

SCANNED

Wilmington 3-0578
50 Fordham Rd.
Former G.E.

Phase V Operations, Maintenance, and Monitoring Report

Eastern Parking Lot Area – November 2002 thru October 2003
Tank K Area – April 2003 thru October 2003
Groundwater Source Control Area – September 2003 Baseline
Long-Term Groundwater Monitoring – September 2003

Former GE Facility (RTN# 3-0518)
Wilmington, Massachusetts

Submitted to:

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EXECUTIVE SUMMARY

The following report presents results for the on-going monitoring programs at the former General Electric (GE) facility site (Site), release tracking number (RTN) 3-0518, located at 50 Fordham Road in Wilmington, Massachusetts. These programs and the corresponding monitoring periods include:

- Phase V Maintenance and Monitoring of the Eastern Parking Lot (EPL) Area
Monitoring period: November 2002 – October 2003
- Phase V Operations, Maintenance and Monitoring (OM&M) of the Tank K Area
Monitoring period: April 2003-October 2003
- Phase V OM&M Program for the Groundwater Source Control System
Monitoring period: Baseline Sampling event, September 2003
- Long Term Groundwater Monitoring Program (LTGMP)
Monitoring period: September 2003

The Site is currently undergoing extensive groundwater monitoring via the Phase V monitoring programs for: 1) EPL Area, 2) Tank K Area, 3) Groundwater Source Control Area, and 4) Long Term Groundwater Monitoring Program (LTGMP).

The overburden aquifer is impacted by: 1) chlorinated volatile organic compounds (CVOCs), 2) extractable petroleum hydrocarbons (EPH) compounds, and, 3) volatile petroleum hydrocarbons (VPH) compounds including benzene, toluene, ethylbenzene and xylenes (BTEX), methyl-tert butyl ether (MTBE), and naphthalene. Specifically, the EPA Area is impacted by Stoddard fuel-related contaminants (EPH and VPH). The Tank K Area is impacted by gasoline-related contaminants (BTEX and VPH). The Source Control Area and regional groundwater plume that is monitored by the LTGMP is characterized by solvent-related CVOC compounds.

The bedrock aquifer is impacted by CVOCs, with the core of the plume extending from the former Tank Farm area through pumping well TRC-202R. The VOC concentrations in bedrock at the core of the plume range from 26,620 micro-grams per liter ($\mu\text{g/L}$) at IP-1R2 to 10,623 $\mu\text{g/L}$ at EMW-11R2. Newly installed bedrock well TRC-301R, with a total VOC concentration of 146 $\mu\text{g/L}$, marks a downgradient monitoring point within the target zone (i.e., known target depth) that is outside of the core area of the plume.

Eastern Parking Lot

TRC will continue the light non-aqueous phase liquid (LNAPL) and groundwater monitoring program in the EPL Area and will summarize the findings next in a Fall 2004 report to Massachusetts Department of Environmental Protection (MA DEP). Based on four consecutive sampling events (2000-2003) with VPH and EPH levels below

Massachusetts Contingency Plan (MCP) GW-1 standards, TRC will remove EMW-11S and TRC-103 from the sampling program.

Tank K

TRC will continue groundwater monitoring and the OM&M program. TRC has again identified low flow conditions at several sparge points. As a result, five replacement sparge points were installed during December 2003, with the system still in a functioning mode and only a temporary shutdown of the necessary points. Well construction logs and an update on the performance of the replacement sparge points will be provided in the next OM&M report.

Source Control

On August 15, 2003, the groundwater remediation system for Source Control went to startup mode. Baseline groundwater sampling results are presented herein. The first quarterly groundwater monitoring period was completed in December 2003. TRC will submit the first OM&M Report for Source Control following the second quarterly sampling round scheduled for March 2004.

Long Term Groundwater Monitoring Program

TRC's analysis of the current groundwater sampling data did not identify any notable anomalous results or trends. The highest concentrations of CVOCs in both overburden and bedrock continue to be observed immediately east of the former Tank Farm. At the newly installed TRC-301R, a bedrock monitoring well located at a sentinel position relative to the plume, the total CVOC concentration observed in September 2003 was 146 µg/L.

Analysis of groundwater elevation data continues to indicate that shallow and deep overburden groundwater flows east from the Site, and that bedrock groundwater has the potential to follow an easterly track from the Site. This is consistent with the analysis of groundwater elevation data dating back to 1986. As a result, the continued routine preparation of potentiometric surface maps to support the LTGMP is unnecessary and will be discontinued.

Groundwater elevation data will continue to be collected from all groundwater monitoring wells sampled as part of the LTGMP, prior to each sampling event.

In overburden, at the multi-level monitoring well cluster PS-1 (a three well cluster), the deepest well, PS-1D, recorded the highest total CVOC results at that location. The two shallower monitoring wells, PS-1S and PS-1M recorded much lower CVOC concentrations, a trend that has been observed since the initial 1995 sampling event.

As a result, TRC is going to temporarily stop collecting groundwater samples from the shallower PS-1S and PS-1M monitoring wells, until groundwater quality at the deep

monitoring well, PS-1D, is below MCP GW-1 standards. At that time, TRC will begin re-sampling PS-1S and PS-1M to confirm the shallower locations are also below MCP GW-1 standards. This is consistent with the original purpose of the multi-level monitoring well installation, to characterize the formation at various depths in the event contaminant stratification is present. This objective has been completed and TRC is targeting the highest contaminant zone for long-term monitoring.

At GZA-10, a monitoring well located perpendicular to the plume core, all CVOCs were below the quantitation limits. The last time a CVOC was observed above MCP GW-1 standards at this location was 1995. As a result, GZA-10 will be removed from the LTGMP, but retained as a confirmatory well for Tank K, per MA DEP requirements.

Monitoring Well Decommissioning

Numerous monitoring wells have been installed with regard to groundwater contamination issues related to the Former GE Site. Many of these monitoring wells have not been used for years to support ongoing Site activities. As a result, these monitoring wells that are no longer in-use are unnecessary conduits to the subsurface, and are considered abandoned wells, as defined by the Massachusetts well drilling regulations.

Of the 66 monitoring wells TRC is preparing to decommission, MA DEP previously approved 18 of them as per the *Conditional Approval of the LTGMP* letter, dated July 16, 1997.

TRC will decommission each monitoring well with a licensed Massachusetts well driller, in accordance with the MA DEP guidance for well decommissioning.

1.0 INTRODUCTION

The following report presents results for the on-going monitoring programs at the former General Electric (GE) facility site (Site), release tracking number (RTN) 3-0518, located at 50 Fordham Road in Wilmington, Massachusetts (Figure 1-1). These programs and the corresponding monitoring periods include:

- Phase V Monitoring of the Eastern Parking Lot (EPL) Area *Monitoring period: November 2002 – October 2003*
- Phase V Operations, Maintenance and Monitoring (OM&M) of the Tank K Area *Monitoring period: April 2003-October 2003*
- Phase V OM&M Program for the Groundwater Source Control System *Monitoring period: Baseline Sampling event, September 2003*
- Long Term Groundwater Monitoring Program (LTGMP) *Monitoring period: September 2003*

This document represents a new approach to Site reporting. It provides both OM&M results as well as site-wide groundwater conditions under one cover.

Future reports will also include results of the Phase V OM&M Program for the Groundwater Source Control System. This system was started in August 2003. The first OM&M Report will be provided under a separate cover following the March 2004 quarterly groundwater sampling event.

For ease of review, each monitoring program is presented in a stand-alone section. However, the maps and other supporting documentation present comprehensive site-wide conditions (i.e., all data are compiled). The approximate limits of the on-going groundwater monitoring programs are provided in Figure 1-2. A detailed map showing all monitoring well locations is provided in Figure 1-3.

1.1 Reporting Requirements

This report was completed in accordance with the following:

General Regulations

- 310 CMR 40.892 (Phase V Inspection and Monitoring Reports) of the Massachusetts Contingency Plan (MCP);

Long Term Groundwater Monitoring

- *Long-Term Groundwater Monitoring Plan*, dated February 4, 1997;

- Massachusetts Department of Environmental Protection (MA DEP) *Conditional Approval of the Long Term Groundwater Monitoring Plan* letter, dated July 16, 1997;
- MA DEP *Regional Groundwater Monitoring* letter, dated June 20, 2001; and,
- MA DEP *Interim Deadlines for Phase V Operations, Maintenance & Monitoring and Groundwater Monitoring Programs* letter, dated February 22, 2002.

Eastern Parking Lot

- *Phase IV As-Built Construction and Completion Report, Eastern Parking Lot Area*, dated January 2001; and,
- MA DEP *Conditional Approval of Eastern Parking Lot, Phase IV As-Built Construction and Final Inspection Report*, letter, dated March 29, 2001.

Tank K

- *Phase IV As-Built Construction and Completion Report, Tank K*, dated March 2001; and,
- MA DEP *Conditional Approval of Tank K Area Phase IV As-Built Construction and Completion Report* letter, dated June 11, 2001.

Groundwater Source Control

- *Phase IV As-Built Construction and Final Inspection Report, Groundwater*, dated September 2003.

Regulatory Changes

Effective June 27, 2003, pursuant to the amended provisions of 310 CMR 40.0550 (4), MA DEP approval of comprehensive response actions and any other future actions at the Site (listed as Tier IA) are no longer required prior to implementation unless the MA DEP provides a notice to the contrary. Nonetheless, TRC will continue to call out any modifications to the programs, with specific emphasis on any modification related to a MA DEP conditional approval.

1.2 Summary of Monitoring Activities

1.2.1 Groundwater Monitoring

The Site is currently undergoing extensive groundwater monitoring via the Phase V monitoring programs for: 1) EPL Area, 2) Tank K Area, 3) Groundwater Source Control Area, and 4) Long Term Groundwater Monitoring Program (LTGMP).

These programs, that together represent the site-wide monitoring efforts, are summarized in Table 1-1, and depicted on Figure 1-2.

Former Tank Farm Monitoring Program

On February 28, 2001, MA DEP approved the re-alignment of the former Tank Farm Area Monitoring Program. This program was designed to monitor the effectiveness of the original groundwater pump and treat system (referred to as the Tank Farm Interim Measure) that was installed in October 1991 and decommissioned in February 2002. The 2001 re-alignment reduced the number of wells requiring monitoring to nine (9). In addition, the monitoring would continue until the new Groundwater Source Control Remedy and associated monitoring program would be in place.

Today, this program is no longer maintained. Rather, the monitoring of these wells has been incorporated into other monitoring programs (i.e., Source Control or LTGMP), or eliminated because of overlap/duplication by other wells. Some of these changes have been documented in the MA DEP letter dated February 22, 2002, the *Phase V Remedy Implementation Plan for Groundwater* dated December 2002, and the *Phase IV As-Built Construction and Final Inspection Report for Groundwater* dated September 2003. Other changes are documented herein.

For clarification purposes, the program changes are summarized below:

Former Tank Farm Monitoring Program				
February 2001 Program		Current Status (As of the April 2004 Modifications)		
Well ID	Sample Frequency	Program	Sample Frequency	Comments
GZA-101R	Annual	LTGMP	Annual	Re-assigned to LTGMP.
GZA-102R2	Annual	<i>Eliminated</i>		Duplicated by monitoring of IP-2R1 per Source Control Program.
GZA-103R1	Annual	LTGMP	Bi-annual	Re-assigned to LTGMP; Reduced frequency because of significant decrease in contaminant levels over time.
GZA-103R2	Annual	LTGMP	Bi-annual	
GZA-105D	Annual	LTGMP	Annual	Re-assigned to LTGMP.
GZA-105R	Annual	Source Control	Quarterly	Re-assigned per Phase IV Groundwater Source Control Monitoring Plan.
EMW-11R1	Annual	Source Control	Quarterly	
EMW-11R2	Annual	Source Control	Quarterly	
EMW-11R3	Annual	LTGMP	Bi-annual	Re-assigned to LTGMP.

Note that the monitoring program summary presented in Table 1-1 includes the modifications described above. Furthermore, the Tank Farm Monitoring Program terminology will no longer be used.

1.2.2 System Monitoring and Maintenance

In addition to the groundwater monitoring efforts, each of the operating systems is undergoing a system-specific operation, maintenance and monitoring (OM&M) program. Please refer to the corresponding OM&M sections of this report for the schedule and monitoring/maintenance requirements for each system.

1.3 Modifications to Groundwater Sampling Methodology

Many of the groundwater monitoring wells at the Site are very small (with diameters that range from 0.5 inches to 1.5 inches). Unfortunately, given their small size, there are very few options for obtaining groundwater samples. To date, samples have been collected from these smaller wells using inertial pump systems or peristaltic pumping systems and a modified "low-flow" sampling procedure.

Recent developments in sampling technologies now offer an alternative VOC sampling method, called Passive Diffusion Bag (PDB) sampling. TRC completed a detailed analysis of the PDB technology to determine the efficacy of switching to this technology. The PDB technology and the results of TRC's analysis are presented below.

1.3.1 Passive Diffusion Bag (PDB) Sampling

A PDB sampler is a low-density polyethylene bag that is filled with de-ionized water. The bag is suspended in a well (via a custom-built tether) to passively collect groundwater samples. PDB samplers rely on the free movement of groundwater through the well screen or open borehole. Given that the bag is a semi-permeable membrane, most VOCs in the groundwater will diffuse across the bag material and enter the de-ionized water on the inside of the bag. Manufacturers and independent studies have shown that within several days, the VOC concentrations in the surrounding groundwater equilibrate with the VOC concentrations within the bag. Conservative industry standard PDB deployment times have been two weeks, which TRC has adopted for this Site. Following the deployment period, the PDB can be retrieved for analysis. One important design feature is that PDBs can be deployed in monitoring wells with diameters as small as 0.75 inches.

The PDB samplers are ideally suited for long-term groundwater monitoring of VOCs because the contaminants of concern are known, the method for bringing groundwater to the surface is consistent over time and they eliminate wastewater generated during purging. Furthermore, because low-flow wells are commonly encountered at the Site, the PDB method is an excellent alternative to the "low stress" pumping option, eliminating the possibility of purging the well dry and subsequent VOC loss due to volatilization when groundwater flows back into the well (i.e., loss of VOC due to cascading water).

Based on research conducted by the U.S Geological Survey (see *User's Guide For Polyethylene-Based Passive Diffusion Bag Samplers To Obtain Volatile Organic Compound Concentrations in Wells, Part 1: Deployment, Recovery, Data Interpretation, and Quality Control and Assurance*, USGS Water-Resources Investigations Report 01-4060, 2001)¹ and correlation to this Site, the PDB method should be effective and appropriate for monitoring VOCs related to the chlorinated solvent impacts for both the LTGMP and Source Control Monitoring, and the lighter constituents from the gasoline and Stoddard fuel impacts for the Tank K and EPL programs, respectively.

PDBs do have some limitations. For instance, laboratory testing has shown that PDBs are not suitable for some VOCs. Even though methyl-tert-butyl ether (MTBE) and acetone are transmitted through the polyethylene bag, the resultant bag water ends up containing much lower concentrations than that in the surrounding groundwater.

In addition, some literature indicates that the polyethylene PDBs may contribute phthalates to the water in the bag, which could result in potential false-positive results for polynuclear aromatic hydrocarbons (PAHs) by the EPH Method¹. Therefore, current PDB sample technology should not be used to monitor PAH/EPH compounds in the EPL Area of the Site.

Some of the limitations are directly related to the octanol/water partition coefficient (Kow) of a compound. By definition, the Kow is the ratio of the concentration of a chemical in oil (i.e., octanol) to the concentration of the chemical in water at a given temperature when at equilibrium. Essentially, it is a measure of whether a chemical stays dissolved in water (i.e., hydrophilic), or resists water and prefers to stay dissolved in oil (i.e., hydrophobic).

The ability of a chemical to cross the PDB membrane correlates with the Kow. For example, a chemical with a large Kow will tend to adhere to the outside of the bag, and not pass through the membrane and enter the bag water. Therefore, current PDB sampler technology is not effective with chemicals that have a large Kow, like semivolatile compounds (i.e., EPH compounds). The "Kow factor" provides a second reason to not use PDBs in the EPL Area of the Site.

Interestingly, the Kow generally correlates with the solubility (S_w) of a chemical (i.e., its ability to dissolve in water). Therefore, chemicals that are highly soluble in water, like VOCs, generally have a low Kow, and can easily pass through the PDB membrane and enter the bag water.

Based on these limitations, PDBs should not be used to monitor EPH in groundwater in the EPL Area of the Site, nor to monitor MTBE in groundwater at the Tank K Area of the Site.

¹ USGS, 2001. *User's Guide for Polyethylene-Based Passive Diffusion Bag Samplers to Obtain Volatile Organic Compound Concentrations in Wells, Part 1: Deployment, Recovery, Data Interpretation, and Quality Control and Assurance*, USGS Water-Resources Investigations Report 01-4060.

Based on both the phthalate and Kow factors, PDBs should (in theory) be effective for detecting VPH compounds (i.e., aliphatic and aromatic hydrocarbons) in groundwater. However, there is no published data confirming that PDB samplers are appropriate or effective for monitoring these compounds in groundwater. Given the technology's potential for simplifying the future monitoring activities at the site, TRC decided to evaluate the effectiveness of PDBs for VPH via a project-specific "side-by side test".

On-Site Use

TRC proceeded to outfit the LTGMP and Source Control monitoring wells with a diameter of 0.75 inches or larger with PDB samplers for the 2003 monitoring event summarized herein. In total, 17 of the 28 monitoring wells for the LTGMP and 10 of 11 wells for Source Control were outfitted with PDBs.

TRC maintains a Standard Operating Procedure (SOP) for the PDB sampling method. A copy of the SOP is provided in Appendix A.

The remaining 11 wells still require sample collection via peristaltic pump because they are either 0.5 or 0.62 inches in diameter. One well, EMW-11R3, should be able to accommodate a PDB sampler. However, there is an obstruction or restriction at depth, allowing only the deployment of a narrow tube for sampling. Therefore, this well is also sampled via peristaltic pump.

1.3.2 Peristaltic Pump Sampling

In general, peristaltic pump samples are collected in accordance with U.S. Environmental Protection Agency Region I *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells* (SOP # GW-0001; July 1996).

At five of the monitoring well locations, identified on Table 1-1 as a modified purge sampling method, the wells are sampled by purging one tubing volume of water and then immediately collecting a sample. This modification to the method was initiated at these well locations because they have repeatedly gone dry during purging procedures (prior to sampling) in previous sampling events. This is clearly an undesirable sampling condition because the cascading of groundwater back into the monitoring well may reduce the VOC concentrations in the well water that is sampled. TRC believes the modified approach induces less stress on the formation and results in the collection of better VOC data.

1.3.3 Side-by-Side Test for Volatile Petroleum Hydrocarbons (VPH)

Based on the Kow factor, some of the VPH compounds with larger Kows will pass through the PDB and enter the bag water, and some will adhere to the outside of the PDB sampler. The "side-by-side test" was designed to evaluate how much of the VPH ends up in the bag water and how much ends up on the PDB wall.

The test involved the collection of groundwater samples from wells WE-07, WE-08 and WE-09 (located in the Tank K Area) using three separate sampling methods. These included: 1) Peristaltic pump, 2) PDB, and 3) Hydrasleeve™.

The HydraSleeve™ groundwater sampler also is a relatively new method for groundwater sampling. Reportedly, the HydraSleeve™ groundwater sampler collects a sample that is physically and chemically representative of the groundwater conditions without purging the well. The sampler consists of a long hollow tube with open ends that are fitted with caps that are remotely activated from the surface to seal the ends of the tube prior to sample retrieval. Therefore, the sampler collects a water sample from a defined interval within the well screen, without mixing fluid from other intervals. Typically, one or more HydraSleeves are placed within the screen interval of the monitoring well, and a period of time is allocated for the well to re-equilibrate. Hours to months later, the HydraSleeve™ seal is activated for sample collection. When activated, HydraSleeve™ collects a sample with minimal agitation and displacement of the water column. Once sealed, there is no mixing of extraneous, non-representative fluid while the sampler is recovered.

TRC sampled the three wells with a peristaltic pump, PDB, and HydraSleeve™ under industry standard and manufacturer-recommended sampling methodologies. Specifically, samples were collected from each well first by deploying the PDB for two weeks, retrieving the PDB, collecting a sample, then deploying the HydraSleeve™. After 24 hours, the HydraSleeve™ was retrieved and a sample was collected. A final sample was immediately collected with the peristaltic pump and via low-flow sampling techniques.

The results of the side-by-side test, as shown on Table B1 located in Appendix B, reveal that in wells with elevated concentrations of VPH, the PDB and HydraSleeve™ samples have lower concentrations of VPH than the peristaltic pump sample. Between the PDB and HydraSleeve™ methods, the HydraSleeve™ appears to perform better for VPH parameters (i.e., captures higher concentrations of VPH compounds).

Based on these results, TRC concluded that 1) PDB sampling is not effective for site-specific VPH compounds, and 2) selecting an alternative sampling method to the peristaltic pump is not warranted at this time. Therefore, TRC will continue sampling with a peristaltic pump at all VPH locations.

1.3.4 Summary

In summary, TRC evaluated alternatives for sampling the monitoring wells at the Site. Specifically, the existing method of low-flow peristaltic pump sampling was compared to two newer technologies, the PDB and HydraSleeve™ methods.

Based on the results, TRC concluded the following:

- PDB method is effective for sampling CVOCs;
- The current peristaltic pump methodology is best for VPH sampling.

1.4 Overview of Site-Wide Conditions

Hydrology

As shown in Figure 1-4 and Figure 1-5, groundwater flow through the overburden deposits at the Site continues to flow to the east, extending from the facility buildings out across the wetland area. The hydraulic gradient between the EPA Area (GZA-103S) and the center of the wetland (PS-2S) is 0.0005 (ft/ft).

Similarly, as shown on Figure 1-6, analysis of groundwater elevations in the bedrock monitoring wells indicates that bedrock groundwater generally flows to the east.

Groundwater elevation data for all monitoring locations are summarized on Tables 1-2 and 1-3.

Contaminant Distribution

Site-wide contaminant distributions are presented on Figure 1-7 for the overburden aquifer, and Figure 1-8 for the bedrock aquifer.

In general, the distribution of contaminants is consistent with the direction of groundwater flow.

The overburden is impacted by: 1) CVOCs, 2) EPH compounds, and, 3) VPH compounds including benzene, toluene, ethylbenzene and xylenes (BTEX), methyl-tert butyl ether (MTBE), and naphthalene. Specifically, the EPA Area is impacted by Stoddard fuel-related contaminants (EPH and VPH). The Tank K Area is impacted by gasoline-related contaminants (BTEX and VPH). The Source Control Area and regional groundwater plume that is monitored by the LTGMP is characterized by solvent-related CVOC compounds.

In general, the nature and extent of contaminants in the bedrock aquifer are limited to CVOCs, with the core of the plume extending from the former Tank Farm area through pumping well TRC-202R. The VOC concentrations in bedrock, for the September 2003 sampling event, at the core of the plume range from 26,620 µg/L at IP-1R2 to 10,650

µg/L at EMW-11R2. Newly installed bedrock well TRC-301R, with a total CVOC concentration of 146 µg/L, marks a downgradient monitoring point within the target zone (i.e., known target depth) that is outside of the core area of the plume.

All of the current groundwater sampling results are provided along with historical data on Table 1-2 (VOCs) and Table 1-3 (BTEX, Napthalene, MTBE, VPH, and EPH).

All supporting documentation related to the groundwater sampling efforts, including the Groundwater Sampling Field Forms, and Laboratory Reports with TRC's Data Validation Summary are provided in Appendix C and Appendix D, respectively.

EASTERN PARKING LOT AREA

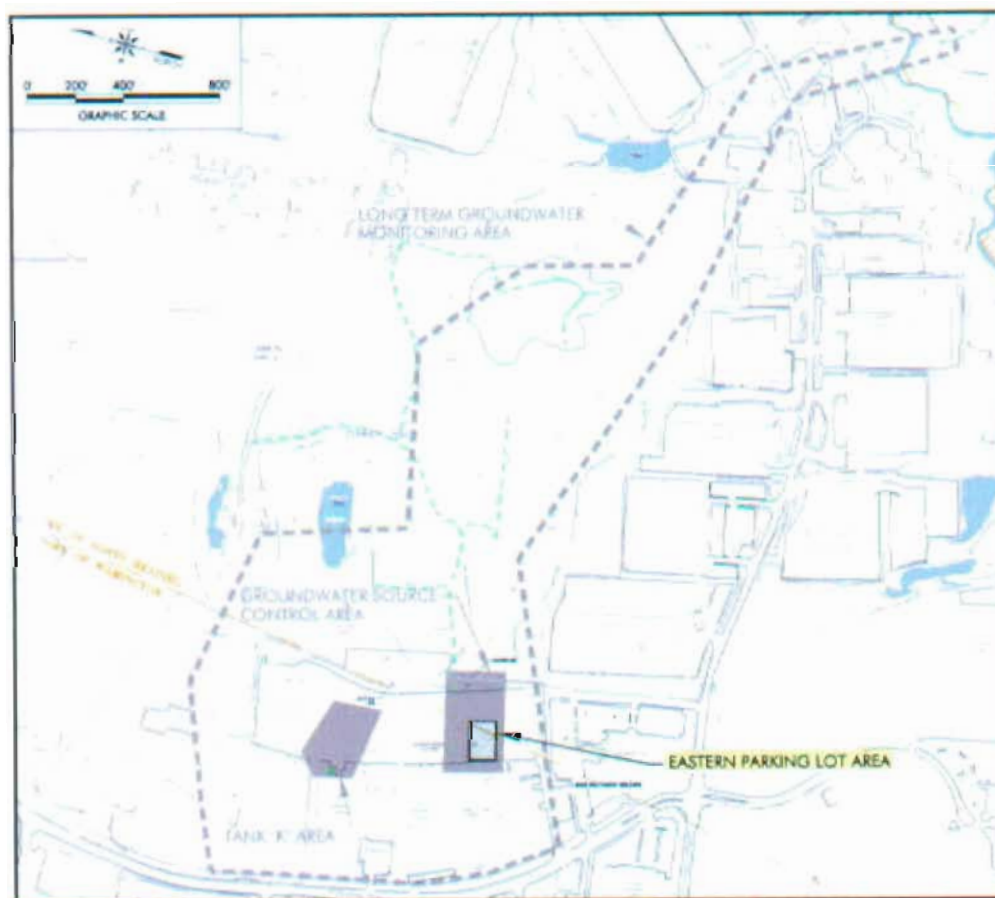
Contaminant of Concern:

Stoddard Fuel (petroleum hydrocarbons)

Description of Area:

In 1992, an interim measure system was installed at the EPL to recover LNAPL (Stoddard Solvent) from the water table. This operated for approximately two years and recovered approximately 415 gallons of LNAPL.

TRC completed the remediation of the EPL via excavation and off-site recycling of 4,050 tons of soil in October 2000. Since this time, groundwater monitoring, well gauging and sampling in the EPL Area is conducted to ensure that LNAPL does not re-contaminate the area soils. Since remediation, there has been a periodic occurrence of LNAPL (i.e. Stoddard fuel) in monitoring well PZ-2S and culvert wells CW-1 and CW-2. TRC performs periodic vacuum enhanced extraction from these wells to remove groundwater and any remaining LNAPL from the nearby formation. Per MA DEP requirements, TRC continues to monitor the area for LNAPL monthly until the area is free of LNAPL for one year.



2.0 PHASE V MONITORING PROGRAM – EASTERN PARKING LOT (EPL)

The Phase V Monitoring Program for the EPA Area consists of the following:

PHASE V MONITORING PROGRAM- EPL AREA	
I.	Monthly LNAPL Gauging <ul style="list-style-type: none">• PZ-2S• CW-1• CW-2
II.	Annual Sampling of Groundwater Monitoring Wells (VPH/EPH per MA DEP Methods) <ul style="list-style-type: none">• TRC-101• TRC-102• TRC-103• GZA-105S• EMW-11S

The location of the EPL monitoring wells is provided on Figure 1-3.

