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The Trusted Integrator for Sustainable Solutions

17 March 2010

Ms. Robin Mongeon, PE
NH Department of Environmental Services
Waste Management Division
P.O. Box 95
Concord, NH 03302-0095

Work Order No.: 20111.023.002

Re: Annual Report for 2008
Operations and Maintenance at the
Savage Municipal Water Supply Superfund Site
OU 1 – OK Tool Source Area
DES #: 198505002

Dear Ms. Mongeon:

Enclosed please find one hard copy and one disk with a pdf file of Weston Solutions, Inc.'s (WESTON®) 2008 Annual Report for the Savage Municipal Water Supply Superfund Site in Milford, New Hampshire. This version of the report has been revised to address comments received from the New Hampshire Department of Environmental Services and the U.S. Environmental Protection Agency (EPA). The 2008 Annual Report describes activities conducted and remedial progress achieved during the period of time that WESTON has been responsible for operations and maintenance at this site (January 1 through December 31, 2008). In addition, where information was available, we have included activities conducted at the site between July 1 and December 31, 2007, when Veolia was responsible for Operation and Maintenance because these activities were not documented in the previous Annual Report prepared by Veolia.

A copy of this document has also been sent to Mr. Michael Jasinski under separate cover. Please feel free to contact me if you have any questions or comments regarding this document.

Very Truly Yours,

WESTON SOLUTIONS, INC.

Bette L Nowack

Bette L. Nowack, PE
Project Manager

Bette L. Nowack

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Enclosure

SDMS DocID 470814

Annual Report for 2008
Savage Municipal Water Supply Well
Superfund Site OU-1
621 Elm Street
Milford, New Hampshire
NHDES No.: 198505002

Prepared By:

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March 2010

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LIST OF ACRONYMNS

AGQS	Ambient Groundwater Quality Standards
ARD	Air Resources Division
AS	air sparging
bgs	below ground surface
CI	Designation for well installed by INEEL
cis-1,2-DCE	cis-1,2-dichloroethene
COC	contaminants of concern
cy	cubic yards
EHS	Environmental Health and Safety
EPA	United States Environmental Protection Agency
EVAC	Evacuation well sampling method
FS	Feasibility Study
ft	feet/foot
gpm	gallons per minute
HCNE	Designation for well installed by INEEL
INEEL	Idaho National Environmental and Engineering Laboratory
ISCO	in situ chemical oxidation
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
mL	milliliters
$NaMnO_4$	sodium permanganate
NCP	Designation for well installed by INEEL
NH	New Hampshire
NHDES	New Hampshire Department of Environmental Services
O&M	operation and maintenance
OEME	Office of Environmental Measurement and Evaluation
OU	operable units
PCE	tetrachloroethene
%	percent
PID	photo-ionization detector
ppb	parts per billion
ppm	parts per million
PRP	potentially responsible party
PVC	polyvinyl chloride
QA	quality assurance

LIST OF ACRONYMNS
(Concluded)

RFS	Rist-Frost-Shumway, Inc.
RI	Remedial Investigation
ROD	*Record of Decision*
RSE	*Remediation Systems Evaluation*
SAP	*Sampling and Analysis Plan*
SCADA	Supervisory Control and Data Acquisition
SEP	Designation for well installed by INEEL
Site	Savage Municipal Water Supply Superfund Site OU-1 (OK Tool Source Area)
SRS	Soil Remediation Standards
SVE	soil vapor extraction
1,1,1-TCA	1,1,1-trichloroethane
TCE	trichloroethene
3-D	three-dimensional
trans-1,2-DCE	trans-1,2-dichloroethene
U.S.	United States
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
Veolia	Veolia Water North American Water Services
VOC	volatile organic compound
WESTON®	Weston Solutions, Inc.

SECTION 1

INTRODUCTION

1. INTRODUCTION

Weston Solutions, Inc. (WESTON®) is pleased to present the 2008 Annual Report evaluating the progress of remediation at the Savage Municipal Water Supply Superfund Site OU-1 (OK Tool Source Area) (Site) located in Milford, New Hampshire (NH). The intent of this Annual Report is to document the progress of remediation at the Site which occurred during the 2008 calendar year.

This report includes a brief overview and history of the Site, discussion of data collection, a summary of sampling results, routine operation and maintenance (O&M) activities, major repairs or equipment upgrades, remediation activities and investigations performed, an evaluation of current site conditions, and recommendations for any future activities or changes to the current operating procedures. In addition, due to the schedule for submittal of annual reports by the previous contractor, Veolia Water North American Water Services (Veolia), a discussion of the events and activities which occurred between 1 July 2007 and 31 December 2007, based on data that was available to WESTON, is also covered under this submittal. This report was completed under the requirements of WESTON's contract with the New Hampshire Department of Environmental Services (NHDES) for the Site.

NHDES, the United States (U.S.) Environmental Protection Agency (EPA), and the U.S. Geological Survey (USGS) also performed various investigative activities at the Site during the reporting period, Although this work is referenced in this report, not all of the data from these investigations is presented or discussed in detail. USGS work was performed under a cooperative agreement with NHDES and EPA.

1.1 SITE DESCRIPTION AND HISTORY

The Site is located in the western portion of the Town of Milford, NH, approximately 2 miles west of the center of town. The Site encompasses a plume of contaminated groundwater that extends approximately 6,000 feet (ft) eastward from the intersection of Route 101 and Elm Street. It is roughly bounded on the north and east by the Souhegan River and on the south by Elm Street and Tucker Brook. The Site lies within the floodplain of the Souhegan River. The dominant groundwater flow direction is to the east.

The Site has been divided by EPA into two operable units (OU), a fund-lead OU, and a potentially responsible party (PRP)-lead OU. The fund-lead OU (OU-1) is known as the OK Tool Source Area OU, and is being administered by NHDES, Waste Management Division. The PRP-lead OU (OU-2) is known as the Extended Plume OU. This Annual Report is associated with the fund-lead OU-1. The approximate boundaries of the OK Tool Source Area are shown on Figure 1-1, Site Location Map. The Site encompasses approximately 52 acres. The Souhegan River flows through the OK Tool Source Area.

First developed in 1950, the Savage Municipal Water Supply well provided potable drinking water to approximately 10,000 residents in the Town of Milford, NH. In February 1983, as part of the first routine sampling of water supplies for organic compounds, the New Hampshire Water Supply and Pollution Control Commission found volatile organic compounds (VOC) above drinking water standards in water from the Savage Municipal Water Supply well. The VOCs found included 1,1,1-trichloroethane (1,1,1-TCA), trichloroethene (TCE), trans-1,2-dichloroethene (trans-1,2-DCE), tetrachloroethene (PCE), and 1,1-dichloroethane. Tetrachloroethene and trans-1,2-DCE were also found in water sampled from the well supplying the nearby Milford mobile home trailer park. The Site was added to the EPA National Priorities List on 1 September 1984.

From 1983 to 1985, EPA activity in the Town of Milford concentrated heavily on emergency actions to replace water supplies, the search for and the subsequent determination of the PRP at the Site. After lengthy negotiations with the PRPs, an administrative order by consent to perform the Remedial Investigation (RI) and Feasibility Study (FS) became effective August 1987. The PRPs retained HMM Associates, Inc. to conduct the RI, which was completed in June 1991.

The RI found VOC contamination in soils at 10 of the 13 suspected source areas throughout the Site. The highest concentrations of contamination were found between the OK Tool Company and the Souhegan River. Acetone was found at a maximum concentration of 310 parts per billion (ppb) and PCE at a maximum concentration of 440 ppb. During the FS, additional sampling beneath the OK Tool building found PCE at concentrations ranging from 83 to 2,400 ppb. Very low levels of semi-volatile organic compounds were also detected. Metal debris were found in soils at depths of 1 to 5 ft below ground between the northeast corner of the OK Tool building

and the Souhegan River. Comparatively elevated levels of arsenic [204 parts per million (ppm)], total chromium (15,100 ppm), and lead (610 ppm) were detected. Additional sampling during the FS showed that less than 10 ppm of the total chromium was present in the more toxic hexavalent state. Polychloroinated biphenyls were detected at levels of 0.633 to 3.48 ppm near the OK Tool building in the same area as the elevated metal concentrations.

The VOCs were the most prevalent contaminants found in groundwater samples from the Site. The highest concentrations detected by the RI sampling (prior to any remedial actions) were of PCE (19,000 ppb), TCE (2,300 ppb), 1,1,1-TCA (1,300 ppb), and trans-1,2-DCE (1,500 ppb). Three metals were detected in groundwater from two wells (MI-24 and MI-25) at the former OK Tool Facility at concentrations in excess of maximum contaminant levels: antimony (10 ppb), beryllium (32 ppb), and lead (160 ppb).

On 27 September 1991, EPA issued a *Record of Decision* (*ROD*) selecting a remedy for cleanup of the Site. The *ROD* identified two portions of the contaminated plume that needed to be remediated: the concentrated plume near the OK Tool and Hitchner Facilities and the extended plume, which includes the area encompassing the remainder having typically lower VOC concentrations. Division of the remedy into two OUs occurred by Consent Decree after issuance of the *ROD*. OU-1 includes all of the former OK Tool property, and additional properties to the east, north, and west. Table 1-1 contains the Groundwater Chemicals of Concern identified in the *ROD* and the associated Interim Cleanup Levels and Ambient Groundwater Quality Standards Criteria (AGQS).

The final remedy selected for OU-1 was modified (from the *ROD*) as explained in the *Explanation of Significant Differences* (ESD) issued by EPA in December 1996. Elements of this remedy include institutional controls, a subsurface barrier (slurry) wall, four groundwater extraction wells (two inside the barrier), soil vapor extraction (SVE) via six wells screened in the vadose zone, air sparging (AS) via two wells screened beneath the SVE wells, and groundwater monitoring. The remedy, as designed, involved treatment of extracted groundwater by air stripping and discharge of the treated water to the unconsolidated aquifer via a recharge chamber and three reinjection wells (two inside the barrier). Vapors from the SVE system and the air stripping system were to be treated by passage through granular activated carbon prior to

discharge to the atmosphere. The design of the OU-1 remedy was completed in March 1996 and its construction was completed in August 1998. Operation of the groundwater extraction system began in April 1999 and of the SVE system in December 1999. Since startup of the remediation system, several modifications have been implemented. A discussion of these modifications and the current configuration of the remediation system is discussed in the following sections.

1.2 REMEDIATION SYSTEM DESCRIPTION

1.2.1 Groundwater Extraction System

In its original design, the groundwater extraction system at the Site consisted of two deep extraction wells inside the limits of the barrier wall (IW-01 and IW-02) and two deep extraction wells to the east and downgradient of the barrier wall (EW-01 and EW-02). Two new shallow extraction wells (IW-01A and IW-02A) were installed by WESTON in October 2008 for use during in situ chemical oxidation (ISCO) activities in the fall of 2008. The pre-existing deeper wells, IW-01 and IW-02, were temporarily taken out of service after installation of the shallow extraction wells for the remainder of 2008. Further discussion of the ISCO program is provided in Section 2. Extraction wells IW-01, IW-02, EW-01, EW-02, IW-01A, and IW-02A have depths of 106.75 ft, 89.8 ft, 90 ft, 84 ft, 23.5 ft, and 28 ft, respectively. Well screen lengths for IW-01, EW-01, and EW-02 are 30 ft, IW-02 is 20 ft, and IW-01A and IW-02A are each 10 ft.

Groundwater from the wells is extracted via submersible pumps and directed to equalization tanks located within the groundwater treatment plant. The intent of the interior extraction wells is to maintain an inward and/or upward gradient to ensure hydraulic isolation of the contaminant mass within the barrier, preventing release of contaminants from the containment structure. Maintaining an inward gradient is an important component of the site remediation because based on water level measurements conducted by USGS, "the mechanism for flow between the interior and exterior areas is likely through the fractured bedrock, and that the bedrock is hydraulically connected to the overburden" (*SIR 2006-5083 Report,* USGS, 2006). Gradients between the overburden and bedrock within the slurry wall have been observed to switch from upward (preferred) to downward when groundwater pumping within the slurry wall ceases.

In addition to the permanent extraction wells, SVE wells SVE-02, SVE-03, and Idaho National Environmental and Engineering Laboratory (INEEL) wells, SEP and NCP were temporarily used as extraction wells by the previous O&M contractor in 2006 and 2007 to maximize VOC mass removal from groundwater. These wells were connected to the equalization tank via 1-inch overland discharge hoses, and were pumped using 4-inch submersible pumps. Wells SVE-02 and SVE-03 operated continuously from July 2007 until they were shut down in November 2007 to prevent line freezing during the winter. The wells from the INEEL field were connected similarly and operated in August (NCP) and October (SEP) for limited hours while the operators were on-site. Pumping from both NCP and SEP was discontinued due to concerns of potential residue lingering from the 2004 potassium permanganate injections at the Site being drawn into the treatment plant. None of the SVE or INEEL wells were used for groundwater extraction during 2008.

1.2.2 Reinjection System

The reinjection system at the Site consists of two injection wells inside the barrier wall on the western edge, one injection well outside the barrier wall to the southeast, and a recharge chamber outside the barrier wall to the northeast. The reinjection wells are 6-inch wells constructed in the shallow overburden ranging from 29 to 40 ft in depth. The recharge chamber consists of three 8-foot (ft)-diameter concrete recharge pits, installed approximately 8 ft deep in a trench of crushed stone. The recharge chamber has been used as the primary discharge mechanism for treated groundwater from the treatment plant. Clogging and fouling of the recharge chamber resulted in its cleaning and reconstruction in August 2005 and subsequent cleanings. All treated groundwater was discharged to the recharge chamber during 2008 with the exception of water diverted to RW-3 for use as make up water during the ISCO process.

1.2.3 Soil Vapor Extraction and Air Sparge

The SVE system was designed to utilize six shallow wells for vapor extraction and two deeper air sparge wells for injection of air into the saturated zone. The SVE wells have 15 ft of 6-inch-diameter, stainless steel, screen, from approximately 7 to 22 ft below ground surface (bgs). The air sparge system consists of two wells set at a depth of approximately 63.5 and 64 ft bgs with 5 ft of 5-inch-diameter, stainless steel screen. The SVE and air sparge systems

were run intermittently since the plant began operation in March 1999, but were permanently taken out of service after a brief period of operation in February and early March 2008. The groundwater levels at the Site were frequently too high to operate the SVE system. The SVE/AS systems had limited effectiveness in remediating soil and groundwater at the Site. Consequently, both the SVE vacuum blower and the air sparge compressor were removed during renovation activities in September 2008.

1.2.4 Treatment Facility

1.2.4.1 Tray Aerators

The tray aerator system involves two tray-aerators, each with four trays, each with a design capacity of 120 gallons per minute (gpm) of groundwater at 29 milligrams per liter of VOC contamination [*Remediation Systems Evaluation* (*RSE*), EPA, 2001]. Water is pumped from two equalization tanks and treated with a minimum of 900 standard cubic feet per minute of outside air. The tray aerator effluent water is discharged to the building wet well where it either flows by gravity to the discharge chamber or can be directly pumped to any of the three reinjection wells. During 2008, each tray aerator was operated for 1-month intervals before it was shut down and cleaned and the other tray aerator was put in operation.

1.2.4.2 Vapor-Phase Carbon

The treatment system design included two vapor-phase carbon vessels for treatment of air emissions from the SVE wells and the tray aerators. A preheater was provided to reduce humidity in the influent air prior to carbon treatment to increase the efficiency of the adsorption process. A steam regeneration system was included in the treatment system design to allow for regeneration of carbon on-site. The carbon vessels were previously regenerated using steam from a boiler system, a dual phase separator, and a solvent recovery tank. Elimination of the SVE system in fall of 2008 and reductions in the influent groundwater VOC concentration made carbon treatment of VOC emissions unlikely to be necessary, and on-site carbon regeneration no longer cost effective. During renovation activities in the fall of 2008, the steam boiler system (used for building heat and carbon regeneration) was replaced with a more efficient water boiler system eliminating the ability to regenerate carbon on-site. Until confirmation was received from

NH Air Resources Division (ARD) in April 2009 indicating that carbon treatment of air emissions was no longer required, the emissions from the air strippers continued to be discharged through the carbon vessels, and breakthrough was monitored weekly using an on-site photo-ionization detector (PID). The spent carbon from the vessels will now need to be regenerated or disposed of off-site.

1.2.5 Barrier Wall

A barrier wall was installed at the Site in 1998 as part of remediation activities for source control. Based on the design documents "The barrier wall is constructed of low-permeability materials (bentonite clay) and is designed to contain the highest concentrations of contaminants. The barrier encircles an area of approximately 5 acres and generally fully penetrates the overburden (sand and gravel layers and underlying till); it sits atop the bedrock in most cases. The barrier was designed to penetrate at least 3 ft into the basal till but in many locations this minimum depth was exceeded. In the eastern part of the barrier, till thickness is less than 3 ft and the barrier rests atop bedrock" (*SIR 2006-5083 Report,* USGS, 2006). By encircling the area with the highest levels of contamination, the barrier wall improves the effectiveness of the groundwater extraction system and limits the potential for off-site migration of site contaminants.

1.2.6 Monitoring Wells

An extensive network of wells for monitoring groundwater conditions has been installed throughout the Site. Monitoring wells have been installed inside and outside of the barrier wall in all directions at the Site. Many of the wells have been installed in clusters which monitor different depth zones of the groundwater aquifer including the shallow, intermediate, and deep overburden, and the shallow bedrock. Groundwater sampling events are performed semi-annually, occurring in the spring and fall of each year. Figure 1-2 illustrates the locations of monitoring wells at the Site.

1.3 2008 REMEDIAL ACTIONS

1.3.1 Leach Field Soil Removal

Previous remedial investigations performed at the Site identified the presence of a potential shallow contamination source in the northwestern portion of the area contained by the barrier wall. The contamination was believed to be the result of a former leach field system associated with the former OK Tool building. WESTON oversaw the excavation and stockpiling of approximately 2,000 to 3,000 cubic yards (cy) of shallow unsaturated soils from the vicinity of the former leach field system at the Site. Impacted soils from the excavation were stockpiled on-site for treatment in 2009. Further discussion of the leach field soil removal is included in Section 3 of this Annual Report.

1.3.2 In Situ Chemical Oxidation Program

WESTON worked in conjunction with representatives of NHDES and EPA to develop an aggressive ISCO program designed to reduce the time required to achieve cleanup goals at the Site. The ISCO program was designed to be performed in two phases, the first of the two phases targeted the deep zone of the aquifer confined by the barrier wall. The second phase of the ISCO program, to be performed at a later date when funding becomes available, will target the shallow saturated zone. The first phase of the ISCO program was conducted in the fall of 2008 and included the installation of 14 deep injection wells, the installation of 2 new shallow extraction wells, and the injection of sodium permanganate ($NaMnO_4$). Further discussion of the fall 2008 ISCO program is included in Section 3.

SECTION 2

OPERATION AND MAINTENANCE OF REMEDIATION SYSTEMS

2. OPERATION AND MAINTENANCE OF REMEDIATION SYSTEMS

This section provides a brief summary and evaluation of O&M activities for each remediation system at the Site. A more detailed description of events performed on a day-to-day and month-to-month basis can be found in Appendix A.

2.1 EXTRACTION WELLS

A total of nine wells were used as extraction wells between July 2007 and December 2008. In 2007, a 4-inch submersible pump was temporarily installed in each of SVE-02 and SVE-03 and groundwater was pumped via overland hose directly to the equalization tanks. Due to modifications in the Supervisory Control and Data Acquisition (SCADA) system and electrical supply lines in June 2007, SVE-02 and SVE-03 were able to be operated continuously from July 2007 until November 2007 when operation discontinued for the year due to potential line freezing issues.

Groundwater was extracted from INEEL wells NCP and SEP on a trial basis during August 2007 and October 2007, respectively. Each well was set up similarly to SVE-02 and SVE-03, with the groundwater being extracted via a submersible pump that discharged directly to the equalization tanks. Pumping was discontinued from NCP when groundwater was found to have fouled the recharge chamber due to metal oxides that were suspected to be the result of permanganate injections in 2004. Extraction from SEP was conducted as a trial in October 2007 to determine whether the well could be used as a more permanent extraction well. In the 2-day trial, no metal oxides were detected visually, but the use of the well was discontinued.

In 2008, the decision was made to implement an aggressive ISCO program for remediation of the source area inside the barrier wall, rather than relying on groundwater pump and treat. The focus of groundwater extraction was revised from maximizing contaminant removal to controlling the release of contaminant mass to the bedrock or overburden outside the barrier wall. This was achieved by maintaining an inward hydraulic gradient across the barrier wall in the overburden and an upward hydraulic gradient between the overburden and bedrock groundwater inside the barrier wall.

Interior extraction wells, IW-01 and IW-02, were operated from the beginning of the reporting period until the ISCO program was implemented in October 2008. Use of IW-01 and IW-02 was discontinued during the ISCO program, because these wells are screened in the deep overburden and were likely to draw in permanganate, leaving insufficient time for destruction of contaminants in the subsurface and causing operational problems in the treatment plant. The extraction rate of IW-02 steadily declined at a rate of approximately 0.21 gpm/month, from 35 gpm in July 2007 to 25 gpm in October 2008, due to iron fouling on the pump.

Two new shallow extraction wells (IW-01A and IW-02A) were installed in September and October 2008. The extraction wells were installed within the barrier wall adjacent to the existing extraction wells IW-01 and IW-02. The new extraction wells (IW-01A and IW-02A) were designed to extract sufficient groundwater from within the barrier wall during the ISCO program to maintain an inward/upward gradient. The locations adjacent to IW-01 and IW-02 were chosen to minimize the effort and cost to install pumps, piping, and electrical power to the new wells by connecting to existing underground piping and electrical wiring.

During the ISCO injections, the pumping rate was frequently adjusted to maintain a neutral or slight inward/upward gradient. The pumping rate was minimized to limit the possibility of drawing permanganate into the treatment plant, but increased when daily water level monitoring indicated that the gradient had reversed to outward or downward. Extraction well IW-01A was operated continuously at less than maximum capacity during ISCO operations (see Subsection 4.1.3 for a discussion of operation of extraction wells during ISCO). Extraction well IW-02A was not used during ISCO injections due to its closer proximity to injection points. Following ISCO injections, IW-01A and IW-02A were operated at 16 gpm and 3 gpm, respectively, in order to maintain the inward/upward gradient and to reduce the potential of $NaMnO_4$ flow into the treatment plant. The influent from these wells was monitored weekly to visually confirm that $NaMnO_4$ was not being drawn into the treatment plant. Well construction logs for the new extraction wells are included in Appendix B of this Annual Report.

Exterior extraction well, EW-02, was intermittently operated during November 2008. The ISCO process, detailed in Section 3 of this report, required more make up water than was available from IW-01A for preparation of the $NaMnO_4$ solution for injection. Since the deep extraction

wells (IW-01 and IW-02) are screened in the deep zone, where the permanganate was being injected, extraction of water from these wells could potentially draw the $NaMnO_4$ into the treatment plant. This would have caused operational problems in the treatment plant and recharge system, as well as decreasing the residence time of the permanganate in the subsurface, thereby reducing its effectiveness. Following completion of the fall 2008 ISCO phase, extraction of groundwater from EW-02 was discontinued.

Figure 2-1 details the extraction flow rates of groundwater for the second half of 2007. Figure 2-2 details groundwater extraction rates for 2008.

2.2 REINJECTION SYSTEM

The recharge chamber located northwest of the barrier wall was used as the primary location for treated effluent discharge during the second half of 2007. The plant was shut down and the accumulated sludge was cleaned out of the recharge chamber in August 2007. During 2008, the recharge chamber was used for discharge of all treated effluent with the exception of the treated effluent that was used to dilute the permanganate solution for ISCO injections.

Reinjection wells RW-1 and RW-2 were used by Veolia from July 2007 until September 2007 as a means of flushing the contamination towards extraction wells. Use of these reinjection wells was discontinued upon request of USGS because of a concern that their use would interfere with the fall 2007 vertical profiling. Flushing continued briefly during October 2007 until USGS again requested the wells usage be discontinued for the fall 2007 vertical profiling.

The pitless adapter in reinjection well RW-3 was modified to allow treatment plant effluent to be used as makeup water for the fall 2008 ISCO injections. Treatment plant effluent water was diverted from the recharge chamber via RW-3, rather than using municipal water for dilution. Use of treated effluent from RW-3 began on 29 October 2008, and continued on each day ISCO injections were performed until 24 November 2008.

Details of effluent flow from the second half of 2007 can be found in Figure 2-3. Figure 2-4 represents effluent flow from 2008.

2.3 SOIL VAPOR EXTRACTION AND AIR SPARGING SYSTEMS

The SVE/AS systems have been run intermittently since the operation of the treatment plant commenced in 1999. The AS system was not operated during 2008. The SVE system was operated during February 2008 at the request of EPA. Due to the low contaminant removal from the SVE wells, the system was shut down on 3 March 2008. The SVE blower and AS compressor were removed during the renovation activities during September 2008. During the removal of the former leach field area soils, a section of SVE pipe connecting SVE-5 and SVE-6 was removed. The system piping was capped and backfilled around after the completion of excavation activities.

2.4 TREATMENT FACILITY

2.4.1 Tray Aerators

The two tray aerators are arranged in parallel and were each operated during the 2008 year during alternating months. The inactive tray aerator was cleaned during down time when the other tray aerator was in operation, to remove sediment, biofouling, and iron oxide deposits to ensure proper contaminant removal during the next month. Regular preventative maintenance allowed the tray aerator system to be run continuously throughout the 2008 year with the exception of occasions when the entire treatment plant was not in operation for plant modifications or power outages.

2.4.2 Vapor-Phase Carbon

Vapor-phase carbon vessels A-1 and A-2 are arranged in series. The carbon in Vessel A-1 was regenerated during the final quarter of 2007. Vapor-phase carbon vessel A-2 was used as the lead vessel throughout 2008, since the low effluent concentrations of VOCs from the tray aerator did not necessitate changeout. Bypass piping was installed in October 2008 to directly vent aerator emissions to the atmosphere without carbon treatment. NHDES ARD approval of bypass use was received in April 2009.

2.5 MONITORING WELLS

Semi-annual groundwater sampling events are performed in the spring and fall of each year. The fall 2007 groundwater sampling event was performed by representatives from NHDES during the month of November. During 2008, site-wide groundwater sampling events were performed by WESTON in the month of June and by both WESTON and NHDES in the months of October and November. The fall groundwater sampling event was performed as two smaller events conducted within a few weeks of one another. The event was divided up to facilitate the collection of groundwater samples from within the barrier wall and adjacent to the outside of the barrier wall prior to the injection of $NaMnO_4$. WESTON conducted the baseline groundwater sampling in October and NHDES conducted the remainder of the groundwater sampling in November. The baseline groundwater sampling event also included the collection of groundwater samples from the 14 newly installed injection wells. Table 2-1 is a list of site monitoring wells with screen intervals and typical sampling frequencies. Results of the chemical analysis of samples collected during the Fall 2007, Spring 2008, Fall 2008, and the baseline ISCO sampling rounds are presented in Section 5.

In addition to semi-annual groundwater monitoring, monthly water level measurements are collected from all of the wells at the Site. Several wells at the Site are also equipped with transducers which collect depth to water measurements every 15 minutes. These transducers were installed in wells by USGS to monitor the hydraulic gradients between the exterior and interior of the barrier as well as the hydraulic gradients between the shallow and deep aquifers.

SECTION 3

PROCESS SYSTEMS DATA ANALYSIS

3. PROCESS SYSTEM DATA ANALYSIS

This section discusses data collection and analysis associated with the O&M of the groundwater treatment plant.

3.1 DATA COLLECTION

Samples of the combined influent, effluent, and each active extraction well are collected each month and analyzed by EPA Office of Environmental Measurement and Evaluation (OEME) Laboratory for 12 VOCs, including the primary contaminants of concern (COC): PCE, TCE, 1,1,1-TCA, and cis-1,2-dichloroethene (cis-1,2,-DCE). Headspace PID readings are collected weekly from the combined influent to the tray aerator and the effluent from the tray aerator. The PID readings of aerator air emissions before and after the carbon vessels are also collected on a weekly basis. These readings help show how well contamination is being removed from the groundwater via the tray aerator and the air emission via carbon vessels, and also indicates whether carbon breakthrough is occurring.

Groundwater flow rates from the extraction wells and air flow rates from the blowers are electronically recorded daily via computer program. This data, coupled with the PID readings, helps to evaluate contaminant mass removal rates.

Site-wide water levels are recorded monthly in order to obtain data regarding groundwater gradients. Weekly data is collected from the boilers, vapor-phase carbon vessels, and the instrument air compressor which is tracked for preventative maintenance purposes.

3.2 COMPARISON OF PLANT INFLUENT AND EFFLUENT CONCENTRATIONS TO DISCHARGE CRITERIA

Table 3-1 presents the results of the chemical analyses of the influent and effluent samples taken each month in comparison with the discharge criteria. During the second half of 2007, TCE, PCE, cis-1,2-DCE, toluene, and benzene were each found in influent samples during at least 1 of the 6 months of sampling. Each of these contaminants was also found in the effluent during at least one sampling round. Four contaminants were found in the influent during 2008: cis-1,2-DCE, TCE, PCE, and toluene. Of those four contaminants, only TCE and PCE were

found in the effluent during 2008. Although detections of contaminants were found in the effluent during this reporting period, there were no exceedances of the discharge criteria.

3.3 CONTAMINANT MASS REMOVAL

3.3.1 Groundwater Extraction System

The contaminant mass removal was calculated by multiplying the monthly flow rates by the concentration of contaminants in the combined influent samples for each month. Since results were only collected 1 day a month, with the exception of July and August 2007, it was assumed that the sample results were representative of the entire month. The July and August 2007 samples were collected three times in each of those months. The samples were averaged to estimate the mass removal during these months.

The plant influent flow volumes were based on the SCADA system logs of the flow rates throughout the course of the month. Individual extraction well samples, a combined influent and a tray aerator effluent sample, were collected on a monthly basis.

Table 3-2 shows flow rates, contaminant concentrations, and estimated contaminant mass removed from individual extraction wells for each month during the reporting period. Table 3-3 provides a summary of total groundwater treated, contaminant concentrations in combined influent, total contaminant mass removed, the contaminant removal efficiency of the groundwater treatment system, and the volumes of treated water discharged each month during the reporting period.

3.3.2 Soil Vapor Extraction System

Both the SVE/AS systems have been used sparingly since the plant's start up due in part to a frequently high groundwater table which interferes with effective operation. During this reporting period, the SVE system was operated from 8 February 2008 until 3 March 2008, recovering an estimated 4.1 pounds or an average of 0.17 pounds of VOCs per day. Table 3-4 provides a summary of the contaminant concentrations measured in the vapors extracted by the SVE system used to calculate mass removal.

SECTION 4

2008 REMEDIAL ACTIONS

4. 2008 REMEDIAL ACTIONS

This section provides a summary of the remedial activities and associated investigations conducted at the Site during 2008. The remedial activities consisted of ISCO treatment of the deep saturated zone inside the barrier wall and excavation and handling of vadose zone soils in the vicinity of the former leach field. A description of the ISCO procedures and leach field soil work is contained in the *ISCO Work Plan, Version 4* (WESTON, 2008e).

4.1 IN SITU CHEMICAL OXIDATION PROGRAM

WESTON implemented the first phase of the ISCO program in the fall of 2008. The first phase of the program was designed to target the deeper zones of the aquifer within the barrier wall. The following sections provide an overview of the ISCO program and associated activities.

4.1.1 Well Installation

The ISCO activities began in September 2008 with the installation of 14 deep injection wells and 2 shallow extraction wells. The 14 deep injection wells were installed using a track mounted "Mini-Sonic" drill rig at pre-determined locations based on concentrations of site contaminants and hydrogeologic conditions. For most of the drilling, water was injected to expedite drilling. However, water was not used when drilling through the screened intervals of each well in order to collect undisturbed soils samples from these intervals. The wells were constructed of 2-inch schedule-40 polyvinyl chloride (PVC) with 5-ft long screened intervals to depths ranging from 55 to 85 ft bgs. The two extraction wells were installed adjacent to the existing deep extraction wells IW-01 and IW-02. Each of the extraction wells was constructed of 6-inch PVC with a 10-ft screen to depths of 23.5 and 28 ft, respectively. The shallow extraction wells were installed for use during the deep ISCO injections to limit the potential of drawing $NaMnO_4$ into the treatment plant. Well construction logs for the injection wells and extraction wells are included in Appendix B. After installation and development procedures were complete, WESTON collected samples from the injection wells as part of the Baseline Groundwater Sampling event in October. Laboratory analytical data from the baseline event is presented in Section 5 of this report.

4.1.2 In Situ Chemical Oxidation Injections

The ISCO had been implemented in the source area on a pilot scale in 2003 and 2004 using potassium permanganate as an oxidant. In October and November of 2008, WESTON performed a larger scale ISCO program in the deep overburden inside the containment structure. Injections of sodium permanganate were performed in accordance with the procedures described in the *ISCO Work Plan, Version 4* (WESTON, 2008e). A total of 111,773.22 pounds of 40 percent (%) sodium permanganate solution was purchased from Wintersun Chemical for injection into 14 newly installed injection points and 7 existing wells. Figure 4-1 shows the locations of the wells used for injection of sodium permanganate solution. Table 4-1 provides a summary of the depths and screened intervals of all the well used for injections. A chemical analysis of the sodium permanganate solution is provided in Appendix C.

The ISCO injections began during the week of 29 October 2008. Injections started in the deepest zones of the confined aquifer located in eastern areas and proceeded toward the west and shallower zones as the injections proceeded. Using a manifold system designed by WESTON, injections proceeded into as many as six locations simultaneously at rates ranging from 1 gpm to 10 gpm of a dilute $NaMnO_4$ solution. However, the total rate of injection into all locations at any one time did not exceed 29 gpm. A total 174,210 gallons of approximately 3 to 4% $NaMnO_4$ solution were injected into the deep saturated zone between 29 October and 25 November 2008. The volume was divided between the 14 injection wells, 4 monitoring wells, and 1 former AS well. A list of the wells used for the injection of $NaMnO_4$ and the total volume each location received is included in Table 4-2 of this report. Table 4-2 also contains start and stop dates for injection at each location.

4.1.3 Gradient Monitoring

The slurry wall containment system is designed to provide effective source control in conjunction with operation of the groundwater remediation system. Currently groundwater is extracted from within the slurry wall area and discharged to a recharge chamber outside the boundary of the slurry wall. Performance of the containment system requires extraction of a sufficient volume of water to create an inward hydraulic gradient across the slurry wall in the

overburden and an upward gradient between the bedrock and overburden within the containment structure. This system, in addition to treating impacted groundwater from within the slurry wall area, contains the source area and limits the potential for migration beyond the boundary of the containment area. In addition, some of the extraction and monitoring wells are screened across the deep overburden and into the shallow bedrock, providing a potential contaminant migration pathway into the bedrock should insufficient groundwater extraction occur, resulting in reversed gradients. Increases in contaminant concentrations have been observed in bedrock and overburden monitoring wells outside and downgradient from the slurry wall following, and possibly related to, shutdown of the treatment plant for 3 months in 2005 as described in the *2005-2006 Annual Report* (Veolia, 2006). Therefore, it is critical to maintain an inward gradient during the injection of $NaMnO_4$ and not create, or increase, the potential for the migration of contamination out of the source area.

Maintaining these gradients was complicated by the limitations of the treatment plant which is not equipped to treat water containing $NaMnO_4$. Due to this restriction, every attempt was made to maintain a constant, low pumping rate while maintaining a neutral or slight inward gradient. to minimize the potential of drawing $NaMnO_4$ into the treatment plant. The minimum pumping rate required was estimated by USGS to be 14 gpm, but could possibly be as high as 45 gpm during periods of high rainfall (USGS, 2008). During permanganate injections, the pumping rate was adjusted to compensate for both heavy rainfall and the volume of permanganate solution being injected. Hydraulic gradients across the slurry wall and between overburden and bedrock were monitored daily via well couplets. Injections were primarily performed between the hours of 0700 and 1700 each week day. During the days when large volumes of permanganate solution were injected, slight temporary outward/downward gradients were sometimes observed. However, gradients generally returned to inward/upward over night.

WESTON collected water level measurements in three well couplets to monitor the hydraulic gradients at the Site. The water levels were collected at least twice daily to monitor gradients at the start and at the end of each day and included monitoring wells PW-2D, PW-2R, PW-5D, PW-5R, PW-10D, and PW-11D. These wells were selected based on location at the Site and monitoring well construction information. The monitoring wells enabled WESTON to evaluate

gradients between the interior and exterior of the slurry wall and between the deep overburden and bedrock. Table 4-3 includes the water level data collected each day during permanganate injections at the Site. Table 4-3 includes the gradient calculations between well couplets based on the water level data. Appendix D includes charts that illustrate the water table elevation relationship between the well couplets.

WESTON initially extracted groundwater from within the slurry wall at the minimum rate of 14 gpm. At this rate WESTON found that after a period of a few days, the injection rate of 25 to 29 gpm during the work day coupled was not adequate to allow the gradients to recover over night. An increase in extraction rate to approximately 17 to 18 gpm coupled with an injection rate of approximately 22 to 29 gpm during each day resulted in the gradients reversing only slightly during the day and rebounding before the start of the next work day. Based on the data collected, a neutral or slight inward/upward gradient was successfully maintained during the injections.

4.1.4 Permanganate Monitoring

WESTON performed daily monitoring for the presence of $NaMnO_4$ in select wells during injections at the Site. This monitoring was performed to evaluate the distribution and migration of permanganate in the subsurface during, and immediately after, injections at the Site. Due to the fact that the groundwater treatment plant is not designed to treat water containing $NaMnO_4$, at least once daily, the interior extraction well IW-1A was monitored for the presence permanganate to ensure that it was not being drawn into the treatment plant. During the injections, groundwater extraction was limited to IW-1A, the shallow extraction well positioned the furthest away from all injection points.

The monitoring wells selected for daily monitoring were based on their proximity to injection points, the elevation of screened intervals, and their location relative to important site features, particularly IW-1A. The wells monitored daily for the presence of permanganate and explanations of the reasons for their selection are listed below:

- B95-09 – Shallow well located between INEEL field and IW-1A
- CI – Interior INEEL well for distribution monitoring

- HCNE – Edge of INEEL field for distribution monitoring
- IW-1A – Interior extraction well
- IW-2 – Deep screened interval adjacent to injection area (IP-2, IP-5)
- MI-23 – Deep screened interval adjacent to the northeast of injection areas
- PW-6MB – Intermediate screened interval adjacent to PW-6D
- PW-6R – Bedrock screened interval adjacent to PW-6D
- PW-10D – Deep screened interval hydraulically downgradient from IP-2
- PW-16D – Deep screened interval hydraulically cross-gradient from IP-1
- PW-19D – Deep screened interval hydraulically downgradient from IP-1
- PW-20M – Intermediate screened interval in the proximity of IP-5, IP-10, IP-11, and IP-13
- PW-20D - Deep screened interval in the proximity of IP-5, IP-10, IP-11, and IP-13
- PW-28 – Intermediate screened interval hydraulically down or cross-gradient from IP-2, IP-3, IP-5, and IP-11

Each of the monitoring locations listed above were visually evaluated daily for the presence of permanganate. With the exception of IW-1 and IW-2, WESTON utilized a peristaltic pump and the existing dedicated well tubing to purge at least one tubing volume of water from each location. Monitoring at IW-2 was performed using a dedicated bailer which was lowered to the screened interval of the extraction well and then retrieved. Purge water at all locations was discharged to the ground surface in the proximity of each monitoring well unless permanganate was observed. Purge water which indicated the presence of permanganate was returned to the well of origin. The groundwater extracted from IW-1A was monitored by opening the sampling port within the treatment plant and purging approximately one liter into a bucket.

WESTON initiated the injection of a dilute $NaMnO_4$ solution at the Site on 29 October 2008. The presence of $NaMnO_4$ was first observed in the following wells on the dates indicated:

- PW-10D – 7 November 2008 at <10 ppm (50 ppm)
- PW-16D – 11 November 2008 at ~10 ppm (100 ppm)
- PW-20D – 18 November 2008 at <10 ppm (50 ppm)

- HCNE – 19 November 2008 at ~100 ppm (>100 ppm)
- CI – 19 November 2008 between 10 and 100 ppm (>100 ppm)

Concentrations in each of the wells fluctuated over the course of injections. The above information includes the date of initial detection and the approximate maximum concentration in parentheses. An important observation to note was the stratification observed in the INEEL field wells HCNE and CI. The wells in the INEEL field each have 40-ft screened intervals. To target the deeper zones in the long screened INEEL wells, WESTON injected 20% permanganate at the bottom of the screened interval and injected water into the top of the well to achieve the 3% desired concentration and attempt to limit the upward, vertical migration of the permanganate. WESTON observed stratified concentrations of permanganate in the INEEL field with the highest concentrations observed in the deepest zones and little to no permanganate observed in the shallowest zone. The main reason for performing the injections in this manner was to prevent permanganate from moving upward where it might be drawn into the shallow extraction wells.

After a period of 1 month following the completion of injections, WESTON conducted permanganate monitoring at all of the injection points and the monitoring wells listed above. Permanganate monitoring included a color comparison of the groundwater sample with permanganate standards and testing for chloride concentrations using chloride test strips. The results of the chloride monitoring were compared to the baseline chloride monitoring performed prior to $NaMnO_4$ injections. Table 4-4 lists the results as of the date of this report for the permanganate monitoring program. Permanganate and chloride monitoring is anticipated to continue in 2009.

USGS is assisting in the monitoring of the ISCO treatment by mapping real-time permanganate migration through the use of borehole geophysical logging and surface geophysical surveys. USGS will use this data to help delineate the distribution of permanganate and chloride over time; correlate permanganate and chloride distribution with remedial activities; ISCO treatment, and groundwater flow and transport processes; and assess the effectiveness of ISCO in targeting areas of high VOC contamination (USGS, 2009b).

4.2 LEACH FIELD SOIL REMOVAL

Previous remedial investigations performed at the Site identified the presence of contamination in shallow, unsaturated soils in the northwestern portion of the area contained by the barrier wall. Based on a review of historic documents and site plans, the contamination was believed to be the result of a leach field system associated with the former OK Tool building. A soil removal action of contaminated soils in the leach field area was initiated in late August 2008. The excavation and handling of the soils was performed by WESTON's subcontractor, Tantara Corporation, with oversight and direction by WESTON. The top 3.5 ft of soil in the leach field area was classified as "clean" [less than the NHDES Soil Remediation Standard (SRS) of 2 milligrams per kilogram (mg/kg) PCE] based on chemical analysis of samples collected from soil borings performed by EPA in 2007 and 2008. The "clean" soils were stockpiled separately from the impacted material excavated from 3.5 ft to approximately 14 ft bgs. EPA Mobile Laboratory was on-site to obtain "real-time" data in the field during excavation. WESTON compared the analytical data provided by EPA Mobile Laboratory to a cleanup goal of 2 mg/kg to determine the final horizontal and vertical extent of contamination. The vertical extent of contamination was limited by the elevation of the water table in some areas. It is anticipated that soil contamination below the water table will be addressed at a later date with shallow ISCO injections. A detailed discussion of the leach field soil analytical data provided by EPA Mobile Laboratory, as well as confirmation samples submitted to the NHDES Laboratory is included in Section 5.

A total of approximately 2,000 to 3,000 cy of contaminated (>2 mg/kg PCE) soils were removed from the former leach field area and stockpiled at the Site. The "clean" soils were placed back into the bottom of the excavation and the contaminated soils were screened to remove cobbles (4+ inches) from the finer materials, which were stockpiled separately. Treatability testing was performed prior to and during the soil removal operation using Fenton's Reagent, Modified Fenton's Reagent, RegenOx, and sodium permanganate. Table 4-5 provides a summary of the results of the testing. Since none of the oxidants tested appeared to provide cost-effective treatment of the leach field soils, EPA and NHDES decided to postpone treatment of the excavated soils until spring/summer of 2009. The soil stockpile was covered in polyethylene sheeting and secured at the Site with hay bales, silt fencing, and sand bags. The excavation was

backfilled with the clean material (previously excavated from the 0 to 3.5 ft depth interval) to a depth of approximately 8 ft bgs and secured with orange fencing. Figure 4-2 illustrates the final extent of the leach field soil removal. The figure also illustrates the location of the stockpiles of contaminated soil and cobbles at the Site.

SECTION 5

SOIL, GROUNDWATER, AND DRINKING WATER DATA

5. SOIL, GROUNDWATER, AND DRINKING WATER DATA

Soil data collected by WESTON during 2008 consisted of excavation confirmation samples and stockpiled soil samples collected during the leach field soil removal activities; and soil samples collected from the screen intervals of the injection wells during their installation In addition, soil borings and soil sample collection was performed by EPA in the vicinity of the former leach field and in the vicinity of monitoring well PW-22 on 11 and 12 August 2008. Groundwater data collected from the Site by WESTON in 2008 consisted of sampling and analysis of groundwater during the spring sampling round, and monthly water level measurements. NHDES personnel performed the fall groundwater sampling of on-site monitoring wells and collected drinking water samples from nearby residential wells in June 2008. USGS conducted vertical profiling of groundwater during the installation of monitoring well PW-28 in August 2008. The soil, groundwater, and drinking water data collected is discussed in the following sections. Because of the gap between the end of the reporting period of the previous annual report (Veolia, 2007b), covering the period from 1 July 2006 through 30 June 2007 and the date that WESTON took over as O&M contractor (1 January 2008), this section also provides a brief overview of the data collected during the second half of 2007 which has not been previously documented. Data collected in the third and fourth quarters of 2007 include soil borings conducted by EPA in the former leach field area, vertical profiling conducted by USGS in two locations, and a site-wide groundwater sampling event conducted by NHDES on 13 and 14 November 2007.

5.1 SOIL DATA

5.1.1 Fall 2007 Leach Field Investigation

EPA performed soil boring investigations at the Site in November of 2007, prior to WESTON taking over responsibility for site operations. The soil borings were advanced in the area of the former leach field to delineate the extent of VOC-impacted soils in the shallow, unsaturated soils. Figure 5-1 illustrates the locations of the soil borings. Soil borings were advanced to a maximum depth of 12 ft bgs and in most soil borings, two samples were collected and submitted to EPA OEME Laboratory in Chelmsford, Massachusetts for VOC headspace analysis, in accordance with EPA Region I EIASOP-FLDVOA2. One sample was typically collected from a

shallow interval from the 4 to 7 ft bgs range and another from the slightly deeper 9 to 12 ft bgs range. Table 5-1 includes the laboratory analytical results for the compounds detected in the soil samples.

Compounds detected during the fall 2007 leach field investigation included PCE and TCE. Both compounds were detected above the NHDES SRS in samples from at least one depth interval. The highest concentrations of the predominant contaminant, PCE, were detected in the samples collected from the 6 to 7 ft bgs in soil borings SB-25 and SB-37. These soil borings were adjacent to each other, approximately 20 ft south of SVE-6. The soil data collected in November 2007 was used to supplement pre-existing data and generate an excavation plan for the leach field soil removal performed in the fall of 2008. The PCE and TCE exceedences observed in soils during this subsurface investigation were removed and stockpiled as part of the removal action.

5.1.2 August 2008 Soil Borings

EPA performed soil boring investigations and soil sampling on 11 and 12 August 2008. Soil borings were advanced to depths ranging from 6 ft to 12 ft bgs with samples collected from depths ranging from 4 to 12 ft. Figure 5-2 illustrates the locations of the August 2008 soil borings. Soil samples collected as part of the investigation were submitted to EPA OEME Laboratory for VOC headspace analysis in accordance with EPA Region I EIASOP-FLDVOA2. Laboratory analytical results from the soil samples indicated the presence of the compounds 2-butanone and PCE. Tetrachloroethene was the only compound to exceed the NHDES SRS of 2 mg/kg, exceeding the applicable standard in SB-49 and SB-59. Table 5-2 includes the laboratory analytical detections for the August 2008 soil boring investigation.

5.1.3 Leach Field Soil Data

In the fall of 2008, WESTON performed the removal of contaminated soils from the vicinity of the former leach field area at the Site. The area is located in the northwestern portion of the Site contained within the slurry wall and was identified as a potential source of PCE contamination to the shallow overburden aquifer. EPA OEME Mobile Laboratory was on-site during the soil removal action and analyzed soil samples to obtain real time data. The mobile laboratory

analyzed soil samples by headspace analysis in accordance with EPA Region 1 EIASOP-FLDVOA2. The excavation proceeded until sidewall and bottom soil samples exhibited PCE concentrations below 2 mg/kg or the water table was encountered. Once the final extent of the excavation was reached, WESTON collected confirmation samples from the excavation floor and sidewalls and submitted them to the NHDES Laboratory for analysis by SW-846 8260B. Figure 5-3 illustrates the locations of soil samples collected from the excavation area. Based on the laboratory analytical results for the confirmation samples, all soils exceeding the NHDES SRS for PCE were removed from the excavation and stockpiled. The stockpiled soils were screened to remove cobbles and one 4-point composite sample was collected for approximately every 200 cy of soil. The composite samples were submitted to the OEME Laboratory in Chelmsford, Massachusetts for analysis by EPA Region 1 EIASOP-FLDVOA2. Tables 5-3 and 5-4 provide the laboratory analytical results for the soil samples analyzed by EPA OEME Mobile Laboratory and the NHDES Laboratory, respectively. The highest concentration of PCE was detected in LF-021 at a concentration of 103 mg/kg. Copies of the laboratory analytical data packages are included in Appendix E.

5.1.4 Test Pit Soil Data

During the soil removal activities in the former leach field area, while EPA Mobile Laboratory was on-site, a test pitting investigation was performed in the vicinity of PW-22. Contaminated soils exceeding the SRS were observed between 5 ft bgs and 10 ft bgs during the August 2008 soil boring investigations performed by EPA. These soils were believed to be a potential source for the high level contamination observed in groundwater samples collected from PW-22.

The top 3 ft of overburden material, which was previously determined to be below SRS based on soil boring data, were removed and stockpiled. At a depth of approximately 5 to 6 ft bgs, a transite outfall pipe believed to be part of the former OK Tool Facility was encountered. Due to the age of the outfall pipe and its potential to contain asbestos, the excavation was stopped at approximately 7 ft bgs. WESTON collected soil samples from the excavation boundary, TP-005 through TP-010, and submitted them to EPA Mobile Laboratory for PCE analysis via the headspace method. Analytical results indicated that all samples collected from the excavation bottom and sidewalls were below the NHDES SRS for PCE. The laboratory analytical results for

the samples (TP-001 through -010) are included in Table 5-3. The portion of the transite pipe exposed by the test pit was removed and disposed of as asbestos-containing material by a contractor licensed in NH to remediate asbestos.

5.1.5 Injection Well Installation

WESTON collected soil samples during the installation of the deep injection wells in September 2008. A soil sample was collected from each injection well boring from the approximate middle of the 5-ft screened interval. Soil samples were collected directly from the soil boring sleeve utilizing a disposable polyethylene syringe. The 8 milliliter (mL) sample was transferred from the syringe into a 40-mL container preserved with 10 mL of methanol. The sample identification and time were recorded on the chain-of-custody and in the field log book and then immediately placed on ice. During part of the injection well installation, EPA Mobile Laboratory was on-site. Therefore, soil samples from nine well locations (IP-2, 3, 4, 5, 8, 9, 11, 12, and 14) were analyzed by the on-site laboratory for PCE in accordance with EPA Region 1 EIASOP-FLDVOA2 and sample locations (IP-1, 6, 7, 10, and 13) were submitted to EPA OEME Fixed Laboratory in Chelmsford, Massachusetts for VOC headspace analysis in accordance with EPA Region I EIASOP-FLDVOA2. No VOCs were detected in the samples analyzed by the mobile laboratory. Laboratory analytical results for the samples submitted to the fixed laboratory indicated the presence of benzene, PCE, and toluene. Tetrachloroethene was the only compound detected above the NHDES SRS and was only detected above the standard in the sample collected from IP-06. The laboratory analytical results are presented in Table 5-4. A copy of the laboratory analytical data package is included in Appendix E.

5.2 MONTHLY WATER LEVELS

WESTON collected water level measurements from site monitoring wells each month during 2008. Water level data was collected to evaluate groundwater flow directions in the overburden aquifer and to evaluate the hydraulic gradients between the interior and exterior of the slurry wall and between the overburden and the bedrock aquifers. The water level data is provided in the monthly O&M reports submitted to NHDES by WESTON. WESTON also generated a groundwater potentiometric surface map for the fall 2007, spring 2008, and fall 2008 groundwater sampling events. The groundwater potentiometric surface maps are included as

Figures 5-4, 5-5, and 5-6. Based on the figures, the direction of groundwater flow during the three groundwater monitoring events conducted during the reporting period remained consistent with historic observations at the Site.

5.3 VERTICAL PROFILING

USGS performed vertical profiling at two locations in October 2007 and one location in July 2008 (USGS, 2009a). The October 2007 locations included VP-7001 which was advanced to a depth of 30.5 ft bgs prior to the installation of PW-24 and VP-7002 which was advanced to a depth of 63 ft bgs at the location of PW-25S prior to its installation. The vertical profile performed in July 2008 was conducted at PW-28 prior to its installation and was advanced to a depth of approximately 65 ft bgs.

Vertical profile boring VP-7001 was performed on 17 and 18 October 2007, VP-7002 was performed between 25 and 30 October 2007, and VP-7003 was performed between 14 and 18 July 2008. Groundwater samples collected during the vertical profiling were submitted to EPA OEME Laboratory for VOC headspace analysis in accordance with EPA Region I EIASOP-FLDVOA2. The laboratory analytical results are provided in Table 5-5. Compounds detected in the vertical profiling locations included 1,1,1-TCA, cis-1,2-DCE, trans-1,2-DCE, PCE, and TCE. Of these compounds cis-1,2-DCE, PCE, and TCE exceeded the applicable AGQS in at least one depth interval. Based on the laboratory analytical results, the highest concentration of PCE was approximately 960 micrograms per liter (µg/L), detected in VP-7002 at a depth of 42 to 43 ft bgs. The highest concentrations of PCE detected in VP-7001 and VP-7003 were 440 µg/L at 24.5 ft bgs and 160 µg/L at 47 ft bgs, respectively.

5.4 FALL 2007 GROUNDWATER SAMPLING

The fall 2007 groundwater sampling event was performed prior to WESTON taking over management of site operations. However, a brief summary of the analytical data from this sampling event is included with this Annual Report, since the previous Annual Report prepared by Veolia did not include this data. The event was conducted by NHDES between 13 November 2007 and 15 November 2007. As part of the event, groundwater samples were collected from approximately 62 monitoring wells and submitted to EPA OEME Laboratory for

VOC Headspace analysis in accordance with Region I's Standing Operating Procedure for head space screenings for VOCs in aqueous and soil samples, EIASOP-FLDVOA2. The laboratory analytical results from the sampling event are present in Table 5-6. The laboratory data package for the fall 2007 sampling event is included in Appendix E.

Groundwater analytical data collected in the second half of 2007 also included groundwater samples from PW-14M on 17 July and from PW-14M and PW-21 on 7 August. These analytical results are provided in Table 5-6.

5.4.1 Fall 2007 Analytical Results

Based on the laboratory analytical results for the fall 2007 sampling event, compounds detected in site groundwater included 1,2-DCE, PCE, and TCE. All three of the compounds exceeded their applicable AGQS in at least one sample location. The site COC PCE was the most widely detected compound exceeding the AGQS of 5 µg/L at 41 locations. The highest concentration of PCE detected in the fall 2007 sampling event was in the sample collected from PW-22. This well is located to the west of the former leach field area and near a former outfall pipe. Tetrachloroethene was detected at a concentration of approximately 18,000 µg/L in the groundwater sample collected from this monitoring well. Concentrations of TCE exceeded applicable AGQS of 5 µg/L at 14 locations and 1,2-DCE exceeded the applicable AGQS of 70 µg/L at one location (PW-14M). The highest concentration of TCE was detected at a concentration of 115 µg/L in monitoring well PW-20M.

5.5 SPRING 2008 GROUNDWATER SAMPLING

WESTON personnel conducted the spring 2008 groundwater sampling event between 16 June 2008 and 19 June 2008. As part of this effort, samples were collected from 41 monitoring locations which included 32 overburden monitoring wells, 6 bedrock monitoring wells, 2 INEEL field wells, and 1 former SVE well. Prior to sample collection, the static water level in each well was measured from the top of the well casing or PVC using an electronic water level meter. The list of wells included in the spring monitoring program has been included in Table 2-1.

All groundwater samples were collected using peristaltic pumps with dedicated polyethylene tubing following low-flow sampling techniques. The field sheets from the June 2008 sampling event are included in Appendix F of this report. Appendix F includes the instrument calibration sheets and the low-flow sampling sheets. Upon stabilization of the field parameters, or reaching the specified time frame, at least one groundwater sample was collected from each of the wells. Field duplicate samples were also collected from four locations for quality assurance (QA) purposes. All samples were collected into pre-preserved 40-mL glass vials, packed in a cooler on ice with a trip blank, and submitted under standard chain-of-custody procedures to the NHDES Laboratory in Concord, NH for VOC analysis by EPA Method 8260B. A copy of the NHDES Laboratory analytical report for the June 2008 sampling event is included as Appendix E of this submittal. Groundwater analytical results from the June 2008 sampling event are included in Table 5-7.

5.5.1 Spring 2008 Analytical Results

The VOCs detected in samples during the June 2008 sampling event include PCE, TCE, cis-1,2-DCE, 1,1,1-trichloroethane, acetone, and carbon disulfide. Of the compounds detected, PCE, TCE, and cis-1,2-DCE were detected above their applicable AGQS in at least one sample. Of these three compounds, PCE and TCE were the most commonly detected. The laboratory analytical data indicate that 38 out of the total 41 locations exceeded the AGQS for PCE and 24 out of the total 41 locations exceeded the AGQS for TCE. The highest concentration of PCE detected during the June 2008 sampling event was 13,500 µg/L in the sample collected from PW-22. The highest concentration of TCE detected during the June 2008 event was 714 µg/L in the sample collected from PW-16D. The highest concentration of cis-1,2-DCE was 327 µg/L in the sample collected from PW-6S. Monitoring well PW-16D and PW-6S are located in the central portion of the area encompassed by the slurry wall.

5.6 FALL 2008 GROUNDWATER SAMPLING

The fall 2008 groundwater sampling event was performed in two separate phases. The first phase was performed as part of a baseline groundwater sampling event which was initiated to obtain groundwater analytical data prior to the implementation of the ISCO program. The second phase

consisted of the remaining wells which were not sampled as part of the baseline sampling event but are typically included in the standard fall sampling events.

5.6.1 In Situ Chemical Oxidation Baseline Groundwater Sampling

WESTON personnel conducted the ISCO baseline groundwater monitoring program between 14 and 17 October 2008. The program included the sampling of 38 wells which consisted of the 14 newly installed injection wells, 2 INEEL field wells, 2 former AS wells, and 20 monitoring wells which were located near injection locations within the slurry wall containment. Prior to sample collection, the static water level in each well was measured from the top of the well casing or PVC using an electronic water level meter. The wells included in the baseline monitoring program have been identified in Table 2-1.

All groundwater samples were collected using peristaltic pumps with dedicated polyethylene tubing following low-flow sampling techniques. WESTON installed new dedicated polyethylene tubing in the new injection wells and the two air sparge wells. The field sheets from the October 2008 sampling event are included in Appendix F of this report. Appendix F includes the instrument calibration sheets and the low-flow sampling sheets. Upon stabilization of the field parameters, or reaching the specified time frame, at least one groundwater sample was collected from each of the wells. Field duplicate samples were also collected from four locations for QA purposes. WESTON also collected an equipment blank from the decontaminated water level meter to evaluate the potential for cross-contamination between monitoring locations. All samples were collected into the appropriate pre-preserved 40-mL glass vials, packed in a cooler on ice with a trip blank, and submitted under standard chain-of-custody procedures to EPA OEME Laboratory in Chelmsford, Massachusetts for VOC headspace analysis in accordance with EPA Region I EIASOP-FLDVOA2. Copies of the OEME Laboratory analytical reports for the October 2008 baseline groundwater sampling event are included as Appendix E of this submittal. Groundwater analytical results from the October 2008 sampling event are included in Table 5-8.

5.6.2 Fall 2008 Groundwater Sampling Event

The fall groundwater sampling event was conducted by NHDES between 13 November and 17 November 2008. The wells included in the November sampling event have been identified in Table 2-1.

All groundwater samples were collected using peristaltic pumps following a micro-purge technique which included purging one tubing volume from the well prior to sampling. After removing at least one tubing volume, groundwater samples were collected from each of the wells. Field duplicate samples were also collected from one location for QA purposes. All samples were collected into pre-preserved 40-mL glass vials, packed in a cooler on ice with a trip blank, and submitted under standard chain-of-custody procedures to EPA OEME Laboratory in Chelmsford, Massachusetts for VOC headspace analysis in accordance with EPA Region I EIASOP-FLDVOA2. Copies of the OEME Laboratory analytical reports for the November 2008 sampling event are included as Appendix E. Groundwater analytical results from the November 2008 sampling event are included in Table 5-8 with the October 2008 groundwater analytical data.

5.6.3 Fall 2008 Analytical Results

Volatile organic compounds detected in samples during the fall 2008 groundwater sampling events include PCE, TCE, and cis-1,2-DCE. All three of these compounds exceeded their applicable AGQS in at least one sample. Tetrachloroethene was the most commonly detected compound, with 66 detections out of the 68 locations sampled. A total of 56 of those locations sampled exhibited concentrations of PCE above the applicable AGQS. Trichloroethene was detected above its applicable AGQS at 36 locations and cis-1,2-DCE was detected above it applicable AGQS at 4 locations. Similar to the spring 2008 sampling event, the highest concentrations of PCE were detected at 17,000 µg/L in the sample collected from PW-22. The highest concentrations of TCE were detected in IP-6 at 850 µg/L and the highest concentrations of cis-1,2-DCE were detected in PW-6S at 150 µg/L.

5.7 BEDROCK GROUNDWATER

Investigations into the nature and extent of contamination in the bedrock aquifer have been limited in scope throughout the history of the Site. Subsurface investigations have focused on the overburden aquifer which is inferred to be hydraulically up-gradient from the Savage Municipal Water Supply Well and has been identified as a source of VOC contamination in the public water supply. This focus on the overburden has resulted in a bedrock monitoring well network that consists of only six wells of varying construction. The location of these six wells, MW-2R, PW-2R, PW-5R, PW-6R, PW-12R, and MW-16R, are shown on Figure 1-2. These six monitoring wells, although typically at least an order of magnitude lower than the highest contamination observed in the overburden aquifer, all exhibit concentrations above the NHDES AGQS for PCE and all but one location consistently exceeds the NHDES AGQS for TCE. The bedrock aquifer beneath the Site is of particular importance because, due to the presence of the slurry wall, bedrock fractures provide the major potential migration pathway out of the source area containment system. Volatile organic compound concentrations in the bedrock monitoring wells have either been fairly stable or have been on an increasing trend. Appendix G contains graphs of VOC concentrations with time in the bedrock wells.

Fall 2007

During the fall 2007 groundwater sampling event, monitoring wells MW-16R, PW-2R, PW-6R, and PW-12R were sampled for VOCs. Laboratory analytical results for the fall 2007 sampling event are presented in Table 5-7. Groundwater results from the fall 2007 sampling event indicated the presence of PCE and TCE above the applicable AGQS in all four wells sampled. The highest concentrations of PCE detected in the bedrock monitoring wells was 474 µg/L detected in PW-2R, located outside of, and directly adjacent to, the eastern border of the slurry wall. The highest level of TCE in the four bedrock monitoring wells sampled was detected at a concentration of 24 µg/L in PW-6R, located in the middle of the area surrounded by the slurry wall.

Spring 2008

All of the six bedrock monitoring wells were sampled during the spring 2008 groundwater sampling event. Laboratory analytical results for the sample event indicated that PCE was detected above the AGQS for PCE in all six monitoring wells. Table 5-8 presents the groundwater analytical data for the bedrock monitoring well network during the spring 2008 groundwater sampling event. The highest concentrations of PCE were detected in PW-2R at 282 µg/L. The lowest concentration of PCE was detected in PW-5R at 14 µg/L.

Based on previous drawdown data collected during standard low-flow sampling in the bedrock wells, USGS expressed concern that the groundwater samples collected during low-flow sampling may not provide an accurate representation of the bedrock aquifer at the Site. To test the hypothesis, two sampling methods were employed to collect samples from each of the bedrock monitoring wells during the spring 2008 sampling event. After collecting the standard low-flow method sample from each location, WESTON utilized a decontaminated 2-inch Grundfos Redi-Flow submersible pump with disposable ½-inch inner-diameter polyethylene sample tubing and purged additional volume. Each of the bedrock wells were purged until the water table was approximately 10 ft above the screened interval or at least one entire well volume was removed from the well. Following purging, each location was allowed to recharge until approximately 75% of the original water table elevation had recovered or a period of 24 hours had passed. After one of these requirements was met, WESTON collected an additional sample for VOCs from the bedrock monitoring well identifying it as an "EVAC" sample. The results from the "EVAC" samples are included in Table 5-10.

At PW-06R, two "EVAC" samples were collected from the monitoring well. Sample "EVAC1" was collected on 17 June 2008 with a disposable polyethylene bailer after purging the well to 10 ft above the well screen and allowing it to recharge for a period of 24 hours. The sample "EVAC2" was collected by purging the well completely dry using the disposable polyethylene bailer and allowing the well to recharge again. After a period of 24 hours had passed, WESTON collected a sample utilizing a decontaminated 2-inch Grundfos Redi-Flow submersible pump and the ¼-inch inner-diameter dedicated polyethylene sample tubing. An important observation made during the "EVAC" sampling is the rate of recovery in PW-06R. After the initial purge on

16 June 2008, the water level in the well recovered approximately 2.4 ft in the 24-hour recovery period. After the second purge on 17 June 2008, the well recharged 3.91 ft in the 24-hour recovery period.

Based on the analytical results from the EVAC samples, the average percent increase in PCE concentrations between the low-flow and EVAC sample was 175% with a range from 63% to 352%. The average percent increase in TCE concentrations between the methods was 143% with a range from -27% to 468%. The largest percent increase of both PCE and TCE concentrations was observed at MW-2R in which concentrations of PCE increased from 29.4 µg/L to 131 µg/L and concentrations of TCE increased from 4.4 µg/L to 25 µg/L.

The observed slow rate of groundwater recharge in PW-6R during this bedrock groundwater investigation is of particular importance. This extremely slow recharge rate indicates that the monitoring well may be constructed across bedrock fractures with extremely low transmissivity. However, after purging the well completely dry and allowing it to recharge, concentrations of PCE in the well increased to levels comparable to PW-6D which is screened in the deep overburden aquifer directly above PW-6R. Therefore, the bedrock fractures which PW-6R is screened across may have such low transmissivity that the primary source of recharge during this investigation may be via the small cracks and joints in the PVC utilized to construct the monitoring well or via a potentially inadequate seal installed during construction at the overburden/bedrock interface.

Fall 2008

Four of the bedrock monitoring wells, MW-2R, PW-2R, PW-5R, and PW-6R, were sampled during the fall 2008 groundwater sampling event. The groundwater analytical data for these monitoring wells is provided in Table 5-9. All four of the monitoring wells exhibited concentrations of PCE above the applicable AGQS. The highest concentrations of PCE were detected in PW-2R at 360 µg/L. The lowest concentrations of PCE were detected in PW-5R at 32 µg/L. Tetrachloroethene was also detected above the AGQS in three of the monitoring wells, MW-2R, PW-2R, and PW-6R. Trichloroethene was not detected above the laboratory reporting limits in PW-5R.

5.8 DRINKING WATER SAMPLING

Residential drinking water sampling was performed by representatives from NHDES on 6 June 2008. These wells are on residential lots located to the north of the Site, on the north side of the Soughegan River. Some of the residential wells are known to be bedrock wells, but construction details are not available for many of them. Drinking water samples were collected pre-filtration from approximately 10 residential locations to determine the quality of untreated drinking water in the area. All drinking water samples were submitted to the NHDES Laboratory in Concord, NH for laboratory analysis of VOCs by EPA Method 524.2. No VOCs were detected in any of the samples collected during the June 2008 drinking water sampling event. Table 5-11 documents drinking water wells sampled and the results of the sampling event. A copy of the laboratory analytical data report is included in Appendix E.

5.9 ISOPLETH MAPS

WESTON generated isopleth maps which illustrate the concentrations of PCE in the overburden aquifer at the Site. Three sets of isopleth maps were generated based on laboratory analytical results from the fall 2007, spring 2008, and fall 2008 sampling events. For each of the sampling events, the results were compiled into six figures which consisted of four horizontal and two vertical sections through the Ste. A three-dimensional (3-D) visualization software, called EarthVision, was used to model the contaminant plume and interpolate contaminant concentrations both vertically and horizontally. Horizontal sections through the EarthVision 3-D plume rendition were placed as overlays on the base map to produce isopleths maps in plan view at elevations 195, 218, 235, and 252 ft above mean sea level. Two vertical isopleths sections were produced from the EarthVision 3-D plume rendition at locations A-A' and B-B', as shown in the horizontal section figures. The horizontal and vertical isopleths figures for the three sampling rounds are provided as Figure 5-7 through Figure 5-24.

5.9.1 Interior Well Data

Based on an evaluation of laboratory analytical data and the isopleths maps, the majority of the monitoring locations positioned within the confines of the slurry wall containment system continue to exceed the applicable AGQS for site COCs. During the spring 2008 sampling event,

100% of the monitoring well locations sampled that are located within the slurry wall exceeded the applicable AGQS of 5 µg/L for PCE. Approximately 61% (17 of 28) of the wells sampled within the slurry wall exceeded the applicable AGQS for TCE and only 7%, or 2 of 28, of the interior wells sampled exceeded the applicable AGQS for cis-1,2-DCE.

5.9.2 Exterior Well Data

Laboratory analytical results for groundwater samples collected from outside of the slurry wall containment indicate that concentrations of site COCs have been exhibiting an overall downward trend during the reporting period. Based on the most recent groundwater sampling event performed in the fall of 2008, 13 wells are above the AGQS for either PCE, TCE, or cis-1,2-DCE. Table 5-12 documents the laboratory analytical results of the compounds PCE, TCE, and cis-1,2-DCE for the last six rounds of data collected from wells outside the slurry wall containment area. Currently, the highest concentrations of PCE are exhibited in well PW-14M at a concentration of 450 µg/L. The next four highest concentrations of PCE detected in exterior wells were detected in PW-2R, PW12R, MW-2R, and MW-16R at 360 µg/L, 112 µg/L, 130 µg/L, and 166 µg/L, respectively. All of these wells are constructed in the bedrock aquifer. No other wells exhibited concentrations of PCE above 10 times the NHDES AGQS.

Based on the laboratory analytical results, only three of the wells appear to exhibit an increasing trend in concentrations of site COCs, specifically PCE. These wells include MW-02R, MW-16R, and PW-01D. Concentration levels of COCs are gradually declining in the remaining wells located outside of the slurry wall containment area. Appendix H includes the plots of PCE concentrations versus time for several wells located outside of the slurry wall containment.

SECTION 6

STATUS OF REMEDIATION

6. STATUS OF REMEDIATION

6.1 OPERATIONS AND MAINTENANCE

WESTON took over operations from Veolia starting on 1 January 2008, and is responsible for the ongoing O&M of the treatment plant and its equipment. This section describes O&M performed by Veolia during the third and fourth quarters of 2007 and by WESTON during the calendar year 2008.

6.1.1 Results of Routine Inspections

WESTON personnel perform routine inspections to the Site on a weekly basis or as needed for maintenance issues. While at the Site, personnel monitor the condition and operation of equipment. Necessary maintenance is completed as its need is identified.

Major repairs, modifications, and other non-routine maintenance activities are described in Subsection 6.1.2.

6.1.2 Monthly List of Major Repairs, Modifications, Non-Routine Maintenance, and Other Activities

General operational modes, significant repairs, treatment system modifications, and non-routine activities that occurred during this reporting period are listed by month below. The activities listed below for the months of July through December 2007 were summarized from the *Monthly Reports* (Veolia, 2007a). For a complete chronological list of activities performed on-site during the months of January through December 2008, refer to the *Monthly Operations Reports* (WESTON, 2008a, 2009).

July 2007

- Plant operating with extraction wells IW-1 and IW-2 in operation.
- Extraction with the temporary system continued at wells SVE-2 and SVE-3.

- SVE system started at SVE-4, SVE-5, and SVE-6.
- SVE system discontinued during the month to allow area to rebound following readings of less than 2 ppm.

August 2007

- Biannual calibration of process instrumentation units was completed.
- Annual security alarm inspection and test was completed. All devices responded as designed and communications with the monitoring company verified.
- Site personnel conducted confined space entry activities to add a stand pipe to RW-2 to allow additional water into reinjection well.
- Piping was connected to the NCP well from INEEL field to pull water from a source area directly into plant. Extraction well NCP was put online but then taken offline due to potential fouling in recharge chamber.
- Site personnel conducted confined space entry activities to clean the wet well and recharge chamber of sludge from NCP extraction.
- Semi-annual test of site backflow prevention devises. Two lower valves failed the inspection and were cleaned and inspected again in September 2007.

September 2007

- Site backflow prevention devises tested and passed.
- Annual boiler inspection was conducted.
- Vapor point well installation by USGS.
- Flow into reinjection wells RW-1 and RW-2 was discontinued due to USGS vertical profiling in their vicinity.
- Site personnel conducted confined space entry activities to add a permanent stand pipe with metal flanges to RW-1 and RW-2 to allow additional water into reinjection well. Water levels were installed and the SCADA system was adjusted.

October 2007

- Operation of SEP as an extraction well for 6 hours was conducted to determine extent of potassium permanganate ($KMnO_4$) presence in well. The SEP operated for 2 days with no sign of permanganate.

- Recharge into wells RW-1 and RW-2 occurred for 7 days before the wells were shut down again upon USGS request.
- Pumping was discontinued at the extraction well set up at NCP. Site personnel disassembled electrical conduit, wiring, and the 2-inch discharge lines removed.
- Vertical profiling was conducted by USGS personnel.
- Site personnel responded to one call-in alarm during the month.

November 2007

- The bi-annual sampling round by state personnel was conducted.
- Use of wells SVE-2 and 3 as extraction wells was discontinued.
- Vertical profiling was conducted by USGS personnel.

December 2007

- Vapor-phase carbon vessel, A1, had regeneration cycle conducted.
- Transfer of plant from Veolia to WESTON.

January 2008

- All below ground well vaults required frequent pumping for the removal of water from runoff or groundwater infiltration during the month.
- Tutorial from Aquafax on proper boiler maintenance.
- Backflow prevention devises tested and passed.
- Annual security alarm inspection and test was completed. All devices responded as designed and communications with the monitoring company verified.

February 2008

- All below ground well vaults required frequent pumping for the removal of water from runoff or groundwater infiltration during the month.
- The SVE vacuum system operated for the entire month.
- The data on the computer system was backed up. The computers were networked together and an USB external hard drive was installed to regularly backup data in 4-hour increments.
- Site fire alarm and sprinkler systems were inspected and tested.

March 2008

- All below ground well vaults required frequent pumping for the removal of water from runoff or groundwater infiltration during the month.
- Use of the SVE system was discontinued per NHDES request.
- Vapor monitoring at soil gas point SG-19 was conducted to better estimate contamination in the former leach field area.
- Site personnel responded to one call-in alarm during the month.

April 2008

- Water was purged from below grade well vaults as necessary.
- Subcontractor Rist Frost Shumway (RFS) performed optimization of boiler and ventilation system.
- The boiler system was shut down due to warmer weather. The boilers were drained and cleaned to avoid pitting.

May 2008

- Water was purged from below grade well vaults as necessary.

June 2008

- The bi-annual sampling round was conducted by WESTON.
- Site personnel responded to one call-in alarm during the month.

July 2008

- A permanganate bench scale study was conducted on soil boring samples stored at the plant to determine the effectiveness of sodium permanganate for ISCO purposes.
- Leach field soil samples were sent to an independent laboratory to determine the effectiveness of Fenton's Reagent, sodium permanganate, and sodium percarbonate (RegenOx) in treating the former leach field soils.

August 2008

- A subcontractor bid walkthrough was conducted for the plant efficiency modifications. Subcontractors were to make note of three components of their potential bids: a replacement of the steam boilers with high efficiency boilers, installation piping to bypass the two carbon vessels, and the removal of the SVE blower, the AS compressor, and their associated piping.
- The location of the leach field excavation was laid out with grade stakes.
- The leach field excavation commenced with the removal and separate stockpiling of the top 3.5 ft of clean fill. Leach field excavating continued into September 2008.

September 2008

- Water was purged from below grade well vaults as necessary.
- Fourteen injection points were installed for deep overburden injections which would commence in October 2008.
- The 111,773.22 pounds of 40% $NaMnO_4$ were delivered in thirty-nine, 250-gallon totes and were stored on-site in polyethylene chemical containment.
- The steam boilers on-site were removed and high efficiency water boilers were brought to the Site.
- The SVE air/water separator was removed along with the SVE blower. All associated piping for the SVE system located in the blower room was removed.
- The AS compressor was removed from the blower room along with associated piping.
- The leach field excavating was completed in September with approximately 2,000 to 3,000 cy of contaminated soil being removed and stockpiled.
- The top 3.5 ft of clean fill that was removed from the excavation was backfilled into the bottom of the excavation.
- The contaminated soil was screened, removing all cobbles and other solids greater than 4 inches in size. The cobbles were stockpiled separately from the contaminated soil.

- WESTON Safety Officers conducted an Environmental Health and Safety (EHS) audit and prepared a report of findings which was submitted to NHDES and EPA (WESTON, 2008c).

- Two shallow extraction wells, IW-1A and IW-2A, were installed to replace IW-1 and IW-2 during deep overburden ISCO injections.

October 2008

- The new high efficiency boilers were installed and operating.

- A manifold system for the delivery of $NaMnO_4$ to injection points was constructed.

- The carbon vessel bypass was installed, allowing air emissions from the tray aerators to be discharged directly to the atmosphere. (This bypass was not used during 2008).

