.2 below.

4.6.1 Baseline Groundwater Monitoring Interim Reports

Following the receipt of data from each semi-annual round of groundwater quality monitoring at GMA 4, in accordance with the schedule described in Section 5.4.1, GE will prepare and submit a summary report describing the field activities and presenting the monitoring results from that round and the subsequent water level monitoring round. In addition, to minimize the duplication of efforts, following EPA's approval of this GMA 4 Baseline Monitoring Proposal, these semi-annual groundwater monitoring reports will also include: (a) the results from GE's OPCA groundwater monitoring program; and (b) the results of the NAPL monitoring and recovery activities related to well H78B-8R. GE will also provide an electronic submittal of the analytical and locational (e.g., X-Y-Z coordinates) data for the round being reported in a format compatible for entry into an ArcInfo GIS System.

Each such summary report will compare the results from that event to the prior data from the GMA and also to the Method 1 (or 2) GW-2 or GW-3 standards at applicable well locations. If the sampling results for GW-2 compliance

wells indicate an exceedance of the Method 1 (or 2) GW-2 standards in a well in which (1) such exceedance had not previously been found; or (2) the GW-2 standard has previously been exceeded and the groundwater concentration is greater than or equal to 5 ppm total VOCs (if such an exceedance was not previously addressed), GE will propose appropriate interim response actions. These response actions may include: resampling of the groundwater; increasing the sampling frequency to quarterly intervals; additional well installation and sampling (taking into account the proximity of any known or any newly defined potential soil-related contaminant sources and/or potential preferential pathways); soil gas sampling; modeling of potential volatilization of chemicals from the groundwater to the indoor air of the nearby occupied buildings; sampling of the indoor air of such buildings; an evaluation of the potential risks related to volatilization to such indoor air; the development of a risk-based alternative GW-2 standard; and/or active response actions, including, but not limited to, containment, recovery, or treatment of impacted groundwater and/or NAPL.

For sampling results that indicate an exceedance of Method 1 (or 2) GW-3 standards at a downgradient perimeter monitoring well in which (1) such exceedance had not previously been found, or (2) the GW-3 standard (Method 1 or 2) has previously been exceeded and the groundwater concentration is greater than or equal to 100 times the GW-3 standard (if such exceedance was not previously addressed), GE will propose interim response actions. These interim response actions may include: (a) further assessment activities such as resampling, increasing the sampling frequency to quarterly intervals, additional well installation and sampling (taking into account the proximity of any known or any newly defined potential soil-related contaminant sources and/or potential preferential pathways), and/or continuation of the baseline monitoring program; (b) active response actions, including, but not limited to, containment, recovery, or treatment of impacted groundwater; and/or (c) the conduct of a site-specific risk evaluation (taking into account the impacts on adjacent surface water, sediments, or biota) and the proposal of alternative risk-based GW-3 Performance Standards. Upon EPA approval, GE will implement the approved interim response actions.

In any interim summary report, GE may propose, consistent with the requirements of Attachment H to the SOW, modifications to the monitoring frequency and specific wells to be monitored and/or the constituents to be analyzed for during the remaining sampling rounds in the baseline program. In addition, GE will evaluate the results of future pre-design soil investigations performed at the areas within GMA 4 to identify potential soil-related impacts to groundwater. If any new potential soil sources are identified, GE will evaluate the scope of the ongoing baseline monitoring program relative to the area of interest and propose, if appropriate, modifications to the baseline program (e.g., installation of new monitoring wells, sampling of existing wells, etc.). Upon EPA approval, GE will implement such modifications for the remaining rounds.

Each interim summary report will also describe the NAPL-related field activities that have been performed since the last report, and provide a summary of NAPL monitoring and recovery operations (including written, tabular, and illustrative

summaries). One of the semi-annual reports (to be submitted in August) will present NAPL monitoring and recovery data for the period between January and June of each year and the other report (to be submitted in February) will present similar data for July through December. As appropriate, each report may contain proposals for changes to the monitoring program and/or additional characterization activities. In addition, to the extent practicable, one of the reports (probably the August semi-annual report) will also provide assessments of overall NAPL recovery operations and include proposals to optimize NAPL recovery, if appropriate, based on the results of such assessments.