It should be noted that the frequency of LNAPL gauging has changed over time. Per MA DEP requirements, TRC started monthly LNAPL monitoring at wells PZ-2S, CW-1 and CW-2 in December 2001. TRC voluntarily increased the frequency of monitoring from monthly to weekly in July 2002 to more closely monitor the sudden increase in thickness of LNAPL in three wells (PZ-2S, CW-1, and CW-2).

TRC started to monitor nine additional wells on August 6, 2002, in order to determine if the LNAPL plume is migrating. The additional monitoring wells include: RW-2, MW-7, GZA-103S, TF-1, TRC-101, TRC-102, TRC-103, GZA-105S and GZA-102S. Following two LNAPL removals via vacuum extraction, the LNAPL thickness decreased and returned to conditions observed prior to July 2002. This expanded weekly monitoring program was discontinued in February 2003 and returned to the original monthly monitoring schedule.

2.1 Significant Modifications

No significant modifications to the monitoring program were completed during this OM&M period.

2.2 Monitoring

2.2.1 LNAPL Monitoring and Removal

All wells are gauged using an oil/water interface probe and recorded to the nearest 0.01 foot. The presence of LNAPL is then confirmed using a disposable polyethylene bailer. Groundwater level elevations are also measured and recorded in the field logbook. The probe is decontaminated with a soap and water solution, followed by a de-ionized water rinse after use at each well.

During this reporting period, a thin layer of LNAPL periodically appeared in culvert wells CW-1 and CW-2. In general, LNAPL thickness ranged from not detected or trace levels in wells PZ-2S and TRC-101 to a maximum measurable thickness of 0.14 feet in culvert well CW-2. A summary of the LNAPL monitoring results is presented in Table 2-1.

Figure 2-1, Figure 2-2 and Figure 2-3 compare LNAPL thickness to groundwater elevations for well PZ-2S, and culvert wells CW-1 and CW-2, respectively.

This analysis of the monitoring data (collected to date) indicates a continued decrease in the periodic presence of LNAPL as well as the thickness of LNAPL in the EPL Area. In addition, there continues to be no correlation between LNAPL presence/thickness and groundwater elevation.

During this monitoring period, LNAPL and oily water were removed from the EPL Area on the following dates:

Date	LNAPL Thickness prior to Removal Action (feet)	Removal Action
April 25, 2003	0.14	• 0.5 gallons of LNAPL and oily water removed manually from CW-2.
April 30, 2003	0.13	• 864 gallons of LNAPL and oily water removed via vacuum extraction from CW-2.
July 30, 2003	0.07	• 1,030 gallons of LNAPL and oily water removed via vacuum extraction from CW-2.

All LNAPL and groundwater generated during the vacuum extraction activities were handled by Clean Harbors Environmental Services (CHES) under a Hazardous Waste Manifest (due to the commingling of solvent related groundwater contaminants), and disposed of at the CHES Braintree, Massachusetts facility.

Based on the removal actions conducted to date, LNAPL removal via vacuum extraction continues to be very effective in controlling the limited occurrence of LNAPL in the EPA Area.

The field monitoring logs for this monitoring period are presented in Appendix E.

The off-site disposal records for the LNAPL vacuum extraction during this monitoring period are presented in Appendix F.

2.2.2 Groundwater Sampling

During September 2003, TRC conducted water level measurements at each well prior to sampling. These findings are summarized on Table 1-3. TRC then collected groundwater samples from each of the five EPL Area monitoring wells.

As summarized in Table 1-1, groundwater samples are collected with a peristaltic pump via low-flow sampling techniques in accordance with U.S. Environmental Protection Agency Region I *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells* (SOP # GW-0001; July 1996).

In addition, a multi-meter outfitted with a flow-through cell was utilized to measure field stabilization parameters (pH, specific conductivity, temperature, and dissolved oxygen) in groundwater during the collection of the low flow samples. Turbidity was also measured using a turbidity meter.

All samples were packed on ice and sent to a Massachusetts-certified laboratory under a chain-of-custody via a laboratory courier for VPH and EPH analyses, including benzene, toluene, ethylbenzene and xylene per MA DEP methods and PAHs.

As shown in Table 1-3, only one of the five monitoring wells, TRC-101 (located adjacent to culvert wells CW-1 and CW-2), has compounds above MCP GW-1 standards. Analytical results for wells EMW-11S and TRC-103 indicate compounds have been below MCP GW-1 standards for four consecutive sampling events (2000-2003). Contaminant levels in wells GZA-105S and TRC-102 have decreased, with each compound below MCP GW-1 standards for this sampling event.

The predominant contaminant of concern continues to be the C9-C10 aromatic fraction of VPH at levels above MCP GW-1 standards in one monitoring well (TRC-101).

The distribution of the contaminants in the EPL is depicted on Figure 1-7.

All supporting documentation related to the groundwater sampling efforts, including the Groundwater Sampling Field Forms, and Laboratory Reports with TRC's Data Validation Summary are provided in Appendix C and Appendix D, respectively.

2.3 Change in Conditions/Corrective Measures

No changes in conditions or corrective measures were required during this monitoring period.

2.4 Continuing Actions

TRC will continue the LNAPL and groundwater monitoring programs in the EPL Area and will summarize the findings in a Fall 2004 report to MA DEP.

Because the VPH and EPH compounds in wells EMW-11S and TRC-103 have been below the MCP GW-1 standards (i.e., drinking water standard) for four consecutive sampling events (2000-2003), these wells have been removed from the EPL sampling program.

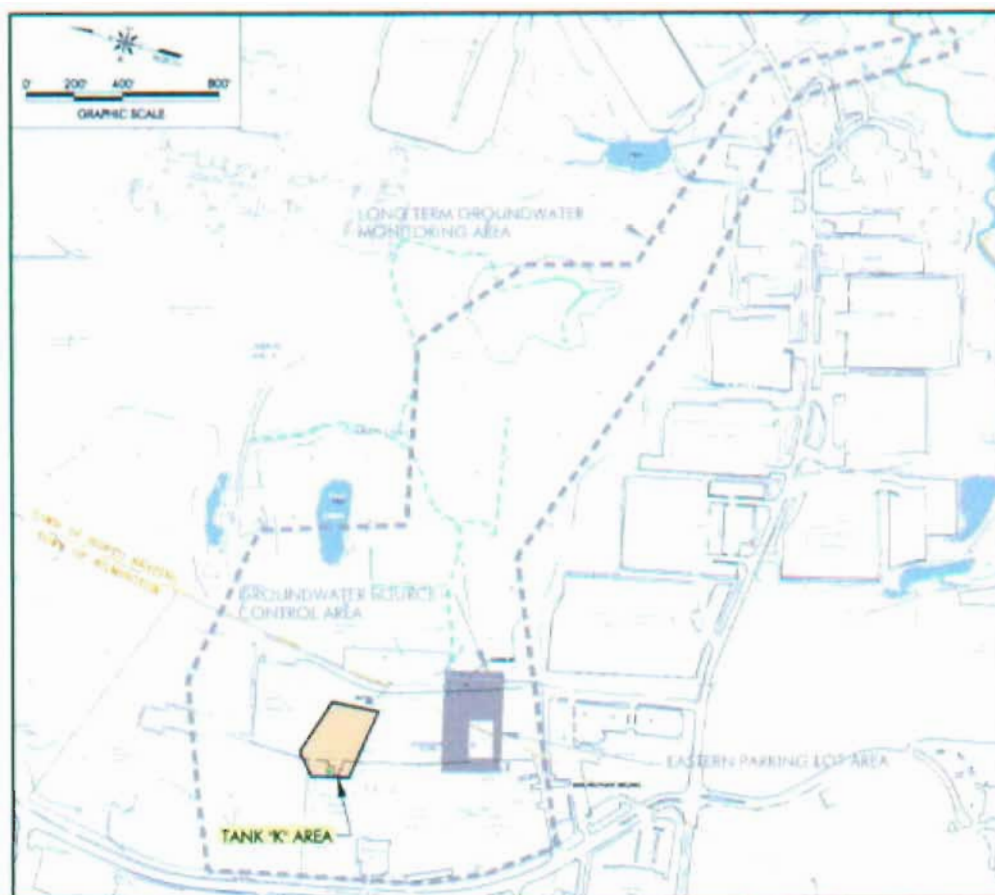
TANK K AREA

Contaminant of Concern:

Gasoline-related petroleum hydrocarbons

Description of Area:

TRC installed a Soil Vapor Extraction (SVE)/Biosparging System to address the VOCs dissolved in groundwater and adsorbed to the subsurface soil. Since system startup in February 2001, the SVE/Biosparging system undergoes monthly system maintenance and monitoring, quarterly system performance monitoring, and semi-annual sampling of monitoring wells. Periodically, sparge points are replaced as part of the on-going OM&M to optimize air delivery to the subsurface. To date, the system is having a positive effect on reducing the levels and distribution of groundwater contaminants.



3.0 PHASE V OPERATIONS, MAINTENANCE AND MONITORING (OM&M) PROGRAM- TANK K AREA

The Phase V Operations, Maintenance and Monitoring (OM&M) Program for the Tank K Area consists of the following:

PHASE V OM&M PROGRAM- TANK K AREA	
I. System maintenance monitoring - Monthly	<ul style="list-style-type: none"> • Remote monitoring of the system to ensure that it is operational. • Site visits to inspect the treatment system equipment, performing and documenting repairs as needed. • Document the removal of VOCs from the SVE carbon canister air effluent.
II. System performance monitoring - Semi-annual	<ul style="list-style-type: none"> • Measure groundwater quality parameters (temperature, pH, ORP, DO and water level) in the core of the groundwater plume at wells WE-4S, WE-7, WE-8, WE-9 and TRC-106. • Measure groundwater elevation at one downgradient plume location (well WE-4S) to evaluate the efficiency of the air injection system and possible mounding effects.
III. Groundwater monitoring - Semi annual	<ul style="list-style-type: none"> • Measure water levels and sample for VPH per MA DEP methods at wells WE-4S, WE-7, WE-8, WE-9, TRC-104 and TRC-106.

The location of the Tank K Area monitoring wells is provided on Figure 1-3. The Tank K Biosparging/SVE system layout is depicted in Figure 3-1.

3.1 Significant Modifications

No significant modifications to the system were made during this OM&M period.

3.2 Operations, Maintenance and Monitoring

3.2.1 System Maintenance Monitoring

The system has been in continuous operation during this monitoring period.

TANK K SYSTEM - DEACTIVATION AND CORRECTIVE ACTION		
Dates Impacted	System Malfunction	Corrective Action
None the reporting period.		

Biosparging System

The primary operational parameters of the biosparging system are:

- Injection airflow (target operating range above 1.65 SCFM);
- Pressure at the individual sparge points (target operating range between 5 and 9 psi); and,
- The water level at well WE-4S (to document no groundwater mounding issues).

During the August 15, 2003 system maintenance monitoring visit, four sparge points (A-3, B-4, B-5, and C-3) were running at elevated pressure and low air flow, indicating a potential blockage in the system. Given these conditions, TRC directed their contractor, Innovative Engineering Solutions, Inc (IESI), to clean the sparge points by pressure washing and air injection. Immediate analysis of the system indicated flow and pressure appeared to return to normal.

Subsequent monitoring of the sparge points indicated the air flow started to again decrease, and the pressure at sparge points A-2, A-3, B-4, B-5, and C-3 started to increase. In order to resolve this problem, TRC has directed IESI to replace the sparge points. See section 3.3.1 for further details.

Note that sparge points A1, B2, B3, C1, C5, and C6 were replaced in December 2002 due to a similar problem.

No groundwater mounding has been observed at WE-4S as a result of sparge point operation.

SVE System

The primary operational parameters of the SVE system that are monitored include:

- Vapor concentration at each SVE lateral;
- Vapor concentration at the Granular Activated Carbon unit (GAC) inlet, GAC midstream and GAC outlet;
- Vacuum levels at each SVE lateral, the knockout tank inlet and outlet, and the blower outlet; and,
- Compressed air temperature at blower outlet/cooling loop inlet and after the cooling loop.

All SVE operational parameters were acceptable during this monitoring period.

The system maintenance monitoring data is summarized in Table 3-1. In addition, the Tank K Field Monitoring Forms are provided in Appendix G.

3.2.2 System Performance Monitoring

The system performance is evaluated via in-field measurements of groundwater parameters including depth to water, oxidation/reduction potential (ORP), dissolved oxygen (DO), temperature, and pH at each well point.

The system performance data (i.e. In-Field Groundwater Monitoring Data) is presented in Table 3-2.

In general, DO and ORP results continue to be variable in the system monitoring wells, with no consistent trend. In monitoring well WE-4S, DO and ORP have always varied without regard to water temperature. Well WE-4S is located adjacent to a sparge point, which most likely causes the observed fluctuations. In contrast, as shown on Figure 3-2, DO levels in wells WE-08 and WE-09 have remained low following an initial spike during system activation. Wells WE-08 and WE-09 are at the center of the plume where active biodegradation may be lowering DO levels (i.e. the micro-organisms use the free oxygen to support degradation of the contaminants).

3.2.3 Groundwater Monitoring

Prior to sampling the monitoring wells, groundwater level elevations are measured with an electronic water level meter and recorded to the nearest 0.01 foot in the field logbook. The probe is decontaminated with a soap and water solution, followed by a de-ionized water rinse after use at each well.

Groundwater samples are collected with a peristaltic pump via low-flow sampling techniques in accordance with U.S. Environmental Protection Agency Region I *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells* (SOP # GW-0001; July 1996).

A multi-meter outfitted with a flow cell was utilized to measure field stabilization parameters (pH, Eh, conductivity, temperature, turbidity, and DO) in groundwater during the collection of low flow samples.

All samples were packed on ice and sent to a Massachusetts-certified laboratory under a chain-of-custody via a laboratory courier for VPH analysis via MA DEP methods.

As presented in Table 1-3, sampling results indicate two of the locations, wells TRC-104 and WE-4S, are below the MCP GW-1 standards. The remaining four locations, wells TRC-106, WE-07, WE-08 and WE-09 continue to have total BTEX, naphthalene and VPH concentrations that are trending downward since the baseline-sampling event of November 2000. Methyl-tert butyl ether (MTBE) is now below MCP GW-1 standard in all six monitoring wells.

As presented in Figure 1-7, the core area of the plume in the Tank K Area originates in the original source area (former Tank K) and extends due east. This plume is reducing in overall concentration and extent (as summarized in Table 1-3) under the effects of the SVE/biosparging system.

All supporting documentation related to the groundwater sampling efforts, including the Groundwater Sampling Field Forms, and Laboratory Reports with TRC's Data Validation Summary are provided in Appendix C and Appendix D, respectively.

3.3 Change in Conditions/Corrective Measures

TRC elected to replace sparge points A-2, A-3, B-4, B-5, and C-3 with 2-foot long, 1-inch diameter PVC screens set approximately 13-15 feet below ground surface (bgs). In December 2003, these points were installed into the overburden via standard hollow stem auger or overburden drilling equipment (ODEX™) technology. Sand-pack, well seals, and roadboxes will be installed at each point to finish the construction.

These replacement sparge points were installed during December 2003, with the system still in a functioning mode. A temporary shutdown occurred to allow retrofitting of the individual supply and vacuum lines. Well construction logs and an update on the performance of the replacement sparge points will be provided in the next OM&M report.

3.4 Continuing Actions

TRC will continue the Tank K OM&M program as outlined herein.

GROUNDWATER SOURCE CONTROL AREA

Contaminant of Concern:

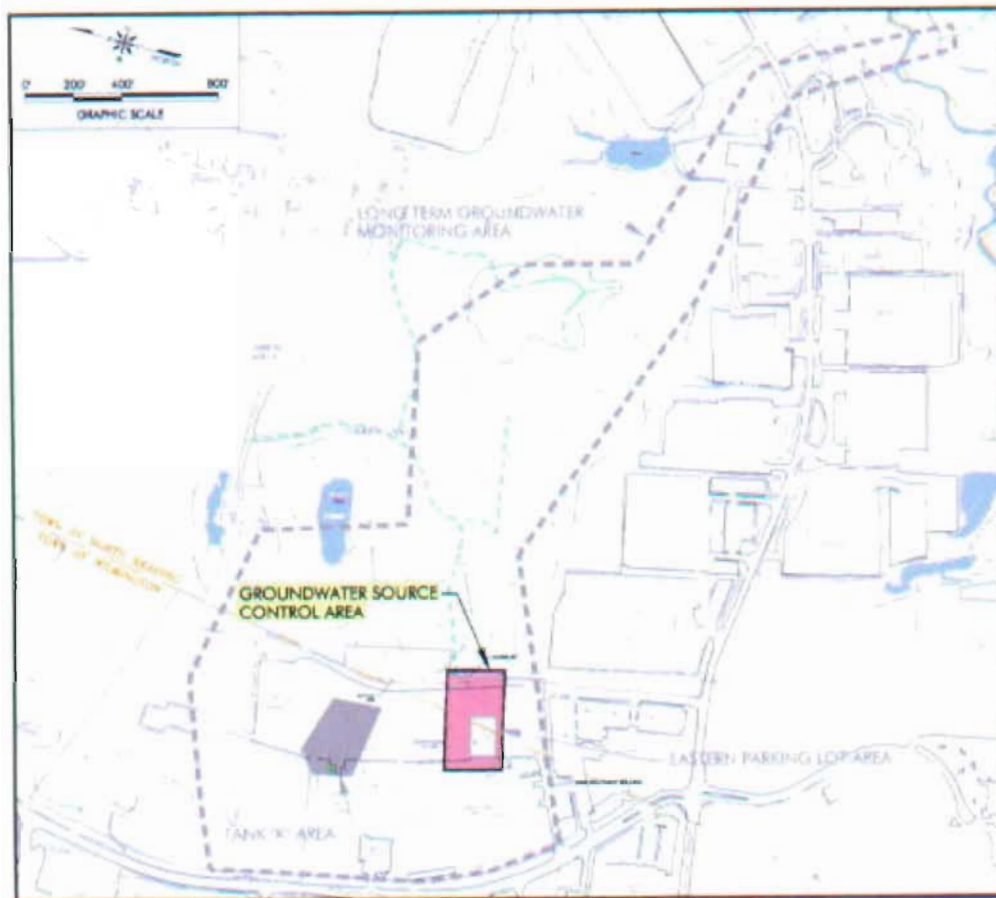
Dissolved-phase Chlorinated Volatile Organic Compounds (CVOCs)

Description of Area:

TRC installed a groundwater "source control" system for the removal of CVOCs in bedrock. The pump and treat system extracts groundwater from well TRC-202R, and transfers the water to the 2003 treatment shed where an air stripper and carbon filtration system removes the CVOCs from the water to meet drinking water standards. The water is then discharged to a storm drain under a NPDES permit.

The system was first started on August 15, 2003.

As part of the Phase IV Remedy Implementation Plan, an enhanced bioremediation treatability study is underway. Based on the results and final recommendations, the existing system may be expanded to include a bioremediation technology.



4.0 PHASE V OPERATIONS, MAINTENANCE AND MONITORING (OM&M) – GROUNDWATER SOURCE CONTROL SYSTEM

In August 2003, the newly installed groundwater treatment system underwent shakedown and startup testing. In addition, baseline source control groundwater sampling was completed to obtain a baseline of groundwater conditions prior to system start-up, and to support the selection of a subset of wells for long-term source control monitoring. This data, along with a presentation on how and why certain monitoring wells were selected for source control monitoring was presented in the *Phase IV As-Built Construction and Final Inspection Report, Groundwater* (dated September 2003).

This baseline sampling data of the Groundwater Source Control Area is summarized herein in order to provide a comprehensive site-wide presentation of the Site conditions.

Future reports will include additional OM&M data related to the Groundwater Source Control Area. However, per MA DEP requirements, the first year of groundwater monitoring data, which is conducted on a quarterly basis, will be provided under separate cover. TRC will submit the first OM&M Report for Source Control following the March 2004 sampling event.

In general the Phase V OM&M Program for the Source Control Area includes:

PHASE V OM&M PROGRAM- SOURCE CONTROL AREA	
I. System Operations and Maintenance Monitoring	<ul style="list-style-type: none">• Bi-weekly liquid and vapor process systems monitoring.• Bi-weekly vapor monitoring at GAC influent, GAC midstream, and GAC effluent.• Monthly groundwater sampling of system influent, untreated GAC influent, GAC midstream, and treated effluent locations.• Monthly groundwater elevation measurements at the pumping well and vicinity wells impacted by drawdown.
II. Groundwater Monitoring	<ul style="list-style-type: none">• Quarterly groundwater sampling of shallow and deep bedrock wells
III. NPDES Reporting	<ul style="list-style-type: none">• Monthly reporting of effluent water quality and removal efficiency of treatment system

The wells designated for the monitoring program are summarized on Table 1-1.

Per the requirements of the National Pollutant Discharge Elimination System (NPDES) Exclusion #MA 03I-072, TRC submits monthly analytical results for the groundwater remediation discharge system directly to U.S. Environmental Protection Agency in Boston, under separate cover.

4.1 Significant Modifications

No significant modifications to the program were made during the reporting monitoring period.

4.2 Operations, Maintenance, and Monitoring

4.2.1 System Operations and Maintenance Monitoring

Two contaminants, acetone and 2-butanone, were detected in the air stripper effluent that were not detected in the groundwater influent. Given the high solubility of acetone and 2-butanone, TRC believed that these contaminants were present in ambient air (from Ametek facility emissions), and transferred from air (i.e. drawn through the air stripper) to the water. The groundwater pump and treat system was deactivated on August 22, 2003 until TRC could further evaluate the source of the air contaminants. TRC later confirmed the presence of these contaminants in the ambient air, and concluded that this has a periodic and limited effect on the system's operations.

Further discussion of operations and maintenance monitoring will be provided in the first OMM&M report for Source Control following the March 2004 sampling event. For reference, a copy of the Source Control Area Field Form is provided in Appendix F.

4.2.2 Groundwater Monitoring Results

Data obtained as part of the baseline sampling effort (previously reported in the *Phase IV As-Built Construction and Final Inspection Report, Groundwater*, dated September 2003) are included in Tables 1-2 and 1-3, as well as depicted on the contaminant distribution map that appears as Figure 1-8 and cross-sectional contaminant distributions on Figures 4-2 and 4-3.

As summarized on Table 1-1, the August 2003 baseline groundwater sampling event was completed using PDB samplers, set two-weeks prior to sampling, except for well GZA-105R that was sampled using a peristaltic pump and low-flow sampling techniques because the small well diameter precluded the use of a PDB. Each sample was analyzed by a Massachusetts certified laboratory for VOCs via MCP Method 8260B.

As depicted in Figures 4-2 and 4-3, the baseline sampling results reveal distinct shallow and deep bedrock zones of VOC contamination. The maximum contaminant levels were observed in the deep bedrock portion of the aquifer, within the target zone for remediation. Based on data collected to date, the bottom of the contaminant plume is constrained at depth by a non-water-bearing competent bedrock zone identified via

drilling and geophysical survey results immediately below these deep bedrock monitoring points.

4.3 Changes in Conditions/Corrective Measures

Given that only baseline sampling results are presented herein, changes in conditional and corrective measures will be presented in the Source Control Area OM&M Report following the March 2004 sample event.

4.4 Continuing Actions

TRC will continue the Source Control Area OM&M Program as outlined herein.

LONG-TERM GROUNDWATER MONITORING PROGRAM

Contaminants of Concern:

Dissolved-phase Chlorinated Volatile Organic Compounds (CVOCs)

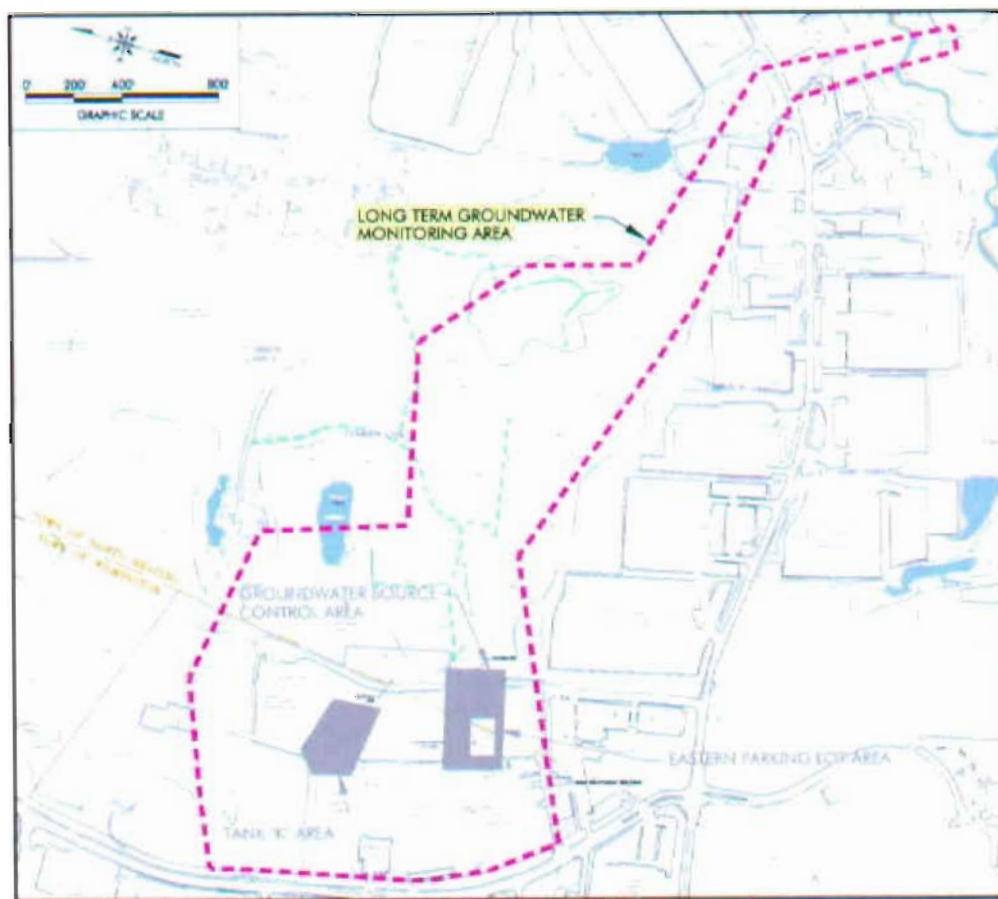
Description of LTGMP:

The Long-Term Groundwater Monitoring Program (LTGMP) is intended to monitor overall site conditions and trends and monitor the effectiveness of the groundwater remedial systems currently operating on the property. In addition, the data indirectly provide a measure of the natural degradation of the regional groundwater contaminant plume.

The original LTGMP Plan was submitted to MA DEP on February 4, 1997, and subsequently approved by MA DEP on July 16, 1997. In general, the plan required bi-annual water level measurements (during odd-numbered years), and bi-annual groundwater sampling (during even-numbered years).

Subsequent modifications to the program occurred in June 2001 (per MA DEP approval) that included a new list of wells requiring gauging and analysis, and a new schedule that coordinated the groundwater monitoring programs for the LTGMP, the Eastern Parking Lot (EPL), the Tank K Area, and the former Tank Farm areas of concern (AOCs). Because operations of the Tank Farm Interim Measure were discontinued in 2001, the wells located in this area became part of the LTGMP. These wells were monitored on an annual basis until the Groundwater Source Control Remediation System was initiated in the Fall 2003. In addition, MADEP agreed to remove many wells from the program because the data showed that contaminant levels have reduced to levels that were equal to or below the MCP GW-1 standard (i.e., drinking water standard), and had remained at these acceptable conditions for at least four consecutive sampling events.

Today, the LTGMP consists of annual and bi-annual monitoring well gauging and sampling.



5.0 LONG-TERM GROUNDWATER MONITORING PROGRAM (LTGMP)

The Long-Term Groundwater Monitoring Program (LTGMP) consists of the following:

Monitoring Activity	Frequency	
	Even-numbered Years	Odd-numbered Years
I. Groundwater Gauging	54	58
II. Groundwater VOC Sampling	5	28

Monitoring well locations and sample schedules for the LTGMP are summarized in Table 1-1.