- Two of the injection points installed in September 2008 were found to be silted in, most likely from damage to the well screen or PVC riser during installation. These injection points were successfully reinstalled.

- Newly installed injection points and extraction wells were developed by pumping and surging to remove fine grained materials from the proximity of the well screen, to promote water to flow freely from the screened interval into the well and to decrease turbidity while sampling.

- Site personnel conducted confined space entry activities to adapt piping in IW-1 and IW-2 to connect piping from adjacent shallow extraction wells IW-1A and IW-2A. The new wells were connected to the existing piping to the plant from the existing deep extraction wells.

- Electrical work for the new extraction wells, IW-1A and IW-2A, was completed. Existing power supply and control wiring from the existing deep extraction wells was transferred to the new shallow wells.

- Pumping from the deep interior extraction wells, IW-1 and IW-2 was discontinued and pumping from the new shallow extraction wells, IW-1A and IW-2A, commenced.

- Site personnel conducted confined space entry activities to extend the well casing in SP-1 and SP-2 to better conduct both groundwater monitoring and to inject into SP-1, and to prevent surface water from entering these wells.

- Chloride monitoring was conducted to develop a baseline of site conditions prior to deep overburden injections.

- Deep overburden $NaMnO_4$ injections commenced. For a complete description of the deep overburden injections, please refer to Subsection 4.1.

- Former reinjection well, RW-3, was refitted to allow water from the wet well to be used as makeup water for the ISCO distribution manifold. RW-3 was operated daily in conjuncture with the permanganate injections.
- Pumping was discontinued from IW-2A due to its proximity to several of the injection points.

November 2008

- Deep overburden $NaMnO_4$ injections were completed. For a complete description of the deep overburden injections please refer to Subsection 4.1.
- Daily start up and shut down of extraction well EW-2 to provide make up water for $NaMnO_4$ injections.
- RW-3 was operated daily in conjuncture with the permanganate injections. Once injections were completed, use of RW-3 as an effluent discharge point was discontinued. All effluent was discharged to the recharge chamber.
- The fall monitoring round was conducted by NHDES.
- Granite State Plumbing and Heating added additional propylene glycol to the boiler system to bring the weight percentage up to the recommended range of 34 to 40%.
- WESTON Safety Officers conducted a second EHS audit and prepared a report of findings which was submitted to NHDES and EPA (WESTON, 2008f).
- The manifold systems were disassembled and stored inside the plant for the winter. The totes which had previously held 40% $NaMnO_4$ were cleaned. General housekeeping was performed both inside and outside the plant.

December 2008

- The final inspection and training for operation of the new boiler was conducted by Granite State Plumbing and Heating.
- The power supply to the new boiler system was modified to allow it to be powered by the emergency generator in case of a power outage.
- Pumping from interior extraction well IW-2A was reinitiated at a rate of 3 gpm.

- Site personnel responded to two call-in alarms during the month as a result of severe ice storms that disrupted municipal power.
- A sample of air emissions from the tray aerator (before passing through vapor phase carbon vessel) was collected and submitted to TestAmerica Laboratory for TO-14/15 analysis. A copy of the analytical laboratory report is included in Appendix I of this report.

6.1.3 Breakdown of Actual Costs July 2007 through December 2008

Budget information from July 2007 through December 2007 is not readily available as the work was performed prior to WESTON's involvement with the Site. A breakdown of actual costs by contract task number for January 2008 through December 2008 is included as Table 6-1.

6.1.4 Budget for January 2009 through December 2009

The O&M Budget for January 2009 through December 2009 has not been finalized. WESTON has not been contracted or funded for a full year of O&M as of the time this report was written.

6.1.5 Updates of Operation and Maintenance Manual and As-Built Plans

Revision 3 of the *O&M Manual* was completed by Veolia in December 2005. The SVE blower and AS compressor were removed during 2008. Additionally, the steam boiler system was replaced by two high-efficiency water boilers. Each of these modifications was recorded on the as-built drawings. Copies of the as-built drawings and an *O&M Manual* for the boilers are maintained at the Site.

6.1.6 Community Complaints and Responses

There were no community complaints during the reporting period.

6.1.7 Verification of the Integrity of Institutional Controls

The Site is fully surrounded by a chain-link fence, which is gated and locked when personnel are not at the Site.

6.2 EVALUATION OF THE TREATMENT SYSTEM WITH RESPECT TO REMEDY OBJECTIVES

The system has been operational for approximately 10 years, and there is evidence that during this time remedial actions and natural attenuation have contributed to significant reductions of contaminant concentrations, particularly outside the barrier wall. During October and November 2008, an ISCO program was implemented, as explained in Subsection 4-1. As a result, decreases in contaminant mass inside the barrier wall during 2008 are attributable to both removal of VOCs by the pump and treat system and destruction of VOCs by ISCO. However, an evaluation of the effectiveness of ISCO and an estimate of the contaminant mass destroyed by the permanganate will not be able to be performed until results from the spring 2009 monitoring round are available.

Contamination outside the barrier wall continued to approach cleanup goals more rapidly than those inside the barrier wall. The shallow overburden wells outside the barrier wall have lower contaminant levels than those screened in the deep overburden or bedrock. As of November 2008, contaminant concentrations had decreased to below cleanup levels in 30 of the 45 wells, or 66% of wells outside the barrier wall.

Contaminant levels inside the barrier wall continued to decrease as a result of the remediation system and the ISCO work implemented at the Site. Concentrations of COC decreased in 16 of the 41 wells not used as injection points. Contaminant concentrations in four of these wells, B95-08, PW-05M, PW-07M, and PW-07S have reached the cleanup goals.

The water treatment plant removed an estimated 267 pounds of VOCs from the groundwater during the reporting period, 101 pounds of which was removed via treatment plant during the calendar year 2008. Of the 166 pounds recovered during July through December 2007, IW-1 extracted 13.3 pounds (8.1% of total removed VOCs from effluent), IW-2 extracted 53.1 pounds (32.1%), SVE-2 extracted 83.7 pounds (50.6%), SVE-3 extracted 14.0 pounds (8.4%), INEEL well NCP extracted 1.3 pounds (0.80%), and INEEL well SEP extracted a negligible amount of VOCs in the short time it was operated. Of the 101 pounds of VOCs extracted during 2008, IW-1 extracted 27.7 pounds (27.3%), IW-2 extracted 66.7 pounds (65.7%), IW-1A extracted 6.63 pounds (6.5%), IW-2A extracted 0.49 pounds (0.48%), and EW-02 extracted a negligible

amount of VOCs in the short time it was operated. During several months in 2007, wells were put in service by Veolia, but no influent nor effluent samples were taken. This may have been because the wells were only operated for a portion of the month before or after monthly sampling. During December 2007, no influent or effluent samples were collected by Veolia. During these instances, the influent and effluent data used for estimating the VOC mass removed was interpolated from data collected during the previous and/or following month.

6.3 IMPROVEMENTS/PROGRESS IN REPORTING PERIOD

During 2008, the strategy for remediating the Site was reevaluated. NHDES, EPA, and WESTON were in general agreement that the groundwater pump and treat and SVE/AS systems, as designed and installed at the Site, were not the most effective or efficient methods to remediate the Site. In mid-2008, funding was provided for implementation of ISCO in the saturated zone, and for treatment of vadose zone soils in the vicinity of the former leach field. As a result, the focus of groundwater pump and treat at the Site was revised from contaminant mass removal and hydraulic containment, to hydraulic containment only. Also, because of the minimal effectiveness of the SVE/AS system, and the high energy demand of running the equipment and regenerating the carbon used to treat emissions, the SVE/AS system was taken out of service and removed from the plant in September of 2008.

In 2001, EPA had requested that the U.S. Army Corps of Engineers (USACE) and Geotrans, Inc. conduct a RSE of the Site. The *RSE Report* (EPA, 2001) concluded that although the treatment plant had been operating properly, cost saving measures could be taken to create a more efficient plant and to remediate the Site in a shorter timeframe. The *RSE Report* recommended that on-site regeneration of carbon be discontinued in favor of changing out the carbon when necessary, reducing operator labor requirements. Veolia had evaluated VOC emissions from the air stripper in 2005 and had submitted information to the ARD to obtain a decision from ARD as to whether air stripper emissions could be discharged to the atmosphere without carbon treatment. ARD responded that a permit was not required unless there were any substantial deviations in the discharges or a physical change in the process. Because of recent process changes, WESTON submitted a letter to ARD in February 2009 for confirmation prior to discontinuing carbon treatment of the air stripper emissions. A letter confirming that carbon

treatment of the air stripper emissions was not required was received from ARD in April 2009 Appendix I contains WESTON's correspondence with ARD. Vapor-phase carbon was used to treat air stripper emissions throughout 2008 and to treat the SVE emissions during the brief period the SVE system was operated in early 2008.

In 2007, EPA requested USACE to prepare a cost estimate for removal of the carbon system and replacement of the steam boilers with more efficient water boilers. USACE prepared a memo providing their recommendations for heating system efficiency improvements (USACE, 2008). In April 2008, WESTON contracted RFS to evaluate the cost savings and payback period to replace the steam boilers with appropriately sized, high-efficiency water boilers as recommended by USACE, and to adjust ventilation rates for a revised plant occupancy that no longer involved AS, soil vapor extraction, or carbon regeneration. Based on RFS's report which estimated a payback period of 2.4 years, WESTON requested RFS to prepare bid documents to replace boilers, adjust ventilation, provide a bypass around carbon vessels for the tray aerator emissions, and remove the AS and soil vapor extraction equipment (RFS, 2008). Granite State Plumbing and Heating was the contractor selected to perform these upgrades, which were completed in October 2008.

The two low pressure steam boilers were replaced with two Energy Star rated Gold GV water boilers. The new boilers require less maintenance than steam boilers, allowing operators to spend less time on-site. Since the boilers no longer have the steaming capability, spent carbon in the vapor-phase carbon vessels will now have to be sent off-site for disposal or regeneration.

6.4 OPTIMIZATION OPPORTUNITIES

The revised strategy of using ISCO for mass removal and pump and treat for hydraulic containment has created an opportunity for long-term reductions in O&M costs. Based on the optimization modifications implemented during 2008, the following efficiency improvements can be expected during the upcoming year:

- Discontinuation of operation of the SVE/AS will result in a decrease in the electrical power costs for the treatment plant.
- Focusing on hydraulic containment rather than mass removal, and setting extraction well pumping rates at the minimum required to maintain neutral or inward/upward

hydraulic gradients will result in low VOC emissions from the tray aerators, thereby allowing discharge without vapor-phase carbon treatment.

- Discontinuation of vapor-phase carbon treatment will eliminate costs for carbon regeneration.
- Replacement of steam boilers previously used for carbon regeneration with high efficiency water boilers will result in significantly lower fuel costs for heating and lower labor costs.
- Reduction of ventilation rates in the plant will result in lower electric power and heating costs.

SECTION 7

SUMMARY AND CONCLUSIONS

7. SUMMARY AND CONCLUSIONS

As of 1 January 2008, WESTON has been responsible for O&M of the remediation system at OU-1 of the Savage Municipal Water Supply Superfund Site. This Annual Report covers the activities which occurred at the Site during the 2008 calendar year, including activities performed by NHDES, EPA, and USGS. It also provides a brief summary of the activities that occurred during the second half of 2007, where information was available, since these activities were not documented in the *2006 – 2007 Annual Report* prepared by the previous O&M contractor, Veolia. The subsections below include a summary of the activities performed and conclusions that can be derived from data collected during the investigations and remedial actions performed at the Site.

7.1 SUMMARY OF ACTIVITIES - JULY THROUGH DECEMBER 2007

A brief summary of the activities conducted at the Site from July through December 2007 and the approximate dates are provided below. This information was compiled from O&M logs, EPA reports, and personal correspondence with USGS personnel.

- July through November: Extraction of groundwater from SVE-2 and SVE-3.
- July: Soil vapor extracted from SVE-4, SVE-5, and SVE-6.
- October: USGS vertical profiling (VP7001 and VP 7002) and PW-22 well installation.
- October: Extraction of groundwater from SEP for 2 days.
- November: EPA soil boring investigations (SB25 – SB49).
- December: Veolia soil gas investigations.
- December: Regeneration of Carbon Vessel A1.

7.2 SUMMARY OF ACTIVITIES - JANUARY THROUGH DECEMBER 2008

A brief summary of the activities conducted at the Site from January through December 2008 and the approximate dates is provided below.

- January through October: Interior extraction wells IW-1 and IW-2 operated at a total extraction rate of 62 to 68 gpm.
- February: *Draft Groundwater Sampling and Analysis Plan* (*SAP*) (WESTON, 2008b) prepared and submitted to NHDES.
- February/March: SVE system operated using vents SVE-4, SVE-5, and SVE-6.
- April through August: Plant optimization study and design work performed.
- June: Spring groundwater monitoring round performed.
- June: Contract Amendment 1 for ISCO and leach field soil treatment funding prepared and submitted to NHDES.
- June through October: Four versions of the *ISCO Work Plan, Version 4* (WESTON, 2008e) were prepared.
- July: Bench scale testing to estimate permanganate dosage for saturated soils.
- July: USGS performed vertical profiling with the ESASS method (VP-7003) and installed monitoring well PW-28.
- July through September: Bench scale testing was conducted to evaluate several oxidants for treatment of leach field soil.
- August: EPA soil boring investigations (SB47 – SB59).
- August through October: Leach field soil excavated, screened, and sampled.
- September: Extraction wells IW-1A and IW-2A and injection points IP-1 through IP-14 installed and developed.
- September through October: Boiler replacement and other plant optimization work performed.
- September through October: Revised *SAP* (WESTON, 2008d) prepared and submitted to NHDES and EPA.
- September through October: ISCO manifold constructed and 39 totes of 40% sodium permanganate delivered.

- October: Shallow extraction wells IW-1A and IW-2A were connected into the remediation system to replace deep extraction wells IW-1 and IW-2.
- October: Baseline ISCO groundwater monitoring performed.
- October through November: ISCO permanganate injections performed.
- October through December: Interior extraction wells IW-1A and IW-2A operated at the minimum extraction rate required to maintain an inward and upward hydraulic gradient. The total extraction rate ranged from 14 to 22 gpm depending on injection rates and precipitation.
- November: Exterior extraction well EW-2 operated at 32 gpm intermittently to generate makeup water for ISCO injections.
- November: NHDES performed fall groundwater monitoring round.
- November/December: USGS performed borehole geophysical logging and surface geophysical surveys to evaluate permanganate and chloride distribution.
- December: Permanganate monitoring performed.
- December: Contract Amendment for continued O&M activities was prepared and submitted to NHDES.

7.3 2008 ANALYTICAL DATA

Laboratory analytical data collected during 2007 and 2008 included soil, groundwater, and drinking water. No VOCs were detected above the laboratory reporting limits in the samples collected from area drinking water wells. Soil data consisted primarily of samples associated with the leach field soil removal action including pre-characterization and confirmation sampling. Additional soil sampling identified an area of impacted soils southwest of the leach field area adjacent to monitoring well PW-22 and soil samples were collected from the screened interval of the injection points. The impacted soils identified near PW-22 could not be removed during the removal action due to the presence of an outfall pipe potentially constructed with asbestos-containing materials.

Groundwater data collected during this reporting period consisted primarily of three separate groundwater monitoring events. Groundwater analytical data from the three sampling events indicates that concentrations of PCE within the source area contained by the slurry wall fluctuated slightly and continue to remain well above the cleanup goals at most locations with

the highest concentrations of PCE being detected at approximately 18,000 µg/L. However, groundwater analytical data from most monitoring points outside of the slurry wall containment system continue to show a gradual decline in concentrations of PCE over time indicating that the slurry wall containment system may be effective. Exceptions to this gradual decline outside of the slurry wall are the bedrock monitoring wells of which some are exhibiting increases and five out of six exhibited concentrations above 100 µg/L during the fall 2008 round.

7.4 REMEDIAL PROGRESS WITHIN THE SLURRY WALL CONTAINMENT SYSTEM

A large mass of chlorinated VOC contamination remains inside the slurry wall containment system. The groundwater pump and treat and the SVE systems have removed considerable contaminant mass over the 9 years since the remedial systems have been operating. It is impossible to know how much contaminant mass remains in the source area; however, it is likely that the contaminant mass removed is only a small percentage of the total mass remaining in the source area. Overall, VOC concentration trends in monitoring wells in the source area have trended downward. Pilot scale ISCO injections in 2003 and 2004 helped contribute to this downward trend, although there has been rebound in many of the wells since the first two phases of ISCO injections. A larger scale ISCO program was implemented in the deep overburden in the source area in 2008; however, the effectiveness of the recent injections can not be evaluated until the results of monitoring rounds are available.

Two vadose zone contaminant sources were partially addressed during 2008. Contaminated soils in the vicinity of the former OK Tool leach field, that were identified during EPA soil gas and soil boring activities in 2007 and 2008, were excavated and stockpiled in preparation for treatment in 2009. The excavation area extended into the area targeted for treatment by the SVE system, close to vent SVE-6. The high contaminant levels found in the soil surrounding this vent point to the questionable effectiveness of SVE in remediating the vadose zone soil contamination. A localized area of contamination, apparently associated with an old buried OK Tool Facility drain pipe near PW-22, was identified by EPA soil boring program and is expected to be addressed in 2009.

It appears that the slurry wall has been effective in containing the source material, provided that the interior extraction wells are pumped at a sufficient rate to maintain a neutral or inward/upward hydraulic gradient (upward between the overburden and bedrock inside the wall, and inward between the overburden inside and outside of the wall). During 2008, WESTON carefully monitored the gradients and adjusted interior well extraction rates to minimize any leakage down into bedrock or under the eastern portion of the slurry wall. However, previous extended shutdowns of the treatment plant may have resulted in some migration of source area contamination into the bedrock or under the slurry wall. The upward VOC concentration trends observed in bedrock groundwater (discussed in Subsection 7.3) may be the result of these extended shutdowns.

7.5 REMEDIAL PROGRESS OUTSIDE THE SLURRY WALL CONTAINMENT SYSTEM

Groundwater extraction from the exterior extraction wells was discontinued in April 2007, because VOC concentrations were approaching the cleanup goals in most of the exterior monitoring wells. The OU-2 groundwater remediation system located downgradient of the OU-1 has been in operation continuously since January 2006, and is expected to capture residual contamination flowing downgradient. However, although most exterior monitoring wells have attained or are approaching cleanup goals, VOC concentrations in monitoring well PW-14M have not been decreasing as rapidly as in other areas of the overburden aquifer outside the containment wall. Concentrations of PCE in groundwater samples collected from PW-14M ranged from 442 to 682 µg/L during the reporting period. Two potential explanations of the recalcitrance in this area have been suggested. One is that the soils in this area are fine-grained and groundwater tends to flow around this area through more permeable soils, causing slower groundwater velocities here than in other areas. The other possible explanation is that the configuration of the OU-1 groundwater extraction system caused a stagnation point to develop in this area which would have also reduced groundwater velocities through the PW-14M area. The slower groundwater velocities would result in less flushing of the area and therefore increased cleanup time. If the recalcitrance was due to a stagnation point, discontinuing pumping outside the containment structure would be expected to help reduce VOC concentrations in PW-14M with time.

7.6 REMEDIAL PROGRESS IN BEDROCK AQUIFER

Although there has been significant remedial progress in the overburden groundwater outside the containment wall, contaminant concentrations in the bedrock aquifer have either been stable or have exhibited an increasing trend. Contaminant distribution and migration in the bedrock aquifer has not been adequately characterized and the bedrock migration pathway may present the greatest potential human health risk. There are indications that site contamination is migrating downward into the bedrock beneath the source area and potentially migrating to the north toward residential drinking water supply wells.

Tetrachloroethene concentrations in all six of the bedrock monitoring wells at the Site exceeded the maximum contaminant level during the 2008 monitoring rounds and only one of the bedrock monitoring wells (PW-5R) had PCE concentrations below 100 µg/L during the fall 2008 sampling round. Monitoring well PW-2R, located just outside the containment wall, has exhibited an increasing trend, indicating a possible bedrock migration pathway beneath the wall. An increasing concentration trend has also been observed in monitoring well MW-2R which is located on the north side of the Souhegan River, approximately 400 ft north of the source area. The PCE concentration in MW-2R has increased from 26 µg/L to 130 µg/L between 1998 and 2008. An increasing trend in MW-2R is of concern because there is a residential community with private bedrock drinking water wells located approximately 700 ft to the northwest of MW-2R. Although there have never been detections of VOCs in the residential wells, there is still a possibility of a connection between the bedrock fractures intercepting MW-2R and the residential wells, and a possibility that contamination may migrate to these wells at some time in the future.

7.7 REMEDIAL SYSTEM MODIFICATIONS AND EFFICIENCY IMPROVEMENTS

Modifications to the remedial systems in 2008 consisted of removal of the SVE blower and the air sparge compressor, construction of a bypass around the vapor-phase carbon for air stripper exhaust, replacement of the two low pressure steam boilers with two high efficiency water boilers, and adjustment of the plant ventilation system. As discussed previously, although the SVE system was able to remove considerable contaminant mass, it was not expected to be able to achieve site cleanup goals in the vadose soil in a reasonable time frame. Therefore, the

strategy for remediating the vadose zone soil was revised to excavation and on-site treatment. Once the SVE system was taken out of service, the large inefficient steam boilers were no longer needed for on-site regeneration of the vapor-phase carbon, and small energy efficient boilers could be used for building heat. Based on December 2008 and January 2009 utility bills, a 60% reduction in fuel costs over previous years is projected as a result of the plant modifications. There will also be significant labor savings because of the lower maintenance requirements of the new boilers.

Confirmation that the air stripper exhaust does not require treatment prior to discharge was received from ARD in April 2009. The stripper emissions were rerouted through the carbon bypass starting in May 2009.

7.8 DEEP OVERBURDEN IN SITU CHEMICAL OXIDATION ACTIVITIES

A total of 111,773.22 pounds of 40% (by weight) sodium permanganate solution was injected into the deep overburden inside the containment structure. Before injection, the permanganate solution was diluted to a concentration of 3 to 4% by weight. A total of 174,210 gallons of 3 to 4% solution was injected into the 21 wells, 7 of which were existing wells and 14 of which were newly installed injection points. Two new shallow extraction wells were installed to allow for continued groundwater extraction from inside the wall without extracting permanganate. During the injection process, hydraulic gradients were carefully monitored and pumping rates were adjusted to maintain neutral or slightly inward and upward gradients as much as possible, and to minimize the time during which gradients reversed. Post injection monitoring for the presence of permanganate indicated good distribution. However, the overall effectiveness of the ISCO program cannot be evaluated until a post-injection groundwater monitoring round has been conducted. The groundwater analytical data collected during this round can be compared to the baseline groundwater analytical data to evaluate the effectiveness.

7.9 LEACH FIELD AND PW-22 AREA SOILS

EPA identified two areas of contaminated vadose zone soils during soil gas and soil boring programs conducted in 2007 and 2008 and provided funding for addressing these areas during the 2008 field season. One area was the area of the former OK Tool Facility leach field. The

second area was the in the vicinity of monitoring well PW-22, Bench scale testing of soil from the leach field area was performed to evaluate the amenity of the soils to ISCO treatment by Fenton's Reagent, Modified Fenton's Reagent, RegenOx (percarbonate), and sodium permanganate. Based on the bench scale testing, none of these chemicals appeared to very cost-effective for treatment of the leach field soils. However, in order to make progress toward meeting EPA's objective, leach field soils with PCE concentrations exceeding the NHDES SRS of 2 mg/kg in the leach field were excavated and screened to remove cobbles greater than 4 inches in size. The contaminated soils were stockpiled over the winter for treatment in 2009, when a cost effective approach for treatment can be developed.

WESTON performed a test pit investigation in the PW-22 area in September 2008 and encountered a transite pipe from the former OK Tool Facility. A short segment of the pipe was removed and disposed of off-site as asbestos-containing material. Further characterization of the contaminated area in the vicinity of PW-24 will be performed in 2009, and these soils are likely to be excavated and treated with the leach field soils.

SECTION 8

RECOMMENDATIONS

8. RECOMMENDATIONS

- After receipt of confirmation that carbon treatment of the air stripper emissions is no longer required from NHDES ARD, and the air emissions from the air strippers has been redirected through the carbon bypass, any changes to the wells being used for groundwater extraction should be carefully evaluated to ensure that discharges remain below the levels requiring permitting.

- Spring and fall groundwater monitoring rounds should continue with a consistent list of monitoring wells. Variations in the wells sampled makes interpretation and modeling of the analytical data more difficult.

- Data from the spring 2009 monitoring round should be evaluated and supplemental permanganate injections are recommended in areas of permanganate depletement, VOC rebound, and areas where there was insufficient distribution of permanganate during the 2008 injections.

- Hydraulic gradients should continue to be monitored to ensure that a neutral or slightly inward/upward gradient is maintained inside the containment structure. Groundwater should continue to be extracted from shallow interior extraction wells IW-1A and IW-2A at the minimum flow rates required to maintain neutral or inward/upward gradients. Higher flow rates are not recommended since they would increase the probability of drawing permanganate into the treatment plant.

- When funding becomes available, the shallow overburden ISCO program should be implemented in accordance with the *ISCO Work Plan*, *Version 4* (WESTON, 2008e). However, permanganate should not be injected into the shallow overburden, unless the deep overburden zone has been sufficiently treated so that there is no longer a threat of contaminant migration into bedrock; or a permanganate neutralization system has been added to the groundwater treatment process so that pumping from interior extraction wells can be performed to maintain an inward/upward gradient.

- The recharge gallery should be inspected and, if appropriate, cleaned out to prevent future problems with siltation, mineral deposits, and/or biofouling.

- The contaminated, stockpiled, leach field soils should be treated, sampled for confirmation of attainment of treatment goals, and backfilled. The disturbed area should be restored and revegetated.

- Further investigations should be performed in the vicinity of PW-22 to delineate the soil with contaminant concentrations exceeding the NHDES SRS. The contaminated soil should be characterized, removed, and treated with the leach field soils, if possible.

- Further characterization into the nature and extent of contamination in the bedrock aquifer should be performed to determine whether remedial actions targeting the

bedrock will be necessary to achieve site closure and to evaluate the potential for contamination to impact the nearby residential wells. WESTON recommends performing the following investigations:

- Replace monitoring well PW-6R and install a second bedrock monitoring well in close proximity that will provide information on water quality in the deeper bedrock aquifer (greater than 50 ft below the top of bedrock). This well was not constructed properly, or has been damaged because it does not recharge after sampling and therefore, does not appear to adequately represent the bedrock water quality.

- Gather information, such as location coordinates, depths, and yields of the nearby bedrock residential wells.

- Install data loggers in MW-2R and other bedrock monitoring wells, and the Souhegan River to evaluate potential hydraulic connections between these wells, the river, and the residential wells. Monitor for water level fluctuations that would be indicative of residential well use.

- Install a shallow and a deep bedrock monitoring well in close proximity to existing monitoring well PW-14M. A minisonic drill rig could be used for the well installations and would allow for collection of overburden soil samples in the area of the recalcitrant contaminant concentrations. Soil samples should be analyzed for grain size and total organic carbon.

- Perform borehole logging in bedrock monitoring wells to identify fracture zones intercepted by wells.

- Evaluate vertical gradients between the overburden and bedrock to gain an understanding of the interconnectiveness of these two units.

SECTION 9

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9. REFERENCES

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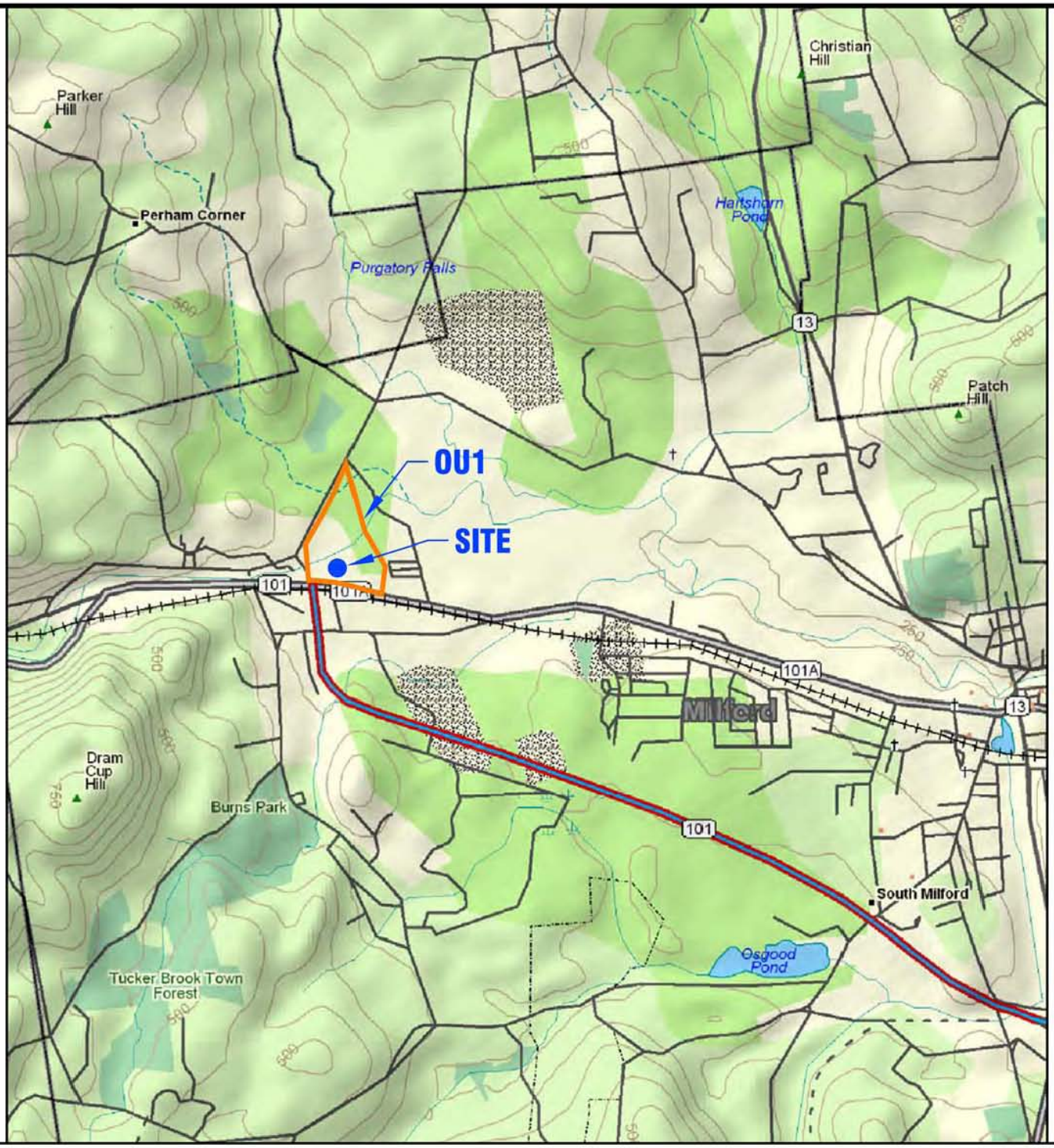
FIGURES



SOURCE:
DELORME 3-D TOPOQUADS
SOFTWARE; NEW HAMPSHIRE &
VERMONT 3-D TOPOQUADS CD

GRAPHIC SCALE
3000 1500 0 1500 3000
APPROXIMATE SCALE IN FEET

DRAFT ANNUAL REPORT FOR 2008
SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SITE LOCATION MAP

WESTON SOLUTIONS
MANCHESTER NEW HAMPSHIRE

DRAWN	BEG
DATE	FEB 2009
DRAWING NO.	1-1

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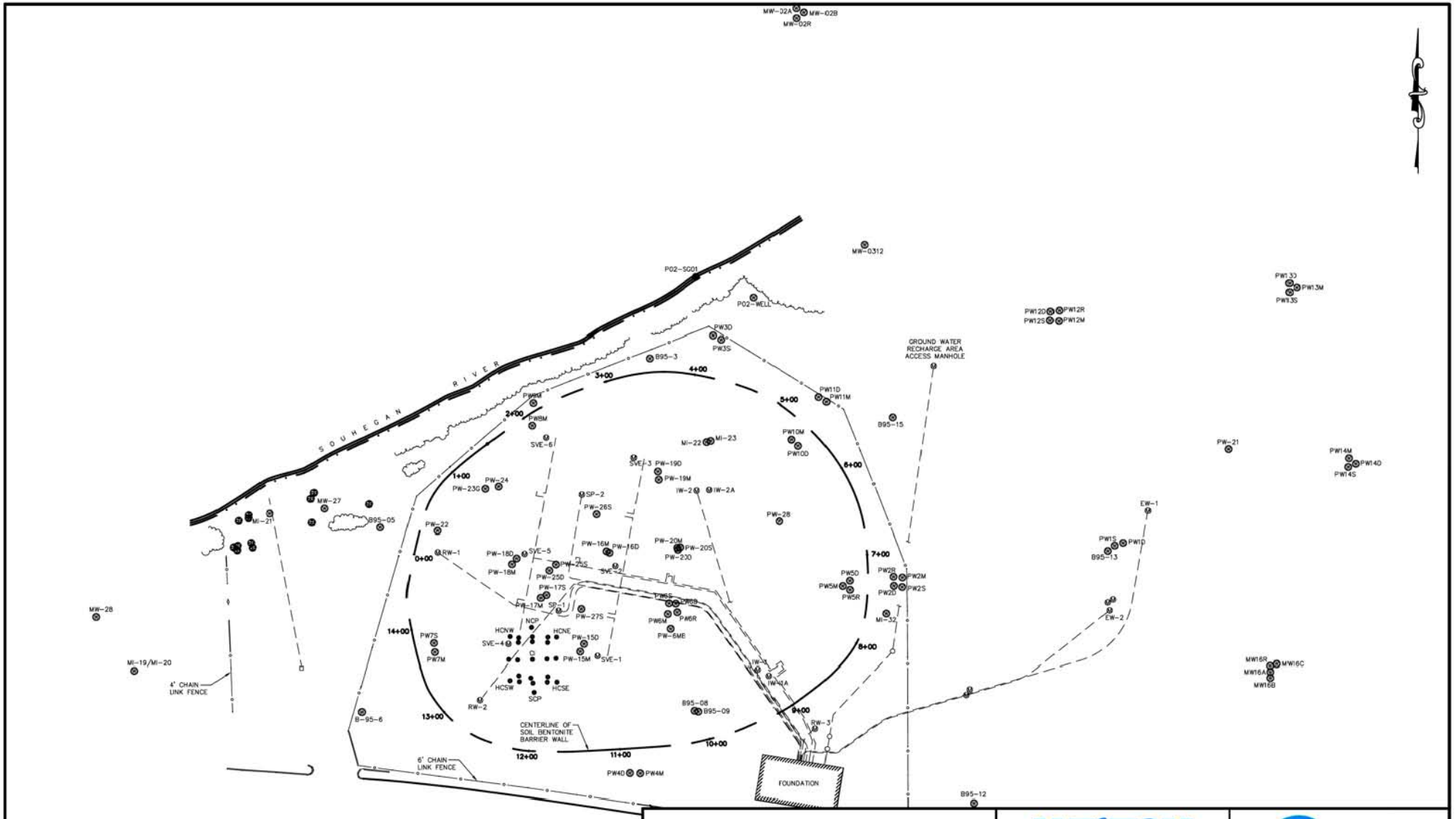

LEGEND

HCSE ● INEEL WELL LOCATION
PW5R Ⓦ MONITORING WELL LOCATION
IW-1 Ⓜ MANHOLE LOCATION

GRAPHIC SCALE
100 50 0 50 100
APPROXIMATE SCALE IN FEET

SITE PLAN

DRAFT ANNUAL REPORT FOR 2008
SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

WESTON SOLUTIONS
BEDFORD NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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CHECKED	DATE	SCALE	REVISION	FIGURE NO.
		AS SHOWN		1-2

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Figure 2-1
Influent Flow - July Through December 2007
Savage Municipal Water Supply Superfund Site

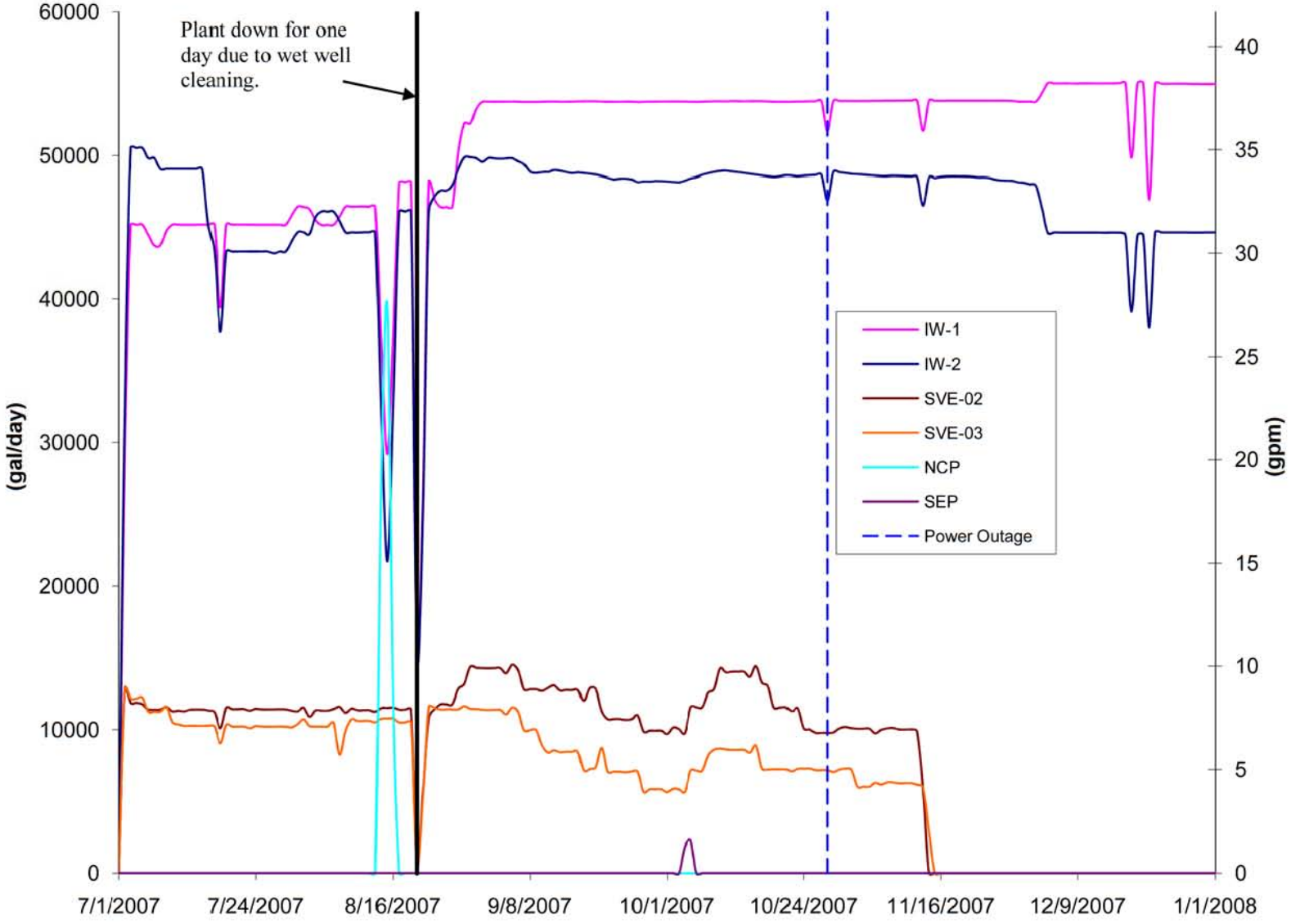


Figure 2-2
Influent Flow - 2008
Savage Municipal Water Supply Superfund Site

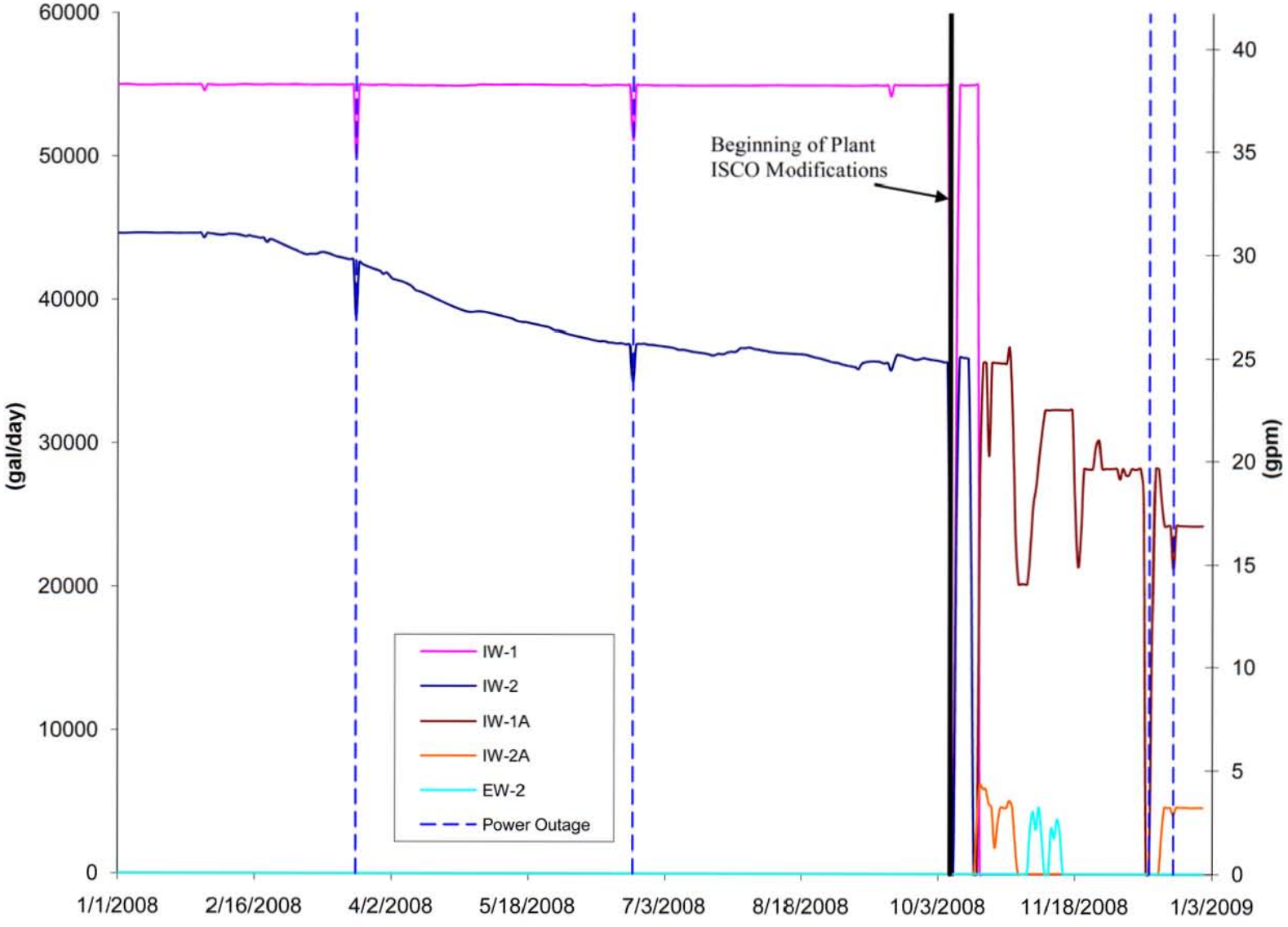


Figure 2-3
Effluent Flow - July Through December 2007
Savage Municipal Water Supply Superfund Site

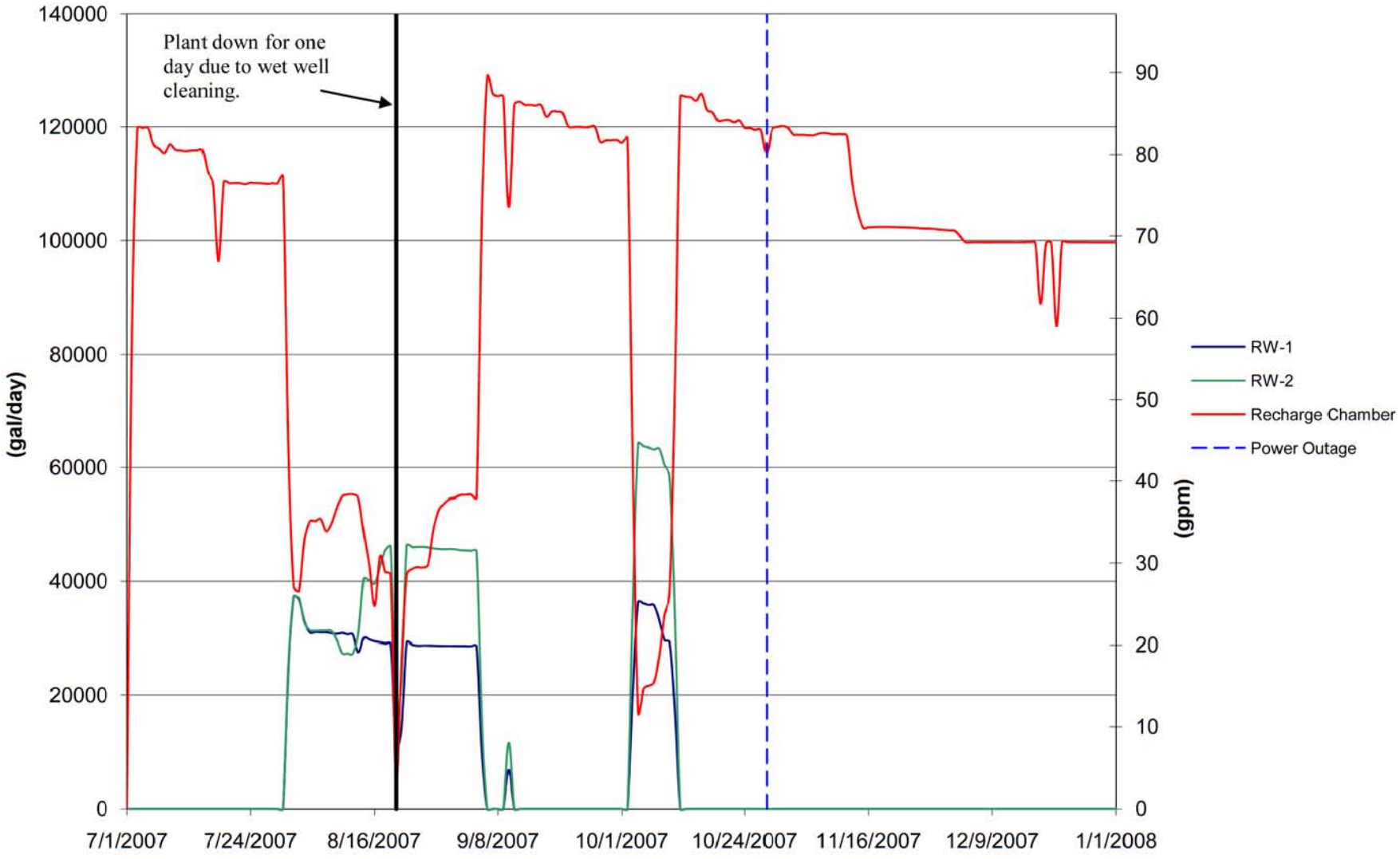
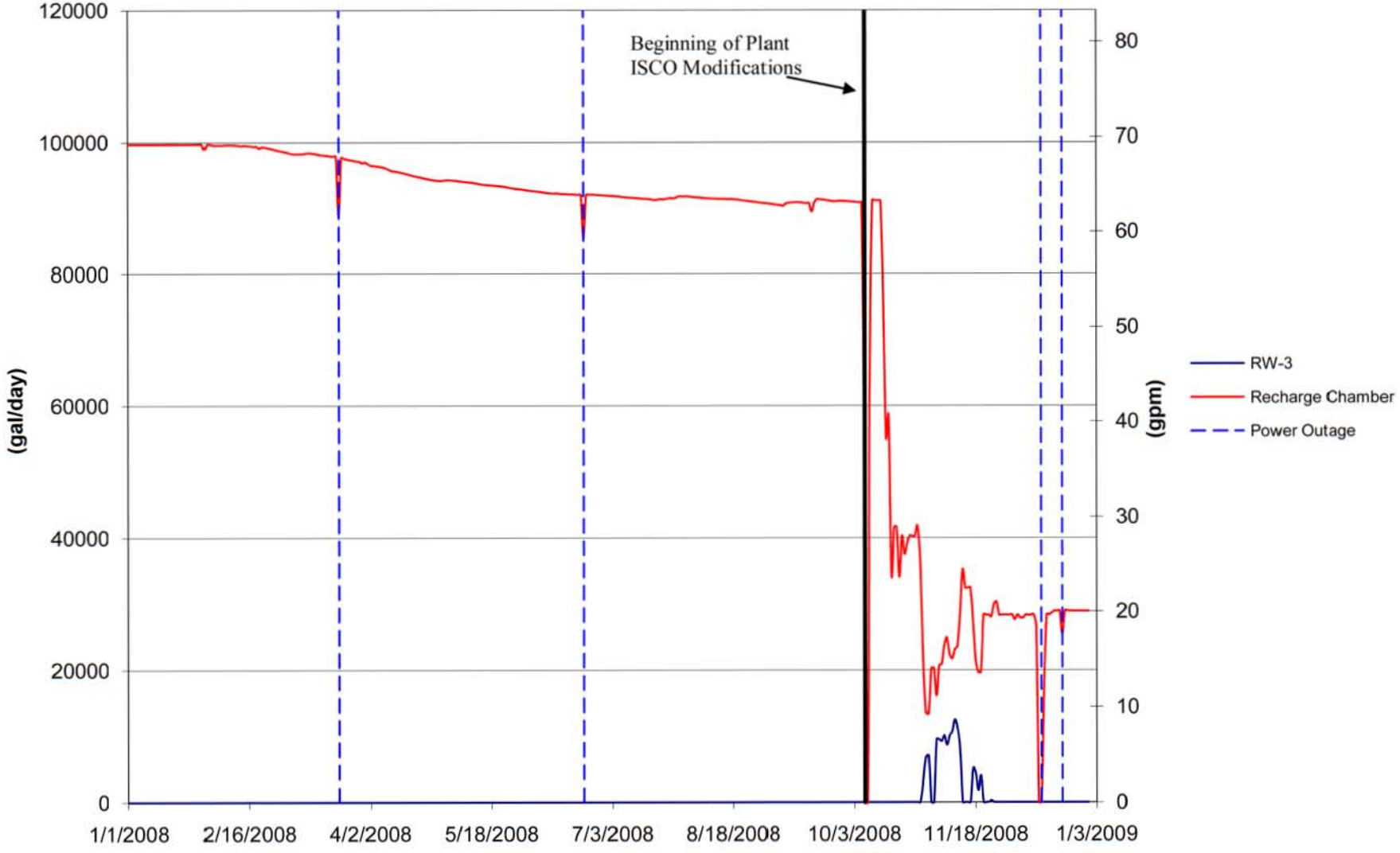
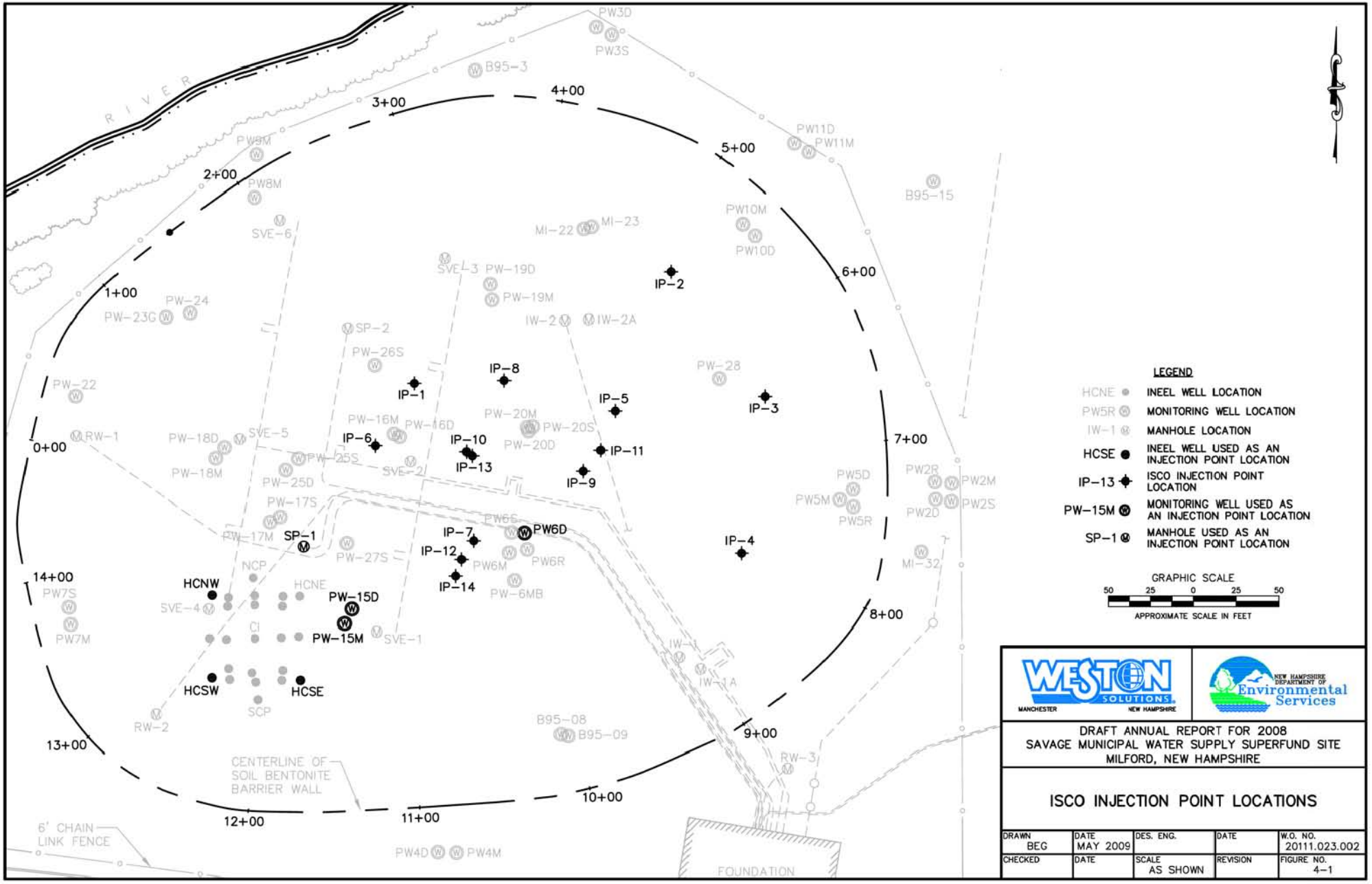


Figure 2-4
Effluent Flow - 2008
Savage Municipal Water Supply Superfund Site





LEGEND

HCNE	INEEL WELL LOCATION
PW5R	MONITORING WELL LOCATION
IW-1	MANHOLE LOCATION
HCSE	INEEL WELL USED AS AN INJECTION POINT LOCATION
IP-13	ISCO INJECTION POINT LOCATION
PW-15M	MONITORING WELL USED AS AN INJECTION POINT LOCATION
SP-1	MANHOLE USED AS AN INJECTION POINT LOCATION

GRAPHIC SCALE

50 25 0 25 50

APPROXIMATE SCALE IN FEET

WESTON SOLUTIONS
MANCHESTER NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

ISCO INJECTION POINT LOCATIONS

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		AS SHOWN		4-1

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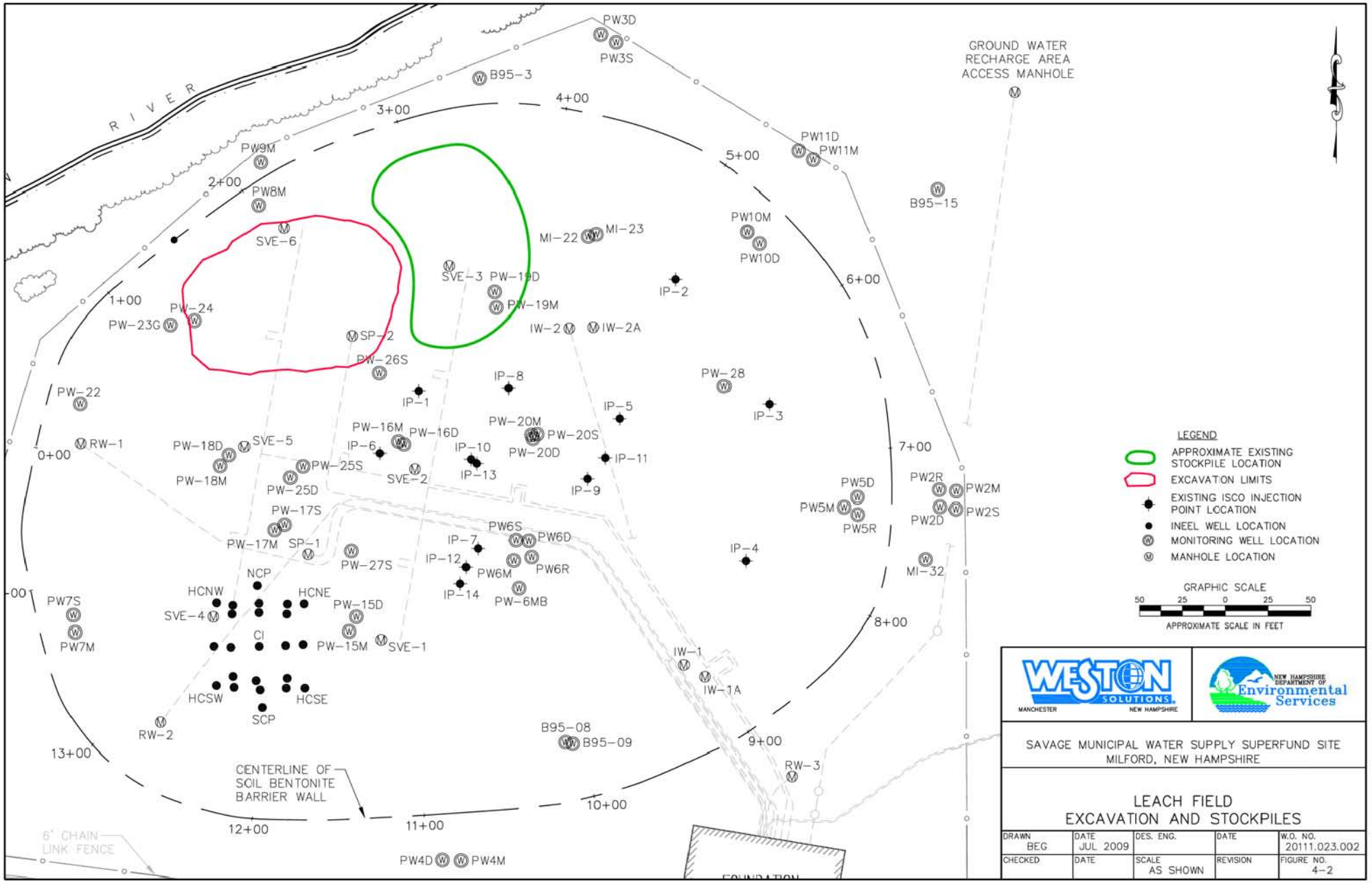
RIVER
PW3D
PW3S
B95-3
GROUND WATER RECHARGE AREA ACCESS MANHOLE
4+00
3+00
5+00
PW11D
PW11M
PW9M
2+00
PW8M
B95-15
PW10M
PW10D
SVE-6
MI-22
MI-23
SVE-3
PW-19D
PW-19M
IP-2
6+00
1+00
PW-24
PW-23G
SP-2
IW-2
IW-2A
PW-26S
IP-8
PW-28
PW-22
IP-1
IP-5
IP-3
PW-20M
PW-20S
PW-16M
PW-16D
0+00
RW-1
PW-18D
SVE-5
IP-6
IP-10
PW-20D
IP-11
7+00
PW-18M
PW-25S
SVE-2
IP-13
PW-25D
IP-9
PW5D
PW2R
PW2M
PW5M
PW2D
PW2S
PW-17S
PW5R
PW6S
PW6D
PW-17M
SP-1
IP-7
IP-4
PW-27S
IP-12
PW6M
PW6R
MI-32
NCP
HCNW
HCNE
IP-14
PW-6MB
PW7S
PW-15D
SVE-4
8+00
CI
PW7M
PW-15M
SVE-1
IW-1
IW-1A
HCSW
HCSE
SCP
RW-2
B95-08
B95-09
9+00
13+00
RW-3
CENTERLINE OF SOIL BENTONITE BARRIER WALL
10+00
12+00
11+00
6' CHAIN LINK FENCE
PW4D
PW4M
FOUNDATION
LEGEND
APPROXIMATE EXISTING STOCKPILE LOCATION
EXCAVATION LIMITS
EXISTING ISCO INJECTION POINT LOCATION
INEEL WELL LOCATION
MONITORING WELL LOCATION
MANHOLE LOCATION
GRAPHIC SCALE
50 25 0 25 50
APPROXIMATE SCALE IN FEET
WESTON SOLUTIONS
MANCHESTER NEW HAMPSHIRE
NEW HAMPSHIRE DEPARTMENT OF Environmental Services
SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE
LEACH FIELD
EXCAVATION AND STOCKPILES
DRAWN BEG
DATE JUL 2009
DES. ENG.
DATE
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SCALE AS SHOWN
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FIGURE NO. 4-2
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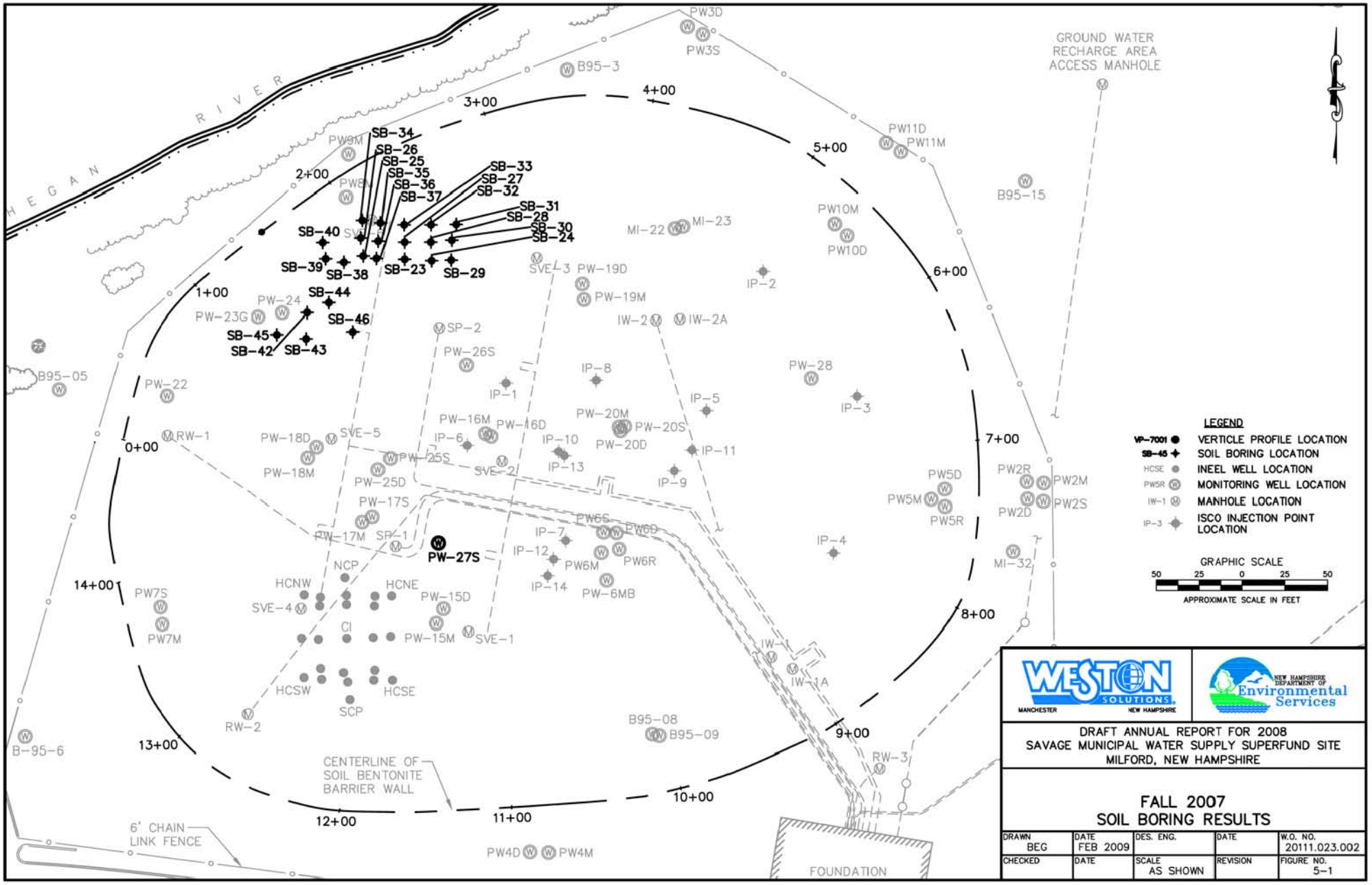

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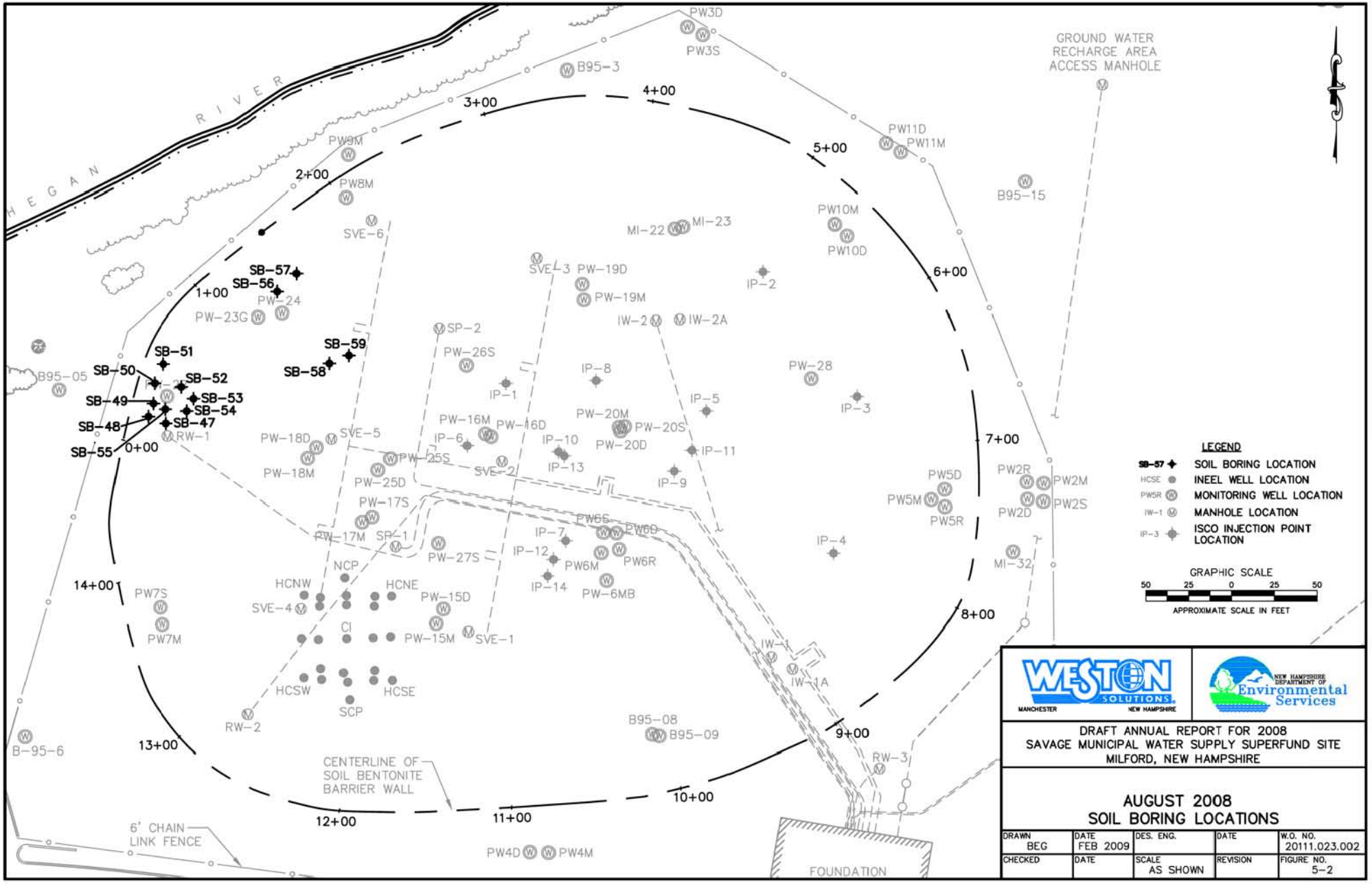
HEGAN RIVER
GROUND WATER RECHARGE AREA ACCESS MANHOLE
PW3D
PW3S
B95-3
PW9M
PW8M
SVE-6
PW11D
PW11M
B95-15
PW10M
PW10D
MI-22
MI-23
SVE-3
PW-19D
PW-19M
IP-2
IW-2
IW-2A
SP-2
PW-26S
PW-28
IP-8
IP-1
IP-5
IP-3
PW-20M
PW-20S
PW-20D
PW-16M
PW-16D
IP-6
IP-10
IP-13
IP-11
IP-9
PW-18D
SVE-5
PW-18M
PW-25S
PW-25D
SVE-2
PW-17S
PW-17M
SP-1
PW-27S
PW6S
PW6D
IP-7
IP-12
PW6M
PW6R
IP-14
PW-6MB
IP-4
PW5D
PW5M
PW5R
PW2R
PW2M
PW2D
PW2S
MI-32
B95-05
SB-57
SB-56
SB-59
SB-58
SB-51
SB-50
SB-52
SB-49
SB-53
SB-54
SB-48
SB-47
SB-55
RW-1
PW-24
PW-23G
PW7S
PW7M
NCP
HCNW
HCNE
SVE-4
CI
PW-15D
PW-15M
SVE-1
HCSW
HCSE
SCP
RW-2
B-95-6
B95-08
B95-09
IW-1
IW-1A
RW-3
PW4D
PW4M
FOUNDATION
CENTERLINE OF SOIL BENTONITE BARRIER WALL
6' CHAIN LINK FENCE
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
11+00
12+00
13+00
14+00
LEGEND
SB-57 SOIL BORING LOCATION
HCSE INEEL WELL LOCATION
PW5R MONITORING WELL LOCATION
IW-1 MANHOLE LOCATION
IP-3 ISCO INJECTION POINT LOCATION
GRAPHIC SCALE
50 25 0 25 50
APPROXIMATE SCALE IN FEET
WESTON SOLUTIONS
MANCHESTER NEW HAMPSHIRE
NEW HAMPSHIRE DEPARTMENT OF Environmental Services
DRAFT ANNUAL REPORT FOR 2008
SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE
AUGUST 2008
SOIL BORING LOCATIONS
DRAWN BEG
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FIGURE NO. 5-2
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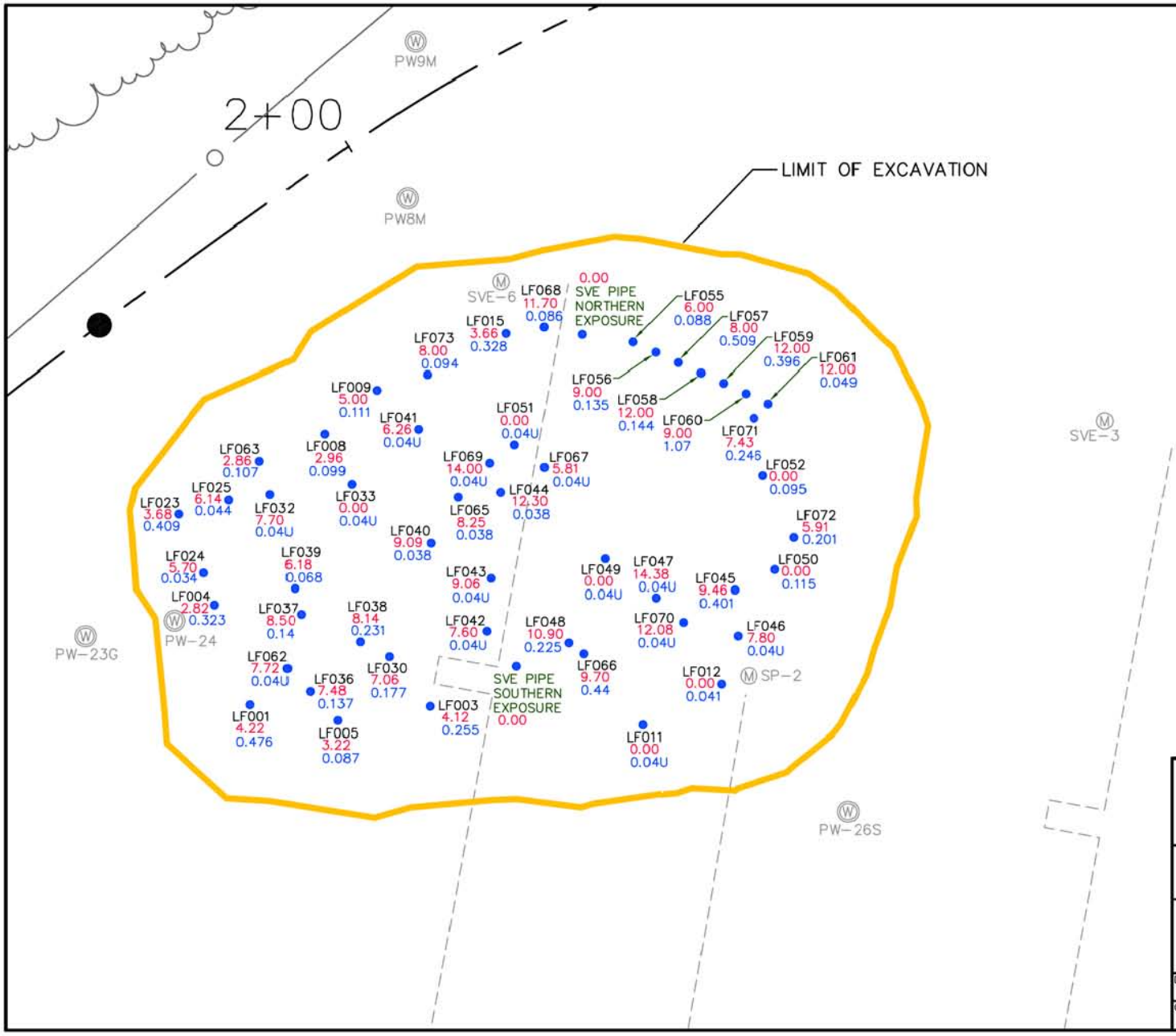

LEGEND

- ● CONFIRMATION SAMPLE LOCATION WITH DEPTH AND ID
- LF071 — SAMPLE ID
- 7.43 — SAMPLE DEPTH
- 0.246 — PCE RESULT (MG/KG)
- U — PCE NOT DETECTED
- PW5R (W) — MONITORING WELL LOCATION
- IW-1 (M) — MANHOLE LOCATION

GRAPHIC SCALE

16 8 0 8 16

APPROXIMATE SCALE IN FEET

NOTE:

1) LOCATIONS AND DEPTHS OF LF055–LF061 AND LF073 ARE APPROXIMATE, ALL OTHER LOCATIONS ARE ACTUAL
2) REFER TO TABLES 5–3 & 5–4 FOR ANALYTICAL DATA
3) LOCATIONS OF CONFIRMATION SAMPLES COLLECTED AT FINAL EXTENT OF EXCAVATION

WESTON SOLUTIONS — MANCHESTER, NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

LEACH FIELD EXCAVATION CONFIRMATION SAMPLE LOCATIONS

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		AS SHOWN		5–3

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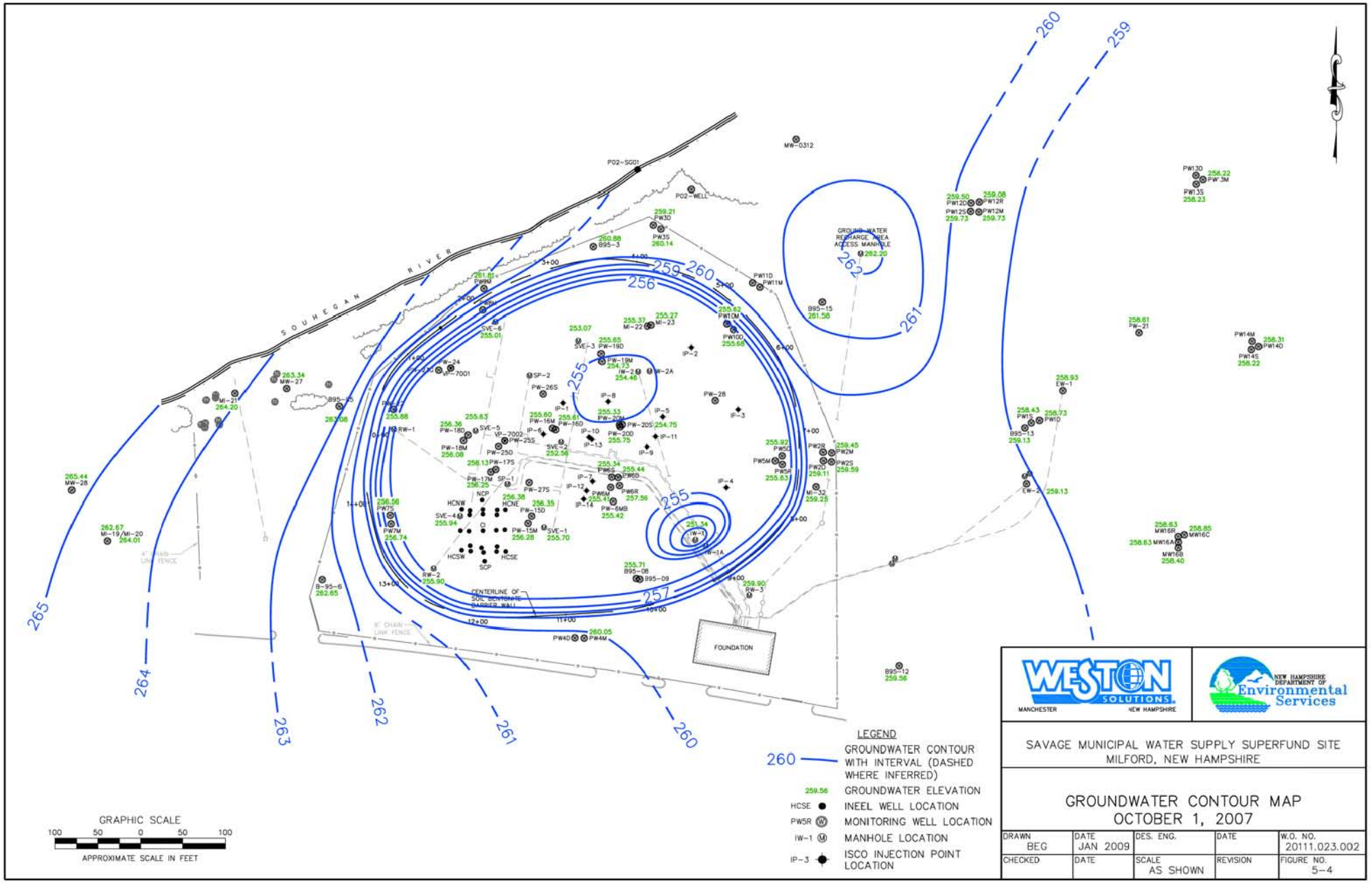