If the two-year "baseline" period ends prior to the completion of soil-related response actions at this part of the Hill 78 and Unkamet Brook Areas, GE may submit a proposal to EPA for approval to modify and/or extend the baseline monitoring program based on the results of the initial assessment and the estimated timing of the soil-related response actions in these areas.

4.6.2 Baseline Assessment Final Report and Long-Term Monitoring Program Proposal

At the conclusion of the GMA 4 baseline field investigation program, in accordance with the schedule described in Section 5.4.2, GE will submit a Baseline Assessment Final Report for this GMA to EPA for review and approval. This report will also include a proposal to EPA for a long-term monitoring program for GMA 4.

The final report on the GMA 4 baseline monitoring program will include:

- An update of the current understanding of hydrogeologic conditions and the extent of groundwater contamination, including a statistical assessment of the "baseline" data and other historical data, if appropriate, and a comparison to the Performance Standards;
- An evaluation of the spatial distribution of constituents within the GMA and the actual migration or potential for migration of such constituents outside the GMA, including an evaluation of groundwater travel time to any receptor (e.g. surface water body/building);

- Identification of the presence or potential presence of previously unidentified sources of groundwater contamination;

- An assessment of the adequacy of the selected monitoring locations;

- A re-assessment of the constituents, locations, and frequencies to be subject to future monitoring;

- Identification of areas where the GW-2 Performance Standards apply in addition to the GW-3 Performance Standards;

- Identification of the specific wells to be used to measure compliance with the GW-2, GW-3, and NAPL Performance Standards;

- An evaluation of variations in groundwater quality from event to event to identify and assess sampling data variability and potential causes for the variability, including seasonal influences;

- A summary of NAPL-related monitoring results and recovery activities; and

- A statement of the basis for GE's proposal to EPA for approval of a long-term monitoring program and/or additional response actions.

The Long-Term Monitoring Program Proposal for GMA 4 will include:

- The specific areas to be subject to the monitoring (if different from these currently included in GMA 4), along with the supporting rationale;

- The monitoring locations, along with the supporting rationale, for GW-2, GW-3, and NAPL monitoring, as well as continued monitoring related to the OPCAs;

- A schedule for plan implementation, including reporting;

- The frequency of future monitoring events;

- The constituents to be subject to analysis;

- Descriptions of statistical techniques to be employed to evaluate data trends;

- Proposal for any additional investigations or assessments, interim response actions, or NAPL recovery modifications/additions;

- Any proposal for risk-based alternative GW-2 or GW-3 Performance Standards; and

- An outline of the Monitoring Event Evaluation Reports to be submitted under the long-term monitoring program.

5. Schedule

5.1 General

Schedule requirements related to the baseline monitoring programs were generally identified in Attachment H to the SOW. This section provides a schedule specifically for conducting the GMA 4 baseline monitoring program.

5.2 Field Activities Schedule

The baseline monitoring program for GMA 4 will begin following EPA's approval of this GMA 4 Baseline Monitoring Proposal. During the baseline monitoring period, GE proposes to continue to conduct the ongoing weekly NAPL-related monitoring and removal at well H78B-8R within this GMA according to the current schedule (as described in Section 2.5).

GE proposes to complete the inventory of wells proposed for sampling and installation of the new soil borings and monitoring well(s) described in this GMA 4 Baseline Monitoring Proposal within 60 days after EPA's approval of this Proposal (provided that EPA's comments on this Proposal do not require substantial additions or modifications to the baseline monitoring program described herein).

GE proposes to conduct quarterly groundwater level monitoring at the baseline program wells described herein for such monitoring (including all wells which will be sampled for groundwater quality, as well as several wells to be monitored for groundwater elevation only) during periods representing winter, spring, summer, and fall conditions for a two-year period beginning with the first of these time periods following the installation of all approved additional baseline monitoring wells, as discussed above. GE will attempt to obtain the quarterly groundwater elevation data during the months of January, April, July, and October, but may, on occasion, collect these measurements during the prior month or the next month from the target date if scheduling issues or other unforeseen factors necessitate alterations to the schedule.