The LTGMP wells are located in both the overburden and bedrock aquifers, and are at onsite and offsite locations. This monitoring is conducted in addition to the site-specific groundwater sampling completed at groundwater monitoring wells in the Eastern Parking Lot (5 wells annually), the Tank K Area (6 wells semi-annually), and Source Control Area (11 wells quarterly).

The LTGMP and Source Control Area groundwater sampling programs are related to the same release, and target the same VOC compounds. Therefore, the results for the Source Control Area results are used as part of the LTGMP data presentation.

TRC repeatedly attempted to locate wells MW-4 and MW-4A before, during, and after the September 2003 sampling event. (Wells MW-4 and MW-4A are located in the adjacent wetlands in standing water and surrounded by thick wetland vegetation.). Because they were not located, data for these wells are not presented herein. TRC located these wells during ice conditions in January 2004. These wells will be sampled in April 2004 and the results will be submitted under a separate cover.

5.1 Groundwater Elevation Data

On September 18, 2003, groundwater elevations were measured for all monitoring wells as part of the LTGMP with an electronic water level meter and recorded to the nearest 0.01 foot in the field logbook. The probe is decontaminated with a soap and water solution, followed by a de-ionized water rinse after use at each well.

As shown on Figures 1-4 and 1-5, analysis of groundwater elevations from overburden monitoring wells indicates groundwater in overburden flows from the Site, to the east into the wetlands, under a flat to slightly increasing hydraulic gradient in both the shallow and deep overburden. The hydraulic gradient between the EPL Area (GZA-103S) and the center of the wetland (PS-2S) is 0.0005 (ft/ft).

As shown on Figure 1-6, analysis of groundwater elevations from bedrock monitoring wells, indicates the highest groundwater head elevations are observed on-site, and

slightly lower head elevations are observed to the east of the Site. This indicates groundwater in bedrock has the potential to flow to the east from the Site.

Groundwater elevation data for each well are provided on Tables 1-2 and 1-3, and copies of the Groundwater Sampling Field Forms are provided in Appendix C.

5.2 Groundwater Sampling

As shown on Table 1-1, groundwater samples were collected with a peristaltic pump via low-flow sampling techniques or with PDB samplers.

Peristaltic pump samples were collected in accordance with U.S. Environmental Protection Agency Region I *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells* (SOP # GW-0001; July 1996), except for five "limited purge" locations.

At these five limited purge locations, the monitoring wells were sampled by placing the tubing intake within the screened interval, purging one tubing volume of water at very low-flow, then immediately collecting a sample. This method was initiated at monitoring well locations that always went dry during purging and prior to sampling, in previous sampling events. As a result, water would cascade into the monitoring well and a sample would be collected when the well recovered. TRC believes this modified approach induces less stress on the formation, results in the collection of more representative VOC data, meets the objectives of the LTGMP, and is consistent with U.S. EPA recommendations for groundwater sampling at poor recharge monitoring wells (see U.S. EPA's 2002 groundwater forum issue paper, *Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers*, EPA 542-S-02-001).

A multi-meter outfitted with a flow-through cell was utilized to measure field stabilization parameters (pH, Eh, conductivity, temperature, and DO) in groundwater during the collection of low flow samples. Turbidity also was measured with a turbidity meter.

PDB samples were collected in accordance with TRC's SOP No. E9202-001, *Passive Diffusion Bag Sample Deployment and Recovery in Dedicated Tether Wells*, dated July 8, 2003. This SOP is provided in Appendix A.

For the VOC sample locations, any well 0.75 inches in diameter or larger was targeted for PDB sampler use during the LTGMP. All sample results tabulated in this report are noted where PDB sampling methods were utilized. PDB samplers are limited by well diameter; therefore, monitoring wells with a diameter of less than 0.75 inches (with the exception of EMW-11R3 due to an obstruction) were sampled with a peristaltic pump. All samples were packaged on ice and sent to a Massachusetts-certified laboratory under a chain-of-custody via a laboratory courier, for VOC analysis via MCP method 8260B.

5.2.1 Groundwater Analytical Results

In general, analysis of the groundwater sampling results from the 26 available LTGMP and 11 Source Control Area groundwater monitoring wells sampled during August and September 2003 indicates the following:

- Total CVOC concentrations in overburden monitoring wells range from below quantitation limit levels (in wells PS-2D, PS-2M, PS-5D, GZA-10) to a maximum of 5,921 µg/L (in well GZA-105D).
- The total CVOC concentrations in LTGMP bedrock monitoring wells located outside of the Source Control Area range from 13.8 µg/L (at well STM-8R) to 1,160 µg/L (at well GZA-101R).
- The total CVOC concentrations in Source Control bedrock monitoring wells range from 825.0 µg/L (at well BRW-1R2) to 26,620 µg/L (at well IP-1R2).
- The highest concentrations of CVOCs in both overburden and bedrock continue to be observed immediately east of the former Tank Farm area, within the Source Control Area.

Overburden Groundwater

As depicted in Figure 1-7, total CVOC concentrations in overburden groundwater that are greater than 100 µg/L extend east across the Site, in the direction of groundwater flow, toward well cluster PS-1, impacting deep overburden well PS-1D (49.25 – 54.25 feet bgs) with an observed total CVOC concentration of 116.2 µg/L. This multi-level well cluster is located in overburden, within an area referred to in previous reports as the buried bedrock valley. This buried bedrock valley most likely extends in the same direction as the preferred direction for groundwater flow in bedrock. The two monitoring wells installed at shallower depths, PS-1S (12 – 17 feet bgs) and PS-1M (34.25 – 39.25 feet bgs) revealed total CVOC concentrations of 10.6 µg/L and 25 µg/L, respectively. These data represent a continued trend where much lower concentrations of CVOCs appear in the shallower overburden deposits rather than the deeper overburden. This trend at the PS-1 multi-level monitoring well cluster has been observed since 1995.

Further east at the well cluster PS-2, total CVOCs are at below quantitation limit values in wells PS-2D and PS-2M. This multi-level monitoring well location has demonstrated decreasing total CVOC concentrations over-time, including previous below quantitation limit results in 1999. The shallow well in the cluster, PS-2S, was removed from the LTGMP in 1999 following repeated below quantitation limit results for CVOCs.

Further east, monitoring well PS-5D continues to demonstrate a decreasing CVOC trend, with all CVOCs at below quantitation limit levels for the first time during the LTGMP.

At monitoring well GZA-10, located perpendicular to the dominant flow path, all CVOCs were at below quantitation limit levels.

Additional monitoring wells included in the LTGMP that are furthest from the Site include the STM-8 well cluster (on Concord Street), and wells W-1 and W-2 located on the Ipswich River. At well STM-8D, a deep overburden well, a total CVOC concentration of 14 µg/L was observed, with two CVOC compounds above MCP GW-1 standards. At the shallower overburden well STM-8M, a total CVOC concentration of 5 µg/L was observed, with all compounds below the MCP GW-1 standards. At monitoring wells W-1 and W-2, the only contaminant above MCP GW-1 standards is vinyl chloride, at 3.2 µg/L (at well W-1).

Bedrock Groundwater

In bedrock groundwater, elevated total CVOC concentrations greater than 1,000 µg/L are estimated to extend slightly further east than that observed in the overburden (see Figure 1-8). As with the overburden groundwater plume, total CVOC concentrations in bedrock that are greater than 100 µg/L extend east to the area of well cluster PS-1, with the newly installed bedrock well TRC-301R revealing a total CVOC concentration of 146 µg/L.

At upgradient monitoring well locations within the former Tank Farm area, well GZA-103R1 and well GZA-103R2 reveal total CVOC concentrations of 22.1 µg/L and 67 µg/L, respectively. These represent a continued decreasing trend in concentrations, with only vinyl chloride present above MCP GW-1 standards during this sampling event.

At distant LTGMP bedrock well STM-8R, only trichloroethene (TCE) was observed above MCP GW-1 standards, at 13.8 µg/L. This also represents a continued trend of decreasing CVOC concentrations over time at this location.

Upgradient and west of the Source Area, at monitoring well GZA-101R (located near the historic Tank F), a total CVOC concentration of 1,160 µg/L was observed, representing a decrease from a maximum concentration of 4,013 µg/L observed in 1995.

All supporting documentation related to the groundwater sampling efforts, including the Groundwater Sampling Field Forms, and Laboratory Reports with TRC's Data Validation Summary are provided in Appendix C and Appendix D, respectively.

5.3 Conclusions

TRC's analysis of the current groundwater sampling data did not identify any notably anomalous results or trends. The highest concentrations of CVOCs in both overburden and bedrock continue to be observed immediately east of the former Tank Farm. Decreasing CVOCs concentrations continue to be observed at distant locations from the Source Control Area.

5.4 Continuing Actions

5.4.1 Groundwater Elevation Data

Analysis of groundwater elevation data continues to indicate that shallow and deep overburden groundwater flows east from the Site, and that bedrock groundwater has the hydrogeologic potential to follow a similar easterly track from the Site. This is consistent with repeated analysis of groundwater elevation data dating back to 1986. As a result, the continued routine preparation of potentiometric surface maps to support site characterization and the LTGMP is unnecessary at this time. However, groundwater elevation data will continue to be collected from all groundwater monitoring wells sampled as part of the LTGMP, prior to each sampling event.

5.4.2 Groundwater Monitoring

In overburden, at the multi-level monitoring well cluster PS-1 (a three well cluster), the deepest well, PS-1D, recorded the highest total CVOC results at that location. The two shallower monitoring wells, PS-1S and PS-1M recorded much lower CVOC concentrations, a trend that has been observed since the initial sampling at that location in 1995.

As a result, TRC has elected to temporarily stop collecting groundwater samples from PS-1S and PS-1M during the LTGMP, until groundwater quality at the deep well, PS-1D, is below MCP GW-1 standards. At that time, TRC will begin re-sampling PS-1S and PS-1M to confirm the shallower locations are also below MCP GW-1 standards. This is consistent with the original purpose of the multi-level monitoring well installation, to characterize the formation at various depths in the event contaminant stratification is present. This characterization objective has been completed.

At monitoring well GZA-10, all CVOCs were below quantitation limits. The last sampling event with a CVOC recorded above MCP GW-1 standards at this location was in 1995. As a result, GZA-10 will be removed from the LTGMP.

6.0 MONITORING WELL DECOMMISSIONING

Numerous monitoring wells have been installed in Wilmington and North Reading with regard to characterizing the nature and extent of groundwater contamination related to the Former GE Site. The oldest monitoring wells (Nos. 1, 2, 3, 4, 5, 6, 7A, 7B, and 7C) date back to the mid-1970s following the first detection of contaminants in the Town of North Reading's Stickney Well.

The objective of many of these monitoring wells was to document the nature and extent of groundwater contamination at the Site. This objective has been completed and many of these monitoring wells have not been used for many years and therefore do not support ongoing Site activities. TRC believes that these monitoring wells (that are no longer in-use) are potential conduits to the subsurface, and should therefore be abandoned per the well drilling regulations, 313 CMR 3.01.

TRC has identified 66 monitoring wells in the area that are no longer suitable or actively used for the on-going activities at the Former GE site. These wells are summarized on Table 6-1, and are identified on Figure 6-1.

Of the 66 monitoring wells TRC is preparing to decommission, MA DEP previously approved 18 of them in the *Conditional Approval of the LTGMP* letter, dated July 16, 1997. In this letter, MA DEP also approved decommissioning of three additional monitoring wells GZA-2, GZA-3, and GZA-4. However, TRC recently confirmed that the current property operator, AMETEK Aerospace, Inc., uses wells GZA-1, GZA-2, GZA-3, GZA-4, GZA-5, and GZA-6 for the Site's wastewater treatment facility NPDES permit monitoring. Therefore, wells GZA-2, GZA-3, and GZA-4 have been removed from the decommissioning schedule.

TRC will decommission each monitoring well with a licensed Massachusetts well driller, in accordance with the Massachusetts Department of Environmental Protection guidance document *Standard References for Monitoring Wells*, WSC-310-91, dated April 1991. In general, the bedrock monitoring wells will be pressure grouted from the bottom-up. The overburden monitoring wells will either be removed, pressure grouted or sealed from the bottom-up, depending on the original well construction and site limitations. In each instance, the monitoring well abandonment will be completed by removing the protective casing and cutting the well casing several feet below ground surface, then capping with concrete and finishing the surface grade with appropriate materials.

Table 1-1

[illegible]

Table 1-2
Summary of Groundwater Sampling Results - VOCs
Former GE Site, Wilmington, MA

Area Name	Location Name	Screened Interval (feet)	Type of Well	Sample Event Date	Groundwater Elevation	Comments
LIVAP	EMW-100	19-29	Overburden	1995	76.08	NA
				1996	76.08	NA
				2000	76.27	NA
				2001	75.83	NA
				2002	75.83	NA
				2003	75.83	NA
				2004	75.83	NA
				2005	75.83	NA
				2006	75.83	NA
				2007	75.83	NA
EMW-110	22-32	Overburden	1995	76.03	NA	
			1996	76.03	NA	
			2000	76.12	NA	
			2001	75.82	NA	
			2002	75.82	NA	
			2003	75.82	NA	
			2004	75.82	NA	
			2005	75.82	NA	
			2006	75.82	NA	
			2007	75.82	NA	
GZA-10	15-18	Overburden	1995	75.31	NA	
			1996	75.31	NA	
			2000	75.31	NA	
			2001	75.31	NA	
			2002	75.31	NA	
			2003	75.31	NA	
			2004	75.31	NA	
			2005	75.31	NA	
			2006	75.31	NA	
			2007	75.31	NA	
GZA-14	39-49	Overburden	1995	75.41	NA	
			1996	75.41	NA	
			2000	75.41	NA	
			2001	75.41	NA	
			2002	75.41	NA	
			2003	75.41	NA	
			2004	75.41	NA	
			2005	75.41	NA	
			2006	75.41	NA	
			2007	75.41	NA	
MW-4	18-28	Overburden	1995	76.11	NA	
			1996	76.11	NA	
			2000	76.11	NA	
			2001	76.11	NA	
			2002	76.11	NA	
			2003	76.11	NA	
			2004	76.11	NA	
			2005	76.11	NA	
			2006	76.11	NA	
			2007	76.11	NA	
MW-6A	38-48	Overburden	1995	76.11	NA	
			1996	76.11	NA	
			2000	76.11	NA	
			2001	76.11	NA	
			2002	76.11	NA	
			2003	76.11	NA	
			2004	76.11	NA	
			2005	76.11	NA	
			2006	76.11	NA	
			2007	76.11	NA	
MW-5	28-38	Overburden	1995	76.11	NA	
			1996	76.11	NA	
			2000	76.11	NA	
			2001	76.11	NA	
			2002	76.11	NA	
			2003	76.11	NA	
			2004	76.11	NA	
			2005	76.11	NA	
			2006	76.11	NA	
			2007	76.11	NA	
MW-7	15-25	Overburden	1995	76.11	NA	
			1996	76.11	NA	
			2000	76.11	NA	
			2001	76.11	NA	
			2002	76.11	NA	
			2003	76.11	NA	
			2004	76.11	NA	
			2005	76.11	NA	
			2006	76.11	NA	
			2007	76.11	NA	
PS-1D	49-54-55	Overburden	1995	75.05	NA	
			1996	75.05	NA	
			2000	75.05	NA	
			2001	75.05	NA	
			2002	75.05	NA	
			2003	75.05	NA	
			2004	75.05	NA	
			2005	75.05	NA	
			2006	75.05	NA	
			2007	75.05	NA	
PS-1H	34-35-39-45	Overburden	1995	75.55	NA	
			1996	75.55	NA	
			2000	75.55	NA	
			2001	75.55	NA	
			2002	75.55	NA	
			2003	75.55	NA	
			2004	75.55	NA	
			2005	75.55	NA	
			2006	75.55	NA	
			2007	75.55	NA	
PS-1S	12-17	Overburden	1995	75.35	NA	
			1996	75.35	NA	
			2000	75.35	NA	
			2001	75.35	NA	
			2002	75.35	NA	
			2003	75.35	NA	
			2004	75.35	NA	
			2005	75.35	NA	
			2006	75.35	NA	
			2007	75.35	NA	
PS-3D	49-54-55	Overburden	1995	75.35	NA	
			1996	75.35	NA	
			2000	75.35	NA	
			2001	75.35	NA	
			2002	75.35	NA	
			2003	75.35	NA	
			2004	75.35	NA	
			2005	75.35	NA	
			2006	75.35	NA	
			2007	75.35	NA	

Notes:

1. Unlabeled otherwise specifying analytical results in micrograms per liter ($\mu\text{g/L}$).
2. " $<$ " denotes sample was not detected at concentrations above the given quantitation limit.
3. "MA" denotes sample not analyzed for the specified analyte.
4. "--" denotes the location was not sampled during the given year.
5. "DU" denotes all data points were below detection level.
6. "ND" denotes no data from the Massachusetts Contingency Plan (MCP) 110 GWR or 10000. Evidence of applicable Method 1 GWR standard is indicated in bold and shaded type.
7. "—" Denoted below the detection limit; used a Passive Diffusion Bag sampler.
8. "Y" Denoted below the detection limit; utilized a Pushover Diffusion Bag sampler.
9. Groundwater sampling discontinued at well following three consecutive sampling results below MCP GW-1 standards (see MA DEP approval, February 22, 2002).

Table 1-2
Summary of Groundwater Sampling Results - VOCs
Former GE Site, Wilmington, MA

Area Name	Location Name	Screened Interval (feet log)	Type of Well	Sample Event Date	Ground-water Elevation
LTGMP Overhead	PS-3M	14-19	Overhead	1995	25.41
				1997	25.65
				1999	25.64
				2001	25.71
				2002	25.71
				2003	25.65
				2004	25.65
				2005	25.65
				2006	25.65
				2007	25.65
	PS-5H	27.5-27	Overhead	1995	25.41
				1997	25.65
				1999	25.64
				2001	25.71
				2002	25.71
				2003	25.65
				2004	25.65
				2005	25.65
				2006	25.65
				2007	25.65
	PS-5D	24.1-20.1	Overhead	1995	25.41
				1997	25.65
				1999	25.64
				2001	25.71
				2002	25.71
				2003	25.65
				2004	25.65
				2005	25.65
				2006	25.65
				2007	25.65
STM-8D	34.7-30.7	Overhead	1995	25.41	
			1997	25.65	
			1999	25.64	
			2001	25.71	
			2002	25.71	
			2003	25.65	
			2004	25.65	
			2005	25.65	
			2006	25.65	
			2007	25.65	
STM-8M	19.5-24.5	Overhead	1995	25.41	
			1997	25.65	
			1999	25.64	
			2001	25.71	
			2002	25.71	
			2003	25.65	
			2004	25.65	
			2005	25.65	
			2006	25.65	
			2007	25.65	
W-01	33.5-38.5	Overhead	1995	25.41	
			1997	25.65	
			1999	25.64	
			2001	25.71	
			2002	25.71	
			2003	25.65	
			2004	25.65	
			2005	25.65	
			2006	25.65	
			2007	25.65	
W-02	15-25	Overhead	1995	25.41	
			1997	25.65	
			1999	25.64	
			2001	25.71	
			2002	25.71	
			2003	25.65	
			2004	25.65	
			2005	25.65	
			2006	25.65	
			2007	25.65	
LTGMP Borehole	EMW-10R	42-52	Borehole	1995	25.41
				1997	25.65
				1999	25.64
				2001	25.71
				2002	25.71
				2003	25.65
				2004	25.65
				2005	25.65
				2006	25.65
				2007	25.65
	EMW-11R3	158-168	Borehole	1995	25.41
				1997	25.65
				1999	25.64
				2001	25.71
				2002	25.71
				2003	25.65
				2004	25.65
				2005	25.65
				2006	25.65
				2007	25.65
	STM-10R	46.5-51.5	Borehole	1995	25.41
				1997	25.65
				1999	25.64
				2001	25.71
				2002	25.71
				2003	25.65
				2004	25.65
				2005	25.65
				2006	25.65
				2007	25.65
GZA-10R2	25-26.5	Borehole	1995	25.41	
			1997	25.65	
			1999	25.64	
			2001	25.71	
			2002	25.71	
			2003	25.65	
			2004	25.65	
			2005	25.65	
			2006	25.65	
			2007	25.65	
GZA-10R1	18-19	Borehole	1995	25.41	
			1997	25.65	
			1999	25.64	
			2001	25.71	
			2002	25.71	
			2003	25.65	
			2004	25.65	
			2005	25.65	
			2006	25.65	
			2007	25.65	

Notes:

1. Unless otherwise specified, analytical results in micrograms per liter (ug/l).
2. "N" denotes sample not detected at concentrations above the given quantitative limit.
3. "NA" denotes sample not analyzed for the specified analyte.
4. "—" denotes the location was not sampled during the given year.
5. "LTD" denotes all analyses are below given detection limits.
6. Greenhouse Standards are taken from the Massachusetts Contingency Plan (MCPC) 310 C.
7. "—" denotes sample was not obtained using a Passive Diffusion Bug sampler.
8. "N" denotes below the detection limit, estimated value.
9. Greenhouse sampling discontinued as well following three consecutive sampling results of "N".

Table 1-3
Summary of Groundwater Sampling Results - BTEX, Naphthalene, MTBE, VPB, PAB, and EPH
Former GE Site, Wilmington, MA

Area Name	Location Name	Screened Interval (feet Dgs)	Type of Well	Sample Event Date	Ground-water Elevation	NOTE: CWA Standards																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
						For Dioxin/PCB/PAH/PCDD/PCDF	5. BTEX	6. Toluene	7. Ethylbenzene	8. m,p-Xylene	9. o-Xylene	10. p-Xylene	11. Styrene	12. Naphthalene (VPI)	13. Total VPI	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne	Total PM	CS-Airborne	CH-10 Airborne	CH-10 Airborne

Notes:
1. Unless otherwise specified, analytical results in micrograms per Liter (ug/L).

1. Unless otherwise specified, analytical results in micrograms per liter (ug/L).
2. mg/L .
3. mg/L .

² χ^2 denotes analysis was not conducted at concentrations above 1.0.

3. "NA" denotes sample not analyzed for the specified analyte.

4. "-" denotes the location was not sampled during the given year.

5. "BDL" denotes all analyses are below given detection limits.

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Table 1-3
Summary of Groundwater Sampling Results - BTEX, Naphthalene, MTBE, VPH, PAH, and EPH
Former GE Site, Wilmington, MA

Area Name	Location Name	Screened Interval (feet)	Type of Well	Sample Date	Groundwater Elevation	2004-2005	2006-2007	2008-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	2020-2021	2022-2023	2024-2025	2026-2027	2028-2029	2030-2031	2032-2033	2034-2035	2036-2037	2038-2039	2040-2041	2042-2043	2044-2045	2046-2047	2048-2049	2050-2051	2052-2053	2054-2055	2056-2057	2058-2059	2060-2061	2062-2063	2064-2065	2066-2067	2068-2069	2070-2071	2072-2073	2074-2075	2076-2077	2078-2079	2080-2081	2082-2083	2084-2085	2086-2087	2088-2089	2090-2091	2092-2093	2094-2095	2096-2097	2098-2099	2100-2101	2102-2103	2104-2105	2106-2107	2108-2109	2110-2111	2112-2113	2114-2115	2116-2117	2118-2119	2120-2121	2122-2123	2124-2125	2126-2127	2128-2129	2130-2131	2132-2133	2134-2135	2136-2137	2138-2139	2140-2141	2142-2143	2144-2145	2146-2147	2148-2149	2150-2151	2152-2153	2154-2155	2156-2157	2158-2159	2160-2161	2162-2163	2164-2165	2166-2167	2168-2169	2170-2171	2172-2173	2174-2175	2176-2177	2178-2179	2180-2181	2182-2183	2184-2185	2186-2187	2188-2189	2190-2191	2192-2193	2194-2195	2196-2197	2198-2199	2200-2201	2202-2203	2204-2205	2206-2207	2208-2209	2210-2211	2212-2213	2214-2215	2216-2217	2218-2219	2220-2221	2222-2223	2224-2225	2226-2227	2228-2229	2230-2231	2232-2233	2234-2235	2236-2237	2238-2239	2240-2241	2242-2243	2244-2245	2246-2247	2248-2249	2250-2251	2252-2253	2254-2255	2256-2257	2258-2259	2260-2261	2262-2263	2264-2265	2266-2267	2268-2269	2270-2271	2272-2273	2274-2275	2276-2277	2278-2279	2280-2281	2282-2283	2284-2285	2286-2287	2288-2289	2290-2291	2292-2293	2294-2295	2296-2297	2298-2299	2300-2301	2302-2303	2304-2305	2306-2307	2308-2309	2310-2311	2312-2313	2314-2315	2316-2317	2318-2319	2320-2321	2322-2323	2324-2325	2326-2327	2328-2329	2330-2331	2332-2333	2334-2335	2336-2337	2338-2339	2340-2341	2342-2343	2344-2345	2346-2347	2348-2349	2350-2351	2352-2353	2354-2355	2356-2357	2358-2359	2360-2361	2362-2363	2364-2365	2366-2367	2368-2369	2370-2371	2372-2373	2374-2375	2376-2377	2378-2379	2380-2381	2382-2383	2384-2385	2386-2387	2388-2389	2390-2391	2392-2393	2394-2395	2396-2397	2398-2399	2400-2401	2402-2403	2404-2405	2406-2407	2408-2409	2410-2411	2412-2413	2414-2415	2416-2417	2418-2419	2420-2421	2422-2423	2424-2425	2426-2427	2428-2429	2430-2431	2432-2433	2434-2435	2436-2437	2438-2439	2440-2441	2442-2443	2444-2445	2446-2447	2448-2449	2450-2451	2452-2453	2454-2455	2456-2457	2458-2459	2460-2461	2462-2463	2464-2465	2466-2467	2468-2469	2470-2471	2472-2473	2474-2475	2476-2477	2478-2479	2480-2481	2482-2483	2484-2485	2486-2487	2488-2489	2490-2491	2492-2493	2494-2495	2496-2497	2498-2499	2500-2501	2502-2503	2504-2505	2506-2507	2508-2509	2510-2511	2512-2513	2514-2515	2516-2517	2518-2519	2520-2521	2522-2523	2524-2525	2526-2527	2528-2529	2530-2531	2532-2533	2534-2535	2536-2537	2538-2539	2540-2541	2542-2543	2544-2545	2546-2547	2548-2549	2550-2551	2552-2553	2554-2555	2556-2557	2558-2559	2560-2561	2562-2563	2564-2565	2566-2567	2568-2569	2570-2571	2572-2573	2574-2575	2576-2577	2578-2579	25
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6. Groundwater Standards are below from the Massachusetts Contingency Plan (MCP) 310 CMR 4.00(4). Exceedance of applicable Method 1 GW-1 Standard is indicated in bold and shaded type.

7. ⁴⁴ Urates sample was obtained using a Passive Diffusion Bag sampler.