WESTON SOLUTIONS
MANCHESTER NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

GROUNDWATER CONTOUR MAP
OCTOBER 1, 2007

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		AS SHOWN		5-4

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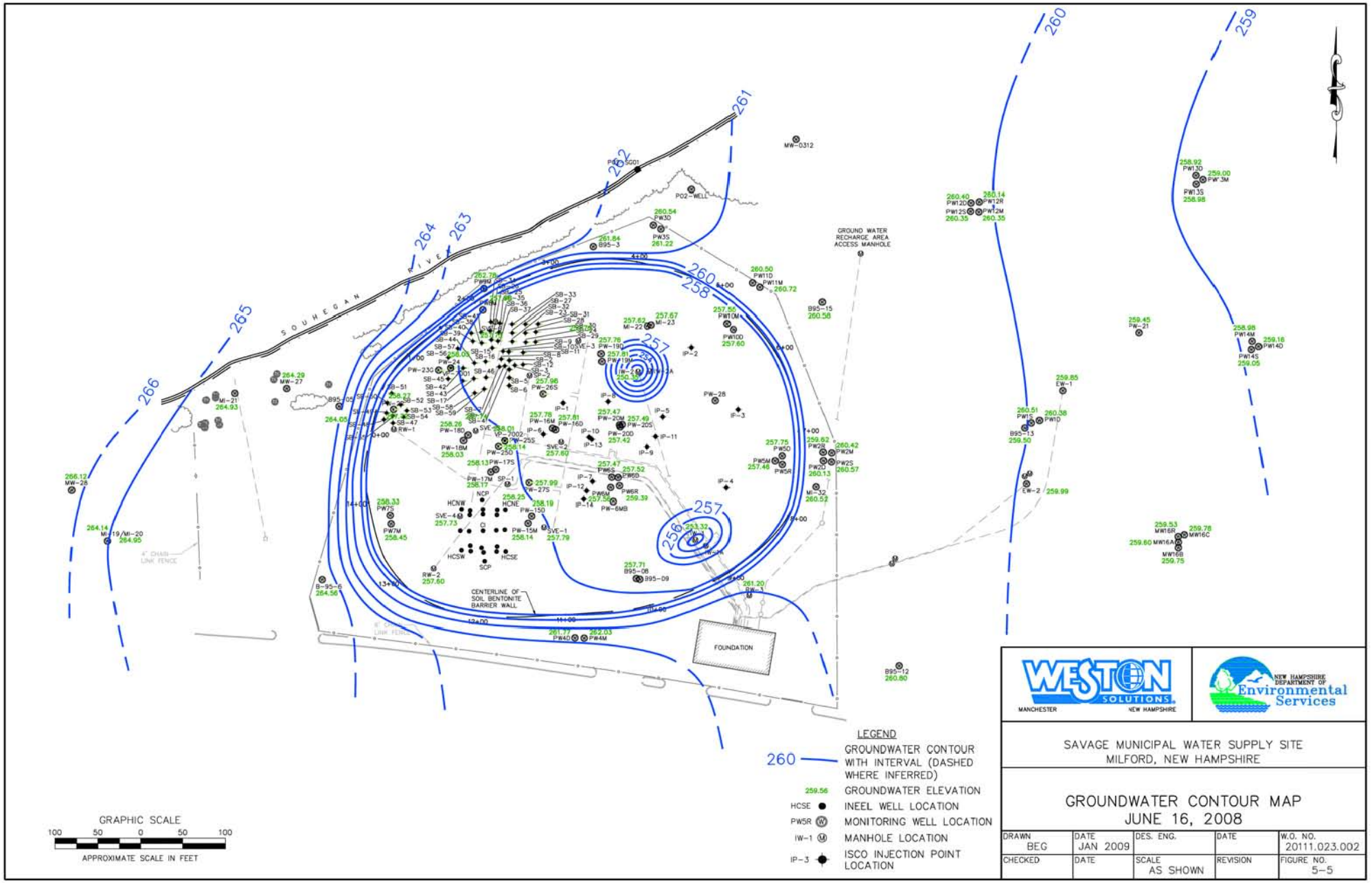

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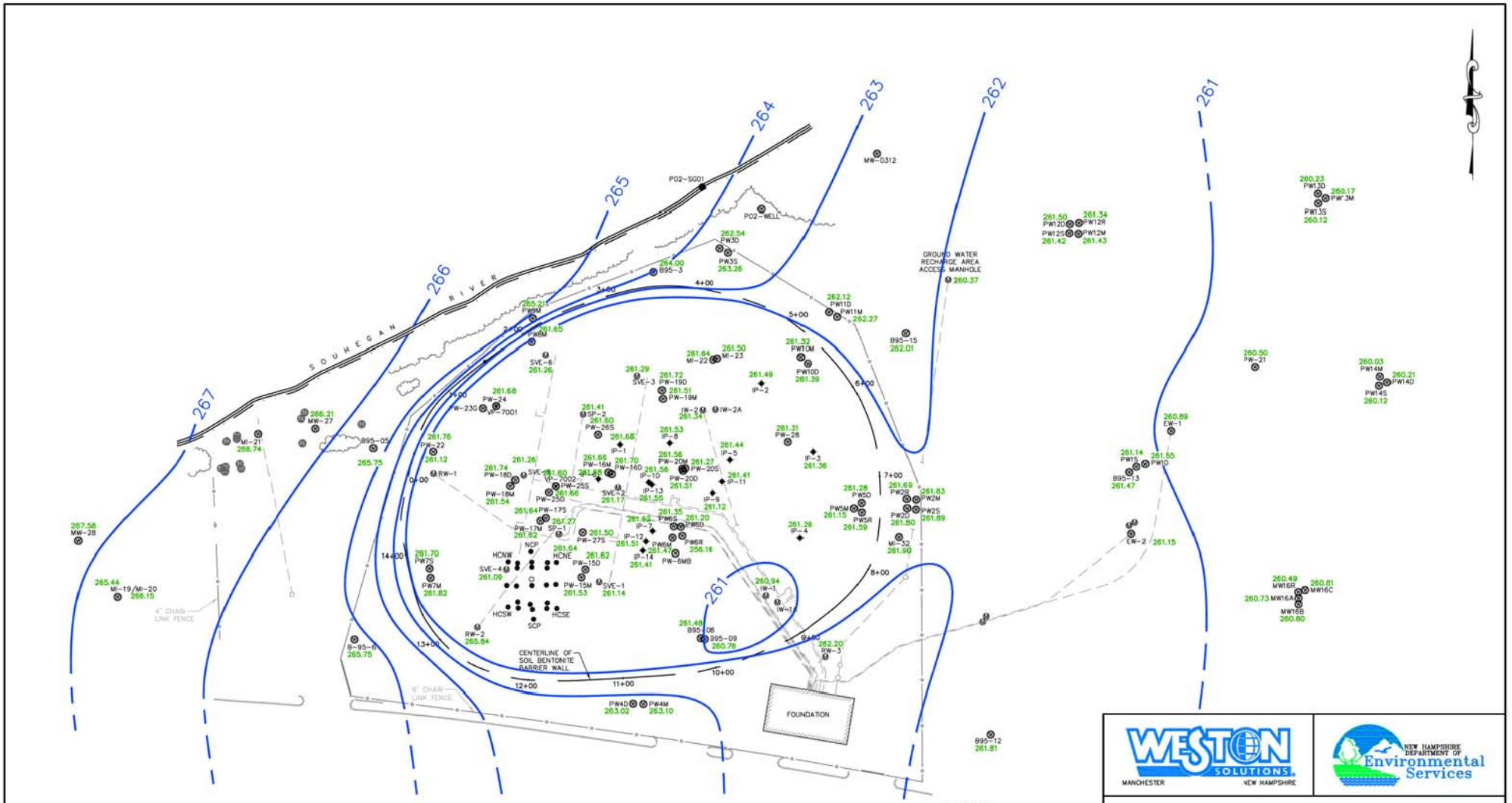

LEGEND

263 — GROUNDWATER CONTOUR WITH INTERVAL (DASHED WHERE INFERRED)

259.56 GROUNDWATER ELEVATION

HCSE ● INEEL WELL LOCATION

PW5R Ⓦ MONITORING WELL LOCATION

IW-1 Ⓜ MANHOLE LOCATION

IP-3 ✚ ISCO INJECTION POINT LOCATION

WESTON SOLUTIONS
MANCHESTER NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

GROUNDWATER CONTOUR MAP
NOVEMBER 26, 2008

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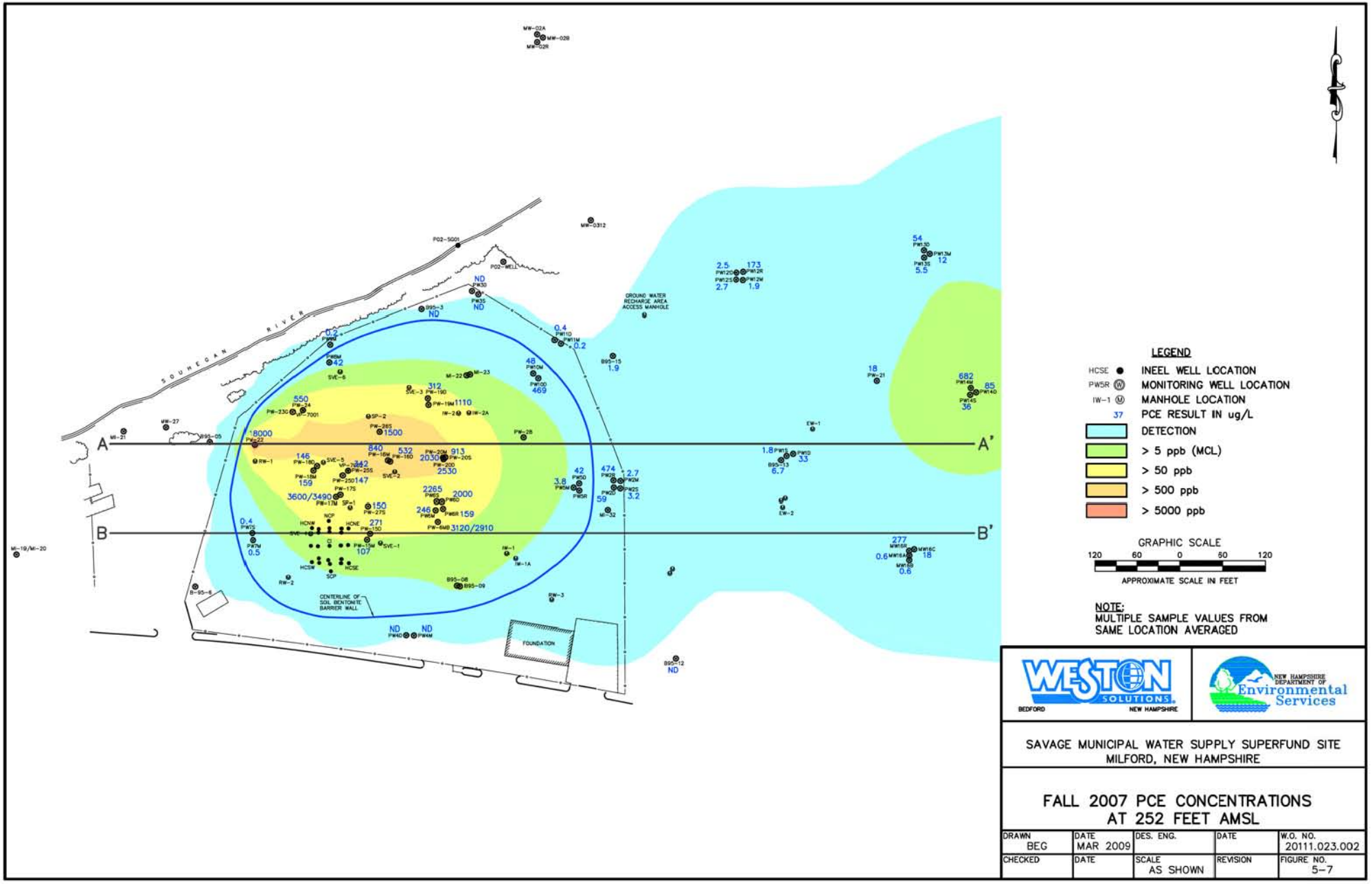

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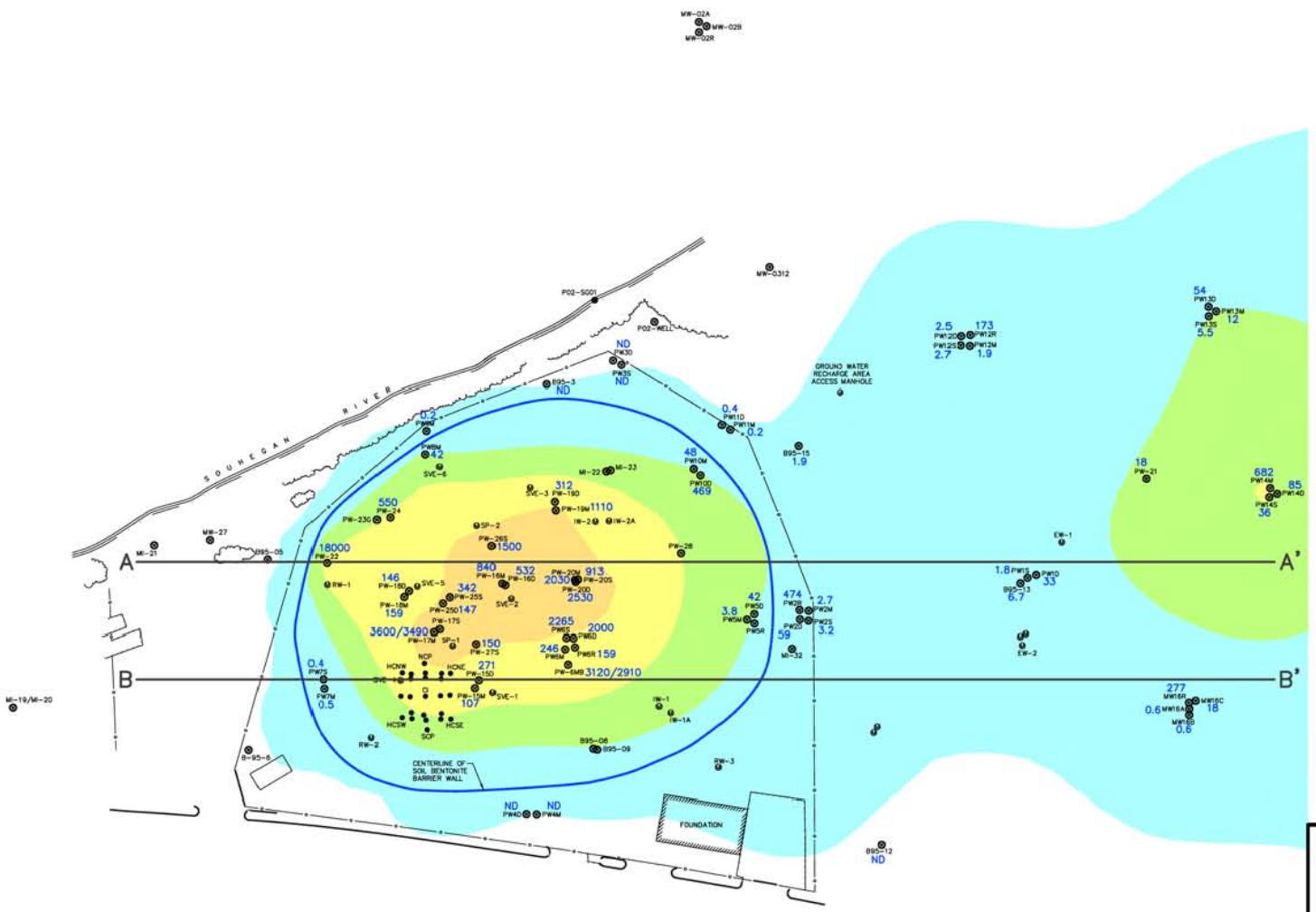

LEGEND

- HCSE ● INEEL WELL LOCATION
- PW5R Ⓦ MONITORING WELL LOCATION
- IW-1 Ⓜ MANHOLE LOCATION
- 37 PCE RESULT IN ug/L
- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb

GRAPHIC SCALE

120 60 0 60 120

APPROXIMATE SCALE IN FEET

NOTE:
MULTIPLE SAMPLE VALUES FROM SAME LOCATION AVERAGED

WESTON SOLUTIONS
BEDFORD NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

FALL 2007 PCE CONCENTRATIONS AT 235 FEET AMSL

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BEG	MAR 2009			20111.023.002
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		AS SHOWN		5-8

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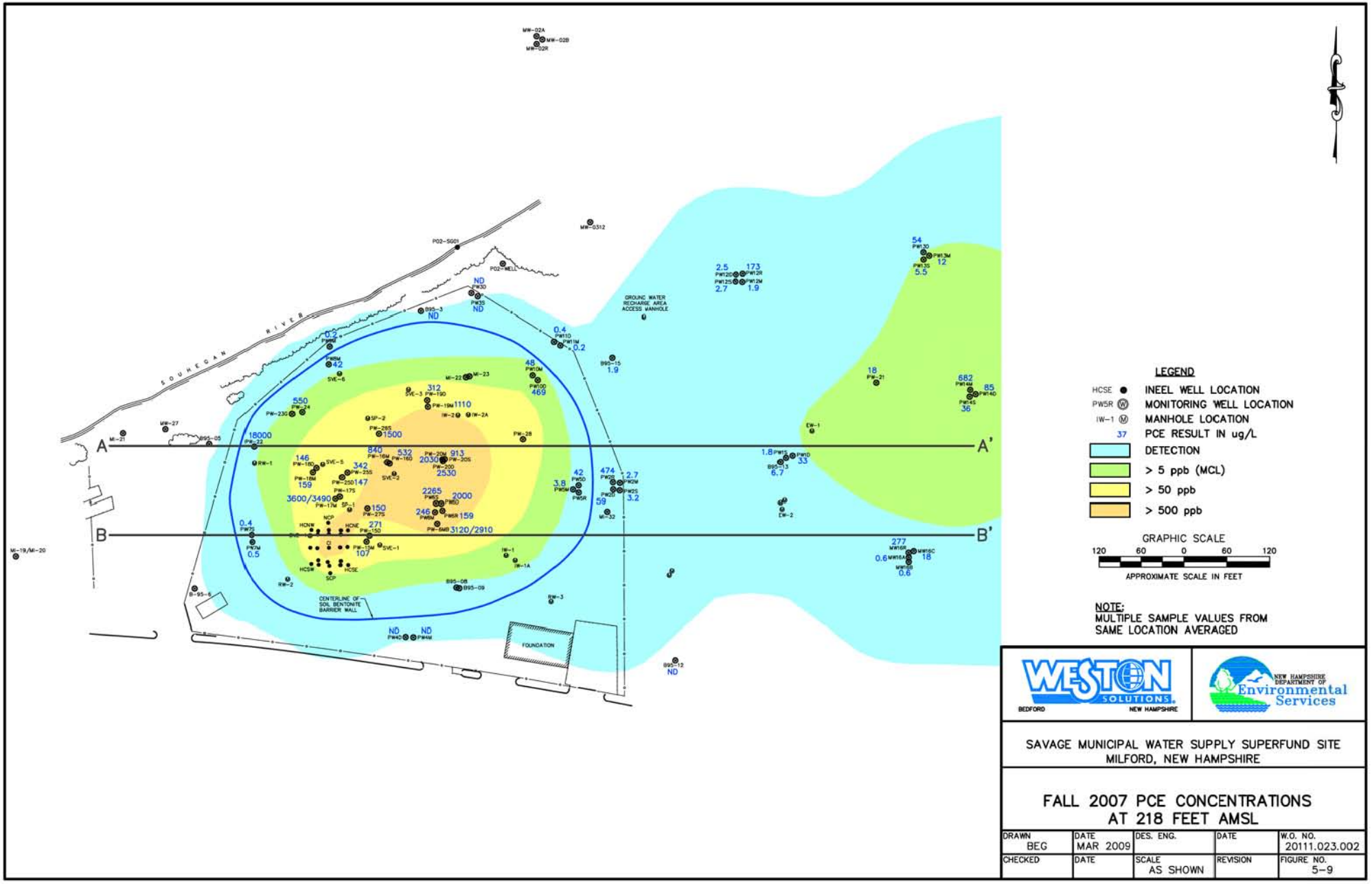

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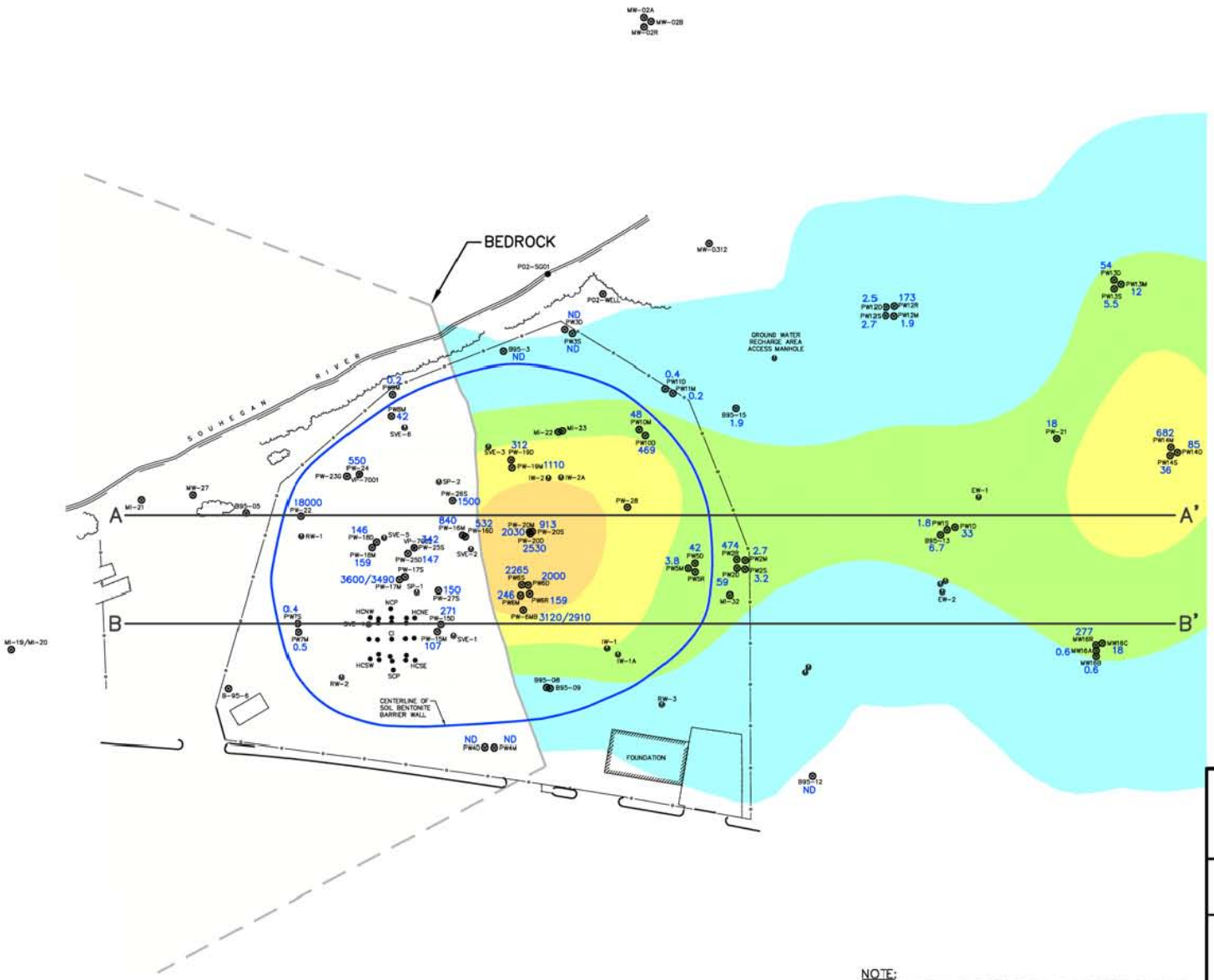

LEGEND

- HCSE ● INEEL WELL LOCATION
- PW5R (W) MONITORING WELL LOCATION
- IW-1 (M) MANHOLE LOCATION
- 37 PCE RESULT IN ug/L
- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb

GRAPHIC SCALE

120 60 0 60 120

APPROXIMATE SCALE IN FEET

NOTE:
MULTIPLE SAMPLE VALUES FROM SAME LOCATION AVERAGED

NOTE:
PLUME WITHIN THE BEDROCK IS INFERRED BY THE MODEL BASED ON CONCENTRATIONS OBSERVED IN THE OVERBURDEN AND THE LIMITED BEDROCK MONITORING LOCATIONS

WESTON SOLUTIONS BEDFORD NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

FALL 2007 PCE CONCENTRATIONS AT 195 FEET AMSL

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BEG	MAR 2009			20111.023.002
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		AS SHOWN		5-10

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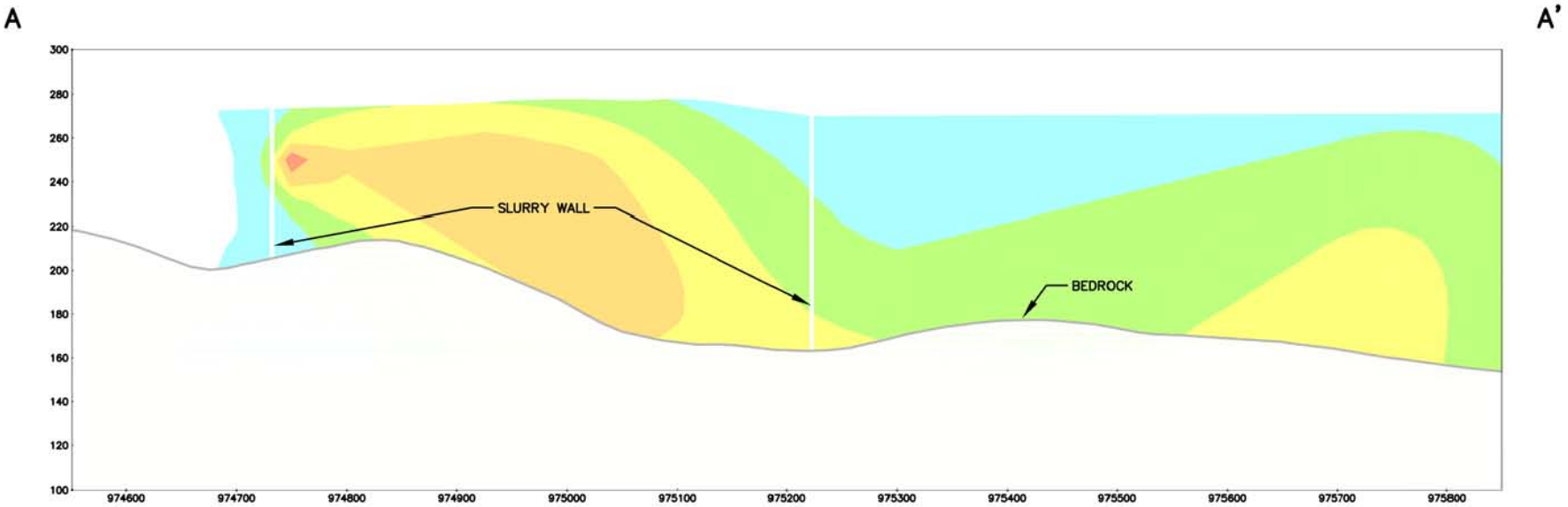

LEGEND

- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb
- > 5000 ppb

HORIZONTAL GRAPHIC SCALE

100 50 0 50 100

APPROXIMATE SCALE IN FEET

VERTICAL GRAPHIC SCALE

50 25 0 25 50

APPROXIMATE SCALE IN FEET

NOTE:
CROSS SECTION CUT ALONG NORTHING COORDINATE 125,025

WESTON SOLUTIONS
BEDFORD NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

FALL 2007 PCE CONCENTRATIONS
CROSS-SECTION A-A'

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BEG	MAR 2009			20111.023.002
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
		AS SHOWN		5-11

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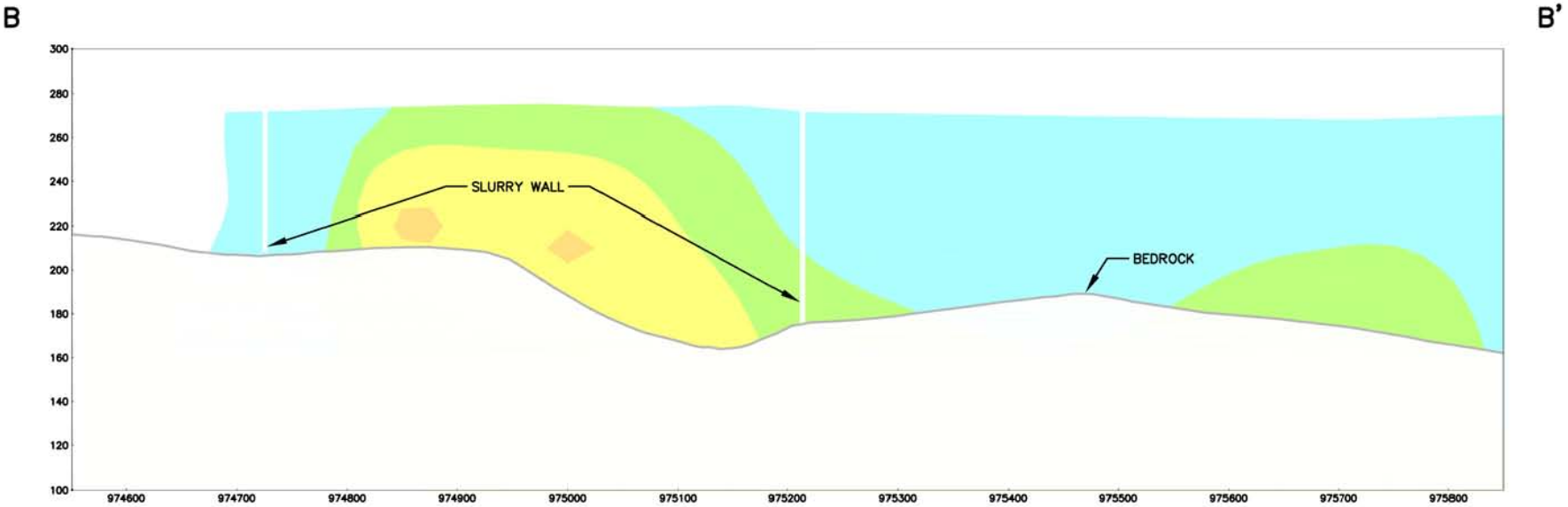

LEGEND

- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb

HORIZONTAL GRAPHIC SCALE

100 50 0 50 100

APPROXIMATE SCALE IN FEET

VERTICAL GRAPHIC SCALE

50 25 0 25 50

APPROXIMATE SCALE IN FEET

NOTE:
CROSS SECTION CUT ALONG NORTHING COORDINATE 124,900

WESTON SOLUTIONS
BEDFORD NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

FALL 2007 PCE CONCENTRATIONS
CROSS-SECTION B-B'

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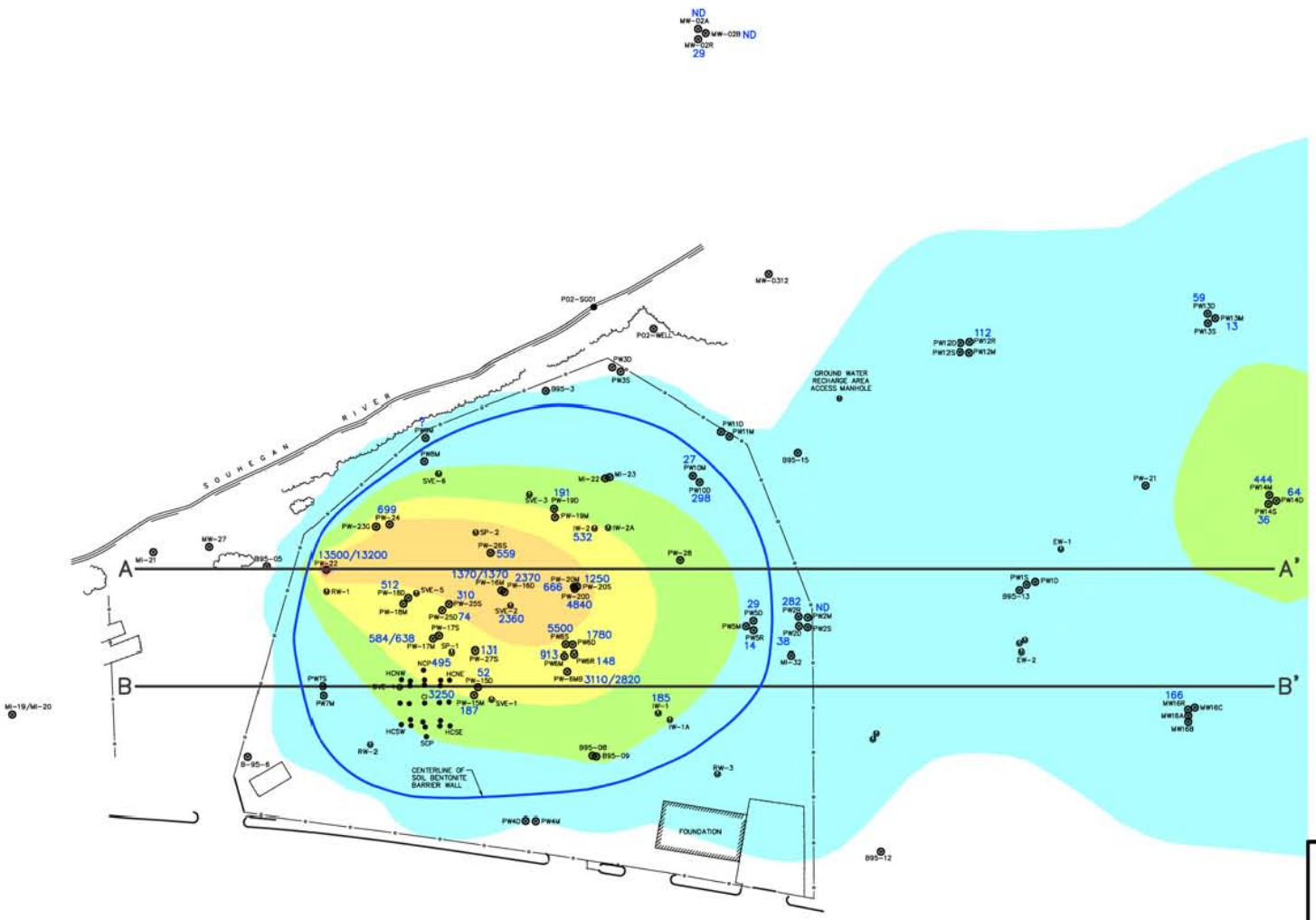

LEGEND

HCSE ●	INEEL WELL LOCATION
PW5R Ⓦ	MONITORING WELL LOCATION
IW-1 Ⓜ	MANHOLE LOCATION
37	PCE RESULT IN ug/L
	DETECTION
	> 5 ppb (MCL)
	> 50 ppb
	> 500 ppb
	> 5000 ppb

GRAPHIC SCALE

120 60 0 60 120

APPROXIMATE SCALE IN FEET

NOTE:
MULTIPLE SAMPLE VALUES FROM SAME LOCATION AVERAGED

WESTON SOLUTIONS
BEDFORD NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

SPRING 2008 PCE CONCENTRATIONS AT 252 FEET AMSL

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BEG	MAR 2009			20111.023.002
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
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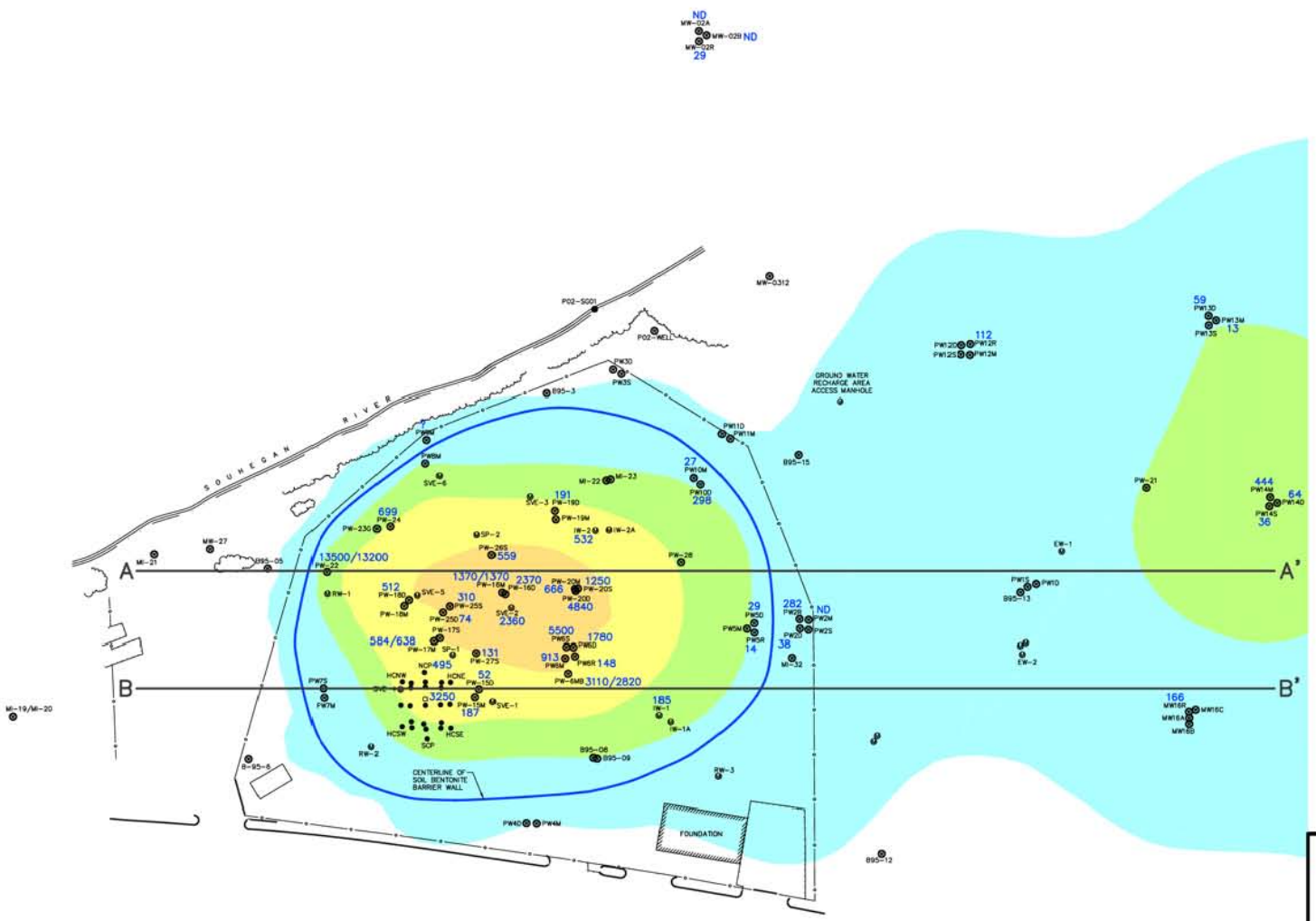

LEGEND

- HCSE ● INEEL WELL LOCATION
- PW5R Ⓦ MONITORING WELL LOCATION
- IW-1 Ⓜ MANHOLE LOCATION
- 37 PCE RESULT IN ug/L
- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb

GRAPHIC SCALE

120 60 0 60 120

APPROXIMATE SCALE IN FEET

NOTE:
MULTIPLE SAMPLE VALUES FROM SAME LOCATION AVERAGED

WESTON SOLUTIONS — BEDFORD NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

SPRING 2008 PCE CONCENTRATIONS AT 235 FEET AMSL

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BEG	MAR 2009			20111.023.002
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
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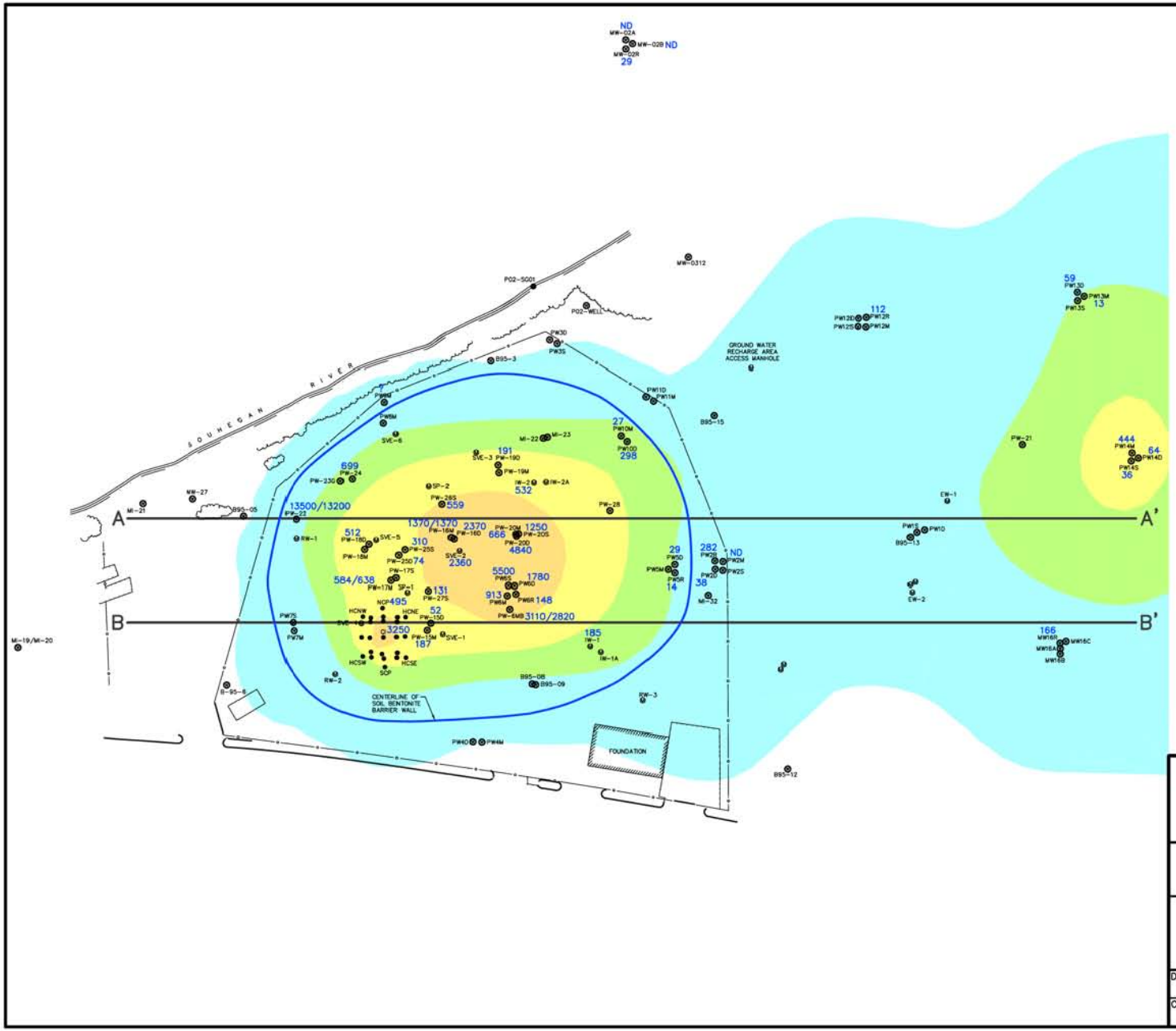

LEGEND

- HCSE ● INEEL WELL LOCATION
- PW5R Ⓦ MONITORING WELL LOCATION
- IW-1 Ⓜ MANHOLE LOCATION
- 37 PCE RESULT IN ug/L
- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb

GRAPHIC SCALE

120 60 0 60 120

APPROXIMATE SCALE IN FEET

NOTE:
MULTIPLE SAMPLE VALUES FROM SAME LOCATION AVERAGED

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SPRING 2008 PCE CONCENTRATIONS AT 218 FEET AMSL

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BEG	MAR 2009			20111.023.002
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
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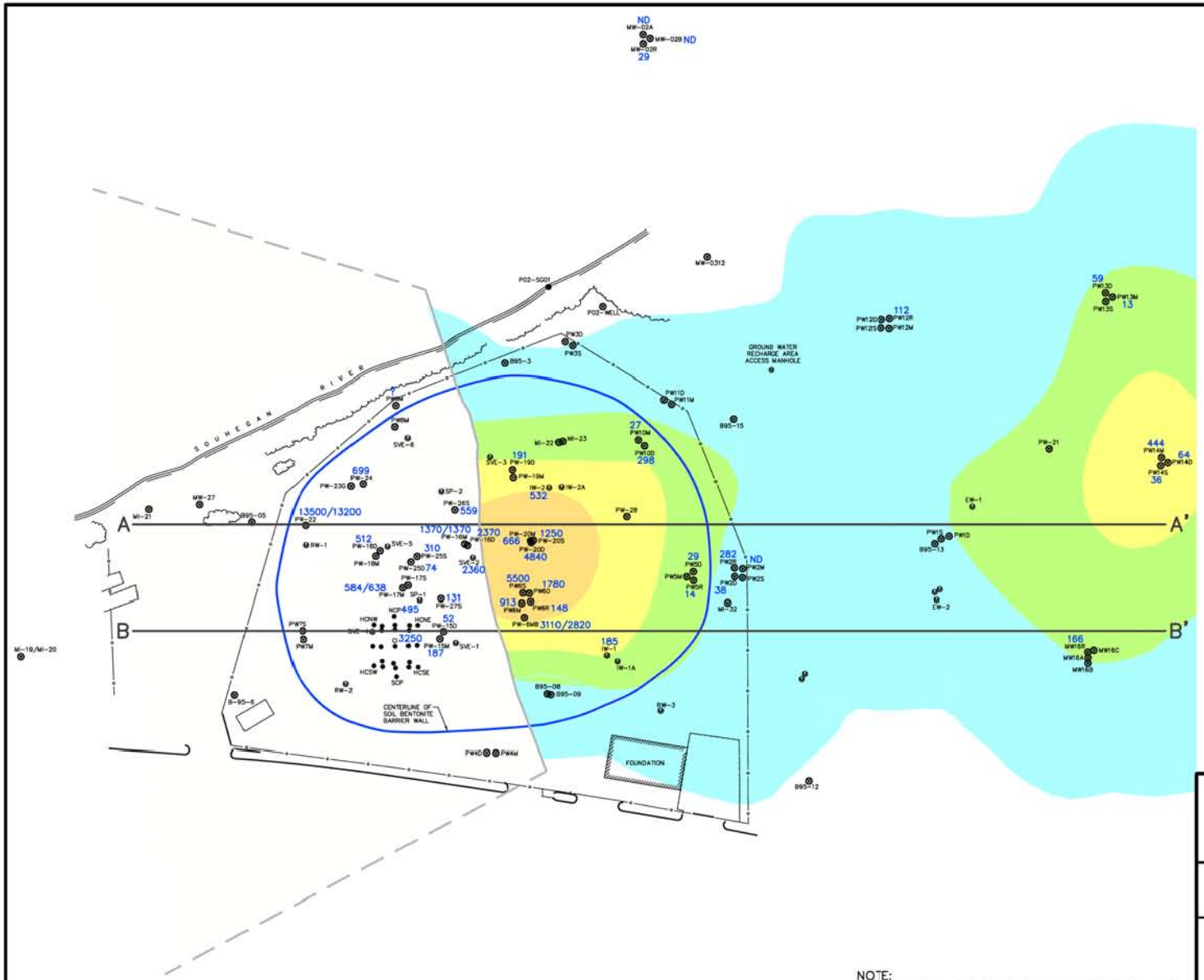

LEGEND

- HCSE ● INEEL WELL LOCATION
- PW5R Ⓦ MONITORING WELL LOCATION
- IW-1 Ⓜ MANHOLE LOCATION
- 37 PCE RESULT IN ug/L
- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb

GRAPHIC SCALE

120 60 0 60 120

APPROXIMATE SCALE IN FEET

NOTE:
MULTIPLE SAMPLE VALUES FROM SAME LOCATION AVERAGED

NOTE:
PLUME WITHIN THE BEDROCK IS INFERRED BY THE MODEL BASED ON CONCENTRATIONS OBSERVED IN THE OVERBURDEN AND THE LIMITED BEDROCK MONITORING LOCATIONS

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MILFORD, NEW HAMPSHIRE

SPRING 2008 PCE CONCENTRATIONS AT 195 FEET AMSL

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BEG	MAR 2009			20111.023.002
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
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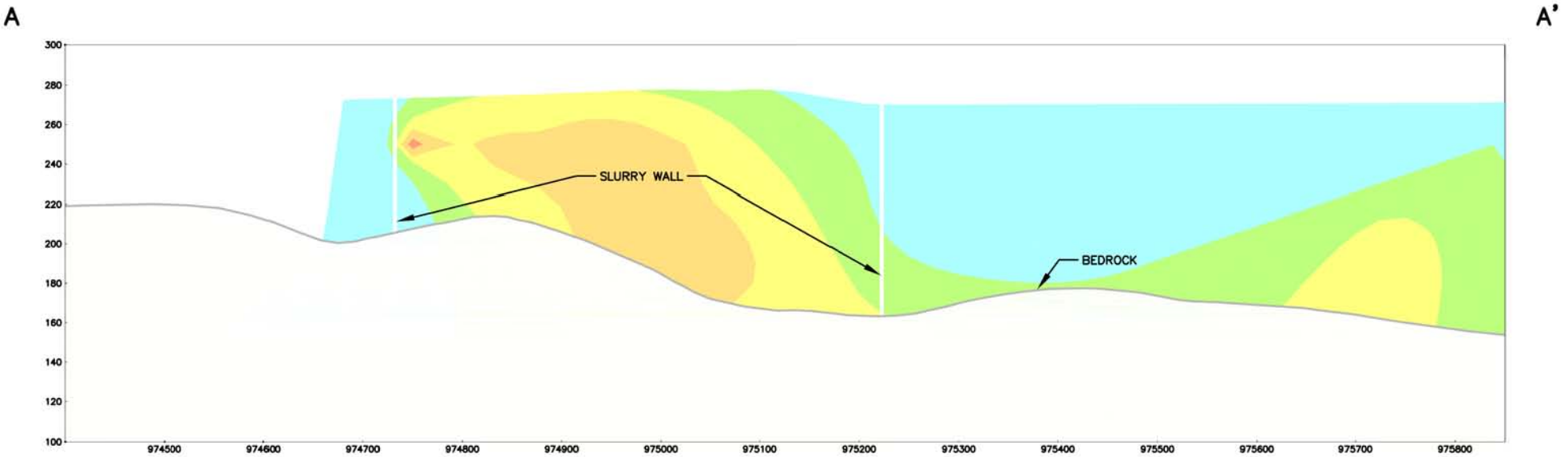

LEGEND

- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb
- > 5000 ppb

HORIZONTAL GRAPHIC SCALE

100 50 0 50 100

APPROXIMATE SCALE IN FEET

VERTICAL GRAPHIC SCALE

50 25 0 25 50

APPROXIMATE SCALE IN FEET

NOTE:
CROSS SECTION CUT ALONG NORTHING COORDINATE 125,025

WESTON SOLUTIONS BEDFORD NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

SPRING 2008 PCE CONCENTRATIONS
CROSS-SECTION A-A'

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BEG	MAR 2009			20111.023.002
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
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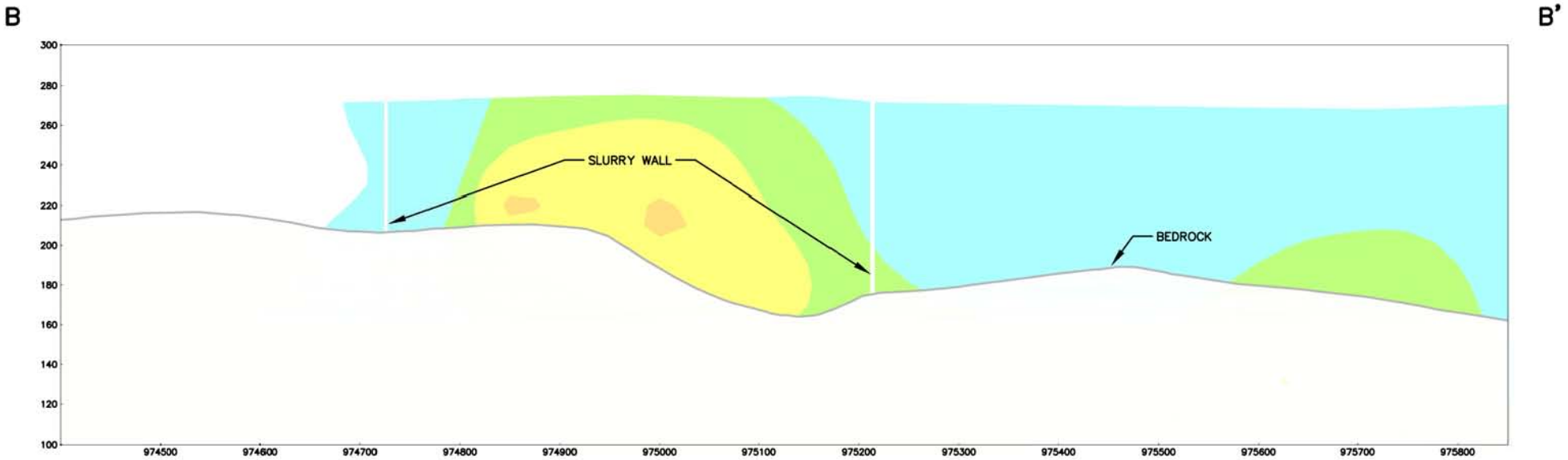

LEGEND

- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb

HORIZONTAL GRAPHIC SCALE

100 50 0 50 100

APPROXIMATE SCALE IN FEET

VERTICAL GRAPHIC SCALE

50 25 0 25 50

APPROXIMATE SCALE IN FEET

NOTE:
CROSS SECTION CUT ALONG NORTHING COORDINATE 124,900

WESTON SOLUTIONS
BEDFORD NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

SPRING 2008 PCE CONCENTRATIONS
CROSS-SECTION B-B'

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BEG	MAR 2009			20111.023.002
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
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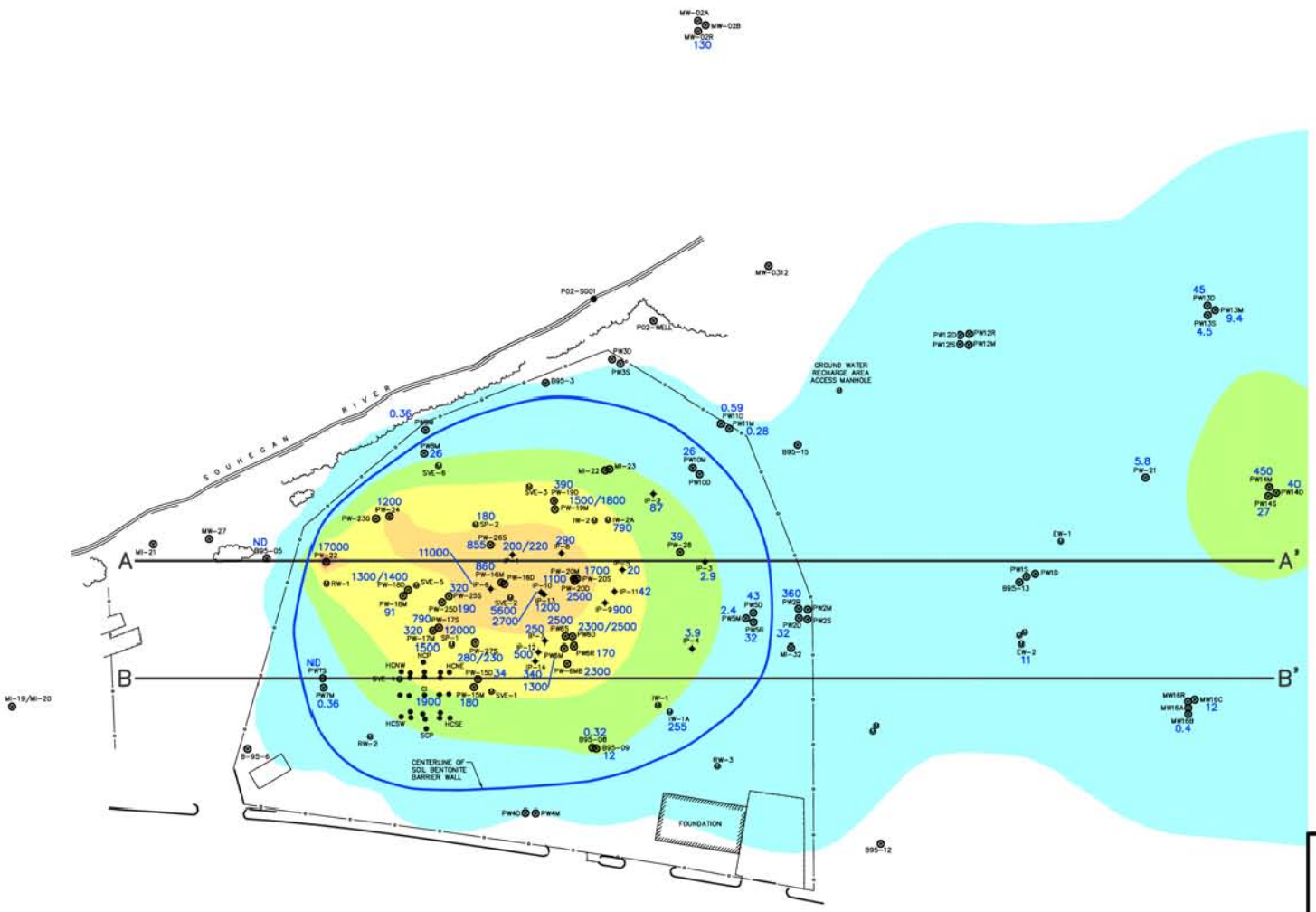

HCSE ● INEEL WELL LOCATION
PW5R Ⓦ MONITORING WELL LOCATION
IP-6 ✦ INJECTION POINT LOCATION
IW-1 Ⓜ MANHOLE LOCATION
37 PCE RESULT IN ug/L
DETECTION
> 5 ppb (MCL)
> 50 ppb
> 500 ppb
> 5000 ppb

GRAPHIC SCALE
120 60 0 60 120
APPROXIMATE SCALE IN FEET

NOTE:
MULTIPLE SAMPLE VALUES FROM SAME LOCATION AVERAGED

WESTON SOLUTIONS
BEDFORD NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

FALL 2008 PCE CONCENTRATIONS AT 252 FEET AMSL

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BEG	MAR 2009			20111.023.002
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
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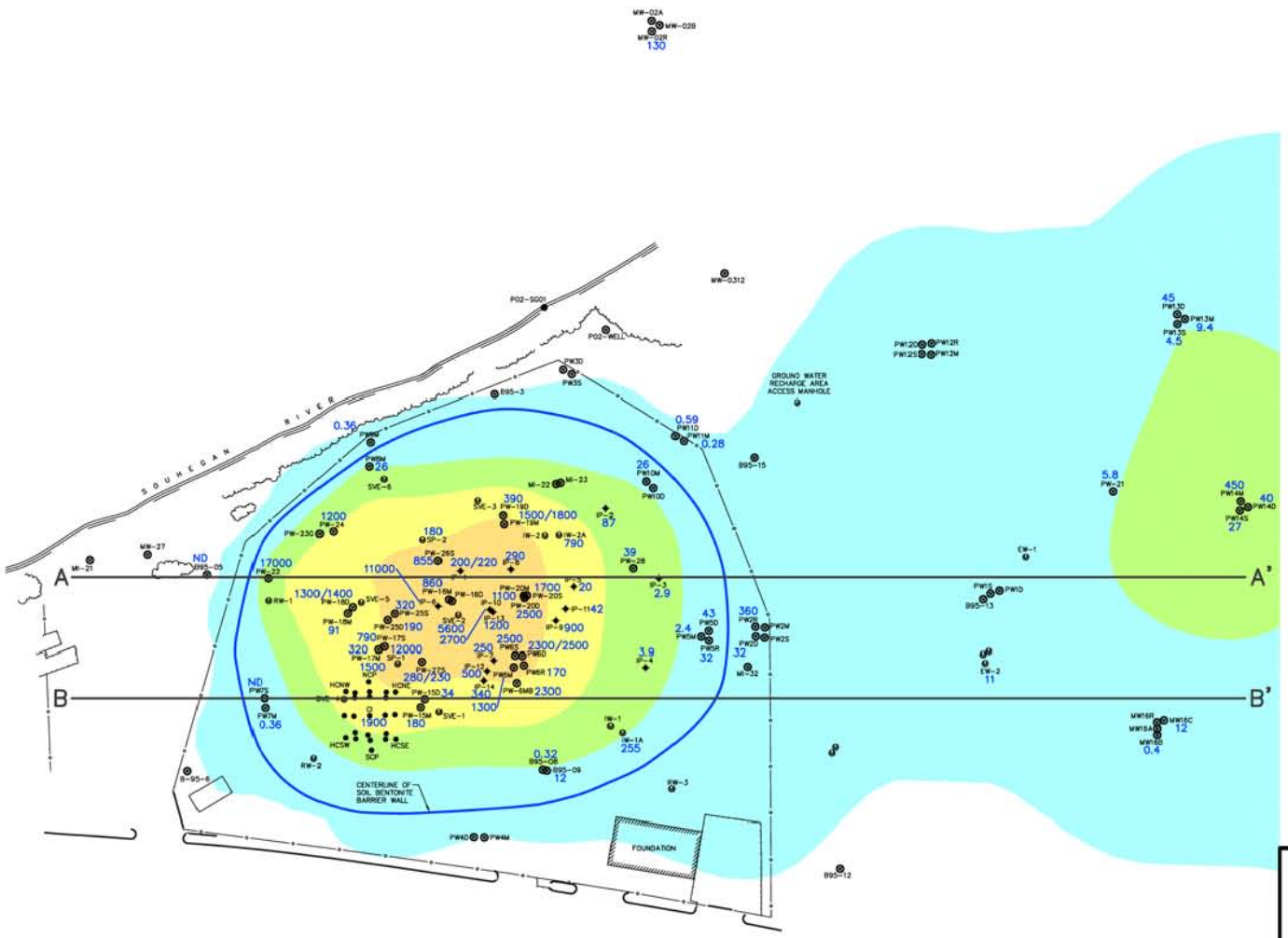

LEGEND

- HCSE ● INEEL WELL LOCATION
- PW5R Ⓦ MONITORING WELL LOCATION
- IP-6 ✦ INJECTION POINT LOCATION
- IW-1 Ⓜ MANHOLE LOCATION
- 37 PCE RESULT IN ug/L
- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb

GRAPHIC SCALE

120 60 0 60 120

APPROXIMATE SCALE IN FEET

NOTE:
MULTIPLE SAMPLE VALUES FROM SAME LOCATION AVERAGED

WESTON SOLUTIONS — BEDFORD NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

FALL 2008 PCE CONCENTRATIONS AT 235 FEET AMSL

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
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CHECKED	DATE	SCALE	REVISION	FIGURE NO.
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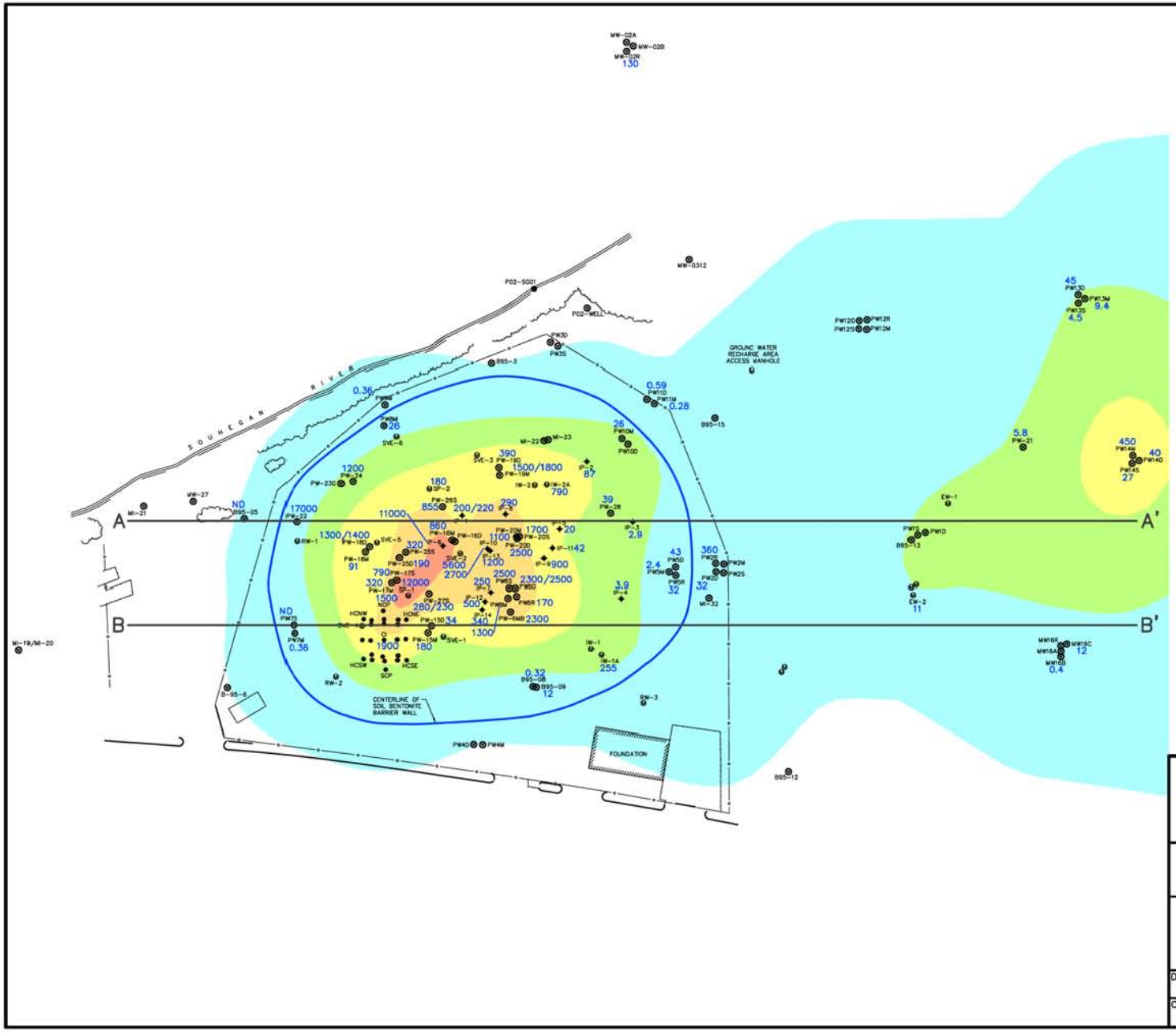

LEGEND

- HCSE ● INEEL WELL LOCATION
- PW5R Ⓦ MONITORING WELL LOCATION
- IP-6 ✦ INJECTION POINT LOCATION
- IW-1 Ⓜ MANHOLE LOCATION
- 37 PCE RESULT IN ug/L
- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb
- > 5000 ppb

GRAPHIC SCALE

120 60 0 60 120

APPROXIMATE SCALE IN FEET

NOTE:
MULTIPLE SAMPLE VALUES FROM SAME LOCATION AVERAGED

WESTON SOLUTIONS
BEDFORD NEW HAMPSHIRE

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SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

FALL 2008 PCE CONCENTRATIONS AT 210 FEET AMSL

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BEG	MAR 2009			20111.023.002
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
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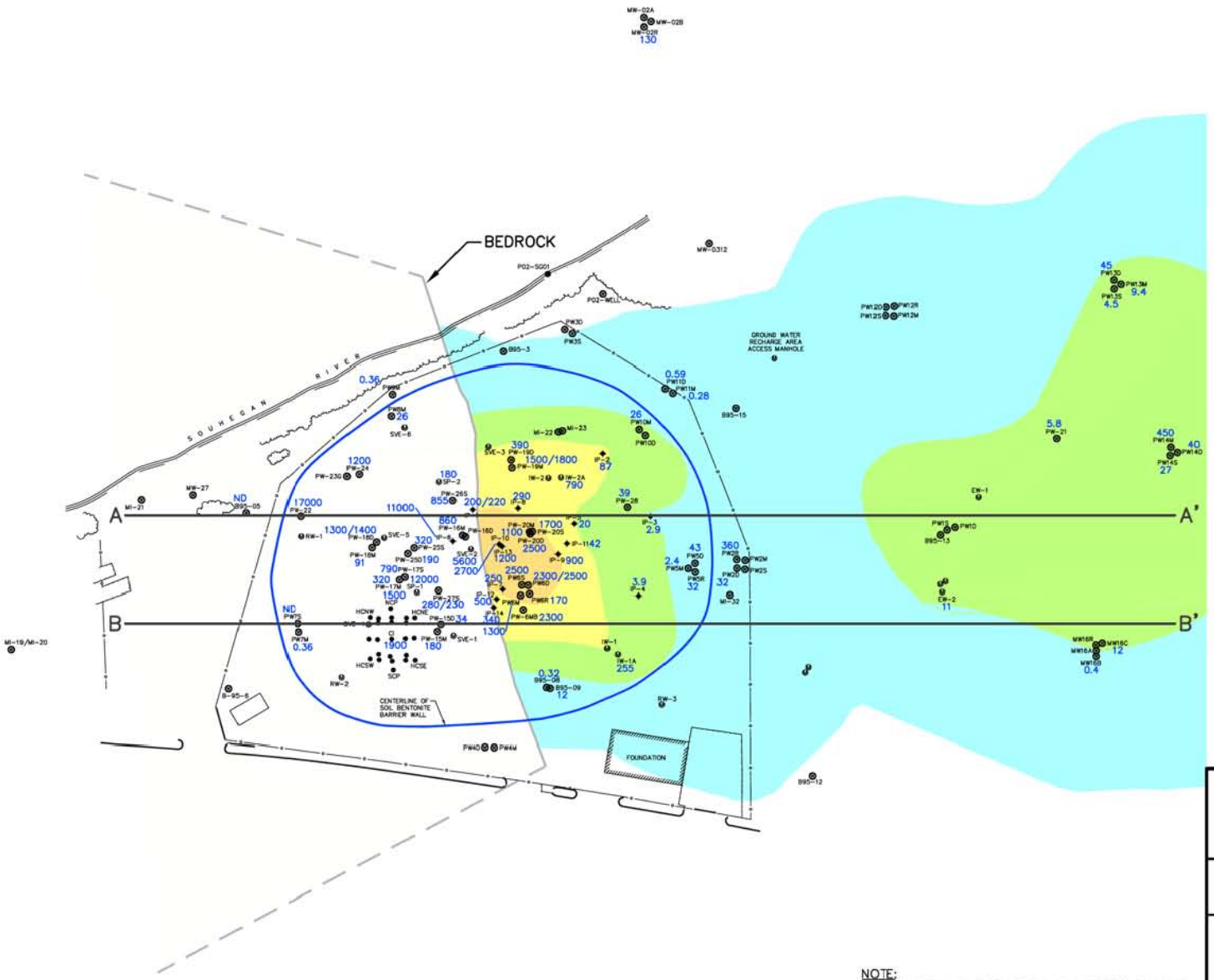

NOTE:
PLUME WITHIN THE BEDROCK IS INFERRED BY THE MODEL BASED ON CONCENTRATIONS OBSERVED IN THE OVERBURDEN AND THE LIMITED BEDROCK MONITORING LOCATIONS

LEGEND

- HCSE ● INEEL WELL LOCATION
- PW5R Ⓦ MONITORING WELL LOCATION
- IP-6 ◆ INJECTION POINT LOCATION
- IW-1 Ⓜ MANHOLE LOCATION
- 37 PCE RESULT IN ug/L
- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb

GRAPHIC SCALE
120 60 0 60 120
APPROXIMATE SCALE IN FEET

NOTE:
MULTIPLE SAMPLE VALUES FROM SAME LOCATION AVERAGED

WESTON SOLUTIONS
BEDFORD NEW HAMPSHIRE

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SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

FALL 2008 PCE CONCENTRATIONS AT 195 FEET AMSL

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BEG	MAR 2009			20111.023.002
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
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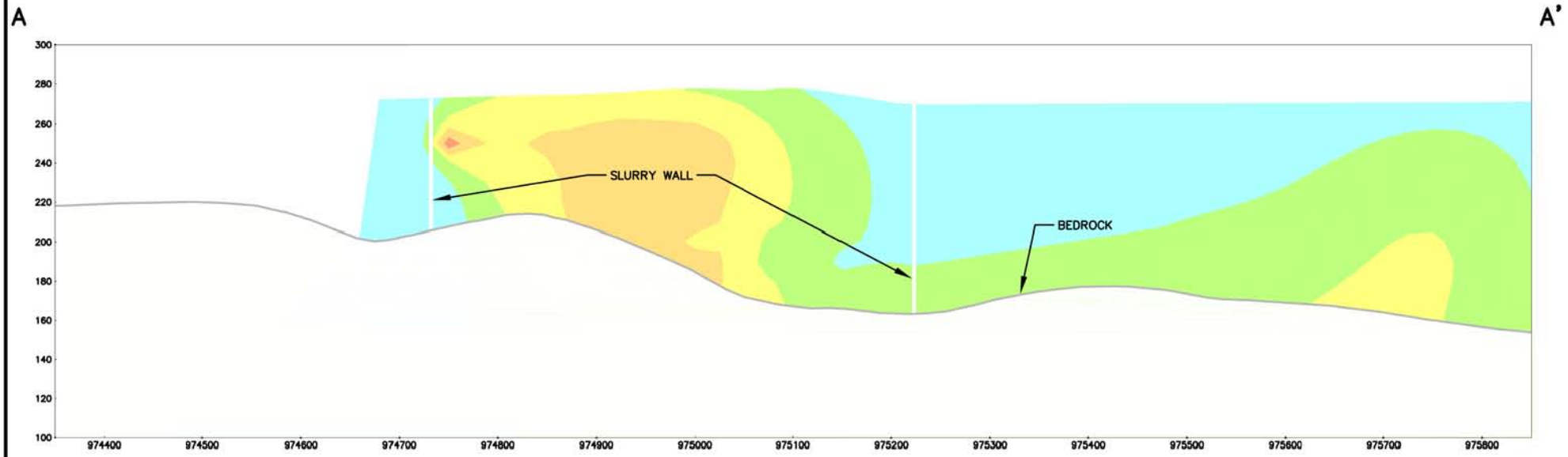

LEGEND

- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb
- > 5000 ppb

HORIZONTAL GRAPHIC SCALE

100 50 0 50 100

APPROXIMATE SCALE IN FEET

VERTICAL GRAPHIC SCALE

50 25 0 25 50

APPROXIMATE SCALE IN FEET

NOTE:
CROSS SECTION CUT ALONG NORTHING COORDINATE 125,025

WESTON SOLUTIONS BEDFORD NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

FALL 2008 PCE CONCENTRATIONS
CROSS-SECTION A-A'

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BEG	MAR 2009			20111.023.002
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
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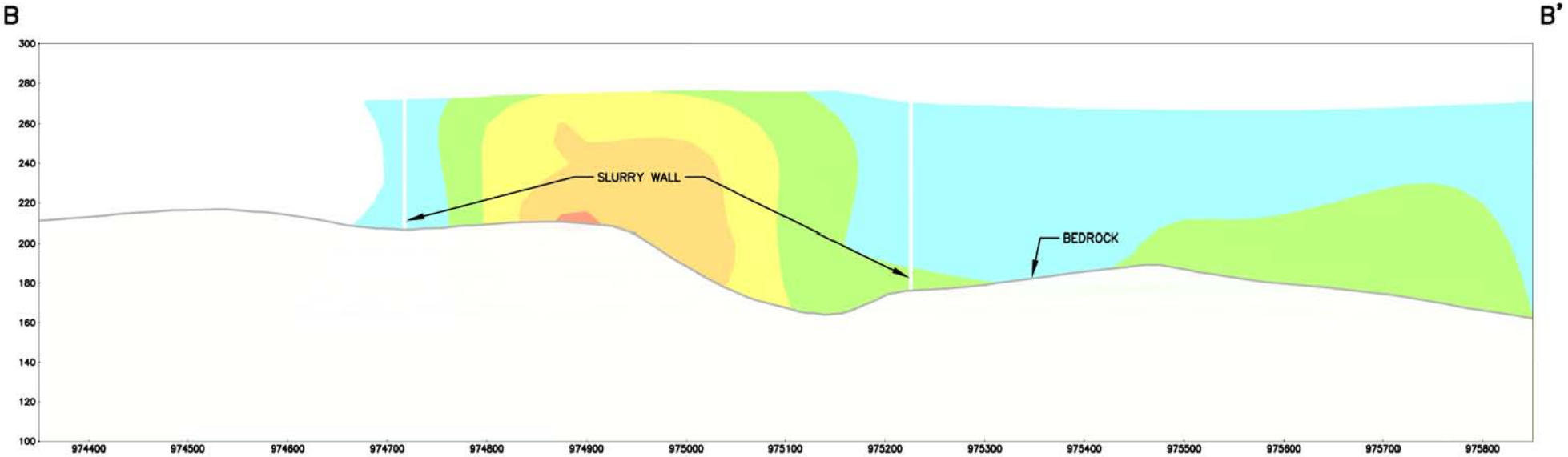

LEGEND

- DETECTION
- > 5 ppb (MCL)
- > 50 ppb
- > 500 ppb
- > 5000 ppb

HORIZONTAL GRAPHIC SCALE

100 50 0 50 100

APPROXIMATE SCALE IN FEET

VERTICAL GRAPHIC SCALE

50 25 0 25 50

APPROXIMATE SCALE IN FEET

NOTE:
CROSS SECTION CUT ALONG NORTHING COORDINATE 124,900

WESTON SOLUTIONS
BEDFORD NEW HAMPSHIRE

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SAVAGE MUNICIPAL WATER SUPPLY SUPERFUND SITE
MILFORD, NEW HAMPSHIRE

FALL 2008 PCE CONCENTRATIONS
CROSS-SECTION B-B'

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BEG	MAR 2009			20111.023.002
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
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TABLES

Table 1-1

Groundwater Chemicals of Concern and Associated Interim Cleanup Levels and Ambient Groundwater Quality Standards Criteria Savage Municipal Water Supply Superfund Site Milford, New Hampshire

Compound	AGQS µg/L (ppb)	ROD ICLs µg/L (ppb)
1,1-Dichloroethane	81 (1)	3,500
Trans 1,2-Dichoroethene (2)	100	100
Cis 1,2-Dichloroethene	70	Not Established
1,1-Dichloroethylene	7	7
Benzene	5	5
1,1,1-Trichloroethane	200	200
Methylene Chloride	Not Established	7
Tetrachloroethene	5	5
Trichloroethene	5	5
Antimony	6	3
Arsenic	10(3)	50
Beryllium	4	1
Chromium	100	100
Lead	15	15
Nickel	100	100

(1) State health advisory, risk estimate based on cancer potency factor of 9.1×10^{-2} (milligrams per kilograms per day)$^{-1}$ derived by State.