GE proposes to conduct semi-annual groundwater quality monitoring at the baseline program wells described herein for such monitoring during periods representing spring and fall conditions for a two-year period, coinciding with the spring and fall groundwater elevation monitoring events discussed in the previous paragraph. The time periods for semi-annual water quality sampling were chosen to adequately assess seasonal variations that may occur during the baseline sampling period. This schedule was selected to obtain data during presumed annual high and low water table conditions. GE will attempt to collect groundwater analytical samples during the months of April and October, but may, on occasion, conduct these sampling events during the prior month or the next month from the target date if scheduling issues or other

unforeseen factors necessitate alterations to the schedule. Semi-annual sampling and analysis of the wells included in the OPCA groundwater program will be performed in conjunction with the GMA 4 baseline groundwater quality monitoring events.

GE will make best efforts to avoid scheduling groundwater monitoring at times and locations at which the baseline data could be impacted by ongoing soil response actions in this area. In addition, GE may propose a modified sampling schedule for selected wells following evaluation of the analytical data as the baseline monitoring program progresses.

5.3 Monthly CD Reporting

In the monthly progress reports for overall work at the Site, GE will continue to provide the results from ongoing NAPL monitoring and recovery from well H78B-8R. In addition, observations and results of the GMA 4 baseline monitoring program will be incorporated into the monthly progress reports as follows:

Following a quarterly groundwater elevation monitoring event, the following information will be added to the next monthly progress report for the Site:

- A listing of the wells which were monitored, and the depths from the well measuring point to groundwater and groundwater/NAPL interfaces (if present);

- A listing of the wells where a NAPL thickness of greater than or equal to 1/8-inch, but less than 1/2-inch was observed, unless the results are consistent with the types, nature, and quantities of NAPL which were previously observed and reported to the Agencies; and

- If applicable, a listing of locations where NAPL was observed to be discharging to any surface water and creating a sheen on the water (whether or not it is in a location in which such NAPL discharge was previously observed and reported to EPA).

Following a semi-annual groundwater sampling event, the following information will be added to the next monthly progress report for the Site:

- Each of the items listed above for the associated quarterly groundwater elevation monitoring event; and

- A listing of the wells which were sampled during the event and the analyses to be conducted.

Following receipt of preliminary analytical results from a semi-annual groundwater sampling event, the following information will be added to the next monthly progress report for the Site:

- The analytical results from that monitoring event;
- An identification of any wells containing GW-2 groundwater in which the analytical results indicate an exceedance of an applicable GW-2 standard;
- An identification of any wells where the analytical data indicate an exceedance of a groundwater UCL; and
- An identification of any perimeter wells monitored for GW-3 groundwater in which the analytical data indicate an exceedance of an applicable GW-3 standard.

5.4 Reporting Schedule

In addition to the monthly status reports and any time-critical notifications, GE will prepare several reports during the course of the baseline monitoring program for GMA 4. Two types of reports will be prepared: Baseline Groundwater Monitoring Interim Reports and the Baseline Assessment Final Report and Long-Term Monitoring Program Proposal. The anticipated content of these reports has been previously discussed in Section 4.6. The proposed schedule for submittal of these reports is presented below.

5.4.1 Baseline Groundwater Monitoring Interim Reports

As described in Section 5.2 of this Proposal, baseline groundwater sampling activities will be performed on a semi-annual basis, in approximately April and October of each year. GE proposes to submit the Baseline Groundwater Monitoring Interim Reports on these events by the following August 31 and February 28, respectively. These dates have been selected to coincide with the proposed submittal dates for the baseline groundwater monitoring interim reports for the adjacent Plant Site 2 GMA. GE anticipates that, if feasible, these interim reports for GMA 4 will also include the water level measurement data (and associated groundwater elevation contour maps) from the two immediately preceding quarterly groundwater elevation monitoring events (i.e., the April and July water level data in the August 31 interim report and the October and January water level data in the February 28 interim report). GE will also include NAPL monitoring results for the preceding six-month period (i.e., the January through June monitoring data in the August 31 interim report

and the July through December monitoring data in the February 28 interim report) and an assessment of the NAPL recovery activities conducted during that time period.