1. ² ³ ⁴ ⁵ ⁶ ⁷ ⁸ ⁹ ¹⁰ ¹¹ ¹² ¹³ ¹⁴ ¹⁵ ¹⁶ ¹⁷ ¹⁸ ¹⁹ ²⁰ ²¹ ²² ²³ ²⁴ ²⁵ ²⁶ ²⁷ ²⁸ ²⁹ ³⁰ ³¹ ³² ³³ ³⁴ ³⁵ ³⁶ ³⁷ ³⁸ ³⁹ ⁴⁰ ⁴¹ ⁴² ⁴³ ⁴⁴ ⁴⁵ ⁴⁶ ⁴⁷ ⁴⁸ ⁴⁹ ⁵⁰ ⁵¹ ⁵² ⁵³ ⁵⁴ ⁵⁵ ⁵⁶ ⁵⁷ ⁵⁸ ⁵⁹ ⁶⁰ ⁶¹ ⁶² ⁶³ ⁶⁴ ⁶⁵ ⁶⁶ ⁶⁷ ⁶⁸ ⁶⁹ ⁷⁰ ⁷¹ ⁷² ⁷³ ⁷⁴ ⁷⁵ ⁷⁶ ⁷⁷ ⁷⁸ ⁷⁹ ⁸⁰ ⁸¹ ⁸² ⁸³ ⁸⁴ ⁸⁵ ⁸⁶ ⁸⁷ ⁸⁸ ⁸⁹ ⁹⁰ ⁹¹ ⁹² ⁹³ ⁹⁴ ⁹⁵ ⁹⁶ ⁹⁷ ⁹⁸ ⁹⁹ ¹⁰⁰ ¹⁰¹ ¹⁰² ¹⁰³ ¹⁰⁴ ¹⁰⁵ ¹⁰⁶ ¹⁰⁷ ¹⁰⁸ ¹⁰⁹ ¹¹⁰ ¹¹¹ ¹¹² ¹¹³ ¹¹⁴ ¹¹⁵ ¹¹⁶ ¹¹⁷ ¹¹⁸ ¹¹⁹ ¹²⁰ ¹²¹ ¹²² ¹²³ ¹²⁴ ¹²⁵ ¹²⁶ ¹²⁷ ¹²⁸ ¹²⁹ ¹³⁰ ¹³¹ ¹³² ¹³³ ¹³⁴ ¹³⁵ ¹³⁶ ¹³⁷ ¹³⁸ ¹³⁹ ¹⁴⁰ ¹⁴¹ ¹⁴² ¹⁴³ ¹⁴⁴ ¹⁴⁵ ¹⁴⁶ ¹⁴⁷ ¹⁴⁸ ¹⁴⁹ ¹⁵⁰ ¹⁵¹ ¹⁵² ¹⁵³ ¹⁵⁴ ¹⁵⁵ ¹⁵⁶ ¹⁵⁷ ¹⁵⁸ ¹⁵⁹ ¹⁶⁰ ¹⁶¹ ¹⁶² ¹⁶³ ¹⁶⁴ ¹⁶⁵ ¹⁶⁶ ¹⁶⁷ ¹⁶⁸ ¹⁶⁹ ¹⁷⁰ ¹⁷¹ ¹⁷² ¹⁷³ ¹⁷⁴ ¹⁷⁵ ¹⁷⁶ ¹⁷⁷ ¹⁷⁸ ¹⁷⁹ ¹⁸⁰ ¹⁸¹ ¹⁸² ¹⁸³ ¹⁸⁴ ¹⁸⁵ ¹⁸⁶ ¹⁸⁷ ¹⁸⁸ ¹⁸⁹ ¹⁹⁰ ¹⁹¹ ¹⁹² ¹⁹³ ¹⁹⁴ ¹⁹⁵ ¹⁹⁶ ¹⁹⁷ ¹⁹⁸ ¹⁹⁹ ²⁰⁰ ²⁰¹ ²⁰² ²⁰³ ²⁰⁴ ²⁰⁵ ²⁰⁶ ²⁰⁷ ²⁰⁸ ²⁰⁹ ²¹⁰ ²¹¹ ²¹² ²¹³ ²¹⁴ ²¹⁵ ²¹⁶ ²¹⁷ ²¹⁸ ²¹⁹ ²²⁰ ²²¹ ²²² ²²³ ²²⁴ ²²⁵ ²²⁶ ²²⁷ ²²⁸ ²²⁹ ²³⁰ ²³¹ ²³² ²³³ ²³⁴ ²³⁵ ²³⁶ ²³⁷ ²³⁸ ²³⁹ ²⁴⁰ ²⁴¹ ²⁴² ²⁴³ ²⁴⁴ ²⁴⁵ ²⁴⁶ ²⁴⁷ ²⁴⁸ ²⁴⁹ ²⁵⁰ ²⁵¹ ²⁵² ²⁵³ ²⁵⁴ ²⁵⁵ ²⁵⁶ ²⁵⁷ ²⁵⁸ ²⁵⁹ ²⁶⁰ ²⁶¹ ²⁶² ²⁶³ ²⁶⁴ ²⁶⁵ ²⁶⁶ ²⁶⁷ ²⁶⁸ ²⁶⁹ ²⁷⁰ ²⁷¹ ²⁷² ²⁷³ ²⁷⁴ ²⁷⁵ ²⁷⁶ ²⁷⁷ ²⁷⁸ ²⁷⁹ ²⁸⁰ ²⁸¹ ²⁸² ²⁸³ ²⁸⁴ ²⁸⁵ ²⁸⁶ ²⁸⁷ ²⁸⁸ ²⁸⁹ ²⁹⁰ ²⁹¹ ²⁹² ²⁹³ ²⁹⁴ ²⁹⁵ ²⁹⁶ ²⁹⁷ ²⁹⁸ ²⁹⁹ ³⁰⁰ ³⁰¹ ³⁰² ³⁰³ ³⁰⁴ ³⁰⁵ ³⁰⁶ ³⁰⁷ ³⁰⁸ ³⁰⁹ ³¹⁰ ³¹¹ ³¹² ³¹³ ³¹⁴ ³¹⁵ ³¹⁶ ³¹⁷ ³¹⁸ ³¹⁹ ³²⁰ ³²¹ ³²² ³²³ ³²⁴ ³²⁵ ³²⁶ ³²⁷ ³²⁸ ³²⁹ ³³⁰ ³³¹ ³³² ³³³ ³³⁴ ³³⁵ ³³⁶ ³³⁷ ³³⁸ ³³⁹ ³⁴⁰ ³⁴¹ ³⁴² ³⁴³ ³⁴⁴ ³⁴⁵ ³⁴⁶ ³⁴⁷ ³⁴⁸ ³⁴⁹ ³⁵⁰ ³⁵¹ ³⁵² ³⁵³ ³⁵⁴ ³⁵⁵ ³⁵⁶ ³⁵⁷ ³⁵⁸ ³⁵⁹ ³⁶⁰ ³⁶¹ ³⁶² ³⁶³ ³⁶⁴ ³⁶⁵ ³⁶⁶ ³⁶⁷ ³⁶⁸ ³⁶⁹ ³⁷⁰ ³⁷¹ ³⁷² ³⁷³ ³⁷⁴ ³⁷⁵ ³⁷⁶ ³⁷⁷ ³⁷⁸ ³⁷⁹ ³⁸⁰ ³⁸¹ ³⁸² ³⁸³ ³⁸⁴ ³⁸⁵ ³⁸⁶ ³⁸⁷ ³⁸⁸ ³⁸⁹ ³⁹⁰ ³⁹¹ ³⁹² ³⁹³ ³⁹⁴ ³⁹⁵ ³⁹⁶ ³⁹⁷ ³⁹⁸ ³⁹⁹ ⁴⁰⁰ ⁴⁰¹ ⁴⁰² ⁴⁰³ ⁴⁰⁴ ⁴⁰⁵ ⁴⁰⁶ ⁴⁰⁷ ⁴⁰⁸ ⁴⁰⁹ ⁴¹⁰ ⁴¹¹ ⁴¹² ⁴¹³ ⁴¹⁴ ⁴¹⁵ ⁴¹⁶ ⁴¹⁷ ⁴¹⁸ ⁴¹⁹ ⁴²⁰ ⁴²¹ ⁴²² ⁴²³ ⁴²⁴ ⁴²⁵ ⁴²⁶ ⁴²⁷ ⁴²⁸ ⁴²⁹ ⁴³⁰ ⁴³¹ ⁴³² ⁴³³ ⁴³⁴ ⁴³⁵ ⁴³⁶ ⁴³⁷ ⁴³⁸ ⁴³⁹ ⁴⁴⁰ ⁴⁴¹ ⁴⁴² ⁴⁴³ ⁴⁴⁴ ⁴⁴⁵ ⁴⁴⁶ ⁴⁴⁷ ⁴⁴⁸ ⁴⁴⁹ ⁴⁵⁰ ⁴⁵¹ ⁴⁵² ⁴⁵³ ⁴⁵⁴ ⁴⁵⁵ ⁴⁵⁶ ⁴⁵⁷ ⁴⁵⁸ ⁴⁵⁹ ⁴⁶⁰ ⁴⁶¹ ⁴⁶² ⁴⁶³ ⁴⁶⁴ ⁴⁶⁵ ⁴⁶⁶ ⁴⁶⁷ ⁴

3. ^a We denote the location μ_{max} and σ_{max} sampled during the fitting stage.

4. ω_{max} denotes the location was not sampled during the given year.

Table 1-3
Summary of Groundwater Sampling Results - BTEX, Naphthalene, MTBE, VPH, PAH, and EPH
Former GE Site, Wilmington, MA

Area Name	Location Name	Screened Interval (feet)	Type of Well	Sample Event Date	Ground-water Elevation	100' BTL	200' BTL	300' BTL	400' BTL	500' BTL	600' BTL	700' BTL	800' BTL	900' BTL	1000' BTL	1100' BTL	1200' BTL	1300' BTL	1400' BTL	1500' BTL	1600' BTL	1700' BTL	1800' BTL	1900' BTL	2000' BTL	2100' BTL	2200' BTL	2300' BTL	2400' BTL	2500' BTL	2600' BTL	2700' BTL	2800' BTL	2900' BTL	3000' BTL	3100' BTL	3200' BTL	3300' BTL	3400' BTL	3500' BTL	3600' BTL	3700' BTL	3800' BTL	3900' BTL	4000' BTL	4100' BTL	4200' BTL	4300' BTL	4400' BTL	4500' BTL	4600' BTL	4700' BTL	4800' BTL	4900' BTL	5000' BTL	5100' BTL	5200' BTL	5300' BTL	5400' BTL	5500' BTL	5600' BTL	5700' BTL	5800' BTL	5900' BTL	6000' BTL	6100' BTL	6200' BTL	6300' BTL	6400' BTL	6500' BTL	6600' BTL	6700' BTL	6800' BTL	6900' BTL	7000' BTL	7100' BTL	7200' BTL	7300' BTL	7400' BTL	7500' BTL	7600' BTL	7700' BTL	7800' BTL	7900' BTL	8000' BTL	8100' BTL	8200' BTL	8300' BTL	8400' BTL	8500' BTL	8600' BTL	8700' BTL	8800' BTL	8900' BTL	9000' BTL	9100' BTL	9200' BTL	9300' BTL	9400' BTL	9500' BTL	9600' BTL	9700' BTL	9800' BTL	9900' BTL	10000' BTL	10100' BTL	10200' BTL	10300' BTL	10400' BTL	10500' BTL	10600' BTL	10700' BTL	10800' BTL	10900' BTL	11000' BTL	11100' BTL	11200' BTL	11300' BTL	11400' BTL	11500' BTL	11600' BTL	11700' BTL	11800' BTL	11900' BTL	12000' BTL	12100' BTL	12200' BTL	12300' BTL	12400' BTL	12500' BTL	12600' BTL	12700' BTL	12800' BTL	12900' BTL	13000' BTL	13100' BTL	13200' BTL	13300' BTL	13400' BTL	13500' BTL	13600' BTL	13700' BTL	13800' BTL	13900' BTL	14000' BTL	14100' BTL	14200' BTL	14300' BTL	14400' BTL	14500' BTL	14600' BTL	14700' BTL	14800' BTL	14900' BTL	15000' BTL	15100' BTL	15200' BTL	15300' BTL	15400' BTL	15500' BTL	15600' BTL	15700' BTL	15800' BTL	15900' BTL	16000' BTL	16100' BTL	16200' BTL	16300' BTL	16400' BTL	16500' BTL	16600' BTL	16700' BTL	16800' BTL	16900' BTL	17000' BTL	17100' BTL	17200' BTL	17300' BTL	17400' BTL	17500' BTL	17600' BTL	17700' BTL	17800' BTL	17900' BTL	18000' BTL	18100' BTL	18200' BTL	18300' BTL	18400' BTL	18500' BTL	18600' BTL	18700' BTL	18800' BTL	18900' BTL	19000' BTL	19100' BTL	19200' BTL	19300' BTL	19400' BTL	19500' BTL	19600' BTL	19700' BTL	19800' BTL	19900' BTL	20000' BTL	20100' BTL	20200' BTL	20300' BTL	20400' BTL	20500' BTL	20600' BTL	20700' BTL	20800' BTL	20900' BTL	21000' BTL	21100' BTL	21200' BTL	21300' BTL	21400' BTL	21500' BTL	21600' BTL	21700' BTL	21800' BTL	21900' BTL	22000' BTL	22100' BTL	22200' BTL	22300' BTL	22400' BTL	22500' BTL	22600' BTL	22700' BTL	22800' BTL	22900' BTL	23000' BTL	23100' BTL	23200' BTL	23300' BTL	23400' BTL	23500' BTL	23600' BTL	23700' BTL	23800' BTL	23900' BTL	24000' BTL	24100' BTL	24200' BTL	24300' BTL	24400' BTL	24500' BTL	24600' BTL	24700' BTL	24800' BTL	24900' BTL	25000' BTL	25100' BTL	25200' BTL	25300' BTL	25400' BTL	25500' BTL	25600' BTL	25700' BTL	25800' BTL	25900' BTL	26000' BTL	26100' BTL	26200' BTL	26300' BTL	26400' BTL	26500' BTL	26600' BTL	26700' BTL	26800' BTL	26900' BTL	27000' BTL	27100' BTL	27200' BTL	27300' BTL	27400' BTL	27500' BTL	27600' BTL	27700' BTL	27800' BTL	27900' BTL	28000' BTL	28100' BTL	28200' BTL	28300' BTL	28400' BTL	28500' BTL	28600' BTL	28700' BTL	28800' BTL	28900' BTL	29000' BTL	29100' BTL	29200' BTL	29300' BTL	29400' BTL	29500' BTL	29600' BTL	29700' BTL	29800' BTL	29900' BTL	30000' BTL	30100' BTL	30200' BTL	30300' BTL	30400' BTL	30500' BTL	30600' BTL	30700' BTL	30800' BTL	30900' BTL	31000' BTL	31100' BTL	31200' BTL	31300' BTL	31400' BTL	31500' BTL	31600' BTL	31700' BTL	31800' BTL	31900' BTL	32000' BTL	32100' BTL	32200' BTL	32300' BTL	32400' BTL	32500' BTL	32600' BTL	32700' BTL	32800' BTL	32900' BTL	33000' BTL	33100' BTL	33200' BTL	33300' BTL	33400' BTL	33500' BTL	33600' BTL	33700' BTL	33800' BTL	33900' BTL	34000' BTL	34100' BTL	34200' BTL	34300' BTL	34400' BTL	34500' BTL	34600' BTL	34700' BTL	34800' BTL	34900' BTL	35000' BTL	35100' BTL	35200' BTL	35300' BTL	35400' BTL	35500' BTL	35600' BTL	35700' BTL	35800' BTL	35900' BTL	36000' BTL	36100' BTL	36200' BTL	36300' BTL	36400' BTL	36500' BTL	36600' BTL	36700' BTL	36800' BTL	36900' BTL	37000' BTL	37100' BTL	37200' BTL	37300' BTL	37400' BTL	37500' BTL	37600' BTL	37700' BTL	37800' BTL	37900' BTL	38000' BTL	38100' BTL	38200' BTL	38300' BTL	38400' BTL	38500' BTL	38600' BTL	38700' BTL	38800' BTL	38900' BTL	39000' BTL	39100' BTL	39200' BTL	39300' BTL	39400' BTL	39500' BTL	39600' BTL	39700' BTL	39800' BTL	39900' BTL	40000' BTL	40100' BTL	40200' BTL	40300' BTL	40400' BTL	40500' BTL	40600' BTL	40700' BTL	40800' BTL	40900' BTL	41000' BTL	41100' BTL	41200' BTL	41300' BTL	41400' BTL	41500' BTL	41600' BTL	41700' BTL	41800' BTL	41900' BTL	42000' BTL	42100' BTL	42200' BTL	42300' BTL	42400' BTL	42500' BTL	42600' BTL	42700' BTL	42800' BTL	42900' BTL	43000' BTL	43100' BTL	43200' BTL	43300' BTL	43400' BTL	43500' BTL	43600' BTL	43700' BTL	43800' BTL	43900' BTL	44000' BTL	44100' BTL	44200' BTL	44300' BTL	44400' BTL	44500' BTL	44600' BTL	44700' BTL	44800' BTL	44900' BTL	45000' BTL	45100' BTL	45200' BTL	45300' BTL	45400' BTL	45500' BTL	45600' BTL	45700' BTL	45800' BTL	45900' BTL	46000' BTL	46100' BTL	46200' BTL	46300' BTL	46400' BTL	46500' BTL	46600' BTL	46700' BTL	46800' BTL	46900' BTL	47000' BTL	47100' BTL	47200' BTL	47300' BTL	47400' BTL	47500' BTL	47600' BTL	47700' BTL	47800' BTL	47900' BTL	48000' BTL	48100' BTL	48200' BTL	48300' BTL	48400' BTL	48500' BTL	48600' BTL	48700' BTL	48800' BTL	48900' BTL	49000' BTL	49100' BTL	49200' BTL	49300' BTL	49400' BTL	49500' BTL	49600' BTL	49700' BTL	49800' BTL	49900' BTL	50000' BTL	50100' BTL	50200' BTL	50300' BTL	50400' BTL	50500' BTL	50600' BTL	50700' BTL	50800' BTL	50900' BTL	51000' BTL	51100' BTL	51200' BTL	51300' BTL	51400' BTL	51500' BTL	51600' BTL	51700' BTL	51800' BTL	51900' BTL	52000' BTL	52100' BTL	52200' BTL	52300' BTL	52400' BTL	52500' BTL	52600' BTL	52700' BTL	52800' BTL	52900' BTL	53000' BTL	53100' BTL	53200' BTL	53300' BTL	53400' BTL	53500' BTL	53600' BTL	53700' BTL	53800' BTL	53900' BTL	54000' BTL	54100' BTL	54200' BTL	54300' BTL	54400' BTL	54500' BTL	54600' BTL	54700' BTL	54800' BTL	54900' BTL	55000' BTL	55100' BTL	55200' BTL	55300' BTL	55400' BTL	55500' BTL	55600' BTL	55700' BTL	55800' BTL	55900' BTL	56000' BTL	56100' BTL	56200' BTL	56300' BTL	56400' BTL	56500' BTL	56600' BTL	56700' BTL	56800' BTL	56900' BTL	57000' BTL	57100' BTL	57200' BTL	57300' BTL	57400' BTL	57500' BTL	57600' BTL	57700' BTL	57800' BTL	57900' BTL	58000' BTL	58100' BTL	58200' BTL	58300' BTL	58400' BTL	58500' BTL	58600' BTL	58700' BTL	58800' BTL	58900' BTL	59000' BTL	59100' BTL	59200' BTL	59300' BTL	59400' BTL	59500' BTL	59600' BTL	59700' BTL	59800' BTL	59900' BTL	60000' BTL	60100' BTL	60200' BTL	60300' BTL	60400' BTL	60500' BTL	60600' BTL	60700' BTL	60800' BTL	60900' BTL	61000' BTL	61100' BTL	61200' BTL	61300' BTL	61400' BTL	61500' BTL	61600' BTL	61700' BTL	61800' BTL	61900' BTL	62000' BTL	62100' BTL	62200' BTL	62300' BTL	62400' BTL	62500' BTL	62600' BTL	62700' BTL	62800' BTL	62900' BTL	63000' BTL	63100' BTL	63200' BTL	63300' BTL	63400' BTL	63500' BTL	63600' BTL	63700' BTL	63800' BTL	63900' BTL	64000' BTL	64100' BTL	64200' BTL	64300' BTL	64400' BTL	64500' BTL	64600' BTL	64700' BTL	64800' BTL	64900' BTL	65000' BTL	65100' BTL	65200' BTL	65300' BTL	65400' BTL	65500' BTL	65600' BTL	65700' BTL	65800' BTL	65900' BTL	66000' BTL	66100' BTL	66200' BTL	66300' BTL	66400' BTL	66500' BTL	66600' BTL	66700' BTL	66800' BTL	66900' BTL	67000' BTL	67100' BTL	67200' BTL	67300' BTL	67400' BTL	67500' BTL	67600' BTL	67700' BTL	67800' BTL	67900' BTL	68000' BTL	68100' BTL	68200' BTL	68300' BTL	68400' BTL	68500' BTL	68600' BTL	68700' BTL	68800' BTL	68900' BTL	69000' BTL	69100' BTL	69200' BTL	69300' BTL	69400' BTL	69500' BTL	69600' BTL	69700' BTL	69800' BTL	69900' BTL	70000' BTL	70100' BTL	70200' BTL	70300' BTL	70400' BTL	70500' BTL	70600' BTL	70700' BTL	70800' BTL	70900' BTL	71000' BTL	71100' BTL	71200' BTL	71300' BTL	71400' BTL	71500' BTL	71600' BTL	71700' BTL	71800' BTL	71900' BTL	72000' BTL	72100' BTL	72200' BTL	72300' BTL	72400' BTL	72500' BTL	72600' BTL	72700' BTL	72800' BTL	72900' BTL	73000' BTL	73100' BTL	73200' BTL	73300' BTL	73400' BTL	73500' BTL	73600' BTL	73700' BTL	73800' BTL	73900' BTL	74000' BTL	74100' BTL	74200' BTL	74300' BTL	74400' BTL	74500' BTL	74600' BTL	74700' BTL	74800' BTL	74900' BTL	75000' BTL	75100' BTL	75200' BTL	75300' BTL	75400' BTL	75500' BTL	75600' BTL	75700' BTL	75800' BTL	75900' BTL	76000' BTL	76100' BTL	76200' BTL	76300' BTL	76400' BTL	76500' BTL	76600' BTL	76700' BTL	76800' BTL	76900' BTL	77000' BTL	77100' BTL	77200' BTL	77300' BTL	77400' BTL	77500' BTL	77600' BTL	77700' BTL	77800' BTL	77900' BTL	78000' BTL	78100' BTL	78200' BTL	78300' BTL	78400' BTL	78500' BTL	78600' BTL	78700' BTL	78800' BTL	78900' BTL	79000' BTL	79100' BTL	79200' BTL	79300' BTL	79400' BTL	79500' BTL	79600' BTL	79700' BTL	79800' BTL	79900' BTL	80000' BTL	80100' BTL	80200' BTL	80300' BTL	80400' BTL	80500' BTL	80600' BTL	80700' BTL	80800' BTL	80900' BTL	81000' BTL	81100' BTL	81200' BTL	81300' BTL	81400' BTL	81500' BTL	81600' BTL	81700' BTL	81800' BTL	81900' BTL	82000' BTL	82100' BTL	82200' BTL	82300' BTL	82400' BTL	82500' BTL	82600' BTL	82700' BTL	82800' BTL	82900' BTL	83000' BTL	83100' BTL	83200' BTL	83300' BTL	83400' BTL	83500' BTL	83600' BTL	83700' BTL	83800' BTL	83900' BTL	84000' BTL	84100' BTL	84200' BTL	84300' BTL	84400' BTL	84500' BTL	84600' BTL	84700' BTL	84800' BTL	84900' BTL	85000' BTL	85100' BTL	85200' BTL	85300' BTL	85400' BTL	85500' BTL	85600' BTL	85700' BTL	85800' BTL	85900' BTL	86000' BTL	86100' BTL	86200' BTL	86300' BTL	86400' BTL	86500' BTL	86600' BTL	86700' BTL	86800' BTL	86900' BTL	87000' BTL	87100' BTL	87200' BTL	87300' BTL	87400' BTL	87500' BTL	87600' BTL	87700' BTL	87800' BTL	87900' BTL	88000' BTL	88100' BTL	88200' BTL	88300' BTL	88400' BTL	88500' BTL	88600' BTL	88700' BTL	88800' BTL	88900' BTL	89000' BTL	89100' BTL	89200' BTL	89300' BTL	89400' BTL	89500' BTL	89600' BTL	89700' BTL	89800' BTL	89900' BTL	90000' BTL	90100' BTL	90200' BTL	90300' BTL	90400' BTL	90500' BTL	90600' BTL	90700' BTL	90800' BTL	90900' BTL	91000' BTL	91100' BTL	91200' BTL	91300' BTL	91400' BTL	91500' BTL	91600' BTL	91700' BTL	91800' BTL	91900' BTL	92000' BTL	92100' BTL	92200' BTL	92300' BTL	92400' BTL	92500' BTL	92600' BTL	92700' BTL	92800' BTL	92900' BTL	93000' BTL	93100' BTL	93200' BTL	93300' BTL	93400' BTL	93500' BTL	93600' BTL	93700' BTL	93800' BTL	93900' BTL	94000' BTL	94100' BTL	94200' BTL	94300' BTL	94400' BTL	94500' BTL	94600' BTL	94700' BTL	94800' BTL	94900' BTL	95000' BTL	95100' BTL	95200' BTL	95300' BTL	95400' BTL	95500' BTL	95600' BTL	95700' BTL</
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Notes:

1. Unless otherwise specified, analytical results in micrograms per liter (ug/L).
2. Σ PCs: dioxin-like PCBs and detected at concentrations above the given quantitation limit.
3. Σ PAHs: decahloro-ant pyranol for the specified analysis.
4. Σ PCs: dioxins that location was not sampled during the given year.
5. Σ PAHs: all analyses are below given detection limits.
6. Groundwater Standards are taken from the Massachusetts Contingency Plan (MCP) 310 CMR 40.00(9). Exceedance of applicable Method 1 (MW-1, Standard is outlined in bold and shaded type).
7. Σ PCs: samples were obtained using a Pactiv Diffused Bag sampler.
8. W-11 TRC installed to replace missing w-6 WE-25. No data available for 9-14-2001, 11-14-2001 & 4-8-2002 events because well WE-28 was erroneously sampled in place of well TRC-106.