(2) Using the more restrictive Maximum Contaminant Level Goals for cis-1,2-dichloroethene (Cis = 70, Trans = 100).

(3) The arsenic standard was changed from 50 parts per billion (ppb) to 10 ppb by the United States Environmental Protection Agency in 2001. The New Hampshire Department of Environmental Services has also changed the Ambient Groundwater Quality Standards (AGQS) to 10 ppb per RSA 485 C:6 (AGQS) and Env-Ws 316.01.

ROD = Record of Decision
µg/L = micrograms per liter
ICL = Interim Cleanup Levels

Table 2-1

Monitoring Locations
Savage Municipal Water Supply Superfund Site OU-1
Milford, New Hampshire

Sample Point	Sample Frequency	Screened Interval (ft bgs)	Lithological Zone	Baseline ISCO VOC Monitoring Location (yes/no)
B95-05	Fall	37 – 47	Intermediate overburden	No
B95-08	Fall	72 – 82	Deep overburden	No
B95-09	Fall	10 – 20	Shallow overburden	No
IP-01	Fall	75.6 - 80.6	Deep overburden	Yes
IP-02	Fall	81 - 86	Deep overburden	Yes
IP-03	Fall	80 - 85	Deep overburden	Yes
IP-04	Fall	80 - 85	Deep overburden	Yes
IP-05	Fall	81.5 - 86.5	Deep overburden	Yes
IP-06	Fall	71 - 76	Deep overburden	Yes
IP-07	Fall	71 - 76	Deep overburden	Yes
IP-08	Fall	72 - 77	Deep overburden	Yes
IP-09	Fall	72 - 77	Deep overburden	Yes
IP-10	Fall	62 - 67	Intermediate overburden	Yes
IP-11	Fall	61.6 - 66.6	Intermediate overburden	Yes
IP-12	Fall	61 - 66	Intermediate overburden	Yes
IP-13	Fall	52 - 57	Intermediate overburden	Yes
IP-14	Fall	51 - 56	Intermediate overburden	Yes
MW-16B	Fall	39.6 – 49.6	Intermediate overburden	No
MW-16C	Fall	73.2 – 83.2	Deep overburden	No
MW-16R*	Spring	100 – 138	Shallow bedrock	No
PW-02D	Fall and Spring	94 – 104	Deep overburden	Yes
PW-02M	Spring	47.72 – 57.72	Intermediate overburden	No
PW-02R*	Fall and Spring	111 – 113	Shallow bedrock	Yes
PW-05D	Fall and Spring	96 – 106	Deep overburden	Yes
PW-05M	Fall	51 – 61	Intermediate overburden	No
PW-05R*	Fall and Spring	120 – 130	Shallow bedrock	Yes
PW-06D	Fall and Spring	74 – 84	Deep overburden	Yes
PW-06M	Fall and Spring	40 – 50	Intermediate overburden	Yes
PW-06R*	Fall and Spring	95 – 105	Shallow bedrock	Yes
PW-06MB	Fall and Spring	57.7 – 67.7	Intermediate overburden	Yes
PW-06S	Fall and Spring	20 – 30	Shallow overburden	Yes
PW-07M	Fall	51 – 61	Intermediate overburden	No
PW-07S	Fall	31 – 41	Shallow overburden	No
PW-08M	Fall	29 – 39	Intermediate overburden	No
PW-09M	Fall	29 – 39	Intermediate overburden	No
PW-10D	Spring	95 – 105	Deep overburden	No

Table 2-1

Monitoring Locations
Savage Municipal Water Supply Superfund Site OU-1
Milford, New Hampshire

Sample Point	Sample Frequency	Screened Interval (ft bgs)	Lithological Zone	Baseline ISCO VOC Monitoring Location (yes/no)
PW-10M	Fall and Spring	45 – 55	Intermediate overburden	No
PW-11D	Fall	95 – 105	Deep overburden	No
PW-11M	Fall	45 – 55	Intermediate overburden	No
PW-12R*	Spring	113.9 – 133.9	Shallow bedrock	No
PW-12S	Fall	20 – 30	Shallow overburden	No
PW-13D	Fall and Spring	95 – 105	Deep overburden	No
PW-13M	Fall and Spring	60 – 70	Intermediate overburden	No
PW-14D	Fall and Spring	90 – 100	Deep overburden	No
PW-14M	Fall and Spring	60 – 70	Intermediate overburden	No
PW-14S	Fall and Spring	20 – 30	Shallow overburden	No
PW-15D	Fall and Spring	60 – 70	Deep overburden	Yes
PW-15M	Fall and Spring	42.8 – 52.8	Intermediate overburden	Yes
PW-16D	Spring	66.5 – 76.5	Deep overburden	No
PW-16M	Fall and Spring	38.4 – 48.4	Intermediate overburden	No
PW-17M	Fall and Spring	32 – 42	Intermediate overburden	Yes
PW-17S	Fall	14 – 24	Shallow overburden	No
PW-18D	Fall and Spring	49.5 – 59.5	Deep overburden	Yes
PW-18M	Fall	34.1 – 44.1	Intermediate overburden	No
PW-19D	Fall and Spring	56 – 66	Deep overburden	Yes
PW-19M	Fall	34.2 – 44.2	Intermediate overburden	Yes
PW-20D	Fall and Spring	88.5 – 98.5	Deep overburden	Yes
PW-20M	Fall and Spring	57.1 – 67.1	Intermediate overburden	Yes
PW-20S	Fall and Spring	20.2 – 30.2	Shallow overburden	Yes
PW-21	Fall	51.4 – 61.4	Intermediate overburden	No
PW-22	Fall and Spring	18.0 - 28.0	Shallow overburden	No
PW-24	Fall and Spring	18.4 - 28.4	Shallow overburden	No
PW-25S	Fall and Spring	50.5 - 60.5	Shallow overburden	No
PW-25D	Fall and Spring	19.4 - 29.4	Intermediate overburden	Yes
PW-26S	Fall and Spring	18.1 - 28.1	Shallow overburden	No
PW-27S	Fall and Spring	17.7 - 27.7	Shallow overburden	No
PW-28	Fall	62 - 72	Intermediate overburden	Yes
SP-1	Fall	60.7 - 65.7	Deep overburden	Yes
SP-2	Fall	59.7 - 64.7	Deep overburden	Yes
SVE-2	Fall and Spring	10.36-25.36	Shallow overburden	No
MW-2A	Spring	29 - 39	Shallow overburden	No
MW-2B	Spring		Intermediate overburden	No

Table 2-1

Monitoring Locations
Savage Municipal Water Supply Superfund Site OU-1
Milford, New Hampshire

Sample Point	Sample Frequency	Screened Interval (ft bgs)	Lithological Zone	Baseline ISCO VOC Monitoring Location (yes/no)
MW-2R*	Fall and Spring	134 - 164	Shallow bedrock	No
NCP	Fall and Spring	16 - 66	Long Screen, sample till interface	Yes
CI	Fall and Spring	18 - 68	Long Screen, sample till interface	Yes

Notes:
Yellow highlighting indicates well sampled during the Spring 2008 sampling event.
* = Monitoring well is screened in bedrock. Two sampling methods were used to collect samples from these locations during the Spring 2008 sampling event.
ft = feet
bgs = below ground surface
ISCO = in situ chemical oxidation
VOC = volatile organic compound\

Table 3-1

Reporting Period Influent/Effluent Concentrations
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Date	Influent (Total VOCs) (µg/L)	Effluent				
		PCE (µg/L)	cis-1,2-DCE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	TCE (µg/L)
Discharge Criteria		**5**	**70**	**5**	**1000**	**5**
July 2, 2007	1380	1.3	<1.0	<0.50	0.64	<0.50
July 3, 2007	NS	1.4	<1.0	<0.50	<0.50	0.55
July 17, 2007	895	<1.0	1.20	<0.50	<0.50	<0.50
August 7, 2007	1620	1.2	1.50	<0.50	<0.50	<0.50
August 16, 2007	1487	2.6	<1.0	<0.50	<0.50	<0.50
August 29, 2007	NS	1.6	1.10	<0.50	<0.50	<0.50
September 27, 2007	NS	4.2	<1.0	<0.50	<0.50	<0.50
October 10, 2007	1464	3.3	1.60	<0.50	<0.50	<0.50
November 20, 2007	445	1.2	3.60	0.69	<0.50	<0.50
December 2007	NS	NS	NS	NS	NS	NS
January 30, 2008	303	2.2	<1.0	<0.50	<0.50	0.70
February 13, 2008	600	3.4	<1.0	<0.50	<0.50	<0.50
March 12, 2008	580	2.9	<1.0	<0.50	<0.50	<0.50
April 15, 2008	541	3.0	<1.0	<0.50	<0.50	<0.50
May 14, 2008	456	3.2	<1.0	<0.50	<0.50	<0.50
June 17, 2008	240	<1.0	<1.0	<0.50	<0.50	<0.50
July 14, 2008	236	1.1	<1.0	<0.50	<0.50	<0.50
August 15, 2008	260	3.9	<1.0	<0.50	<0.50	<0.50
September 10, 2008	251	2.7	<1.0	<0.50	<0.50	<0.50
October 22, 2008	237	2.2	<1.0	<0.50	<0.50	<0.50
November 13, 2008	249	<1.0	<1.0	<0.50	<0.50	<0.50
December 10,2008	499	2.1	<1.0	<0.50	<0.50	<0.50

Notees:
VOC = volatile organic compound
µg/L = micrograms per liter
PCE = tetrachloroethene
cis-1,2-DCE = cis-1,2-dichloroethene
TCE = trichlorethylene
NS = Samples were not collected in December of 2007.

Table 3-2

Flows and Contaminant Mass Removal by Well
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

	IW-1			IW-1A			IW-2			IW-2A			EW-2[3]		
Month	Flow (gal)	VOCs (µg/L)	VOC Removed lb	Flow (gal)	VOCs (µg/L)	VOC Removed lb	Flow (gal)	VOCs (µg/L)	VOC Removed lb	Flow (gal)	VOCs (µg/L)	VOC Removed lb	Flow (gal)	VOCs (µg/L)	VOC Removed lb
Jul-07	1,331,349	347	3.84	0	0	0.00	1,367,250	678	7.72	0	0	0.00	0	0	0.00
Aug-07	1,384,576	255	2.94	0	0	0.00	1,336,261	1,247	13.89	0	0	0.00	0	0	0.00
Sep-07	1,613,064	120	1.56	0	0	0.00	1,465,877	790	9.62	0	0	0.00	0	0	0.00
Oct-07	1,665,297	180	2.45	0	0	0.00	1,506,138	1,200	15.03	0	0	0.00	0	0	0.00
Nov-07[1]	1,612,533	20	0.19	0	0	0.00	1,453,233	30	0.30	0	0	0.00	0	0	0.00
Dec-07[2]	1,689,537	167	2.35	0	0	0.00	1,380,272	570	6.57	0	0	0.00	0	0	0.00
Jan-08	1,705,392	167	2.34	0	0	0.00	1,384,502	570	6.55	0	0	0.00	0	0	0.00
Feb-08	1,595,895	200	2.62	0	0	0.00	1,284,856	740	7.90	0	0	0.00	0	0	0.00
Mar-08	1,700,839	322	4.53	0	0	0.00	1,323,749	1,146	12.63	0	0	0.00	0	0	0.00
Apr-08	1,649,750	258	3.51	0	0	0.00	1,207,785	858	8.62	0	0	0.00	0	0	0.00
May-08	1,706,443	240	3.37	0	0	0.00	1,193,285	932	9.25	0	0	0.00	0	0	0.00
Jun-08	1,646,827	190	2.60	0	0	0.00	1,111,579	520	4.81	0	0	0.00	0	0	0.00
Jul-08	1,705,334	184	2.60	0	0	0.00	1,131,937	623	5.87	0	0	0.00	0	0	0.00
Aug-08	1,705,752	200	2.79	0	0	0.00	1,123,071	400	3.71	0	0	0.00	0	0	0.00
Sep-08	1,650,254	166	2.25	0	0	0.00	1,073,153	580	5.17	0	0	0.00	0	0	0.00
Oct-08[1]	783,878	166	1.07	475,704	185	0.73	424,598	580	2.05	61,618	956	0.49	0	0	0.00
Nov-08	0	0	0.00	856,670	342	2.44	0	0	0.00	0	0	0.00	29,491	11	0.00
Dec-08[1]	0	0	0.00	744,149	560	3.46	0	0	0.00	66,571	637	0.35	0	0	0.00
Total	25,146,721		41.02	2,076,523		6.61	19,767,548		119.69	128,189		0.84	29,491		0.00
Total 2007	9,296,356	182	13.33	0	0	0.00	8,509,031	753	53.12	0	0	0.00	0	0	0.00
Total 2008	15,850,366	174	27.68	2,076,523	91	6.63	11,258,516	579	66.56	128,189	133	0.84	29,491	1	0.00

Table 3-2

Flows and Contaminant Mass Removal by Well
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

	SVE-2			SVE-3			NCP			SEP		
Month	Flow (gal)	VOCs (µg/L)	VOC Removed lb	Flow (gal)	VOCs (µg/L)	VOC Removed lb	Flow (gal)	VOCs (µg/L)	VOC Removed lb	Flow (gal)	VOCs (µg/L)	VOC Removed lb
Jul-07	343,187	4,803	13.75	319,268	957	2.55	0	0	0.00	0	0	0.00
Aug-07	348,972	8,314	24.21	317,668	1,497	3.96	79,174	2,011	1.33	0	0	0.00
Sep-07	366,566	5,031	15.38	253,545	1,459	3.08	0	0	0.00	0	0	0.00
Oct-07	361,241	7,820	23.56	229,586	1,774	3.39	0	0	0.00	4,086	2	0.00
Nov-07[1]	126,035	6,492	6.82	83,987	1,422	0.99	0	0	0.00	0	0	0.00
Dec-07[2]	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Jan-08	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Feb-08	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Mar-08	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Apr-08	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
May-08	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Jun-08	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Jul-08	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Aug-08	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Sep-08	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Oct-08[1]	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Nov-08	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Dec-08[1]	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Total	1,546,001		83.72	1,204,054		13.97	79,174		1.33	4,086		0.00
Total 2007	1,546,001	5,410	83.72	1,204,054	1,185	13.97	79,174	335	1.33	4,086	0	0.00
Total 2008	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00

Notes:

[1] Samples were not collected for one or more of the operating wells during this month due to well start up and shut down between sample collection dates. This applies to SVE-2 and SVE-3 for November 2007, IW-1 and IW-2 for October 2008, IW-2A for December 2008. Concentrations were interpolated using data from prior and/or following months.

[2] Samples were not collected during December 2007. Concentrations were interpolated using January 2008 data.

[3] Extraction well EW-1 is not included in this table because it was not used during the reporting period.

VOC = volatile organic compounds
gal = gallon
µg/L = micrograms per liter
% = percent
lb = pounds

Table 3-3

Treatment Plant Flows, Concentrations, and Removal Efficiencies
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Month	Influent Total VOCs (µg/L)	Effluent Total VOCs (µg/L)	Water Treated (gal)	Total Inf VOCs (lbs)	Total Eff VOCs (lbs)	Mass Removed (lbs)	Efficiency (%)	Discharge of Treated Effluent			
								RW-1 (gal)	RW-2 (gal)	RW-3[2] (gal)	Recharge Chamber (gal)
July 2007	1138	1.7	3,311,965	31.44	0.047	31.4	99.9	24,235	24,854	0	3,311,965
August 2007	1554	2.7	1,408,460	18.26	0.031	18.2	99.8	900,383	1,157,808	0	1,408,460
September 2007	1070	4.2	3,359,238	29.99	0.118	29.9	99.6	131,006	208,808	0	3,359,238
October 2007	1464	4.9	2,982,589	36.44	0.122	36.3	99.7	273,152	506,521	0	2,982,589
November 2007	445	5.5	3,275,788	12.16	0.150	12.0	98.8	0	0	0	3,275,788
December 2007[1]	303	2.9	3,069,809	7.76	0.074	7.7	99.0	0	0	0	3,069,809
January 2008	303	2.9	3,089,894	7.81	0.075	7.7	99.0	0	0	0	3,089,894
February 2008	600	3.4	2,880,751	14.42	0.082	14.3	99.4	0	0	0	2,880,751
March 2008	580	2.9	3,024,589	14.64	0.073	14.6	99.5	0	0	0	3,024,589
April 2008	541	3.0	2,857,536	12.90	0.072	12.8	99.4	0	0	0	2,857,536
May 2008	456	3.2	2,899,728	11.03	0.077	11.0	99.3	0	0	0	2,899,728
June 2008	240	< 1.0	2,758,406	5.52	0.023	5.5	99.6	0	0	0	2,758,406
July 2008	236	1.1	2,837,272	5.59	0.026	5.6	99.5	0	0	0	2,837,272
August 2008	260	3.9	2,828,823	6.14	0.092	6.0	98.5	0	0	0	2,828,823
September 2008	251	2.7	2,723,407	5.70	0.061	5.6	98.9	0	0	0	2,723,407
October 2008	237	2.2	1,745,798	3.45	0.032	3.4	99.1	0	0	16,562	1,729,237
November 2008	249	< 1.0	886,162	1.84	0.007	1.8	99.6	0	0	113,964	772,198
December 2008	499	2.1	810,720	3.38	0.014	3.4	99.6	0	0	0	810,720
Total for Reporting Period			46,750,934	228.49	1.18	227.32	99.5	1,328,776	1,897,991	130,525	46,620,409
Total for July through December 2007			17,407,849	136.05	0.54	135.51	99.6	1,328,776	1,897,991	0	17,407,849
Total for 2008			29,343,085	92.44	0.63	91.81	99.3	0	0	130,525	29,212,560

Notes:

[1] Samples were not taken during December 2007. Concentrations were interpolated using January 2008 data.

[2] Treated water discharge to RW-3 in October & November 2008 was used as makeup water for ISCO injections.

VOC = volatile organic compounds

µg/L = micrograms per liter

Inf = Influent

Eff = Effluent

gal = gallons

lbs = pounds

% = percent

Table 3-4

Contaminant Mass Removal by SVE System
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

DATE	SVE ON/OFF	Flow[1] (cfm) SVE 1,2,3	Flow (cfm) SVE 4,5,6	SVE (cfm) TOTAL	PID readings SVE Discharge (ppmv)[2, 3]	Pounds PCE Removed per Day[4]
4-Feb-08	ON	0	9	9	-	-
5-Feb-08	OFF	0	0	0	-	-
6-Feb-08	ON	0	19	19	-	-
7-Feb-08	OFF	0	0	0	-	-
8-Feb-08	ON	0	135	135	**2.2**	0.18
9-Feb-08	ON	0	247	247	2.2	0.32
10-Feb-08	ON	0	247	247	2.1	0.31
11-Feb-08	ON	0	227	227	2.0	0.27
12-Feb-08	ON	0	248	248	1.9	0.28
13-Feb-08	ON	0	265	265	**1.8**	0.28
14-Feb-08	ON	0	248	248	**0.9**	0.13
15-Feb-08	ON	0	247	247	**1.0**	0.15
16-Feb-08	ON	0	247	247	1.0	0.15
17-Feb-08	ON	0	248	248	1.0	0.15
18-Feb-08	ON	97	185	282	**1.0**	0.17
19-Feb-08	ON	167	145	312	1.0	0.19
20-Feb-08	ON	56	164	220	**1.1**	0.14
21-Feb-08	ON	0	248	248	0.9	0.13
22-Feb-08	ON	0	248	248	**0.7**	0.10
23-Feb-08	ON	0	248	248	0.9	0.13
24-Feb-08	ON	0	248	248	1.0	0.15
25-Feb-08	ON	0	249	249	**1.2**	0.18
26-Feb-08	ON	0	248	248	1.0	0.14
27-Feb-08	ON	0	248	248	**0.7**	0.10
28-Feb-08	ON	0	249	249	0.7	0.10
29-Feb-08	ON	0	249	249	0.7	0.10
1-Mar-08	ON	0	248	248	0.7	0.10
2-Mar-08	ON	0	248	248	0.7	0.10
3-Mar-08	ON	0	92	92	0.7	0.04

NOTES:

[1] On 2/18/08, during monthly exercise of SVE valves, SVE-GV-01 was not closed, resulting in extraction of air from the well vaults of SVE-1,2, & 3. The valves was closed on 2/20/08. No water was pulled into the air/water separator during this time.

[2] Values in bold were direct measurements.

[3] Values not in bold were averaged from previous and subsequent days.

[4] Values calculated using ideal gas law. C = ppmv*R*MW / T; C = concentration (mg/m3); ppmv = PID reading; R = Ideal gas constant; MW = molecular weight of contaminant; T = temperature of gas.

SVE = soil vapor extraction
cfm = cubic feet per minute
ppmv = parts per million volume
PID = photo ionization detector

Table 4-1
Deep Zone Injection Well Summary
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Elevation Interval of Treatment Zone	Well No.	Elevation of Screened Interval (ft amsl)			Ground Surface Elevation (ft)	Length of Screen (ft)	Depth to Screen Bottom (ft)	Targeted Thickness of Distribution (ft)
203 to 208 ft	IP-1	203	to	208	276	5	73	10
185 to 195 ft	IP-2	190	to	195	276	5	86	10
185 to 195 ft	IP-3	190	to	195	275	5	85	10
185 to 195 ft	IP-4	190	to	195	275	5	85	10
185 to 195 ft	IP-5	190	to	195	277	5	87	10
185 to 195 ft	PW-6D	179.5	to	189.5	275	10	96	10
203 to 208 ft	IP-6	203	to	208	276	5	73	10
195 to 205 ft	IP-7	200	to	205	276	5	76	10
195 to 205 ft	IP-8	200	to	205	277	5	77	10
195 to 205 ft	IP-9	200	to	205	277	5	77	10
195 to 205 ft/ 205 to 215 ft	PW-15D*	205	to	215	274	10	69	10
205 to 215 ft/ 215 to 225 ft	INEEL (HCSW)*	208	to	255	274	47	66	20
205 to 215 ft/ 215 to 225 ft	INEEL (HCSE)*	208	to	255	274	47	66	20
205 to 215 ft/ 215 to 225 ft	INEEL (HCNW)*	208	to	255	274	47	66	20
205 to 215 ft	SP-1	208	to	213	274	5	66	10
205 to 215 ft	IP-10	210	to	215	277	5	67	10
205 to 215 ft	IP-11	210	to	215	277	5	67	10
205 to 215 ft	IP-12	210	to	215	276	5	66	10
215 to 225 ft	PW-15M	222	to	232	274	10	52	10
215 to 225 ft	IP-13	220	to	225	277	5	57	10
215 to 225 ft	IP-14	220	to	225	276	5	56	10

Notes:
* The screened interval of these wells span two treatment zones.
ft = feet
amsl = above mean sea level
ft^3 = cubic feet

Table 4-2

Fall 2008 In Situ Chemical Oxidation Injection Summary
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Well	Approx. Volume of 23% $NaMnO_4$ (gal)[1]	Approx. Volume of 20% $NaMnO_4$ (gal)[1]	Total Water Volume added to each well (gal)	Total Volume of Solution added to each Well (gal)	Injection Start Date	Injection End Date	Concentration of $NaMnO_4$ Solution Injected %
IP-2	1217	0	8241	9458	29-Oct-08	31-Oct-08	3.42
IP-4[2]	603	29	3896	4528	29-Oct-08	6-Nov-08	3.67
IP-3[2]	965	45	6316	7325	30-Oct-08	6-Nov-08	3.63
IP-5	1217	0	7609	8826	30-Oct-08	4-Nov-08	3.65
PW-6D	1217	0	9548	10765	31-Oct-08	4-Nov-08	3.01
IP-1	1217	0	7793	9010	3-Nov-08	5-Nov-08	3.58
IP-8	1014	203	5928	7145	4-Nov-08	6-Nov-08	4.38
IP-9	814	404	8976	10193	4-Nov-08	10-Nov-08	3.02
IP-7	697	520	6589	7806	5-Nov-08	12-Nov-08	3.86
IP-6[2]	672	754	9218	10644	5-Nov-08	25-Nov-08	3.27
PW-15D	340	877	8946	10163	6-Nov-08	12-Nov-08	2.84
IP-10	245	972	8381	9598	7-Nov-08	13-Nov-08	2.97
IP-11	118	1099	7403	8620	10-Nov-08	13-Nov-08	3.24
IP12	104	1113	10307	11524	10-Nov-08	17-Nov-08	2.43
SP-1[2]	89	1527	10165	11780	10-Nov-08	25-Nov-08	3.12
PW-15M	0	1230	8666	9896	12-Nov-08	14-Nov-08	2.81
IP-13	0	1217	8831	10048	11-Nov-08	19-Nov-08	2.74
IP-14	0	1217	9538	10755	13-Nov-08	18-Nov-08	2.56
INEEL	0	1217	4909	6126	17-Nov-08	20-Nov-08	4.44
Total	10528	12423	151260	174210	29-Oct-08	25-Nov-08	3.21

Notes:

[1] Between the dates of October 29 and November 5 the totes that were mixed were 23% $NaMnO_4$ solution , beginning on November 5, mixed totes then were mixed at 20%. The last of the 23% totes was used on November 10.

[2] Due to the inability to obtain high injection rates in IP-3 and IP-4, the decision was made to inject more solution into the higher contaminated wells IP-6 and SP-1.

$NaMnO_4$ = sodium permanganate

gal = gallon

Table 4-3
Groundwater Gradients during In situ Chemcial Oxidation
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Date	Extraction Rate (gpm)	Injection Rate (gpm)	Well Pair	Preferred Gradient	Actual Gradient	Head Difference
10/29/08 8:30	17.8	5.0	PW-2R/PW-2D	Downward	Down	0.08
			PW-2D/PW-5D	Inward	In	0.73
			PW-5R/PW-5D	Upward	Up	0.84
			PW-2R/PW-5R	Inward	**Out**	-0.19
			PW-11D/PW-10D	Inward	In	0.88
10/29/08 13:30	17.8	15.0	PW-2R/PW-2D	Downward	Down	0.09
			PW-2D/PW-5D	Inward	Inward	0.53
			PW-5R/PW-5D	Upward	Upward	0.30
			PW-2R/PW-5R	Inward	Inward	0.14
			PW-11D/PW-10D	Inward	Inward	0.52
10/29/08 17:00	17.8	15.0	PW-2R/PW-2D	Downward	Down	0.01
			PW-2D/PW-5D	Inward	In	0.59
			PW-5R/PW-5D	Upward	Up	0.47
			PW-2R/PW-5R	Inward	In	0.11
			PW-11D/PW-10D	Inward	In	0.70
10/30/08 7:00	14.1	20.0	PW-2R/PW-2D	Downward	Down	0.03
			PW-2D/PW-5D	Inward	In	0.52
			PW-5R/PW-5D	Upward	Up	0.39
			PW-2R/PW-5R	Inward	In	0.10
			PW-11D/PW-10D	Inward	In	0.63
10/30/08 14:00	14.1	19.0	PW-2R/PW-2D	Downward	Down	0.02
			PW-2D/PW-5D	Inward	In	0.26
			PW-5R/PW-5D	Upward	Up	0.17
			PW-2R/PW-5R	Inward	In	0.07
			PW-11D/PW-10D	Inward	In	0.16
10/30/08 17:00	14.1	22.0	PW-2R/PW-2D	Downward	**Up**	0.05
			PW-2D/PW-5D	Inward	In	0.35
			PW-5R/PW-5D	Upward	Up	0.35
			PW-2R/PW-5R	Inward	In	0.05
			PW-11D/PW-10D	Inward	In	0.44
10/31/08 7:30	14.1	20.0	PW-2R/PW-2D	Downward	**Up**	0.01
			PW-2D/PW-5D	Inward	In	0.33
			PW-5R/PW-5D	Upward	Up	0.28
			PW-2R/PW-5R	Inward	In	0.06
			PW-11D/PW-10D	Inward	In	0.38
10/31/08 13:00	14.1	20.0	PW-2R/PW-2D	Downward	**Up**	0.01
			PW-2D/PW-5D	Inward	In	0.09
			PW-5R/PW-5D	Upward	Up	0.08
			PW-2R/PW-5R	Inward	In	0.02
			PW-11D/PW-10D	Inward	In	0.02
10/31/08 16:30	14.1	20.0	PW-2R/PW-2D	Downward	**Up**	0.06
			PW-2D/PW-5D	Inward	In	0.19
			PW-5R/PW-5D	Upward	Up	0.26
			PW-2R/PW-5R	Inward	**Out**	0.01
			PW-11D/PW-10D	Inward	In	0.20

Table 4-3
Groundwater Gradients during In situ Chemcial Oxidation
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Date	Extraction Rate (gpm)	Injection Rate (gpm)	Well Pair	Preferred Gradient	Actual Gradient	Head Difference
11/3/08 7:00	15.7	28.0	PW-2R/PW-2D	Downward	**Up**	0.02
			PW-2D/PW-5D	Inward	In	0.12
			PW-5R/PW-5D	Upward	Up	0.12
			PW-2R/PW-5R	Inward	In	0.02
			PW-11D/PW-10D	Inward	In	0.11
11/3/08 16:00	15.7	28.0	PW-2R/PW-2D	Downward	**Up**	0.09
			PW-2D/PW-5D	Inward	**Out**	0.24
			PW-5R/PW-5D	Upward	**Down**	0.12
			PW-2R/PW-5R	Inward	**Out**	0.03
			PW-11D/PW-10D	Inward	**Out**	0.34
11/4/08 7:00	17.9	21.0	PW-2R/PW-2D	Downward	**Up**	0.04
			PW-2D/PW-5D	Inward	In	0.03
			PW-5R/PW-5D	Upward	Up	0.07
			PW-2R/PW-5R	Inward	**Neutral**	0.00
			PW-11D/PW-10D	Inward	In	0.01
11/4/08 16:00	17.9	21.0	PW-2R/PW-2D	Downward	**Up**	0.10
			PW-2D/PW-5D	Inward	**Out**	0.09
			PW-5R/PW-5D	Upward	Up	0.08
			PW-2R/PW-5R	Inward	**Out**	0.07
			PW-11D/PW-10D	Inward	**Out**	0.12
11/5/08 6:30	18.8	25.0	PW-2R/PW-2D	Downward	**Up**	0.02
			PW-2D/PW-5D	Inward	In	0.04
			PW-5R/PW-5D	Upward	Up	0.07
			PW-2R/PW-5R	Inward	**Out**	0.01
			PW-11D/PW-10D	Inward	**Out**	0.02
11/5/08 16:30	18.8	24.0	PW-2R/PW-2D	Downward	**Up**	0.09
			PW-2D/PW-5D	Inward	**Out**	0.14
			PW-5R/PW-5D	Upward	Up	0.01
			PW-2R/PW-5R	Inward	**Out**	0.05
			PW-11D/PW-10D	Inward	**Out**	0.27
11/6/08 6:30	20.2	29.0	PW-2R/PW-2D	Downward	**Up**	0.03
			PW-2D/PW-5D	Inward	**Out**	0.03
			PW-5R/PW-5D	Upward	Up	0.02
			PW-2R/PW-5R	Inward	**Out**	0.02
			PW-11D/PW-10D	Inward	**Out**	0.07
11/6/08 16:30	20.2	24.0	PW-2R/PW-2D	Downward	**Up**	0.18
			PW-2D/PW-5D	Inward	**Out**	0.15
			PW-5R/PW-5D	Upward	Up	0.02
			PW-2R/PW-5R	Inward	In	0.01
			PW-11D/PW-10D	Inward	**Out**	0.23
11/7/08 6:30	21.5	27.0	PW-2R/PW-2D	Downward	Down	0.03
			PW-2D/PW-5D	Inward	In	0.04
			PW-5R/PW-5D	Upward	Up	0.08
			PW-2R/PW-5R	Inward	**Out**	0.07
			PW-11D/PW-10D	Inward	In	0.02

Table 4-3
Groundwater Gradients during In situ Chemcial Oxidation
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Date	Extraction Rate (gpm)	Injection Rate (gpm)	Well Pair	Preferred Gradient	Actual Gradient	Head Difference
11/7/08 16:00	21.5	27.0	PW-2R/PW-2D	Downward	Up	0.09
			PW-2D/PW-5D	Inward	**Out**	0.08
			PW-5R/PW-5D	Upward	Up	0.05
			PW-2R/PW-5R	Inward	**Out**	0.04
			PW-11D/PW-10D	Inward	**Out**	0.07
11/10/08 6:30	22.5	25.0	PW-2R/PW-2D	Downward	Down	0.03
			PW-2D/PW-5D	Inward	In	0.26
			PW-5R/PW-5D	Upward	Up	0.20
			PW-2R/PW-5R	Inward	In	0.03
			PW-11D/PW-10D	Inward	In	0.24
11/10/08 16:00	22.5	30.0	PW-2R/PW-2D	Downward	Up	0.06
			PW-2D/PW-5D	Inward	In	0.13
			PW-5R/PW-5D	Upward	Up	0.20
			PW-2R/PW-5R	Inward	**Out**	0.01
			PW-11D/PW-10D	Inward	In	0.14
11/11/08 6:30	22.5	29.0	PW-2R/PW-2D	Downward	**Up**	0.01
			PW-2D/PW-5D	Inward	In	0.19
			PW-5R/PW-5D	Upward	Up	0.17
			PW-2R/PW-5R	Inward	In	0.03
			PW-11D/PW-10D	Inward	In	0.24
11/11/08 15:30	22.5	30.0	PW-2R/PW-2D	Downward	**Up**	0.08
			PW-2D/PW-5D	Inward	In	0.07
			PW-5R/PW-5D	Upward	Up	0.16
			PW-2R/PW-5R	Inward	**Out**	0.01
			PW-11D/PW-10D	Inward	In	0.05
11/12/08 6:30	22.5	30.0	PW-2R/PW-2D	Downward	**Up**	0.06
			PW-2D/PW-5D	Inward	In	0.13
			PW-5R/PW-5D	Upward	Up	0.18
			PW-2R/PW-5R	Inward	In	0.01
			PW-11D/PW-10D	Inward	In	0.15
11/12/08 16:00	22.5	30.0	PW-2R/PW-2D	Downward	**Up**	0.11
			PW-2D/PW-5D	Inward	In	0.01
			PW-5R/PW-5D	Upward	Up	0.15
			PW-2R/PW-5R	Inward	**Out**	0.03
			PW-11D/PW-10D	Inward	**Out**	0.03
11/13/08 6:30	22.5	30.0	PW-2R/PW-2D	Downward	**Up**	0.07
			PW-2D/PW-5D	Inward	In	0.10
			PW-5R/PW-5D	Upward	Up	0.17
			PW-2R/PW-5R	Inward	**Neutral**	0.00
			PW-11D/PW-10D	Inward	In	0.07
11/13/08 16:00	22.5	27.0	PW-2R/PW-2D	Downward	**Up**	0.10
			PW-2D/PW-5D	Inward	**Out**	0.02
			PW-5R/PW-5D	Upward	Up	0.10
			PW-2R/PW-5R	Inward	**Out**	0.02
			PW-11D/PW-10D	Inward	**Out**	0.09

Table 4-3
Groundwater Gradients during In situ Chemcial Oxidation
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Date	Extraction Rate (gpm)	Injection Rate (gpm)	Well Pair	Preferred Gradient	Actual Gradient	Head Difference
11/14/08 6:30	22.5	29.0	PW-2R/PW-2D	Downward	**Up**	0.10
			PW-2D/PW-5D	Inward	In	0.05
			PW-5R/PW-5D	Upward	Up	0.15
			PW-2R/PW-5R	Inward	**Neutral**	0.00
			PW-11D/PW-10D	Inward	In	0.04
11/14/08 15:30	22.5	24.0	PW-2R/PW-2D	Downward	**Up**	0.08
			PW-2D/PW-5D	Inward	**Out**	0.01
			PW-5R/PW-5D	Upward	Up	0.09
			PW-2R/PW-5R	Inward	**Out**	0.02
			PW-11D/PW-10D	Inward	**Out**	0.07
11/17/08 6:30	22.5	14.0	PW-2R/PW-2D	Downward	Down	0.03
			PW-2D/PW-5D	Inward	In	0.31
			PW-5R/PW-5D	Upward	Up	0.21
			PW-2R/PW-5R	Inward	In	0.07
			PW-11D/PW-10D	Inward	In	0.38
11/17/08 16:00	22.5	24.0	PW-2R/PW-2D	Downward	Down	0.03
			PW-2D/PW-5D	Inward	In	0.25
			PW-5R/PW-5D	Upward	Up	0.17
			PW-2R/PW-5R	Inward	In	0.05
			PW-11D/PW-10D	Inward	In	0.28
11/18/08 7:00	17.9	12.0	PW-2R/PW-2D	Downward	Down	0.02
			PW-2D/PW-5D	Inward	In	0.28
			PW-5R/PW-5D	Upward	Up	0.20
			PW-2R/PW-5R	Inward	In	0.06
			PW-11D/PW-10D	Inward	In	0.32
11/18/08 14:45	17.9	12.0	PW-2R/PW-2D	Downward	Down	0.01
			PW-2D/PW-5D	Inward	In	0.19
			PW-5R/PW-5D	Upward	Up	0.16
			PW-2R/PW-5R	Inward	In	0.02
			PW-11D/PW-10D	Inward	In	0.21
11/19/08 9:00	14.9	7.0	PW-2R/PW-2D	Downward	**Up**	0.03
			PW-2D/PW-5D	Inward	In	0.10
			PW-5R/PW-5D	Upward	Up	0.11
			PW-2R/PW-5R	Inward	In	0.02
			PW-11D/PW-10D	Inward	In	0.11
11/19/08 16:00	14.9	4.0	PW-2R/PW-2D	Downward	**Up**	0.01
			PW-2D/PW-5D	Inward	In	0.08
			PW-5R/PW-5D	Upward	Up	0.10
			PW-2R/PW-5R	Inward	**Out**	0.01
			PW-11D/PW-10D	Inward	In	0.07
11/20/08 8:00	16.4	7.0	PW-2R/PW-2D	Downward	**Up**	0.03
			PW-2D/PW-5D	Inward	In	0.03
			PW-5R/PW-5D	Upward	Up	0.05
			PW-2R/PW-5R	Inward	In	0.01
			PW-11D/PW-10D	Inward	In	0.02

Table 4-3
Groundwater Gradients during In situ Chemcial Oxidation
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Date	Extraction Rate (gpm)	Injection Rate (gpm)	Well Pair	Preferred Gradient	Actual Gradient	Head Difference
11/20/08 16:00	16.4	7.0	PW-2R/PW-2D	Downward	**Up**	0.03
			PW-2D/PW-5D	Inward	**Out**	0.04
			PW-5R/PW-5D	Upward	**Neutral**	0.00
			PW-2R/PW-5R	Inward	**Out**	0.01
			PW-11D/PW-10D	Inward	**Out**	0.06
11/21/08 14:30	19.6	0.0	PW-2R/PW-2D	Downward	**Up**	0.03
			PW-2D/PW-5D	Inward	In	0.06
			PW-5R/PW-5D	Upward	Up	0.11
			PW-2R/PW-5R	Inward	**Out**	0.03
			PW-11D/PW-10D	Inward	**Neutral**	0.00
11/24/08 7:30	19.6	5.0	PW-2R/PW-2D	Downward	**Neutral**	0.00
			PW-2D/PW-5D	Inward	In	0.12
			PW-5R/PW-5D	Upward	Up	0.13
			PW-2R/PW-5R	Inward	**Out**	0.01
			PW-11D/PW-10D	Inward	In	0.08
11/25/08 7:30	20.7	5.0	PW-2R/PW-2D	Downward	**Up**	0.06
			PW-2D/PW-5D	Inward	In	0.09
			PW-5R/PW-5D	Upward	Up	0.14
			PW-2R/PW-5R	Inward	In	0.01
			PW-11D/PW-10D	Inward	In	0.09
11/26/08 10:00	21.0	0.0	PW-2R/PW-2D	Downward	Down	0.11
			PW-2D/PW-5D	Inward	In	0.52
			PW-5R/PW-5D	Upward	Up	0.31
			PW-2R/PW-5R	Inward	In	0.10
			PW-11D/PW-10D	Inward	In	0.73

Table 4-4
Permanganate and Chloride Monitoring Data
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Well	Jan-09 NaMnO4 (mg/L)	Apr-09 NaMnO4 (mg/L)	Jun-09 NaMnO4 (mg/L)	Cl Oct-08 (ppm)	Cl Jan-09 (ppm)	Cl Apr-09 (ppm)	Change (+/-)
B95-03	0	0	0	30	NA	<29	NA
B95-08	0	0	0	146	146	156	0
B95-09	0	0	0	NA	240	226	NA
INEL-CI	10<X<100	>1,000	500	122	122	92	0
INEL-HCNE	100<X<1000	100	NC	105	100	107	-5
INEL-HCNW	**100**	**100<X<1,000**	**NC**	**22**	**25**	**<29**	**3**
INEL-HCSE	**100**	**10<X<100**	**NC**	**111**	**111**	**107**	**0**
INEL-HCSW	**0**	**0**	**NC**	**90**	**95**	**102**	**5**
INEL-SCP	0	0	NC	122	90	92	-32
INEL-NCP	NA	NA	1,000	56	NA	NA	NA
IP-01	**0**	**0**	**<10**	**22**	**25**	**<29**	**3**
IP-02	**<10**	**0**	**0**	**48**	**25**	**<29**	**-23**
IP-03	**100**	**100<X<1,000**	**>100**	**56**	**77**	**65**	**21**
IP-04	**200**	**100**	**25**	**72**	**81**	**92**	**9**
IP-05	**10**	**0**	**0**	**56**	**28**	**<29**	**-28**
IP-06	**500**	**100<X<1,000**	**1,000**	**31**	**60**	**57**	**29**
IP-07	**10**	**0**	**>1,000**	**41**	**81**	**92**	**40**
IP-08	**100**	**100**	**100**	**22**	**85**	**35**	**63**
IP-09	**100<X<1000**	**1000**	**50**	**81**	**68**	**78**	**-13**
IP-10	**10<X<100**	**<10**	**0**	**56**	**81**	**49**	**25**
IP-11	**<10**	**0**	**0**	**60**	**56**	**57**	**-4**
IP-12	**>1000**	**1,000**	**1,000**	**63**	**NA**	**65**	**NA**
IP-13	**100**	**10<X<100**	**50**	**41**	**56**	**57**	**15**
IP-14	**>1000**	**10<X<100**	**<10**	**56**	**NA**	**65**	**NA**
IW-1A	0	0	0	NA	NA	102	NA
IW-2A	0	0	0	NA	NA	<29	NA
IW-1	0	0	NC	72	90	177	18
IW-2	0	0	NC	25	25	<29	0
MI-23	0	0	NC	25	25	<29	0
PW-02D	0	0	0	90	174	201	84
PW-02R	0	0	0	28	44	49	16
PW-05M	0	0	NC	90	81	113	-9
PW-05D	10<X<100	100	20	81	48	102	-33
PW-05R	0	0	0	28	25	<29	-3
PW-06D	**>1000**	**>1,000**	**1,000**	**81**	**100**	**102**	**19**
PW-06M	0	0	0	NA	63	97	NA
PW-06MB	0	0	0	56	111	170	55
PW-06R	<10	0	0	20	63	65	43
PW-06S	0	0	0	48	56	57	8
PW-07M	0	0	NC	15	NA	<29	NA
PW-07S	0	0	NC	15	NA	<29	NA
PW-10D	100	100<X<1,000	<100	28	44	49	16
PW-10M	0	0	0	34	25	<29	-9
PW-11D	0	0	0	34	25	<29	-9
PW-15D	**>1000**	**>1,000**	**>1,000**	**111**	**NA**	**102**	**NA**
PW-15M	**100<X<1000**	**10**	**0**	**90**	**NA**	**87**	**NA**
PW-16D	0	0	0	48	28	29	-20
PW-16M	0	0	0	34	27	<29	-7
PW-17M	0	0	0	63	60	57	-3
PW-17S	0	0	NC	48	63	57	15
PW-18D	0	0	0	20	44	38	24
PW-18M	0	0	NC	60	NA	73	NA

Table 4-4
Permanganate and Chloride Monitoring Data
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Well	Jan-09 NaMnO4 (mg/L)	Apr-09 NaMnO4 (mg/L)	Jun-09 NaMnO4 (mg/L)	Cl Oct-08 (ppm)	Cl Jan-09 (ppm)	Cl Apr-09 (ppm)	Change (+/-)
PW-19D	0	0	0	22	25	<29	3
PW-19M	0	0	0	28	22	<29	-6
PW-20D	>1000	1,000	>1,000	56	25	<29	-31
PW-20M	0	0	0	28	25	<29	-3
PW-20S	0	0	0	56	25	<29	-31
PW-22	0	0	0	63	NA	57	NA
PW-24	0	0	0	30	NA	29	NA
PW-25D	0	0	0	59.5	60	61	0.5
PW-25S	0	0	0	28	34	32	6
PW-27S	0	0	0	10	NA	<29	NA
PW-28	0	0	0	48	56	57	8
SP-1	**>1000**	**100<X<1,000**	**500**	**56**	**NA**	**49**	**NA**
SP-2	0	0	0	15	15	<29	0
SVE-1	10<X<100	0	0	38	NA	42	NA
SVE-4	0	0	NC	0	NA	32	NA
SVE-6	0	0	NC	NA	NA	<29	NA

Notes:
All locations sampled using peristaltic pump and dedicated pump tubing unless otherwise indicated in comments.
NA = Not applicable, chloride concentrations not evaluated.
Bold indicates NaMnO4 injection location.
NC = Not checked for NaMnO4 concentration.

Table 4-5
Summary of Bench Scale Testing Results on Leach Field Soils
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Oxidant Tested	Organization Conducting Tests	Control (Starting) Concentration	Dosages Tested	Best Removal Results	Unit Cost for Oxidant	Cost to Achieve Best Removal Results (Chemical Cost Only)
Modified Fentons	ISOTEC	139 mg/kg	0.75%, 1.5%, 3%, and 5%	45%	$2 per gallon of 16.7%	$150 per CY
Standard Fentons	WRI	105 mg/kg	2, 4, and 6 g per 240 g of Soil	37%	$2 per gallon of 16.7%	$100 per CY
RegenOx	WRI	105 mg/kg	2, 4, and 6 g per 240 g of Soil	51%	$2.20 per pound solid powder	$154 per CY
Sodium Permanganate	WRI	125 mg/kg	2, 4, and 6 g per 240 g of Soil	42%	$2.15 per pound 40% solution	$376 per CY

Notes:
mg/kg = milligrams per kilogram
g = grams
cy = cubic yards
WRI = Western Research Institute

Table 5-1

Fall 2007 Soil Boring Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Location	Field Sample ID	Date Collected	Depth (ft bgs)	Analyte			
				PCE (mg/kg)		TCE (mg/kg)	
	NHDES SRS			2		0.8	
PW-27S	20071102PW27S-10.5	11/2/2007	10.5 - 11.5	0.01	U	0.025	U
PW-27S	20071102PW27S-5	11/2/2007	5 - 5	0.17		0.025	U
PW-27S	20071102PW27S-6.5	11/2/2007	6.5 - 7.5	0.12		0.025	U
SB-23	20071113SB23-7	11/13/2007	7 - 8	**6.04**		0.125	U
SB-23	20071113SB23-9	11/13/2007	9 - 10	0.193		0.125	U
SB-24	20071113SB24-10.5	11/13/2007	10.5 - 11.5	0.24		0.125	U
SB-24	20071113SB24-7	11/13/2007	7 - 8	0.703		0.125	U
SB-25	20071113SB25-11	11/13/2007	11 - 12	0.072		0.125	U
SB-25	20071113SB25-6	11/13/2007	6 - 7	**273**		**5.26**	
SB-26	20071113SB26-10	11/13/2007	10 - 11	0.05	U	0.125	U
SB-26	20071113SB26-6.5	11/13/2007	6.5 - 7.5	0.685		0.125	U
SB-27	20071113SB27-11	11/13/2007	11 - 12	0.161		0.125	U
SB-27	20071113SB27-6	11/13/2007	6 - 7	1.07		0.125	U
SB-28	20071113SB28-6.5	11/13/2007	6.5 - 7.5	0.123		0.125	U
SB-28	20071113SB28-9	11/13/2007	9 - 10	0.021		0.125	U
SB-29	20071113SB29-5	11/13/2007	5 - 6	0.05	U	0.125	U
SB-30	20071113SB30-4.5	11/13/2007	4.5 - 5.5	0.04	U	0.125	U
SB-31	20071114SB31-6	11/14/2007	6 - 7	0.17		0.125	U
SB-31	20071114SB31-9	11/14/2007	9 - 10	0.04	U	0.125	U
SB-32	20071114SB32-10	11/14/2007	10 - 11	0.216		0.125	U
SB-32	20071114SB32-5	11/14/2007	5 - 6	0.083		0.125	U
SB-33	20071114SB33-7	11/14/2007	7 - 8	0.224		0.125	U
SB-33	20071114SB33-9	11/14/2007	9 - 10	0.015		0.125	U
SB-34	20071114SB34-10	11/14/2007	10 - 11	0.04	U	0.125	U
SB-34	20071114SB34-7	11/14/2007	7 - 8	0.023		0.125	U
SB-35	20071114SB35-6	11/14/2007	6 - 7	0.015		0.125	U
SB-35	20071114SB35-9	11/14/2007	9 - 10	0.04	U	0.125	U
SB-36	20071113SB36-7	11/13/2007	7 - 8	0.75		0.125	U
SB-36	20071113SB36-9	11/13/2007	9 - 10	0.04	U	0.125	U
SB-37	20071113SB37-6	11/13/2007	6 - 7	**265**		**6.87**	
SB-37	20071113SB37-8.5	11/13/2007	8.5 - 9.5	0.04		0.125	U
SB-38	20071114SB38-5	11/14/2007	5 - 6	1.38		0.125	U
SB-38	20071114SB38-9	11/14/2007	9 - 10	0.04	U	0.125	U
SB-39	20071114SB39-10	11/14/2007	10 - 11	0.04	U	0.125	U
SB-39	20071114SB39-5	11/14/2007	5 - 6	**2.47**		0.125	U
SB-40	20071114SB40-5	11/14/2007	5 - 6	0.417		0.125	U
SB-40	20071114SB40-9	11/14/2007	9 - 10	0.04	U	0.125	U
SB-42	20071114SB42-4	11/14/2007	4 - 5	**11.53**		0.125	U
SB-42	20071114SB42-5	11/14/2007	5 - 6	**3.83**		0.125	U
SB-42	20071114SB42-9	11/14/2007	9 - 10	0.048		0.125	U
SB-43	20071114SB43-4	11/14/2007	4 - 5	1.95		0.125	U
SB-43	20071114SB43-9	11/14/2007	9 - 10	0.184		0.125	U

Table 5-1

Fall 2007 Soil Boring Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

				Analyte			
		Date	Depth	PCE		TCE	
SB-44	20071114SB44-4	11/14/2007	4 - 5	**10.38**		0.125	U
SB-44	20071114SB44-9	11/14/2007	9 - 10	0.059		0.125	U
SB-45	20071114SB45-4	11/14/2007	4 - 5	1.5		0.125	U
SB-45	20071114SB45-9	11/14/2007	9 - 10	0.04	U	0.125	U
SB-46	20071114SB46-5	11/14/2007	5 - 6	0.909		0.125	U
SB-46	20071114SB46-9	11/14/2007	9 - 10	0.04	U	0.125	U

Notes:
U = Compound was not detected above the indentified laboratory reporting limit
mg/kg = milligrams per kilogram
ft bgs = feet below ground surface
PCE = tetrachloroethene
TCE = trichlorethylene
NHDES = New Hampshire Department of Environmental Services
SRS = Soil Remediation Standard
Bold = Compound was detected above the NHDES SRS.
Samples analyzed by EPA Region 1 Mobile Laboratory (EIA-FLDVOA.SOP).

Table 5-2

August 2008 Soil Boring Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Station	Date	Depth (ft bgs)	PCE (mg/kg)		
NHDES SRS			2		
			Analysis by EIASOP-FLDVOA2		Analysis by EIASOP-VOAGCMS8
SB-47	**8/11/2008**	**4**	0.22		0.1058
SB-47	**8/11/2008**	**8**	0.38		NA
SB-47	**8/11/2008**	**9**	0.0051	U	NA
SB-48	**8/11/2008**	**4**	0.76		NA
SB-48	**8/11/2008**	**9.5**	0.084		NA
SB-49	**8/11/2008**	**10**	**16**		NA
SB-49	**8/11/2008**	**8/8**	**11000/7500**		**10697/8939**
SB-49	**8/11/2008**	**9**	**33**		**20.2801**
SB-50	**8/11/2008**	**7**	1.9		NA
SB-51	**8/11/2008**	**6**	0.068		NA
SB-52	**8/11/2008**	**6**	0.17		NA
SB-53	**8/11/2008**	**7**	0.11		NA
SB-54	**8/11/2008**	**6.5**	0.097		NA
SB-55	**8/12/2008**	**10.5**	0.0069	U	NA
SB-55	**8/12/2008**	**4**	0.1		NA
SB-55	**8/12/2008**	**5**	0.27		NA
SB-55	**8/12/2008**	**6**	0.057		NA
SB-55	**8/12/2008**	**8**	0.0076	U	NA
SB-56	**8/12/2008**	**4.5**	0.37		NA
SB-56	**8/12/2008**	**6.5**	0.038		NA
SB-57	**8/12/2008**	**4.25**	0.51		NA
SB-57	**8/12/2008**	**6.5**	0.0088	U	NA
SB-57	**8/12/2008**	**8.25**	0.012	U	NA
SB-58	**8/12/2008**	**4**	0.56		NA
SB-58	**8/12/2008**	**6**	NA		1.06/0.6325
SB-58	**8/12/2008**	**8**	0.17		NA
SB-58	**8/12/2008**	**9**	0.0084	U	NA
SB-59	**8/12/2008**	**10**	0.0071	U	NA
SB-59	**8/12/2008**	**12**	0.0063/0.013	U/	NA
SB-59	**8/12/2008**	**4.5**	**2.9**		NA
SB-59	**8/12/2008**	**6**	0.61		NA
SB-59	**8/12/2008**	**8**	0.11		NA

Notes:

Samples were collected by EPA and analyzed by OEME Laboratory.
PCE = Tetrachloroethene
NA = Not analyzed
U = Compound was not detected above the specified laboratory reporting limits.
SRS = NHDES Soil Remediation Standard.
ft bgs = feet below ground surface
mg/kg = milligrams per kilogram
Bold = Compound was detected above the NHDES SRS.

Table 5-3

Leach Field Soil and PW-22 Test Pit Sample Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Station	Date Collected	Depth (ft bgs)	Analyte			
			cis-1,2-DCE (mg/kg)	PCE (mg/kg)		TCE (mg/kg)
NHDES SRS			2	2		0.8
LF001-ES	9/2/2008	6	NA	0.476		NA
LF002-ES	9/2/2008	6	NA	**3.59**		NA
LF003-ES	9/2/2008	6	NA	0.255		NA
LF004-ES	9/2/2008	4	NA	0.323		NA
LF005-ES	9/2/2008	4	NA	0.087		NA
LF006-ES	9/2/2008	6	NA	1.443		NA
LF007-ES	9/2/2008	6	NA	0.72		NA
LF008-ES	9/2/2008	4	NA	0.099		NA
LF009-ES	9/2/2008	6	NA	0.111		NA
LF010-ES	9/2/2008	6	NA	0.101		NA
LF011-ES	9/2/2008	4	NA	0.04	U	NA
LF012-ES	9/2/2008	6	NA	0.041		NA
LF013-ES	9/2/2008	6	NA	0.3		NA
LF014-ES	9/2/2008	6	NA	0.536		NA
LF015-ES	9/2/2008	4	NA	0.328		NA
LF016-ES	9/3/2008	6	NA	0.04	U	NA
LF017-ES	9/3/2008	6	NA	0.04	U	NA
LF018-ES	9/3/2008	6	NA	0.659		NA
LF019-ES	9/3/2008	6	NA	**3.45**		NA
LF020-ES	9/3/2008	4	NA	0.04	U	NA
LF021-ES	9/3/2008	6	NA	**103**		NA
LF022-ES	9/3/2008	6	NA	0.258		NA
LF023-ES	9/3/2008	4	NA	0.409		NA
LF024-ES	9/3/2008	7	NA	0.034		NA
LF025-ES	9/3/2008	7	NA	0.044		NA
LF026-ES	9/3/2008	7	NA	0.241		NA
LF027-ES	9/3/2008	7	NA	**6.43**		NA
LF028-ES	9/4/2008	7	NA	**2.1**		NA
LF029-ES	9/4/2008	7	NA	0.515		NA
LF030-ES	9/4/2008	7	NA	0.177		NA
LF031-ES	9/4/2008	8	NA	1.21		NA
LF032-ES	9/4/2008	8	NA	0.04	U	NA
LF033-ES	9/4/2008	7	NA	0.04	U	NA
LF034-ES	9/4/2008	8	NA	0.37		NA
LF035-ES	9/4/2008	6	NA	**2.97**		NA
LF036-ES	9/4/2008	7	NA	0.137		NA
LF037-ES	9/4/2008	8	NA	0.14		NA
LF038-ES	9/4/2008	8	NA	0.231		NA
LF039-ES	9/4/2008	8	NA	0.068		NA
LF040-ES	9/4/2008	9	NA	0.038		NA
LF041-ES	9/4/2008	7	NA	0.04	U	NA
LF042-ES	9/4/2008	8	NA	0.04	U	NA
LF043-ES	9/5/2008	9	NA	0.04	U	NA
LF044-ES	9/5/2008	12	NA	0.038		NA

Table 5-3

Leach Field Soil and PW-22 Test Pit Sample Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Station	Date Collected	Depth (ft bgs)	Analyte					
			cis-1,2-DCE (mg/kg)		PCE (mg/kg)		TCE (mg/kg)	
LF045-ES	9/5/2008	9	NA		0.401		NA	
LF046-ES	9/5/2008	8	NA		0.04	U	NA	
LF047-ES	9/5/2008	14	NA		0.04	U	NA	
LF048-ES	9/5/2008	11	NA		0.225		NA	
LF049-ES	9/10/2008	15	NA		0.04	U	NA	
LF050-ES	9/10/2008	9	NA		0.115		NA	
LF051-ES	9/8/2008	12	NA		0.04	U	NA	
LF052-ES	9/8/2008	10	NA		0.095		NA	
LF053-ES	9/8/2008	9	NA		0.07		NA	
LF054-ES	9/8/2008	9	NA		0.04	U	NA	
LF055-ES	9/8/2008	10	NA		0.088		NA	
LF056-ES	9/8/2008	9	NA		0.135		NA	
LF057-ES	9/8/2008	8	NA		0.509		NA	
LF058-ES	9/8/2008	12	NA		0.144		NA	
LF059-ES	9/8/2008	12	NA		0.396		NA	
LF060-ES	9/8/2008	9	NA		1.07		NA	
LF061-ES	9/8/2008	12	NA		0.049		NA	
LF062-ES	9/10/2008	8	NA		0.04	U	NA	
LF063-ES	9/10/2008	3	NA		0.107		NA	
LF064-ES	9/10/2008	6	NA		**2.14**		NA	
LF064-ES	9/9/2008	6	0.094	U	**2.6**		0.094	U
LF065-ES	9/10/2008	8	NA		0.038		NA	
LF066-ES	9/10/2008	10	NA		0.44		NA	
LF067-ES	9/10/2008	14	NA		0.04	U	NA	
LF068-ES	9/10/2008	6	NA		0.086		NA	
LF069-ES	9/10/2008	12	NA		0.04	U	NA	
LF070-ES	9/10/2008	12	NA		0.04	U	NA	
LF071-ES	9/10/2008	7	NA		0.246		NA	
LF072-ES	9/10/2008	6	NA		0.201		NA	
LF073-ES-0808-2	9/15/2008	8	0.049	U	0.094		0.024	U
SC001-COMP-1	9/18/2008	0	0.91	U	**9.6**		0.46	U
SC002-COMP-1	9/18/2008	0	1.1	U	**19**		0.57	U
SC003-COMP-1	9/18/2008	0	1	U	**8.7**		0.52	U
SC004-COMP-1	9/18/2008	0	1	U	**2.3**		0.51	U
SC005-COMP-1	9/18/2008	0	1.1	U	**6.2**		0.56	U
SC006-COMP-1	9/18/2008	0	1.3		**24**		**1.2**	
SC007-COMP-1	9/18/2008	0	1.1	U	**6.7**		0.54	U
SC008-COMP-1	9/18/2008	0	1.5		**71**		**2**	
SC009-COMP-1	9/19/2008	0	1.1		**36**		0.68	
SC010-COMP-1	9/19/2008	0	0.76		**11**		0.62	U
SC011-COMP-1	9/19/2008	0	1.1	U	**5.6**		0.56	U
SC012-COMP-1	9/19/2008	0	1.3	U	**14**		0.67	U
SC013-COMP-1	9/22/2008	0	0.92	U	**2.1**		0.46	U
SC014-COMP-1	9/22/2008	0	1.1	U	**9.4**		0.55	U
SC015-COMP-1	9/22/2008	0	1.3	U	**4**		0.63	U

Table 5-3

Leach Field Soil and PW-22 Test Pit Sample Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Station	Date Collected	Depth (ft bgs)	Analyte					
			cis-1,2-DCE (mg/kg)		PCE (mg/kg)		TCE (mg/kg)	
SC016-COMP-1	9/22/2008	0	1.2	U	**6.1**		0.62	U
SC017-COMP-1	9/23/2008	0	1.9		**8.1**		0.68	
SC018-COMP-1	9/23/2008	0	1.1	U	1.9		0.55	U
SC019-COMP-1	9/23/2008	0	0.96	U	**3.1**		0.48	U
SC020-COMP-1	9/23/2008	0	1.2	U	**8.6**		0.59	U
SP001	9/10/2008	0	NA		1.08		NA	
SP002	9/10/2008	0	NA		**6.36**		NA	
SP003	9/10/2008	0	NA		0.26		NA	
SP004	9/10/2008	0	NA		0.464		NA	
SP005	9/10/2008	0	NA		**23.4**		NA	
TP001	9/3/2008	7	NA		0.04	U	NA	
TP002	9/3/2008	7	NA		1.98		NA	
TP003	9/3/2008	7	NA		1.57		NA	
TP005	9/10/2008	3	NA		0.543		NA	
TP006	9/10/2008	4	NA		0.637		NA	
TP007	9/10/2008	4	NA		1.05		NA	
TP008	9/10/2008	3	NA		0.928		NA	
TP009	9/10/2008	4	NA		0.45		NA	
TP010	9/10/2008	3	NA		1.92		NA	

Notes:
Samples were collected by Weston and analyzed by EPA OEME Laboratory in accordance with EIASOP-FLDVOA2.

LFXXX-ES samples were discrete samples collected from the bottom or sidewalls of the excavation.

SCXXX-COMP-1 were 4-point composite samples collected from screened soil pile.

SPXXX samples were 4-point composite samples taken from the pre-screened soil pile.

TPXXX samples were discrete samples collected from test pit adjacent to monitoring well PW-22.
cis-1,2-DCE = cis-1,2-dichloroethene
PCE = Tetrachloroethene
TCE = Trichloroethene
NA = Not analyzed
U = Compound was not detected above the specified laboratory reporting limits
SRS = NHDES Soil Remediation Standard.
ft bgs = feet below ground surface
mg/kg = milligrams per kilogram
NHDES = New Hampshire Department of Environmental Services
Bold = Compound was detected above the NHDES SRS.

Table 5-4

Leach Field Excavation Confirmation Sample Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Station	Date Collected	Depth (ft bgs)	Analyte		
			cis-1,2-DCE (mg/kg)	PCE (mg/kg)	TCE (mg/kg)
NHDES SRS			**2**	**2**	**0.8**
OKT-LF062-ES-0808-2	9/9/2008	8	0.085 U	0.085 U	0.085 U
OKT-LF063-ES-0303-2	9/9/2008	3	0.108 U	0.108 U	0.108 U
OKT-LF064-ES-0606-2*	9/9/2008	6	0.088 U	1.53	0.088 U
OKT-LF065-ES-0808-2	9/9/2008	8	0.084 U	0.088	0.084 U
OKT-LF066-ES-1010-2	9/9/2008	10	0.079 U	0.417	0.079 U
OKT-LF067-ES-1414-2	9/9/2008	14	0.078 U	0.078 U	0.078 U
OKT-LF068-ES-0606-2	9/9/2008	6	0.146 U	0.146 U	0.146 U
OKT-LF069-ES-1212-2	9/9/2008	12	0.075 U	0.075 U	0.075 U
OKT-LF070-ES-1212-2	9/9/2008	12	0.086 U	0.085 U	0.086 U
OKT-LF071-ES-0707-2	9/9/2008	7	0.096 U	0.287	0.096 U
OKT-LF072-ES-0606-2	9/9/2008	6	0.099 U	0.099 U	0.099 U

Notes:
Samples were discrete samples collected by WESTON from the limits of the excavation and analyzed by NHDES Laboratory in accordance with SW-846 8260B.
cis-1,2-DCE = cis-1,2-dichloroethene
PCE = Tetrachloroethene
TCE = Trichloroethene
U = Compound was not detected above the specified laboratory reporting limits.
*An additional 2 ft of soil was removed after collection of OKT-LF064-ES-0606-2 and a second sample (OKT-LF073-ES-0808-2) was collected at this location. OKT-LF073-ES-0808-2 was sent to the OEME Laboratory for analysis with a result of 0.201 mg/kg PCE.
SRS = NHDES Soil Remediation Standard.
ft bgs = feet below ground surface
mg/kg = milligrams per kilogram
NHDES = New Hamsphire Department of Environmental Services

Table 5-5

Injection Well Soil Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Station	Date Collected	Depth (ft bgs)	Analyte			
			cis-1,2-DCE (mg/kg)	PCE (mg/kg)	TCE (mg/kg)	TOC (%)
SRS			**2**	**2**	**0.8**	
IP-01	**9/17/2008**	**80 - 81**	0.039	0.018	0.024 U	<1
IP-01	**9/17/2008**	**81 - 82**	0.154	0.079	0.082	<1
IP-02	**9/3/2008**	**83 - 84**	NA	0.04 U	NA	<1
IP-03	**9/3/2008**	**82 - 83**	NA	0.04 U	NA	<1
IP-04	**9/2/2008**	**82 - 83**	NA	0.04 U	NA	<1
IP-05	**9/4/2008**	**87 - 88**	NA	0.04 U	NA	<1
IP-06	**9/16/2008**	**73 - 74**	0.38 U	**2**	0.38 U	<1
IP-07	**9/15/2008**	**73 - 74**	0.028 U	0.011 U	0.028 U	<1
IP-08	**9/8/2008**	**74 - 75**	NA	0.04 U	NA	<1
IP-09	**9/5/2008**	**74 - 75**	NA	0.04 U	NA	<1
IP-10	**9/17/2008**	**64 - 65**	0.02 U	0.089	0.02 U	<1
IP-11	**9/5/2008**	**64 - 65**	NA	0.04 U	NA	<1
IP-12	**9/10/2008**	**63 - 64**	NA	0.04 U	NA	<1
IP-13	**9/15/2008**	**54 - 55**	0.03 U	0.091	0.03 U	<1
IP-14	**9/10/2008**	**53 - 54**	NA	0.04 U	NA	<1

Notes:

Samples were collected by WESTON and analyzed for VOCs by EPA OEME Mobile Laboratory in accordance with EIASOP-FLDVOA2 and organic matter by ESS Laboratory in accordance with ASTM D2974-87.

cis-1,2-DCE = cis-1,2-dichloroethene

PCE = Tetrachloroethene

TCE = Trichloroethene

TOC = Total organic carbon

U = Compound was not detected above the specified laboratory reporting limits.

SRS = NHDES Soil Remediation Standard.

mg/kg = milligrams per kilogram

Bold = Compound was detected above the NHDES SRS.

VOC = volatile organic compound

EPA = U.S. Environmental Protection Agency

Table 5-6

2007/2008 Vertical Profiling Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

				Analyte				
Location	Sample Method	Date Collected	Depth (ft bgs)	1,1,1-TCA (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	Trans-1,2-DCE (µg/L)	TCE (µg/L)
NHDES AGQS				200	70	5	100	5
VP-7001	Bladder	10/17/2007	24.5 - 25.5	0.5 U	4.8	**440**	0.5 U	**14**
VP-7001	Peristaltic	10/17/2007	24.5 - 25.5	0.5 U	5.1	**360**	0.5 U	**11**
VP-7001	Bladder	10/18/2007	29.5 - 30.5	0.5 U	6.7	**300**	0.5 U	**14**
VP-7002	Bladder	10/25/2007	21 - 22	0.61	7.4	**64**	0.5 U	**13**
VP-7002	Peristaltic	10/25/2007	21 - 22	1	7.4	**100**	0.5 U	**13**
VP-7002	Bladder	10/25/2007	23 - 24	0.5 U	21	**104**	0.52	**25**
VP-7002	Bladder	10/25/2007	25 - 26	25 U	**72**	**220**	25 U	**38**
VP-7002	Bladder	10/29/2007	29 - 30	25 U	**150**	**320**	25 U	**90**
VP-7002	Bladder	10/29/2007	33 - 34	25 U	**110**	**330**	25 U	**85**
VP-7002	Bladder	10/29/2007	37 - 38	25 U	**74**	**540**	25 U	**83**
VP-7002	Bladder	10/29/2007	42 - 43	25 U	**100**	**930**	25 U	**64**
VP-7002	Bladder (Dup)	10/29/2007	42 - 43	25 U	54	**960**	25 U	**56**
VP-7002	Bladder	10/30/2007	50 - 51	25 U	50 U	**530**	25 U	25 U
VP-7002	Bladder	10/30/2007	57 - 58	25 U	53	**390**	25 U	**33**
VP-7002	Bladder	10/30/2007	62 - 63	25 U	50 U	**680**	25 U	**33**
VP-7003	Bladder	7/14/2008	23 ft	0.5 U	22	**58**	0.5 U	**11**
VP-7003	Bladder	7/14/2008	26 ft	0.5 U	11	**9.9**	0.5 U	3.6
VP-7003	Bladder	7/14/2008	29 ft	0.5 U	33	**57**	0.5 U	**14**
VP-7003	Bladder	7/15/2008	32 ft	0.5 U	54	**32**	0.5 U	**12**
VP-7003	Bladder	7/15/2008	35 ft	0.5 U	22	**26**	0.5 U	**7.6**
VP-7003	Bladder	7/15/2008	38 ft	0.5 U	22	**30**	0.5 U	**7.6**
VP-7003	Bladder	7/16/2008	41 ft	0.5 U	**140**	**120**	0.5 U	**27**
VP-7003	Bladder	7/17/2008	44 ft	0.5 U	**130**	**140**	0.5 U	**23**
VP-7003	Bladder	7/17/2008	47 ft	0.5 U	**71**	**140**	0.5 U	**18**
VP-7003	Peristaltic	7/17/2008	47 ft	0.5 U	68	**160**	0.5 U	**19**
VP-7003	Bladder	7/17/2008	50 ft	0.5 U	46	**84**	0.5 U	**11**
VP-7003	Bladder	7/17/2008	53 ft	0.5 U	15	**53**	0.5 U	4.7
VP-7003	Bladder	7/17/2008	56 ft	0.5 U	27	**58**	0.5 U	**7.1**
VP-7003	Bladder	7/17/2008	62 ft	0.5 U	13	**52**	0.5 U	4.9
VP-7003	Bladder	7/18/2008	65 ft	0.5 U	10	**17**	0.5 U	2.5
VP-7003	Bladder	7/18/2008	68 ft	0.5 U	2	**31**	0.5 U	1.4
VP-7003	Bladder	7/18/2008	71 ft	0.5 U	2.9	**32**	0.5 U	1.8

Notes:
Samples were collected by USGS. Data was provided to WESTON by USGS in summary tables.
ft = feet
bgs = below ground surface
1,1,1-TCA = 1,1,1-trichloroethane
cis-1,2-DCE = cis-1,2-dichloroethene
PCE = tetrachloroethene
Trans-1,2-DCE = trans-1,2-dichloroethene
TCE = trichloroethene
µg/L = micrograms per liter
Bold = Compound was detected above the NHDES AGQS.
U = Compound was not detected above the indentified laboratory reporting limit
NHDES = New Hampshire Department of Environmental Services
AGQS = Ambient Groundwater Quality Standards

Table 5-7

Fall 2007 Groundwater Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Sample Location	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
B95-03	11/14/2007	2	U	0.2	U	0.5	U
B95-12	11/14/2007	2	U	0.2	U	0.5	U
B95-13	11/14/2007	2	U	**6.7**		0.5	U
B95-15	11/14/2007	2	U	1.9		0.5	U
MW-16A	11/13/2007	2	U	0.6		0.5	U
MW-16B	11/13/2007	2	U	0.6		0.5	U
MW-16C	11/13/2007	2	U	**18**		0.7	
MW-16R	11/14/2007	62	U	**277**		**21**	
PW-01D	11/14/2007	2	U	**33**		**8**	
PW-01S	11/14/2007	2	U	1.8		0.5	U
PW-02D	11/13/2007	2	U	**59**		**13**	
PW-02M	11/13/2007	2	U	2.7		0.5	U
PW-02R	11/14/2007	150	U	**474**		**17**	
PW-02S	11/13/2007	2	U	3.2		0.5	U
PW-03D	11/14/2007	2	U	0.2	U	0.5	U
PW-03S	11/14/2007	2	U	0.2	U	0.5	U
PW-04D	11/14/2007	2	U	0.2	U	30	U
PW-04M	11/14/2007	2	U	0.2	U	30	U
PW-05D	11/13/2007	7.6	U	**42**		1.9	U
PW-05M	11/13/2007	2	U	3.8		0.5	U
PW-06D	11/13/2007	2500	U	**2000**		632	U
PW-06M	11/13/2007	302	U	**246**		76	U
PW-06R	11/13/2007	57	U	**159**		**24**	
PW-06S	11/13/2007	302	U	**2265**		76	U
PW-07M	11/14/2007	2	U	0.5		0.5	U
PW-07S	11/14/2007	2	U	0.4		0.5	U
PW-08M	11/14/2007	2	U	**42**		0.8	
PW-09M	11/14/2007	2	U	0.2		0.5	U
PW-10D	11/14/2007	7.2		**469**		**18**	
PW-10M	11/14/2007	60	U	**48**		15	U
PW-11D	11/14/2007	2	U	0.4		0.5	U
PW-11M	11/14/2007	2	U	0.2		0.5	U
PW-12D	11/13/2007	4.7		2.5		2.6	
PW-12M	11/13/2007	2	U	1.9		0.5	U
PW-12R	11/13/2007	77	U	**173**		**7.3**	
PW-12S	11/13/2007	2	U	2.7		0.5	U
PW-13D	11/13/2007	52	U	**54**		**22**	
PW-13M	11/13/2007	2	U	**12**		0.6	
PW-13S	11/13/2007	2	U	**5.5**		0.5	U
PW-14D	11/14/2007	60	U	**85**		15	U
PW-14M	7/17/2007	**120**		**320**		**27**	
PW-14M	8/7/2007	**130**		**540**		**41**	
PW-14M	11/14/2007	150	U	**682**		**19**	
PW-14S	11/14/2007	10	U	**36**		3	U

Table 5-7

Fall 2007 Groundwater Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Sample Location	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
PW-15D	11/14/2007	150	U	**271**		30	U
PW-15M	11/14/2007	150	U	**107**		30	U
PW-16D	11/13/2007	600	U	**532**		150	U
PW-16M	11/13/2007	600	U	**840**		150	U
PW-17M	11/14/2007	300/300	U/U	**3600/3490**		**37/37**	
PW-18D	11/13/2007	150	U	**146**		38	U
PW-18M	11/13/2007	100	U	**159**		26	U
PW-19D	11/14/2007	150	U	**312**		**16**	
PW-19M	11/14/2007	150	U	**1110**		**104**	
PW-20D	11/13/2007	302	U	**2530**		38	U
PW-20M	11/13/2007	602	U	**2030**		**115**	
PW-20S	11/13/2007	302	U	**913**		**72**	
PW-21	8/7/2007	1	U	**19**		1.7	
PW-21	11/14/2007	8	U	**18**		3	U
PW-22	11/15/2007	250	U	**18000**		130	U
PW-24	11/15/2007	250	U	**550**		130	U
PW-25D	11/14/2007	300	U	**147**		75	U
PW-25S (24.2)	11/14/2007	300	U	**445**		75	U
PW-25S (24.9)	11/14/2007	300	U	**389**		75	U
PW-25S (28.8)	11/14/2007	300	U	**426**		75	U
PW-25S	11/15/2007	250/250	U/U	**230/220**		130/130	U/U
PW-26S	11/15/2007	250	U	**1500**		130	U
PW-27S	11/15/2007	250	U	**150**		130	U
PW-6MB	11/13/2007	3050/2940	U/U	**3120/2910**		760/740	U/U

Notes:
Samples were collected by New Hampshire Department of Environmental Services (NHDES) and analyzed by EPA OEME Chelmsford Laboratory in accordance with EIASOP-FLDVOA2.
cis-1,2-DCE = cis-1,2-dichloroethene
PCE = tetrachloroethene
TCE = trichloroethene
AGQS = Ambient Groundwater Quality Standard
U = Compound was not detected above the laboratory reporting limits.
µg/L = micrograms per liter (parts per billion)
3050/2940 = Primary and duplicate sample result
Bold = Result is above the applicable AGQS.
EPA = U.S. Environmental Protection Agency
OEME = Office of Environmental Measurement and Evaluation

Table 5-8

Spring 2008 Groundwater Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Sample Location	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
CI	6/19/2008	100	U	3250		100	U
IW-01	6/17/2008	50	U	190		25	U
IW-01	6/17/2008	7.4		180		8.1	
IW-02	6/17/2008	50	U	520		25	U
IW-02	6/17/2008	10	U	544		23	
MW-02A	6/18/2008	2	U	2	U	2	U
MW-02B	6/18/2008	2	U	2	U	2	U
MW-02R	6/18/2008	2.4		29		4.4	
MW-16R	6/19/2008	49		166		18	
NCP	6/19/2008	10	U	495		10	U
PW-02D	6/17/2008	2	U	38		6.6	
PW-02M	6/17/2008	2	U	2	U	2	U
PW-02R	6/17/2008	17		282		28	
PW-05D	6/17/2008	2	U	29		2	U
PW-05R	6/18/2008	2	U	14		2	U
PW-06D	6/16/2008	20	U	1780		112	
PW-06M	6/16/2008	10	U	913		10	U
PW-06MB	6/16/2008	50	U	3110		57	
PW-06MB Dup	6/16/2008	50	U	2820		50	
PW-06R	6/17/2008	3.1		148		21	
PW-06S	6/16/2008	327		5500		649	
PW-10D	6/17/2008	4	U	298		7.7	
PW-10M	6/17/2008	3.1		27		3	
PW-12R	6/19/2008	65		112		15	
PW-13D	6/19/2008	2	U	59		12	
PW-13M	6/19/2008	2	U	13		2	U
PW-14D	6/19/2008	2.5		64		7.1	
PW-14M	6/19/2008	50		444		26	
PW-14S	6/19/2008	2		36		2	U
PW-15D	6/19/2008	2	U	52		2	
PW-15M	6/19/2008	4	U	187		4	U
PW-16D	6/17/2008	50	U	2370		714	
PW-16M	6/17/2008	20	U	1370		41	
PW-16M Dup	6/17/2008	20	U	1370		44	
PW-17M	6/18/2008	10	U	584		34	
PW-17M Dup	6/18/2008	10	U	638		35	
PW-18D	6/18/2008	10	U	512		10	U
PW-19D	6/16/2008	23		191		33	

Table 5-8

Spring 2008 Groundwater Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Sample Location	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
PW-20D	6/17/2008	100	U	**4840**		**205**	
PW-20M	6/16/2008	10	U	**666**		**21**	
PW-20S	6/16/2008	59		**1250**		**61**	
PW-22	6/18/2008	100	U	**13500**		100	U
PW-22 Dup	6/18/2008	100	U	**13200**		100	U
PW-24	6/17/2008	10	U	**699**		10	U
PW-25D	6/18/2008	2	U	**74**		**6.8**	
PW-25S	6/18/2008	48		**310**		**32**	
PW-26S	6/17/2008	10	U	**559**		**11**	
PW-27S	6/18/2008	**88**		**131**		**21**	
SVE-02	6/17/2008	50	U	**2360**		**90**	

Notes:
Samples were collected by WESTON and analyzed by the New Hampshire Department of Environmental Services (NHDES) Laboratory using Method SW-846/8260B.
U = Compound was not detected above the laboratory quantitation limits.
AGQS = Ambient Groundwater Quality Standard
cis-1,2-DCE = cis-1,2-dichloroethene
PCE = tetrachloroethene
TCE = trichloroethene
Dup = Duplicate sample
µg/L = micrograms per liter
Bold = Result is above the applicable AGQS.