5.4.2 Baseline Assessment Final Report and Long-Term Monitoring Program Proposal

At the completion of the baseline monitoring program for GMA 4 (i.e., following the two-year baseline period or such extended period as is proposed by GE and approved by EPA), GE will prepare a Baseline Assessment Final Report and Long-Term Monitoring Program Proposal, which will contain the information described in Section 4.6.2 above. GE proposes to submit this final report and long-term monitoring proposal to EPA within 120 days following submittal of the last Baseline Groundwater Monitoring Interim Report, or such other time as is proposed by GE and approved by EPA.

Tables

TABLE 1

GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

PLANT SITE 3 GROUNDWATER MANAGEMENT AREA

SUMMARY OF GMA 4 MONITORING WELLS

WELL ID	WELL DIAMETER (Inches)	GROUND ELEVATION (Feet AMSL)	MEASURING POINT ELEVATION (Feet AMSL)	DEPTH TO TOP OF SCREEN (Feet)	SCREEN LENGTH (Feet)	TOP OF SCREEN ELEVATION (Feet AMSL)	BASE OF SCREEN ELEVATION (Feet AMSL)	AVERAGE DEPTH TO WATER (Feet BGS)	AVERAGE GROUND-WATER ELEVATION (Feet AMSL)
060A	N/A	N/A	N/A	45	5	N/A	N/A	15.00	N/A
060B	N/A	N/A	N/A	20	5	N/A	N/A	15.01	N/A
78-1	4	1,027.4	1,026.34	8	15	1,019.4	1,004.4	10.28	1,017.12
78-2	4	1,034.9	1,033.96	6	15	1,028.9	1,013.9	7.98	1,026.92
78-3	4	1,008.1	1,007.20	10	15	998.1	983.1	15.92	992.18
78-4	4	999.5	998.63	6	15	993.5	978.5	12.67	986.83
78-5	4	997.8	996.96	2	15	995.8	980.8	4.62	993.18
78-6	4	1,013.1	1,011.99	3	15	1,010.1	995.1	8.65	1,004.45
78-7	4	1,019.0	1,017.72	13	15	1,006.0	991.0	16.04	1,002.96
H78B-8	0.75	1,022.7	1,025.89	10.5	10	1,012.2	1,002.2	18.03	1,004.67
H78B-8R	4	1,023.2	1,025.09	19.6	9.3	1,003.6	994.3	26.51	996.69
H78B-11	0.75	1,016.6	1,019.45	4	5	1,012.6	1,007.6	5.47	1,011.13
H78B-12	0.75	1,017.4	1,020.59	4	6.5	1,013.4	1,006.9	7.86	1,009.54
H78B-13	1	989.8	992.71	6	12	983.8	971.8	4.42	985.38
H78B-15	0.75	1,009.8	1,012.73	6	10	1,003.8	993.8	9.49	1,000.31
H78B-16	1	996.0	999.21	4	10	992.0	982.0	8.73	987.27
H78B-17	1	999.3	1,002.96	6	10	993.3	983.3	12.87	986.43
H78B-17R	4	999.2	1,000.48	14.3	9.3	984.9	975.6	12.98	986.22
H78B-18	0.75	1,015.6	1,019.31	6	13	1,009.6	996.6	4.87	1,010.73
H78B-28	0.75	1,018.4	1,021.57	3.5	8.5	1,014.9	1,006.4	6.72	1,011.68
H78B-28R	4	1,018.3	1,019.57	9.3	9.3	1,009.0	999.7	6.90	1,011.40
NY-1	4	988.6	988.61	2.5	12	986.1	974.1	3.67	984.93
NY-2	4	993.1	993.01	9.5	15	983.6	968.6	13.83	979.27
NY-3	4	1,005.6	1,005.33	10	15	995.6	980.6	15.29	990.31
NY-4	4	1,024.8	1,024.53	17	15	1,007.8	992.8	9.52	1,015.28
OPCA-MW-1	2	1,017.1	1,019.65	20.1	10	997.0	987.0	7.03	1,010.07
OPCA-MW-2	2	1,017.3	1,019.58	13	10	1,004.3	994.3	14.64	1,002.66
OPCA-MW-3	2	1,015.3	1,014.87	18	10	997.3	987.3	19.56	995.74
OPCA-MW-4	2	1,019.2	1,018.71	12	10	1,007.2	997.2	11.98	1,007.22
OPCA-MW-5	2	1,017.6	1,017.07	9.8	10	1,007.8	997.8	12.29	1,005.31
OPCA-MW-5R	2	1,016.6	1,016.28	11.25	10	1,005.3	995.3	10.90	1,005.68
OPCA-MW-6	2	1,022.7	1,022.10	15	10	1,007.7	997.7	16.44	1,006.26
OPCA-MW-7	2	1,026.9	1,026.40	14	10	1,012.9	1,002.9	14.49	1,012.41
OPCA-MW-8	2	1,027.9	1,027.57	13.5	10	1,014.4	1,004.4	11.89	1,016.01
RF-14	4	991.7	991.67	7	15	984.7	969.7	9.85	981.82
RF-15	4	1,011.3	1,011.29	9	15	1,002.3	987.3	14.33	996.96
UB-MW-5	2	1,006.3	1,006.10	7	10	999.3	989.3	14.08	992.22
UB-MW-6	2	1,020.3	1,019.70	26	10	994.3	984.3	24.12	996.18
UB-MW-7	0.75	1,012.1	1,011.80	12	10	1,000.1	990.1	10.25	1,001.85
UB-MW-8	1	1,003.0	1,002.80	6	10	997.0	987.0	7.93	995.07