Table 2-1
Eastern Parking Lot - Summary of Depth to Water and LNAPL Thickness
Wells PZ-2S, CW-1, CW-2, and TRC-101
Former GE Site, Wilmington, MA

Date	PZ-2S				CW-1				CW-2				TRC-101			
	DTP (ft.)	Thickness (ft.)	Volume Removed (gal.)	DTP (ft.)	Thickness (ft.)	Volume Removed (gal.)	DTP (ft.)	Thickness (ft.)	Volume Removed (gal.)	DTP (ft.)	Thickness (ft.)	Volume Removed (gal.)	DTP (ft.)	Thickness (ft.)	Volume Removed (gal.)	
4/15/1994	(1)	(2)	0.85	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
6/20/1994	(1)	(2)	0.22	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
12/14/1994	(1)	(2)	0.39	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
6/14/1995	(1)	(2)	0	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
12/19/1995	(1)	(2)	0.25	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
6/10/1996	(1)	(2)	0.21	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
12/9/1996	(1)	(2)	0.83	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
6/30/1997	(1)	(2)	0.17	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
12/29/1997	(1)	(2)	0	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
9/11/1998	(1)	(2)	0.15	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
12/23/1998	(1)	(2)	0.99	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
6/23/1999	(1)	(2)	0.11	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
12/6/1999	(1)	(2)	1.3	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
12/20/1999	(1)	(2)	1.5	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
12/29/1999	(1)	(2)	0.6	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
1/4/2000	(1)	(2)	0.53	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
1/10/2000	(1)	(2)	0.63	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
1/18/00 ⁽⁴⁾	(1)	(2)	0.06	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
1/25/2000	(1)	(2)	0.13	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
5/8/00*	(1)	(2)	0.19	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
6/9/2000	(1)	(2)	0.5	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
8/2/2000	(1)	(2)	5.82	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
9/12/2000	(1)	(2)	5.95	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
10/9/2000	(1)	(2)	7.1	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
11/8/2000	(1)	(2)	6.7	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
12/5/00 ⁽⁵⁾	(1)	(2)	0.2	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
12/7/2000	(1)	(2)	6.08 ⁽⁶⁾	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
1/16/2001	(1)	(2)	6.53 ⁽⁶⁾	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
1/19/2001	(1)	(2)	6.33 ⁽⁶⁾	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
2/15/2001	(1)	(2)	5.3	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
3/9/2001	(1)	(2)	5.65 ⁽⁶⁾	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
4/01	(1)	(2)	5.45	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
5/24/2001	(1)	(2)	6.25	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
1/9/2002	(1)	(2)	NA	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
12/19/2001	(1)	(2)	5.59	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
11/29/2001	(1)	(2)	7.22	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
1/11/2001	(1)	(2)	7.04	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
10/4/2001	(1)	(2)	6.85	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
8/6/2001	(1)	(2)	6.1	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
5/24/2001	(1)	(2)	6.25	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
4/01	(1)	(2)	5.45	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
2/21/2002	6.1	NA	0	4.44	NA	0	4.2	NA	0	4.2	NA	0	4.2	NA	0	
LNAPL removed via vacuum extraction at PZ-2S, CW-1, and CW-2.																
Tank Farm System is turned off. Booms are removed from CW-1 and CW-2.																
3/21/2002	5.93	NA	0	4.26	NA	0	4.08	NA	0	4.08	NA	0	4.08	NA	0	
4/30/2002	5.67	NA	0	4.15	NA	0	3.91	NA	0	3.82	NA	0	3.82	NA	0	
5/24/2002	5.4	NA	0	4.07	NA	0	3.82	NA	0	3.82	NA	0	3.82	NA	0	
6/27/2002	6.22	NA	0	4.61	NA	0	4.38	NA	0	4.38	NA	0	4.38	NA	0	
Monitoring Frequency Increased to Weekly																
7/30/2002	6.60	NA	0	4.97 ⁽⁶⁾	4.91	0.06	4.74 ⁽⁶⁾	4.68	0.06	4.68	0.06	0	6.88	NM	NA	
8/6/2002	6.76	NA	0	5.13 ⁽⁶⁾	5.06	0.07	4.93 ⁽⁶⁾	4.84	0.09	0	6.88	NM	NA	0	0	
8/9/2002	NA	NA	0	NA	NA	0.003	NA	NA	0.003	0.025	NA	NA	6.97	6.96	0.01	
8/29/2002	7.57	7.18	0.39	5.65 ⁽⁶⁾	5.56	0.09	5.44 ⁽⁶⁾	5.34	0.10	0.13	6.97	6.96	0.01	0.01	0	
9/4/2002	6.95	6.71	0.24	5.15 ⁽⁶⁾	5.10	0.05	4.92 ⁽⁶⁾	4.88	0.04	0	6.49	NA	0	0	0	
9/12/2002	7.20	NA	0	5.52 ⁽⁶⁾	NA	0	5.31 ⁽⁶⁾	NA	0	0	6.92	NA	0	0	0	
9/18/2002	7.31	7.18	0.13	6.54 ⁽⁶⁾	6.45	0.09	6.37 ⁽⁶⁾	6.25	0.12	0.05	6.87	NA	0	0	0	
9/25/2002	6.85 ⁽⁶⁾	6.85	0	5.28 ⁽⁶⁾	5.19	0.09	5.03 ⁽⁶⁾	4.98	0.05	0.13	6.60	NA	0	0	0	
10/4/2002	6.85	6.85	0.03	5.28 ⁽⁶⁾	5.20	0.08	5.04 ⁽⁶⁾	4.98	0.06	0	6.60	NA	0	0	0	
10/11/2002	7.07	7.04	0.03	5.44 ⁽⁶⁾	5.34	0.10	5.21 ⁽⁶⁾	5.12	0.09	0	6.75	NA	0	0	0	
10/18/2002	6.28	6.23	0.05	4.82 ⁽⁶⁾	4.77	0.05	4.57 ⁽⁶⁾	4.56	0.01	0	6.17	NA	0	0	0	
10/24/2002	6.48	NA	0	4.88 ⁽⁶⁾	NA	0	4.65 ⁽⁶⁾	NA	0	0	6.27	NA	0	0	0	
11/8/2002	6.13	6.10	0.03	4.59 ⁽⁶⁾	4.56	0.03	4.33 ⁽⁶⁾	4.32	0.01	0	5.95	NA	0	0	0	
11/27/2002	5.45	NA	0	4.11 ⁽⁶⁾	NA	0	3.95 ⁽⁶⁾	NA	0	0	5.68	NA	0	0	0	
12/6/2002	5.91	NA	0	4.42 ⁽⁶⁾	4.42 ⁽⁷⁾	0	4.22 ⁽⁶⁾	NA	0	0	5.87	NA	0	0	0	
12/13/2002	5.66	NA	0	4.25 ⁽⁶⁾	NA	0	4.02 ⁽⁶⁾	4.02 ⁽⁷⁾	0	0	5.65	NA	0	0	0	
12/20/2002	5.19	NA	0	4.00 ⁽⁶⁾	NA	0	3.79 ⁽⁶⁾	NA	0	0	5.41	NA	0	0	0	
12/27/2002	5.12	NA	0	NA	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	
12/30/2002	5.30	NA	0	4.09 ⁽⁶⁾	NA	0	3.98 ⁽⁶⁾	NA	0	0	5.51	NA	0	0	0	
1/10/2003	5.35	NA	0	4.13 ⁽⁶⁾	NA	0	3.90 ⁽⁶⁾	NA	0	0	5.57	NA	0	0	0	
1/17/2003	5.67	NA	0	4.31 ⁽⁶⁾	NA	0	4.09 ⁽⁶⁾	4.09 ⁽⁷⁾	0	0	5.74	NA	0	0	0	
1/21/2003	5.86	NA	0	4.42 ⁽⁶⁾	NA	0	4.20 ⁽⁶⁾	4.20 ⁽⁷⁾	0	0	NA	NA	0	0	0	
1/30/2003	6.25	NA	0	4.65 ⁽⁶⁾	NA	0	4.43 ⁽⁶⁾	4.44	0.01	0	6.05	NA	0	0	0	
2/7/2003	4.94	NA	0	4.42	NA	0	4.2	NM	NM	NM	5.81	NA	0	0	0	

Notes:

Bgs - Below ground surface.

NA - Not Applicable.

NM - Not Measured.

(5) Four-inch diameter well installed on November 30, 2000 to replace existing PZ-2S 0.5-inch diameter well.
(6) Noted a shcen on water surface.
(7) Product was detected with interface probe but not a measurable amount (product thickness < 0.01 ft).

* LNAPL gauging at monitoring well PZ-2S was conducted on a semi-annual basis from April 1994 through May 2000. TRC then increased gauging frequency to monthly. MA DEP then requested that monthly LNAPL gauging continue at PZ-2S, CW-1, and CW-2 as part of the requirements of the Phase V O&M program, beginning December 2000.

(1) Not documented by Emcon.
(2) No recoverable LNAPL present.
(3) Well not installed.

Table 3-1
Tank K SVE System Maintenance Monitoring
Former GE Site, Wilmington, MA

Date	PID Readings across GAC (ppm _v)		
	Influent	Midpoint	Effluent
<i>Biweekly</i>			
2/8/2001	<1	<1	<1
2/9/2001	<1	<1	<1
2/21/2001	<1	<1	<1
2/23/2001	<1	<1	<1
2/27/2001	<1	<1	<1
3/2/2001	<1	<1	<1
3/7/2001	<1	<1	<1
3/23/2001	<1	<1	<1
<i>Monthly</i>			
4/20/2001	<1	<1	<1
5/25/2001	<1	<1	<1
6/29/2001	<1	<1	<1
7/12/2001	1.2	<1	<1
8/6/2001	1.4	<1	<1
9/24/2001	1.2	<1	<1
10/8/2001	<1	<1	<1
11/28/2001	<1	<1	<1
12/14/2001	<1	<1	<1
1/7/2002	<1	<1	<1
2/22/2002	<1	<1	<1
3/25/2002	<1	<1	<1
4/2002	NM	NM	NM
5/29/2002	NM	NM	NM
6/18/2002	<1	<1	<1
7/31/2002	<1	<1	<1
8/14/2002 ¹	58	43.5	5.1
8/28/2002 ^{1,2}	32	28	26
9/27/2002	<1	<1	<1
10/28/2002	<1	<1	<1
11/12/2002	NM	NM	NM
12/17/2002	<1	<1	<1
<i>Monthly</i>			
12/23/2002	<1	<1	<1
1/24/2003	<1	<1	<1
2/18/2003	<1	<1	<1
3/25/2003	<1	<1	<1
4/18/2003	NM	NM	NM
4/22/2003	<1	<1	<1
5/6/2003	NM	NM	NM
5/23/2003	<1	<1	<1
6/17/2003	<1	<1	<1
7/22/2003	<1	<1	<1
8/4/2003	NM	NM	NM
8/25/2003	<1	<1	<1
9/10/2003	<1	<1	<1
9/26/2003	<1	<1	<1

Note:

GAC = Granular Activated Carbon

NM = Not Measured due to intermittent operations

¹ = VOC data biased high due to faulty PID (sensitive to excessive moisture in the air stream).

² = Second monthly measurement taken to evaluate air stream.

Table 3-2
Tank K Remediation System - In-Field Groundwater Monitoring Data
 Former GE Site, Wilmington, MA

Monitoring Well ID	Date	Depth to Water (feet)	ORP (mV)	DO (mg/L)	Temperature (°C)	pH	Pressure (in. w.c.)
PZ-8S	2/27/2001	NM	67.8	0.61	12.9	5.98	0
	3/23/2001	NM	NM	NM	NM	NM	NM
	6/29/2001	NM	41.2	0.43	18.12	6.03	0
	9/19/2001	NM	NM	NM	NM	NM	NM
	12/14/2001	NM	NM	NM	NM	NM	NM
	4/8/2002	NM	NM	NM	NM	NM	NM
	9/25/2002	NM	NM	NM	NM	NM	NM
	3/18/2003	NM	NM	NM	NM	NM	NM
	9/22/03	NM	NM	NM	NM	NM	NM
TRC-104	2/27/2001	2.82	146.9	1.74	6.74	5.81	0
	3/23/2001	0.95	238	8.64	5.89	5.34	0
	6/29/2001	4.31	47.5	0.35	22.18	5.5	0
	9/19/2001	3.89	-13.7	0.34	25.45	6.11	0
	12/14/2001	3.75	84.8	3.81	10.12	5.91	0
	4/8/2002	3.21	92.6	5.93	10.85	5.79	NM
	9/25/2002	4.00	-4.2	0.25	24.52	6.09	NM
	3/18/2003	2.65	61.6	13.25	6.82	4.85	NM
	9/22/2003	4.27	-273	0.36	23.89	6.30	NM
TRC-105D	2/27/2001	2.88	112.2	0.75	11.27	5.84	0
	3/23/2001	1.00	136	0.52	8.34	5.93	0
	6/29/2001	4.35	61.3	0.48	20.11	6.03	0
	9/19/2001	NM	NM	NM	NM	NM	NM
	12/14/2001	NM	NM	NM	NM	NM	NM
	4/8/2002	NM	NM	NM	NM	NM	NM
	9/25/2002	NM	NM	NM	NM	NM	NM
	3/18/2003	NM	NM	NM	NM	NM	NM
	9/22/03	NM	NM	NM	NM	NM	NM
TRC-105S	2/27/2001	NM	223.4	4.63	5.32	5.9	0
	3/23/2001	0.63	171	10.32	5.52	6.48	0
	6/29/2001	NM	151.2	3.18	23.21	5.83	0
	9/19/2001	NM	NM	NM	NM	NM	NM
	12/14/2001	NM	NM	NM	NM	NM	NM
	4/8/2002	NM	NM	NM	NM	NM	NM
	9/25/2002	NM	NM	NM	NM	NM	NM
	3/18/2003	NM	NM	NM	NM	NM	NM
	9/22/03	NM	NM	NM	NM	NM	NM

Notes:

ORP = Oxidation/Reduction Potential

DO = Dissolved Oxygen

NM = Not Measured

Table 3-2 (Cont.)
Tank K Remediation System - In-Field Groundwater Monitoring Data
Former GE Site, Wilmington, MA

Monitoring Well ID	Date	Depth to Water (feet)	ORP (mV)	DO (mg/L)	Temperature (°C)	pH	Pressure (in. w.c.)
TRC-106	2/27/2001	3.45	45.9	4.55	8.17	6.51	2.3
	3/23/2001	Not Located					
	6/29/2001	NM	NM	NM	NM	NM	NM
	9/19/2001	NM	NM	NM	NM	NM	NM
	12/14/2001	NM	NM	NM	NM	NM	NM
	4/8/2002	NM	NM	NM	NM	NM	NM
	9/25/2002	4.38	14.6	2.12	21.04	7.13	NM
	3/21/2003	3.40	186.3	5.00	7.99	8.92	NM
	9/22/2003	5.74	-141.3	0.82	20.60	8.02	NM
WE-2R	2/27/2001	NM	NM	NM	NM	NM	NM
	3/23/2001	NM	NM	NM	NM	NM	NM
	6/29/2001	4.97	36	3.01	17.2	6.05	0
	9/19/2001	4.21	179.9	3.22	16.38	5.45	0
	12/14/2001	4.05	184.3	5.13	12.18	5.87	0.85
	4/8/2002	3.38	192.2	4.74	13.75	5.64	NM
	9/25/2002	NM	NM	NM	NM	NM	NM
	3/18/2003	NM	NM	NM	NM	NM	NM
	9/22/03	NM	NM	NM	NM	NM	NM
WE-4D	2/27/2001	3.35	249.1	1.82	10.15	5.09	0
	3/23/2001	1.45	190	8.88	7.83	5.74	0
	6/29/2001	4.83	197.8	1.22	16.01	4.44	0
	9/19/2001	4.31	207.7	0.83	19.63	4.8	0
	12/14/2001	4.16	211.2	4.81	11.06	6.21	5.8
	4/8/2002	NM	NM	NM	NM	NM	NM
	9/25/2002	NM	NM	NM	NM	NM	NM
	3/18/2003	NM	NM	NM	NM	NM	NM
	9/22/03	NM	NM	NM	NM	NM	NM
WE-4S	2/27/2001	3.37	306.4	11.83	6.29	5.29	12.5
	3/23/2001	0.98	192	9.75	6.78	5.62	0
	6/29/2001	3.21	240.3	6.05	22.1	6.2	0
	9/19/2001	3.31	-28.3	0.33	25.15	5.97	0
	12/14/2001	3.12	121.4	9.12	9.55	6.05	12.1
	4/8/2002	3.71	136.2	9.27	11.16	6.04	NM
	9/25/2002	4.75	84.3	0.80	23.82	5.97	NM
	3/18/2003	3.23	48.9	3.19	6.71	5.67	NM
	9/22/2003	4.27	-85.1	0.27	23.70	5.79	NM

Notes:

ORP = Oxidation/Reduction Potential

DO = Dissolved Oxygen

NM = Not Measured

Table 3-2 (Cont.)
Tank K Remediation System - In-Field Groundwater Monitoring Data
 Former GE Site, Wilmington, MA

Monitoring Well ID	Date	Depth to Water (feet)	ORP (mV)	DO (mg/L)	Temperature (°C)	pH	Pressure (in. w.c.)
WE-7	2/27/2001	3.09	16.8	1.41	4.8	6.07	0
	3/23/2001	0.45	161	4.35	5.44	6.38	0
	6/29/2001	4.11	-113.7	0.43	23.39	6.1	0
	9/19/2001	3.61	-23.5	0.46	23.95	6.13	0
	12/14/2001	3.48	-15.6	1.2	8.65	6.21	0
	4/8/2002	3.17	-81.0	0.74	10.82	6.19	NM
	9/25/2002	4.57	-79.9	0.22	23.77	6.14	NM
	3/18/2003	2.81	50.7	0.54	3.76	6.40	NM
	9/22/2003	4.20	21.4	1.44	24.13	6.64	NM
WE-8	2/27/2001	3.11	-24.2	0.9	8.99	6.26	0
	3/23/2001	0.74	182	7.75	6.86	6.05	0
	6/29/2001	4.13	56	5.90	20.2	6.1	0
	9/19/2001	3.67	46.9	0.30	25.58	5.87	0
	12/14/2001	3.54	61.7	0.72	9.31	6.03	0
	4/8/2002	3.50	15.2	0.46	11.33	6.06	NM
	9/25/2002	4.80	-58.7	0.33	22.58	6.43	NM
	3/18/2003	2.70	-31.9	0.42	7.51	6.51	NM
	9/22/2003	4.28	-62.1	0.95	23.48	6.43	NM
WE-9	2/27/2001	3.24	9.1	1.91	6.14	6.07	0
	3/23/2001	0.95	135	1.44	7.21	5.97	0
	6/29/2001	4.35	-78	0.33	23.55	6.04	0
	9/19/2001	3.89	-77.2	0.29	25.77	6.15	0
	12/14/2001	3.75	60.1	0.36	9.42	6.14	0
	4/8/2002	3.51	-148.3	0.21	11.11	6.26	NM
	9/25/02	4.85	-123.0	0.58	24.38	6.20	NM
	3/18/2003	2.90	-47.0	1.25	5.06	6.41	NM
	9/22/2003	4.28	-173.2	0.20	24.43	6.33	NM

Notes:

ORP = Oxidation/Reduction Potential

DO = Dissolved Oxygen

NM = Not Measured

Table 6-1
Monitoring Well Inventory, Specifications, and
Wells Scheduled for Decommissioning
Former GE Site, Wilmington, MA

Well	Well Diameter (inches)	Screen Interval (feet)	Located in Bedrock/Overburden
GZA-1 (WWT)	2	3-38	Overburden
GZA-2 (A)(WWT)	2	3-18	Overburden
GZA-3 (A)(WWT)	2	0-13	Overburden
GZA-4 (A)(WWT)	2	5-15	Overburden
GZA-5 (WWT)	2	3-13	Overburden
GZA-6 (WWT)	2	8-18	Overburden
GZA-7	1.5	1-17	Bedrock
GZA-8	1.5	6-31	Overburden
GZA-9	1.5	14-19	Overburden
GZA-10	1.5	13-38	Overburden
GZA-11	1.5	6-21	Overburden
GZA-12	1.5	9.5-24.5	Overburden
GZA-13	1.5	3-24	Overburden
GZA-14	1.5	39-49	Overburden
GZA-14A	1.5	0-15	Overburden
GZA-15	1.5	8-13.8	Bedrock
WE-5R1	2	13-24	Bedrock
WE-6B	2	13.5-24.5	Overburden
WE-6R	2	30-40	Bedrock
WE-105R2	2	50-65	Bedrock
DP-1	.75	1-11	Overburden
DP-2	.75	1-11	Overburden
DP-3	.75	3-8	Overburden
DP-4B	.75	3-8	Overburden

Notes:

A = Abandonment approved by DEP July 16, 1997.

B = Off-property wells owned by Honeywell to support a septic system design (see CDM's 1986 Stickney Well Report, Figure 2)

WWT = Active Facility Wastewater Treatment Monitoring Location.

~~WWT-XXX~~ = Monitoring Well Scheduled for Abandonment.

**Table 6-1 (Cont.)
Monitoring Well Inventory, Specifications, and
Wells Scheduled for Decommissioning
Former GE Site, Wilmington, MA**

Well	Well Diameter (inches)	Screen Interval (feet)	Located in Bedrock/Overburden
DP-5	.75	0-10	Overburden
DP-6	.75	0-10	Overburden
DP-7	.75	3-7	Overburden
DP-8	.75	3-7	Overburden
DP-9	.75	1-11	Overburden
DP-10	.75	1-11	Overburden
DP-11	.75	3-10	Overburden
DP-12	.75	3-8	Overburden
PZ-1S	.75	5-10	Overburden
PZ-1M	.75	15-18	Overburden
PZ-1D	.75	24-29	Overburden
PZ-1R	.75	37.3-42.3	Bedrock
PZ-2S	4	3.5 – 8.5	Overburden
PZ-2R	Removed		
PZ-3	.75	1-11	Bedrock
PZ-4S	.75	4-9	Overburden
PZ-4D	.75	18-23	Overburden
PZ-4R	.75	46-51	Bedrock
PZ-5S	.75	5-10	Overburden
PZ-5D	.75	24.5-29.5	Overburden
PZ-6S	.75	1-3	Overburden
PZ-6M	.75	12-17	Overburden
PZ-6D	.75	31.5-36.5	Overburden
PZ-6R	.75	50-55	Bedrock
PZ-7S	.75	0-10	Overburden

Notes:

A = Abandonment approved by DEP July 16, 1997.

B = Off-property wells owned by Honeywell to support a septic system design (see CDM's 1986 Stickney Well Report, Figure 2)

WWT = Active Facility Wastewater Treatment Monitoring Location.

~~MW-XXX~~ = Monitoring Well Scheduled for Abandonment.

Table 6-1 (Cont.)
Monitoring Well Inventory, Specifications, and
Wells Scheduled for Decommissioning
Former GE Site, Wilmington, MA

Well	Well Diameter (inches)	Screen Interval (feet)	Located in Bedrock/Overburden
PZ-7D	.75	21.9-26.9	Overburden
PZ-7R	.75	35.5-40.5	Bedrock
PZ-8S	.75	7-12	Overburden
PZ-8M	.75	17-22	Overburden
PZ-8D	.75	40-45	Overburden
PZ-8R	.75	55-60	Bedrock
PZ-9S	.75	3-13	Overburden
PZ-9D	.75	25-30	Overburden
PZ-9R	.75	38-43	Bedrock
GZA-101M	1.5	10-15	Overburden
GZA-101D	1.5	22-26	Overburden
GZA-101R	4	36.5-38	Bedrock
GZA-101S	1.5	3-13	Overburden
GZA-102R1	.5	15-16.5	Bedrock
GZA-102R2	.5	25-26.5	Bedrock
GZA-102S	1.5	2.5-11.5	Overburden
GZA-103R1	.5	18-19	Bedrock
GZA-103R2	.5	28-29	Bedrock
GZA-103S	1.5	1.7-9.7	Overburden
GZA-104D	1.5	17.8-27.8	Overburden
GZA-104R	.5	34.5-36.5	Bedrock
GZA-104R	.5	49-51	Bedrock
GZA-104S	1.5	20-22.0	Overburden
GZA-105D	1.5	16-26	Overburden
GZA-105R	.5	34.5-36.5	Bedrock

Notes:

A = Abandonment approved by DEP July 16, 1997.

B = Off-property wells owned by Honeywell to support a septic system design (see CDM's 1986 Stickney Well Report, Figure 2)

WWT = Active Facility Wastewater Treatment Monitoring Location.

~~MW-XXX~~ = Monitoring Well Scheduled for Abandonment.

Table 6-1 (Cont.)
Monitoring Well Inventory, Specifications, and
Wells Scheduled for Decommissioning
Former GE Site, Wilmington, MA

Well	Well Diameter (inches)	Screen Interval (feet)	Located in Bedrock/Overburden
GZA-105S	1.5	4-14	Overburden
GZA-106S	1.5	5-7	Overburden
GZA-106M	1.5	22-32	Overburden
GZA-106D	1.5	30-40	Overburden
GZA-106R	1	45.8-47.3	Bedrock
GZA-107S	1.5	2-12	Overburden
GZA-107D	1.5	39.2-44.2	Overburden
GZA-107M	1.5	14.5-24.5	Overburden
GZA-107R	1	62.2-64.2	Bedrock
GZA-108D (A)	1.5	17-27	Overburden
GZA-108R (A)	1	35-36	Bedrock
GZA-108R (A)	1	43.3-44.5	Bedrock
GZA-108S (A)	1.5	3-13	Overburden
STM-1R (A)		ABANDONED	
STM-2S	.75	2-12	Overburden
STM-2M	.75	30-35	Overburden
STM-2D1	.75	40-50	Overburden
STM-2D2	.75	63-68	Overburden
STM-2R1	.75	84-89	Bedrock
STM-2R2	.75	105-110	Bedrock
STM-3S	.75	5-15	Overburden
STM-3D	.75	49.8-54.8	Overburden
STM-3R	.75	66.9-71.9	Bedrock
STM-4S	.75	5-15	Overburden
STM-4R	.75	21.5-26.5	Bedrock

Notes:

A = Abandonment approved by DEP July 16, 1997.

B = Off-property wells owned by Honeywell to support a septic system design (see CDM's 1986 Stickney Well Report, Figure 2)

WWT = Active Facility Wastewater Treatment Monitoring Location.

~~MWSXXX~~ = Monitoring Well Scheduled for Abandonment.

**Table 6-1 (Cont.)
Monitoring Well Inventory, Specifications, and
Wells Scheduled for Decommissioning
Former GE Site, Wilmington, MA**

Well	Well Diameter (inches)	Screen Interval (feet)	Located in Bedrock/Overburden
STM-5S (A)		ABANDONED	
STM-5R (A)		ABANDONED	
STM-6S (A)		ABANDONED	
STM-6M (A)		ABANDONED	
STM-6R1 (A)		ABANDONED	
STM-6R2 (A)		ABANDONED	
STM-7BS	.75	2.5-7.5	Overburden
STM-7R1	.75	13-18	Bedrock
STM-7R2	.75	25.8-30.8	Bedrock
STM-8S	.75	1-11	Overburden
STM-8M	.75	19.5-24.5	Overburden
STM-8D	.75	34.7-39.7	Overburden
STM-8R	.75	46.5-51.5	Bedrock
STM-9R (A)		ABANDONED	
STM-9S (A)		ABANDONED	
STM-10S	.75	17-22	Overburden
STM-10R1	.75	26.5-31.5	Bedrock
STM-10R2	.75	36-41	Bedrock
PS-1D	.62	49.25-54.25	Overburden
PS-1M	.62	34.25-39.25	Overburden
PS-1S	.62	12-17	Overburden
PS-2S	.62	12.5-17.5	Overburden
PS-2M	.62	34-39	Overburden
PS-2D	.62	49.1-54.1	Overburden
PS-3	.62	2.7-5.7	Overburden

Notes:

A = Abandonment approved by DEP July 16, 1997.

B = Off-property wells owned by Honeywell to support a septic system design (see CDM's 1986 Stickney Well Report, Figure 2)

WWT = Active Facility Wastewater Treatment Monitoring Location.

XXXXXX = Monitoring Well Scheduled for Abandonment.

**Table 6-1 (Cont.)
Monitoring Well Inventory, Specifications, and
Wells Scheduled for Decommissioning
Former GE Site, Wilmington, MA**

Well	Well Diameter (inches)	Screen Interval (feet)	Located in Bedrock/Overburden
PS-4	.62	12.9-17.9	Overburden
PS-5D	.62	24.1-29.1	Overburden
PS-5S	.62	13-18	Overburden
PS-6	.62	11-16	Overburden
PS-7D (A)	.62	16.8-51.8	Overburden
PS-7S (A)	.62	11-13.1	Overburden
PS-7M (A)	.62	20.4-25.4	Overburden
PS-8D	.62	51.8-56.8	Overburden
PS-8M	.62	34.3-39.3	Overburden
PS-8S	.62	13-18	Overburden
(EMW) WE-10S	2	0-9.5	Overburden
(EMW) WE-10D	2	19-29	Overburden
(EMW) WE-10R	2	42-52	Bedrock
(EMW) WE-11S	2	1-11	Overburden
(EMW) WE-11D	2	22-32	Overburden
(EMW) WE-11R	.75	79-89	Bedrock
(EMW) WE-11R	.75	104-114	Bedrock
(EMW) WE-11R	.75	158-168	Bedrock
BRW-1	3.75	30-169	Bedrock
BRW-1	3.75	30-169	Bedrock
W-1	2	33.5-38.5	Overburden
W-2	2	15-25	Overburden
IW-1	1.5	5.5-22.5	Overburden
IW-2	1.5	5.5-25.5	Overburden
WE-07	2	2-12	Overburden

Notes:

A = Abandonment approved by DEP July 16, 1997.

B = Off-property wells owned by Honeywell to support a septic system design (see CDM's 1986 Stickney Well Report, Figure 2)

WWT = Active Facility Wastewater Treatment Monitoring Location.

~~WWT-XXX~~ = Monitoring Well Scheduled for Abandonment.