Table 5-9

Baseline In situ Chemical Oxidation and Fall 2008 Groundwater Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Sample Location	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
B95-05	11/17/2008	1	U	0.2	U	0.5	U
B95-08	11/13/2008	1	U	0.32		0.5	U
B95-09	11/13/2008	1	U	12		0.5	U
CI	10/16/2008	50	U	1900		25	U
EW-02	11/13/2008	1	U	11		0.5	U
IP-01	10/17/2008	12		200		57	
IP-01	10/17/2008	12		220		72	
IP-02	10/16/2008	10	U	87		5	U
IP-03	10/16/2008	1	U	2.9		0.5	U
IP-04	10/16/2008	1	U	3.9		0.5	U
IP-05	10/16/2008	20	U	20		10	U
IP-06	10/16/2008	100	U	11000		850	
IP-07	10/22/2008	10	U	250		5	U
IP-08	10/22/2008	10	U	290		16	
IP-09	10/16/2008	20	U	900		10	
IP-10	10/16/2008	50	U	2700		380	
IP-11	10/16/2008	20	U	42		10	U
IP-12	10/17/2008	13		500		26	
IP-13	10/16/2008	50	U	1200		79	
IP-14	10/17/2008	10	U	340		14	
IW-01A	10/22/2008	10	U	180		5.4	
IW-01A	11/13/2008	10	U	330		12	
IW-02A	10/22/2008	95		790		71	
MW-02R	11/17/2008	7.3		130		31	
MW-16B	11/14/2008	1	U	0.4		0.5	U
MW-16C	11/14/2008	1	U	12		0.65	
NCP	10/16/2008	20	U	1500		11	
PW-02D	10/15/2008	10	U	32		7.4	
PW-02R	10/15/2008	50	U	360		38	
PW-05D	10/15/2008	10	U	43		5	U
PW-05M	11/14/2008	1	U	2.4		0.5	U
PW-05R	10/15/2008	1	U	32		0.5	U
PW-06D	10/14/2008	50/50	U/U	2300/2500		120/130	
PW-06M	10/14/2008	50	U	1300		60	
PW-06MB	10/14/2008	42		2300		70	
PW-06R	10/14/2008	50	U	170		40	
PW-06S	10/14/2008	150		2500		240	
PW-07M	11/13/2008	1	U	0.36		0.5	U
PW-07S	11/13/2008	1	U	0.2	U	0.5	U
PW-08M	11/13/2008	1	U	26		0.5	U
PW-09M	11/13/2008	1	U	0.36		0.5	U
PW-10M	11/13/2008	4.9		26		3.5	
PW-11D	11/13/2008	1	U	0.59		0.5	U
PW-11M	11/13/2008	1	U	0.28		0.5	U
PW-13D	11/17/2008	1.9		45		21	

Table 5-9

Baseline In situ Chemical Oxidation and Fall 2008 Groundwater Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Sample Location	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
PW-13M	11/17/2008	1	U	**9.4**		0.56	
PW-13S	11/17/2008	1	U	4.5		0.5	U
PW-14D	11/14/2008	2.4		**40**		**6.9**	
PW-14M	11/14/2008	**70**		**450**		**84**	
PW-14S	11/14/2008	2.4		**27**		1.4	
PW-15D	10/15/2008	10	U	**34**		5	U
PW-15M	10/15/2008	50	U	**180**		25	U
PW-16M	11/13/2008	47		**860**		**52**	
PW-17M	10/15/2008	50	U	**320**		**31**	
PW-17S	11/13/2008	10	U	**790**		**18**	
PW-18D	10/15/2008	50/50	U/U	**1300/1400**		**62/67**	
PW-18M	11/13/2008	10	U	**91**		5	U
PW-19D	10/15/2008	50	U	**390**		**60**	
PW-19M	10/15/2008	**100/120**		**1500/1800**		**150/170**	
PW-20D	10/14/2008	50	U	**2500**		**72**	
PW-20M	10/14/2008	50	U	**1100**		**27**	
PW-20S	10/14/2008	50	U	**1700**		**82**	
PW-21	11/17/2008	1	U	**5.8**		0.5	U
PW-22	11/13/2008	200	U	**17000**		100	U
PW-24	11/14/2008	50	U	**1200**		25	U
PW-25D	10/16/2008	20	U	190		**33**	
PW-25S	11/14/2008	17		**320**		**25**	
PW-26S	11/13/2008	20/5	U/	**970/740**		**23/20**	
PW-27S	11/13/2008	31/30		**280/230**		**18/17**	
PW-28	10/16/2008	1	U	**39**		1.6	
SP-01	10/22/2008	12		**12000**		**780**	
SP-02	10/22/2008	11		**180**		**22**	
SVE-02	11/13/2008	**130**		**5600**		**170**	

Notes:

Samples were analyzed by EPA OEME Lab in accordance with EIASOP-FLDVOA2.

Baseline ISCO Monitoring Round was conducted by WESTON from October 14 through October 22, 2008.

Fall 200 Monitoring Round was conducted by NHDES from November 13 through November 17, 2008.

U = Compound was not detected above the laboratory quantitation limits.
AGQS = Ambient Groundwater Quality Standard
cis-1,2-DCE = cis-1,2-dichloroethene
PCE = tetrachloroethene
TCE = trichloroethene
µg/L = micrograms per liter
Bold = Result is above the applicable AGQS.
NHDES= New Hampshire Department of Environmental Services
EPA = U.S. Environmental Protection Agency
OEME = Office of Environmental Measurement and Evaluation

Table 5-10

Bedrock Sample Data Comparison
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

	Low-Flow		EVAC Sample		Percent Change		EVAC 2 Sample		Percent Change	
Well	PCE	TCE	PCE	TCE	PCE	TCE	PCE	TCE	PCE	TCE
MW-2R	29	4.4	131	25	352%	468%	N/A		N/A	
PW-02R	282	28	461	28	63%	0%	N/A		N/A	
PW-05R	14	ND (2)	41	2.5	193%	150%	N/A		N/A	
PW-06R	148	21	448	43	203%	105%	1540	98	941%	367%
PW-12R	112	15	183	11	63%	-27%	N/A		N/A	
MW-16R	166	18	459	47	177%	161%	N/A		N/A	

Notes:
PCE = tetrachloroethene
TCE = trichloroethene
N/A = not applicable
ND = not detected
EVAC = Sample collected after purging well to 10 ft above well screen and allowing to recharge for 24 hours.
EVAC2 = Sample collected after purging well dry and allowing to recharge for 24 hours.

Table 5-11

Spring 2008 Drinking Water Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Analyte	Location Date Units	DW-01 6/6/2008		DW-02 6/6/2008		DW-03 6/6/2008	
1,1,1,2-TETRACHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,1,1-TRICHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,1,2,2-TETRACHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,1,2-TRICHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,1-DICHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,1-DICHLOROETHENE	µg/L	0.5	U	0.5	U	0.5	U
1,1-DICHLOROPROPENE	µg/L	0.5	U	0.5	U	0.5	U
1,2,3-TRICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,2,3-TRICHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U
1,2,4-TRICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,2,4-TRIMETHYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,2-DIBROMO-3-CHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U
1,2-DIBROMOETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,2-DICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,2-DICHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,2-DICHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U
1,3,5-TRICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,3,5-TRIMETHYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,3-DICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,3-DICHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U
1,4-DICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
2,2-DICHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U
2-BUTANONE	µg/L	10	U	10	U	10	U
2-CHLOROTOLUENE	µg/L	0.5	U	0.5	U	0.5	U
2-HEXANONE	µg/L	10	U	10	U	10	U
4-CHLOROTOLUENE	µg/L	0.5	U	0.5	U	0.5	U
4-ISOPROPYLTOLUENE	µg/L	0.5	U	0.5	U	0.5	U
4-METHYL-2-PENTANONE	µg/L	10	U	10	U	10	U
ACETONE	µg/L	10	U	10	U	10	U
BENZENE	µg/L	0.5	U	0.5	U	0.5	U
BROMOBENZENE	µg/L	0.5	U	0.5	U	0.5	U
BROMODICHLOROMETHANE	µg/L	0.5	U	0.5	U	0.5	U
BROMOFORM	µg/L	0.5	U	0.5	U	0.5	U
BROMOMETHANE	µg/L	0.5	U	0.5	U	0.5	U
CARBON DISULFIDE	µg/L	0.5	U	0.5	U	0.5	U
CARBON TETRACHLORIDE	µg/L	0.5	U	0.5	U	0.5	U
CHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
CHLOROBROMOMETHANE	µg/L	0.5	U	0.5	U	0.5	U
CHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
CHLOROFORM	µg/L	0.5	U	0.5	U	0.5	U
CHLOROMETHANE	µg/L	1	U	1	U	1	U
CIS-1,2-DICHLOROETHENE	µg/L	0.5	U	0.5	U	0.5	U
CIS-1,3-DICHLOROPROPENE	µg/L	0.5	U	0.5	U	0.5	U
CUMENE	µg/L	0.5	U	0.5	U	0.5	U
DIBROMOCHLOROMETHANE	µg/L	0.5	U	0.5	U	0.5	U
DIBROMOMETHANE	µg/L	0.5	U	0.5	U	0.5	U
DICHLORODIFLUOROMETHANE	µg/L	0.5	U	0.5	U	0.5	U
DIETHYL ETHER	µg/L	0.5	U	0.5	U	0.5	U
DIISOPROPYL ETHER	µg/L	0.5	U	0.5	U	0.5	U
ETHYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
ETHYL-T-BUTYL ETHER	µg/L	0.5	U	0.5	U	0.5	U
HEXACHLOROBUTADIENE	µg/L	0.5	U	0.5	U	0.5	U
M,P-XYLENES	µg/L	0.5	U	0.5	U	0.5	U
METHYLENE CHLORIDE	µg/L	0.5	U	0.5	U	0.5	U
MTBE	µg/L	0.5	U	0.5	U	0.5	U
M-XYLENE	µg/L	-		-		-	
NAPHTHALENE	µg/L	0.5	U	0.5	U	0.5	U

Table 5-11

Spring 2008 Drinking Water Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Analyte	Location Date Units	DW-01 6/6/2008		DW-02 6/6/2008		DW-03 6/6/2008	
N-BUTYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
N-PROPYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
O-XYLENE	µg/L	0.5	U	0.5	U	0.5	U
SEC-BUTYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
STYRENE	µg/L	0.5	U	0.5	U	0.5	U
TERT-AMYL METHYL ETHER	µg/L	0.5	U	0.5	U	0.5	U
TERT-BUTYL ALCOHOL	µg/L	10	U	10	U	10	U
TERT-BUTYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
TETRACHLOROETHYLENE	µg/L	0.5	U	0.5	U	0.5	U
TETRAHYDROFURAN	µg/L	10	U	10	U	10	U
TOLUENE	µg/L	0.5	U	0.5	U	0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	0.5	U	0.5	U	0.5	U
TRANS-1,3-DICHLOROPROPENE	µg/L	0.5	U	0.5	U	0.5	U
TRICHLOROETHYLENE (TCE)	µg/L	0.5	U	0.5	U	0.5	U
TRICHLOROFLUOROMETHANE	µg/L	0.5	U	0.5	U	0.5	U
VINYL CHLORIDE	µg/L	0.5	U	0.5	U	0.5	U
XYLENES (TOTAL)	µg/L	0.5	U	0.5	U	0.5	U

Notes:
U = Compound was not detected above laboratory quantitation limits.
µg/L = micrograms per liter

Table 5-11

Spring 2008 Drinking Water Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Analyte	Location Date Units	DW-04 6/6/2008		DW-05A 6/6/2008		DW-06 6/6/2008		DW-07A 6/6/2008	
1,1,1,2-TETRACHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-TRICHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-TETRACHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-TRICHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,1-DICHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,1-DICHLOROETHENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,1-DICHLOROPROPENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-TRICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-TRICHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-TRICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-TRIMETHYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DIBROMO-3-CHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DIBROMOETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DICHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DICHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,3,5-TRICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,3,5-TRIMETHYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,3-DICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,3-DICHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,4-DICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
2,2-DICHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
2-BUTANONE	µg/L	10	U	10	U	10	U	10	U
2-CHLOROTOLUENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
2-HEXANONE	µg/L	10	U	10	U	10	U	10	U
4-CHLOROTOLUENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
4-ISOPROPYLTOLUENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
4-METHYL-2-PENTANONE	µg/L	10	U	10	U	10	U	10	U
ACETONE	µg/L	10	U	10	U	10	U	10	U
BENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
BROMOBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
BROMODICHLOROMETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
BROMOFORM	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
BROMOMETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
CARBON DISULFIDE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
CARBON TETRACHLORIDE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROBROMOMETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROFORM	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROMETHANE	µg/L	1	U	1	U	1	U	1	U
CIS-1,2-DICHLOROETHENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
CIS-1,3-DICHLOROPROPENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
CUMENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
DIBROMOCHLOROMETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
DIBROMOMETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
DICHLORODIFLUOROMETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
DIETHYL ETHER	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
DIISOPROPYL ETHER	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
ETHYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
ETHYL-T-BUTYL ETHER	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
HEXACHLOROBUTADIENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
M,P-XYLENES	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
METHYLENE CHLORIDE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
MTBE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
M-XYLENE	µg/L	-		-		-		-	
NAPHTHALENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U

Table 5-11

Spring 2008 Drinking Water Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Analyte	Location Date Units	DW-04 6/6/2008		DW-05A 6/6/2008		DW-06 6/6/2008		DW-07A 6/6/2008	
N-BUTYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
N-PROPYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
O-XYLENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
SEC-BUTYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
STYRENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
TERT-AMYL METHYL ETHER	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
TERT-BUTYL ALCOHOL	µg/L	10	U	10	U	10	U	10	U
TERT-BUTYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
TETRACHLOROETHYLENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
TETRAHYDROFURAN	µg/L	10	U	10	U	10	U	10	U
TOLUENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
TRANS-1,3-DICHLOROPROPENE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
TRICHLOROETHYLENE (TCE)	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
TRICHLOROFLUOROMETHANE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
VINYL CHLORIDE	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
XYLENES (TOTAL)	µg/L	0.5	U	0.5	U	0.5	U	0.5	U

Notes:
U = Compound was not detected above laboratory quantitation l
µg/L = micrograms per liter

Table 5-11

Spring 2008 Drinking Water Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Analyte	Location Date Units	DW-08 6/6/2008		DW-MFH-RW 6/6/2008		DW-MFH-W1 6/6/2008	
1,1,1,2-TETRACHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,1,1-TRICHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,1,2,2-TETRACHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,1,2-TRICHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,1-DICHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,1-DICHLOROETHENE	µg/L	0.5	U	0.5	U	0.5	U
1,1-DICHLOROPROPENE	µg/L	0.5	U	0.5	U	0.5	U
1,2,3-TRICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,2,3-TRICHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U
1,2,4-TRICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,2,4-TRIMETHYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,2-DIBROMO-3-CHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U
1,2-DIBROMOETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,2-DICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,2-DICHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
1,2-DICHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U
1,3,5-TRICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,3,5-TRIMETHYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,3-DICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
1,3-DICHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U
1,4-DICHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
2,2-DICHLOROPROPANE	µg/L	0.5	U	0.5	U	0.5	U
2-BUTANONE	µg/L	10	U	10	U	10	U
2-CHLOROTOLUENE	µg/L	0.5	U	0.5	U	0.5	U
2-HEXANONE	µg/L	10	U	10	U	10	U
4-CHLOROTOLUENE	µg/L	0.5	U	0.5	U	0.5	U
4-ISOPROPYLTOLUENE	µg/L	0.5	U	0.5	U	0.5	U
4-METHYL-2-PENTANONE	µg/L	10	U	10	U	10	U
ACETONE	µg/L	10	U	10	U	10	U
BENZENE	µg/L	0.5	U	0.5	U	0.5	U
BROMOBENZENE	µg/L	0.5	U	0.5	U	0.5	U
BROMODICHLOROMETHANE	µg/L	0.5	U	0.5	U	0.5	U
BROMOFORM	µg/L	0.5	U	0.5	U	0.5	U
BROMOMETHANE	µg/L	0.5	U	0.5	U	0.5	U
CARBON DISULFIDE	µg/L	0.5	U	0.5	U	0.5	U
CARBON TETRACHLORIDE	µg/L	0.5	U	0.5	U	0.5	U
CHLOROBENZENE	µg/L	0.5	U	0.5	U	0.5	U
CHLOROBROMOMETHANE	µg/L	0.5	U	0.5	U	0.5	U
CHLOROETHANE	µg/L	0.5	U	0.5	U	0.5	U
CHLOROFORM	µg/L	0.5	U	0.5	U	0.5	U
CHLOROMETHANE	µg/L	1	U	1	U	1	U
CIS-1,2-DICHLOROETHENE	µg/L	0.5	U	0.5	U	0.5	U
CIS-1,3-DICHLOROPROPENE	µg/L	0.5	U	0.5	U	0.5	U
CUMENE	µg/L	0.5	U	0.5	U	0.5	U
DIBROMOCHLOROMETHANE	µg/L	0.5	U	0.5	U	0.5	U
DIBROMOMETHANE	µg/L	0.5	U	0.5	U	0.5	U
DICHLORODIFLUOROMETHANE	µg/L	0.5	U	0.5	U	0.5	U
DIETHYL ETHER	µg/L	0.5	U	0.5	U	0.5	U
DIISOPROPYL ETHER	µg/L	0.5	U	0.5	U	0.5	U
ETHYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
ETHYL-T-BUTYL ETHER	µg/L	0.5	U	0.5	U	0.5	U
HEXACHLOROBUTADIENE	µg/L	0.5	U	0.5	U	0.5	U
M,P-XYLENES	µg/L	0.5	U	0.5	U	0.5	U
METHYLENE CHLORIDE	µg/L	0.5	U	0.5	U	0.5	U
MTBE	µg/L	0.5	U	0.5	U	0.5	U
M-XYLENE	µg/L	-		-		-	
NAPHTHALENE	µg/L	0.5	U	0.5	U	0.5	U

Table 5-11

Spring 2008 Drinking Water Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Analyte	Location Date Units	DW-08 6/6/2008		DW-MFH-RW 6/6/2008		DW-MFH-W1 6/6/2008	
N-BUTYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
N-PROPYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
O-XYLENE	µg/L	0.5	U	0.5	U	0.5	U
SEC-BUTYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
STYRENE	µg/L	0.5	U	0.5	U	0.5	U
TERT-AMYL METHYL ETHER	µg/L	0.5	U	0.5	U	0.5	U
TERT-BUTYL ALCOHOL	µg/L	10	U	10	U	10	U
TERT-BUTYLBENZENE	µg/L	0.5	U	0.5	U	0.5	U
TETRACHLOROETHYLENE	µg/L	0.5	U	0.5	U	0.5	U
TETRAHYDROFURAN	µg/L	10	U	10	U	10	U
TOLUENE	µg/L	0.5	U	0.5	U	0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	0.5	U	0.5	U	0.5	U
TRANS-1,3-DICHLOROPROPENE	µg/L	0.5	U	0.5	U	0.5	U
TRICHLOROETHYLENE (TCE)	µg/L	0.5	U	0.5	U	0.5	U
TRICHLOROFLUOROMETHANE	µg/L	0.5	U	0.5	U	0.5	U
VINYL CHLORIDE	µg/L	0.5	U	0.5	U	0.5	U
XYLENES (TOTAL)	µg/L	0.5	U	0.5	U	0.5	U

Notes:
U = Compound was not detected above laboratory quantitation l
µg/L = micrograms per liter

Table 5-12

Exterior and Bedrock Monitoring Well Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Station	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
B95-05	6/2/1997	-		2	U	2	U
B95-05	12/17/1997	2	U	2	U	2	U
B95-05	5/12/1998	2	U	2	U	2	U
B95-05	12/2/1998	2	U	2	U	2	U
B95-05	4/21/1999	2	U	2	U	2	U
B95-05	10/29/1999	2	U	2	U	2	U
B95-05	5/16/2000	2	U	2	U	2	U
B95-05	11/20/2000	2	U	2	U	2	U
B95-05	6/6/2001	2	U	2	U	2	U
B95-05	11/16/2001	2	U	2	U	2	U
B95-05	6/10/2002	2	U	2	U	2	U
B95-05	11/12/2002	2	U	2	U	2	U
B95-05	5/7/2003	2	U	2	U	2	U
B95-05	4/29/2004	2	U	2	U	2	U
B95-05	8/19/2004	2	U	2	U	2	U
B95-05	10/11/2005	2	U	2	U	2	U
B95-05	10/30/2006	2	U	2	U	2	U
B95-05	11/17/2008	1	U	0.2	U	0.5	U
B95-12	5/28/1997	-		2	U	2	U
B95-12	12/15/1997	2	U	2	U	2	U
B95-12	5/18/1998	2	U	2	U	2	U
B95-12	12/2/1998	2	U	2	U	2	U
B95-12	4/13/1999	2	U	2	U	2	U
B95-12	10/22/1999	2	U	2	U	2	U
B95-12	5/10/2000	2	U	2	U	2	U
B95-12	11/9/2000	2	U	2	U	2	U
B95-12	5/30/2001	2	U	2	U	2	U
B95-12	11/6/2001	2	U	2	U	2	U
B95-12	6/4/2002	2	U	2	U	2	U
B95-12	11/12/2002	2	U	2	U	2	U
B95-12	5/7/2003	2	U	2	U	2	U
B95-12	4/21/2004	2	U	2	U	2	U
B95-12	8/19/2004	2	U	2	U	2	U
B95-12	10/10/2005	2	U	2	U	2	U
B95-12	10/31/2006	2	U	2	U	2	U
B95-12	11/14/2007	2	U	0.2	U	0.5	U
MW-02R	9/30/1998	2	U	**26**		**5.9**	
MW-02R	4/26/2004	2	U	**45**		**11**	
MW-02R	11/9/2006	7		**62**		**17**	
MW-02R	6/18/2008	2.4		**29**		4.4	
MW-02R	11/17/2008	7.3		**130**		**31**	
MW-16A	5/27/1997	-		**71**		2	U
MW-16A	5/13/1998	2	U	**39**		2	U
MW-16A	11/30/1998	2	U	**59**		2	U
MW-16A	4/13/1999	2	U	**64**		2	U
MW-16A	10/28/1999	4	U	**58**		4	U
MW-16A	5/9/2000	2	U	**38**		2	U
MW-16A	11/14/2000	2	U	**11**		2	U
MW-16A	5/30/2001	2	U	**7.6**		2	U
MW-16A	11/7/2001	2	U	**7.8**		2	U
MW-16A	6/4/2002	2	U	**5.3**		2	U
MW-16A	11/12/2002	2	U	**3**		2	U
MW-16A	4/28/2003	2	U	2	U	2	U
MW-16A	4/21/2004	2	U	2	U	2	U
MW-16A	8/12/2004	2	U	2	U	2	U
MW-16A	4/19/2005	2	U	2	U	2	U
MW-16A	10/6/2005	2	U	2	U	2	U
MW-16A	4/20/2006	2	U	2	U	2	U
MW-16A	10/24/2006	2	U	2	U	2	U
MW-16A	2/28/2007	1	U	1.2		0.5	U
MW-16A	6/5/2007	2	U	2	U	2	U
MW-16A	11/13/2007	2	U	0.6		0.5	U

Table 5-12

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Station	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
MW-16B	5/27/1997	-		320		11	
MW-16B	6/11/1997	-		510		12	
MW-16B	12/18/1997	10	U	360		11	
MW-16B	5/11/1998	5	U	310		11	
MW-16B	11/30/1998	10	U	310		12	
MW-16B	4/13/1999	8.7		280		15	
MW-16B	5/13/1999	11		400		19	
MW-16B	6/10/1999	8.8		330		16	
MW-16B	7/16/1999	5.2		260		10	
MW-16B	8/12/1999	5	U	100		8.4	
MW-16B	9/10/1999	4.1		320		9.7	
MW-16B	10/28/1999	4	U	140		4	U
MW-16B	5/9/2000	2	U	51		2	U
MW-16B	11/14/2000	2	U	14		2	U
MW-16B	5/30/2001	2	U	8.9		2	U
MW-16B	11/7/2001	2	U	4.3		2	U
MW-16B	6/4/2002	2	U	3.1		2	U
MW-16B	11/12/2002	2	U	2.5		2	U
MW-16B	4/28/2003	2	U	2.4		2	U
MW-16B	4/21/2004	2	U	2	U	2	U
MW-16B	8/12/2004	2	U	2	U	2	U
MW-16B	4/19/2005	2	U	2	U	2	U
MW-16B	10/6/2005	2	U	2	U	2	U
MW-16B	4/20/2006	2	U	2	U	2	U
MW-16B	10/24/2006	2	U	2	U	2	U
MW-16B	2/28/2007	1	U	0.8		0.5	U
MW-16B	6/5/2007	2	U	2	U	2	U
MW-16B	11/13/2007	2	U	0.6		0.5	U
MW-16B	11/14/2008	1	U	0.4		0.5	U
MW-16C	5/27/1997	-		560		42	
MW-16C	6/12/1997	-		930		51	
MW-16C	12/15/1997	79		1200		110	
MW-16C	5/11/1998	75		1200		110	
MW-16C	11/30/1998	85		1600		130	
MW-16C	4/13/1999	81		1100		110	
MW-16C	5/13/1999	97		1300		110	
MW-16C	6/10/1999	63		1000		78	
MW-16C	7/16/1999	43		880		60	
MW-16C	8/12/1999	41		880		56	
MW-16C	9/10/1999	38		860		45	
MW-16C	10/28/1999	33		570		36	
MW-16C	5/9/2000	12		380		16	
MW-16C	11/14/2000	6.1		240		10	
MW-16C	5/30/2001	4.1		150		6.9	
MW-16C	11/7/2001	3.8		170		7.5	
MW-16C	6/4/2002	4	U	230		7.1	
MW-16C	11/12/2002	2	U	130		5	
MW-16C	4/28/2003	4	U	76		2.7	
MW-16C	4/21/2004	2	U	40		2	U
MW-16C	8/12/2004	2	U	50		2	U
MW-16C	4/19/2005	2	U	24		2	U
MW-16C	10/6/2005	2	U	12		2	U
MW-16C	4/20/2006	2	U	19		2	U
MW-16C	10/24/2006	2	U	20		2	U
MW-16C	2/28/2007	1	U	19		1.1	
MW-16C	6/5/2007	2	U	12		2	U
MW-16C	11/13/2007	2	U	18		0.7	
MW-16C	11/14/2008	1	U	12		0.65	

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Station	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
MW-16R	5/27/1997	-		510		53	
MW-16R	12/18/1997	43		330		41	
MW-16R	5/13/1998	48		390		48	
MW-16R	11/30/1998	44		300		34	
MW-16R	5/13/1999	56		470		61	
MW-16R	6/10/1999	51		330		55	
MW-16R	7/16/1999	38		320		44	
MW-16R	7/30/1999	110		110		49	
MW-16R	8/12/1999	38		160		33	
MW-16R	9/10/1999	41		210		36	
MW-16R	10/28/1999	190		630		98	
MW-16R	5/9/2000	420		70		54	
MW-16R	11/14/2000	140		110		64	
MW-16R	5/30/2001	140		140		57	
MW-16R	11/7/2001	73		120		42	
MW-16R	6/4/2002	140		110		49	
MW-16R	11/12/2002	180		220		50	
MW-16R	4/28/2003	137		141		40	
MW-16R	4/21/2004	114		128		29	
MW-16R	8/12/2004	73		109		21	
MW-16R	4/19/2005	94		169		33	
MW-16R	10/6/2005	62		176		25	
MW-16R	4/20/2006	52		147		22	
MW-16R	10/24/2006	46		171		21	
MW-16R	2/28/2007	83		370		21	
MW-16R	6/5/2007	48		188		21	
MW-16R	11/14/2007	62	U	277		21	
MW-16R	6/19/2008	49		166		18	
PW-01D	5/14/1998	130		2600		220	
PW-01D	12/1/1998	110		2400		160	
PW-01D	4/9/1999	65		940		80	
PW-01D	10/22/1999	64		470		82	
PW-01D	5/9/2000	11		320		28	
PW-01D	11/14/2000	4.5		120		18	
PW-01D	5/29/2001	4.1		370		26	
PW-01D	11/8/2001	4	U	370		28	
PW-01D	5/31/2002	2.2		140		17	
PW-01D	11/5/2002	2	U	78		15	
PW-01D	4/30/2003	2	U	74		12	
PW-01D	4/21/2004	2	U	52		9.9	
PW-01D	8/11/2004	2	U	46		8.4	
PW-01D	4/20/2005	2	U	36		7.8	
PW-01D	10/4/2005	2	U	33		7.3	
PW-01D	4/19/2006	2	U	30		7.5	
PW-01D	10/31/2006	2	U	35		7.4	
PW-01D	6/8/2007	2	U	43		5.7	
PW-01D	11/14/2007	2	U	33		8	
PW-01S	5/14/1998	160		3400		250	
PW-01S	12/1/1998	190		3000		170	
PW-01S	4/9/1999	200		1200		87	
PW-01S	10/22/1999	81		930		47	
PW-01S	5/9/2000	17		540		14	
PW-01S	11/14/2000	13		390		11	
PW-01S	5/29/2001	5	U	350		6.8	
PW-01S	11/8/2001	4	U	370		7.2	
PW-01S	5/31/2002	4	U	360		6.1	
PW-01S	11/5/2002	2	U	160		4	
PW-01S	4/30/2003	2	U	156		2.6	
PW-01S	4/21/2004	2	U	67		2	U
PW-01S	8/11/2004	2	U	35		2	U
PW-01S	4/20/2005	2	U	9.6		2	U
PW-01S	10/5/2005	2	U	5.2		2	U
PW-01S	4/19/2006	2	U	6.4		2	U
PW-01S	10/31/2006	2	U	5		2	U
PW-01S	6/8/2007	2	U	2.4		2	U
PW-01S	11/14/2007	2	U	1.8		0.5	U

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Station	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
PW-02D	5/18/1998	4.7		170		9.4	
PW-02D	12/4/1998	91		1700		170	
PW-02D	4/14/1999	88		1000		140	
PW-02D	10/29/1999	93		970		79	
PW-02D	5/10/2000	43		1000		49	
PW-02D	11/15/2000	13		420		18	
PW-02D	5/31/2001	6.1		290		11	
PW-02D	11/13/2001	5	U	320		8.1	
PW-02D	6/7/2002	4	U	240		5.5	
PW-02D	11/7/2002	2	U	150		25	
PW-02D	5/6/2003	2	U	118		15	
PW-02D	4/27/2004	2	U	80		11	
PW-02D	8/13/2004	2	U	60		6.2	
PW-02D	2/8/2005	1	U	72.6		8.9	
PW-02D	4/20/2005	2	U	58		6.8	
PW-02D	10/5/2005	2	U	69		8.8	
PW-02D	4/21/2006	2	U	51		8.6	
PW-02D	10/26/2006	2	U	45		4.1	
PW-02D	6/14/2007	2	U	53		5.3	
PW-02D	11/13/2007	2	U	59		13	
PW-02D	6/17/2008	2	U	38		6.6	
PW-02D	10/15/2008	10	U	32		7.4	
PW-02M	5/20/1998	180		1100		190	
PW-02M	12/4/1998	68		1600		130	
PW-02M	4/14/1999	89		950		110	
PW-02M	10/29/1999	70		550		53	
PW-02M	5/10/2000	3.5		210		4.6	
PW-02M	11/15/2000	2	U	71		2	U
PW-02M	5/31/2001	10	U	560		10	U
PW-02M	11/13/2001	4	U	260		4	U
PW-02M	6/7/2002	2	U	57		2	U
PW-02M	11/7/2002	2	U	18		2	U
PW-02M	5/6/2003	2	U	17		2	U
PW-02M	4/27/2004	2	U	4.6		2	U
PW-02M	8/13/2004	2	U	2.4		2	U
PW-02M	2/8/2005	1	U	2.8		1	U
PW-02M	4/20/2005	2	U	2	U	2	U
PW-02M	10/5/2005	2	U	2	U	2	U
PW-02M	4/21/2006	2	U	2	U	2	U
PW-02M	10/26/2006	2	U	2	U	2	U
PW-02M	6/14/2007	2	U	2.3		2	U
PW-02M	11/13/2007	2	U	2.7		0.5	U
PW-02M	6/17/2008	2	U	2	U	2	U
PW-02R	5/20/1998	2.1		36		6.2	
PW-02R	12/4/1998	2	U	20		3.6	
PW-02R	5/13/1999	2	U	29		4.4	
PW-02R	6/10/1999	2	U	28		5.1	
PW-02R	9/10/1999	2	U	38		4	
PW-02R	10/29/1999	2	U	44		4.6	
PW-02R	5/10/2000	2	U	9		2.1	
PW-02R	11/15/2000	2	U	17		3.9	
PW-02R	5/31/2001	2	U	28		6	
PW-02R	11/13/2001	3.6		52		12	
PW-02R	6/7/2002	2.7		38		10	
PW-02R	11/7/2002	5.5		77		20	
PW-02R	5/6/2003	10		128		30	
PW-02R	4/27/2004	18		242		44	
PW-02R	8/13/2004	17		198		37	
PW-02R	4/20/2005	17		241		38	
PW-02R	10/5/2005	17		228		35	
PW-02R	4/21/2006	19		282		39	
PW-02R	10/26/2006	40		686		80	
PW-02R	2/13/2007	50	U	1100		94	
PW-02R	6/14/2007	22		376		35	
PW-02R	11/14/2007	150	U	474		17	
PW-02R	6/17/2008	17		282		28	
PW-02R	10/15/2008	50	U	360		38	

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Station	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
PW-02S	5/18/1998	**110**		**830**		**120**	
PW-02S	12/4/1998	**110**		**1400**		**140**	
PW-02S	4/14/1999	63		**530**		**73**	
PW-02S	10/29/1999	5	U	**280**		**7.7**	
PW-02S	5/10/2000	2	U	**27**		2	U
PW-02S	11/15/2000	2	U	**90**		2	U
PW-02S	5/31/2001	4	U	**230**		4	U
PW-02S	11/13/2001	2	U	**19**		2	U
PW-02S	6/7/2002	2	U	**6.6**		2	U
PW-02S	11/7/2002	2	U	4.8		2	U
PW-02S	5/6/2003	2	U	3.3		2	U
PW-02S	4/27/2004	2	U	2.3		2	U
PW-02S	8/13/2004	2	U	2.4		2	U
PW-02S	4/20/2005	2	U	2	U	2	U
PW-02S	10/5/2005	2	U	2	U	2	U
PW-02S	4/21/2006	2	U	2	U	2	U
PW-02S	10/26/2006	2	U	2	U	2	U
PW-02S	6/14/2007	2	U	2.3		2	U
PW-02S	11/13/2007	2	U	3.2		0.5	U
PW-03D	12/3/1998	2	U	2	U	2	U
PW-03D	4/14/1999	2	U	2	U	2	U
PW-03D	11/4/1999	2	U	2	U	2	U
PW-03D	5/15/2000	2	U	2	U	2	U
PW-03D	11/16/2000	2	U	2	U	2	U
PW-03D	6/5/2001	2	U	2	U	2	U
PW-03D	11/13/2001	2	U	2	U	2	U
PW-03D	6/4/2002	2	U	2	U	2	U
PW-03D	11/14/2002	2	U	2	U	2	U
PW-03D	5/8/2003	2	U	2	U	2	U
PW-03D	4/27/2004	2	U	2	U	2	U
PW-03D	8/18/2004	2	U	2	U	2	U
PW-03D	10/10/2005	2	U	3.4		2	U
PW-03D	10/30/2006	2	U	2	U	2	U
PW-03D	11/14/2007	2	U	0.2	U	0.5	U
PW-03S	12/3/1998	2	U	2.1		2	U
PW-03S	4/14/1999	2	U	2		2	U
PW-03S	11/4/1999	4.8		**7.4**		**6.6**	
PW-03S	5/15/2000	2	U	2	U	2	U
PW-03S	11/16/2000	2	U	2	U	2	U
PW-03S	6/5/2001	2	U	2	U	2	U
PW-03S	11/13/2001	2	U	2	U	2	U
PW-03S	6/4/2002	2	U	2	U	2	U
PW-03S	11/14/2002	2	U	2	U	2	U
PW-03S	5/8/2003	2	U	2	U	2	U
PW-03S	4/27/2004	2	U	2	U	2	U
PW-03S	8/18/2004	2	U	2	U	2	U
PW-03S	10/10/2005	2	U	2	U	2	U
PW-03S	10/30/2006	2	U	2	U	2	U
PW-03S	11/14/2007	2	U	0.2	U	0.5	U
PW-04D	12/7/1998	2	U	**38**		**5.9**	
PW-04D	4/22/1999	2	U	2	U	2	U
PW-04D	11/4/1999	2	U	2.1		2	U
PW-04D	5/10/2000	2	U	2	U	2	U
PW-04D	11/16/2000	2	U	2	U	2	U
PW-04D	6/6/2001	2	U	2	U	2	U
PW-04D	11/16/2001	2	U	2	U	2	U
PW-04D	6/12/2002	2	U	2	U	2	U
PW-04D	11/14/2002	2	U	2	U	2	U
PW-04D	5/8/2003	2	U	2	U	2	U
PW-04D	4/22/2004	2	U	2	U	2	U
PW-04D	8/20/2004	2	U	2	U	2	U
PW-04D	10/11/2005	2	U	2	U	2	U
PW-04D	10/30/2006	2	U	2	U	2	U
PW-04D	11/14/2007	2	U	0.2	U	30	U

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Station	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
PW-04M	12/7/1998	2	U	2.1		2	U
PW-04M	4/22/1999	2	U	2	U	2	U
PW-04M	11/4/1999	2	U	2	U	2	U
PW-04M	5/10/2000	2	U	2	U	2	U
PW-04M	11/16/2000	2	U	2	U	2	U
PW-04M	6/6/2001	2	U	2	U	2	U
PW-04M	11/16/2001	2	U	2	U	2	U
PW-04M	6/12/2002	2	U	2	U	2	U
PW-04M	11/14/2002	2	U	2	U	2	U
PW-04M	5/8/2003	2	U	2	U	2	U
PW-04M	4/22/2004	2	U	2	U	2	U
PW-04M	8/20/2004	2	U	2	U	2	U
PW-04M	10/11/2005	2	U	2	U	2	U
PW-04M	10/30/2006	2	U	2	U	2	U
PW-04M	11/14/2007	2	U	0.2	U	30	U
PW-09M	4/20/1999	2	U	2.9		2	U
PW-09M	11/1/1999	2		3.5		1.7	
PW-09M	5/12/2000	2	U	2	U	2	U
PW-09M	11/15/2000	2	U	2	U	2	U
PW-09M	6/6/2001	2	U	2	U	2	U
PW-09M	11/15/2001	2	U	2		2	U
PW-09M	6/10/2002	2	U	2	U	2	U
PW-09M	11/14/2002	2	U	2	U	2	U
PW-09M	5/8/2003	2	U	2	U	2	U
PW-09M	4/27/2004	2	U	2	U	2	U
PW-09M	8/19/2004	2	U	2	U	2	U
PW-09M	4/20/2005	2	U	2	U	2	U
PW-09M	10/10/2005	2	U	2	U	2	U
PW-09M	4/20/2006	2	U	2	U	2	U
PW-09M	10/30/2006	2	U	2	U	2	U
PW-09M	6/8/2007	2	U	2	U	2	U
PW-09M	11/14/2007	2	U	0.2		0.5	U
PW-09M	11/13/2008	1	U	0.36		0.5	U
PW-11D	12/3/1998	20	U	**1200**		**44**	
PW-11D	4/15/1999	20		**330**		**41**	
PW-11D	10/29/1999	27		**570**		**42**	
PW-11D	5/15/2000	5.7		**81**		**7.8**	
PW-11D	11/16/2000	2	U	**37**		2.8	
PW-11D	5/30/2001	2	U	**14**		2	U
PW-11D	11/14/2001	2	U	**9.1**		2	U
PW-11D	6/5/2002	2	U	**6.7**		2	U
PW-11D	11/12/2002	2	U	3.3		2	U
PW-11D	5/7/2003	2	U	2.6		2	U
PW-11D	4/27/2004	2	U	2	U	2	U
PW-11D	8/20/2004	2	U	2	U	2	U
PW-11D	10/10/2005	2	U	**8.2**		2	U
PW-11D	10/30/2006	2	U	2	U	2	U
PW-11D	11/14/2007	2	U	0.4		0.5	U
PW-11D	11/13/2008	1	U	0.59		0.5	U
PW-11M	12/3/1998	26		**45**		**13**	
PW-11M	4/15/1999	3.8		**8.6**		3.2	
PW-11M	10/29/1999	2	U	2	U	2	U
PW-11M	5/15/2000	2	U	2	U	2	U
PW-11M	11/16/2000	2	U	**11**		2	U
PW-11M	5/30/2001	2	U	**14**		2	U
PW-11M	11/14/2001	2	U	4.7		2	U
PW-11M	6/5/2002	2	U	2	U	2	U
PW-11M	11/12/2002	2	U	2	U	2	U
PW-11M	5/6/2003	2	U	2	U	2	U
PW-11M	4/27/2004	2	U	2	U	2	U
PW-11M	8/20/2004	2	U	2	U	2	U
PW-11M	10/10/2005	2	U	2	U	2	U
PW-11M	10/30/2006	2	U	2	U	2	U
PW-11M	11/14/2007	2	U	0.2		0.5	U
PW-11M	11/13/2008	1	U	0.28		0.5	U

Table 5-12

Exterior and Bedrock Monitoring Well Analytical Results
Savage Municipal Water Supply Superfund Site
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Station	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
PW-12D	5/15/1998	87		550		52	
PW-12D	11/25/1998	56		700		43	
PW-12D	4/8/1999	28		550		33	
PW-12D	5/13/1999	30		660		35	
PW-12D	6/10/1999	35		510		36	
PW-12D	7/16/1999	28		480		32	
PW-12D	8/12/1999	71		430		65	
PW-12D	9/10/1999	53		380		41	
PW-12D	10/26/1999	24		240		18	
PW-12D	5/8/2000	12		190		11	
PW-12D	11/9/2000	6		130		5.9	
PW-12D	5/17/2001	3.4		140		4.2	
PW-12D	6/7/2001	4.1		120		4.7	
PW-12D	11/7/2001	2	U	110		2	U
PW-12D	6/3/2002	20	U	180		20	U
PW-12D	11/5/2002	2	U	24		2	U
PW-12D	4/29/2003	2	U	56		2	U
PW-12D	4/21/2004	2	U	16		2	U
PW-12D	8/12/2004	2	U	13		2	U
PW-12D	4/19/2005	2	U	9.1		2	U
PW-12D	10/4/2005	2	U	7.6		2	U
PW-12D	4/20/2006	2	U	8		2	U
PW-12D	10/27/2006	2	U	5.6		2	U
PW-12D	2/20/2007	3.9		7.2		7.7	
PW-12D	6/4/2007	2	U	2.9		2.2	
PW-12D	11/13/2007	4.7		2.5		2.6	
PW-12M	5/15/1998	85		610		53	
PW-12M	11/25/1998	57		700		41	
PW-12M	4/7/1999	30		440		62	
PW-12M	4/8/1999	46		530		42	
PW-12M	5/13/1999	69		630		170	
PW-12M	6/10/1999	41		490		78	
PW-12M	7/16/1999	93		190		71	
PW-12M	8/12/1999	58		63		41	
PW-12M	9/10/1999	380		4	U	5.3	
PW-12M	10/26/1999	5.3		410		10	
PW-12M	5/8/2000	2	U	41		2	U
PW-12M	11/9/2000	2	U	18		2	U
PW-12M	5/17/2001	50	U	1100		50	U
PW-12M	6/7/2001	10	U	880		15	
PW-12M	11/7/2001	2	U	70		2	U
PW-12M	6/3/2002	2	U	10		2	U
PW-12M	11/5/2002	2	U	2.7		2	U
PW-12M	4/29/2003	2	U	3.2		2	U
PW-12M	4/21/2004	2	U	2	U	2	U
PW-12M	8/12/2004	2	U	2	U	2	U
PW-12M	4/19/2005	2	U	2.2		2	U
PW-12M	10/4/2005	2	U	2	U	2	U
PW-12M	4/20/2006	2	U	2	U	2	U
PW-12M	10/27/2006	2	U	2	U	2	U
PW-12M	2/20/2007	1	U	1.7		0.5	U
PW-12M	6/4/2007	2	U	2	U	2	U
PW-12M	11/13/2007	2	U	1.9		0.5	U

Table 5-12

Exterior and Bedrock Monitoring Well Analytical Results
Savage Municipal Water Supply Superfund Site
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Station	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
PW-12R	5/15/1998	110		1200		89	
PW-12R	11/25/1998	120		870		340	
PW-12R	4/8/1999	130		530		380	
PW-12R	5/13/1999	350		260		480	
PW-12R	6/10/1999	210		330		680	
PW-12R	7/16/1999	280		280		560	
PW-12R	8/12/1999	570		46		490	
PW-12R	9/10/1999	490		53		760	
PW-12R	10/26/1999	280		620		250	
PW-12R	5/8/2000	280		650		300	
PW-12R	11/9/2000	250		510		250	
PW-12R	5/17/2001	130		690		120	
PW-12R	6/7/2001	110		480		95	
PW-12R	11/7/2001	330		190		100	
PW-12R	6/3/2002	130		290		110	
PW-12R	11/5/2002	160		260		110	
PW-12R	4/29/2003	96		340		71	
PW-12R	4/21/2004	79		282		60	
PW-12R	8/12/2004	56		234		42	
PW-12R	4/19/2005	44		184		33	
PW-12R	10/4/2005	62		212		44	
PW-12R	4/20/2006	67		173		39	
PW-12R	10/27/2006	46		193		30	
PW-12R	2/20/2007	60	U	200		23	
PW-12R	6/4/2007	39		147		19	
PW-12R	11/13/2007	77	U	173		7.3	
PW-12R	6/19/2008	65		112		15	
PW-12S	5/14/1998	2	U	8.7		2	U
PW-12S	11/25/1998	4.1		9.7		2.4	
PW-12S	4/8/1999	2	U	2	U	2	U
PW-12S	5/13/1999	8.7		36		3.9	
PW-12S	6/10/1999	2	U	3.3		2	U
PW-12S	7/16/1999	2	U	170		2	U
PW-12S	8/12/1999	2	U	62		2	U
PW-12S	9/10/1999	2	U	21		2	U
PW-12S	10/26/1999	2	U	2.8		2	U
PW-12S	5/8/2000	2	U	2.1		2	U
PW-12S	11/9/2000	2	U	72		2	U
PW-12S	5/17/2001	4	U	260		4	U
PW-12S	6/7/2001	4	U	200		4	U
PW-12S	11/7/2001	2	U	13		2	U
PW-12S	6/3/2002	2	U	2	U	2	U
PW-12S	11/5/2002	2	U	2	U	2	U
PW-12S	4/29/2003	2	U	2	U	2	U
PW-12S	4/21/2004	2	U	2.2		2	U
PW-12S	8/12/2004	2	U	2	U	2	U
PW-12S	4/19/2005	2	U	2	U	2	U
PW-12S	10/4/2005	2	U	2	U	2	U
PW-12S	4/20/2006	2	U	2	U	2	U
PW-12S	10/27/2006	2	U	2	U	2	U
PW-12S	2/20/2007	1	U	1.9		0.5	U
PW-12S	6/4/2007	2	U	2		2	U
PW-12S	11/13/2007	2	U	2.7		0.5	U
PW-13D	7/24/1998	85		1000		54	
PW-13D	11/24/1998	100		1100		63	
PW-13D	4/8/1999	92		760		55	
PW-13D	5/13/1999	96		720		54	
PW-13D	6/10/1999	110		810		92	
PW-13D	7/16/1999	130		650		140	
PW-13D	8/12/1999	780		35		110	
PW-13D	9/10/1999	1800		69		160	
PW-13D	10/19/1999	110		1000		131	
PW-13D	5/8/2000	66		1100		180	
PW-13D	11/13/2000	69		1100		150	
PW-13D	5/29/2001	69		1100		100	
PW-13D	11/6/2001	48		790		62	
PW-13D	5/31/2002	38		650		51	
PW-13D	11/4/2002	29		520		58	
PW-13D	4/30/2003	29		423		47	
PW-13D	4/22/2004	18		320		43	
PW-13D	8/11/2004	14		230		49	
PW-13D	4/13/2005	14		257		49	
PW-13D	10/6/2005	8.9		192		37	
PW-13D	4/19/2006	7.7		130		31	
PW-13D	10/27/2006	5.7		115		27	
PW-13D	2/13/2007	50	U	160		48	
PW-13D	6/8/2007	3.9		105		13	
PW-13D	11/13/2007	52	U	54		22	
PW-13D	6/19/2008	2	U	59		12	
PW-13D	11/17/2008	1.9		45		21	

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Station	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
PW-13M	7/23/1998	40		400		25	
PW-13M	11/23/1998	43		630		30	
PW-13M	2/8/1999	12		140		10	
PW-13M	4/7/1999	25		270		23	
PW-13M	4/8/1999	25		240		18	
PW-13M	5/13/1999	40		320		22	
PW-13M	6/10/1999	20		170		13	
PW-13M	7/16/1999	15		110		10	
PW-13M	8/12/1999	12		90		8.5	
PW-13M	9/10/1999	9.1		120		8.6	
PW-13M	10/19/1999	11		87		8	
PW-13M	5/8/2000	3.1		71		3.8	
PW-13M	11/13/2000	2	U	80		3	
PW-13M	5/29/2001	2	U	53		2	U
PW-13M	11/6/2001	2	U	120		2.8	
PW-13M	5/31/2002	2	U	100		3.1	
PW-13M	11/4/2002	2	U	120		3.8	
PW-13M	4/30/2003	2	U	183		5.2	
PW-13M	4/22/2004	2	U	156		4.3	
PW-13M	8/11/2004	2	U	106		3.4	
PW-13M	4/13/2005	2	U	79		3.2	
PW-13M	10/6/2005	2	U	35		2	U
PW-13M	4/19/2006	2	U	39		2.2	
PW-13M	10/27/2006	2	U	21		2	U
PW-13M	2/13/2007	50	U	65		25	U
PW-13M	6/8/2007	2	U	19		2	U
PW-13M	11/13/2007	2	U	12		0.6	
PW-13M	6/19/2008	2	U	13		2	U
PW-13M	11/17/2008	1	U	9.4		0.56	
PW-13S	7/23/1998	29		93		8.4	
PW-13S	11/24/1998	25		94		9.6	
PW-13S	4/8/1999	24		70		9.8	
PW-13S	5/13/1999	31		120		20	U
PW-13S	6/10/1999	28		88		9.9	
PW-13S	7/16/1999	26		86		10	
PW-13S	8/12/1999	15		68		6.6	
PW-13S	9/10/1999	6.1		41		3.3	
PW-13S	10/20/1999	12		55		5	
PW-13S	5/8/2000	4.1		89		3.1	
PW-13S	11/13/2000	2	U	42		2	U
PW-13S	5/29/2001	2	U	140		2	U
PW-13S	11/6/2001	2	U	180		2	U
PW-13S	5/31/2002	2	U	200		2.1	
PW-13S	11/4/2002	4	U	250		4	U
PW-13S	4/30/2003	2	U	160		2	U
PW-13S	4/22/2004	2	U	52		2	U
PW-13S	8/11/2004	2	U	44		2	U
PW-13S	4/13/2005	2	U	20		2	U
PW-13S	10/6/2005	2	U	12		2	U
PW-13S	4/19/2006	2	U	7.8		2	U
PW-13S	10/27/2006	2	U	8.7		2	U
PW-13S	2/13/2007	1	U	4.7		0.5	U
PW-13S	6/8/2007	2	U	4.6		2	U
PW-13S	11/13/2007	2	U	5.5		0.5	U
PW-13S	11/17/2008	1	U	4.5		0.5	U
PW-14D	7/24/1998	110		2500		180	
PW-14D	11/23/1998	130		1900		150	
PW-14D	4/7/1999	120		2300		220	
PW-14D	5/13/1999	150		2800		200	
PW-14D	6/10/1999	170		2900		240	
PW-14D	7/16/1999	140		2700		210	
PW-14D	8/12/1999	130		2500		190	
PW-14D	9/10/1999	110		2700		150	
PW-14D	10/21/1999	100		1900		140	
PW-14D	5/8/2000	100		2700		120	
PW-14D	11/13/2000	57		1700		84	
PW-14D	5/29/2001	46		1200		62	
PW-14D	11/6/2001	33		910		56	
PW-14D	5/29/2002	32		840		53	
PW-14D	11/4/2002	26		800		48	
PW-14D	4/30/2003	30		736		48	
PW-14D	4/22/2004	17		507		27	
PW-14D	8/11/2004	12		338		19	
PW-14D	2/8/2005	5.6		110.7		37.7	
PW-14D	4/13/2005	8.3		233		46	
PW-14D	10/5/2005	6.2		166		13	
PW-14D	4/19/2006	5.8		140		17	
PW-14D	10/27/2006	4.6		122		13	
PW-14D	2/13/2007	50	U	280		38	
PW-14D	6/7/2007	3.6		105		9.1	
PW-14D	11/14/2007	60	U	85		15	U
PW-14D	6/19/2008	2.5		64		7.1	
PW-14D	11/14/2008	2.4		40		6.9	

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Savage Municipal Water Supply Superfund Site
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Station	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
PW-14M	7/23/1998	210		1300		110	
PW-14M	11/23/1998	190		1400		92	
PW-14M	2/8/1999	190		1200		96	
PW-14M	4/7/1999	190		1100		110	
PW-14M	5/13/1999	250		1400		110	
PW-14M	6/10/1999	300		1400		130	
PW-14M	7/16/1999	200		940		87	
PW-14M	8/12/1999	200		940		85	
PW-14M	9/10/1999	200		1100		87	
PW-14M	10/21/1999	210		940		87	
PW-14M	5/8/2000	82		730		48	
PW-14M	11/13/2000	170		1000		62	
PW-14M	5/29/2001	140		890		59	
PW-14M	11/6/2001	130		600		49	
PW-14M	5/29/2002	140		760		60	
PW-14M	11/4/2002	220		1300		87	
PW-14M	4/30/2003	196		1060		76	
PW-14M	4/22/2004	185		1260		78	
PW-14M	8/11/2004	172		1130		67	
PW-14M	2/8/2005	227.1		1097.9		250	U
PW-14M	4/13/2005	167		1270		79	
PW-14M	10/5/2005	126		776		51	
PW-14M	4/19/2006	104		561		45	
PW-14M	5/9/2006	48		340		20	
PW-14M	10/27/2006	83		528		35	
PW-14M	12/18/2006	100	U	460		50	U
PW-14M	2/13/2007	170		1400		97	
PW-14M	3/26/2007	140		650		98	
PW-14M	6/7/2007	140/120		715		53/43	
PW-14M	7/17/2007	120		320		27	
PW-14M	8/7/2007	130		540		41	
PW-14M	11/14/2007	150	U	682		19	
PW-14M	6/19/2008	50		444		26	
PW-14M	11/14/2008	70		450		84	
PW-14S	7/23/1998	95		840		76	
PW-14S	11/23/1998	120		990		82	
PW-14S	4/7/1999	82		620		61	
PW-14S	5/13/1999	130		890		73	
PW-14S	6/10/1999	99		610		58	
PW-14S	7/16/1999	61		520		41	
PW-14S	8/12/1999	47		560		33	
PW-14S	9/10/1999	41		640		31	
PW-14S	10/21/1999	32		330		22	
PW-14S	5/8/2000	13		230		11	
PW-14S	11/13/2000	17		300		12	
PW-14S	5/29/2001	7.2		320		7.8	
PW-14S	11/6/2001	7.3		220		7.2	
PW-14S	5/29/2002	3.5		80		3.3	
PW-14S	11/4/2002	12		200		9.4	
PW-14S	4/30/2003	4.2		77		3.5	
PW-14S	4/22/2004	2	U	39		2	U
PW-14S	8/11/2004	5.9		80		3.9	
PW-14S	4/13/2005	2	U	33		2	U
PW-14S	10/5/2005	6.3		89		4.4	
PW-14S	4/19/2006	5.1		64		3.4	
PW-14S	10/27/2006	3.4		51		2.3	
PW-14S	2/13/2007	50	U	98		25	U
PW-14S	6/7/2007	3.1/3.3		44/32		2.1/1.9	
PW-14S	11/14/2007	10	U	36		3	U
PW-14S	6/19/2008	2		36		2	U
PW-14S	11/14/2008	2.4		27		1.4	
PW-21	6/9/2006	50	U	160		25	U
PW-21	9/27/2006	50	U	38		25	U
PW-21	10/31/2006	2	U	35		2	U
PW-21	11/13/2006	50	U	100		25	U
PW-21	12/1/2006	1	U	28		0.98	
PW-21	6/7/2007	1.2		32		2.6	
PW-21	6/7/2007	2	U	32		2	U
PW-21	8/7/2007	1	U	19		1.7	
PW-21	11/14/2007	8	U	18		3	U
PW-21	11/17/2008	1	U	5.8		0.5	U

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Exterior and Bedrock Monitoring Well Analytical Results
Savage Municipal Water Supply Superfund Site
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Station	Date Sample Collected	Analyte					
		cis-1,2-DCE (µg/L)		PCE (µg/L)		TCE (µg/L)	
NHDES AGQS		70		5		5	
EW-02	7/16/1999	89		520		54	
EW-02	9/10/1999	77		520		44	
EW-02	10/30/2000	16		130		9.4	
EW-02	12/1/2000	16		120		10	
EW-02	1/25/2001	17		130		95	
EW-02	2/16/2001	15		160		9.4	
EW-02	3/16/2001	12		140		8.2	
EW-02	4/27/2001	7.6		120		5.3	
EW-02	5/24/2001	8.7		170		7.1	
EW-02	11/8/2001	5.9		320		8.4	
EW-02	2/19/2002	12		350		10	
EW-02	3/19/2002	6.8		300		6.5	
EW-02	4/30/2002	4.4		230		4.8	
EW-02	5/29/2002	3.7		180		3.7	
EW-02	1/31/2003	3.5		100		2.4	
EW-02	3/18/2003	1.9		75		1.5	
EW-02	7/30/2003	3		96		2.2	
EW-02	10/1/2003	1.4		45		1.1	
EW-02	12/12/2003	1.2		40		1	
EW-02	2/12/2004	2	U	32		2	U
EW-02	3/8/2004	1		27		1	U
EW-02	4/28/2004	2	U	45		2	U
EW-02	5/13/2004	1.3		33		1	U
EW-02	7/8/2004	1.1		30		1	U
EW-02	9/27/2004	1	U	20		1	U
EW-02	10/28/2004	1	U	20		1	U
EW-02	11/24/2004	1	U	19		1	U
EW-02	12/30/2004	1	U	19		1	U
EW-02	1/12/2005	1	U	17		1	U
EW-02	2/28/2005	1	U	12		1	U
EW-02	3/17/2005	1	U	11		1	U
EW-02	4/13/2005	2	U	9.3		2	U
EW-02	4/26/2005	1	U	3.5		1	U
EW-02	5/24/2005	1	U	8.9		1	U
EW-02	6/21/2005	1	U	12		1	U
EW-02	7/28/2005	4.4		30		2.1	
EW-02	10/19/2005	2.6		38		1.8	
EW-02	10/20/2005	1.3		27		0.86	
EW-02	11/9/2005	1	U	13		1	U
EW-02	12/15/2005	4.8		35		2.2	
EW-02	1/19/2006	1	U	13		1	U
EW-02	2/21/2006	1	U	12		1	U
EW-02	3/15/2006	1	U	9.8		1	U
EW-02	4/25/2006	2	U	8.1		2	U
EW-02	5/3/2006	50	U	6.9		25	U
EW-02	6/9/2006	1	U	0.2	U	0.5	U
EW-02	6/28/2006	50	U	10	U	25	U
EW-02	7/7/2006	50	U	10	U	25	U
EW-02	7/12/2006	1	U	13		0.5	U
EW-02	9/13/2006	1	U	12		0.5	U
EW-02	2/20/2007	1	U	9.2		0.5	U
EW-02	3/26/2007	2.3		5.8		0.5	U
EW-02	11/13/2008	1	U	11		0.5	U
MW-02A	9/30/1998	2	U	2	U	2	U
MW-02A	4/26/2004	2	U	2	U	2	U
MW-02A	11/9/2006	2	U	2	U	2	U
MW-02A	6/18/2008	2	U	2	U	2	U
MW-02B	9/30/1998	2	U	2	U	2	U
MW-02B	4/26/2004	2	U	2	U	2	U
MW-02B	11/9/2006	2	U	2	U	2	U
MW-02B	6/18/2008	2	U	2	U	2	U
PW-5R	12/8/1998	9.6		95		14	
PW-5R	5/13/1999	15		170		21	
PW-5R	6/10/1999	16		170		24	
PW-5R	9/10/1999	13		190		22	
PW-5R	11/4/1999	12		200		20	
PW-5R	5/12/2000	5.8		37		9.4	
PW-5R	11/20/2000	5.2		49		10	
PW-5R	5/31/2001	5.2		54		10	
PW-5R	11/13/2001	4.8		44		9	
PW-5R	6/5/2002	4		38		8.2	
PW-5R	11/7/2002	3.2		42		7.5	
PW-5R	5/6/2003	3.8		46		8.6	
PW-5R	4/26/2004	2.7		45		6.4	
PW-5R	8/18/2004	2.3		32		4.7	
PW-5R	4/21/2005	2.1		36		5.2	
PW-5R	10/7/2005	4		28		2	U
PW-5R	4/21/2006	4.8		37		2.1	
PW-5R	10/26/2006	2	U	26		3.4	
PW-5R	6/26/2007	2	U	22		2.7	
PW-5R	6/18/2008	2	U	14		2	U
PW-5R	10/15/2008	1	U	32		0.5	U

Table 5-12

Exterior and Bedrock Monitoring Well Analytical Results
Savage Municipal Water Supply Superfund Site
Milford, New Hampshire

Station	Date Sample Collected	Analyte			
		cis-1,2-DCE (µg/L)		PCE (µg/L)	TCE (µg/L)
NHDES AGQS		70		5	5
PW-6R	12/10/1998	20	U	**940**	**43**
PW-6R	5/13/1999	30		**1200**	**62**
PW-6R	6/10/1999	20	U	**1600**	**64**
PW-6R	9/10/1999	40	U	**2000**	**47**
PW-6R	11/1/1999	50	U	**2100**	**64**
PW-6R	5/11/2000	6.7		**230**	**16**
PW-6R	11/15/2000	4.5		**250**	**15**
PW-6R	6/1/2001	6.1		**250**	**19**
PW-6R	11/14/2001	6.5		**320**	**24**
PW-6R	6/11/2002	5.3		**260**	**24**
PW-6R	11/12/2002	10	U	**650**	**43**
PW-6R	5/2/2003	5.6		**436**	**35**
PW-6R	9/3/2003	8.1		**920**	**70**
PW-6R	4/23/2004	10	U	**565**	**42**
PW-6R	8/17/2004	10	U	**441**	**37**
PW-6R	4/19/2005	2	U	**683**	**53**
PW-6R	10/11/2005	2	U	**223**	**24**
PW-6R	4/24/2006	4.1		**109**	**23**
PW-6R	10/31/2006	3.8		**140**	**26**
PW-6R	6/11/2007	4.1		**201**	**25**
PW-6R	11/13/2007	57	U	**159**	**24**
PW-6R	6/17/2008	3.1		**148**	**21**
PW-6R	10/14/2008	50	U	**170**	**40**

Notes:
U = Compound was not detected above the laboratory reporting limit.
AGQS = Ambient Groundwater Quality Standard
cis-1,2-DCE = cis-1,2-dichloroethene
PCE = tetrachloroethene
TCE = trichloroethene
µg/L = micrograms per liter (parts per billion)
Bold = Result is above the applicable AGQS.
NHDES = New Hampshire Department of Environmental Services

Table 6-1

Project Costs for January 2008 through December 2008

Task Number	Task Description	Cost
2000	Plant Optimization	$82,090
3000	Routine Operations and Maintenance	$116,018
3100	Non-Routine Maintenance	$308
3200	Reporting	$33,370
4000	Soil Treatment/Deep Zone ISCO	$423,010
4100	Vadose Zone Soil Treatment	$117,849
5000	Investigations	$175,446
6000	Groundwatering Monitoring	$16,135
7000	Meetings	$11,121
9989	Project Management and Administration	$36,199
Total		**$1,020,946**

APPENDIX A

OPERATION AND MAINTENANCE ACTIVITIES

OPERATIONS SUMMARY
JANUARY 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

Date	Weston personnel on site	Time on site	Tasks accomplished	Visitors
1/2/2008	J. Warrington B. Fletcher	≈ 3 hrs ≈ 3 hrs	* Performed boiler testing, maintenance, blow downs and daily readings.	
1/4/2008	E. Hall	≈ 2.5 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Exercised generator.	
1/7/2008	E. Hall J. Warrington	≈ 6.25 hrs ≈ 6.25 hrs	* Received tutorial on proper boiler maintenance from Aquafax. * Performed boiler testing, maintenance, blow downs and daily readings. * Checked water depths in vaults.	USEPA: R. Goehlert, D. Granz, L. Thuot; Aquafax: M. Gagnon
1/9/2008	J. Warrington	≈ 2.5 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Checked depth to water in vaults SVE-1, 4, 5, 6 and IW-1, 2.	
1/11/2008	J. Warrington	≈ 6 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Pumped out water in vaults SVE-1, 6 and IW-1, 2. * Semi-annual testing of backflow preventers. (Milford Water Dept) * Checked water levels in EW-1, 2.	Town of Milford Water Department: E. Denell
1/15/2008	J. Warrington	≈ 4.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings.	USEPA: R. Goehlert; NHDES: R. Mongeon, T. Andrews; USGS: P. Harte; BRD: E. Leone
1/16/2008	J. Warrington	≈ 2.5 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Exercised generator	
1/18/2008	J. Warrington	≈ 1.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Checked depth to water in vault IW-1.	
1/21/2008	J. Warrington	≈ 2.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings.	
1/23/2008	J. Warrington	≈ 1 hr	* Performed boiler testing, maintenance, blow downs and daily readings.	
1/25/2008	J. Warrington	≈ 2.5 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Exercised generator.	
1/28/2008	E. Hall J. Warrington	≈ 8.25 hrs ≈ 5.5 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Site wide water levels.	
1/30/2008	E. Hall J. Warrington	≈ 8.25 hrs ≈ 8.25 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Monthly treatment plant sampling. * Annual test of security systems. (Lamy Electric) * Preventative maintenance on tray aerator blower #2 and instrument air compressor. * Swapped out Tray Aerator #1 for Tray Aerator #2.	USEPA: R. Goehlert, C. Porfert; Norm Lamy (Lamy Electric)

OPERATIONS SUMMARY
FEBRUARY 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

Date	Weston personnel on site	Time on site	Tasks accomplished	Visitors
2/1/2008	J. Warrington	≈ 6.25 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Pumped out water in vaults SVE-1, 6 , IW-1, 2, EW-1 and 2. * Exercised generator. * Quarterly maintenance on Blower 1. * Quarterly maintenance on AHU#2.	
2/4/2008	B. Nowack E. Hall A. Fuller J. Warrington	≈ 4 hrs ≈ 8.5 hrs ≈ 4 hrs ≈ 5.5 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * PM on vacuum blower, B-4. * Started SVE system, ran for 1 hour.	NHDES: R. Mongeon; USGS: P. Harte
2/6/2008	J. Warrington D. Muzrall	≈ 8.75 hrs ≈ 4.25 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Backed up computer system. Networked computers. (D. Muzrall) * Exercised generator. * Changed oil on Vacuum Blower. * Started SVE system, ran for 1 hour, quieter than 2/6/08. * PM on VPCA Blower, B-5. Greased bearings. * PM on boiler chemical feed pump.	
2/8/2008	J. Warrington	≈ 4.25 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Removed filter from SVE system, deformed from pressure differential across it, installed new filter when it arrived. * Started SVE system at 260 SCFM.	
2/11/2008	J. Warrington	≈ 6 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * PM on vacuum blower, B-5. * Exercised generator.	
2/13/2008	J. Warrington	≈ 7 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Annual checks on fire extinguishers and emergency lighting. (LRC) * Monthly sampling of influent and effluent. * Worked on dewatering driveway.	LRC Fire Safety
2/14/2008	J. Warrington	≈ 7.25 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Worked on dewatering/deicing driveway. * Worked HASP/Jan 2008 Report/February 2008 Report.	
2/15/2008	J.Warrington	≈ 7.5 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Annual check on fire suppression system (Rem-C). * Annual check on fire alarm system (Pride Security). * USGS water levels (USGS). * Dewatering well vaults SVE-1, SVE-6, IW-1, IW-2, EW-1 and EW-2.	Rem-C Fire Protection, Inc. Pride Security Systems, Inc. USGS: P. Harte
2/18/2008	J.Warrington	≈ 3 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Monthly exercise of SVE-GV-1,2,3 * Water levels in SVE 4,5,6 to see how much water table is risen with SVE system operating.	
2/20/2008	J. Warrington J. Sherrard	≈ 5.5 hrs ≈ 5.5 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Monthly subcontractor boiler testing (Aquafax) * Monthly Water levels	Aquafax: M. Gagnon
2/22/2008	J. Warrington	≈ 1.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. *Weekly exercise on generator	
2/25/2008	J. Warrington	≈ 2.25 hrs	* Performed boiler testing, maintenance, blow downs and daily readings.	
2/27/2008	J. Warrington	≈ 1.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. *Weekly exercise on generator	
2/29/2008	J. Warrington	≈ 5.5 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Changed out Tray Aerator 2 for Tray Aerator 1.	

OPERATIONS SUMMARY
MARCH 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

Date	Weston personnel on site	Time on site	Tasks accomplished	Visitors
3/3/2008	J. Warrington	≈ 4 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Shut down SVE System. * SG-19 Monitoring.	
3/5/2008	J. Warrington	≈ 4.25 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Weekly Exercise of Generator. * SG-19 Monitoring. * Dewatered vaults IW-1 (2.1'), IW-2 (2.9'), SVE-6 (2.2').	
3/7/2008	E. Hall	≈ 8 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * SG-19 Monitoring. * Dewatered vaults IW-1 (~2.5'), IW-2 (~3'), SVE-1 (~1.0'), SVE-2 (~1.0'), SVE-3 (~2.2'),SVE-4 (~1.0'),SVE-2 (~1.5'), SVE-6 (~2'), RW-1 (~1.0').	
3/10/2008	J. Warrington	≈ 3.5 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * SG-19 Monitoring. * Dewatered vaults IW-1 (~2.5'), IW-2 (~3.0').	
3/12/2008	J. Warrington	≈ 3.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Monthly Sampling Event. * Dewatered vaults IW-1 (~1.5'), IW-2 (~1.0'), SVE-6 (~1.5').	USEPA: D. Goehlert; NHDES: T. Andrews
3/14/2008	J. Warrington	≈ 2.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Weekly exercise of generator. * Monthly safety checks on safety showers and fire extinguishers. * Monthly subcontractor boiler testing (Aquafax). * Monthly exercise of Gate Valves SVE-GV-01, 02, 03. * Greased bearings and motor of Tray Aerator #2. Checked Belts.	Aquafax: M. Gagnon
3/17/2008	E. Hall	≈ 2.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Dewatered vaults IW-1 (~3.5'), SVE-3 (~1.2').	
3/19/2008	E. Hall	≈ 1.66 hrs	* Performed boiler testing, maintenance, blow downs and daily readings.	
3/21/2008	E. Hall	≈ 5.75hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Weekly exercise of generator. * Dewatered vaults IW-1 (~2.0'), IW-2 (~1.0'), SVE-6 (~1.5'). * Power Outage Response Call - Power off @16:40 * Power reset @ 18:30; Emergency Generator Off at 18:54: * Dewatered vaults IW-1 (~2.0'), IW-2 (~1.0'), SVE-6 (~1.5').	
3/24/2008	J. Warrington	≈ 1.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings.	
3/26/2008	J. Warrington J. Sherrard	≈ 7.5 hrs ≈ 7.5 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Weekly exercise of generator. * Dewatered vaults IW-1 (~0.8'), IW-2 (~1.0'), SVE-1 (~2.0'), EW-2 (~0.8'), SVE-3 (~0.5', SVE-4 (~0.2'), SVE-6 (~2.0'), SP-1 (~6.0'). * Monthly water levels. * Quarterly maintenance on AHU-3.	USGS: P. Harte
3/28/2008	J. Warrington	≈ 4 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Swapped out Tray Aerator 1 for Tray Aerator 2. *Monthly maintenance on Tray Aerator 1.	
3/30/2008	J. Warrington	≈ 1.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings.	