Notes:

1. Feet AMSL - Feet Above Mean Sea Level.
2. Feet BGS - Feet Below Ground Surface.
3. N/A: Information not available.
4. Wells H78B-11, H78B-12, NY-1, and OPCA-MW-5 have been decommissioned.

TABLE 2

GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

PLANT SITE 3 GROUNDWATER MANAGEMENT AREA

SUMMARY OF GROUNDWATER APPENDIX IX+3 ANALYSES

Well ID	Date Collected	Analyses Performed								
		VOCs	SVOCs	PCBs	Filtered PCBs	Pest/ Herb	PCDDs/ PCDFs	Metals	Filtered Metals	Sulfide
60 A/B	6/80	X								
60 A/B	3/82	X						X		
60 B	12/18/96	X	X	X	X		X	X	X	X
78-1	1/22/91	X	X				X	X	X	X
78-1	9/17/96	X	X							
78-1	6/14/99	X	X	X			X	X		
78-1	5/1/01	X	X	X	X		X	X	X	X
78-2	1/22/91	X	X				X	X	X	X
78-3	1/23/91	X	X				X	X		X
78-4	1/23/91	X	X				X	X		X
78-4	9/17/96	X	X							
78-5	1/23/91	X	X				X	X		X
78-6	1/23/91	X	X				X	X		X
78-6	6/16/99	X	X	X			X	X		
78-6	5/3/01	X	X	X	X		X	X	X	X
78-7	1/24/91	X	X	X	X		X		X	X
78-7	9/18/96	X		X	X					
ASW-3	1,2/91	X	X				X	X		X
ASW-4	9/17/96	X								
ASW-5	9/20/96	X	X	X	X		X	X	X	
ASW-6	9/20/96	X	X	X	X		X	X	X	
H78B-13	9/18/96	X	X	X	X		X	X	X	
H78B-15	9/18/96	X	X	X	X		X	X	X	
H78B-15	6/16/99	X	X	X			X	X		
H78B-15	5/3/01	X	X	X	X		X	X	X	X
H78B-16	9/17/96	X	X	X	X		X	X	X	
H78B-17R	11/19/96	X	X	X	X		X	X	X	
H78B-18	9/18/96	X	X	X	X		X	X	X	
H78B-22	7/23/96	X								
H78B-28R	11/19/96	X	X	X	X		X	X	X	
H78B-8R	12/9/96	X	X		X		X	X	X	
H78B-8R	5/16/97			X						
NY-1	4/27/88	X	X	X		X		X		
NY-1	1/24/91	X	X				X		X	X