Table 6-1 (Cont.)
Monitoring Well Inventory, Specifications, and
Wells Scheduled for Decommissioning
Former GE Site, Wilmington, MA

Well	Well Diameter (inches)	Screen Interval (feet)	Located in Bedrock/Overburden
WE-08	4	2-17	Overburden
WE-09	2	2-12	Overburden
TF-1	10	13.5-32	Bedrock
MW-1	1.5	55-60	Bedrock
MW-2 (A)	1.5	29-39	Overburden
MW-3 (A)	1.5	15-25	Overburden
MW-4	1.5	18-28	Overburden
MW-4A	1.5	38-48	Overburden
MW-5	1.5	28-38	Overburden
MW-6	1.5	19-29	Overburden
MW-6A	1.5	11-16	Overburden
MW-7	1.5	15-25	Overburden
MW-8 (A)	1.5	13-18	Overburden
MW-9 (A)	1.5	25-35	Overburden
MW-10 (A)	1.5	15-20	Overburden
MW-11 (A)			
MW-11 (A)	1.5	23-33	Overburden
MW-12 (A)	1.5	3-24	Overburden
MW-13 (A)	1.5	3-18	Overburden
MW-14 (A)			
MW-15 (A)	1.5	15-115	Overburden
GZA-1 (1985) (B)	1.5	0-18	Overburden
GZA-2 (1985) (B)	1.5	4-24	Overburden
GZA-3 (1985) (B)	1.5	7.5-17.5	Overburden
GZA-4 (1985) (B)	1.5	2.5-12.5	Overburden

Notes:

A = Abandonment approved by DEP July 16, 1997.

B = Off-property wells owned by Honeywell to support a septic system design (see CDM's 1986 Stickney Well Report, Figure 2)

WWT = Active Facility Wastewater Treatment Monitoring Location.

~~MW-XXX~~ = Monitoring Well Scheduled for Abandonment.

Table 6-1 (Cont.)
Monitoring Well Inventory, Specifications, and
Wells Scheduled for Decommissioning
Former GE Site, Wilmington, MA

Well	Well Diameter (inches)	Screen Interval (feet)	Located in Bedrock/Overburden
WE-1		3-11	Overburden
WE-2D		18-28	Overburden
WE-2R	3	37-42	Bedrock
WE-3		3-13	Overburden
WE-4S	2	3-13	Overburden
WE-4D	2	20-30	Overburden
WE-2		2-12	Overburden
TRC-101	1.25	1.5 – 10.5	Overburden
TRC-102	1.25	2.25 – 12.25	Overburden
TRC-103	1.25	1.25 – 11.25	Overburden
TRC-104	1.25	1 – 10	Overburden
TRC-105S	1.25	1 – 10	Overburden
TRC-105D	1.25	15 – 20	Overburden
TRC-106	1.25	2 – 12	Overburden
BRW-1R1	Open Borehole 1"	32-44	Bedrock
BRW-1R2	2	46-66	Bedrock
BRW-1R3	2	85-105	Bedrock
BRW-1R4	2	133-153	Bedrock
IP-1R1	2	28-48	Bedrock
IP-1R2	2	54-74	Bedrock
IP-1R3	2	95-115	Bedrock
IP-2R1	1	17.5 - 38	Bedrock
IP-2R2	2	46-66	Bedrock
IP-2R3	2	72-92	Bedrock
IP-2R4	2	98-122	Bedrock

Notes:

A = Abandonment approved by DEP July 16, 1997.

B = Off-property wells owned by Honeywell to support a septic system design (see CDM's 1986 Stickney Well Report, Figure 2)

WWT = Active Facility Wastewater Treatment Monitoring Location.

~~MW-XXX~~ = Monitoring Well Scheduled for Abandonment.

Table 6-1 (Cont.)
Monitoring Well Inventory, Specifications, and
Wells Scheduled for Decommissioning
Former GE Site, Wilmington, MA

Well	Well Diameter (inches)	Screen Interval (feet)	Located in Bedrock/Overburden
IP-3R1	2	48-61	Bedrock
IP-3R2	2	64-84	Bedrock
IP-4R1	2	38-48	Bedrock
IP-4R2	2	54-74	Bedrock
IP-4R3	2	80-115	Bedrock
TRC-301R	4	66-172	Bedrock
No. 1	2	Unknown	Unknown
No. 2	2	Unknown	Unknown
No. 3	2	Unknown	Unknown
No. 4	2	Unknown	Unknown
No. 5	2	Unknown	Unknown
No. 6	2	Unknown	Unknown
No. 7A	2	Unknown	Unknown
No. 7B	2	Unknown	Unknown
No. 7C	2	Unknown	Unknown

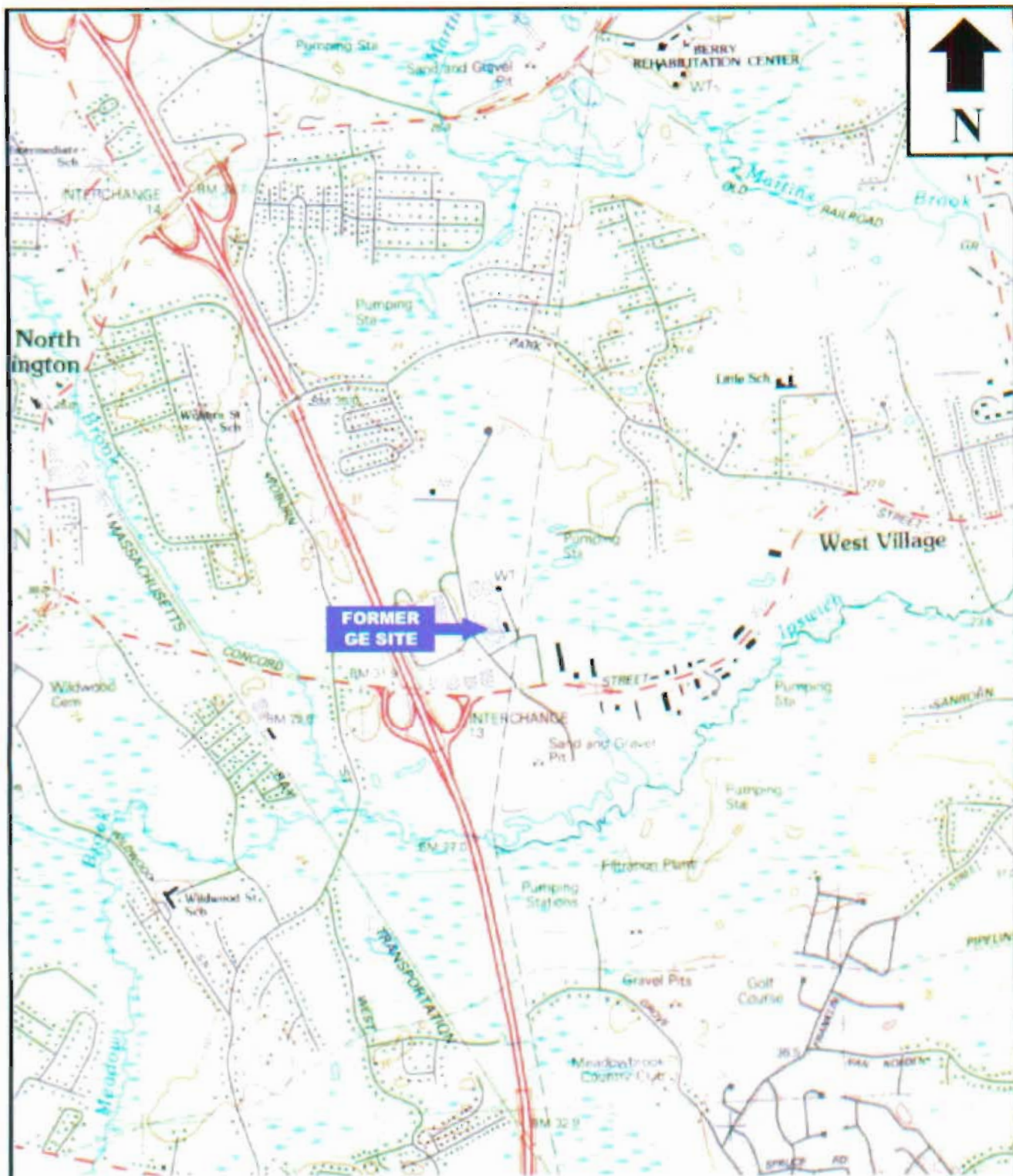
Notes:

A = Abandonment approved by DEP July 16, 1997.

B = Off-property wells owned by Honeywell to support a septic system design (see CDM's 1986 Stickney Well Report, Figure 2)

WWT = Active Facility Wastewater Treatment Monitoring Location.

VA-000 = Monitoring Well Scheduled for Abandonment.



BASE MAP IS A PORTION OF THE FOLLOWING 7.5' x 15' USGS
TOPOGRAPHIC QUADRANGLE: READING, MA 1987

0 1000 2000

Scale in Feet



QUADRANGLE
LOCATION

TRC

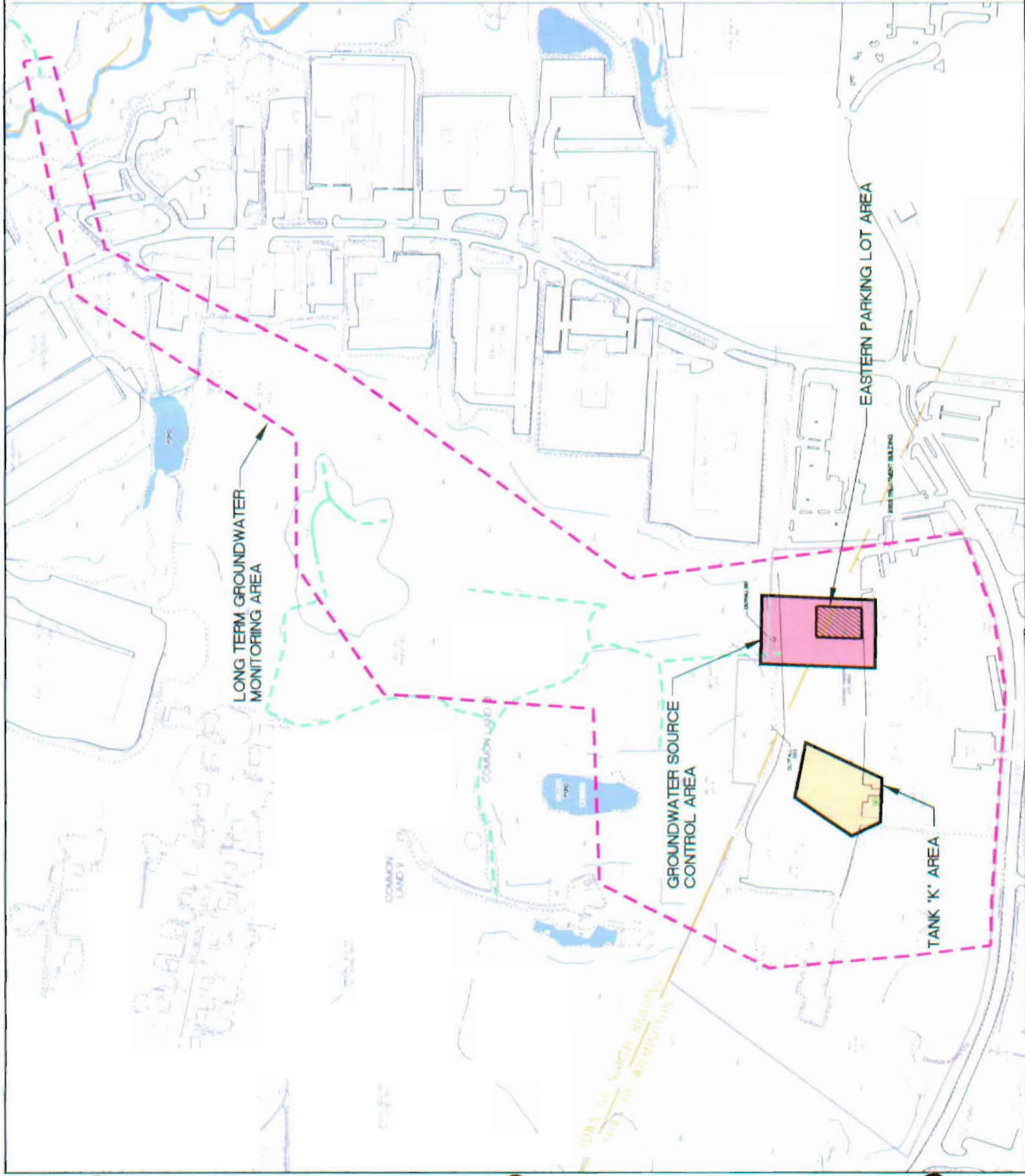
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FORMER GE SITE
WILMINGTON/NORTH READING, MASSACHUSETTS

FIGURE 1-1
SITE LOCATION MAP

Date: 3/04

Project No. E9202



LEGEND

- BUILDING
- APPROXIMATE PROPERTY LINE
- APPROXIMATE TOWN LINE
- INTERMITTENT STREAM
- APPROXIMATE EDGE OF WATER/STREAM
- APPROXIMATE EDGE OF WETLANDS
- FENCE LINE
- WELL
- FORMER LOCATION OF TANK 'K'
- WATER BODY
- TREE LINE

NOTES

1. TOPOGRAPHIC AND PLANIMETRIC FEATURES SHOWN WERE COMPILED PHOTOGRAMMETRICALLY FROM AERIAL PHOTOGRAPHY DATED APRIL 18, 1992 BY EAST COAST MAPPING INC., CONCORD, NEW HAMPSHIRE. MONITORING GROUND CONTROL ESTABLISHED BY FIELD SURVEYS CONDUCTED IN APRIL 1992.
2. THE GRID SYSTEM DEPICTED ON THIS PLAN IS BASED ON THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1928.
3. ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
4. MONITORING WELL LOCATIONS ARE APPROXIMATE.
5. PROPERTY AND TOWN LINE BOUNDARIES WERE ADAPTED FROM:
A) "REGIONAL EXPLORATION PLAN", GENERAL ELECTRIC COMPANY, 50 KENHAM ROAD, WILMINGTON/NORTH READING, MASSACHUSETTS, BY GOLDBERG - ZONKO & ASSOCIATES, INC. DATED APRIL 1990.
B) MODIFIED PER NORTH READING GIS DATA, JUNE 2002, AND C) DIGITIZED BY MASSGIS FROM A SET OF STABLE BASED FILM PRINTS OF 1:25,000 SCALE AERIAL PHOTOGRAPHY FROM THE 1950s BY THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS.



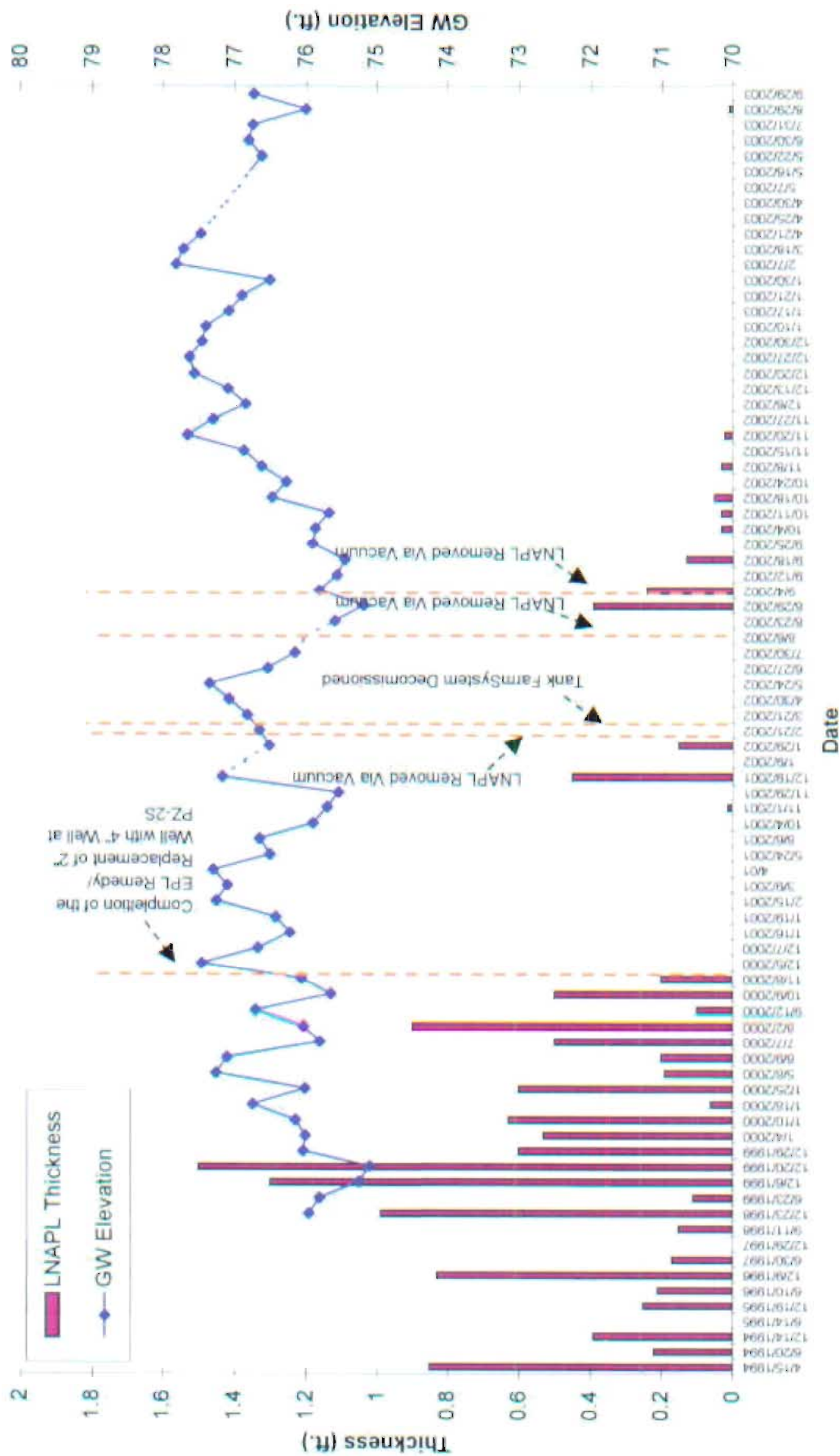
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FORMER GE SITE
WILMINGTON/NORTH READING, MASSACHUSETTS

FIGURE 1-2
APPROXIMATE LIMITS OF
MONITORING PROGRAM AREAS

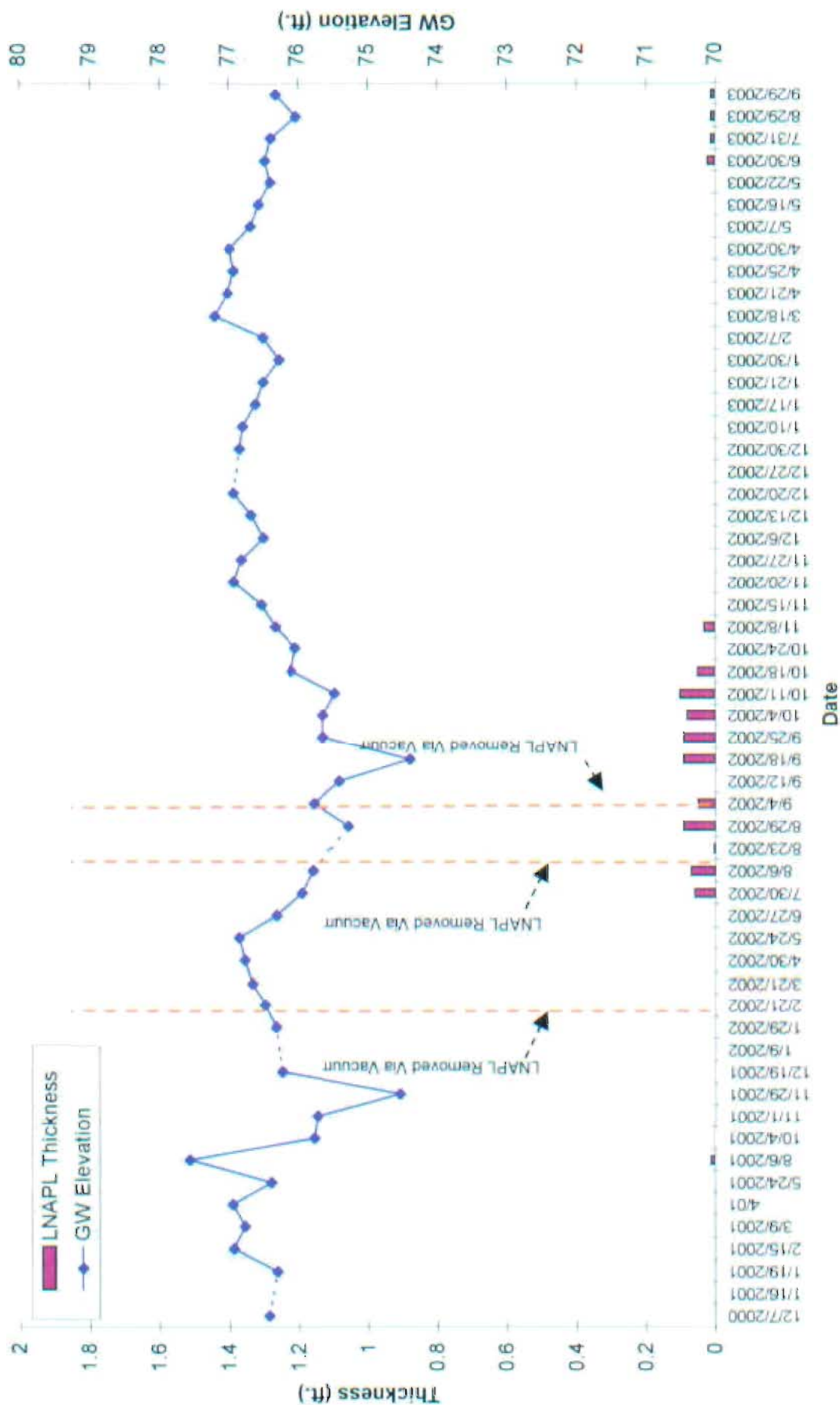
Date: 2/04 Project No.: E0202

Figure 2-1
Eastern Parking Lot - Product Thickness and Groundwater Elevation at PZ-2S



Note:
 line for GW elevation trend indicates no data point, linear interpolation between data points used as a surrogate

Figure 2-2
Eastern Parking Lot - Product Thickness and Groundwater Elevation at CW-1



Note:
..... line for GW elevation trend indicates no data point, linear interpolation between data points used as a surrogate



LEGEND

- BUILDING
- APPROXIMATE PROPERTY LINE
- APPROXIMATE TOWN LINE
- APPROXIMATE EDGE OF WATER/STREAM
- APPROXIMATE EDGE OF WETLANDS
- FENCE LINE
- CULVERT WELL LOCATION
- WATER SUPPLY WELL LOCATION
- MULTI-LEVEL MONITORING WELL/PIEZOMETER LOCATION
- OFFSITE EXTRACTION WELL
- SINGLE-LEVEL MONITORING WELL/PIEZOMETER LOCATION
- RECOVERY WELL/EXTRACTION WELL LOCATION
- WATER BODY
- TREE LINE
- BEDROCK WELL LOCATION
- NATURAL WELL LOCATION
- CLOSED WELL LOCATION
- TRAIL
- TANK "K" SYSTEM PIPING
- SPARGE POINT (* DENOTES POINTS REPLACED ON 12/2002)
- FORMER LOCATION OF TANK "K"

NOTES

1. TOPOGRAPHIC AND PLANIMETRIC FEATURES SHOWN WERE COURTESY OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS, DATED APRIL 16, 1992 BY EAST COAST MAPING INC., CONCORD, NEW HAMPSHIRE. MAPPING GROUND CONTROL ESTABLISHED BY FIELD SURVEYS CONDUCTED IN APRIL 1992.
2. THE GRID SYSTEM DERIVED ON THIS PLAN IS BASED ON THE MASSACHUSETTS STATE PLAN COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1929.
3. ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
4. MONITORING WELL LOCATIONS ARE APPROXIMATE.
5. PROPERTY AND TOWN LINE BOUNDARIES WERE ADAPTED FROM:
A) REGIONAL EXPLORATION PLANT, GENERAL ELECTRIC COMPANY, FORDHAM ROAD PROPERTY, WILMINGTON/NORTH READING, MASSACHUSETTS, BY GOLDBERG - ZIMMO & ASSOCIATES, INC., DATED APRIL 1990.
B) MODIFIED PER NORTH READING GIS DATA, JUNE 2002, AND
C) DIGITIZED BY MASSGIS FROM A SET OF STABLE BASED FILM PRINTS OF THE 1950 AND 75 AERIALS PURCHASED FROM THE USGS BY THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS.
6. WELL LOCATIONS OF MSM AND STERLING SUPPLY ARE APPROXIMATE AND ARE FOR ILLUSTRATIVE PURPOSES ONLY.
7. ROADWAY EXPRESS WELL LOCATIONS ARE FROM FINAL PHASE 2, COMPREHENSIVE SITE ASSESSMENT SUMMARY REPORT MAY 28, 2002.

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FORMER GE SITE
WILMINGTON/NORTH READING, MASSACHUSETTS

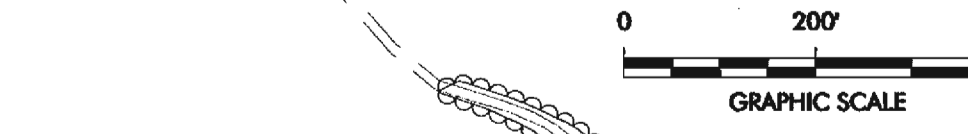
**FIGURE 1-3
SITE PLAN**

Date: 4/04 Project No. E9202



- LEGEND**
- BUILDING
 - APPROXIMATE PROPERTY LINE
 - APPROXIMATE TOWN LINE
 - APPROXIMATE EDGE OF WATER/STREAM
 - APPROXIMATE EDGE OF WETLANDS
 - FENCE LINE
 - CULVERT WELL LOCATION
 - WATER SUPPLY WELL LOCATION
 - MULTI-LEVEL MONITORING WELL/PIEZOMETER LOCATION
 - OFFSITE EXTRACTION WELL
 - SINGLE-LEVEL MONITORING WELL/PIEZOMETER LOCATION
 - RECOVERY WELL/EXTRACTION WELL LOCATION
 - WATER BODY
 - TREE LINE
 - BEDROCK WELL LOCATION
 - INJECTION WELL LOCATION
 - CLOSED WELL LOCATION
 - TRAIL
 - TANK "K" SYSTEM PIPING
 - SPARGE POINT (* DENOTES POINTS REPLACED ON 12/2002)
 - FORMER LOCATION OF TANK "K"
 - GROUNDWATER CONTOUR (DASHED WHERE INFERRED)
 - (74.98) GROUNDWATER ELEVATION, FT. ABOVE MSL
 - (A) REFLECTS DATA FROM WELL "D" OF MULTILEVEL MONITORING WELL LOCATION
 - (NM) NOT MEASURED

- NOTES**
1. TOPOGRAPHIC AND PLANIMETRIC FEATURES SHOWN WERE COMPILED PHOTOGRAMMETRICALLY FROM AERIAL PHOTOGRAPHY DATED APRIL 16, 1992 BY EAST COAST MAPPING INC., CONCORD, NEW HAMPSHIRE. MAPPING GROUND CONTROL ESTABLISHED BY FIELD SURVEYS CONDUCTED IN APRIL 1992.
 2. THE GRID SYSTEM DEPICTED ON THIS PLAN IS BASED ON THE MASSACHUSETTS STATE PLAN COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1928.
 3. ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
 4. MONITORING WELL LOCATIONS ARE APPROXIMATE.
 5. PROPERTY AND TOWN LINE BOUNDARIES WERE ADAPTED FROM:
A) "REGIONAL EXPLORATION PLAN", GENERAL ELECTRIC COMPANY, 50 FORDHAM ROAD, WILMINGTON/NORTH READING, MASSACHUSETTS, BY GOLDBERG - ZONKO & ASSOCIATES, INC., DATED APRIL 1990;
B) MODIFIED PER NORTH READING GIS DATA, JUNE 2002; AND
C) DIGITIZED BY MASSGOS FROM A SET OF STABLE BASED FILM PRINTS OF THE 1:25,000 7.5' QUADRANGLES PURCHASED FROM THE USGS BY THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS.
 6. WELL LOCATIONS OF MSM AND STERLING SUPPLY ARE APPROXIMATE AND ARE FOR ILLUSTRATIVE PURPOSES ONLY.
 7. ROADWAY EXPRESS WELL LOCATIONS ARE FROM FINAL PHASE 2 COMPREHENSIVE SITE ASSESSMENT SUMMARY REPORT MAY 28, 2002.