OPERATIONS SUMMARY
APRIL 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

Date	Weston personnel on site	Time on site	Tasks accomplished	Visitors
4/2/2008	J. Warrington	≈ 1.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Weekly Exercise of generator.	
4/4/2008	J. Warrington	≈ 1.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings.	
4/7/2008	J. Warrington	≈ 3.66 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Dewatered vaults: IW-1 (≈1.5'), IW-2 (≈2'), SVE-6 (≈1.5'), SVE-1 (≈1.5'), EW-2 (≈0.5').	
4/9/2008	J. Warrington	≈ 1.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Weekly Exercise of generator.	
4/11/2008	J. Warrington	≈ 4 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Monthly safety checks on safety showers and fire extinguishers. * Monthly subcontractor boiler testing (Aquafax). * Monthly exercise of Gate Valves SVE-GV-01, 02, 03.	Aquafax: M. Gagnon
4/14/2008	J. Warrington	≈ 2 hrs	* Performed boiler testing, maintenance, blow downs and daily readings.	
4/15/2008	J. Warrington	≈ 2.25 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Monthly Sampling Event. * Weekly Exercise of generator.	
4/18/2008	J. Warrington	≈ 2.25 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Quarterly Maintenance on AHU-1. * Quarterly Maintenance on AHU-2. * Quarterly Maintenance on Instrument Air Compressor.	USGS: P. Harte
4/21/2008	J. Warrington J. Sherrard	≈ 4.5 hrs ≈ 4.5 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Monthly water levels.	
4/23/2008	B. Nowack J. Warrington	≈ 2.33 hrs ≈ 2.66 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Subcontractor review of boiler / ventilation system (RFS).	RFS: B. Gilman
4/25/2008	J. Warrington	≈ 1.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings.	
4/28/2008	J. Warrington	≈ 1.66 hrs	* Performed boiler testing, maintenance, blow downs and daily readings.	
4/30/2008	J. Warrington	≈ 7.75 hrs	* Performed boiler testing, maintenance, blow downs and daily readings. * Swapped out Tray Aerator 2 for Tray Aerator 1. * Monthly maintenance on Tray Aerator 2. * Drained Boilers. Removed handholes on boiler #1.	

OPERATIONS SUMMARY
MAY 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

Date	Weston personnel on site	Time on site	Tasks accomplished	Visitors
5/1/2008	J. Warrington	≈ 8 hrs	* Performed daily readings. * Cleaning boilers. * Dewatered vaults: IW-1 (≈1.5'), IW-2 (≈2'), SP-1 (≈6').	USEPA: D. Goehlert; NHDES: T. Andrews
5/8/2008	J. Warrington	≈ 6.33 hrs	* Performed daily readings. * Replaced boiler gaskets in Boiler #1. * Conducted lawn maintenance walk through with Sam Tromblay. * Weekly Exercise of generator.	Sam Trombly
5/14/2008	J. Warrington	≈ 4 hrs	* Performed daily readings. * Replaced boiler gaskets in Boiler #2. * Monthly sampling. * Weekly Exercise of generator. * Monthly safety checks on safety showers and fire extinguishers. * Monthly exercise of Gate Valves SVE-GV-01, 02, 03.	
5/23/2008	J. Warrington J. Sherrard	≈ 5 hrs ≈ 4 hrs	* Performed daily readings. * Monthly water levels. * Weekly Exercise of generator.	
5/29/2008	J. Warrington	≈ 5 hrs	* Performed daily readings. * Weekly Exercise of generator. * Swapped out Tray Aerator 1 for Tray Aerator 2. * Monthly maintenance on Tray Aerator 1.	

OPERATIONS SUMMARY
JUNE 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

Date	Weston personnel on site	Time on site	Tasks accomplished	Visitors
6/2/2008	J. Warrington	≈ 1.33 hrs	* Performed daily readings. *Weekly exercise of generator.	
6/4/2008	J. Warrington	≈ 5.33 hrs	* Performed daily readings.	USGS: P. Harte
6/9/2008	J. Warrington	≈ 1.33 hrs	* Performed daily readings. * Weekly exercise of generator.	
6/16/2008	J. Warrington A. Fuller	≈ 11.2 hrs ≈ 11.2 hrs	* Monthly water levels. * Quarterly groundwater monitoring event.	
6/17/2008	J. Warrington A. Fuller	≈ 9.8 hrs ≈ 9.8 hrs	* Quarterly groundwater monitoring event. * Weekly exercise of generator. * Monthly sampling.	
6/18/2008	J. Warrington A. Fuller	≈ 9.25 hrs ≈ 9.25 hrs	* Performed daily readings. * Quarterly groundwater monitoring event.	USGS: P. Harte
6/19/2008	J. Warrington A. Fuller	≈ 12.7 hrs ≈ 12.7 hrs	* Quarterly groundwater monitoring event.	
6/22/2008	E. Hall	≈ 0.5 hrs	* Plant shut down due to thundstorms. Restarted Plant.	
6/25/2008	J. Warrington S. Lizotte	≈ 4.33 hrs ≈ 4.33 hrs	* Performed daily readings. * Swapped out Tray Aerator 2 for Tray Aerator 1. * Monthly maintenance on Tray Aerator 2. * Checked well vaults for excess water. Water in vaults <1.0'. No water purged. * Monthly safety checks on safety showers and fire extinguishers. * Monthly exercise of Gate Valves SVE-GV-01, 02, 03.	
6/30/2008	J. Warrington	≈ 3.5 hrs	* Performed daily readings. * Weekly exercise of generator. * Cleaning facility.	

OPERATIONS SUMMARY
JULY 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

Date	Weston personnel on site	Time on site	Tasks accomplished	Visitors
7/11/2008	J. Warrington	≈ 2.6 hrs	* Performed daily readings. * Weekly exercise of generator. * Permanganate benchscale study preparation.	
7/14/2008	J. Warrington	≈ 6.0 hrs	* Performed daily readings. * Weekly exercise of generator. * Permanganate benchscale study. * Monthly sampling.	USGS: P. Harte, J. Grey, G. Berwick On Target: S. Daniels
7/16/2008	J. Warrington B. Nowack	≈ 5.5 hrs ≈ 4.0 hrs	* Performed daily readings. * Permanganate benchscale study. * Collected soil samples from cores for off site leachfield treatability studies.	USGS: P. Harte, J. Grey
7/25/2008	J. Warrington	≈ 1.25 hrs	* Performed daily readings. * Permanganate benchscale study photo-documentation. * Monthly safety checks on safety showers and fire extinguishers. * Monthly exercise of Gate Valves SVE-GV-01, 02, 03. * Weekly exercise of generator.	
7/28/2008	J. Warrington	≈ 6.2 hrs	* Performed daily readings. * Monthly water levels. * Weekly exercise of generator.	
7/29/2008	J. Warrington	≈ 4.0 hrs	* Performed daily readings. * Swapped out Tray Aerator 1 for Tray Aerator 2. * Monthly maintenance on Tray Aerator 1. * Greased P-103A, B and P-104A, B	USEPA: D. Goehlert NHDES: T. Andrews

OPERATIONS SUMMARY
AUGUST 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

Date	Weston personnel on site	Time on site	Tasks accomplished	Visitors
8/7/2008	J. Warrington	≈ 1.83 hrs	* Performed daily readings. * Weekly exercise of generator. * Monthly safety checks on safety showers and fire extinguishers. * Monthly exercise of Gate Valves SVE-GV-01, 02, 03.	Milford Water Department
8/15/2008	J. Warrington B. Nowack	≈ 4.25 hrs ≈ 2.86 hrs	* Performed daily readings. * Weekly exercise of generator. * Monthly sampling. * Subcontractor walkthrough of boiler system removal.	Apollo: P. Desrosiers Granite State Plumbing: B. Knowlton Palmer and Sigard: B. Larson, B. Welcouve Interstate Electric: S. Donohue
8/20/2008	E. Hall S. Lizotte	≈ 4.33 hrs ≈ 4.33 hrs	* Performed daily readings. * Layout of vadose zone excavation	None
8/28/2008	J. Warrington L. Kammer M. Wagner	≈ 10 hrs ≈ 8.33 hrs ≈ 10.8 hrs	* Performed daily readings. * Weekly exercise of generator. * Monthly water levels. * Top soil excavation. (Tantara) * Began clean soil removal. (Tantara)	Tantara National Grid NHDES: R. Mongeon
8/29/2008	J. Warrington M. Wagner	≈ 8.0 hrs ≈ 1.0 hrs	* Performed daily readings. * Continued clean soil excavation. (Tantara). * Began contaminated soil excavation. (Tantara). * Swapped out Tray Aerator 2 for Tray Aerator 1. * Monthly maintenance on Tray Aerator 2.	Tantara NHDES: R. Mongeon

OPERATIONS SUMMARY
SEPTEMBER 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

Date	Weston personnel on site	Time on site	Tasks accomplished	Visitors
9/2/2008	E. Hall J. Warrington A. Fuller L. Kammer	≈ 10.0 hrs ≈ 11.0 hrs ≈ 10.8 hrs ≈ 10.8 hrs	* Continued contaminated soil excavation: 6' dig (Tantara) * EPA onsite lab confirmation sampling. * Delivery and storage of 40% $KMnO_4$ * Injection point drilling (Boart Longyear). * Site utilities marking (TMD).	Tantara Boart Longyear NHDES: Robyn Mongeon TMD USEPA: Scott Clifford
9/3/2008	J. Warrington A. Fuller L. Kammer	≈ 9.25 hrs ≈ 10.0 hrs ≈ 10.0 hrs	* Continued contaminated soil excavation: 6' dig (Tantara). * Began excavation of 8' dig (Tantara). * Injection point drilling (Boart Longyear).	Tantara Boart Longyear NHDES: R. Mongeon USEPA: S. Clifford, R. Goehlert
9/4/2008	J. Warrington A. Fuller L. Kammer B. Fletcher	≈ 10.8 hrs ≈ 11.5 hrs ≈ 11.5 hrs ≈ 2.0 hrs	* Continued excavation of 8' dig (Tantara). * Injection point drilling (Boart Longyear). * Began 10-14' excavation (Tantara). * Performed daily Readings.	Tantara Boart Longyear NHDES: R. Mongeon USEPA: R. Goehlert, S. Clifford
9/5/2008	J. Warrington A. Fuller L. Kammer B. Nowack	≈ 9.66 hrs ≈ 8 hrs ≈ 9.66 hrs ≈ 1.5 hrs	* Injection point drilling (Boart Longyear). * Continued 10-14' excavation (Tantara).	Tantara Boart Longyear NHDES: R. Mongeon, K. Richards USEPA: S.Clifford, M. Jasinksi, A. Gil, R. Goehlert, J. Keefe
9/8/2008	A. Fuller L. Kammer B. Nowack	≈ 9.0 hrs ≈ 9.0 hrs ≈ 5.25 hrs	* Injection point drilling (Boart Longyear). * Continued 10-14' excavation (Tantara).	Tantara Boart Longyear NHDES: R. Mongeon USEPA: S. Clifford, R. Goehlert
9/9/2008	E. Hall J. Warrington A. Fuller L. Kammer	≈ 8 hrs ≈ 9.16 hrs ≈ 9.33 hrs ≈ 9.33 hrs	* Injection point drilling (Boart Longyear). * Continued 10-14' excavation (Tantara).	Tantara Boart Longyear NHDES: R. Mongeon USEPA: R. Goehlert USGS
9/10/2008	J. Warrington L. Kammer	≈ 8.5 hrs ≈ 8.5 hrs	* Monthly Sampling. * Stockpile confirmation sampling. *Performed daily Readings.	
9/11/2008	J. Warrington	≈ 0.5 hrs	* Onsite for Lull pick up.	
9/12/2008	J. Warrington	≈ 2.25 hrs	* Onsite for GSPH walk through.	Granite State Plumbing and Heating Waltons Demolition
9/15/2008	J. Warrington L. Kammer	≈ 10.3 hrs ≈ 10.3 hrs	* Excavation of northwest corner, 2' dig (Tantara). * Backfilling clean fill (Tantara). * Removal / Demo of SVE blower and Sparge Compressor (Waltons). * Disconnecting associated demolition electrical and alarms (EII & IES). * Injection point drilling (Boart Longyear).	Tantara Boart Longyear EII Granite State Plumbing and Heating Interstate Electrical Service Waltons Demolition USEPA: R. Goehlert
9/16/2008	J. Warrington L. Kammer	≈ 10.5 hrs ≈ 10.5 hrs	* Injection point drilling (Boart Longyear). * Backfilling clean fill (Tantara). * Removal / Demo boilers (Waltons). * Disconnecting associated demolition electrical (IES).	Tantara Boart Longyear Granite State Plumbing and Heating Interstate Electrical Service Waltons Demolition
9/17/2008	J. Warrington L. Kammer	≈ 9.66 hrs ≈ 9.5 hrs	* Soil Screening down to 4 inches (Tantara). * Injection point drilling (Boart Longyear). * Removal of piping associated with boilers (Waltons). * Disconnecting associated demolition electrical (IES).	Tantara Boart Longyear Granite State Plumbing and Heating Interstate Electrical Service Waltons Demolition

OPERATIONS SUMMARY
SEPTEMBER 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

9/18/2008	J. Warrington A. Fuller L. Kammer M. Swiech-Laflamme D. Muzrall	≈ 10.3 hrs ≈ 11 hrs ≈ 11 hrs ≈ 2.5 hrs ≈ 2.5 hrs	* Soil Screening down to 4 inches (Tantara). * EHS Inspection. * Extraction well installation (Boart). * Installing associated electrical for new boilers (IES).	Tantara Boart Longyear Granite State Plumbing and Heating Interstate Electrical Service
9/19/2008	J. Warrington A. Fuller	≈ 8.33 hrs ≈ 7.5 hrs	* Soil Screening down to 4 inches (Tantara). * Extraction well installation (Boart).	Tantara Boart Longyear NHDES: R. Mongeon
9/22/2008	J. Warrington L. Kammer	≈ 9.66 hrs ≈ 9.66 hrs	* Monthly water levels. * Soil Screening down to 4 inches (Tantara). * Extraction well development (Boart). * Monthly exercise of SVE valves. * Monthly inspection of fire extinguishers and safety showers. * H&S modifications.	Tantara Boart Longyear
9/23/2008	J. Warrington B. Fletcher L. Kammer	≈ 10.8 hrs ≈ 5.5 hrs ≈ 10.8 hrs	* Soil Screening down to 4 inches (Tantara). * Extraction well development (Boart). * Installing associated electrical for new boilers (IES). * Performed daily Readings. * H&S modifications.	Tantara Boart Longyear Granite State Plumbing and Heating Interstate Electrical Service USGS
9/24/2008	J. Warrington	≈ 9.0 hrs	* Soil Screening down to 4 inches (Tantara). * Sealing loose pipe associated with boilers, SVE and Air Sparge (GSPH). * H&S modifications. * Weekly inspection of Hazardous Waste Storage Area.	Tantara Granite State Plumbing and Heating
9/29/2008	L. Kammer E. Perry	≈ 8.0 hrs ≈ 8.0 hrs	* Injection point well development.	USGS
9/30/2008	J. Warrington	≈ 8.16 hrs	* Boiler Delivery (GSPH). * Pre-boiler installation electrical work (IES). * Purged well vaults. * Updated MSDS binder. * Swapped out Tray Aerator 2 for Tray Aerator 1. * Monthly maintenance on Tray Aerator 2.	Granite State Plumbing and Heating Interstate Electrical Service USGS

OPERATIONS SUMMARY
OCTOBER 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

Date	Weston personnel on site	Time on site	Tasks accomplished	Visitors
10/1/2008	J. Warrington	≈ 8.5 hrs	* Weekly Exercise of Generator. * Boiler Installation (GSPH & IES). * Injection point development (Boart). * Pitless adapter installation (Boart). * Daily readings.	Granite State Plumbing and Heating Interstate Electrical Service Boart Longyear
10/2/2008	J. Warrington	≈ 8.5 hrs	* Manifold preparation. * Boiler Installation (GSPH & IES).	Granite State Plumbing and Heating Interstate Electrical Service USGS
10/3/2008	J. Warrington	≈ 7.5 hrs	* Manifold preparation. * Boiler Installation (GSPH & IES).	Granite State Plumbing and Heating Interstate Electrical Service USGS
10/6/2008	M. Ilagan	≈ 8.75 hrs	* Boiler Installation (GSPH).	Granite State Plumbing and Heating
10/7/2008	J. Warrington	≈ 8.25 hrs	* Manifold preparation. * Boiler Installation (GSPH).	Granite State Plumbing and Heating
10/8/2008	J. Warrington	≈ 8.33 hrs	* Manifold preparation. * Boiler Installation (GSPH). * IW-2 trenching (Tantara).	Granite State Plumbing and Heating Tantara USGS
10/9/2008	J. Warrington	≈ 8.66 hrs	* Manifold preparation. * Carbon bypass work (GSPH). * Review of hazardous waste (Veolia).	
10/10/2008	J. Warrington	≈ 8.1 hrs	* Manifold preparation. * Carbon bypass work (GSPH). * Boiler electrical work (IES). * Weekly exercise of generator.	Granite State Plumbing and Heating Interstate Electrical Service
10/13/2008	M. Ilagan	≈ 6.5 hrs	* Boiler Installation (GSPH).	Granite State Plumbing and Heating
10/14/2008	J. Warrington B. Fletcher A. Fuller D. Brammer	≈ 11.0 hrs ≈ 10.5 hrs ≈ 10.0 hrs ≈ 10.0 hrs	* Manifold preparation. * Monthly groundwater levels. * Installation of shallow IW-2A. * Baseline chloride monitoring. * Electrical work for shallow IW-2A (IES).	Interstate Electrical Service
10/15/2008	J. Warrington B. Fletcher A. Fuller D. Brammer L. Kammer	≈ 12.0 hrs ≈ 10.6 hrs ≈ 11.0 hrs ≈ 10.5 hrs ≈ 11.0 hrs	* Stockpile winterization (Tantara). * Installation of safety fencing around excavation (Tantara). * Installation of shallow IW-2A. * Electrical work for shallow IW-2A (IES). * Baseline chloride monitoring.	Interstate Electrical Service Tantara
10/16/2008	J. Warrington B. Fletcher A. Fuller D. Brammer L. Kammer	≈ 11.5 hrs ≈ 8.5 hrs ≈ 10.5 hrs ≈ 5.0 hrs ≈ 10.5 hrs	* Stockpile winterization (Tantara). * Installation of shallow IW-2A. * Electrical work for shallow IW-2A (IES). * Baseline chloride monitoring. * Reinstallation of IP-7 (Boart).	Interstate Electrical Service Tantara Boart Longyear
10/17/2008	J. Warrington B. Fletcher A. Fuller L. Kammer	≈ 10.5 hrs ≈ 10.5 hrs ≈ 7.5 hrs ≈ 7.5 hrs	* Installation of shallow IW-1A. * Electrical work for shallow IW-1A(IES). * Baseline chloride monitoring. * Reinstallation of IP-8 (Boart).	Interstate Electrical Service Boart Longyear

OPERATIONS SUMMARY
OCTOBER 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

10/20/2008	J. Warrington E. Hall L. Kammer A. Fuller	≈ 10.0 hrs ≈ 9.16 hrs ≈ 5.5 hrs ≈ 3.25 hrs	* Confined space entry work for SP-1, 2. * Electrical work for shallow IW-1A (IES). * Reinstallation of IP-7, 8 (Boart).	Interstate Electrical Service Boart Longyear
10/21/2008	J. Warrington E. Hall	≈ 3.0 hrs ≈ 3.0 hrs	* Manifold preparation.	
10/22/2008	J. Warrington A. Fuller	≈ 8.5 hrs ≈ 8.5 hrs	* Performed daily readings. * Developing IP-7 and IP-8. * Backfilling of trenches around IW-1 & 2. * Baseline chloride monitoring. * Monthly sampling. * Surveying new measuring points.	Tantara
10/23/2008	J. Warrington	≈ 7.75 hrs	* Insulation Installation for boilers (Amherst). * Manifold preparation. * Monthly inspection of fire extinguishers and safety showers.	Amherst Insulation
10/24/2008				USGS: P. Harte
10/27/2008	J. Warrington D. Muzrall D. Brammer	≈ 11.3 hrs ≈ 8.25 hrs ≈ 1.25 hrs	* Injection preparation. * Boiler Installation (GSPH).	Granite State Plumbing and Heating USGS: P. Harte, T. Mack, T. Smith
10/28/2008	J. Warrington B. Nowack A. Fuller D. Muzrall E. Hall	≈ 11.9 hrs ≈ 8.75 hrs ≈ 10.3 hrs ≈ 6.5 hrs ≈ 10 hrs	* Injection preparation. * Water test of manifold system. * Boiler Installation (GSPH & IES).	Granite State Plumbing and Heating USGS: P. Harte, T. Mack, T. Smith, J. Williams USEPA: R. Goehlert, C. Porfert, R. Willey Interstate Electric Service
10/29/2008	J. Warrington B. Nowack A. Fuller B. Fletcher E. Hall	≈ 11.8 hrs ≈ 4.5 hrs ≈ 11.8 hrs ≈ 5.0 hrs ≈ 10.3 hrs	* Injections into IP-2 & 4. * Electrical work with transducers in well field (EII).	EII USGS: P. Harte, T. Mack, T. Smith, J. Williams NHDES: R. Mongeon
10/30/2008	J. Warrington A. Fuller E. Hall	≈ 11.5 hrs ≈ 11.5 hrs ≈ 9.5 hrs	* Permanganate injections into IP-2, 3, 4, & 5.	USGS: P. Harte, T. Mack, T. Smith USEPA: R. Goehlert
10/31/2008	J. Warrington A. Fuller D. Brammer	≈ 11.0 hrs ≈ 11.0 hrs ≈ 10.8 hrs	* Permanganate injections into IP-2, 3, 4, 5 & PW-6D. * Swapped out Tray Aerator 2 for Tray Aerator 1. * Monthly maintenance on Tray Aerator 2.	

OPERATIONS SUMMARY
NOVEMBER 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

Date	Weston personnel on site	Time on site	Tasks accomplished	Visitors
11/3/2008	J. Warrington A. Fuller D. Brammer	≈ 11.5 hrs ≈ 11.3 hrs ≈ 2.5 hrs	* Permanganate injections into IP-1, 3, 4, 5 & PW-6D. * Boiler work (GSPH & IES).	Granite State Plumbing and Heating USGS: P. Harte, T. Smith
11/4/2008	J. Warrington A. Fuller	≈ 11.3 hrs ≈ 11.3 hrs	* Permanganate injections into IP-1, 3, 4, 5, 8, 9 & PW-6D.	
11/5/2008	J. Warrington A. Fuller	≈ 11.5 hrs ≈ 11.5 hrs	* Permanganate injections into IP-1, 3, 4, 6, 7, 8, & 9.	USGS: P. Harte, T. Smith NHDES: R. Mongeon, K. Richards, J. Whipple, J. Marts
11/6/2008	J. Warrington A. Fuller A. Klappholz	≈ 11.2 hrs ≈ 11.2 hrs ≈ 4.0 hrs	* Permanganate injections into IP-3, 4, 6, 7, 8, 9, & PW-15D. * Glycol test on boiler (GSPH).	Granite State Plumbing and Heating NHDES: R. Mongeon
11/7/2008	J. Warrington A. Klappholz D. Brammer	≈ 11.6 hrs ≈ 11.0 hrs ≈ 9.5 hrs	* Permanganate injections into IP-6, 7, 9, 10 & PW-15D. * Installation of concrete around IW-1A and IW-2A (Boart).	Boart Longyear USEPA: R. Goehlert Town of Milford USGS: P. Harte
11/10/2008	J. Warrington A. Klappholz D. Brammer	≈ 11.0 hrs ≈ 10.8 hrs ≈ 1.0 hr	* Permanganate injections into IP-6, 7, 9, 10, 11, 12, SP-1 & PW-15D.	
11/11/2008	J. Warrington A. Klappholz D. Brammer	≈ 10.8 hrs ≈ 10.6 hrs ≈ 3.5 hrs	* Permanganate injections into IP-7, 10, 11, 12, 13, SP-1 & PW-15D. * Permanganate visual aids created.	
11/12/2008	J. Warrington A. Klappholz D. Brammer	≈ 11.0 hrs ≈ 11.0 hrs ≈ 1.33 hrs	* Permanganate injections into IP-10, 11, 12, 13, SP-1, PW-15D & 15M.	USGS: P. Harte, T. Smith
11/13/2008	J. Warrington A. Klappholz D. Brammer	≈ 11.0 hrs ≈ 10.8 hrs ≈ 1.33 hrs	* Permanganate injections into IP-10, 11, 12, 13, 14, SP-1, & PW-15M. * Glycol addition to boiler system (GSPH). * Bi-annual sampling event (NHDES). * Monthly sampling.	Granite State Plumbing and Heating USGS: P. Harte, T. Smith NHDES: R. Mongeon, R. Pease, D. Hoffman
11/14/2008	A. Fuller A. Klappholz D. Brammer T. Blackburn D. Muzrall	≈ 10.8 hrs ≈ 10.8 hrs ≈ 1.16 hrs ≈ 1.5 hrs ≈ 1.5 hrs	* Permanganate injections into IP-12, 13, 14, SP-1, & PW-15M. * Bi-annual sampling event (NHDES). * EHS Inspection.	NHDES: R. Mongeon, R. Pease, T. Andrews USEPA: R. Goehlert

OPERATIONS SUMMARY
NOVEMBER 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

11/17/2008	J. Warrington A. Fuller D. Brammer	≈ 11.0 hrs ≈ 11.0 hrs ≈ 1.0 hr	* Permanganate injections into IP-12, 13, 14 and the INEEL field. * Bi-annual sampling event (NHDES).	USGS: P. Harte NHDES: R. Pease, T. Andrews USEPA. R. Goehlert
11/18/2008	J. Warrington A. Fuller D. Brammer	≈ 11.0 hrs ≈ 11.0 hrs ≈ 1.0 hr	* Permanganate injections into IP-13, 14 and the INEEL field.	
11/19/2008	J. Warrington A. Fuller D. Brammer	≈ 11.0 hrs ≈ 11.0 hrs ≈ 1.33 hrs	* Permanganate injections into IP-13 and the INEEL field. * Glycol addition to boiler system (GSPH).	Granite State Plumbing and Heating USGS: P. Harte, T. Smith NHDES: R. Pease
11/20/2008	J. Warrington A. Fuller D. Brammer B. Nowack A. Liu	≈ 10.5 hrs ≈ 10.5 hrs ≈ 1.66 hrs ≈ 2.16 hrs ≈ 2.16 hrs	* Permanganate injections into IP-6, SP-1 and the INEEL field. * Flush out of injection points.	
11/21/2008	J. Warrington A. Fuller	≈ 9.0 hrs ≈ 9.0 hrs	* Permanganate injections into IP-6, SP-1 and the INEEL field. * Flush out of injection points. * Glycol test of boiler system (GSPH).	Granite State Plumbing and Heating USGS: P. Harte
11/24/2008	J. Warrington A. Klappholz D. Brammer	≈ 10.2 hrs ≈ 4.75 hrs ≈ 1.5 hrs	* Permanganate injections into IP-6 and SP-1. * Flush out of injection points. * ISCO breakdown.	
11/25/2008	J. Warrington A. Klappholz	≈ 9.25 hrs ≈ 8.5 hrs	* Flush out of injection points. * ISCO breakdown.	
11/26/2008	J. Warrington A. Fuller	≈ 5.66 hrs ≈ 5.66 hrs	* Monthly inspection of fire extinguishers and safety showers. * ISCO breakdown. * Performed daily Readings. * Monthly groundwater levels. * Swapped out Tray Aerator 1 for Tray Aerator 2.	

OPERATIONS SUMMARY
DECEMBER 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

Date	Weston personnel on site	Time on site	Tasks accomplished	Visitors
12/1/2008	J. Warrington A. Fuller	≈ 8.0 hrs ≈ 2.0 hrs	* Daily Readings. * Survey of injection wells and new monitoring points. * Purging vaults IW-1, IW-2, SVE-4 and SP-2. * Site cleanup.	USGS: P. Harte
12/2/2008				USEPA: R. Goehlert, D. Granz, L. Thuot
12/3/2008	J. Warrington	≈ 9.33 hrs	* Daily Readings. * Monthly maintenance on Tray Aerator 1. * Quarterly maintenance on AHU-2 & 3. * Quarterly maintenance on Instrument Air Compressor. * Site cleanup.	USGS: P. Harte
12/4/2008				USEPA: R. Goehlert USGS: P. Harte, T. Mack
12/5/2008	J. Warrington	≈ 3.16 hrs	* Daily Readings. * Punch list items for boiler system (GSPH). * Addition of glycol to boiler system (GSPH). * Removal of nine empty 300 gal totes from site (Boart). * Installation of level transducer in IW-1A.	Granite State Plumbing and Heating Boart Longyear
12/8/2008	J. Warrington	≈ 5.66 hrs	* Daily Readings. * Lightning protection on new carbon by-pass stack (IES). * Office clean up. * Exercise of generator. * Hazaradous Waste Area inspection.	Interstate Electric Service
12/10/2008	J. Warrington	≈ 3.75 hrs	* Daily Readings. * Final boiler inspection and training (GSPH). * Monthly sampling.	
12/12/2008	E. Hall	≈6.5 hrs	* Non-Routine O&M visit due to power outage due to the Ice Storm * Temporarily wired boilers to low voltage system to allow boliers to operate on generator power.	Interstate Electrical Service
12/14/2008	E. Hall	≈ 0.75 hrs	* Restored power to system by flipping the automatic transfer switch. * Turned treatment system back on.	Interstate Electrical Service
12/16/2008	J. Warrington A. Fuller	≈ 8.66 hrs ≈ 8.66 hrs	* Daily Readings. * Monthly groundwater levels. * Additional electrical work walk through (IES). * Chloride / permanganate monitoring. * Purged vaults for SP-1, EW-1, & SVE-4.	Interstate Electrical Service

OPERATIONS SUMMARY
DECEMBER 2008
SAVAGE MUNICIPAL WATER SUPPLY WELL SUPERFUND SITE

12/17/2008	E. Hall J. Warrington	≈ 1.33 hrs ≈ 5.5 hrs	* Daily Readings. * Responding to safety audit. * Hazaradous Waste Area inspection. * Chloride monitoring.	
12/19/2008	J. Warrington	≈ 8.5 hrs	* Daily Readings. * Quarterly maintenance on AHU-1. * Plant clean up. Moving oxidizer containment to boiler room. * Rerouting boilers to low voltage panel (IES).	Interstate Electrical Service
12/21/2008	J. Warrington	≈ 0.75 hrs	* Non-Routine O&M visit due to power outage due to the snow storm. * Restored power to system by flipping the automatic transfer switch. * Turned treatment system back on.	
12/22/2008	J. Warrington	≈ 7.16 hrs	* Daily Readings. * Shoveling snow away from doors / gates. * Plant clean up. * Wiring low water alarm from boilers to alarm panel (IES). * Installation of GFI on IW-2 receptacle (IES). * Inspection of Hazardous Waste Area.	Interstate Electrical Service
12/31/2008	J. Warrington	≈ 6.83 hrs	* Daily Readings. * Inspection of Hazardous Waste Area. * Exercise of generator. * Swapped out Tray Aerator 2 for Tray Aerator 1. * Monthly maintenance on Tray Aerator 2. * Purged vaults for SP-1, IW-1, & IW-2.	

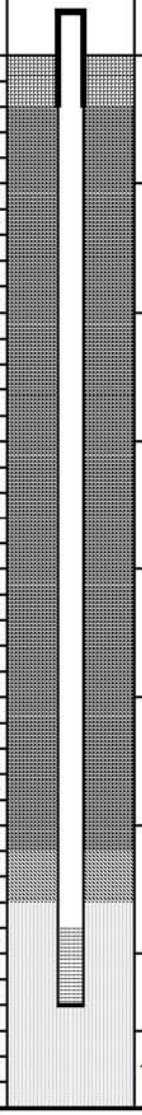
APPENDIX B

WELL CONSTRUCTION LOGS

Project Name: Savage Municipal Well/Former OK Tool
Project Number: 20111.023
Project Manager: Bette Nowack
Location: Milford, NH
Site ID: IP-1
Logged By: L. Kammer
Contractor: Boart Longyear

Date Drilled: 9/17/2008
Drilling Method: Sonic/Case and Wash
Total Depth: Bore - 80.7 ft / Well - 73.0 ft
Borehole Diameter: 6 inches
Water Table: Approximately 15.0 ft bgs
Ground Surface Elev.: 276.48

Remarks: Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods. Bedrock or large boulder encountered at 80.7 ft bgs. Original specs call for well to be installed to 86 ft bgs. Change well screen interval to 68-73 ft bgs so that it will be set directly above the clay/till interval.



Depth (ft)	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8	N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18	N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28	N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38	N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48	N/A	N/A	N/A	N/A	No sample collected
50, 52, 54, 56, 58	N/A	N/A	N/A	N/A	No sample collected
60, 62, 64, 66, 68	N/A	N/A	N/A	N/A	No sample collected
70, 72, 74	N/A	N/A	N/A	N/A	No sample collected
76	1.0/5.0 ft	17.6	80-81	OKT_IP001-SS-8081-1	Grey clay and F-sand. Clay at top 0.5 ft of recovery. Broken rock fragments with some clay material bottom 0.5 ft of recovery. Saturated and no notable odors.
78		34.0			
80		36.9			
82					End of Boring

Cement surface seal
Bentonite chips
No. 0 sand filter pack
Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 68 to 73 ft bgs
Solid Riser: 70 ft
Filter sand to 66 ft bgs, Bentonite to 63 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool	
Project Number: 20111.023	
Project Manager: Bette Nowack	
Location: Milford, NH	
Site ID: IP-2	
Logged By: A. Fuller	
Contractor: Boart Longyear	
Date Drilled: 9/3/2008	**Remarks:** Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods.
Drilling Method: Sonic/Case and Wash	
Total Depth: 86.0 feet	
Borehole Diameter: 6 inches	
Water Table: Approximately 15.0 ft bgs	
Ground Surface Elev.: 275.13	

Depth (ft)	Well Construction Log	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8		N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18		N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28		N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38		N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48		N/A	N/A	N/A	N/A	No sample collected
50, 52, 54, 56, 58		N/A	N/A	N/A	N/A	No sample collected
60, 62, 64, 66, 68		N/A	N/A	N/A	N/A	No sample collected
70, 72, 74, 76, 78		N/A	N/A	N/A	N/A	No sample collected
80		1.5/5.0 ft	0.0	83-84 ft	OKT_IP002-SS-8384-1	Multi-colored gravel and cobbles (1-3" diameter), some brownish gray, M-C-sand, trace fines. Saturated and no notable odors.
82			2.5			
84			2.5			
86						End of Boring

Cement surface seal

Bentonite chips

No. 0 sand filter pack

Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 81 to 86 ft bgs
Solid Riser: 83 ft
Filter sand to 79 ft bgs, Bentonite to 76 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool
Project Number: 20111.023
Project Manager: Bette Nowack
Location: Milford, NH
Site ID: IP-3
Logged By: A. Fuller
Contractor: Boart Longyear

Date Drilled: 9/3/2008
Drilling Method: Sonic/Case and Wash
Total Depth: 85.0 feet
Borehole Diameter: 6 inches
Water Table: Approximately 15.0 ft bgs
Ground Surface Elev.: 275.13

Remarks: Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods.

Depth (ft)	Well Construction Log	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8		N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18		N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28		N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38		N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48		N/A	N/A	N/A	N/A	No sample collected
50, 52, 54, 56, 58		N/A	N/A	N/A	N/A	No sample collected
60, 62, 64, 66, 68		N/A	N/A	N/A	N/A	No sample collected
70, 72, 74, 76, 78		N/A	N/A	N/A	N/A	No sample collected
80		1.0/5.0 ft	0.0	82-83 ft	OKT_IP003-SS-8283-1	Brown, well sorted, C-SND, some gravel, trace silt. Saturated, no odors.
82			0.0			
84			0.0			
85						End of Boring

Cement surface seal
Bentonite chips
No. 0 sand filter pack
Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 80 to 85 ft bgs
Solid Riser: 82 ft
Filter sand to 78 ft bgs, Bentonite to 75 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool	
Project Number: 20111.023	
Project Manager: Bette Nowack	
Location: Milford, NH	
Site ID: IP-4	
Logged By: A. Fuller	
Contractor: Boart Longyear	
Date Drilled: 9/2/2008	**Remarks:** Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods.
Drilling Method: Sonic/Case and Wash	
Total Depth: 85.0 feet	
Borehole Diameter: 6 inches	
Water Table: Approximately 15.0 ft bgs	
Ground Surface Elev.: 275.35	

Depth (ft)	Well Construction Log	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8		N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18		N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28		N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38		N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48		N/A	N/A	N/A	N/A	No sample collected
50, 52, 54, 56, 58		N/A	N/A	N/A	N/A	No sample collected
60, 62, 64, 66, 68		N/A	N/A	N/A	N/A	No sample collected
70, 72, 74, 76, 78		N/A	N/A	N/A	N/A	No sample collected
80		2.7/5.0 ft	0.0	82-83 ft	OKT_IP004-SS-8283-1	Brown, well sorted, M-C-SND, little gravel and small cobbles (1-2" diameter), trace silt. Saturated, no odors.
82			2.5			
84			1.5			
85						End of Boring

Cement surface seal

Bentonite chips

No. 0 sand filter pack

Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 80 to 85 ft bgs
Solid Riser: 82 ft
Filter sand to 78 ft bgs, Bentonite to 75 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool
Project Number: 20111.023
Project Manager: Bette Nowack
Location: Milford, NH
Site ID: IP-5
Logged By: A. Fuller
Contractor: Boart Longyear

Date Drilled: 9/4/2008
Drilling Method: Sonic/Case and Wash
Total Depth: 86.5 feet
Borehole Diameter: 6 inches
Water Table: Approximately 15.0 ft bgs
Ground Surface Elev.: 277.38

Remarks: Location is shifted approximately 1.0 ft east to increase distance from buried electrical utility for extraction well system. Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods.

Depth (ft)	Well Construction Log	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8		N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18		N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28		N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38		N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48		N/A	N/A	N/A	N/A	No sample collected
50, 52, 54, 56, 58		N/A	N/A	N/A	N/A	No sample collected
60, 62, 64, 66, 68		N/A	N/A	N/A	N/A	No sample collected
70, 72, 74, 76, 78, 80		N/A	N/A	N/A	N/A	No sample collected
82, 84, 86		0.0/5.0 ft	N/A	N/A	N/A	Core barrel gets stuck within casing. Difficult to remove the core barrel. Lose sample while pulling up core. Instruct drillers to sample from 87 to 90 ft bgs for description and analytical sample.
88, 90		4.5/5.0 ft	3.5, 9.5	87-88 ft	OKT_IP005-SS-8788-1	Brown, well sorted, F-C-SND. Uniform, saturated, no notable odors.
92						End of Boring

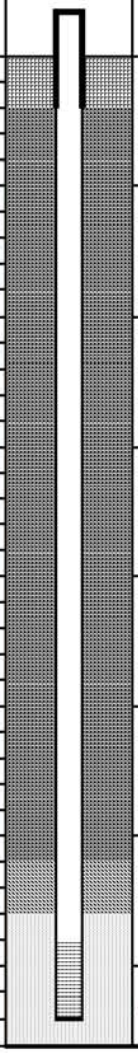
Cement surface seal
Bentonite chips
No. 0 sand filter pack
Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 81.5 to 86.5 ft bgs
Solid Riser: 84 ft
Filter sand to 79.5 ft bgs, Bentonite to 76.5 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool
Project Number: 20111.023
Project Manager: Bette Nowack
Location: Milford, NH
Site ID: IP-6
Logged By: L. Kammer
Contractor: Boart Longyear

Date Drilled: 9/16/2008
Drilling Method: Sonic/Case and Wash
Total Depth: Bore - 76.0 ft / Well - 73.0 ft
Borehole Diameter: 6 inches
Water Table: Approximately 15.0 ft bgs
Ground Surface Elev.: 276.09

Remarks: Location is shifted 5 ft north to increase distance from buried electrical utility for extraction well system. Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods. Change well screen elevation due to conditions observed in the field. Well is screened from 68-73 ft bgs above the encountered clay/till interval.



Depth (ft)	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8	N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18	N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28	N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38	N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48	N/A	N/A	N/A	N/A	No sample collected
50, 52, 54, 56, 58	N/A	N/A	N/A	N/A	No sample collected
60, 62, 64, 66, 68	N/A	N/A	N/A	N/A	No sample collected
70	4.0/5.0 ft	19.3	73-74 ft	OKT_IP006-SS-7374-1	71-73.5 ft bgs - Grey, F-M-SND and clay, trace cobbles (2-3" diameter). Saturated, no odors. Orange (rust) sediment in between intervals. 73.5-76.0 ft bgs - Grey clay with sand. Med-high plasticity.
72		22.4			
74		9.1			
76					End of Boring

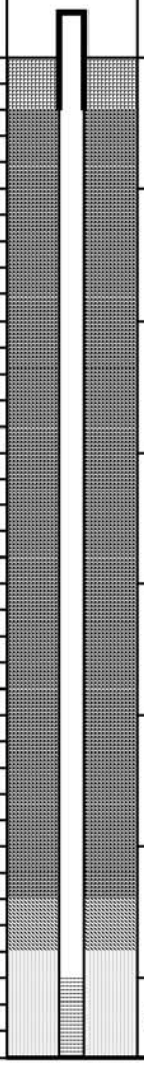
Cement surface seal
Bentonite chips
No. 0 sand filter pack
Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 68 to 73 ft bgs
Solid Riser: 70 ft
Filter sand to 66 ft bgs, Bentonite to 63 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool
Project Number: 20111.023
Project Manager: Bette Nowack
Location: Milford, NH
Site ID: IP-7
Logged By: L. Kammer
Contractor: Boart Longyear

Date Drilled: 9/15/2008
Drilling Method: Sonic/Case and Wash
Total Depth: 76.0 feet
Borehole Diameter: 6 inches
Water Table: Approximately 15.0 ft bgs
Ground Surface Elev.: 276.75

Remarks: Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods.



Depth (ft)	Well Construction Log	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8		N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18		N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28		N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38		N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48		N/A	N/A	N/A	N/A	No sample collected
50, 52, 54, 56, 58		N/A	N/A	N/A	N/A	No sample collected
60, 62, 64, 66, 68		N/A	N/A	N/A	N/A	No sample collected
70		1.0/5.0 ft	0.6	73-74 ft	OKT_IP007-SS-7374-1	Brown, well sorted, C-SND and gravel, some cobbles, trace silt. Saturated and no notable odors.
72			0.0			
74			0.6			
76						End of Boring

Cement surface seal
Bentonite chips
No. 0 sand filter pack
Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 71 to 76 ft bgs
Solid Riser: 73 ft
Filter sand to 69 ft bgs, Bentonite to 66 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool
Project Number: 20111.023
Project Manager: Bette Nowack
Location: Milford, NH
Site ID: IP-8
Logged By: A. Fuller
Contractor: Boart Longyear

Date Drilled: 9/8/2008
Drilling Method: Sonic/Case and Wash
Total Depth: 77.0 feet
Borehole Diameter: 6 inches
Water Table: Approximately 15.0 ft bgs
Ground Surface Elev.: 277.23

Remarks: Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods.

Depth (ft)	Well Construction Log	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8		N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18		N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28		N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38		N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48		N/A	N/A	N/A	N/A	No sample collected
50, 52, 54, 56, 58		N/A	N/A	N/A	N/A	No sample collected
60, 62, 64, 66, 68, 70		N/A	N/A	N/A	N/A	No sample collected
72		3.5/5.0 ft	0.0	74-75 ft	OKT_IP008-SS-7475-1	Brown, well sorted, F-C-SND, little gravel, trace silt. Saturated and no notable odors. Sample interval grades from fine to coarse with depth.
74			0.0			
76			0.0			
77						End of Boring

Cement surface seal

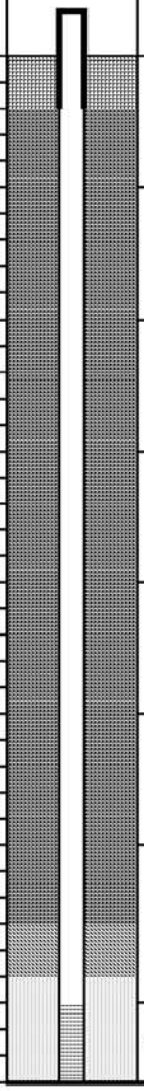
Bentonite chips

No. 0 sand filter pack

Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 72 to 77 ft bgs
Solid Riser: 74 ft
Filter sand to 70 ft bgs, Bentonite to 67 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool	
Project Number: 20111.023	
Project Manager: Bette Nowack	
Location: Milford, NH	
Site ID: IP-9	
Logged By: A. Fuller	
Contractor: Boart Longyear	
Date Drilled: 9/5/2008	**Remarks:** Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods.
Drilling Method: Sonic/Case and Wash	
Total Depth: 77.0 feet	
Borehole Diameter: 6 inches	
Water Table: Approximately 15.0 ft bgs	
Ground Surface Elev.: 276.96	



Depth (ft)	Well Construction Log	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8		N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18		N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28		N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38		N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48		N/A	N/A	N/A	N/A	No sample collected
50, 52, 54, 56, 58		N/A	N/A	N/A	N/A	No sample collected
60, 62, 64, 66, 68, 70		N/A	N/A	N/A	N/A	No sample collected
72, 74, 76		3.5/5.0 ft	0.0, 0.0, 0.0	74-75 ft	OKT_IP009-SS-7475-1	Brown, well sorted, F-VC-SND and gravel, trace silt. Some large gravel. Grades from V-C to fine twice over the interval. Saturated, no notable odors.
77						End of Boring

Cement surface seal

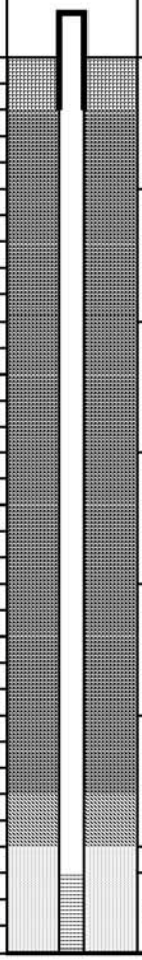
Bentonite chips

No. 0 sand filter pack

Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 72 to 77 ft bgs
Solid Riser: 74 ft
Filter sand to 70 ft bgs, Bentonite to 67 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool	
Project Number: 20111.023	
Project Manager: Bette Nowack	
Location: Milford, NH	
Site ID: IP-10	
Logged By: L. Kammer	
Contractor: Boart Longyear	
Date Drilled: 9/17/2008	**Remarks:** Location is shifted 5 ft north to increase distance from buried electrical utility for extraction well system. Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods.
Drilling Method: Sonic/Case and Wash	
Total Depth: 67.0 feet	
Borehole Diameter: 6 inches	
Water Table: Approximately 15.0 ft bgs	
Ground Surface Elev.: 276.97	



Depth (ft)	Well Construction Log	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8		N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18		N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28		N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38		N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48		N/A	N/A	N/A	N/A	No sample collected
50, 52, 54, 56, 58		N/A	N/A	N/A	N/A	No sample collected
60		N/A	N/A	N/A	N/A	No sample collected
62, 64, 66		2.0/5.0 ft	4.0, 3.3, 2.7	64-65 ft	OKT_IP010-SS-6465-1	Brown, F-M-SND and Gravel, trace silt and cobbles (2-3" diameter). Saturated and no notable odors.
67						End of Boring

Cement surface seal

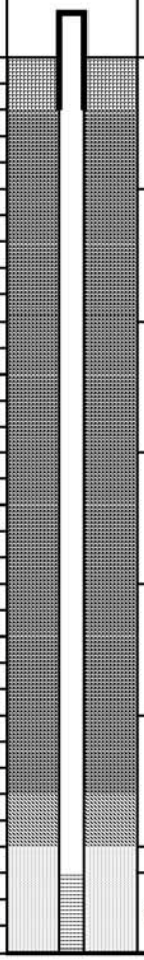
Bentonite chips

No. 0 sand filter pack

Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 62 to 67 ft bgs
Solid Riser: 64 ft
Filter sand to 60 ft bgs, Bentonite to 57.0 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool	
Project Number: 20111.023	
Project Manager: Bette Nowack	
Location: Milford, NH	
Site ID: IP-11	
Logged By: A. Fuller	
Contractor: Boart Longyear	
Date Drilled: 9/5/2008	**Remarks:** Location is shifted approximately 8.0 ft west to increase distance from buried electrical utility for extraction well system. Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods
Drilling Method: Sonic/Case and Wash	
Total Depth: 66.6 feet	
Borehole Diameter: 6 inches	
Water Table: Approximately 15.0 ft bgs	
Ground Surface Elev.: 277.07	



Depth (ft)	Well Construction Log	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8		N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18		N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28		N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38		N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48		N/A	N/A	N/A	N/A	No sample collected
50, 52, 54, 56, 58		N/A	N/A	N/A	N/A	No sample collected
60		N/A	N/A	N/A	N/A	No sample collected
62, 64, 66		3.5/5.0 ft	0.0, 0.0, 0.0	64-65 ft	OKT_IP011-SS-6465-1	Brown, well sorted, C-SND and Gravel, trace silt. Few cobbles/rocks. Saturated and no notable odors.
67						End of Boring

Cement surface seal

Bentonite chips

No. 0 sand filter pack

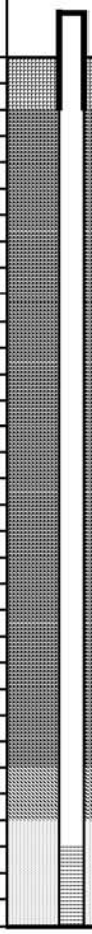
Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 61.6 to 66.6 ft bgs
Solid Riser: 65 ft
Filter sand to 59.6 ft bgs, Bentonite to 56.6 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool
Project Number: 20111.023
Project Manager: Bette Nowack
Location: Milford, NH
Site ID: IP-12
Logged By: A. Fuller
Contractor: Boart Longyear

Date Drilled: 9/9/2008 and 9/15/2008
Drilling Method: Sonic/Case and Wash
Total Depth: 66.0 feet
Borehole Diameter: 6 inches
Water Table: Approximately 15.0 ft bgs
Ground Surface Elev.: 276.44

Remarks: Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods



Depth (ft)	Well Construction Log	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8		N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18		N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28		N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38		N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48		N/A	N/A	N/A	N/A	No sample collected
50, 52, 54, 56, 58		N/A	N/A	N/A	N/A	No sample collected
60		4.0/5.0 ft	1.4	63-64 ft	OKT_IP012-SS-6364-1	Brown, well sorted, M-SND. Saturated and no notable odors.
62			8.9			
64			6.4			
66						End of Boring

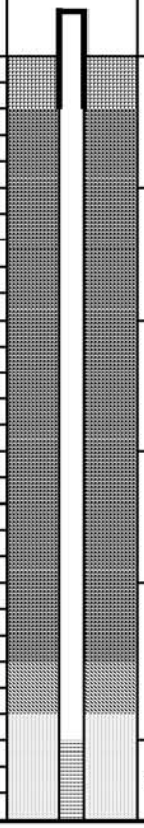
Cement surface seal
Bentonite chips
No. 0 sand filter pack
Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 61.0 to 66.0 ft bgs
Solid Riser: 63 ft
Filter sand to 59.0 ft bgs, Bentonite to 56.0 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool
Project Number: 20111.023
Project Manager: Bette Nowack
Location: Milford, NH
Site ID: IP-13
Logged By: L. Kammer
Contractor: Boart Longyear

Date Drilled: 9/15/2008
Drilling Method: Sonic/Case and Wash
Total Depth: 57.0 feet
Borehole Diameter: 6 inches
Water Table: Approximately 15.0 ft bgs
Ground Surface Elev.: 277.06

Remarks: Location is shifted 5 ft north to increase distance from buried electrical utility for extraction well system. Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods.



Depth (ft)	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8	N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18	N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28	N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38	N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48, 50	N/A	N/A	N/A	N/A	No sample collected
52	3.0/5.0 ft	0.0	53-54 ft	OKT_IP013-SS-5354-1	Brown, poorly sorted, F-M-SND, some C-SND, little gravel, trace silt. Saturated and no notable odors.
54		1.8			
56		4.5			
57					End of Boring

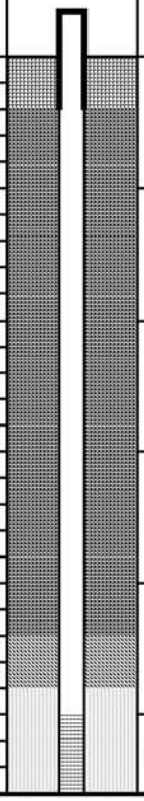
Cement surface seal
Bentonite chips
No. 0 sand filter pack
Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 51 to 56 ft bgs
Solid Riser: 53 ft
Filter sand to 49 ft bgs, Bentonite to 46 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool
Project Number: 20111.023
Project Manager: Bette Nowack
Location: Milford, NH
Site ID: IP-14
Logged By: A. Fuller
Contractor: Boart Longyear

Date Drilled: 9/9/2008
Drilling Method: Sonic/Case and Wash
Total Depth: 56.0 feet
Borehole Diameter: 6 inches
Water Table: Approximately 15.0 ft bgs
Ground Surface Elev.: 276.20

Remarks: Location is cored from 0 to 20 ft bgs to advance beyond cobble interval. Advanced to final depth using case and wash methods.



Depth (ft)	Well Construction Log	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0, 2, 4, 6, 8		N/A	N/A	N/A	N/A	No sample collected
10, 12, 14, 16, 18		N/A	N/A	N/A	N/A	No sample collected
20, 22, 24, 26, 28		N/A	N/A	N/A	N/A	No sample collected
30, 32, 34, 36, 38		N/A	N/A	N/A	N/A	No sample collected
40, 42, 44, 46, 48		N/A	N/A	N/A	N/A	No sample collected
50		4.0/5.0 ft	0.0	53-54 ft	OKT_IP014-SS-5354-1	Brown, poorly sorted, F-M-SND, some C-SND, little gravel, trace silt. Saturated and no notable odors.
52			1.8			
54			4.5			
56						End of Boring

Cement surface seal

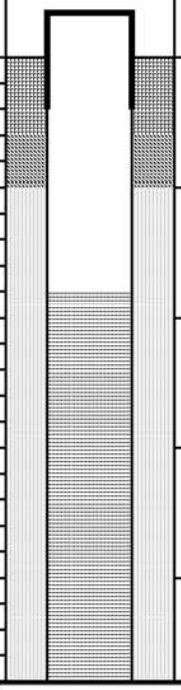
Bentonite chips

No. 0 sand filter pack

Cement/Bentonite Grout

Well screen: 5 ft of 0.010" slot PVC from 51 to 56 ft bgs
Solid Riser: 53 ft
Filter sand to 49 ft bgs, Bentonite to 46 ft bgs.
Grout to 3 ft bgs
Well completed with a 4" diameter 3 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool	
Project Number: 20111.023	
Project Manager: Bette Nowack	
Location: Milford, NH	
Site ID: IW-1A	
Logged By: A. Fuller	
Contractor: Boart Longyear	
Date Drilled: 9/18/08-9/19/08	**Remarks:** IW-1A was installed approximately 10 ft to the southeast of IW-1. Following the installation a trench was dug between IW-1 and IW-1A to facilitate the conversion of the existing extraction well piping to the new location. Location is cored from 0 to 25 ft bgs with 5-3/4" core. Drive 7-5/8" casing to 25 ft bgs over the core. Drive 10" casing to 25 ft bgs of the 7-5/8" casing to achieve desired completion.
Drilling Method: Sonic/Case and Wash	
Total Depth: 23.5 feet	
Borehole Diameter: 10 inches	
Water Table: Approximately 12.5 ft bgs	
Ground Surface Elev.: 273 ft amsl	

Depth (ft)	Well Construction Log	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
						
0, 1, 2, 3, 4		N/A	N/A	N/A	N/A	Extraction well IW-1A is constructed with 15 ft of 6-inch diameter, 0.020" slot PVC Vee-wire well screen and 10 ft of solid PVC well riser. The well is constructed to a depth of 23.5 ft bgs with a 1.5-2.0 ft rise above the ground surface. The annulus of the borehole for IW-1A was backfilled with a #0 filter sand pack to a level approximately 4 ft above the well screen interval, or a depth of 3.5 ft bgs. A 1.5 ft thick hydrated bentonite seal was installed above the filter sand pack and the remainder of the annulus was filled with concrete during the installation of the protective cover. A pitless adapter to facilitate a groundwater extraction well pump was installed at a depth of 4.0 ft bgs and the protective cover was equipped with a cover similar to a sanitary drinking well cover.
5, 6, 7, 8, 9		N/A	N/A	N/A	N/A	
10, 11, 12, 13, 14		N/A	N/A	N/A	N/A	
15, 16, 17, 18, 19		N/A	N/A	N/A	N/A	No sample collected
20, 21, 22, 23		N/A	N/A	N/A	N/A	No sample collected
23.5						End of Boring

Cement surface seal

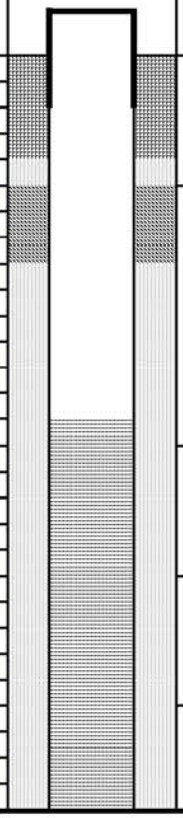
Bentonite chips

No. 0 sand filter pack

Cement/Bentonite Grout

Well screen: 15 ft of 0.020" slot Vee-wire PVC screen from 8.5 to 23.5 ft bgs
Solid Riser: 10 ft
Filter: #0 sand to 3.5 ft bgs.
Bentonite: to 2 ft bgs.
Grout: No grout
Well completed with a 10" diameter 4 ft steel protective cover set in concrete collar.

Project Name: Savage Municipal Well/Former OK Tool	
Project Number: 20111.023	
Project Manager: Bette Nowack	
Location: Milford, NH	
Site ID: IW-2A	
Logged By: A. Fuller	
Contractor: Boart Longyear	
Date Drilled: 9/8/08 and 9/18/08	**Remarks:** IW-2A was installed approximately 10 ft to the east of IW-2. Following the installation a trench was dug between IW-2 and IW-2A to facilitate the conversion of the existing extraction well piping to the new location. Location is cored from 0 to 29 ft bgs with 5-3/4" core. Drive 7-5/8" casing to 29 ft bgs over the core. Drive 10" casing to 29 ft bgs of the 7-5/8" casing to achieve desired completion.
Drilling Method: Sonic/Case and Wash	
Total Depth: 29.0 feet	
Borehole Diameter: 10 inches	
Water Table: Approximately 15 ft bgs	
Ground Surface Elev.: 276 ft amsl	

Depth (ft)	Well Construction Log	Recovery/ Penetration	OVM (ppm)	Sample Interval	Sample ID	Material Description
0 1 2 3 4		N/A	N/A	N/A	N/A	Extraction well IW-2A is constructed with 15 ft of 6-inch diameter, 0.020" slot PVC Vee-wire well screen and 15 ft of solid PVC well riser. The well is constructed to a depth of 28.1 ft bgs with a 2.0 ft rise above the ground surface. The annulus of the borehole for IW-2A was backfilled with a #0 filter sand pack to a level approximately 5 ft above the well screen interval, or a depth of 8 ft bgs. A 3 ft thick hydrated bentonite seal was installed above the filter sand pack and the remainder of the annulus was filled with sand and concrete during the installation of the protective cover. A pitless adapter to facilitate a groundwater extraction well pump was installed at a depth of 4.0 ft bgs and the protective cover was equipped with a cover similar to a sanitary drinking well cover.
5 6 7 8 9 10 11 12 13 14		N/A	N/A	N/A	N/A	
15 16 17 18 19		N/A	N/A	N/A	N/A	
20 21 22 23 24		N/A	N/A	N/A	N/A	No sample collected
25 26 27 28		N/A	N/A	N/A	N/A	No sample collected
28.1						End of Boring

Cement surface seal

Bentonite chips

No. 0 sand filter pack

Cement/Bentonite Grout

Well screen: 15 ft of 0.020" slot Vee-wire PVC screen from 13.1 to 28.1 ft bgs
Solid Riser: 15 ft
Filter: #0 sand to 8 ft bgs.
Bentonite: to 5 ft bgs.
Grout: No grout
Well completed with a 10" diameter 4 ft steel protective cover set in concrete collar.

APPENDIX C

CHEMICAL ANALYSIS OF SODIUM PERMANGANATE

WINTERSUN CHEMICAL

3100 East Cedar Street, Suite 15, Ontario, CA 91761
Tel: 909-930-1688 Fax: 909-947-1788 E-mail: sales@wintersungroup.com

CERTIFICATE OF ANALYSIS

Product Name:	**Sodium Permanganate, 40% Solution**
WCode:	19-041
CAS No.:	10101-50-5
Molecular Formula:	$NaMnO_4$
COA Report Date:	July 20, 2008
Batch No.:	20080705
Quantity:	39 Totes
Weight:	111,773.22 LB
Our PO No.:	08070141
Packing:	In 1300KG Plastic Tote

THIS IS TO CERTIFY THAT WE, THE UNDERSIGNED, HAVE INSPECTED THE QUALITY OF THE ABOVE MENTIONED GOODS AND FOUND THE RESULT OF THE INSPECTION AS FOLLOWED:

INDEX	STANDARD	RESULT
Appearance	Dark, Purple Solution	Dark, Purple Solution
Purity	40.0% Min	40.51%
PH	6.0-7.0	6.85
Insoluble	100ppm Max	100ppm
Potassium	1000-2200ppm	1500ppm
Chloride Content	0.04% Max	0.02%
Specific Gravity	1.36-1.39 g/cm3	1.38 g/cm3

CONCLUSION: THE SUBJECT MATERIAL IS UP TO STANDARD.

WINTERSUN CHEMICAL

Erika Bean

These results are based on the manufacturer's test according to the original manufacturer's specification. Wintersun Chemical makes no guarantee of the results and assumes no liability with the accuracy or completeness of the data herein.

中国广州分析测试中心
China National Analytical Center, Guangzhou

No.L1360 (2001)量认(国)字(Z0714)号

检 测 报 告

TEST REPORT

委托单位：广东温特森化工厂
Customer Guangdong Wintersun Chemical Plant

样品名称：高锰酸钠
Sample Name Sodium Permanganate

受检样品数量：1
Quantity Received

样品规格及批号：——
Sample Lot №./Batch №:

报告编号：20080731
Report №.

接样日期：2008 年 7 月 28 日
Sample Receiving Date

检测日期：7 月 28 日 至 7 月 31 日
Testing Period

签发日期：2008 年 7 月 31 日
Date for Reporting

分析检测结果（一）
Test Results

分析项目 Item	检测结果 Result	计量单位 Unit	检测方法 Method
银 Argentum	<0.03	mg/kg	ICP-AES(GB/T 10725-1989)GB/T15337-1994
铝 Aluminum	0.53	mg/kg	
砷 Arsenic	<0.02	mg/kg	
钡 Barium	0.49	mg/kg	
铍 Beryllium	<0.08	mg/kg	
镉 Cadmium	<0.01	mg/kg	
铬 Chromium	<0.5	mg/kg	
铜 Copper	<0.02	mg/kg	
铁 Ferrum	<0.02	mg/kg	
汞 Mercury	<0.002	mg/kg	
镍 Nickel	<0.03	mg/kg	
铅 Plumbum	<0.1	mg/kg	

声明 Declaration
(1)未经本中心的书面批准不得部分复制本报告（全部复制除外）。
(1)The report shall not be reproduced except in full,without the written approval of the laboratory.
(2)本报告为委托检验报告，只对来样负责。
(2)The results relate only to the items tested.

编审：张志军
Organizer and Checker
职务：工程师
Business: Engineer

批准：何建强
Technique Co[illegible]
职务：高级工程师
Business: Senior Engineer

盖章：
Official Sealing

广州分析测试中心 分析报告专用章 (1)

中国广州分析测试中心
China National Analytical Center, Guangzhou

No.L1360 (2001)量认(国)字(Z0714)号

检 测 报 告

TEST REPORT

委托单位：广东温特森化工厂
Customer Guangdong Wintersun Chemical Plant
样品名称：高锰酸钠
Sample Name Sodium Permanganate
受检样品数量：1
Quantity Received
样品规格及批号：——
Sample Lot №./Batch №:

报告编号：20080731
Report №.
接样日期：2008 年 7 月 28 日
Sample Receiving Date
检测日期：7 月 28 日 至 7 月 31 日
Testing Period
签发日期：2008 年 7 月 31 日
Date for Reporting

分析检测结果

Test Results

分析项目 Item	检测结果 Result	计量单位 Unit	检测方法 Method
锑 Antimony	<0.1	mg/kg	ICP-AES(GB/T 10725-1989)
硒 Selenium	<0.02	mg/kg	
铊 Thallium	<0.5	mg/kg	
锌 Zincum	<0.02	mg/kg	

（以下空白）

备注 Note	——。
声明 Declaration	(1)未经本中心的书面批准不得部分复制本报告（全部复制除外）。 (1)The report shall not be reproduced except in full,without the written approval of the laboratory. (2)本报告为委托检验报告，只对来样负责。 (2)The results relate only to the items tested.

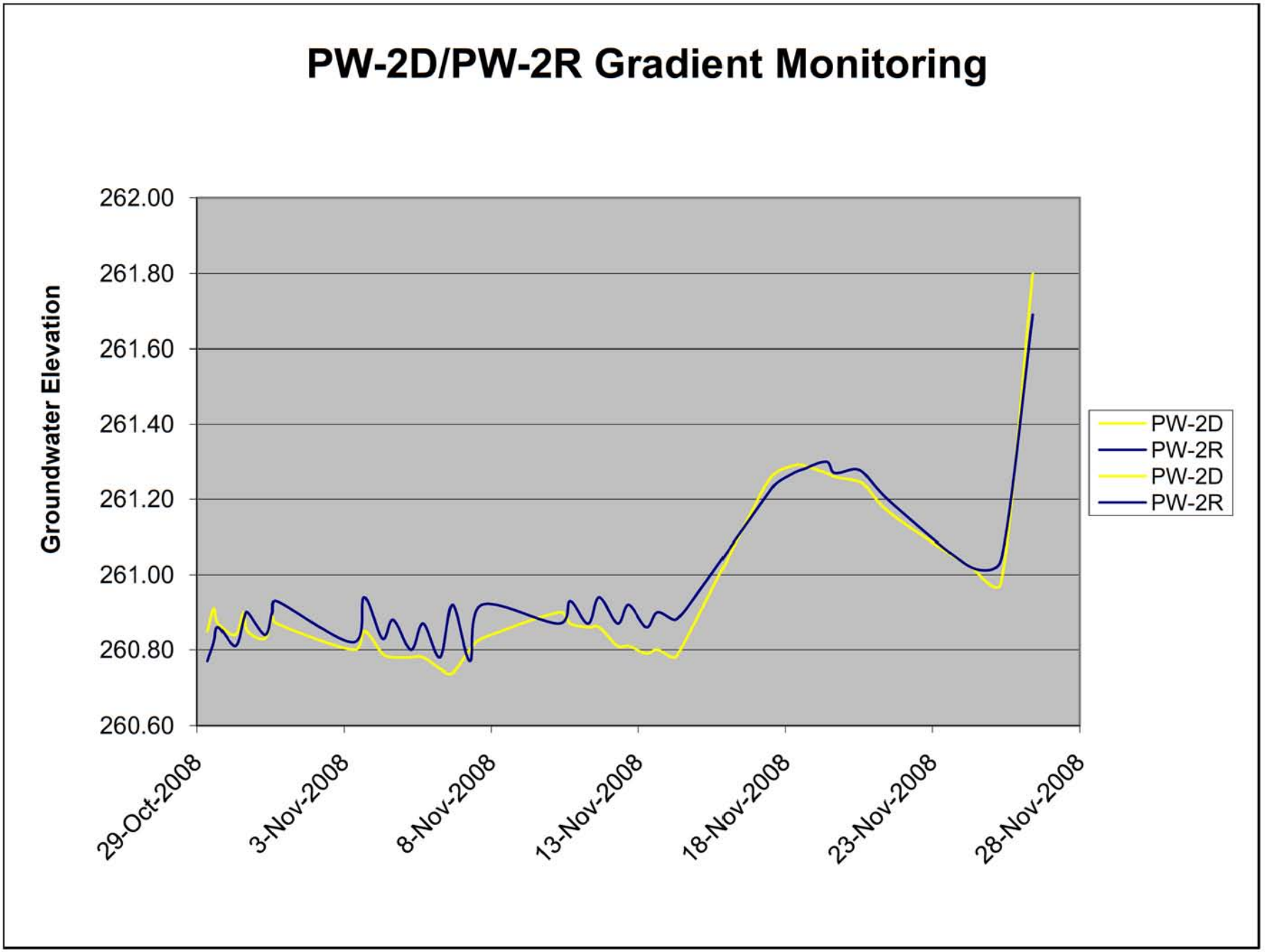
编审：谢志明
Organizer and Checker
职务：工程师
Business: Engineer

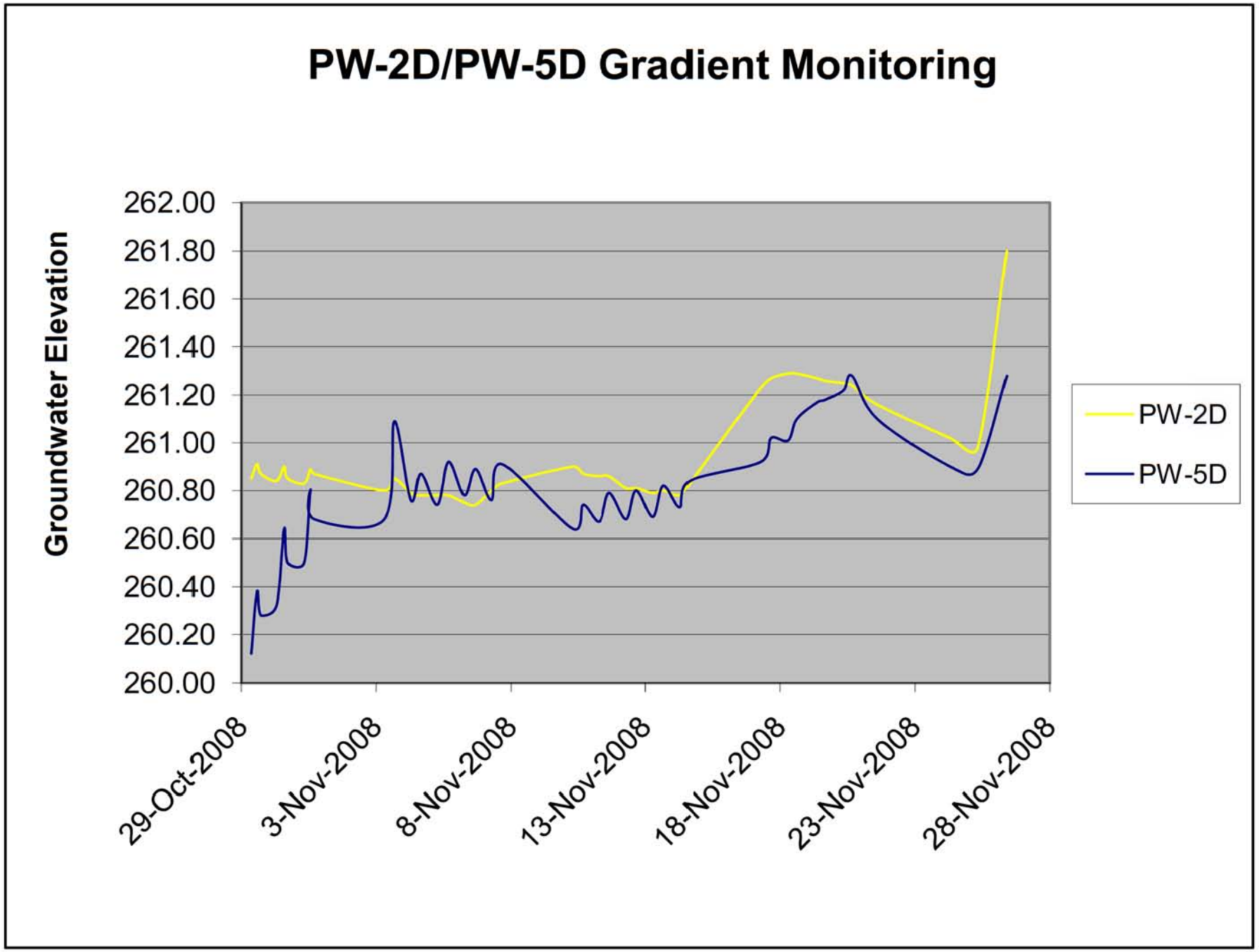
批准：何建强
Technique Controller
职务：高级工程师
Business: Senior Engineer

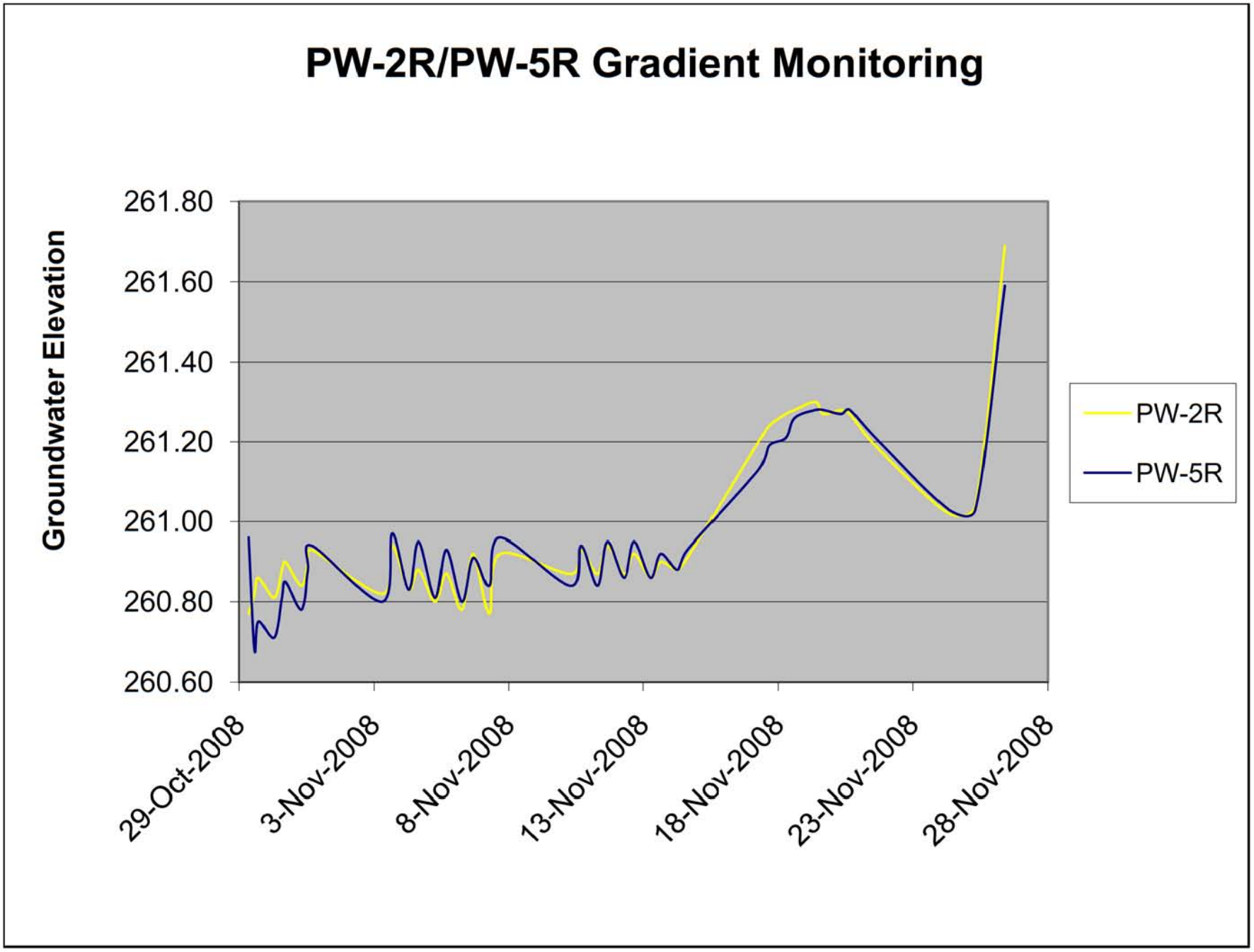
广州分析测试中心 分析报告专用章 (1)

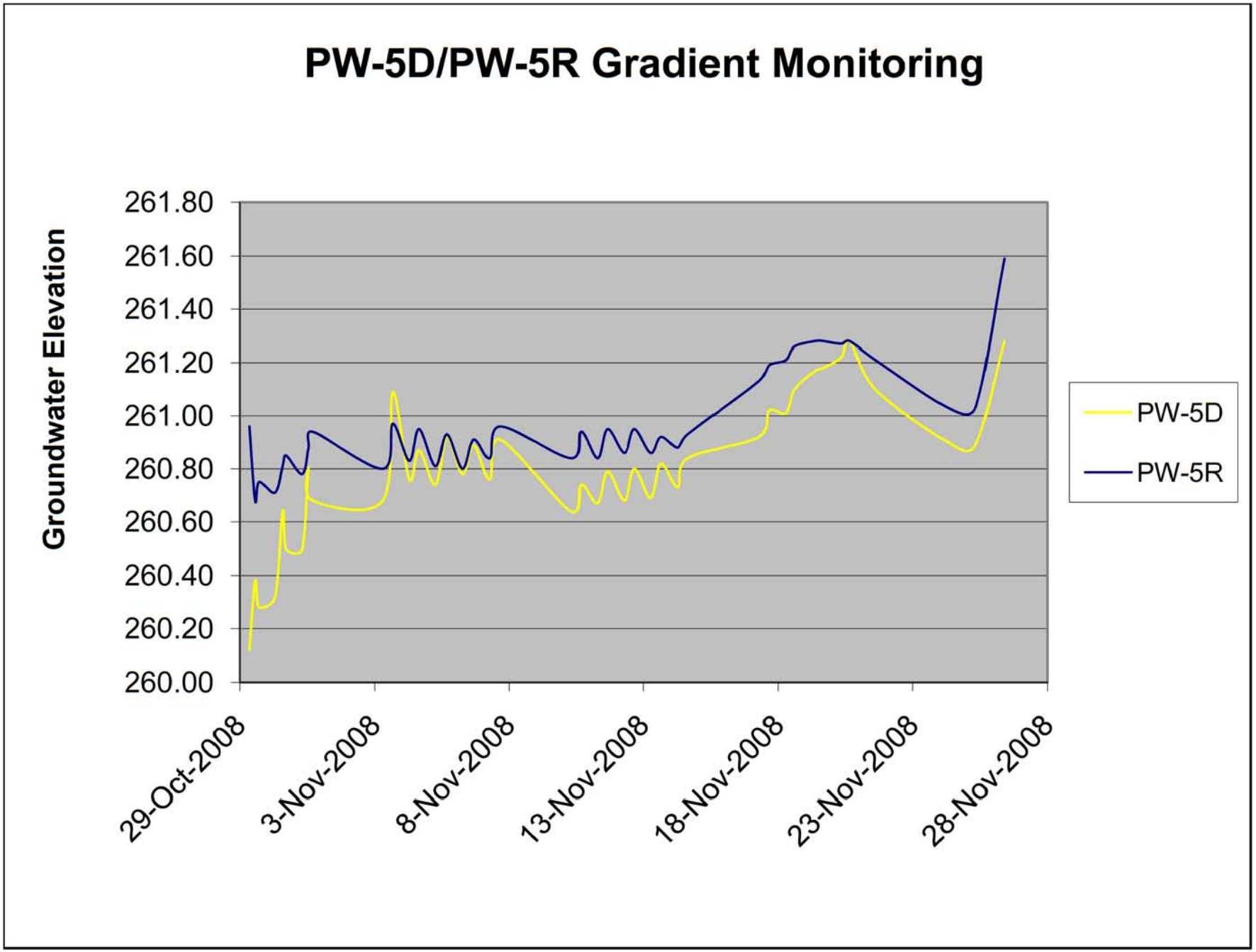
APPENDIX D

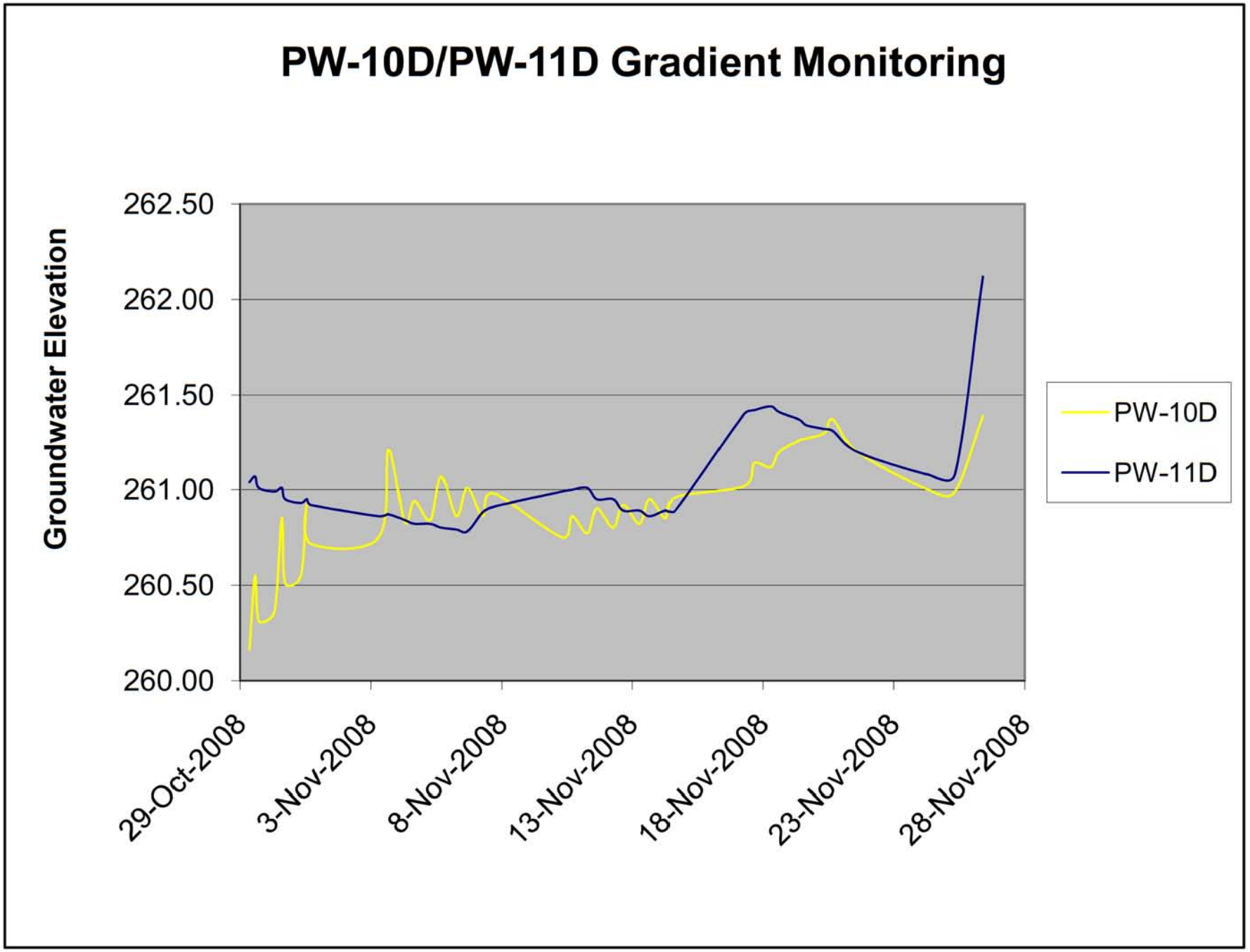
WATER LEVEL GRAPHS FOR GRADIENT MONITORING WELLS


PW-2D/PW-2R Gradient Monitoring
Groundwater Elevation
262.00
261.80
261.60
261.40
261.20
261.00
260.80
260.60
29-Oct-2008
3-Nov-2008
8-Nov-2008
13-Nov-2008
18-Nov-2008
23-Nov-2008
28-Nov-2008
PW-2D
PW-2R
PW-2D
PW-2R


PW-2D/PW-5D Gradient Monitoring
Groundwater Elevation
262.00
261.80
261.60
261.40
261.20
261.00
260.80
260.60
260.40
260.20
260.00
29-Oct-2008
3-Nov-2008
8-Nov-2008
13-Nov-2008
18-Nov-2008
23-Nov-2008
28-Nov-2008
PW-2D
PW-5D


PW-2R/PW-5R Gradient Monitoring
Groundwater Elevation
261.80
261.60
261.40
261.20
261.00
260.80
260.60
29-Oct-2008
3-Nov-2008
8-Nov-2008
13-Nov-2008
18-Nov-2008
23-Nov-2008
28-Nov-2008
PW-2R
PW-5R


PW-5D/PW-5R Gradient Monitoring
Groundwater Elevation
261.80
261.60
261.40
261.20
261.00
260.80
260.60
260.40
260.20
260.00
29-Oct-2008
3-Nov-2008
8-Nov-2008
13-Nov-2008
18-Nov-2008
23-Nov-2008
28-Nov-2008
PW-5D
PW-5R


PW-10D/PW-11D Gradient Monitoring
Groundwater Elevation
262.50
262.00
261.50
261.00
260.50
260.00
29-Oct-2008
3-Nov-2008
8-Nov-2008
13-Nov-2008
18-Nov-2008
23-Nov-2008
28-Nov-2008
PW-10D
PW-11D

APPENDIX F

FIELD SAMPLING SHEETS

NH DES LABORATORY SERVICES LOGIN AND CUSTODY SHEET

(Laboratory Policy: Samples not meeting method requirements will be analyzed at the discretion of the NH DES Laboratory.)