TABLE 2

GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

PLANT SITE 3 GROUNDWATER MANAGEMENT AREA

SUMMARY OF GROUNDWATER APPENDIX IX+3 ANALYSES

Well ID	Date Collected	Analyses Performed								
		VOCs	SVOCs	PCBs	Filtered PCBs	Pest/ Herb	PCDDs/ PCDFs	Metals	Filtered Metals	Sulfide
NY-1	8/29/91						X			
NY-1	9/18/96	X	X	X	X		X			
NY-2	4/27/88	X	X	X		X		X		
NY-2	2/28/91	X	X		X		X		X	X
NY-3	5/11/88	X	X	X		X		X		
NY-3	1/24/91	X	X				X		X	X
NY-4	5/11/88	X	X	X		X		X		
NY-4	1/24/91	X	X	X	X		X	X		X
NY-4	9/20/96	X		X	X					
NY-4	6/14/99	X	X	X			X	X		
NY-4	4/30/01	X	X	X	X		X	X	X	X
OPCA-MW-1	6/16/99	X	X	X			X	X		
OPCA-MW-1	5/2/01	X	X	X	X		X	X	X	X
OPCA-MW-2	6/15/99	X	X	X			X	X		
OPCA-MW-2	5/2/01	X	X	X	X		X	X	X	X
OPCA-MW-3	6/16/99	X	X	X			X	X		
OPCA-MW-3	5/2/01	X	X	X	X		X	X	X	X
OPCA-MW-4	6/15/99	X	X	X			X	X		
OPCA-MW-4	5/2/01	X	X	X	X		X	X	X	X
OPCA-MW-5	6/15/99	X	X	X			X	X		
OPCA-MW-5R	6/28/01	X	X	X	X		X	X	X	X
OPCA-MW-6	6/15/99	X	X	X			X	X		
OPCA-MW-6	5/2/01	X	X	X	X		X	X	X	X
OPCA-MW-7	6/15/99	X	X	X			X	X		
OPCA-MW-7	5/1/01	X	X	X	X		X	X	X	X
OPCA-MW-8	6/14/99	X	X	X			X	X		
OPCA-MW-8	5/1/01	X	X	X	X		X	X	X	X
RF-14	8/29/91	X					X		X	
RF-14	12/19/96	X	X	X	X		X	X	X	X
RF-15	8/29/91	X					X		X	
RF-15	12/17/96	X	X	X	X		X	X	X	X
UB-MW-6	12/19/96	X	X	X	X		X	X	X	X
UB-MW-8	1/9/97	X	X	X	X		X	X	X	X

TABLE 3

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

PLANT SITE 3 GROUNDWATER MANAGEMENT AREA

SUMMARY OF HYDRAULIC CONDUCTIVITY DATA

WELL ID	HYD. COND. (cm/s)	HYD. COND. (ft/min)	HYD. COND. (ft/day)
GMA 4 MONITORING WELL			
NY-1	9.213E-04	1.814E-03	2.6122
NY-3	1.178E-02	2.320E-02	33.4080
NY-4	3.184E-06	6.269E-06	0.0090
78-1	4.465E-03	8.791E-03	12.6590
78-2	7.450E-05	1.467E-04	0.2112
78-3	1.611E-02	3.172E-02	45.6768
78-4	4.232E-03	8.332E-03	11.9981
78-5	5.871E-04	1.156E-03	1.6646
78-7	5.698E-04	1.122E-03	1.6157
H78B-11	9.050E-06	1.782E-05	0.0257
H78B-12	8.939E-07	1.760E-06	0.0025
H78B-13	1.340E-04	2.638E-04	0.3799
H78B-15	2.440E-03	4.804E-03	6.9183
H78B-16	7.100E-02	1.398E-01	201.3106
H78B-17R	4.239E-05	8.346E-05	0.1202
H78B-18	1.530E-04	3.013E-04	0.4338
H78B-28R	4.626E-04	9.109E-04	1.3117
GMA 3 MONITORING WELL ADJACENT TO GMA 4			
27A	1.030E-05	2.028E-05	0.0292
27B	5.348E-05	1.053E-04	0.1516
31A	2.054E-06	4.044E-06	0.0058
31B	5.878E-05	1.157E-04	0.1667