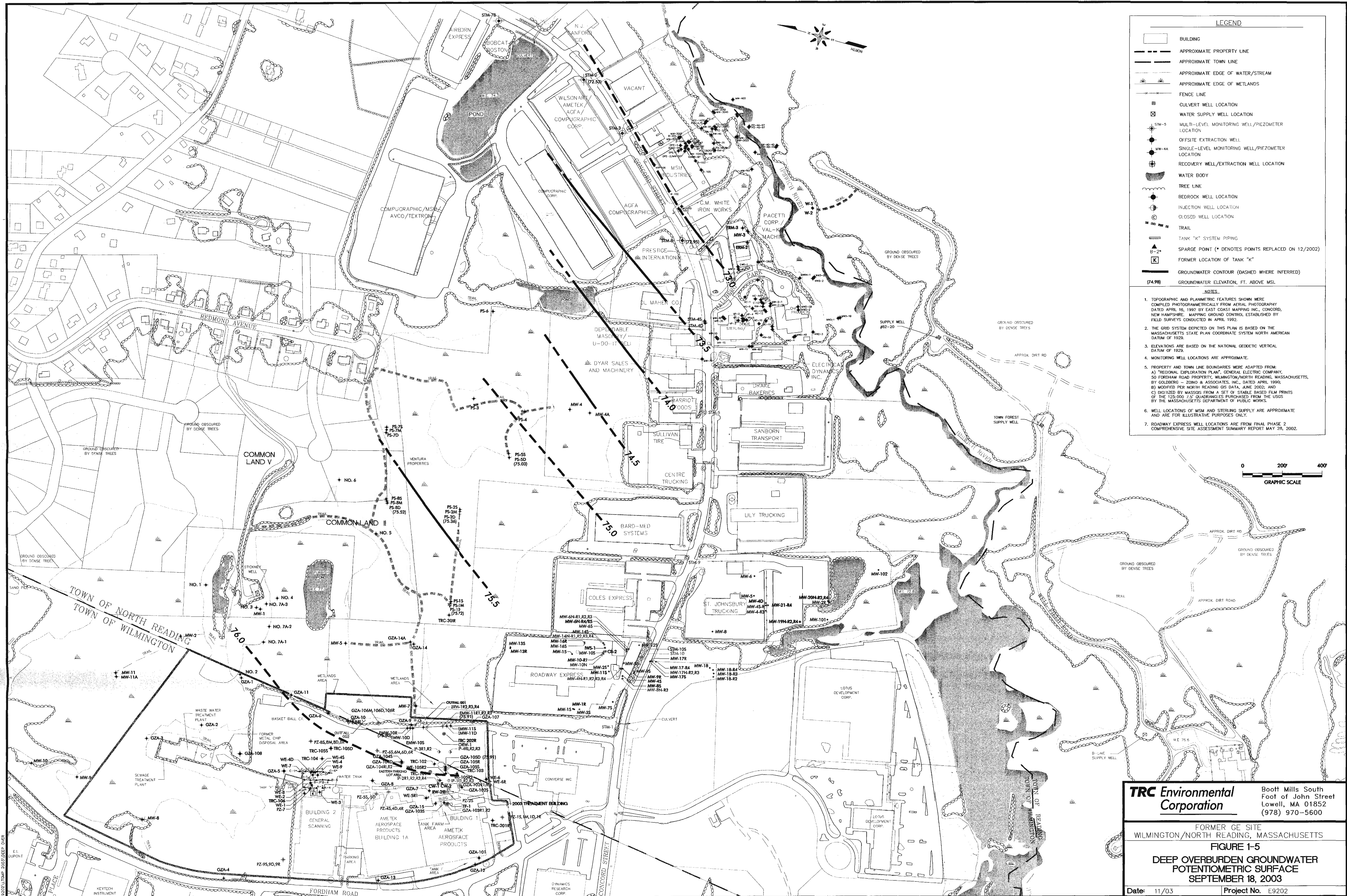
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FORMER GE SITE
WILMINGTON/NORTH READING, MASSACHUSETTS

FIGURE 1-4
SHALLOW OVERBURDEN GROUNDWATER
POTENTIOMETRIC SURFACE
SEPTEMBER 18, 2003

Date: 11/03 Project No. E9202



LEGEND

- BUILDING
- APPROXIMATE PROPERTY LINE
- APPROXIMATE TOWN LINE
- APPROXIMATE EDGE OF WATER/STREAM
- APPROXIMATE EDGE OF WETLANDS
- FENCE LINE
- CULVERT WELL LOCATION
- WATER SUPPLY WELL LOCATION
- MULTI-LEVEL MONITORING WELL/PIEZOMETER LOCATION
- OFFSITE EXTRACTION WELL
- SINGLE-LEVEL MONITORING WELL/PIEZOMETER LOCATION
- RECOVERY WELL/EXTRACTION WELL LOCATION
- WATER BODY
- TREE LINE
- BEDROCK WELL LOCATION
- INJECTION WELL LOCATION
- CLOSED WELL LOCATION
- TRAIL
- TANK "K" SYSTEM PIPING
- SPARGE POINT (* DENOTES POINTS REPLACED ON 12/2002)
- FORMER LOCATION OF TANK "K"
- GROUNDWATER CONTOUR (DASHED WHERE INFERRED)
- (74.98) GROUNDWATER ELEVATION, FT. ABOVE MSL

NOTES

- TOPOGRAPHIC AND PLANNING FEATURES SHOWN WERE COMPILED PHOTOGRAMMETRICALLY FROM AERIAL PHOTOGRAPHY DATED APRIL 16, 1992 BY EAST COAST MAPPING INC., CONCORD, NEW HAMPSHIRE. MAPPING GROUND CONTROL ESTABLISHED BY FIELD SURVEYS CONDUCTED IN APRIL 1992.
- THE GRID SYSTEM DERIVED ON THIS PLAN IS BASED ON THE MASSACHUSETTS STATE PLANNING COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1929.
- ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
- MONITORING WELL LOCATIONS ARE APPROXIMATE.
- PROPERTY AND TOWN LINE BOUNDARIES WERE ADAPTED FROM:
A) "REGIONAL EXPLORATION PLAN", GENERAL ELECTRIC COMPANY, 50 FORDHAM ROAD, WILMINGTON/NORTH READING, MASSACHUSETTS, BY GOLDBERG - ZONKO & ASSOCIATES, INC., DATED APRIL 1990;
B) MODIFIED PER NORTH READING GIS DATA, JUNE 2002; AND
C) DIVIDED BY MASSOGS FROM A SET OF STABLE BASED FILM PRINTS OF THE 125,000 7.5' QUADRANGLES PURCHASED FROM THE USGS BY THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS.
- WELL LOCATIONS OF MSM AND STERLING SUPPLY ARE APPROXIMATE AND ARE FOR ILLUSTRATIVE PURPOSES ONLY.
- ROADWAY EXPRESS WELL LOCATIONS ARE FROM FINAL PHASE 2 COMPREHENSIVE SITE ASSESSMENT SUMMARY REPORT MAY 28, 2002.

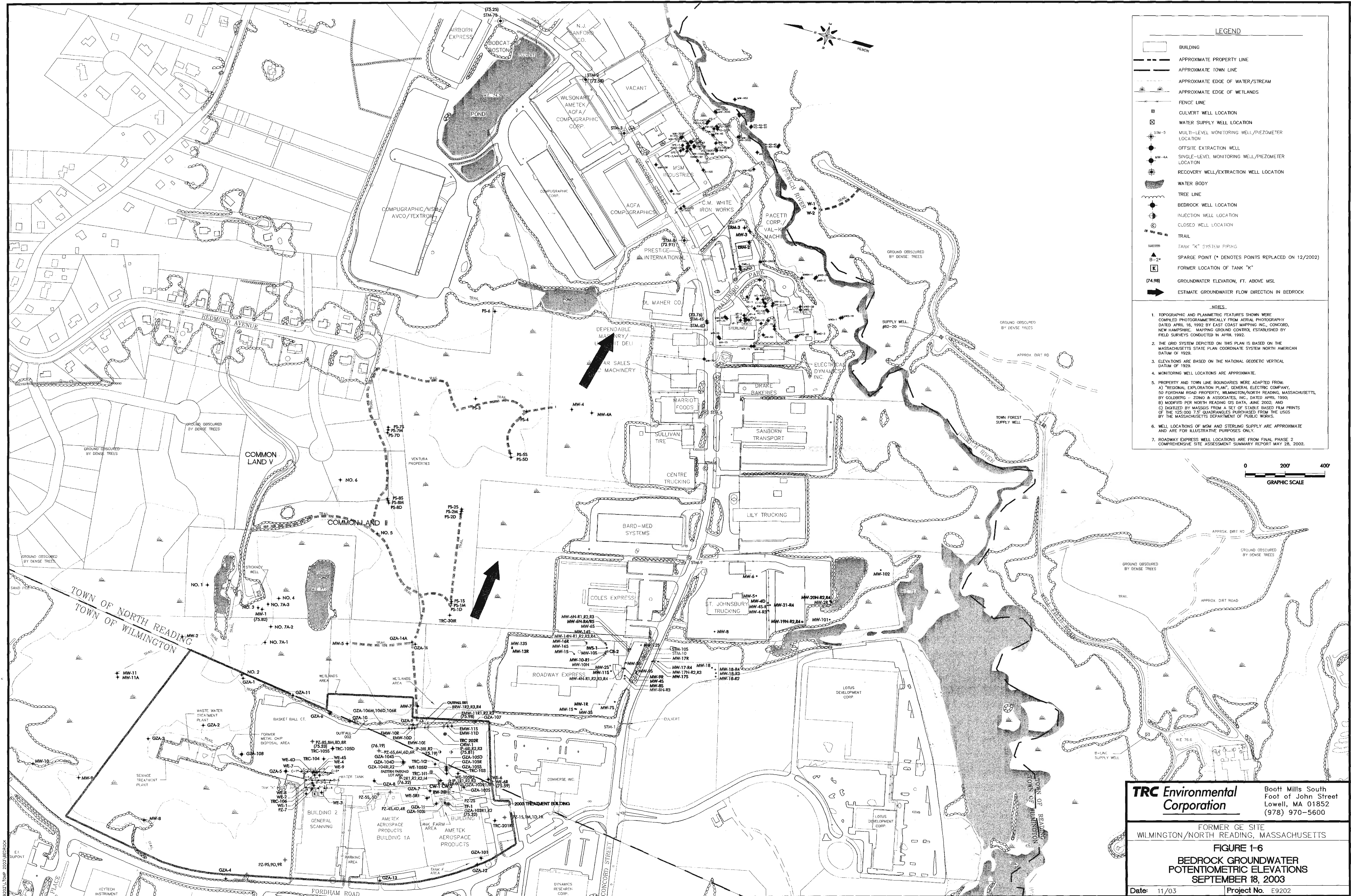
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FORMER GE SITE
WILMINGTON/NORTH READING, MASSACHUSETTS

FIGURE 1-5
DEEP OVERBURDEN GROUNDWATER
POTENTIOMETRIC SURFACE
SEPTEMBER 18, 2003

Date: 11/03 Project No. E9202



- LEGEND**
- BUILDING
 - APPROXIMATE PROPERTY LINE
 - APPROXIMATE TOWN LINE
 - APPROXIMATE EDGE OF WATER/STREAM
 - APPROXIMATE EDGE OF WETLANDS
 - FENCE LINE
 - CULVERT WELL LOCATION
 - WATER SUPPLY WELL LOCATION
 - MULTI-LEVEL MONITORING WELL/PIEZOMETER LOCATION
 - OFFSITE EXTRACTION WELL
 - SINGLE-LEVEL MONITORING WELL/PIEZOMETER LOCATION
 - RECOVERY WELL/EXTRACTION WELL LOCATION
 - WATER BODY
 - TREE LINE
 - BEDROCK WELL LOCATION
 - INJECTION WELL LOCATION
 - CLOSED WELL LOCATION
 - TRAIL
 - TANK "K" SYSTEM PIPING
 - SPARGE POINT (* DENOTES POINTS REPLACED ON 12/2002)
 - FORMER LOCATION OF TANK "K"
 - (74.98) GROUNDWATER ELEVATION, FT. ABOVE MSL
 - ESTIMATE GROUNDWATER FLOW DIRECTION IN BEDROCK
- NOTES**
1. TOPOGRAPHIC AND PLANIMETRIC FEATURES SHOWN WERE COMPILED PHOTOGRAMMETRICALLY FROM AERIAL PHOTOGRAPHY DATED APRIL 16, 1992 BY EAST COAST MAPPING INC., CONCORD, NEW HAMPSHIRE. MAPPING GROUND CONTROL ESTABLISHED BY FIELD SURVEYS CONDUCTED IN APRIL 1992.
 2. THE GRID SYSTEM DEPICTED ON THIS PLAN IS BASED ON THE MASSACHUSETTS STATE PLAN COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1928.
 3. ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
 4. MONITORING WELL LOCATIONS ARE APPROXIMATE.
 5. PROPERTY AND TOWN LINE BOUNDARIES WERE ADAPTED FROM:
A) "REGIONAL EXPLORATION PLAN", GENERAL ELECTRIC COMPANY, 50 FORDHAM ROAD PROPERTY, WILMINGTON/NORTH READING, MASSACHUSETTS, BY GOLDBERG - ZONKO & ASSOCIATES, INC., DATED APRIL 1990;
B) MODIFIED PER NORTH READING GIS DATA, JUNE 2002; AND
C) DIGITIZED BY MASSGIS FROM A SET OF STABLE BASED FILM PRINTS OF THE 125,000 7.5' QUADRANGLES PURCHASED FROM THE USGS BY THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS.
 6. WELL LOCATIONS OF MSM AND STERLING SUPPLY ARE APPROXIMATE AND ARE FOR ILLUSTRATIVE PURPOSES ONLY.
 7. ROADWAY EXPRESS WELL LOCATIONS ARE FROM FINAL PHASE 2 COMPREHENSIVE SITE ASSESSMENT SUMMARY REPORT MAY 26, 2002.



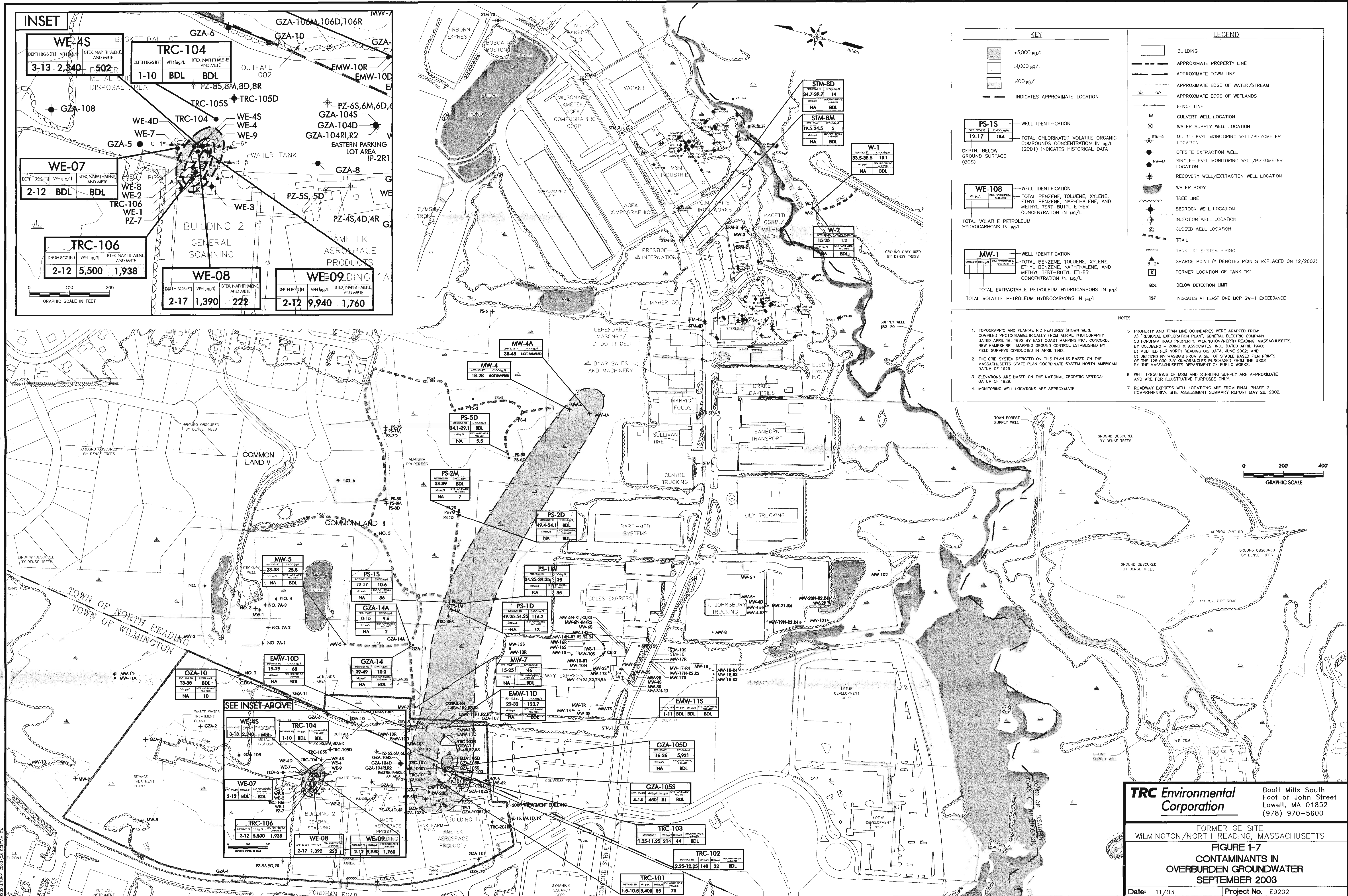
TRC Environmental Corporation

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FORMER GE SITE
WILMINGTON/NORTH READING, MASSACHUSETTS

FIGURE 1-6
BEDROCK GROUNDWATER
POTENTIOMETRIC ELEVATIONS
SEPTEMBER 18, 2003

Date: 11/03 Project No. E9202



KEY

>5,000 µg/L
 >1,000 µg/L
 >100 µg/L
--- INDICATES APPROXIMATE LOCATION

PS-15
WELL IDENTIFICATION
DEPTH, BELOW GROUND SURFACE (BGS)
12-17 10.6
TOTAL CHLORINATED VOLATILE ORGANIC COMPOUNDS CONCENTRATION IN µg/L (2001) INDICATES HISTORICAL DATA

WE-108
WELL IDENTIFICATION
TOTAL BENZENE, TOLUENE, XYLENE, ETHYL BENZENE, NAPHTHALENE, AND METHYL TERT-BUTYL ETHER CONCENTRATION IN µg/L
TOTAL VOLATILE PETROLEUM HYDROCARBONS IN µg/L

MW-1
WELL IDENTIFICATION
TOTAL BENZENE, TOLUENE, XYLENE, ETHYL BENZENE, NAPHTHALENE, AND METHYL TERT-BUTYL ETHER CONCENTRATION IN µg/L
TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS IN µg/L
TOTAL VOLATILE PETROLEUM HYDROCARBONS IN µg/L

LEGEND

BUILDING
 APPROXIMATE PROPERTY LINE
 APPROXIMATE TOWN LINE
 APPROXIMATE EDGE OF WATER/STREAM
 APPROXIMATE EDGE OF WETLANDS
 FENCE LINE
 CULVERT WELL LOCATION
 WATER SUPPLY WELL LOCATION
 MULTI-LEVEL MONITORING WELL/PIEZOMETER LOCATION
 OFF-SITE EXTRACTION WELL LOCATION
 SINGLE-LEVEL MONITORING WELL/PIEZOMETER LOCATION
 RECOVERY WELL/EXTRACTION WELL LOCATION
 WATER BODY
 TREE LINE
 BEDROCK WELL LOCATION
 INJECTION WELL LOCATION
 CLOSED WELL LOCATION
 TRAIL
 TANK "K" SYSTEM PIPING
 SPARGE POINT (* DENOTES POINTS REPLACED ON 12/2002)
 FORMER LOCATION OF TANK "K"
 BDL BELOW DETECTION LIMIT
 157 INDICATES AT LEAST ONE MCP GW-1 EXCEEDANCE

NOTES

1. TOPOGRAPHIC AND PLANIMETRIC FEATURES SHOWN WERE COMPILED PHOTOGRAMMETRICALLY FROM AERIAL PHOTOGRAPHY DATED APRIL 16, 1992 BY EAST COAST MAPPING INC., CONCORD, NEW HAMPSHIRE. MAPPING GROUND CONTROL ESTABLISHED BY FIELD SURVEYS CONDUCTED IN APRIL 1992.

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B) MODIFIED PER NORTH READING GIS DATA, JUNE 2002; AND
C) DIGITIZED BY MASSGIS FROM A SET OF STABLE BASED FILM PRINTS OF THE 1:25,000 7.5' QUADRANGLES PURCHASED FROM THE USGS BY THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS.

6. WELL LOCATIONS OF MSM AND STERLING SUPPLY ARE APPROXIMATE AND ARE FOR ILLUSTRATIVE PURPOSES ONLY.

7. ROADWAY EXPRESS WELL LOCATIONS ARE FROM FINAL PHASE 2 COMPREHENSIVE SITE ASSESSMENT SUMMARY REPORT MAY 28, 2002.

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**FIGURE 1-7
CONTAMINANTS IN
OVERBURDEN GROUNDWATER
SEPTEMBER 2003**

Date: 11/03 Project No. E9202

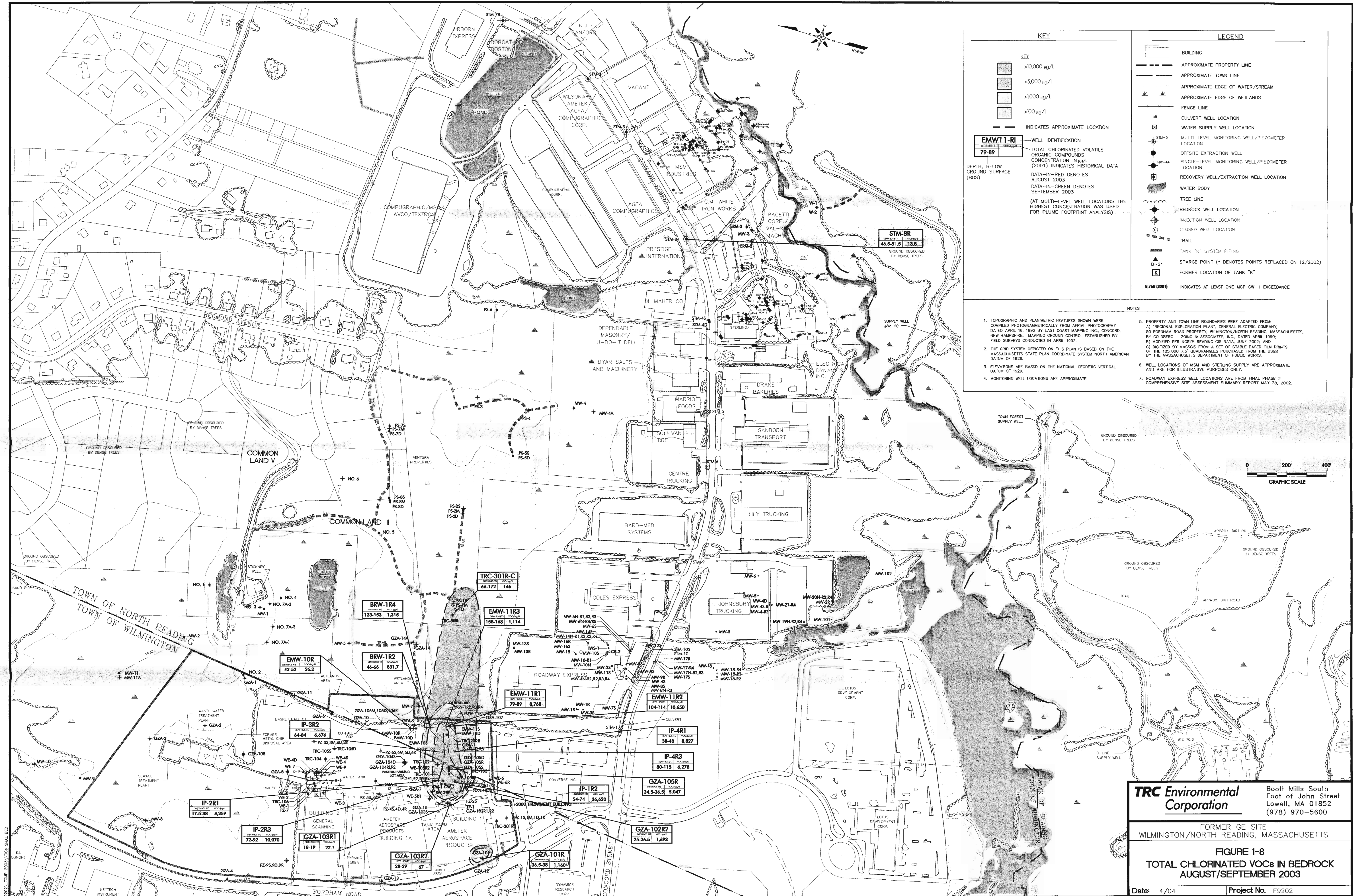
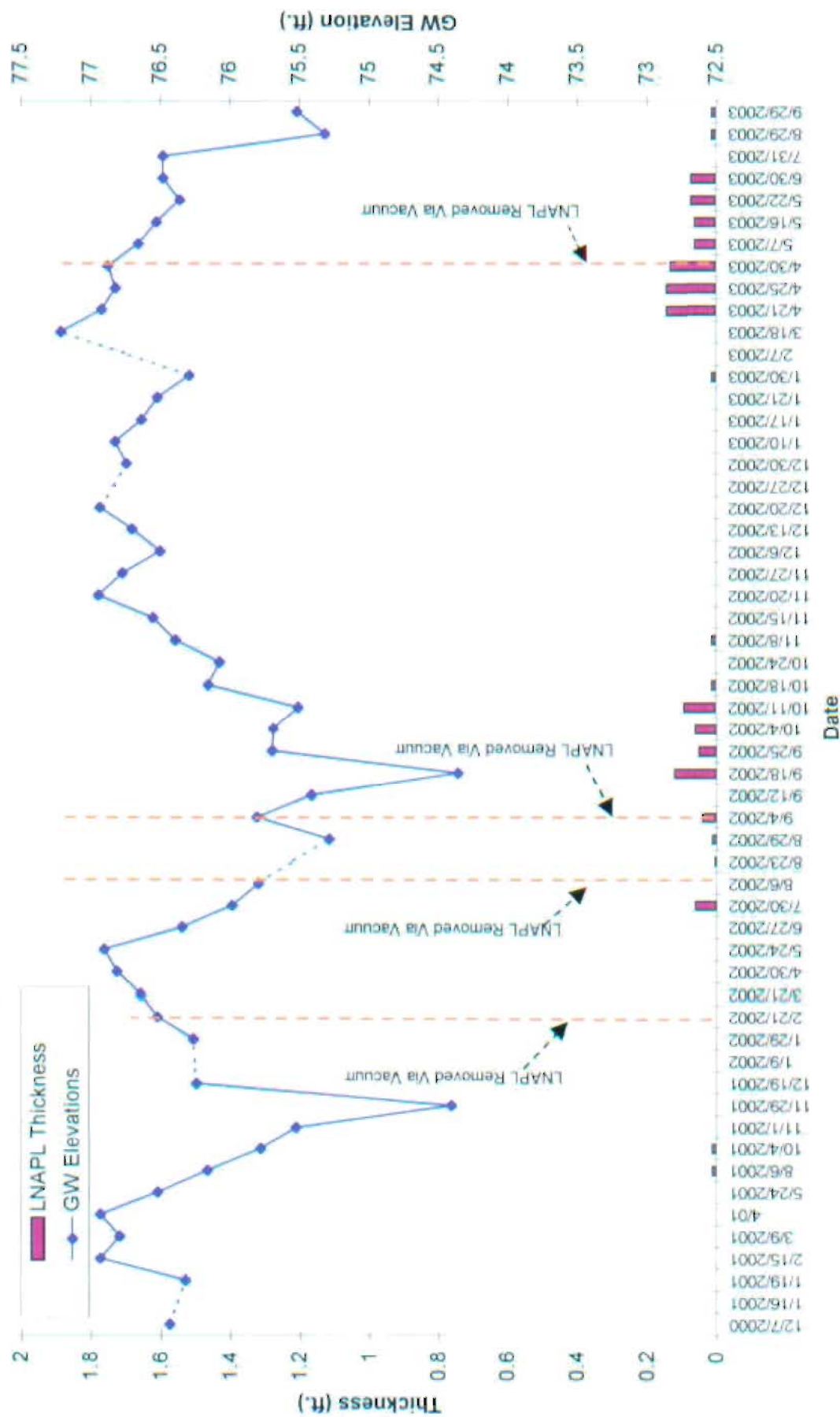
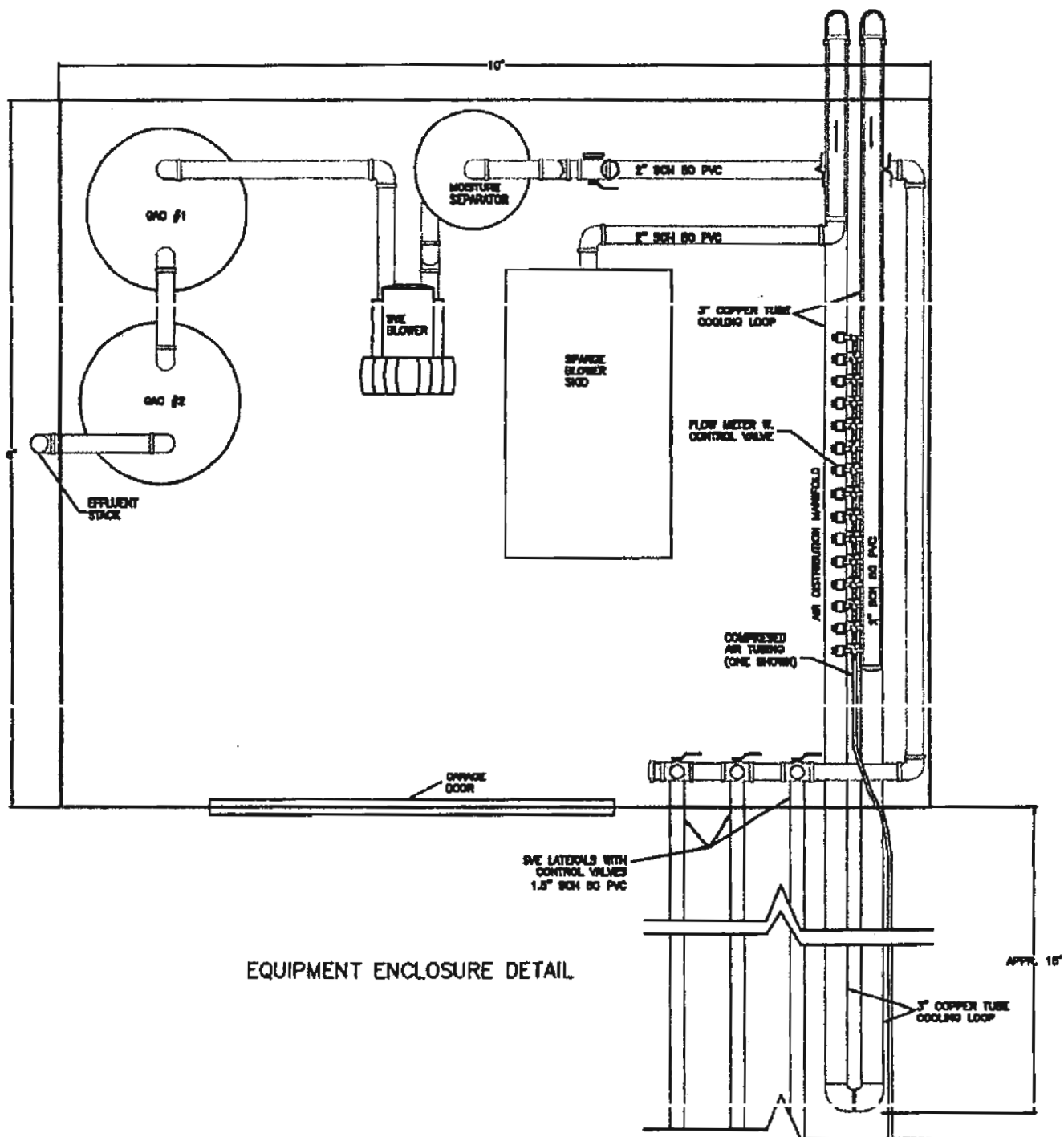