Project/Client ID: X In-House ☐ OSA ☐ Special ☐ Pool ☐ Swim ☐ VLAP

LAB ACCOUNT # 04-000-1505 DES Site Number 198505002 One Stop (PROJECT) ID# SUPERFND

Weston Contact: Andrew Fuller (603) 656-5400

System Name: OK Tool Site/Town: Milford NH NHDES Contact: S. Perkins 271-6805

Comments: Please include "EVAC" in specified samples comments Collected By & Phone# Andrew Fuller & Justin Warrington (603) 656-5400

Sample Location /ID	Date/Time Sampled	# of Containers	Matrix	8260B						Other / Notes	Lab ID # (For Lab Use Only)
Trip Blank	6/16 0800	2	AQ	X							
OKT_PW-6MB	6/16 1430	3	AQ								
OKT_PW-6MB DUP	6/16 1430		AQ								
OKT=PW-19D	6/16 1431		AQ								
OKT_PW-6M	6/16 1515		AQ								
OKT_PW-6S	6/16 1555		AQ								
OKT_PW-20S	6/16 1559		AQ								
OKT_PW-6D	6/16 1647		AQ								
OKT_PW-20M	6/16 1702		AQ								
OKT_PW-20D	6/17 0920		AQ								
OKT_PW-6R	6/17 0935		AQ								

Preservation: HCl

Relinquished By [signature] Date and Time 6/20/08 1017 Received By _____ Matrix: A= Air S= Soil AQ= Aqueous π Other: _____

Relinquished By _____ Date and Time _____ Received By _____

Relinquished By _____ Date and Time _____ Received For Laboratory By [signature]

Section No.: 22.0
Revision No.: 1 (HWRB)
Date: 11-30-04
Page 1 of 1

NH DES LABORATORY SERVICES LOGIN AND CUSTODY SHEET

(Laboratory Policy: Samples not meeting method requirements will be analyzed at the discretion of the NH DES Laboratory.)

Project/Client ID: X In-House ☐ OSA ☐ Special ☐ Pool ☐ Swim ☐ VLAP

LAB ACCOUNT # 04-000-1505 DES Site Number 198505002 One Stop (PROJECT) ID# SUPERFND

Weston Contact: Andrew Fuller (603) 656-5400

System Name: OK Tool Site/Town: Milford NH NHDES Contact: S. Perkins 271-6805

Comments: Please include "EVAC" in comments of specified samples Collected By & Phone# Andrew Fuller & Justin Warrington (603) 656-5400

Sample Location /ID	Date/Time Sampled	# of Containers	Matrix	8260B						Other / Notes	Lab ID # (For Lab Use Only)
OKT_SVE-2	6/17 1016	3	AQ	X							
OKT_PW-5D	6/17 1110		AQ								
OKT_PW-10M	6/17 1150		AQ								
OKT_PW-16D	6/17 1142		AQ								
OKT_PW-10D	6/17 1230		AQ								
OKT_PW-16M	6/17 1243		AQ								
OKT_PW-16M DUP	6/17 1243		AQ								
OKT_PW-2M	6/17 1320		AQ								
OKT_PW-2S	6/17 1406		AQ								
OKT_PW-2D	6/17 1418		AQ								
OKT_PW-24	6/17 1458		AQ								

Preservation: HCl

Relinquished By [signature] Date and Time 6/24/04 1017 Received By _____ Matrix: A= Air S= Soil AQ= Aqueous π Other: _____

Relinquished By _____ Date and Time _____ Received By _____

Relinquished By _____ Date and Time _____ Received For Laboratory By: [signature]

Section No.: 22.0
Revision No.: 1 (HWRB)
Date: 11-30-04
Page 1 of 1

Page ___ of ___ Date Reviewed By: _____ Date: _____

NH DES LABORATORY SERVICES LOGIN AND CUSTODY SHEET

(Laboratory Policy: Samples not meeting method requirements will be analyzed at the discretion of the NH DES Laboratory.)

Project/Client ID: X In-House ☐ OSA ☐ Special ☐ Pool ☐ Swim ☐ VLAP

LAB ACCOUNT # 04-000-1505 **DES Site Number** 198505002 **One Stop (PROJECT) ID#** SUPERFND

Weston Contact: Andrew Fuller (603) 656-5400

System Name: OK Tool **Site/Town:** Milford NH **NHDES Contact:** S. Perkins 271-6805

Comments: Please include "EVAC" in comments for specified samples **Collected By & Phone#** Andrew Fuller & Justin Warrington (603) 656-5400

Sample Location /ID	Date/Time Sampled	# of Containers	Matrix	8260B						Other / Notes	Lab ID # (For Lab Use Only)
OKT_PW-2R	6/17 1540	3	AQ	X							
OKT_Influent	6/17 1535		AQ								
OKT_Effluent	6/17 1540		AQ								
OKT_IW-1	6/17 1545		AQ								
OKT_IW-2	6/17 1550		AQ								
(NE) ~~OKT~~ Trip Blank	6/16 0800	2	AQ								
OKT_PW-6R	6/18 0900	3	AQ							EVAC	
OKT_PW-22	6/18 0936		AQ								
OKT_PW-22 DUP	6/18 0938		AQ								
OKT_PW-18D	6/18 1034		AQ								
OKT_PW-25S	6/18 1153		AQ								

Preservation: HCl

Relinquished By [signature] Date and Time 6/20/08 1017 Received By _____ Matrix: A= Air S= Soil AQ= Aqueous π Other: _____

Relinquished By _____ Date and Time _____ Received By _____

Relinquished By _____ Date and Time _____ **Received For Laboratory By** [signature]

Section No.: 22.0
Revision No.: 1 (HWRB)
Date: 11-30-04
Page 1 of 1

Page ___ of ___ Data Reviewed By: _____ Date: _____

NH DES LABORATORY SERVICES LOGIN AND CUSTODY SHEET

(Laboratory Policy: Samples not meeting method requirements will be analyzed at the discretion of the NH DES Laboratory.)

Project/Client ID: X In-House ☐ OSA ☐ Special ☐ Pool ☐ Swim ☐ VLAP

LAB ACCOUNT # 04-000-1505 DES Site Number 198505002 One Stop (PROJECT) ID # SUPERFND

Weston Contact: Andrew Fuller (603) 656-5400

System Name: OK Tool Site/Town: Milford NH NHDES Contact: S. Perkins 271-6805

Comments: Please include "EVAC" in comments for specified samples Collected By & Phone# Andrew Fuller & Justin Warrington (603) 656-5400

Sample Location /ID	Date/Time Sampled	# of Containers	Matrix	8260B						Other / Notes	Lab ID # (For Lab Use Only)
OKT_MW-2B	6/18 1242	3	AQ	X							
OKT_MW-2A	6/18 1145		AQ								
OKT_MW-2R	6/18 1045		AQ								
OKT_PW-25D	6/18 1312		AQ								
OKT_PW-17M	6/18 1404		AQ								
OKT_PW-27S	6/18 1524		AQ								
OKT_PW-5R	6/18 1547		AQ								
~~OKT~~ Equip Blank	6/19 0745		AQ								
OKT_PW-15D	6/19 0957		AQ								
OKT_PW-15M	6/19 1041		AQ								
OKT_PW-12R	6/19 1025		AQ								

Preservation: NC

Relinquished By [signature] Date and Time 6/20/08 1017 Received By _____ Matrix: A= Air S= Soil AQ= Aqueous π Other: _____

Relinquished By _____ Date and Time _____ Received By _____

Relinquished By _____ Date and Time _____ **Received For Laboratory By** [signature]

Section No.: 22.0
Revision No.: 1 (HWRB)
Date: 11-30-04
Page 1 of 1

Page ___ of ___ Data Reviewed By: _____ Date: _____

NH DES LABORATORY SERVICES LOGIN AND CUSTODY SHEET

(Laboratory Policy: Samples not meeting method requirements will be analyzed at the discretion of the NH DES Laboratory.)

Project/Client ID: X In-House ☐ OSA ☐ Special ☐ Pool ☐ Swim ☐ VLAP

LAB ACCOUNT # 04-000-1505 DES Site Number 198505002 One Stop (PROJECT) ID# SUPERFND

Weston Contact: Andrew Fuller (603) 656-5400

System Name: OK Tool Site/Town: Milford NH NHDES Contact: S. Perkins 271-6805

Comments: Please include "EVAC" in comments for specified samples Collected By & Phone# Andrew Fuller & Justin Warrington (603) 656-5400

Sample Location /ID	Date/Time Sampled	# of Containers	Matrix	8260B						Other / Notes	Lab ID # (For Lab Use Only)
OKT_PW-2R	6/19 1150	3	AQ	X						EVAC	
OKT_CI	6/19 1147		AQ								
OKT_MW-2R	6/19 1235		AQ							EVAC	
OKT_NCP	6/19 1304		AQ								
OKT_MW-16R	6/19 1405		AQ								
OKT_PW-14D	6/19 1436		AQ								
OKT_PW-14S	6/19 1512		AQ								
OKT_PW-5R	6/19 1540		AQ							EVAC	
OKT_PW-14M	6/19 1611		AQ								
OKT_PW-6R	6/19 1622		AQ							EVAC 2	
OKT_PW-13D	6/19 1714		AQ								

Preservation:

Relinquished By [signature] Date and Time 6/20/05 1017 Received By _____ Matrix: A= Air S= Soil AQ= Aqueous π Other: _____

Relinquished By _____ Date and Time _____ Received By _____

Relinquished By _____ Date and Time _____ Received For Laboratory By [signature]

Section No.: 22.0
Revision No.: 1 (HWRB)
Date: 11-30-04
Page 1 of 1

Page ___ of ___ Date Reviewed By: ___ Date: ___

NH DES LABORATORY SERVICES LOGIN AND CUSTODY SHEET

(Laboratory Policy: Samples not meeting method requirements will be analyzed at the discretion of the NH DES Laboratory.)

Project/Client ID: X In-House ☐ OSA ☐ Special ☐ Pool ☐ Swim ☐ VLAP

LAB ACCOUNT # 04-000-1505 **DES Site Number** 198505002 **One Stop (PROJECT) ID#** SUPERFND

Weston Contact: Andrew Fuller (603) 656-5400

System Name: OK Tool **Site/Town:** Milford NH **NHDES Contact:** S. Perkins 271-6805

Comments: Please include "EVAC" in comments for specified samples **Collected By & Phone#** Andrew Fuller & Justin Warrington (603) 656-5400

Sample Location /ID	Date/Time Sampled	# of Containers	Matrix	8260B						Other / Notes	Lab ID # (For Lab Use Only)
OKT_PW-12R	6/19 1740	3	AQ	X						EVAC	
OKT_PW-13M	6/19 1756	↓	AQ	X							
OKT_MW-16R	6/19 1815	↓	AQ	X						EVAC	
OKT_PW-17M DUP	6/18 1404	↓	AQ	X							
			AQ								
			AQ								
			AQ								
			AQ								
			AQ								
			AQ								
			AQ								

Preservation:

Relinquished By [signature] Date and Time 6/20/08 1017 Received By _____ Matrix: A= Air S= Soil AQ= Aqueous π Other: _____

Relinquished By _____ Date and Time _____ Received By _____

Relinquished By _____ Date and Time _____ **Received For Laboratory By** [signature]

Section No.: 22.0
Revision No.: 1 (HWRB)
~~Date: 11~~-30-04
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Page ___ of ___ Date Reviewed By: _____ Date: _____

ENVIRONMENTAL PROTECTION AGENCY

REGION 1

CHAIN OF CUSTODY RECORD

PROJ. NO.

PROJECT NAME: Savage Well / OK Tool

SAMPLERS: (Signature) Justin Warrington

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOCs by Headspace	REMARKS
	6/17/08	1535		X	Plant-INF-080617	2	X	DES Sample: OKT_INFLUENT
		1540		X	Plant-EFF-080617	2	X	OKT_EFFLUENT
		1545		X	IW-1-080617	2	X	OKT_IW-1
		1550		X	IW-2-080617	2	X	OKT_IW-2

6-17-08

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	061708 1620				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Please return cooler to: Weston Solutions Inc C/o Justin Warrington 1 Wall St Manchester NH 03101	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

INSTRUMENT CALIBRATION/MAINTENANCE LOG

Date: 6-16-08 Time: 0800 | Field Personnel: J. Warrington

Function	Temp. of Standard	Value of Standard	Initial Reading	Calibrated To	Comments
YSI Meter: (Model 600XL) or Model 6820 (circle one)			Sonde Type and Serial No. 600XL		01E0374
Specific Conductance (1 ms/cm)	19.64	1.413	1.450	1.413	2nd Solution check = 14.00
Conductivity Cell Constant (see *)			4.68627		Range: 4.6 to 5.45
Oxidation-Reduction Potential (mV)	20.12	240	244.3	240.0	Type - Zobell or Other _____
pH calibrated (at pH 7)	18.87	7	6.93	7	2nd Solution check = 7.06
pH mV for pH 7 solution			-19.1		Range: -40 to 40 mV
pH calibrated (at pH 10)	18.34	10	10.07	10.01	
pH mV for pH 10 solution			-200.8		Range: -140 to -220 mV
pH calibrated (at pH 4)	19.34	4	4.09	4	
pH mV for pH 4 solution			168		Range: 140 to 220 mV
Dissolved Oxygen (% sat)	18.93	100	99	100	**Allow 10 minutes for stabilization**
Dissolved Oxygen Charge			67.6		Range: 25 to 75
Dissolved Oxygen Gain (see *)			1.05874		Range: 0.8 to 1.7
Dissolved Oxygen (Zero DO check)	19.31	0	<0.1		Less than 0.5 mg/L

Additional Information for Dissolved Oxygen Calibration/Probe Check

Barometric Pressure: 760.0 mm Hg ** [BP inches _____ x 25.4 + BP _____ mm Hg]

Inspected DO membrane for nicks or bubbles Date: 6/16 Personnel: JW

Function	Temp. of Standard	Value of Standard	Initial Reading	Within 5% (yes/no)	Comments
HACH 2100 Turbidimeter			Serial Number: 0706C024001		
0 NTU standard		<0.1	0.11	Yes	
5 - 20 NTUs standard		20	20.7	Yes	
20 - 100 NTUs standard		100	101	Yes	

End of Day Calibration Check		Value of Standard	Initial Reading	Comments
Date: 6/16 Time: 1805				
pH 7 solution		7	6.95	
Specific conductivity solution		1.413	1.350	
Turbidimeter		20	20.6	

* To display Conductivity Cell Constant and Dissolved Oxygen Charge (DO ch) on 650 MDS: go to "Sonde Menu", "Advanced", "Cal Constants"

INSTRUMENT CALIBRATION/MAINTENANCE LOG

Date: 6·16·08 Time: 0800 | Field Personnel: A. Fuller

Function	Temp. of Standard	Value of Standard	Initial Reading	Calibrated To	Comments
YSI Meter: Model 600XL or Model 6820 (circle one)			**Sonde Type and Serial No.** 600XL 01K643		
Specific Conductance (1 ms/cm)	20.40	1.413	1.463	1.413	2nd Solution check = 1405
Conductivity Cell Constant (see *)			4.84782		Range: 4.6 to 5.45
Oxidation-Reduction Potential (mV)	19.77	240	244.3	240.1	Type - Zobell or Other
pH calibrated (at pH 7)	19.74	7	7	7	2nd Solution check = 7.03
pH mV for pH 7 solution			21.3		Range: -40 to 40 mV
pH calibrated (at pH 10)	19.19	10	9.99	10	
pH mV for pH 10 solution			-191		Range: -140 to -220 mV
pH calibrated (at pH 4)	19.03	4	3.99	4.00	
pH mV for pH 4 solution			197		Range: 140 to 220 mV
Dissolved Oxygen (% sat)	19.17	100	100.3	100	**Allow 10 minutes for stabilization**
Dissolved Oxygen Charge			39		Range: 25 to 75
Dissolved Oxygen Gain (see *)			1.0028		Range: 0.8 to 1.7
Dissolved Oxygen (Zero DO check)	19.23	0	<0.1		Less than 0.5 mg/L

Additional Information for Dissolved Oxygen Calibration/Probe Check

Barometric Pressure: 749.1 mm Hg ** [BP inches _____ x 25.4 + BP _____ mm Hg]

Inspected DO membrane for nicks or bubbles Date: 6/16/08 Personnel: AF

Function	Temp. of Standard	Value of Standard	Initial Reading	Within 5% (yes/no)	Comments
HACH 2100 Turbidimeter		**Serial Number:** 03100003796			
0 NTU standard		<0.1	0.16	~~Yes~~ No	
5 - 20 NTUs standard		20	20.9	Yes	
20 - 100 NTUs standard		100	101	Yes	

End of Day Calibration Check		Value of Standard	Initial Reading	Comments
Date: 6/16 **Time:** 1805				
pH 7 solution		7	7.10	
Specific conductivity solution		1.413	1.375	
Turbidimeter		20	20.8	

* To display Conductivity Cell Constant and Dissolved Oxygen Charge (DO ch) on 650 MDS: go to "Sonde Menu", "Advanced", "Cal Constants"

INSTRUMENT CALIBRATION/MAINTENANCE LOG

Date: 6/17 Time: 0730 Field Personnel: AF

Function	Temp. of Standard	Value of Standard	Initial Reading	Calibrated To	Comments
YSI Meter: Model 600XL or Model 6820 (circle one)			**Sonde Type and Serial No.** 01K0643 AA		
Specific Conductance (1 ms/cm)	19.16	1.413	1.393	1.413	2nd Solution check = 1.393
Conductivity Cell Constant (see *)			4.91522		Range: 4.6 to 5.45
Oxidation-Reduction Potential (mV)	18.97	240	244.5	240	Type - Zobell or Other Pine
pH calibrated (at pH 7)	19.06	7	7.02	7.00	2nd Solution check = 6.99
pH mV for pH 7 solution					Range: -40 to 40 mV
pH calibrated (at pH 10)	17.94	10	9.99	10.00	
pH mV for pH 10 solution			-186.4		Range: -140 to -220 mV
pH calibrated (at pH 4)	19.25	4	4.02	3.99	
pH mV for pH 4 solution			154.2		Range: 140 to 220 mV
Dissolved Oxygen (% sat)	17.69	100	92.9	98.1	**Allow 10 minutes for stabilization**
Dissolved Oxygen Charge			35.9		Range: 25 to 75
Dissolved Oxygen Gain (see *)			1.05975		Range: 0.8 to 1.7
Dissolved Oxygen (Zero DO check)	18.95	0	<0.10		Less than 0.5 mg/L

Additional Information for Dissolved Oxygen Calibration/Probe Check

Barometric Pressure: 745.8 mm Hg ** [BP inches _____ x 25.4 + BP _____ mm Hg]

Inspected DO membrane for nicks or bubbles Date: 6/17/08 Personnel: AF

Function	Temp. of Standard	Value of Standard	Initial Reading	Within 5% (yes/no)	Comments
HACH 2100 Turbidimeter			**Serial Number:** 0706C024001		
0 NTU standard		<0.1	0.09	yes	
5 - 20 NTUs standard		20	20.3	yes	
20 - 100 NTUs standard		100	99.8	yes	

End of Day Calibration Check		Value of Standard	Initial Reading	Comments
Date: **Time:**				
pH 7 solution		7.01	6.93	
Specific conductivity solution		1.413	1.393	
Turbidimeter		20	20.5	

* To display Conductivity Cell Constant and Dissolved Oxygen Charge (DO ch) on 650 MDS: go to "Sonde Menu", "Advanced", "Cal Constants"

INSTRUMENT CALIBRATION/MAINTENANCE LOG

Date: 6/17/08 Time: 0730 Field Personnel: JW

Function	Temp. of Standard	Value of Standard	Initial Reading	Calibrated To	Comments
YSI Meter: Model 600XL or Model 6820 (circle one)			Sonde Type and Serial No. 01E0374 AK		
Specific Conductance (1 ms/cm)	19.17	1.413	1.370	1.413	2nd Solution check = 1.369
Conductivity Cell Constant (see *)			4.83406		Range: 4.6 to 5.45
Oxidation-Reduction Potential (mV)	19.20	240	240.6	240	Type - Zobell or Other Pine
pH calibrated (at pH 7)	19.11	7	6.99	7	2nd Solution check = 7.10
pH mV for pH 7 solution			-31.0		Range: -40 to 40 mV
pH calibrated (at pH 10)	17.76	10	9.99	10	
pH mV for pH 10 solution			-193.1		Range: -140 to -220 mV
pH calibrated (at pH 4)	19.25	4	4.00	3.99	
pH mV for pH 4 solution			154.2		Range: 140 to 220 mV
Dissolved Oxygen (% sat)	17.65	100	94.1	100	**Allow 10 minutes for stabilization**
Dissolved Oxygen Charge			56.3		Range: 25 to 75
Dissolved Oxygen Gain (see *)			1.1249		Range: 0.8 to 1.7
Dissolved Oxygen (Zero DO check)	17.97	0	0.40		Less than 0.5 mg/L

Additional Information for Dissolved Oxygen Calibration/Probe Check

Barometric Pressure: 760 mm Hg ** [BP inches _____ x 25.4 + BP _____ mm Hg]

Inspected DO membrane for nicks or bubbles Date: 6/17 Personnel: AB

Function	Temp. of Standard	Value of Standard	Initial Reading	Within 5% (yes/no)	Comments
HACH 2100 Turbidimeter		Serial Number: 03100003296			
0 NTU standard		<0.1	0.11	yes	
5 - 20 NTUs standard		20	20.7	yes	
20 - 100 NTUs standard		100	101	yes	
End of Day Calibration Check		**Value of Standard**	**Initial Reading**		**Comments**
Date: Time:					
pH 7 solution		7.01	6.92		
Specific conductivity solution		1.413	1.399		
Turbidimeter		20	19.2		

* To display Conductivity Cell Constant and Dissolved Oxygen Charge (DO ch) on 650 MDS: go to "Sonde Menu", "Advanced", "Cal Constants"

INSTRUMENT CALIBRATION/MAINTENANCE LOG

Date: 6/18 Time: 0715 Field Personnel: JW

Function	Temp. of Standard	Value of Standard	Initial Reading	Calibrated To	Comments
YSI Meter: Model 600XL or Model 6820 (circle one)			Sonde Type and Serial No.	650 MDS 01E0374 AC	
Specific Conductance (1 ms/cm)	17.98	1.413	1.417	1.413	2nd Solution check = 1.387
Conductivity Cell Constant (see *)			4.81		Range: 4.6 to 5.45
Oxidation-Reduction Potential (mV)	18.38	240	242.4	240	Type - Zobell or Other Pine
pH calibrated (at pH 7)	17.95	7	7.01	7	2nd Solution check = 7.08
pH mV for pH 7 solution			-31.7		Range: -40 to 40 mV
pH calibrated (at pH 10)	17.36	10	9.96	10	
pH mV for pH 10 solution			-196.4		Range: -140 to -220 mV
pH calibrated (at pH 4)	17.55	4	3.99	4	
pH mV for pH 4 solution			135.7		Range: 140 to 220 mV
Dissolved Oxygen (% sat)	16.53	100	107.0	100	**Allow 10 minutes for stabilization**
Dissolved Oxygen Charge			57.4		Range: 25 to 75
Dissolved Oxygen Gain (see *)			1.05		Range: 0.8 to 1.7
Dissolved Oxygen (Zero DO check)	17.56	0	0.17		Less than 0.5 mg/L

Additional Information for Dissolved Oxygen Calibration/Probe Check

Barometric Pressure: 760 mm Hg ** [BP inches _____ x 25.4 + BP _____ mm Hg]

Inspected DO membrane for nicks or bubbles Date: 6/18 Personnel: AF

Function	Temp. of Standard	Value of Standard	Initial Reading	Within 5% (yes/no)	Comments
HACH 2100 Turbidimeter		Serial Number:	07060C02400 1		
0 NTU standard		<0.1	0.13	No	(still w/in 15%)
5 - 20 NTUs standard		~~20.5~~ 20	20.5	Yes	
20 - 100 NTUs standard		100	99.9	Yes	

End of Day Calibration Check		Value of Standard	Initial Reading	Comments
Date: 6/18 Time: 1630				
pH 7 solution		7.01	6.95	
Specific conductivity solution		1.413	1.372	
Turbidimeter		20	19.3	

* To display Conductivity Cell Constant and Dissolved Oxygen Charge (DO ch) on 650 MDS: go to "Sonde Menu", "Advanced", "Cal Constants"

INSTRUMENT CALIBRATION/MAINTENANCE LOG

Date: 6/18 Time: 0745 Field Personnel: AF

Function	Temp. of Standard	Value of Standard	Initial Reading	Calibrated To	Comments
YSI Meter: Model 600XL or Model 6820 (circle one)			**Sonde Type and Serial No.** 650MDS 01K0413		
Specific Conductance (1 ms/cm)	17.50	1.413	1.397	1.413	2nd Solution check = 1.413
Conductivity Cell Constant (see *)			4.97		Range: 4.6 to 5.45
Oxidation-Reduction Potential (mV)	17.81	240	240.1	240	Type - Zobell or Other Pine
pH calibrated (at pH 7)	18.35	7	7.05	7	2nd Solution check 6.97
pH mV for pH 7 solution			-26.8		Range: -40 to 40 mV
pH calibrated (at pH 10)	18.40	10	10.00	10	
pH mV for pH 10 solution			-185.7		Range: -140 to -220 mV
pH calibrated (at pH 4)	18.33	4	3.95	4	
pH mV for pH 4 solution			155.4		Range: 140 to 220 mV
Dissolved Oxygen (% sat)	16.25	100	95.8	98.9	**Allow 10 minutes for stabilization**
Dissolved Oxygen Charge			36.9		Range: 25 to 75
Dissolved Oxygen Gain (see *)			1.08		Range: 0.8 to 1.7
Dissolved Oxygen (Zero DO check)	18.37	0	0.15		Less than 0.5 mg/L

Additional Information for Dissolved Oxygen Calibration/Probe Check

Barometric Pressure: 745.6 mm Hg ** [BP inches _____ x 25.4 + BP _____ mm Hg]

Inspected DO membrane for nicks or bubbles Date: 6/18 Personnel: AF

Function	Temp. of Standard	Value of Standard	Initial Reading	Within 5% (yes/no)	Comments
HACH 2100 Turbidimeter		**Serial Number:** 03100030796			
0 NTU standard		<0.1	0.11	Yes	
5 - 20 NTUs standard		20	20.8	Yes	
20 - 100 NTUs standard		100	101	Yes	

End of Day Calibration Check		Value of Standard	Initial Reading	Comments
Date: 6/18 **Time:** 1630				
pH 7 solution		7	6.95	
Specific conductivity solution		1.413	1.3	
Turbidimeter		20	20.6	

* To display Conductivity Cell Constant and Dissolved Oxygen Charge (DO ch) on 650 MDS: go to "Sonde Menu", "Advanced", "Cal Constants"

INSTRUMENT CALIBRATION/MAINTENANCE LOG

Date: 6/19 Time: 0720 Field Personnel: ~~NR~~ JW

Function	Temp. of Standard	Value of Standard	Initial Reading	Calibrated To	Comments
YSI Meter: Model 600XL or Model 6820 (circle one)			**Sonde Type and Serial No.** 650MDS 01E0374 AC		
Specific Conductance (1 ms/cm)	18.33	1.413	1.405	1.413	2nd Solution check = 1.404
Conductivity Cell Constant (see *)			4.84565		Range: 4.6 to 5.45
Oxidation-Reduction Potential (mV)	18.37	240	239.4	240	Type - Zobell or Other Pine
pH calibrated (at pH 7)	17.88	7	7.07	7	2nd Solution check = 7.00
pH mV for pH 7 solution			-35.0		Range: -40 to 40 mV
pH calibrated (at pH 10)	17.82	10	9.95	10	
pH mV for pH 10 solution			-198.9		Range: -140 to -220 mV
pH calibrated (at pH 4)	17.53	4	3.95	4	
pH mV for pH 4 solution			131.8		Range: 140 to 220 mV
Dissolved Oxygen (% sat)	17.64	100	100.7	100	**Allow 10 minutes for stabilization**
Dissolved Oxygen Charge			56.3		Range: 25 to 75
Dissolved Oxygen Gain (see *)			1.0401		Range: 0.8 to 1.7
Dissolved Oxygen (Zero DO check)	17.89	<0.5 → 0			Less than 0.5 mg/L

Additional Information for Dissolved Oxygen Calibration/Probe Check

Barometric Pressure: 760.0 mm Hg ** [BP inches _____ x 25.4 + BP _____ mm Hg]

Inspected DO membrane for nicks or bubbles Date: 6/19 Personnel: NR

Function	Temp. of Standard	Value of Standard	Initial Reading	Within 5% (yes/no)	Comments
HACH 2100 Turbidimeter		**Serial Number:** 0706000 24001			
0 NTU standard		<0.1	0.11	~~Yes~~ No →	close for <1
5 - 20 NTUs standard		20	20.5	Yes	
20 - 100 NTUs standard		100	99.8	Yes	

End of Day Calibration Check		Value of Standard	Initial Reading		Comments
Date: 6/19 **Time:** 1830					
pH 7 solution		7	6.93		
Specific conductivity solution		1.413	1.402		
Turbidimeter		20	20.6	Yes	

* To display Conductivity Cell Constant and Dissolved Oxygen Charge (DO ch) on 650 MDS: go to "Sonde Menu", "Advanced", "Cal Constants"

INSTRUMENT CALIBRATION/MAINTENANCE LOG

Date: 6/19/08 Time: 0720 Field Personnel: AF

Function	Temp. of Standard	Value of Standard	Initial Reading	Calibrated To	Comments
YSI Meter: Model 600XL or Model 6820 (circle one)			**Sonde Type and Serial No.** 650MDS 01K0643 AA		
Specific Conductance (1 ms/cm)	18.05	1.413	1.418	1.413	2nd Solution check = 1.413
Conductivity Cell Constant (see *)			4.94652		Range: 4.6 to 5.45
Oxidation-Reduction Potential (mV)	17.65	240	238.2	240	Type - Zobell or Other _____
pH calibrated (at pH 7)	18.73	7	7.01	7	2nd Solution check = 7.00
pH mV for pH 7 solution			-22.4		Range: -40 to 40 mV
pH calibrated (at pH 10)	18.55	10	9.96	10	
pH mV for pH 10 solution			-188.2		Range: -140 to -220 mV
pH calibrated (at pH 4)	18.44	4	4.00	4	
pH mV for pH 4 solution			152.9		Range: 140 to 220 mV
Dissolved Oxygen (% sat)	17.47	100	99.5	100	**Allow 10 minutes for stabilization**
Dissolved Oxygen Charge			36.9		Range: 25 to 75
Dissolved Oxygen Gain (see *)			1.07475		Range: 0.8 to 1.7
Dissolved Oxygen (Zero DO check)	18.57	0	0.13		Less than 0.5 mg/L

Additional Information for Dissolved Oxygen Calibration/Probe Check

Barometric Pressure: 749 mm Hg ** [BP inches _____ x 25.4 + BP _____ mm Hg]

Inspected DO membrane for nicks or bubbles Date: 6/19 Personnel: AF

Function	Temp. of Standard	Value of Standard	Initial Reading	Within 5% (yes/no)	Comments
HACH 2100 Turbidimeter		**Serial Number:** 0 310000327796			
0 NTU standard		<0.1	0.11	No	Close for <1
5 - 20 NTUs standard		20	20.8	Yes	
20 - 100 NTUs standard		100	99.0	Yes	

End of Day Calibration Check		Value of Standard	Initial Reading	Comments
Date: 6/19 **Time:** 1830				
pH 7 solution		7	6.94	
Specific conductivity solution		1.413	1.408	
Turbidimeter		20	20.5	

* To display Conductivity Cell Constant and Dissolved Oxygen Charge (DO ch) on 650 MDS: go to "Sonde Menu", "Advanced", "Cal Constants"

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: CI

LOCATION: Milford, NH

SAMPLING CREW: JW | DATE: 6-19-08 | SAMPLE TIME: 1147

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic

INITIAL DTW: 18.59 (FT) | WELL DEPTH: (FT) | Well Diameter: 4"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1053	18.59	222	0 / 0	14.63	401	5.80	312.5	4.92	10.9	
1103	18.59	222	0 / 0	12.12	385	5.54	361.0	0.73	2.35	
1108	18.59	222	0 / 0	12.06	385	5.54	368.9	0.70	2.11	
1113	18.59	222	0 / 0	12.16	384	5.51	376.7	0.68	5.07	
1118	18.59	222	0 / 0	11.97	383	5.50	383.7	0.66	4.42	
1123	18.59	222	0 / 0	12.10	383	5.49	391.6	0.63	4.03	
1128	18.59	222	0 / 0	12.02	385	5.43	400.2	0.65	3.77	
1133	18.59	222	0 / 0	12.03	386	5.47	405.3	0.66	2.99	
1138	18.59	222	0 / 0	11.99	388	5.53	404.0	0.66	2.75	
1143	18.59	222	0 / 0	12.07	388	5.53	406.6	0.66	2.79	
Sampled for VOCs @ 1147										

6-19-08

JW

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.07 (°C) | ORP: 406.6 (MV) | COMMENTS:

SPECIFIC CONDUCTANCE: 388 (uS/cm) | DO: 0.66 (mg/L)

pH: 5.53 (S.U.) | TURBIDITIY: 2.79 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, colorless, odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: 275°F, sunny, breezy

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID CJ

DATE: 6-19-08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations: Measured out tubing to 55', it is marked "blue" on top

6-19-08

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: NCP

LOCATION: Milford, NH

SAMPLING CREW: JW | DATE: 6.19.08 | SAMPLE TIME: 1304

PURGING DATA

REFERENCE POINT (CIRCLE): (PVC) Outer Steel Casing | PURGING DEVICE: Peristaltic

INITIAL DTW: 18.70 (FT) | WELL DEPTH: (FT) | Well Diameter: 4"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1203	18.70	170	0 / 0	12.17	347	6.10	391.1	0.30	10.7	Yellow/ Brown Flakes
1216	18.70	170	0 / 0	12.20	346	5.93	441.8	0.62	9.82	Cleared up, Flakes Remain
1221	18.70	170	0 / 0	11.98	346	6.02	441.7	0.59	13.1	
1226	18.70	170	0 / 0	11.96	346	6.00	444.2	0.58	16.3	
1231	18.70	170	0 / 0	12.01	346	5.97	453.8	0.57	16.3	
1236	18.70	170	0 / 0	12.08	346	5.85	459.8	0.57	12.2	
1241	18.70	170	0 / 0	12.21	346	5.86	466.4	0.66	14.1	
1246	18.70	170	0 / 0	12.23	346	5.86	470.1	0.62	12.4	
1251	18.70	170	0 / 0	12.07	346	5.88	473.5	0.59	11.8	
1256	18.70	170	0 / 0	11.85	346	5.91	473.8	0.56	10.9	
1301	18.70	170	0 / 0	12.05	346	5.97	473.2	0.56	11.3	

Sample Collected for VOCs @ 1304

6.19.08

JW

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.05 (°C) | ORP: 473.2 (MV) | COMMENTS:

SPECIFIC CONDUCTANCE: 346 (uS/cm) | DO: 0.56 (mg/L)

pH: 5.97 (S.U.) | TURBIDITIY: 11.3 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Brown Flake suspension, clear odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ~75°F, Sunny, Lt. Breeze

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID NCP

DATE: 6-19-08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations: Installed 55' of tubing from top of outer casing. Tubing secured w/ rope & zip tie. Used designated weight from PDB sampling rope to weigh down tubing

6-19-08

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: SVE-2

LOCATION: Milford, NH

SAMPLING CREW: JW | DATE: 6-17-08 | SAMPLE TIME: 1016

PURGING DATA

REFERENCE POINT (CIRCLE): PVC (Steel Casing) | PURGING DEVICE: Peristaltic

INITIAL DTW: 19.32 (FT) | WELL DEPTH: (FT) | Well Diameter: 8"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
0933	19.32	104	0 / 0	16.13	333	6.20	166.4	4.88		
0943	19.33	104	0.01 / 0.01	12.16	303	5.99	198.1	1.69	10.4	
0948	19.33	104	0 / 0.01	12.24	303	5.99	208.1	1.59	6.95	
0953	19.33	104	0 / 0.01	12.36	302	5.98	209.5	1.39	5.12	
0958	19.33	104	0 / 0.01	12.23	303	5.99	217.3	1.36	3.99	
1003	19.33	104	0 / 0.01	12.31	302	5.98	234.4	1.29	4.39	
1008	19.33	104	0 / 0.01	12.04	302	5.96	239.1	1.22	3.81	
1013	19.33	104	0 / 0.01	12.26	302	5.97	241.1	1.20	3.98	
Sampled for VOCs @				1016						

6-17-08

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.26 (°C) | ORP: 241.1 (MV) | COMMENTS:

SPECIFIC CONDUCTANCE: 302 (uS/cm) | DO: 1.20 (mg/L)

pH: 5.97 (S.U.) | TURBIDITIY: 3.98 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear colorless odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ~70°F Sunny, Lt Breeze

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID SVE-2

DATE: 6-17-08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations:

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: MW-2A
LOCATION: Milford, NH
SAMPLING CREW: AF | DATE: 6/18/08 | SAMPLE TIME: 1145

PURGING DATA

REFERENCE POINT (CIRCLE): PVC (Steel Casing) | PURGING DEVICE: Peristaltic
INITIAL DTW: 9.05 (FT) | WELL DEPTH: (FT) | Well Diameter: 2" 30

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1058	9.10	82	0.05/0.05	14.00	69	7.45	37.9	4.06	<1	
1103	9.11		0.01/0.06	11.45	73	6.78	52.4	2.30	<1	
1108	9.11		0	11.35	77	6.18	73.4	1.40	<1	
1113	9.11			11.10	78	5.87	120.6	1.29	<1	
1118	9.11			10.91	78	5.35	199.7	1.16	<1	
1123	9.11			10.78	79	4.66	233.1	0.98	<1	
1128				10.56	79	4.94	213.3	0.94	<1	
1133				10.53	79	5.02	215.2	0.91	<1	
1138				10.50	79	5.04	216.0	0.89	<1	
1143				10.48	78	5.06	218.1	0.88	<1	
1145	Sample									

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 10.48 (°C) | ORP: 218.1 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 78 (uS/cm) | DO: 0.88 (mg/L)
pH: 5.06 (S.U.) | TURBIDITY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear. No odor | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: Partly Cloudy.

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID MW-2A

DATE: 6/18/09

WELL CONDITION DATA

Protective Casing Present: Y N
Protective Casing Locked: Y N
Physical Damage: Y N
If yes, Describe:

Concrete Pad Present: Y N
Standing Water: Y N

Cap on Riser: Y N
Visible Heaving: Y N

Field Notes/Observations:

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: MW-2B
LOCATION: Milford, NH
SAMPLING CREW: AF | DATE: 6/18 | SAMPLE TIME: 1242

PURGING DATA

REFERENCE POINT (CIRCLE): PVC (Steel Casing) | PURGING DEVICE: Peristaltic
INITIAL DTW: 8.99 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1155	9.23	75	0.24 / 0.24	12.80	88	5.93	219.6	4.65	<1	
1200	9.21		-0.02 / 0.22	12.09	88	5.90	221.9	4.03	<1	
1205	9.20		-0.01 / 0.21	10.87	87	5.92	87.7	1.81	<1	
1210	9.20		0 / 0.21	10.86	86	5.93	79.8	1.15	<1	
1215	9.20		0	10.81	86	5.95	75.6	0.87	<1	
1220				10.68	86	5.96	74.3	0.75	<1	
1225				10.57	86	5.92	72.7	0.63	<1	
1230				10.83	86	5.93	71.9	0.54	<1	
1235				10.86	86	5.93	72.2	0.53	<1	
1240				10.89	87	5.92	73.5	0.53	<1	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 10.89 (°C) | ORP: 73.5 (MV) | COMMENTS: OK... MW-2B @1242 [illegible]
SPECIFIC CONDUCTANCE: 87 (uS/cm) | DO: 0.53 (mg/L)
pH: 5.92 (S.U.) | TURBIDITY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear no odors | TOTAL DEPTH OF WELL:
WEATHER CONDITIONS: Cloudy 75°

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID MW-2B

DATE: 6/18

WELL CONDITION DATA

Protective Casing Present: Y N
Protective Casing Locked: Y N
Physical Damage: Y N
If yes, Describe:

Concrete Pad Present: Y N
Standing Water: Y N

Cap on Riser: Y N
Visible Heaving: Y N

Field Notes/Observations: Not most under cap. Poison Ivy area.

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool
PROJECT #: 20111.023
WELL ID: MW-2R
LOCATION: Milford, NH
SAMPLING CREW: AF
DATE: 6/18/08
SAMPLE TIME: 1045

~~HH~~ ~~HH~~ 111 50 0.37

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing
PURGING DEVICE: Peristaltic
INITIAL DTW: 9.36 (FT)
WELL DEPTH: 166 (FT)
Well Diameter: 3"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1005	9.48	20	0.12 0.12	13.30	157	7.95	-14.8	2.89	5.27	
1010	9.64		0.16 0.28	13.24	152	8.06	-14.0	2.15	3.57	
1015	9.72		0.08 0.36	14.41	150	8.19	-11.9	2.92	3.09	
1020	9.75		0.03 0.39	15.24	148	8.38	-27.9	2.34	2.41	
1025	9.81		0.06 0.45	15.88	147	8.49	-38.5	2.78	1.71	
1030	9.86		0.05 0.50	16.29	147	8.53	-48.4	2.61	1.57	
1035	9.90		0.04 0.54	16.45	147	8.55	-51.2	2.74	1.61	
1040	9.93		0.03 0.57	16.50	147	8.56	-56.5	2.67	1.53	
Sample @ 1045										
6/19/08										
1213	9.22	~~110~~		12						Cum Purge
1217	9.67	110	0.35 0.35	12.67	164	8.90	164.6	5.37	9.64	~~500~~
1222	9.89	110	0.32 0.67	10.73	167	8.05	203.0	3.64	10.3	~~400~~ 550
1227	10.20	110	0.31 0.98	10.67	171	7.69	229.8	2.93	13.8	~~550~~ 1100
1232	10.47	110	0.27 1.25	10.92	169	7.54	243.8	2.01	14.2	1650
1235	Sample		OKT MW-2R	(EVAC)						
Final	10.68									

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 16.50 (°C)
ORP: -56.5 (MV)
COMMENTS: OKT_MW-2R
SPECIFIC CONDUCTANCE: 147 (uS/cm)
DO: 2.67 (mg/L)
pH: 8.56 (S.U.)
TURBIDITY: 1.53 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear, no odors
TOTAL DEPTH OF WELL: 166

WEATHER CONDITIONS: Sunny 75°

9.34

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID MW-2R

DATE: 6/18

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations: Poison Ivy + Ticks! Sample well, then perform well evacuation

DTB=116 = 106.64 ft of water column. X 0.37 = 39.5 gal = 1 well volume.

Pump @ 150 ft bgs WT @ 8.12

1138 start purge → 1215 - 52 gallons purged WT @ 127 ft btoc

TB30 - Well dry after 67 gallons.

Readings post purge

Temp	SC	pH	ORP	DO	Turb
12.78	150	7.10	108.2	6.22	25.6

Leave both tubing sets in well. Attach weight to small tubing

23

1213 on 6/19 DTW = 9.22 1 tubing volume = 1.6 liters

SAMPLER'S SIGNATURE: [signature]

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: MW-16R
LOCATION: Milford, NH
SAMPLING CREW: AP | DATE: 6/19/08 | SAMPLE TIME: 1405

PURGING DATA

REFERENCE POINT (CIRCLE): PVC | Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 9.34 (FT) | WELL DEPTH: 138 (FT) | Well Diameter: 6"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1310	9.40	36	0.06/0.06	21.35	195	8.67	117.3	4.21	2.04	
1315	9.43	38	0.03/0.09	20.48	190	8.95	36.6	3.31	1.12	
1320	9.45		0.02/0.11	20.56	190	9.13	-12.2	2.93	<1.0	
1325	9.48		0.02/0.14	20.58	190	9.19	-30.7	2.73	<1.0	
1330	9.49		0.01/0.15	19.86	190	9.31	-32.9	2.47	<1.0	
1335	9.50		0.01/0.16	19.78	191	9.33	-26.7	2.33	<1.0	
1340	9.51		0.01/0.17	19.80	191	9.35	-24.2	2.22	<1.0	
1345	9.52		0.01/0.18	19.99	191	9.36	-16.9	2.07	<1.0	
1350	9.54	V	0.02/0.20	20.45	191	9.37	-14.0	1.98	<1.0	
1355	9.55		0.01/0.21	20.79	192	9.39	-12.3	1.96	<1.0	
1400	9.56		0.01/0.22	20.86	193	9.41	-12.8	1.95	<1.0	
1405	Collect sample for VOCs/8260									
MW-16R	EVAC 6/19/08									
1753	21.15		well has recharged > 75%							Total purge 7 l tubing volume = 1.33 liters
1803	20.26	110	-0.89 -0.89	21.12	188	8.09	106.9	3.12	10.9	well is recharge > pump rate.
1808	19.60		-0.66 -1.55	16.03	266	7.68	22.1	1.32	7.6	
1813	19.27		-0.33 -1.88	15.37	272	7.42	13.1	0.45	2.94	
1815	Collect Sample, OKT_MW-16R (EVAC									

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 20.86 (°C) | ORP: -12.8 (MV) | COMMENTS: OKT_MW-16R
SPECIFIC CONDUCTANCE: 193 (uS/cm) | DO: 1.95 (mg/L)
pH: 9.41 (S.U.) | TURBIDITIY: <1.0 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: | TOTAL DEPTH OF WELL: 138

WEATHER CONDITIONS: 75-80° Sunny

9.34/138 21.15/138

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID MW-16R

DATE: 6/19/08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y	N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y	N
Physical Damage:	Y	N						

If yes, Describe:

Field Notes/Observations: After sounding perform evac on well. 123ft x 1.47 gal/ft = 182 gal
Maximum drawdown is to 95ft DTW w/pump = 8.97
1410 Start Pumping 8.97ft btoc
1423 55 gal purged drawdown ~43ft btoc Pump set @ 120ft btoc.
1435 110 gal purged drawdown ~67ft
1450 165 gal purged drawdown ~88.5ft Purge to 95ft btoc
1455 190 gal purged drawdown ~95ft

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool
PROJECT #: 20111.023
WELL ID: PW-2M
LOCATION: Milford, NH
SAMPLING CREW: AF
DATE: 6/17/08
SAMPLE TIME: 1320

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing
PURGING DEVICE: Peristaltic
INITIAL DTW: 10.06 (FT)
WELL DEPTH: 57.70 (FT)
Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1242	10.06	134	0 / 0	17.58	365	5.94	392.0	9.39	1.54	
1247	10.07		0.01 / 0.01	11.69	416	5.26	402.0	9.88	1.10	
1252			0 /	11.52	426	5.20	426.4	9.67	<1	
1257			/	11.51	432	5.18	436.1	9.55	<1	
1302	10.07		/	11.46	444	5.13	442.0	9.41	1.25	
1307			/	11.42	440	5.18	444.0	9.48	<1	
1312			V / V	11.42	438	5.22	445.8	9.46	<1	
1317			/	11.27	437	5.23	449.6	9.42	<1	
			/							
1320	Sample		/							

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 11.27 (°C)
ORP: 449.6 (MV)
COMMENTS: Sample OKT_PW-2M for 8260
SPECIFIC CONDUCTANCE: 437 (uS/cm)
DO: 9.42 (mg/L)
pH: 5.23 (S.U.)
TURBIDITIY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear no odors
TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: Mostly Sunny 75°

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-2M

DATE: 6/17

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations:

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-2D

LOCATION: Milford, NH

SAMPLING CREW: AF | DATE: 6/17 | SAMPLE TIME: 1418

Robin M. 271 737 07 40

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic

INITIAL DTW: 13.16 (FT) | WELL DEPTH: 104 (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1336	13.16	132	0.01/0.01	13.94	391	5.82	442.4	5.03	1.27	
1341		132	/	12.49	393	5.67	450.1	3.69	<1	
1346		130	/	12.20	443	5.12	465.2	3.84	<1	
1351		130	/	12.41	457	4.71	481.3	4.14	<1	
1356		128	/	12.50	474	4.49	491.8	4.44	<1	
1401		128	/	12.79	474	4.47	502.2	4.40	<1	
1406		132	/	12.58	474	4.52	504.6	4.50	<1	
1408		130	/	12.35	474	4.51	509.2	4.56	<1	
1416		130	/	12.61	474	4.49	511.2	4.53	<1	
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Sample @ 1418

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.61 (°C) | ORP: 511.2 (MV) | COMMENTS: Sample OKT_PW-2D for VOCs

SPECIFIC CONDUCTANCE: 474 (uS/cm) | DO: 4.53 (mg/L)

pH: 4.49 (S.U.) | TURBIDITIY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear | TOTAL DEPTH OF WELL: 104

WEATHER CONDITIONS: Mostly sunny 75°

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-2D

DATE: 6/17

WELL CONDITION DATA

Protective Casing Present: Y N
Protective Casing Locked: Y N
Physical Damage: Y N
If yes, Describe:

Concrete Pad Present: Y N
Standing Water: Y N

Cap on Riser: Y N
Visible Heaving: Y N

Field Notes/Observations:

SAMPLER'S SIGNATURE:

LOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-2R
LOCATION: Milford, NH
SAMPLING CREW: AF | DATE: 6/17 | SAMPLE TIME: 1540

PURGING DATA
REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 13.55 (FT) | WELL DEPTH: 113 (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1455	13.80	20	0.30 0.30	23.44	527	10.95	212.2	3.71	<1	
1500	14.00	18	0.15 0.45	23.44	519	10.95	204.8	3.61	<1	
1505	14.00	20	0 0.45	24.47	528	10.93	200.1	3.61	<1	
1510	14.00		0 0.45	24.83	544	10.91	208.4	3.42	<1	
1515	14.02		0.02 0.47	24.67	585	10.95	212.5	2.94	<1	
1520	14.04		0.02 0.49	23.89	593	10.99	209.7	2.78	<1	
1525	14.05		0.01 0.50	23.27	598	11.00	210.0	2.69	<1	
1530	14.06		0.01 0.51	23.01	601	11.00	210.6	2.67	<1	
1535	14.07		0.01 0.52	22.83	604	11.01	211.3	2.65	<1	
1540										
1545	Sample @ 1540									
1550										
1555										
~~1130~~										
~~1135~~	6/19									
~~1140~~										
1140	13.65	160	0.10 0.10	14.0	677	~~10.73~~	2.3 ~~235~~	7.00	<1	
1145	13.90	100	0.25 0.35	12.41	533	10.59	24.5	5.81	<1	
1150	14.20	100	0.30 0.65	12.39	425	10.42	61.4	2.66	<1	
1160 - Collect Sample										

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA
TEMPERATURE: 22.83 (°C) | ORP: 211.3 (MV) | COMMENTS: OKT_PW-2R
SPECIFIC CONDUCTANCE: 604 (uS/cm) | DO: 2.65 (mg/L)
pH: 11.01 (S.U.) | TURBIDITIY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear no odor | TOTAL DEPTH OF WELL: 113
WEATHER CONDITIONS: Mostly Sunny : 75 → Clouds increasing.

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-2R

DATE: 6/17

WELL CONDITION DATA

Protective Casing Present: Y N
Protective Casing Locked: Y N
Physical Damage: Y N
If yes, Describe:

Concrete Pad Present: Y N
Standing Water: Y N

Cap on Riser: Y N
Visible Heaving: Y N

Field Notes/Observations: Bees nest in housing. Will spray after sampling.
1605 Set grundfos @ 106 ft btoc. DTW = 12.06
Set
Water column = ~~13.55~~ 113 - 13.55 = 99.45 ft x 0.16 = 15.9 gal
Purge 16 gal. Well does dry.
1115 on 6/19 DTW = 11.14 ft Initiate sampling of evac sample
Purge ~ ~~[illegible]~~ = 1.00 liters 1155 tubing and transducer back in well.
Attach weight to tubing.

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool — PROJECT #: 20111.023 — WELL ID: PW-5D

LOCATION: Milford, NH

SAMPLING CREW: AF — DATE: 6/17/08 — SAMPLE TIME: 1110

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing — PURGING DEVICE: Peristaltic

INITIAL DTW: ~~18.37~~ 17.34 (FT) — WELL DEPTH: 106 (FT) — Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1018	17.35	182	0.01 / 0.01	12.06	370	8.66	172.4	3.92	1.13	
1023	17.35	182	0 / 0.01	11.92	360	7.76	200.9	4.09	<1.0	
1028	17.35	184		11.93	358	7.24	212.2	4.85	<1.0	
1033	17.35	180		11.94	358	6.64	226.7	5.08	<1.0	
1038	17.35	178		11.92	358	6.41	232.9	5.09	<1.0	
1043		180		11.90	359	6.10	247.1	5.13	<1.0	
1048		180		11.95	358	5.84	258.2	5.16	<1.0	
1053		182		11.91	358	5.72	263.0	5.14	<1	
1058		174		11.91	358	5.59	271.9	5.18	<1	
1103		178		11.07	358	5.52	276.4	5.17	<1	
1108		178		11.95	358	5.50	279.7	5.18	<1	
1110 – Sample										

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 11.95 (°C) — ORP: 279.7 (MV) — COMMENTS: Sample for VOCs OKT_PW-5D

SPECIFIC CONDUCTANCE: 358 (uS/cm) — DO: 5.18 (mg/L)

pH: 5.50 (S.U.) — TURBIDITIY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear. — TOTAL DEPTH OF WELL: 106

WEATHER CONDITIONS: Sunny 75° Breeze.

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-5D

DATE: 6/17

WELL CONDITION DATA

Protective Casing Present: Y N
Protective Casing Locked: Y N
Physical Damage: Y N
If yes, Describe:

Concrete Pad Present: Y N
Standing Water: Y N

Cap on Riser: Y N
Visible Heaving: Y N

Field Notes/Observations:

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-5R

LOCATION: Milford, NH

SAMPLING CREW: AF | DATE: 6/18 | SAMPLE TIME: 1547

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic

INITIAL DTW: 16.08 (FT) | WELL DEPTH: 130 (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1430	16.98	20	0.90/0.90	20.77	200	7.82	2323	3.90	2.85	Tubing down well 6 short
1435	17.00		0.02/0.92	20.67	196	7.84	236.5	3.75	3.89	
1440	17.15		0.15/1.07	20.71	194	7.90	245.2	3.79	5.12	
1445	17.29		0.14/1.21	20.78	192	7.94	251.7	3.82	4.53	
1450	17.39		0.10/1.31	20.56	183	8.02	261.2	3.58	3.17	
1455	17.40		0.10/1.41	20.20	179	8.09	267.8	3.40	2.09	
1500	17.54		0.15/1.56	20.48	175	8.22	275.4	3.38	1.56	
1505	17.70		0.16/1.72	20.56	174	8.38	278.0	3.32	1.21	
1510	17.96		0.06/1.78	20.09	172	8.50	277.3	3.29	1.21	
1515	17.95		0.09/1.87	19.79	171	8.62	272.0	3.29	1.26	
1520	18.00		0.05/1.92	19.61	170	8.70	264.6	3.19	1.47	
1525	18.05		0.05/1.97	19.59	171	8.86	256.2	3.18	1.56	
1530	18.10		0.05/2.02	19.63	174	8.82	250.2	3.17	1.51	
1535	18.18		0.08/2.10	19.94	171	8.90	247.0	3.36	1.86	
1540	18.25		0.07/2.17	19.75	172	8.93	243.3	3.19	1.69	
1545	18.32		0.07/2.14	19.61	173	8.95	241.2	3.10	1.87	
1547	Sample									

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 19.61 (°C) | ORP: 241.2 (MV) | COMMENTS: OKT_PW-5R for 8260

SPECIFIC CONDUCTANCE: 173 (uS/cm) | DO: 3.10 (mg/L)

pH: 8.95 (S.U.) | TURBIDITIY: 1.87 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear no odors. | TOTAL DEPTH OF WELL: 130

WEATHER CONDITIONS: Mostly Sunny

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-~~85~~ 55

DATE: 6/18

WELL CONDITION DATA

Protective Casing Present: Y N
Protective Casing Locked: Y N
Physical Damage: Y N
If yes, Describe:

Concrete Pad Present: Y N
Standing Water: Y N

Cap on Riser: Y N
Visible Heaving: Y N

Field Notes/Observations: DTW 15.54 Water column = 113.92 x 0.16 = 18.2 gallons

Purge to pump @ 18.5 gal DTW 10.54

Temp	SC	PH	ORP	DO	T
12.76	165	8.01	269.4	3.44	14.8

Purge is Milky.

~~1517~~ 1517 6/19/08 DTW = 16.11 Initiate EVAC Sampling Min Purge = 1.2 liters

Time	DTW	Rate	Drawdown	Temp	Sp Con	pH	ORP	DO	Turb
1522	16.7	90	0.59/0.59	23.10	180	8.68	61.8	6.29	OR Milky
1527	17.31		0.64/1.20	13.64	183	8.53	164.3	2.56	OR
1532	17.98		0.67/1.87	13.13	186	8.30	194.2	1.21	583
1537	18.56		0.58/2.45	13.69	175	8.39	206.9	1.02	124

1540 → Sample OKT_PW-5R (EVAC) T 1547 → Transducer back in well

SAMPLER'S SIGNATURE:

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WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-65

LOCATION: Milford, NH

SAMPLING CREW: AF | DATE: 6/16/08 | SAMPLE TIME: 1555

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PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic

INITIAL DTW: 21.66 (FT) | WELL DEPTH: 30 (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1523	21.67	138	0.01/0.01	13.21	347	5.50	359.9	2.77	4.02	
1528	21.66	140	-0.01/0	12.31	340	5.23	390.1	0.90	1.67	
1533	21.66	140	0/0	12.50	339	5.18	401.0	0.76	1.85	
1538	21.66	140	0/0	12.24	341	5.12	412.9	0.71	3.39	
1543	21.66	140	0/0	12.34	342	5.11	420.5	0.67	1.73	
1548	↓	↓	↓ / ↓	12.45	341	5.16	422.8	0.64	2.26	
1553	↓	↓	↓ / ↓	12.29	342	5.17	424.6	0.63	2.09	
1555 Sample OKT-PW65										

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.29 (°C) | ORP: 424.6 (MV) | COMMENTS:

SPECIFIC CONDUCTANCE: 342 (uS/cm) | DO: 0.63 (mg/L)

pH: 5.17 (S.U.) | TURBIDITIY: 2.09 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: Partly sunny 77° humid.

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-65

DATE: 6/16/08

WELL CONDITION DATA

Protective Casing Present: Y N
Protective Casing Locked: Y N
Physical Damage: Y N
If yes, Describe:

Concrete Pad Present: Y N
Standing Water: Y N

Cap on Riser: Y N
Visible Heaving: Y N

Field Notes/Observations: None.

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-6M

LOCATION: Milford, NH

SAMPLING CREW: AF | DATE: 6/16 | SAMPLE TIME: 1515

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic

INITIAL DTW: 21.67 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1440	21.67	168	0 / 0	13.37	344	5.36	318.6	2.20	4.39	
1445	21.68	168	0.01 / 0.01	13.39	349	5.18	334.4	1.14	3.90	
1450	21.68		0 / 0.01	13.07	350	5.18	347.9	0.99	3.52	
1455	21.68		0.00 / 0.01	12.99	350	5.17	348.0	0.90	3.29	
1500	21.68		0 / 0.01	13.31	349	5.18	346.4	0.80	2.80	
1505	21.68		0 / 0.01	13.03	350	5.17	355.4	0.79	2.91	
1510	21.68		0 / 0.01	13.11	350	5.16	359.5	0.76	3.03	
1515	21.67		0.01 / 0	12.94	350	5.20	360.2	0.76	3.17	
										OKT_PW-6M
1515 — Sample										

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.94 (°C) | ORP: 360.2 (MV) | COMMENTS: None

SPECIFIC CONDUCTANCE: 350 (uS/cm) | DO: 0.76 (mg/L)

pH: 5.20 (S.U.) | TURBIDITIY: 3.17 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear no odor | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: Mostly Cloudy 70-75° Humid

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-6M

DATE: 6/16

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations:

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool — PROJECT #: 20111.023 — WELL ID: PW-6MB
LOCATION: Milford, NH
SAMPLING CREW: AF — DATE: 6/16/08 — SAMPLE TIME: 1430

PURGING DATA
REFERENCE POINT (CIRCLE): PVC Steel Casing — PURGING DEVICE: Peristaltic
INITIAL DTW: 22.28 (FT) — WELL DEPTH: (FT) — Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1345	22.28	145	0 / 0	13.47	256	6.01	3151	7.22	39.0	
1350	22.28	150		13.37	305	5.40	2624	3.14	152	
1355	22.28	145		12.89	323	5.25	2389	1.05	18.7	
1400	22.28	139		13.14	326	5.25	2454	0.91	12.6	
1405	22.27	140		13.11	327	5.13	2676	0.72	7.31	
1410	22.27	140		13.07	326	5.10	2760	0.70	3.89	
1416	22.27	140		13.02	327	5.11	2908	0.69	3.61	
1420	22.27	140		13.12	325	5.13	2742	0.66	2.57	
1425	22.27	140		12.97	325	5.14	2759	0.65	2.76	
1430 Sample										
+ Dup			OKT_PW-6MB OKT_PW-6MB DUP							

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA
TEMPERATURE: 12.97 (°C) — ORP: 2759 (MV) — COMMENTS:
SPECIFIC CONDUCTANCE: 325 (uS/cm) — DO: 0.65 (mg/L)
pH: 5.14 (S.U.) — TURBIDITY: 2.76 (NTU)
ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear. No odor — TOTAL DEPTH OF WELL:
WEATHER CONDITIONS: Mostly cloudy 72° Humid

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20112.023 WELL ID PW 6MB

DATE: 6/06/08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y	N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y	N
Physical Damage:	Y	N						

If yes, Describe:

Field Notes/Observations: None.

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-6D

LOCATION: Milford, NH

SAMPLING CREW: AF | DATE: 6/16/08 | SAMPLE TIME: ~~1645~~ 1647

22
55

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic

INITIAL DTW: 21.18 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1606	21.27	95	0.09/0.09	15.45	225	6.21	396.9	7.65	4.88	
1611	21.23	98	-0.04/0.05	13.59	345	6.04	193.6	2.90	2.00	
1616	21.23	100	0/0.05	13.48	405	5.96	100.5	1.75	4.53	
1621	21.23	100	0/0.05	13.03	435	5.99	98.7	1.24	3.62	
1626	21.23	100	0/0.05	13.02	443	6.02	97.3	1.09	3.84	
1631	21.23	↓	↓	13.02	445	6.04	95.4	0.95	3.88	
1636	21.23			13.13	445	6.08	90.4	0.85	3.25	
1641	21.23			13.84	446	6.10	90.9	0.79	2.91	
1646	21.23			13.00	445	6.12	91.2	0.75	3.08	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 13.00 (°C) | ORP: 91.2 (MV) | COMMENTS: Sample OKT_PW-6D

SPECIFIC CONDUCTANCE: 445 (uS/cm) | DO: 0.75 (mg/L)

pH: 6.12 (S.U.) | TURBIDITY: 3.08 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear. no odors | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: Mostly Cloudy 75°. Humid

19.80

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-6D

DATE: 6/16

WELL CONDITION DATA

Protective Casing Present: Y N
Protective Casing Locked: Y N
Physical Damage: Y N
If yes, Describe:

Concrete Pad Present: Y N
Standing Water: Y N

Cap on Riser: Y N
Visible Heaving: Y N

Field Notes/Observations: None

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW6R

LOCATION: Milford, NH

SAMPLING CREW: AF | DATE: 6/16/08 → 6/17 | SAMPLE TIME: 0935

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic

INITIAL DTW: 19.80 (FT) | WELL DEPTH: 105 (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
6/16 1728	20.46	18	0.66/0.66	20.03	957	11.39	57.1	5.63	1.27	43
1733	20.59		0.13/0.79	18.96	1077	11.47	82.2	5.34	<1	
1738	20.72		0.14/0.93	18.69	1122	11.51	86.6	4.98	<1	
1743	20.78		0.05/0.98	18.66	1126	11.51	87.1	4.99	<1	
1748	20.92		0.14/1.12	18.28	1169	11.56	66.9	4.52	<1	
1753	21.06		0.14/	18.13	1179	11.56	66.0	4.28	<1	→ Thunder and lightning. Pick up after waiting 15 minutes. Will start again tomorrow 6/17
~~[illegible]~~										
~~[illegible]~~										
6/17 0825	21.01		0/0							
0850	21.29	18	0.28/0.28	19.01	1260	11.45	-22.7	5.53	4.15	
0855	21.47		0.18/0.46	18.70	1260	11.47	-23.5	4.93	2.79	
0900	21.61		0.14/0.60	18.02	1256	11.51	-6.7	4.61	2.66	
0905	21.73		0.12/0.72	17.63	1261	11.52	-7.1	4.43	2.59	
0910	21.85		0.12/0.84	17.39	1259	11.52	-15.9	3.79	1.91	
0915	21.97		0.12/0.96	17.36	1258	11.52	-16.0	3.76	1.43	
0920	22.09		0.12/1.08	17.44	1258	11.53	-17.4	3.47	<1.0	
0925	22.20		0.11/1.19	17.50	1258	11.52	-19.4	3.34	<1.0	
0930	22.30		0.10/1.29	17.59	1257	11.52	-18.9	3.23	<1.0	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 17.59 (°C) | ORP: -18.9 (MV) | COMMENTS: Sample OKT_PW6R@0935

SPECIFIC CONDUCTANCE: 1257 (uS/cm) | DO: 3.23 (mg/L)

pH: 11.52 (S.U.) | TURBIDITIY: <1.0 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: | TOTAL DEPTH OF WELL: 105

WEATHER CONDITIONS: Overcast 70° (6/16) Sunny @ 70° (6/17)

Equip Blank → Grundfos in comment 45

82.5

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-6R

DATE: 6/16 → 6/17

WELL CONDITION DATA

Protective Casing Present: Y N
Protective Casing Locked: Y N
Physical Damage: Y N
If yes, Describe:

Concrete Pad Present: Y N
Standing Water: Y N

Cap on Riser: Y N
Visible Heaving: Y N

Field Notes/Observations: Employ additional sampling method @ this well. Purge dry w/a grundfos and allow for recovery. Set grundfos w/ 1/2 ID poly tubing @ 100 bgs (5ft above screen. Purge dry and allow recovery at 75% of water column.

1 well volume = Water Column = 85.2 ft x 0.16 = 13.6 gallons.

Total purged =

DTW - 20.35 ft after setting pump 1000 Start purging Purge 11 gal in 6 minutes allow some recharge to obtain ~14 gal. Let sit 24 hrs. Well recharges from 84.14 ft bgs to 80.5 ft bgs. Decide to drop bailer and collect sample. Bailer dropped to 100 ft bgs.

Field Readings

Temp	S. Con	pH	ORP	DO	Turb
17.93	2125	11.77	-19.6	3.86	109

after purging dry ~~immediately~~ 24 hrs later

Sample @ 0950 on 6/18/08 (EVAC)

SAMPLER'S SIGNATURE:

Instructed to collect a 3rd sample from PW-6R. We purge well dry w/ bailer @ 1615 on 6/18. We will wait 24 hrs and collect sample w/ the grundfos and 1/4 ID tubing

6/19
1600 DTW = 109.30 DTB = 113.21

Grundfos down DTW = 108.96
Sample @ 1622
DTW = < 113 No parameters.

GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-10M
LOCATION: Milford, NH
SAMPLING CREW: [illegible] | DATE: 6/17 | SAMPLE TIME: 1150

PURGING DATA

REFERENCE POINT (CIRCLE): ~~PVC~~ Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 18.88 (FT) | WELL DEPTH: 55 (FT) | Well Diameter: 2" 15

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1116	18.88	150	0 / 0	12.99	300	5.85	297.1	2.29	6.96	
1121	18.88		/	11.65	273	5.30	308.5	3.17	<1.0	
1126	18.88		/	11.67	261	5.10	313.7	0.80	1.41	
1131	18.88		/	11.56	261	5.08	317.6	0.73	<1.0	
1136	18.88		/	11.58	262	5.09	322.4	0.62	<1.0	
1141	18.88		/	11.57	263	5.07	325.2	0.65	<1.0	
1146	18.88		/	11.82	262	5.08	325.1	0.60	<1	
1150	sample		/							

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 11.82 (°C) | ORP: 325.1 (MV) | COMMENTS: Sample OKT_PW-10M
SPECIFIC CONDUCTANCE: 262 (uS/cm) | DO: 0.60 (mg/L)
pH: 5.08 (S.U.) | TURBIDITIY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear | TOTAL DEPTH OF WELL: 55
WEATHER CONDITIONS: Sunny 75°

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-10M

DATE: 6/17

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations:

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-10D
LOCATION: Milford, NH
SAMPLING CREW: AF | DATE: 6/17/08 | SAMPLE TIME: 1230

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 18.56 (FT) | WELL DEPTH: 105 (FT) | Well Diameter: 2" ~~25~~ 35

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1158	18.93	105	0.05/0.05	15.20	248	5.91	331.6	7.29	<1	
1203			0	12.55	239	5.63	349.9	4.29	<1	
1208				12.13	224	5.58	360.7	1.47	<1	
1213				11.98	218	5.55	368.1	0.86	<1	
1218				12.24	210	5.50	373.9	0.78	<1	
1223				11.93	214	5.54	376.4	0.75	<1	
1228				11.98	214	5.52	379.1	0.72	<1	
1230	Sample									

64.1

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 11.98 (°C) | ORP: 379.1 (MV) | COMMENTS: Sample OKT_PW-10D for VOCs
SPECIFIC CONDUCTANCE: 214 (uS/cm) | DO: 0.72 (mg/L)
pH: 5.52 (S.U.) | TURBIDITIY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear no odor | TOTAL DEPTH OF WELL: 105

WEATHER CONDITIONS: Mostly Sunny 75°

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-10D

DATE: 6/17

WELL CONDITION DATA

Protective Casing Present: Y N
Protective Casing Locked: Y N
Physical Damage: Y N
If yes, Describe:

Concrete Pad Present: Y N
Standing Water: Y N

Cap on Riser: Y N
Visible Heaving: Y N

Field Notes/Observations: None. Bees present.