TABLE 4

GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

PLANT SITE 3 GROUNDWATER MANAGEMENT AREA

SUMMARY OF RECENT WELL INVENTORY RESULTS

WELL ID	WELL DIAMETER (inches)	LISTED TOTAL DEPTH (Feet)	MEASURED TOTAL DEPTH (Feet)	WELL INVENTORY DATE AND COMMENTS	DATE OF LAST MEASUREMENT
RF-14	4	22.85	22.00	[July 2001] Well in acceptable condition.	7/2/01
RF-15	4	24.00	19.88	[June 2001] Well in acceptable condition.	6/29/01
UB-MW-5	2	17.00	15.76	[June 2001] Well in acceptable condition.	6/29/01
UB-MW-6	2	36.00	35.21	[June 2001] Well in acceptable condition.	6/29/01
UB-MW-7	1	22.00	5.91	[June 2001] Well obstructed.	6/29/01
UB-MW-8	1	16.00	15.01	[June 2001] Well in acceptable condition.	6/29/01
60A	2	50.00	43.85	[June 2001] Well in acceptable condition.	6/29/01
60B	2	25.00	26.36	[Mar. 1997] Well in acceptable condition.	See below
60B	2	25.00	26.18	[June 2001] Well in acceptable condition.	6/29/01

Note:

1. Well inventory/measurement results reflect information obtained between January 1996 and July 2001.

TABLE 5

GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

PLANT SITE 3 GROUNDWATER MANAGEMENT AREA

PROPOSED BASELINE GROUNDWATER MONITORING PROGRAM

WELL ID	MONITORING WELL TYPE	APPLICABLE GROUNDWATER PERFORMANCE STANDARD	RATIONALE
78-1	Perimeter/OPCA	GW-3	Upgradient perimeter; part of OPCA monitoring program
78-2	Perimeter	GW-3	Upgradient perimeter
78-3	Perimeter	GW-3	Downgradient perimeter
78-5	Perimeter	GW-3	Downgradient perimeter
78-6	Perimeter/OPCA	GW-3	Upgradient perimeter; part of OPCA monitoring program
H78B-8	Groundwater Elevation/NAPL	Not Applicable	Vertical gradient assessment (paired with well H78B-8R)
H78B-8R	Groundwater Elevation/NAPL	Not Applicable	Weekly NAPL monitoring and removal
H78B-15	GW-2 Sentinel/ Source Area Sentinel/OPCA	GW-2/GW-3	Near Pittsfield Generating Company Warehouse Storage Buildings; part of OPCA monitoring program
H78B-16	Groundwater Elevation/NAPL	Not Applicable	NAPL monitoring within till trough
H78B-17	Perimeter	GW-3	Downgradient perimeter
H78B-17R	Groundwater Elevation/NAPL	Not Applicable	Vertical gradient assessment (paired with well H78B-17)
H78B-13	Groundwater Elevation/NAPL	Not Applicable	Spatial representation in southwest corner or GMA
NY-2	Perimeter	GW-3	Downgradient perimeter