Figure 2-3
Eastern Parking Lot - Product Thickness and Groundwater Elevation at CW-2



Note:
 - - - line for GW elevation trend indicates no data point, linear interpolation between data points used as a surrogate



EQUIPMENT ENCLOSURE DETAIL

NOTE:
PLAN WAS PROVIDED BY I.E.S. ENGINEERING OF NORWOOD, MA.
ENTITLED "EQUIPMENT SCHEMATIC AND SUBSURFACE DETAILS (AS
BUILT) DATED MARCH 01. NOT TO SCALE

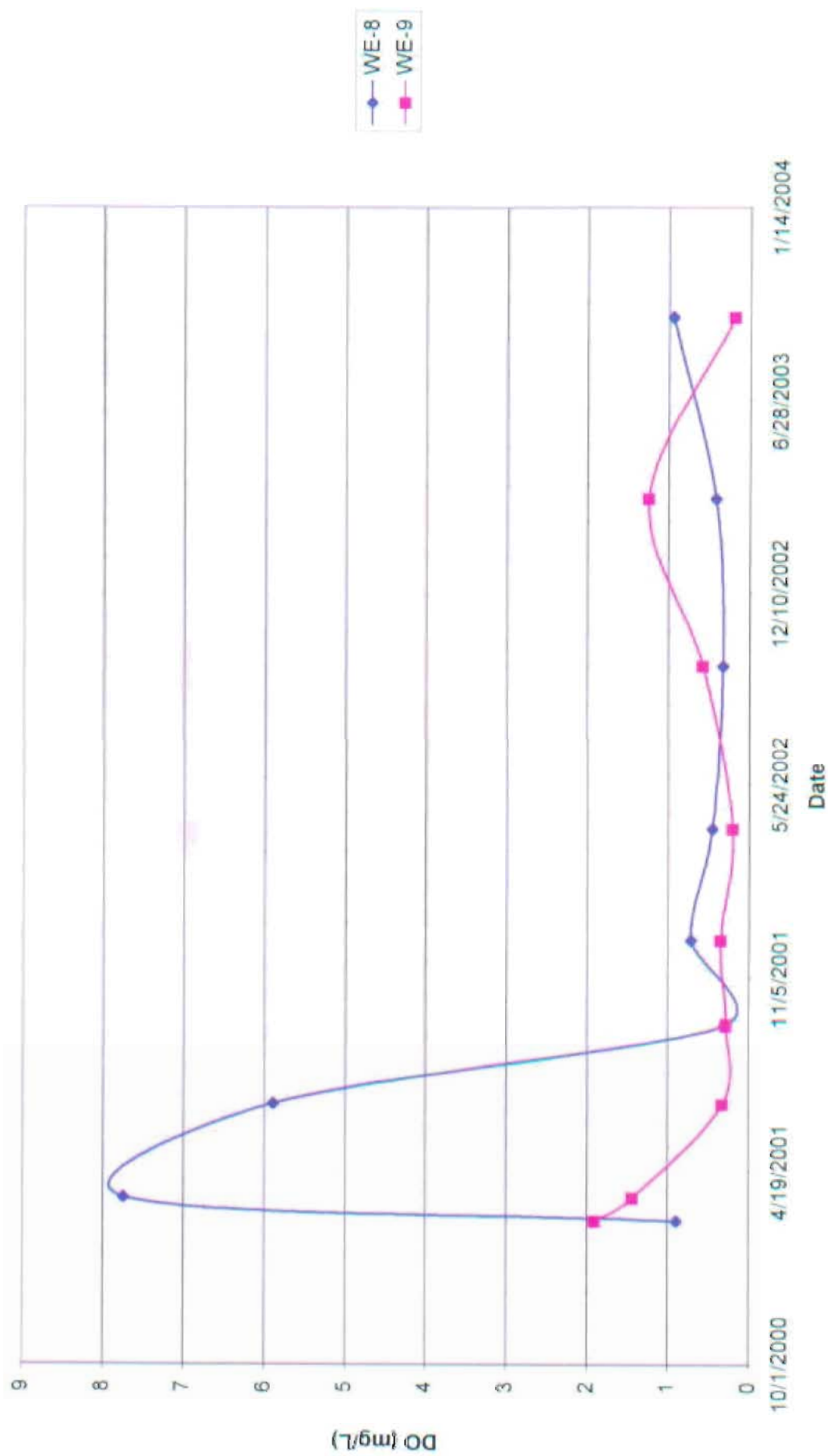
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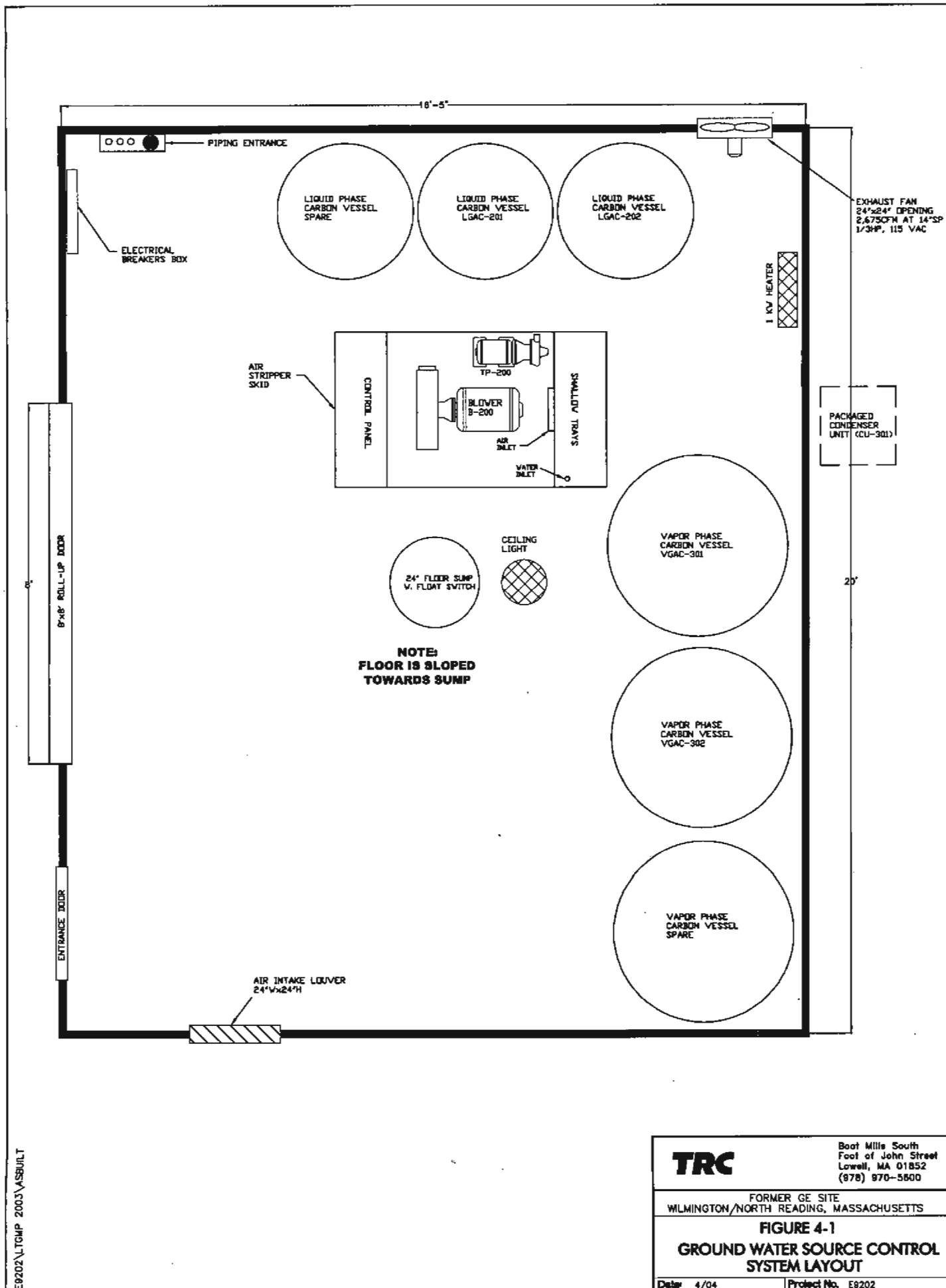
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FIGURE 3-1
TANK K REMEDIATION SYSTEM LAYOUT

Figure 3-2
 Tank K Area - Dissolved Oxygen in Groundwater





E9202\LTMP 2003\ASBULT

TRC

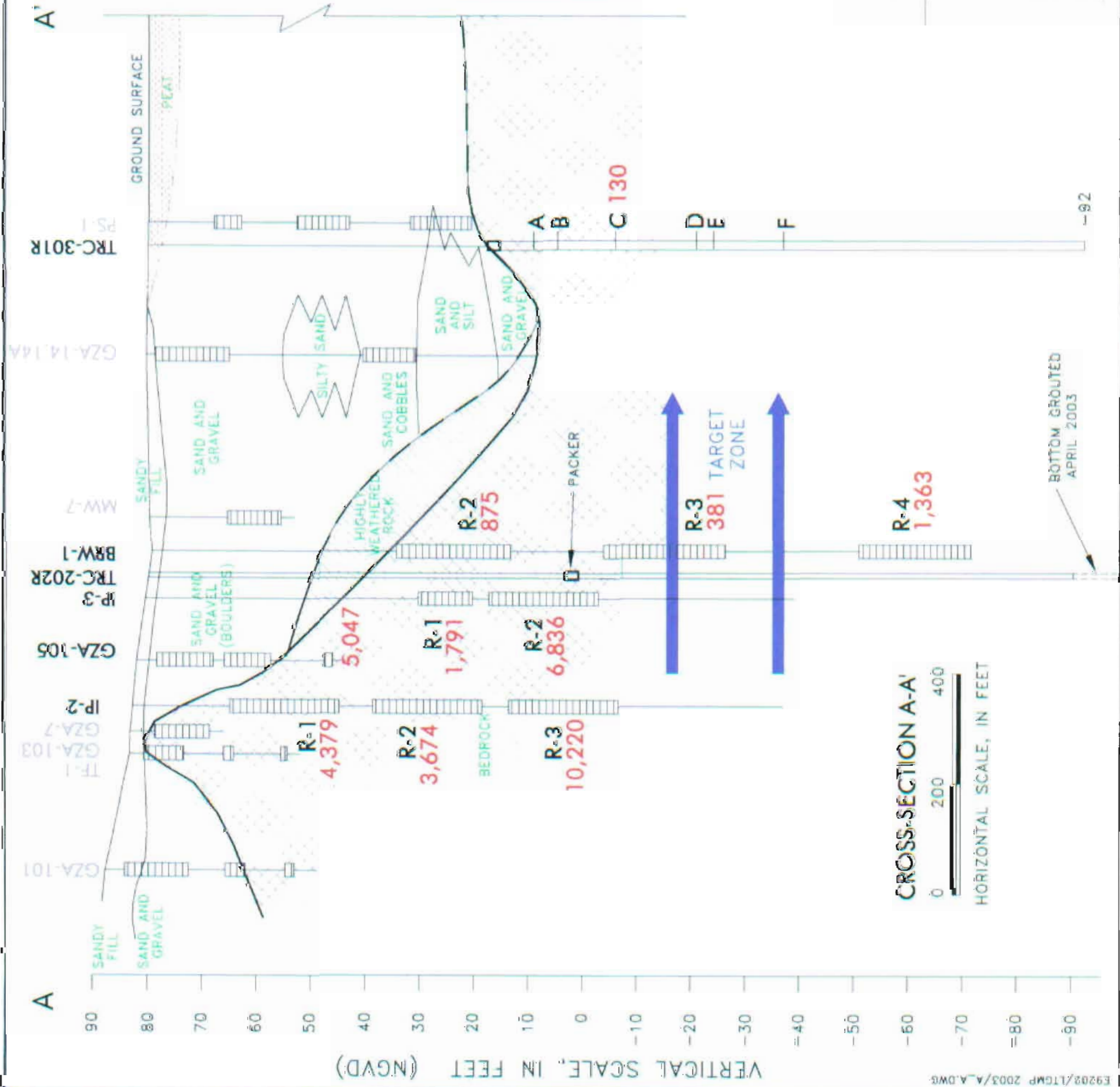
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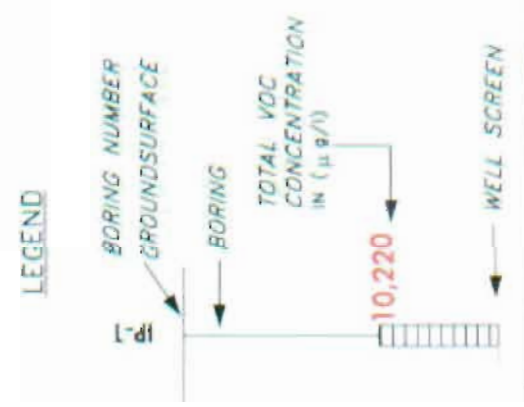
FIGURE 4-1
GROUND WATER SOURCE CONTROL
SYSTEM LAYOUT

Date: 4/04

Project No. E9202



CROSS SECTION LOCATION PLAN



CROSS-SECTION A-A'



HORIZONTAL SCALE, IN FEET

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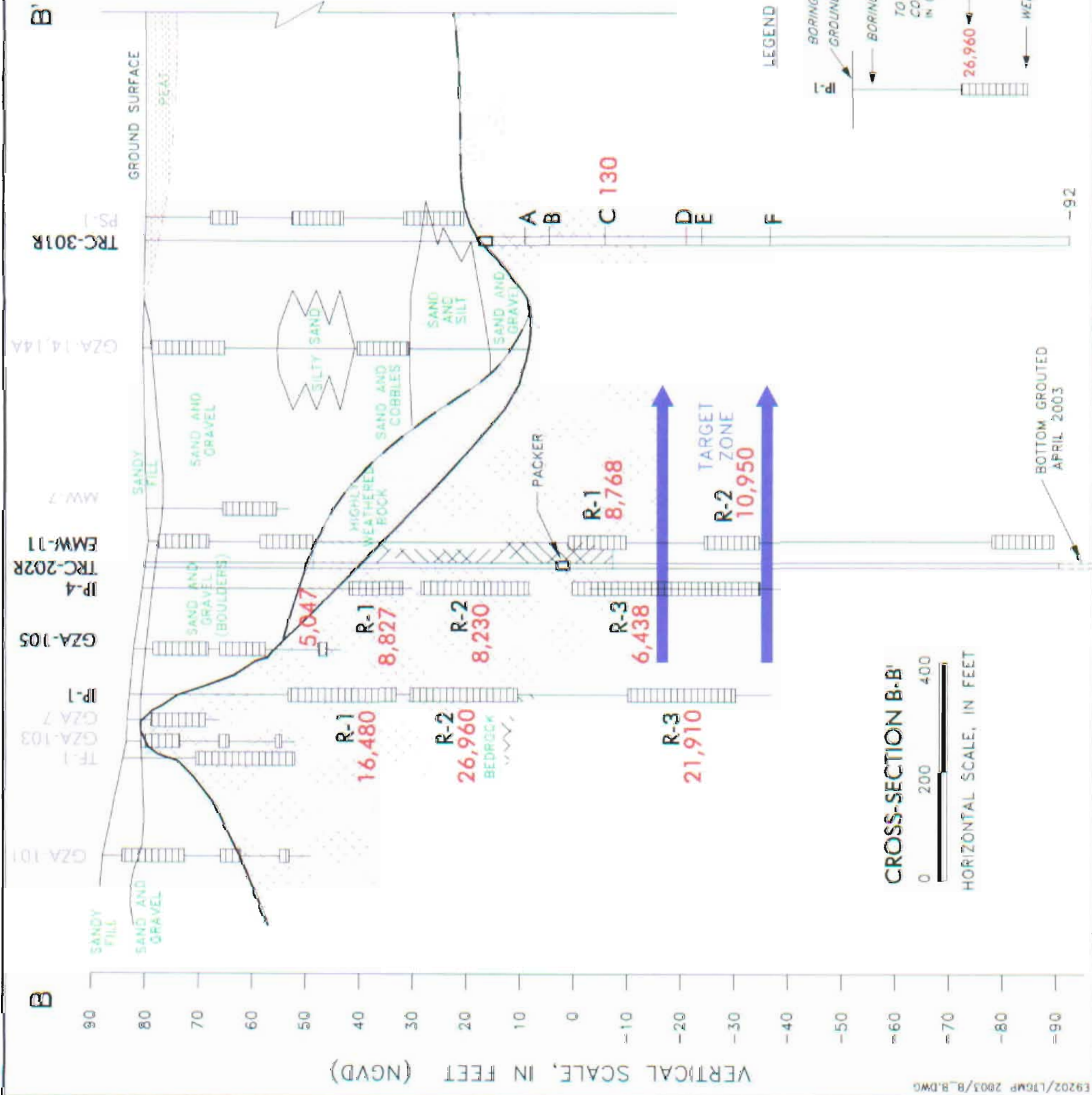
FORMER GE SITE
WILMINGTON/NORTH READING, MA

FIGURE 4-2

FIGURE 4-2
CROSS-SECTION A-A'
BASELINE VOC CONCENTRATIONS
AUGUST 2003

Date: 04/04

Project No. E9202



CROSS SECTION LOCATION PLAN



CROSS-SECTION B-B'



HORIZONTAL SCALE, IN FEET

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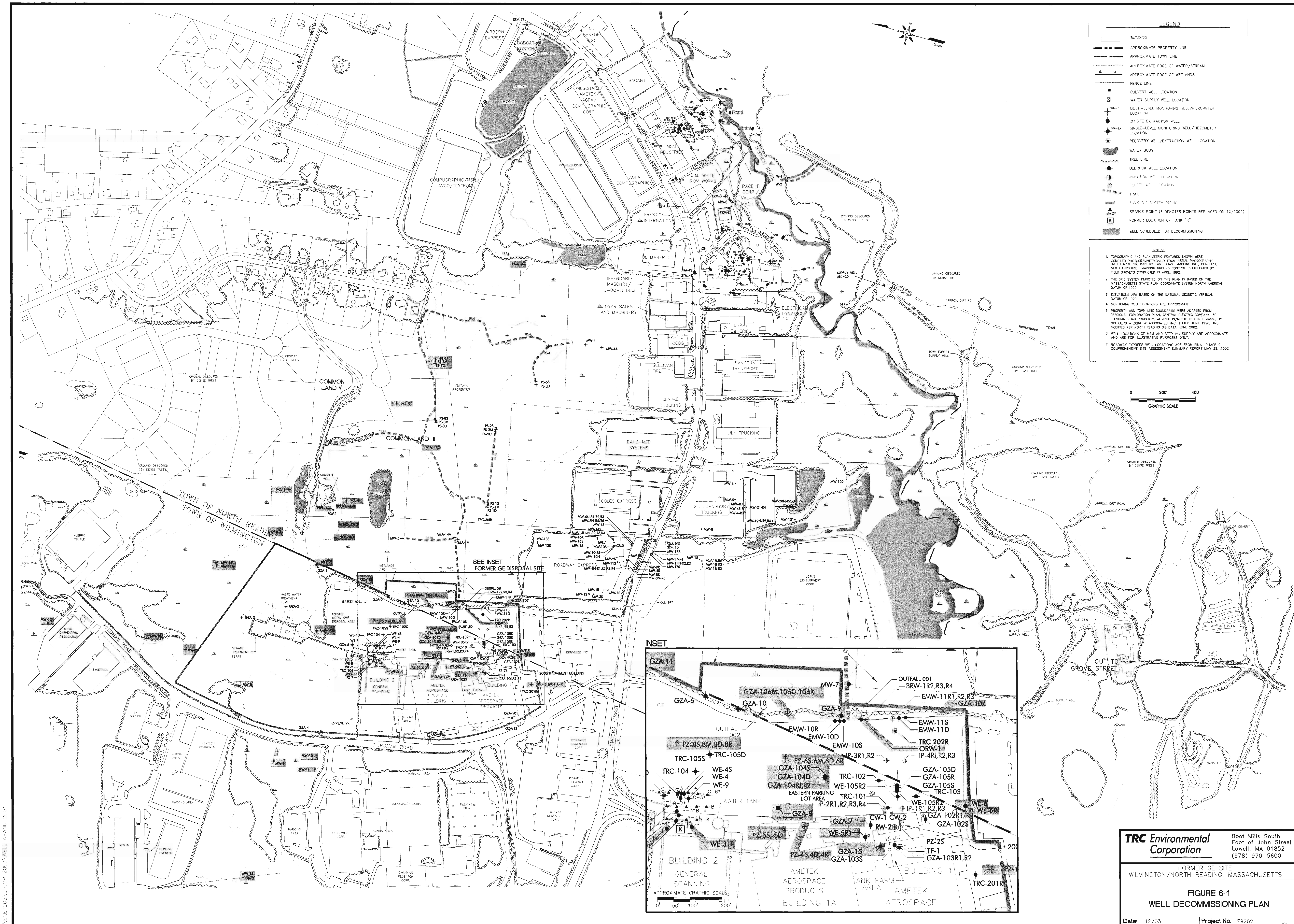
FIGURE 4-3
CROSS-SECTION B-B'
BASELINE VOC CONCENTRATIONS
AUGUST 2003

Date: 04/04

Project No. E9202

OVERSIZE
IMAGE

N:\E9202\TOMP 2003\WELL ABAND 2004



Phase A
Operations, Maintenance,
and Monitoring Report
(RTN# 3-0518)

Former GE Facility
Millingtown, Massachusetts

Prepared by:
TTC Environmental Corp.
TTC Environmental
Booth Mills South
Foot of John Street
Lowell, MA 01852

April 2004

Submitted to:
Massachusetts Dept. of
Environmental Protection
Bureau of Waste Site Cleanup
1 Winter Street, 9th Floor
Boston, MA 02108

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Boston, MA 02108

APPENDICES

Appendix A - Site Characterization
Appendix B - Site Investigation
Appendix C - Site Assessment
Appendix D - Site Remediation
Appendix E - Site Monitoring
Appendix F - Site Closure
Appendix G - Site Reuse
Appendix H - Site Restoration
Appendix I - Site Relocation
Appendix J - Site Relocation
Appendix K - Site Relocation
Appendix L - Site Relocation
Appendix M - Site Relocation
Appendix N - Site Relocation
Appendix O - Site Relocation
Appendix P - Site Relocation
Appendix Q - Site Relocation
Appendix R - Site Relocation
Appendix S - Site Relocation
Appendix T - Site Relocation
Appendix U - Site Relocation
Appendix V - Site Relocation
Appendix W - Site Relocation
Appendix X - Site Relocation
Appendix Y - Site Relocation
Appendix Z - Site Relocation