TABLE 5

GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

PLANT SITE 3 GROUNDWATER MANAGEMENT AREA

PROPOSED BASELINE GROUNDWATER MONITORING PROGRAM

WELL ID	MONITORING WELL TYPE	APPLICABLE GROUNDWATER PERFORMANCE STANDARD	RATIONALE
NY-4	Perimeter/OPCA	GW-3	Upgradient perimeter; part of OPCA monitoring program
RF-14	GW-2 Sentinel/Perimeter	GW-2/GW-3	Downgradient perimeter near Building OP-1
RF-15	GW-2 Sentinel/Perimeter	GW-2/GW-3	Downgradient perimeter near Buildings OP-1, OP-1B Garage, and OP-2B Boiler House
60B	GW-2 Sentinel/Perimeter	GW-2/GW-3	Downgradient perimeter near Bldg. OP-1
60A	Groundwater Elevation/NAPL	Not Applicable	Vertical gradient assessment (paired with well 60B)
UB-MW-5	Groundwater Elevation/NAPL	Not Applicable	Spatial representation near change in topography
UB-MW-6	Groundwater Elevation/NAPL	Not Applicable	Spatial representation near change in topography
GMA4-1	GW-2 Sentinel	GW-2	Near Pittsfield Generating Company Steam Turbine Generator Building
OPCA-MW-1	GW-2 Sentinel/ Source Area Sentinel/OPCA	GW-2/GW-3	Near Bldg. 78; part of OPCA monitoring program
OPCA-MW-2	Source Area Sentinel/OPCA	GW-3	Part of OPCA monitoring program
OPCA-MW-3	Source Area Sentinel/OPCA	GW-3	Part of OPCA monitoring program
OPCA-MW-4	GW-2 Sentinel/ Source Area Sentinel/OPCA	GW-2/GW-3	Near Pittsfield Generating Company Gas Turbine Generator Bldg.; part of OPCA monitoring program
OPCA-MW-5R	GW-2 Sentinel/ Source Area Sentinel/OPCA	GW-2/GW-3	Near Pittsfield Generating Company Gas Turbine Generator Bldg.; part of OPCA monitoring program

TABLE 5

GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

PLANT SITE 3 GROUNDWATER MANAGEMENT AREA

PROPOSED BASELINE GROUNDWATER MONITORING PROGRAM

WELL ID	MONITORING WELL TYPE	APPLICABLE GROUNDWATER PERFORMANCE STANDARD	RATIONALE
OPCA-MW-6	Source Area Sentinel/OPCA	GW-3	Part of OPCA monitoring program
OPCA-MW-7	Source Area Sentinel/OPCA	GW-3	Part of OPCA monitoring program
OPCA-MW-8	Source Area Sentinel/OPCA	GW-3	Part of OPCA monitoring program
ASW-5	Water Supply (See Note 5)	Not Applicable	Pittsfield Generating Co. water supply well monitoring program
RAA9-1	Till Investigation Soil Boring (See Note 6)	Not Applicable	Soil boring to till interface in trough near Pittsfield Generating Company
RAA9-2	Till Investigation Soil Boring (See Note 6)	Not Applicable	Soil boring to till interface in trough near Pittsfield Generating Company

Notes:

1. Well IDs listed in italics are proposed new wells.
2. GW-2 sentinel wells will be sampled on a semi-annual basis, with samples initially analyzed for Appendix IX volatile organic compounds, plus 2-chloroethylvinyl ether.
3. GW-3 perimeter wells and source area sentinel wells will be sampled on a semi-annual basis, with samples initially analyzed for all Appendix IX constituents plus 2-chloroethylvinyl ether, benzidine, and 1,2-diphenylhydrazine.
4. OPCA monitoring wells are also subject to monitoring and reporting requirements under a separate program, which will be combined with the GMA 4 baseline program.
5. Pittsfield Generating Company water supply well ASW-5 will be monitored in accordance with its existing permit.
6. Till Investigation borings will be converted to monitoring wells if indications of DNAPL are observed.
7. Each of the wells listed above (including the till investigation borings if converted to monitoring wells) will be monitored for depth to water and for the presence of NAPL on a quarterly basis. Those wells listed for groundwater elevation/NAPL monitoring only will not be sampled for groundwater quality as part of the baseline monitoring program.