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool
PROJECT #: 20111.023
WELL ID: PW 12R
LOCATION: Milford, NH
SAMPLING CREW: NP
DATE: 6/19
SAMPLE TIME: 1025

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing
PURGING DEVICE: Peristaltic
INITIAL DTW: 7.70 (FT)
WELL DEPTH: 133.9 (FT)
Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
0910	7.76	30	0.01/0.06	20.07	380	5.90	118.5	4.38	1.28	
0915	7.77	31	0.01/0.07	19.38	363	6.05	124.8	4.56	<1	
0920	7.78	30	0.01/0.08	17.67	329	6.21	131.9	3.98	<1	
0925	7.79	30	0.01/0.09	17.31	328	6.26	101.2	3.21	<1	
0930	7.79	31	0.01/0.09	17.01	328	6.29	81.4	2.83	<1	
0935	7.79	30	0.01/0.09	16.62	328	6.34	53.1	2.34	<1	
0940	7.80	31	0.01/0.10	16.61	329	6.38	39.0	2.05	<1	
0945	7.80	31	0.01/0.10	16.51	329	6.45	19.0	1.73	<1	
0950	7.80	30	0/0.10	16.53	330	6.51	5.2	1.56	<1	
0955	7.80	30	0/0.10	16.50	331	6.62	-12.5	1.31	<1	
1000	7.81	31	0.01/0.11	16.80	331	6.71	-35.6	1.21	<1	
1005	7.81	31	0/0.11	16.91	333	6.78	-47.2	1.08	<1	
1010	7.81	31	0.01/0.11	16.73	334	6.87	-62.2	0.99	<1	
1015	7.81	31	0/0.11	16.65	335	6.91	-66.2	0.96	<1	
1020	7.81	31	0/0.11	16.53	335	6.93	-70.6	0.95	<1	
			/							Cum Purge w/peristaltic
EVAC 1214	7.78	[illegible]	/							mL
1224	7.90	100	0.14/0.24	14.73	261	7.53	211.7	4.10	270	500
1229	7.95	100	0.03/0.17	14.09	294	7.17	86.4	2.26	20.5	1000 500 1 tubingvol = 1.3L
1234	7.96	100	0.01/0.15	14.12	302	7.02	44.2	1.46	33.9	1500 1000
1239	7.96	100	0/0.15	13.88	306	6.99	31.3	1.28	27.6	1500
1240	Collect @ OKT_PW-12R (EVAC)									
			/							
			/							

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

45

FINAL FIELD DATA

TEMPERATURE: 16.53 (°C)
ORP: -70.6 (MV)
COMMENTS: OKT_PW-12R
SPECIFIC CONDUCTANCE: 335 (uS/cm)
DO: 0.95 (mg/L)
pH: 6.93 (S.U.)
TURBIDITIY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: No odor. Clear.
TOTAL DEPTH OF WELL: 133.9

WEATHER CONDITIONS: Sunny 75°

491 9817

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-12R

DATE: 6/19

WELL CONDITION DATA

Protective Casing Present: Y N
Protective Casing Locked: Y N
Physical Damage: Y N
If yes, Describe:

Concrete Pad Present: Y N
Standing Water: Y N

Cap on Riser: Y N
Visible Heaving: Y N

Field Notes/Observations: Water Column = 126.2 ft x 0.16 = 20.2 gal = 1 well bore volume

WT after setting pump = 7.10

1030 Start pumping purge 4 well volumes WT @ 53.3 ft. ~30 minutes ~80 gallons @ 40 min weight tubing.

Ended EVAC sampling @ 1744 on 6/19 well has fully recovered

SAMPLER'S SIGNATURE: [signature]

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-13M

LOCATION: Milford, NH

SAMPLING CREW: JW | DATE: 6-19-08 | SAMPLE TIME: 1756

PURGING DATA

REFERENCE POINT (CIRCLE): (PVC) Steel Casing | PURGING DEVICE: Peristaltic

INITIAL DTW: 10.87 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1720	10.89	153	0.02/0.02	11.94	300	5.11	174.9	3.71	<1	
1733	10.89	153	0 / 0.02	11.46	321	5.11	146.5	0.62	<1	
1738	10.89	153	0 / 0.02	11.37	332	5.15	146.6	0.59	<1	
1743	10.89	153	0 / 0.02	11.40	331	5.20	146.3	0.54	<1	
1748	10.89	153	0 / 0.02	11.37	330	5.23	146.1	0.53	<1	
1753	10.89	153	0 / 0.02	11.25	330	5.26	146.5	0.53	<1	
Sample Collected for VOCs @ 1756										
						6-19-08				
			JW							

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: ~~10.89~~ 11.25 (°C) | ORP: 146.5 (MV) | COMMENTS:

SPECIFIC CONDUCTANCE: ~~153~~ 330 (uS/cm) | DO: 0.53 (mg/L)

pH: 5.20 (S.U.) | TURBIDITIY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear colorless, odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ~70°F, Partly Sunny

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-13M

DATE: 6-19-08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations: None

6-19-08

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-13D
LOCATION: Milford, NH
SAMPLING CREW: JW | DATE: 6-19-08 | SAMPLE TIME: 1714

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 10.59 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1621	10.65	154	0.06 10.06	15.11	291	5.50	375.1	6.18	<1	
1631	10.65	154	0 10.06	11.75	336	5.41	70.7	0.60	<1	
1636	10.65	154	0 10.06	11.78	334	5.46	66.4	0.50	<1	
1641	10.65	154	0 10.06	11.76	333	5.45	67.6	0.63	<1	
1646	10.65	154	0 10.06	11.78	327	5.50	67.3	0.73	<1	
1651	10.67	154	0.02 10.08	11.77	320	5.50	68.2	0.69	<1	
1656	10.68	154	0.01 10.09	11.71	316	5.49	70.0	0.68	<1	
1701	10.68	154	0 10.09	11.71	310	5.46	72.8	0.61	<1	
1706	10.68	154	0 10.09	11.73	306	5.48	75.1	0.66	<1	
1711	10.68	154	0 10.09	11.76	304	5.44	76.3	0.60	<1	
Sampled for VOCs @ 1714										
6-19-08										
JW										

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 11.76 (°C) | ORP: 76.3 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 304 (uS/cm) | DO: 0.60 (mg/L)
pH: 5.44 (S.U.) | TURBIDITY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, odorless, odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ≈70°F Partly Sunny

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID MW-13D

DATE: 6-19-08

WELL CONDITION DATA

Protective Casing Present: Y N Concrete Pad Present: Y N Cap on Riser: Y N
Protective Casing Locked: Y N Standing Water: Y N Visible Heaving: Y N
Physical Damage: Y N
If yes, Describe: Concrete pad is chipping away

Field Notes/Observations: None

6-19-08

MW

SAMPLER'S SIGNATURE: [signature]

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-14S
LOCATION: Milford, NH
SAMPLING CREW: JW | DATE: 6-19-08 | SAMPLE TIME: 1512

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 9.61 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1442	9.61	170	0 / 0	10.71	533	5.28	423.1	4.97	<1	
1454	9.61	170	0 / 0	10.32	553	5.23	439.6	4.53	<1	
1459	9.61	170	0 / 0	10.24	553	5.25	442.8	4.52	<1	
1504	9.61	170	0 / 0	10.25	555	5.28	445.3	4.54	<1	
1509	9.61	170	0 / 0	10.18	558	5.30	447.6	4.60	<1	
Sampled	for	VOCs	@	1512						

6-19-08

JW

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 10.18 (°C) | ORP: 447.6 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 558 (uS/cm) | DO: 4.60 (mg/L)
pH: 5.30 (S.U.) | TURBIDITY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, colorless, odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ~70°F, Partly Sunny

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-14S

DATE: 6-19-08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y	N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y	N
Physical Damage:	Y	N						

If yes, Describe:

Field Notes/Observations: None

6-19-08

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool
PROJECT #: 20111.023
WELL ID: PW-14M
LOCATION: Milford, NH
SAMPLING CREW: JW
DATE: 6/19/08
SAMPLE TIME: 1611

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing
PURGING DEVICE: Peristaltic
INITIAL DTW: 9.71 (FT)
WELL DEPTH: (FT)
Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1520	9.71	164	0 / 0	10.68	197	5.67	431.7	3.75	1.01	
1533	9.71	164	0 / 0	10.62	232	5.36	282.2	1.41	<1	
1538	9.71	164	0 / 0	10.62	235	5.25	234.3	1.14	<1	
1543	9.71	164	0 / 0	10.60	235	5.13	214.0	0.96	<1	
1548	9.71	164	0 / 0	10.61	237	5.05	210.9	0.94	<1	
1553	9.71	164	0 / 0	10.66	238	4.98	213.7	0.79	<1	
1558	9.71	164	0 / 0	10.75	242	5.00	218.0	0.82	<1	
1603	9.71	164	0 / 0	10.57	242	5.01	222.7	0.87	<1	
1608	9.71	164	0 / 0	10.63	243	5.01	226.7	0.80	<1	
Sampled for VOCs @ 1611										
					6.19.08					
			JW							

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 10.63 (°C)
SPECIFIC CONDUCTANCE: 243 (uS/cm)
pH: 5.01 (S.U.)
ORP: 226.7 (MV)
DO: 0.80 (mg/L)
TURBIDITY: <1 (NTU)
COMMENTS:

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, colorless, odorless
TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ≈70°F, Partly Sunny

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-14M

DATE: 6/19/08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations: None

6-19-08

SAMPLER'S SIGNATURE: Justin Moore

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-14D
LOCATION: Milford, NH
SAMPLING CREW: JW | DATE: 6-19-08 | SAMPLE TIME: 1436

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 9.78 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1323	9.78	132	0 / 0	11.96	532	6.01	340.3	3.27	1.68	
1328	9.78	132	0 / 0	10.92	527	5.22	130.6	1.04	<1	
1333	9.79	132	0.01 / 0.01	10.75	528	4.93	177.9	1.20	<1	
1338	9.79	132	0 / 0.01	10.78	528	4.85	269.9	1.26	<1	
1343	9.79	132	0 / 0.01	10.67	528	4.83	313.1	1.27	<1	
1348	9.79	132	0 / 0.01	10.63	528	4.82	333.6	1.35	<1	
1353	9.79	132	0 / 0.01	10.75	527	4.82	351.1	1.39	<1	
1358	9.79	132	0 / 0.01	10.77	527	4.87	363.8	1.39	<1	
1403	9.79	132	0 / 0.01	10.73	527	4.91	375.2	1.36	<1	
1408	9.79	132	0 / 0.01	10.67	527	4.92	384.8	1.36	<1	
1413	9.79	132	0 / 0.01	10.72	527	4.96	390.1	1.36	<1	
1418	9.79	132	0 / 0.01	10.66	526	4.96	398.5	1.37	<1	
1423	9.79	132	0 / 0.01	10.64	525	4.99	404.2	1.34	<1	
1428	9.79	132	0 / 0.01	10.62	525	5.01	409.2	1.34	<1	
1433	9.79	132	0 / 0.01	10.60	526	5.02	412.9	1.29	<1	
Sampled for VOCs @ 1436										
6-19-08										

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 10.60 (°C) | ORP: 412.9 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 526 (uS/cm) | DO: 1.29 (mg/L)
pH: 5.02 (S.U.) | TURBIDITY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, colorless, odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: Partly Sunny, ≈70°F

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-14D

DATE: 6-19-08

WELL CONDITION DATA

Protective Casing Present:	(Y)	N	Concrete Pad Present:	(Y)	N	Cap on Riser:	Y (N)
Protective Casing Locked:	(Y)	N	Standing Water:	Y	(N)	Visible Heaving:	Y (N)
Physical Damage:	Y	(N)					

If yes, Describe:

Field Notes/Observations: None

6-19-08

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-15M

LOCATION: Milford, NH

SAMPLING CREW: [illegible] | DATE: 6-19-08 | SAMPLE TIME: 1041

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic

INITIAL DTW: 20.26 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1004	20.28	200	0.02 / 0.02	12.92	337	6.04	261.2	6.51	17.9	
1018	20.28	200	0.00 / 0.02	12.16	358	5.69	303.4	0.78	14.2	
1023	20.28	200	0 / 0.02	12.11	355	5.66	313.9	0.83	13.9	
1028	20.28	200	0 / 0.02	12.15	355	5.64	322.8	0.85	7.71	
1033	20.28	200	0 / 0.02	12.09	355	5.66	325.5	0.82	7.45	
1038	20.28	200	0 / 0.02	11.92	356	5.71	318.9	0.79	7.32	
Sample Collected for VOCs @ 1041										
6-19-08										
[illegible]										

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 11.92 (°C) | ORP: 318.9 (MV) | COMMENTS:

SPECIFIC CONDUCTANCE: 356 (uS/cm) | DO: 0.79 (mg/L)

pH: 5.71 (S.U.) | TURBIDITY: 7.32 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, colorless, odorless, a few black particles | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ~75°F, Sunny

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-15M

DATE: 6-19-08

WELL CONDITION DATA

Protective Casing Present:	(Y)	N	Concrete Pad Present:	(Y)	N	Cap on Riser:	(Y) N
Protective Casing Locked:	Y	(N)	Standing Water:	Y	(N)	Visible Heaving:	Y (N)
Physical Damage:	Y	(N)					

If yes, Describe:

Field Notes/Observations: None

6-19-08

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-15D
LOCATION: Milford, NH
SAMPLING CREW: JW | DATE: 6-19-08 | SAMPLE TIME: 0957

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 19.68 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
0833	19.82	208	0.14 / 0.14	11.97	412	5.85	178.7	8.24	204	
0838	19.83	208	0.01 / 0.15	11.65	497	5.67	196.2	1.37	4.14	
0843	19.83	208	0.00 / 0.15	11.61	499	5.68	203.2	0.61	4.42	
0848	19.84	208	0.01 / 0.16	11.51	498	5.68	209.2	0.55	2.46	
0853	19.84	208	0.00 / 0.16	11.61	483	5.70	214.6	0.50	3.43	
0858	19.84	208	0 / 0.16	11.62	474	5.73	220.0	0.47	3.48	
0903	19.84	208	0 / 0.16	11.62	474	5.77	225.1	0.48	3.16	
0908	19.84	208	0 / 0.16	11.72	473	5.74	230.4	0.48	3.75	
0913	19.84	208	0 / 0.16	11.65	466	5.59	253.3	0.47	3.43	
0918	19.84	208	0 / 0.16	11.62	466	5.56	264.5	0.51	3.40	
0923	19.84	208	0 / 0.16	11.69	465	5.62	273.2	0.74	2.49	
0928	19.84	208	0 / 0.16	11.70	471	5.65	276.2	0.63	1.81	
0933	19.84	208	0 / 0.16	11.64	467	5.66	279.8	0.54	1.54	
0938	19.84	208	0 / 0.16	11.72	464	5.66	286.6	0.60	1.69	
0943	19.84	208	0 / 0.16	11.75	459	5.66	293.5	0.65	1.42	
0948	19.84	208	0 / 0.16	11.73	459	5.67	297.7	0.68	1.33	
0953	19.84	208	0 / 0.16	11.84	465	5.68	300.1	0.68	1.30	
Sampled for VOCs @ 0957										
			6-19-08							
		JW								

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 11.84 (°C) | ORP: 300.1 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 465 (uS/cm) | DO: 0.68 (mg/L)
pH: 5.68 (S.U.) | TURBIDITIY: 1.30 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear colorless odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ~70°F, Sunny

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-15D

DATE: 6-19-08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations: None

6-19-08

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: MW-18M
LOCATION: Milford, NH
SAMPLING CREW: JW | DATE: 6-17-08 | SAMPLE TIME: 1243

PURGING DATA
REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 21.94 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1154	21.95	150	0.01/0.01	15.00	200	6.26	94.6	5.83		
1204	21.95	150	0.001/0.01	12.59	202	5.36	246.1	3.99	2.70	
1209	21.96	150	0/0.01	12.16	202	5.27	267.6	3.53	1.62	
1214	21.96	150	0.01/0.02	12.22	202	5.25	298.6	4.10	1.12	
1219	21.96	150	0/0.02	12.13	202	5.24	313.8	3.78	<1	
1224	21.96	150	0/0.02	12.27	202	5.26	332.7	3.86	<1	
1229	21.96	150	0/0.02	12.22	202	5.21	339.2	4.07	<1	
1234	21.96	150	0/0.02	12.30	201	5.22	342.9	3.75	<1	
1239	21.96	150	0/0.02	12.44	201	5.20	347.1	3.86	<1	
Sample & Duplicate collected for VOCs @ 1243										
6-17-08										
JW										

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA
TEMPERATURE: 12.44 (°C) | ORP: 347.1 (MV) | COMMENTS: Duplicate taken
SPECIFIC CONDUCTANCE: 201 (uS/cm) | DO: 3.86 (mg/L)
pH: 5.20 (S.U.) | TURBIDITIY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear, colorless, odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: Overcast, ≈70°F, Lt Breeze

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-16M

DATE: 6-17-08

WELL CONDITION DATA

Protective Casing Present:	(Y)	N	Concrete Pad Present:	(Y)	N	Cap on Riser:	Y (N)
Protective Casing Locked:	Y	(N)	Standing Water:	Y	(N)	Visible Heaving:	Y (N)
Physical Damage:	Y	(N)					

If yes, Describe:

Field Notes/Observations: None

6-17-08

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: MW-16D
LOCATION: Milford, NH
SAMPLING CREW: SW | DATE: 6-17-08 | SAMPLE TIME: 1142

PURGING DATA

REFERENCE POINT (CIRCLE): (PVC) Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 21.75 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1029	21.76	82	0.01 / 0.01	15.33	520	6.24	260.2	7.27		
1039	21.77	110	0.01 / 0.02	12.63	353	6.21	49.7	1.75	79.9	Slight orange color, clear
1044	21.77	110	0 / 0.02	12.93	344	6.13	44.8	1.38	45.2	
1049	21.77	110	0 / 0.02	12.78	339	6.11	37.8	1.33	18.2	
1054	21.77	110	0 / 0.02	12.50	340	6.10	32.1	1.24	10.2	
1059	21.77	110	0 / 0.02	12.69	341	6.09	38.2	1.19	7.16	
1104	21.77	110	0 / 0.02	12.58	343	6.04	48.6	1.16	5.81	
1109	21.77	110	0 / 0.02	12.74	344	6.02	56.1	1.12	4.46	
1114	21.77	110	0 / 0.02	12.80	345	6.01	60.4	1.20	4.47	
1119	21.77	110	0 / 0.02	12.62	346	5.95	66.7	1.88	4.09	
1124	21.77	110	0 / 0.02	12.57	346	5.85	72.0	1.76	4.17	
1129	21.77	110	0 / 0.02	12.49	345	5.71	77.8	1.47	3.90	
1134	21.77	110	0 / 0.02	12.49	344	5.69	78.8	1.36	3.76	
1139	21.77	110	0 / 0.02	12.63	344	5.76	76.6	1.35	3.00	
Sampled for VOCs @ 1142										
				6-17-08						
			SW							

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.63 (°C) | ORP: 76.6 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 344 (uS/cm) | DO: 1.35 (mg/L)
pH: 5.76 (S.U.) | TURBIDITIY: 3.00 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear, colorless odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ≈70°F, Sunny, Light Breeze

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-16D

DATE: 6·17 08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations: None

6·17·08

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-17M
LOCATION: Milford, NH
SAMPLING CREW: JW | DATE: 6-18-08 | SAMPLE TIME: 1404

PURGING DATA

REFERENCE POINT (CIRCLE): (PVC) Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 19.78 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1326	19.80	188	0.02 / 0.02	18.00	383	6.09	241.6	6.53		
1336	19.80	188	0 / 0.02	11.54	376	5.36	322.6	0.97	3.83	
1341	19.80	188	0 / 0.02	11.50	374	5.38	317.6	0.84	2.66	
1346	19.80	188	0 / 0.02	11.43	373	5.39	324.3	0.88	1.14	
1351	19.80	188	0 / 0.02	11.35	374	5.44	330.3	0.91	<1	
1356	19.80	188	0 / 0.02	11.35	375	5.47	333.7	0.88	<1	
1401	19.80	188	0 / 0.02	11.45	375	5.51	335.1	0.90	<1	
Sampled for VOCs @ 1404							(Duplicate)			

6-18-08
JW

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 11.45 (°C) | ORP: 335.1 (MV) | COMMENTS: Sample & Duplicate
SPECIFIC CONDUCTANCE: 375 (uS/cm) | DO: 0.90 (mg/L)
pH: 5.51 (S.U.) | TURBIDITY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear, colorless, odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: 275°F, slight Breeze, Partly Sunny

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-17M

DATE: 6-18-08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations: None

6-18-08

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool PROJECT #: 20111.023 WELL ID: PW-18D

LOCATION: Milford, NH

SAMPLING CREW: JW DATE: 6.18.08 SAMPLE TIME: 1034

PURGING DATA

REFERENCE POINT (CIRCLE): (PVC) Steel Casing PURGING DEVICE: Peristaltic

INITIAL DTW: 20.38 (FT) WELL DEPTH: ______ (FT) Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
0953	20.41	120	0.03 / 0.03	13.13	173	5.99	174.8	10.02	<1	
1005	20.42	110	0.01 / 0.04	12.43	219	5.71	228.8	5.92	<1	
1010	20.42	110	0 / 0.04	12.35	236	5.60	241.2	3.53	<1	
1015	20.42	110	0 / 0.04	12.54	240	5.57	249.1	2.99	<1	
1020	20.41	110	0 / 0.04	12.54	242	5.55	257.4	2.72	<1	
1025	20.42	110	0 / 0.04	12.38	241	5.57	261.6	2.55	<1	
1030	20.42	110	0 / 0.04	12.57	243	5.58	262.8	2.64	<1	

Sample collected for VOCs @ 1034

6.18.08 JW

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.57 (°C) ORP: 263.8 (MV) COMMENTS:

SPECIFIC CONDUCTANCE: 243 (uS/cm) DO: 2.64 (mg/L)

pH: 5.58 (S.U.) TURBIDITIY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, colorless odorless TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: overcast, breezy ~70°F

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID AW-18D

DATE: 6-18-08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations: None

6-18-08

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool
PROJECT #: 20111.023
WELL ID: PW-19D
LOCATION: Milford, NH
SAMPLING CREW: JW
DATE: 6-16-06
SAMPLE TIME: 1431

PURGING DATA

REFERENCE POINT (CIRCLE): (PVC) Steel Casing
PURGING DEVICE: Peristaltic
INITIAL DTW: 22.00 (FT)
WELL DEPTH: (FT)
Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1346	22.28	96	0.28 / 0.28	15.56	129	6.46	204.1	8.66	42.3	
1351	22.30	96	0.02 / 0.30	13.20	119	5.65	116.8	2.31	15.1	
1356	22.31	104	0.01 / 0.31	12.48	116	5.43	124.1	1.28	7.21	
1401	22.32	100	0.01 / 0.32	12.69	115	5.40	128.2	1.22	10.8	
1408	22.33	100	0.01 / 0.33	12.74	114	5.25	133.0	1.04	4.36	
1413	22.33	100	0.00 / 0.33	12.61	114	5.20	134.9	0.95	3.58	
1418	22.34	100	0.01 / 0.34	12.77	114	5.21	135.7	0.90	3.77	
1423	22.34	100	0 / 0.34	12.54	113	5.22	137.3	0.86	2.62	
1428	22.34	100	0 / 0.34	12.73	113	5.20	139.2	0.85	2.80	→ Turbidity <5 ~3 to 4
Sampled	for VOCs	@	1431							

6-16-06

JW

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.73 (°C) ORP: 139.2 (MV) COMMENTS:
SPECIFIC CONDUCTANCE: 113 (uS/cm) DO: 0.85 (mg/L)
pH: 5.20 (S.U.) TURBIDITY: 2.80 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, colorless, odorless
TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: breezy, 75°F, overcast

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID ~~AL~~ PW-19D

DATE: 6-16-06

WELL CONDITION DATA

Protective Casing Present:	(Y)	N	Concrete Pad Present:	(Y)	N	Cap on Riser:	(Y) N
Protective Casing Locked:	Y	(N)	Standing Water:	Y	(N)	Visible Heaving:	Y (N)
Physical Damage:	Y	(N)					

If yes, Describe:

Field Notes/Observations: OKT-PW-19D-

SAMPLER'S SIGNATURE: [illegible]

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: Pw-205
LOCATION: Milford, NH
SAMPLING CREW: JW | DATE: 6/16/08 | SAMPLE TIME:

PURGING DATA

REFERENCE POINT (CIRCLE): (PVC) Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 23.25 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1501	23.26	150	0.01 / 0.01	16.86	261	5.97	227.6	7.13	13.4	
1506	23.25	160	0.01 / 0	12.27	257	5.51	284.5	3.98	8.83	
1511	23.25	160	0 / 0	11.93	261	5.42	303.6	3.75	8.98	
1516	23.25	160	0 / 0	11.89	261	5.40	317.5	3.68	6.41	
1521	23.25	160	0 / 0	11.90	268	5.36	332.1	3.63	6.70	
1526	23.25	160	0 / 0	12.08	266	5.34	346.4	3.56	6.22	
1531	23.25	160	0 / 0	12.22	264	5.27	360.4	3.54	5.67	
1536	23.25	160	0 / 0	12.00	264	5.23	374.0	3.50	5.10	
1541	23.25	160	0 / 0	12.19	267	5.20	384.2	3.52	4.40	
1546	23.26	160	0.01 / 0.01	12.01	265	5.20	393.8	3.52	4.64	
1551	23.26	160	0 / 0.01	12.18	265	5.22	398.2	3.51	4.61	
1556	23.26	160	0 / 0.01	12.11	265	5.23	403.6	3.51	4.51	
Sample collected for VOCs @ 1559										
			6/16 - OK							
JW										

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.11 (°C) | ORP: 403.6 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 265 (uS/cm) | DO: 3.51 (mg/L)
pH: 5.23 (S.U.) | TURBIDITIY: 4.51 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear, colorless, odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: Mostly Cloudy, Lt Breeze, ≈70°F

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-205

DATE:

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y	N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y	N
Physical Damage:	Y	N						

If yes, Describe:

Field Notes/Observations: OKT PW-205

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-20M
LOCATION Milford, NH
SAMPLING CREW BW DATE: 6-16-08 SAMPLE TIME: 1702

PURGING DATA
REFERENCE POINT (CIRCLE): PVC Steel Casing PURGING DEVICE: Peristaltic
INITIAL DTW 23.10 (FT) WELL DEPTH (FT) Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1609	23.10	160	0 / 0	12.96	213	5.77	403.4	8.88	3.59	
1614	23.10	160	0 / 0	12.49	190	5.50	412.8	5.99	2.44	
1619	23.11	160	0.01 / 0.01	12.29	185	5.31	419.2	1.90	1.73	
1624	23.11	160	0 / 0.01	12.27	185	5.29	422.4	1.70	<1	
1629	23.11	160	0 / 0.01	12.23	184	5.30	425.3	2.17	1.49	
1634	23.11	160	0 / 0.01	12.28	185	5.31	426.2	1.94	1.50	
1639	23.11	160	0 / 0.01	12.24	185	5.34	427.3	1.72	1.56	
1644	23.11	160	0 / 0.01	12.25	185	5.36	427.6	1.62	<1	
1649	23.11	160	0 / 0.01	12.20	185	5.38	428.6	2.03	<1	
1654	23.11	160	0 / 0.01	12.26	185	5.39	429.2	1.98	<1	
1659	23.11	160	0 / 0.01	12.25	185	5.41	429.9	1.88	<1	
Sample		collected	for	VOCs	@			1702		
			6-16-08							
			BW							

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA
TEMPERATURE: 12.25 (°C) ORP: 429.9 (MV) COMMENTS:
SPECIFIC CONDUCTANCE: 185 (uS/cm) DO: 1.88 (mg/L)
pH: 5.41 (S.U.) TURBIDITIY: 21 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear, colorless, odorless TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ≈70°F, overcast

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-20M

DATE: 6-16-08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations: None

SAMPLER'S SIGNATURE: [signature]

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-20D
LOCATION: Milford, NH
SAMPLING CREW: SW | DATE: 6/16-08/6-17-08 | SAMPLE TIME: 0920

PURGING DATA

REFERENCE POINT (CIRCLE): (PVC) Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 23.00 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1710	23.67	120	0.67 / 0.67	12.77	462	5.95	417.9	7.75	13.7	
1715	23.67	100	0 / 0.67	13.13	329	6.14	409.7	3.87	9.16	
1720	23.59	100	-0.08 / 0.59	12.81	269	6.23	401.5	2.25	8.44	
1725	23.52	100	-0.07 / 0.52	12.74	254	6.25	396.0	1.63	8.00	
1730	23.51	100	-0.01 / 0.51	12.80	250	6.29	385.3	1.28	7.11	
1735	23.50	100	-0.01 / 0.50	12.67	252	6.32	342.8	1.56	5.98	
1740	23.50	100	0 / 0.50	12.63	255	6.36	266.8	1.40	4.70	
1745	23.50	100	0 / 0.50	12.58	268	6.38	235.1	1.41	4.48	
1750	23.58	100	0.08 / 0.58	12.50	279	6.40	217.2	1.83	3.42	
1755	23.59	100	0.01 / 0.59	12.44	286	6.40	182.0	1.68	115	Flow cell clouding up
1800			/							
			/							
		Done For Day Lightning	/							
6-17-08 0802	23.48	80	-/-							
0823	23.48	80	0.50 / 0.50	12.24	709	5.31	154.7	4.33	124	
0828	23.48	100	0 / 0.50	12.25	390	5.68	229.2	1.83	125	
0833	23.48	100	0 / 0.50	12.32	366	5.84	168.4	1.78	116	
0838	23.48	100	0 / 0.50	12.09	367	5.96	123.8	1.69	111	
0847	23.35	60	-0.13 / 0.37	14.20	379	6.11	38.4	3.45	107	
0852	23.42	96	0.07 / 0.44	12.42	385	6.10	78.3	2.15	102	
0857	23.42	96	0 / 0.44	12.69	391	6.09	75.7	1.85	79.3	
0902	23.48	98	0.06 / 0.50	12.54	388	6.11	78.8	2.02	60.9	
0907	23.48	98	0 / 0.50	12.55	390	6.13	78.7	1.51	57.1	Continued on next page

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 13.02 (°C) | ORP: 77.3 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 392 (uS/cm) | DO: 1.56 (mg/L)
pH: 6.14 (S.U.) | TURBIDITIY: 52.5 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: S. cloudy (white), odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ≈70°F, Sunny Lt Breeze

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-20D

DATE: 6-16-08 / 6-17-08

WELL CONDITION DATA

Protective Casing Present: (Y) N
Protective Casing Locked: Y (N)
Physical Damage: (Y) N
If yes, Describe: Concrete Pad Sunk several inches

Concrete Pad Present: (Y) N
Standing Water: Y (N)

Cap on Riser: Y (N)
Visible Heaving: (Y) N

Field Notes/Observations: ~~Noon~~ Stopped for Lighting 1758

6-16-08

SAMPLER'S SIGNATURE:

Clock	Water Depth	Purge Rate	Drawdown/total	Temp	SP COND	ORP	DO	Turb	PH
0912	23.42	96	-0.06 / 0.44	12.92	391	77.1	1.49	55.7	6.14
0917	23.42	96	0 / 0.44	13.02	392	77.3	1.56	52.1	6.14

Sample collected for VOCs @ 0920

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-22

LOCATION: Milford, NH

SAMPLING CREW: ~~JK~~ JW | DATE: 6-18-08 | SAMPLE TIME: 0938

PURGING DATA

REFERENCE POINT (CIRCLE): (PVC) Steel Casing | PURGING DEVICE: Peristaltic

INITIAL DTW: 18.85 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
0854	19.00	102	0.15 / 0.15	12.33	406	5.02	148.1	4.36	0.49	
0859	18.97	102	0.12 / 0.12	12.27	353	5.28	156.6	1.73	<1	
0904	18.97	102	0 / 0.12	11.73	348	5.36	162.7	1.45	<1	
0909	18.97	102	0 / 0.12	11.89	348	5.35	167.2	1.44	<1	
0914	18.97	102	0 / 0.12	11.57	349	5.37	173.0	1.38	<1	
0919	18.97	102	0 / 0.12	11.75	349	5.52	169.2	1.31	<1	
0924	18.97	102	0 / 0.12	11.75	348	5.65	166.2	1.31	<1	
0929	18.97	102	0 / 0.12	11.73	348	5.65	169.3	1.28	<1	
0934	18.97	102	0 / 0.12	11.44	348	5.66	173.1	1.28	<1	

Sample and Duplicate collected for VOCs @ 0938

6-18-08

JW

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 11.44 (°C) | ORP: 173.1 (MV) | COMMENTS: Sample & Duplicate

SPECIFIC CONDUCTANCE: 348 (uS/cm) | DO: 1.28 (mg/L)

pH: 5.66 (S.U.) | TURBIDITY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, colorless, odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ~70°F, Sunny, Lt. Breeze

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-22

DATE: 6-18-08

WELL CONDITION DATA

Protective Casing Present:	(Y)	N	Concrete Pad Present:	(Y)	N	Cap on Riser:	(Y) N
Protective Casing Locked:	Y	(N)	Standing Water:	Y	(N)	Visible Heaving:	(Y) N
Physical Damage:	(Y)	N					

If yes, Describe: Concrete pad sunk over 1/4 casing sunk with pad.

Field Notes/Observations: None

6-18-08

SAMPLER'S SIGNATURE: Jim Murray

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-24

LOCATION: Milford, NH

SAMPLING CREW: ~~20072~~ JW | DATE: 6.17.08 | SAMPLE TIME: 1458

PURGING DATA

REFERENCE POINT (CIRCLE): (PVC) Steel Casing | PURGING DEVICE: Peristaltic

INITIAL DTW: 20.72 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1435	20.72	216	0 / 0	12.33	159	5.70	365.1	4.90		
1440	20.72	216	0 / 0	11.03	168	5.06	394.1	1.88	2.83	
1445	20.72	216	0 / 0	11.16	170	5.03	399.5	1.81	2.35	
1450	20.72	216	0 / 0	11.32	168	5.05	400.1	1.76	2.41	
1455	20.72	216	0 / 0	11.44	166	5.07	399.7	1.67	2.24	
Sample collected for VOCs @ 1458										

6.17.08

JW

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: ~~20.72~~ 11.44 (°C) | ORP: 399.7 (MV) | COMMENTS:

SPECIFIC CONDUCTANCE: ~~240~~ 166 (uS/cm) | DO: 1.67 (mg/L)

pH: 5.07 (S.U.) | TURBIDITIY: 22 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: Windy, sprinkles, ≈70°F, overcast

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-24

DATE: 6-17-08

WELL CONDITION DATA

Protective Casing Present:	(Y)	N	Concrete Pad Present:	(Y)	N	Cap on Riser:	(Y) N
Protective Casing Locked:	Y	(N)	Standing Water:	Y	(N)	Visible Heaving:	Y (N)
Physical Damage:	Y	(N)					

If yes, Describe:

Field Notes/Observations: Replaced Larger masterflex ~~with a~~ which has a crease in it with smaller masterflex tubing.

6-17-08

SAMPLER'S SIGNATURE:

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-25S
LOCATION: Milford, NH
SAMPLING CREW: JW | DATE: 6-18-01 | SAMPLE TIME: 1153

PURGING DATA

REFERENCE POINT (CIRCLE): (PVC) Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 21.20 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1058	21.27	88	0.07 / 0.07	13.25	604	5.79	218.6	5.25	1.17	
1105	21.26	88	0.01 / 0.06	13.04	614	5.82	250.2	4.06	<1	
1110	21.24	88	0.02 / 0.04	13.94	613	5.84	266.3	4.11	<1	
1115	21.24	88	0 / 0.04	14.64	612	5.91	273.2	4.16	<1	
1120	21.29	108	0.05 / 0.09	11.67	613	5.84	285.9	4.00	<1	
1125	21.30	108	0.01 / 0.10	11.64	613	5.83	296.3	3.80	<1	
1130	21.32	108	0.02 / 0.12	11.33	616	5.83	303.7	3.73	<1	
1135	21.32	108	0 / 0.12	11.58	614	5.83	311.5	3.60	<1	
1140	21.32	108	0 / 0.12	11.64	616	5.82	319.2	3.64	<1	
1145	21.32	108	0 / 0.12	11.54	614	5.85	324.8	3.54	<1	
1150	21.32	108	0 / 0.12	11.57	616	5.88	328.9	3.51	<1	
Sampled for VOCs @ 1153										
6-18-01										
JW										

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 11.57 (°C) | ORP: 328.9 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 616 (uS/cm) | DO: 3.51 (mg/L)
pH: 5.88 (S.U.) | TURBIDITY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, colorless, odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: Overcast, ≈70°F, Lt wind

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-25S

DATE: 6-18-01

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

Field Notes/Observations: None

6-18-01

SAMPLER'S SIGNATURE: [signature]

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-25D
LOCATION: Milford, NH
SAMPLING CREW: JW | DATE: 6-18-08 | SAMPLE TIME: 1312

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 20.01 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1229	20.04	208	0.03/0.03	12.69	298	6.35	252.7	7.60	23.5	
1234	20.04	208	0/0.03	12.34	307	6.14	169.3	2.02	16.4	
1239	20.04	208	0/0.03	12.27	306	6.03	145.2	1.69	9.64	
1244	20.04	208	0/0.03	12.23	305	5.91	136.3	2.03	8.32	
1249	20.04	208	0/0.03	12.02	306	5.84	132.5	1.06	8.25	
1254	20.04	208	0/0.03	12.02	304	5.77	132.7	1.25	7.78	
1259	20.04	208	0/0.03	11.75	304	5.78	135.7	1.36	5.20	
1304	20.04	208	0/0.03	11.94	304	5.79	136.1	1.31	5.11	
1309	20.04	208	0/0.03	12.05	305	5.80	135.1	1.25	5.00	
Sample collected for VOCs @ 1312										
6-18-08										
JW										

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.05 (°C) | ORP: 135.1 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 305 (uS/cm) | DO: 1.25 (mg/L)
pH: 5.80 (S.U.) | TURBIDITIY: 5.00 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: Clear, colorless, odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ~75°F, overcast

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-25 D

DATE: 6-18-08

WELL CONDITION DATA

Protective Casing Present: ~~Y~~ ~~N~~ Concrete Pad Present: Y N Cap on Riser: Y N
Protective Casing Locked: Y ~~N~~ Standing Water: Y ~~N~~ Visible Heaving: Y ~~N~~
Physical Damage: Y ~~N~~
If yes, Describe: Casing is loose in concrete pad

Field Notes/Observations: ~~[illegible]~~ Used larger Flex tubing to draw from well

6-18-08

SAMPLER'S SIGNATURE: [signature]

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-26S
LOCATION: Milford, NH
SAMPLING CREW: JW | DATE: 6-17-08 | SAMPLE TIME: 1406

PURGING DATA
REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 21.91 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1313	21.91	186	0 / 0	11.46	172	5.71	315.6	3.52		
1318	21.91	186	0 / 0	11.05	176	5.33	344.4	1.93	9.40	
1323	21.91	186	0 / 0	11.17	180	5.16	363.4	1.41	9.42	
1328	21.91	186	0 / 0	11.37	183	5.09	376.7	1.34	6.30	
1333	21.91	186	0 / 0	11.36	183	5.02	389.1	1.15	3.84	
1338	21.91	186	0 / 0	11.36	183	5.01	399.7	1.07	3.22	
1343	21.91	186	0 / 0	11.23	182	4.97	405.2	1.14	3.59	
1348	21.91	186	0 / 0	11.53	184	4.90	409.6	1.11	2.72	
1353	21.91	186	0 / 0	11.46	184	4.86	420.6	1.09	2.56	
1358	21.91	186	0 / 0	11.52	183	4.86	424.3	1.09	1.84	
1403	21.91	186	0 / 0	11.52	183	4.88	427.3	1.10	1.77	Turbidity not stable but is less than 5 NTU
Sample collected for VOCs @ 1406										
				6-17-08						

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 11.52 (°C) | ORP: 427.3 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 183 (uS/cm) | DO: 1.10 (mg/L)
pH: 4.88 (S.U.) | TURBIDITY: 1.77 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, colorless, odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ~70°F, windy, overcast

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID RW-265

DATE: 6-17-08

WELL CONDITION DATA

Protective Casing Present:	(Y)	N	Concrete Pad Present:	(Y)	N	Cap on Riser:	(Y) N
Protective Casing Locked:	Y	(N)	Standing Water:	Y	(N)	Visible Heaving:	Y (N)
Physical Damage:	Y	(N)					

If yes, Describe:

Field Notes/Observations: Added ~~flex~~ smaller flex tubing to end

6-17-08

SAMPLER'S SIGNATURE: Jon Moore

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME: Savage Well/OK Tool | PROJECT #: 20111.023 | WELL ID: PW-275
LOCATION: Milford, NH
SAMPLING CREW: JW | DATE: 6-18-08 | SAMPLE TIME: 1524

PURGING DATA

REFERENCE POINT (CIRCLE): (P.V.C.) Steel Casing | PURGING DEVICE: Peristaltic
INITIAL DTW: 20.46 (FT) | WELL DEPTH: (FT) | Well Diameter: 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	Drawdown/Total Drawdown (ft)	TEMP (°C) (3%)	SP COND (uS/cm)[1] (3%)	pH (s.u) (+/-0.1)	ORP/Eh[2] (MV) (+/-10)	DO (mg/L) (10%)	Turb (NTU) (10%)	COMMENTS
1440	20.49	249	0.03 / 0.03	10.92	286	6.34	202.x	8.00	1.42	
1445	20.48	194	-0.01 / 0.02	10.77	282	5.99	339.0	6.19	1.18	
1450	20.48	194	0 / 0.02	10.65	279	5.97	355.1	5.53	1.41	
1455	20.48	194	0 / 0.02	10.85	277	5.99	366.1	4.63	<1	
1500	20.48	194	0 / 0.02	10.81	276	5.98	374.5	4.80	<1	
1505	20.48	194	0 / 0.02	10.55	276	5.99	382.7	4.91	<1	
1510	20.48	194	0 / 0.02	10.66	275	6.02	388.6	5.16	<1	
1515	20.48	194	0 / 0.02	10.52	275	6.05	393.0	5.38	<1	
1520	20.48	194	0 / 0.02	10.52	274	6.11	395.3	5.01	<1	
Sample Collected @ 1524 for VOCs										
				6-18-08						
			JW							

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 10.52 (°C) | ORP: 395.3 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 274 (uS/cm) | DO: 5.01 (mg/L)
pH: 6.11 (S.U.) | TURBIDITIY: <1 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, colorless, odorless | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: ~70°F, over cast, slight breeze

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Savage Well/OK Tool PROJECT # 20111.023 WELL ID PW-275

DATE: 6-18-08

WELL CONDITION DATA

Protective Casing Present:	Y	N	Concrete Pad Present:	Y	N	Cap on Riser:	Y N
Protective Casing Locked:	Y	N	Standing Water:	Y	N	Visible Heaving:	Y N
Physical Damage:	Y	N					

If yes, Describe:

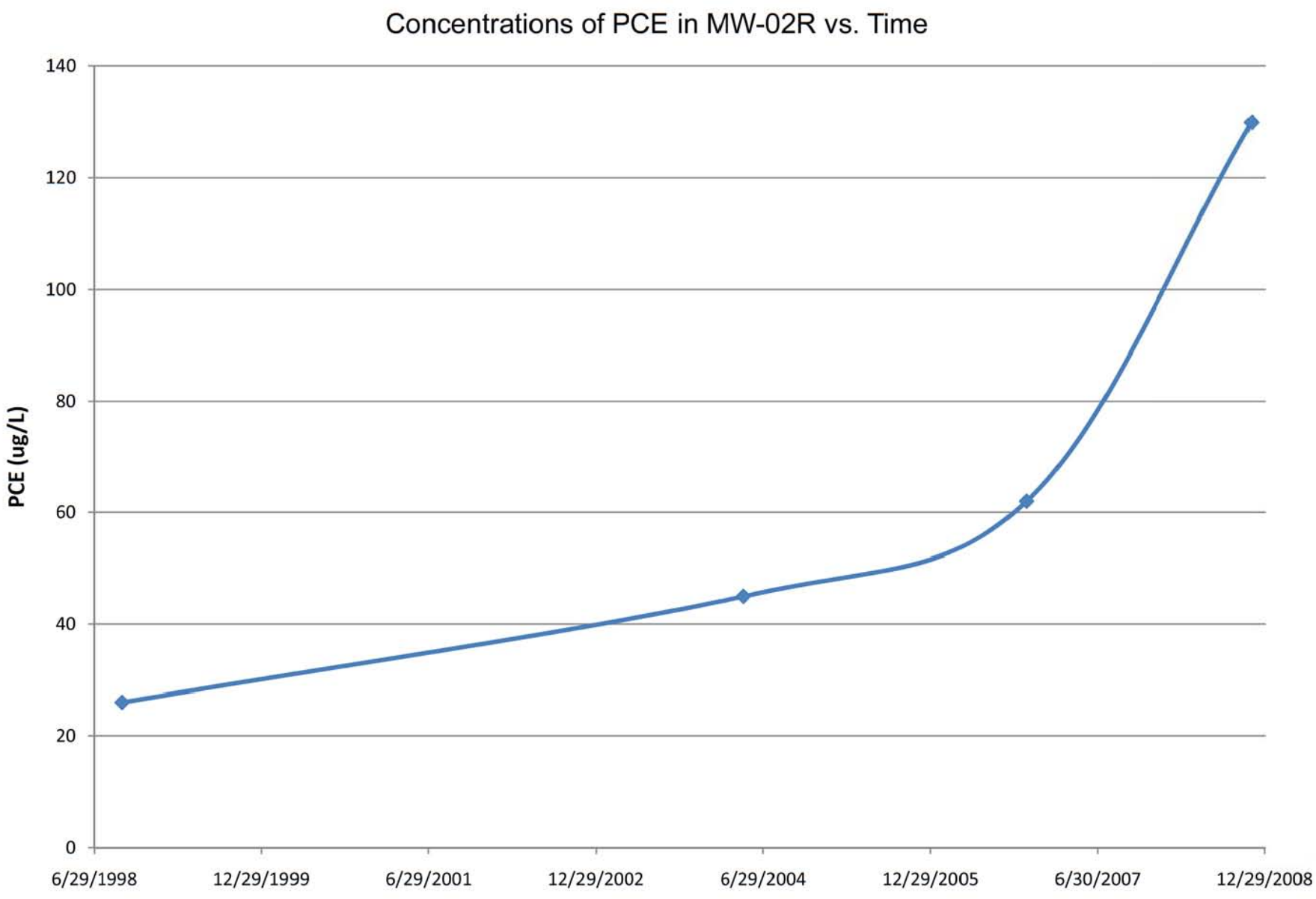
Field Notes/Observations: Had to remove masterflex tubing. Did not provide suction to acquire sample

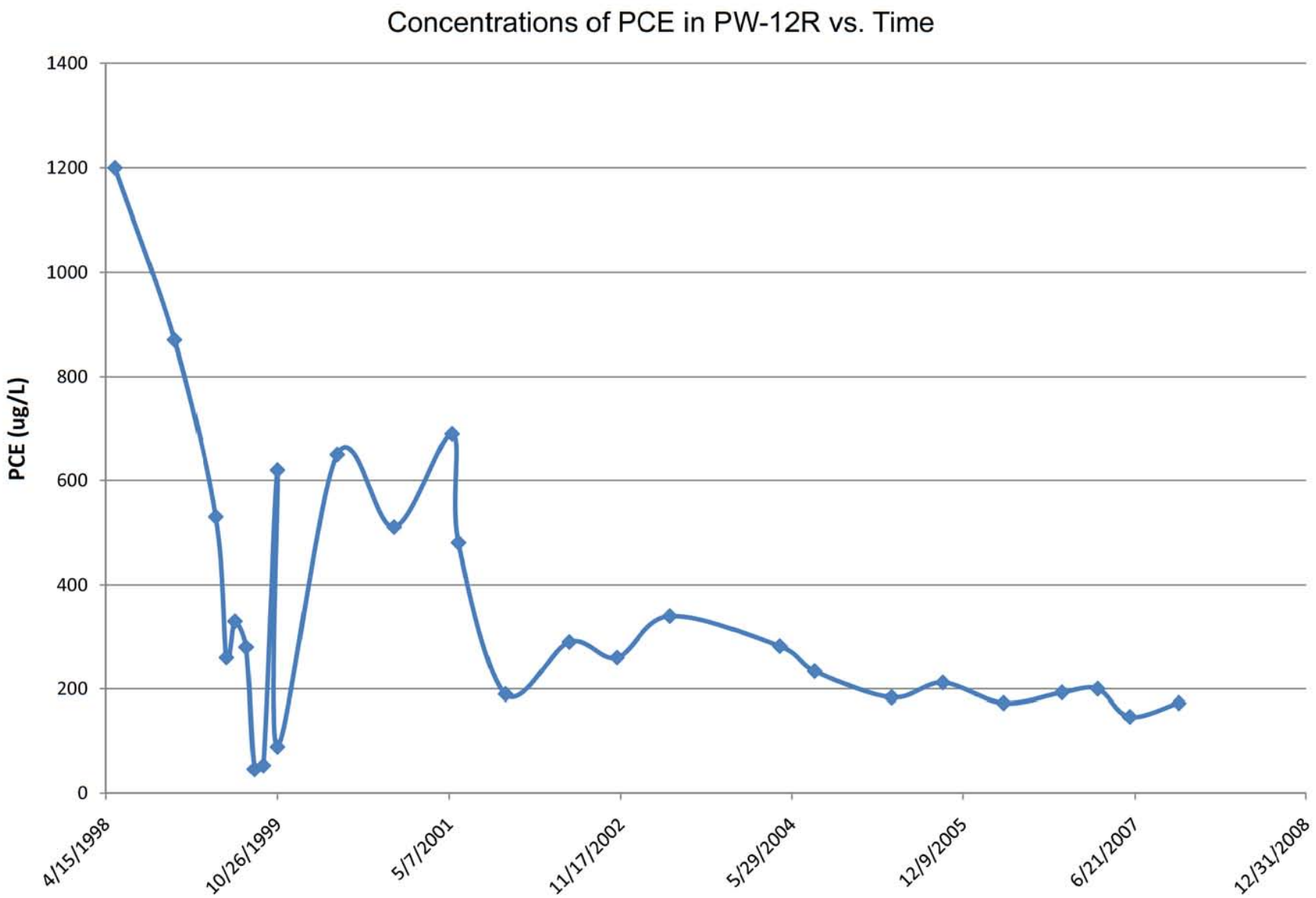
6-18-08

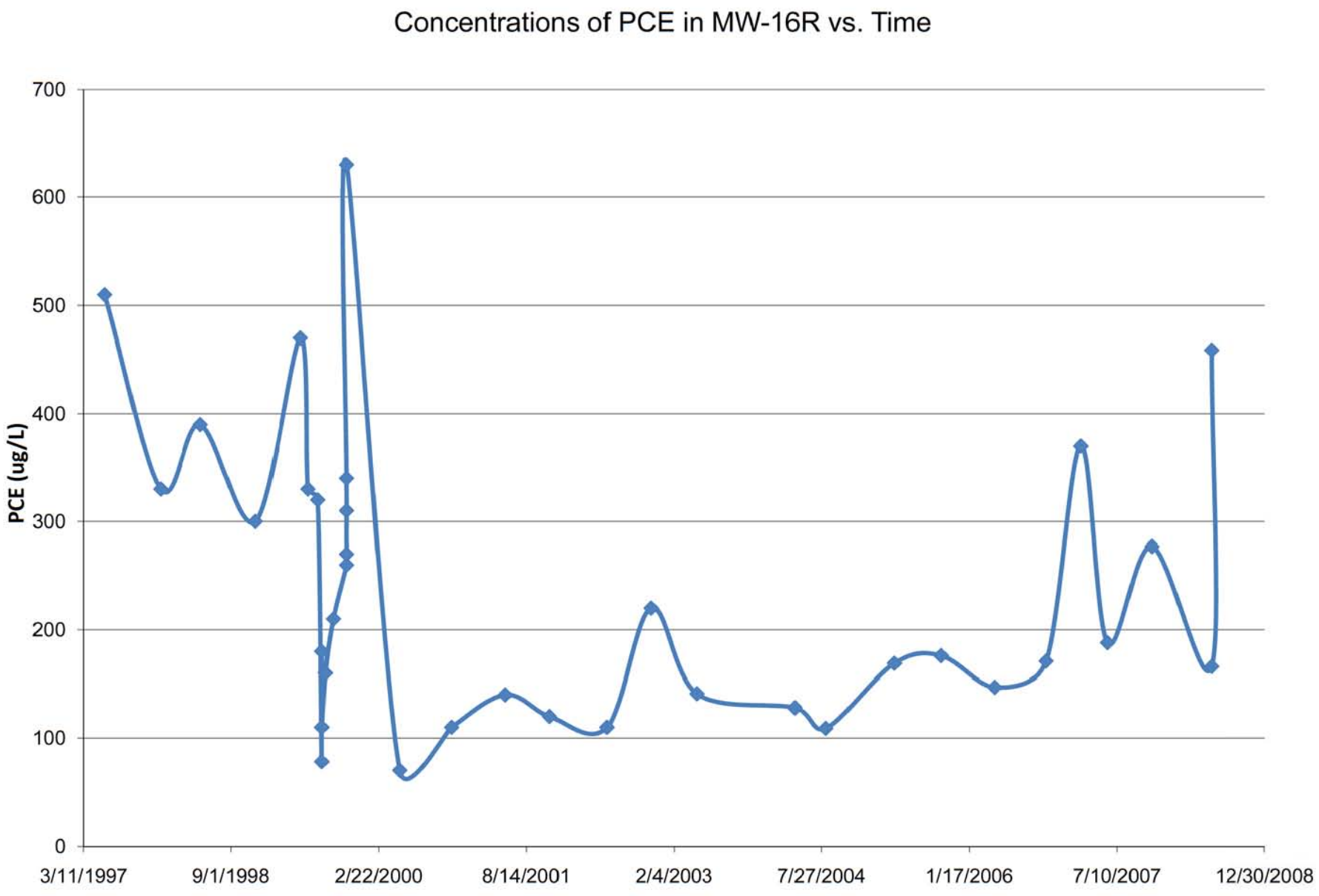
SAMPLER'S SIGNATURE:

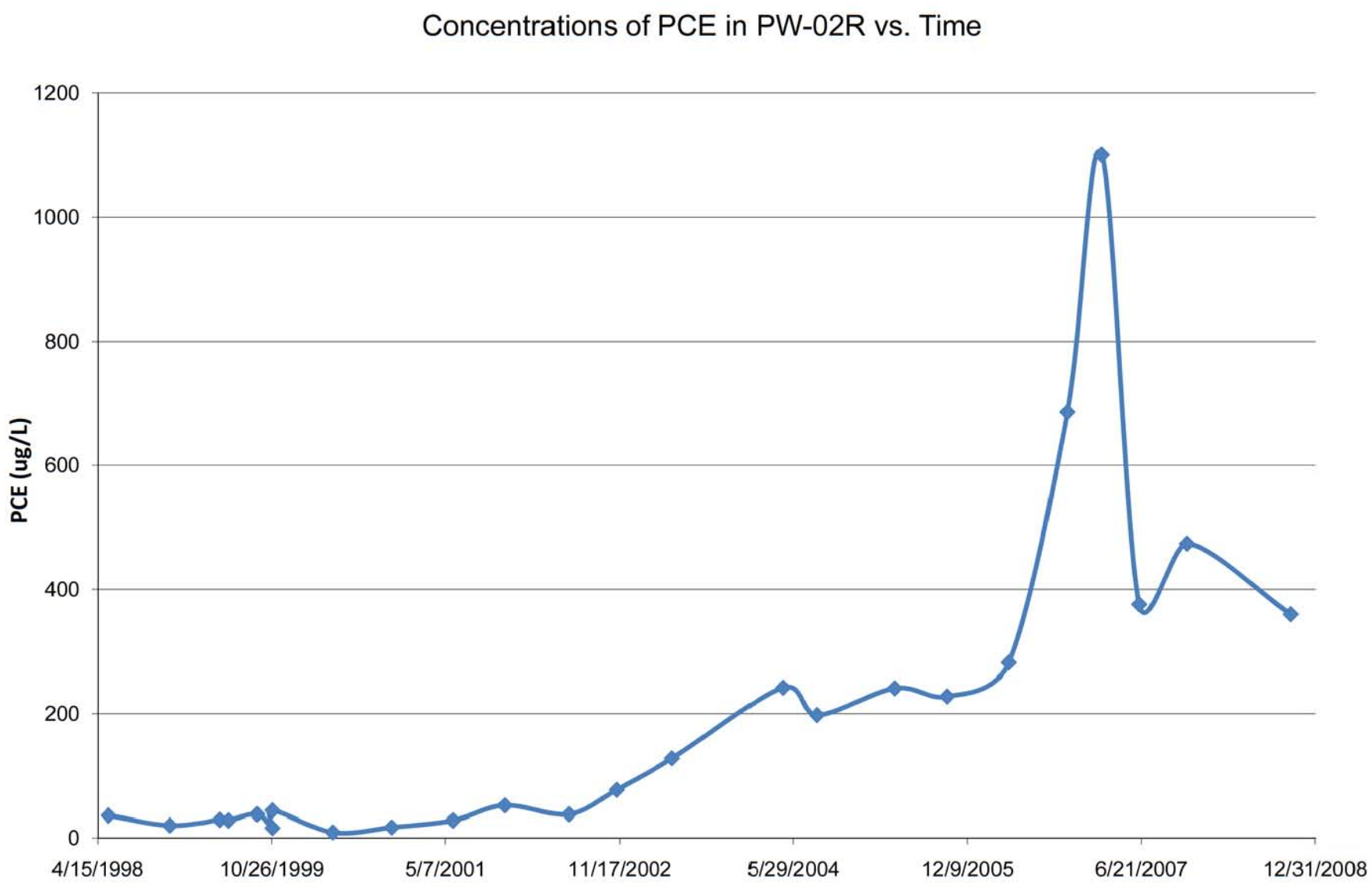
APPENDIX G

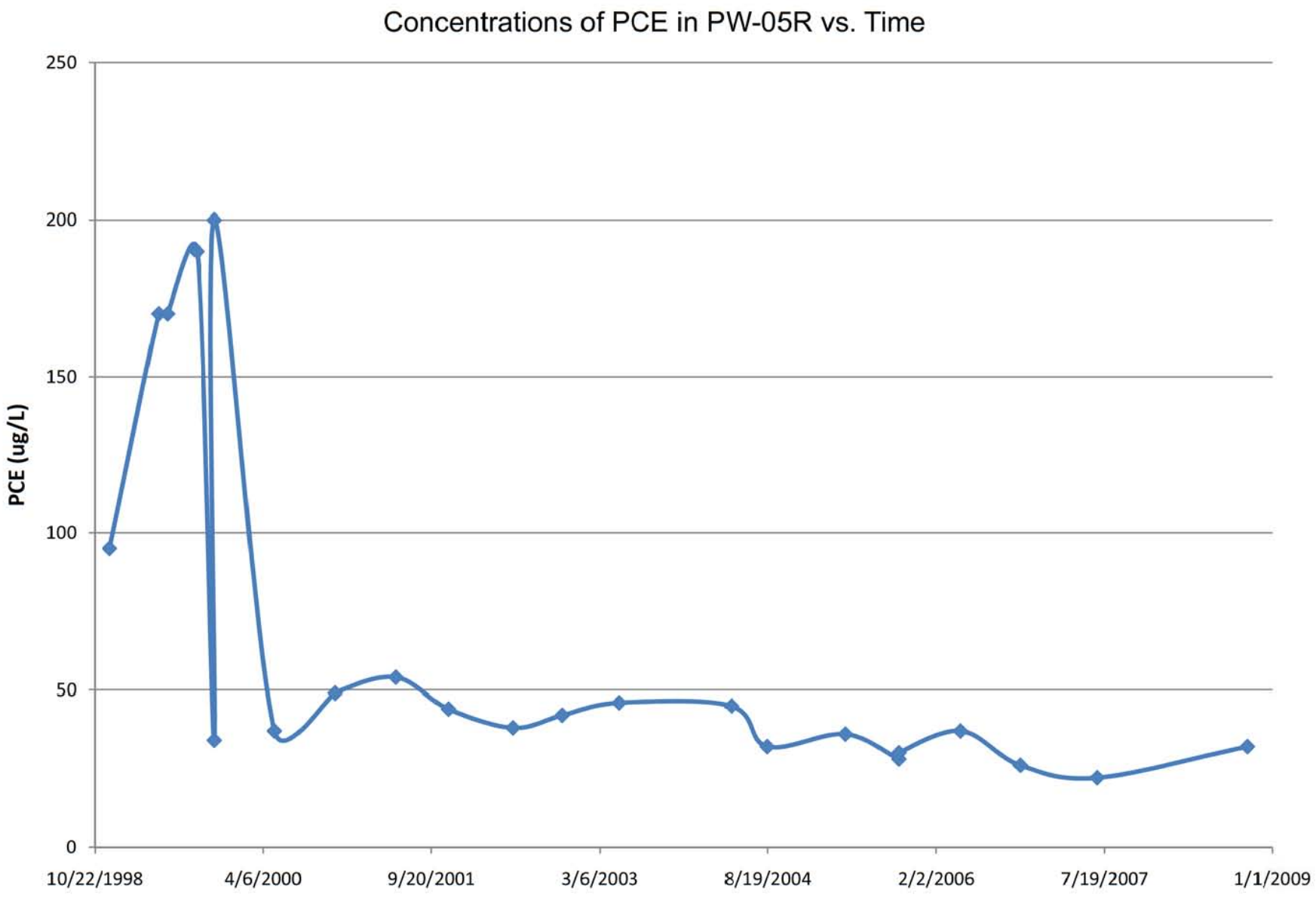
BEDROCK WELL TETRACHLOROETHENE CONCENTRATION GRAPHS

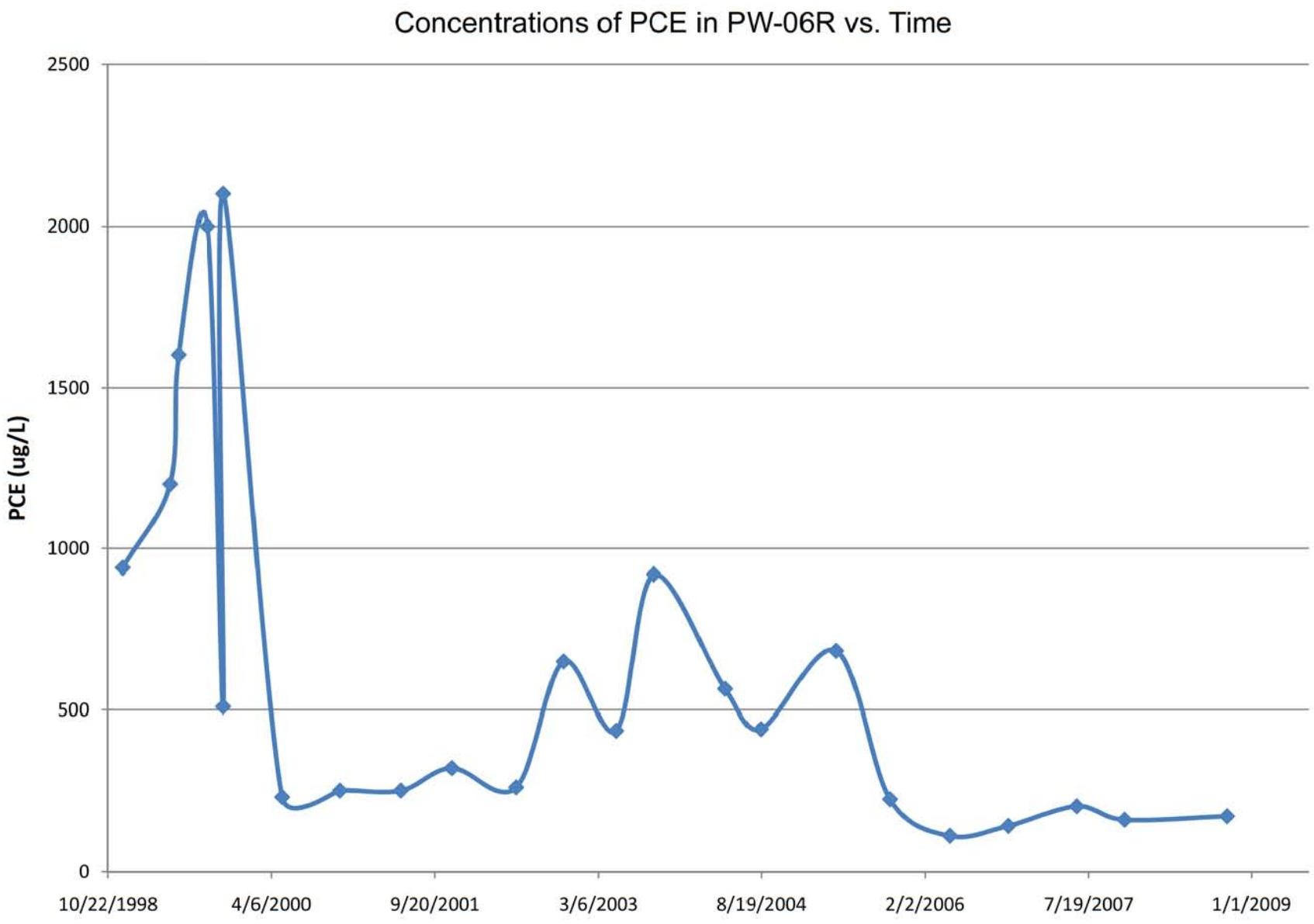

Concentrations of PCE in MW-02R vs. Time
PCE (ug/L)
140
120
100
80
60
40
20
0
6/29/1998
12/29/1999
6/29/2001
12/29/2002
6/29/2004
12/29/2005
6/30/2007
12/29/2008


Concentrations of PCE in PW-12R vs. Time
PCE (ug/L)
1400
1200
1000
800
600
400
200
0
4/15/1998
10/26/1999
5/7/2001
11/17/2002
5/29/2004
12/9/2005
6/21/2007
12/31/2008


Concentrations of PCE in MW-16R vs. Time
PCE (ug/L)
700
600
500
400
300
200
100
0
3/11/1997
9/1/1998
2/22/2000
8/14/2001
2/4/2003
7/27/2004
1/17/2006
7/10/2007
12/30/2008

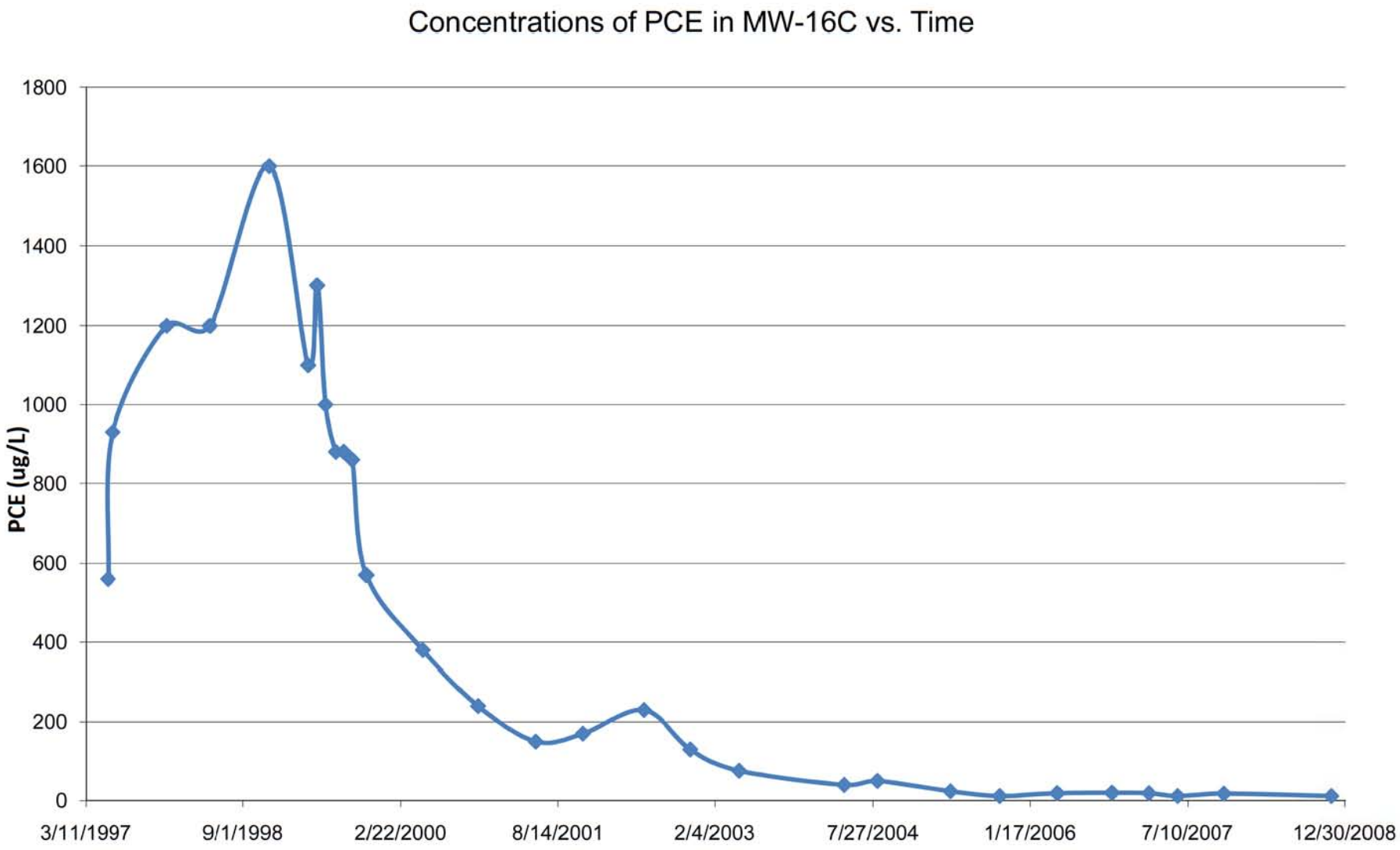

Concentrations of PCE in PW-02R vs. Time
PCE (ug/L)
1200
1000
800
600
400
200
0
4/15/1998
10/26/1999
5/7/2001
11/17/2002
5/29/2004
12/9/2005
6/21/2007
12/31/2008

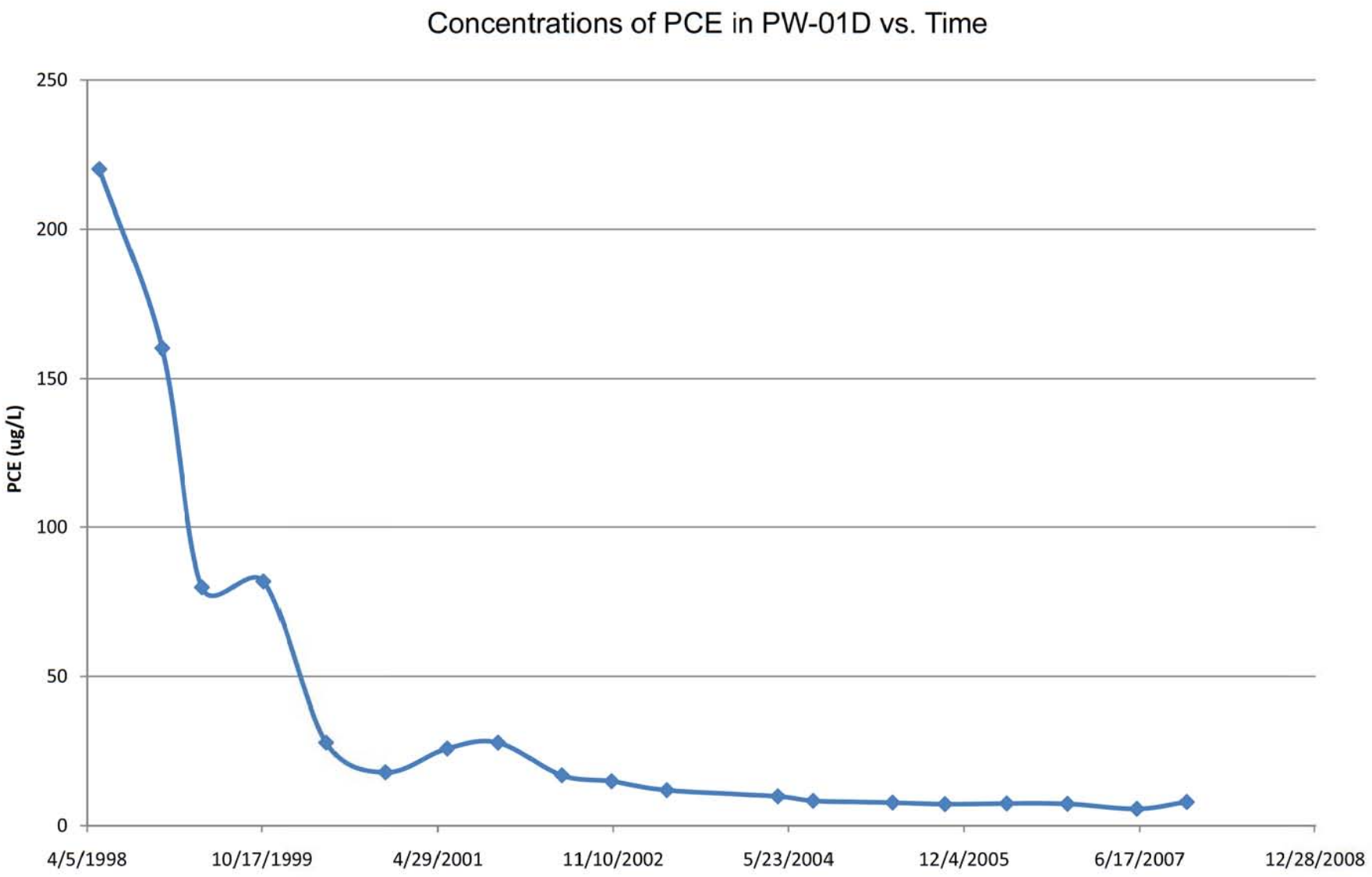

Concentrations of PCE in PW-05R vs. Time
PCE (ug/L)
250
200
150
100
50
0
10/22/1998
4/6/2000
9/20/2001
3/6/2003
8/19/2004
2/2/2006
7/19/2007
1/1/2009

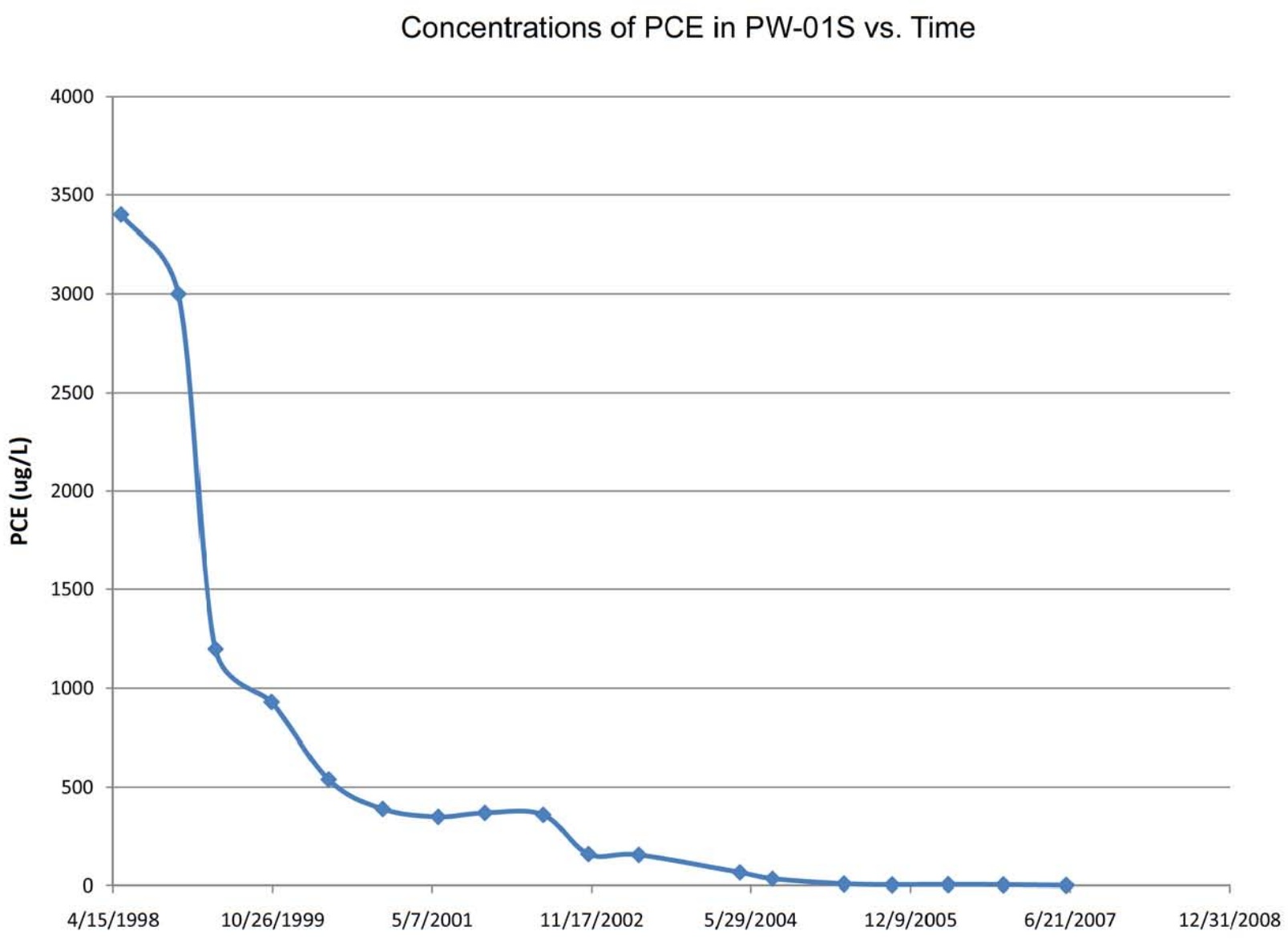

Concentrations of PCE in PW-06R vs. Time
PCE (ug/L)
2500
2000
1500
1000
500
0
10/22/1998
4/6/2000
9/20/2001
3/6/2003
8/19/2004
2/2/2006
7/19/2007
1/1/2009

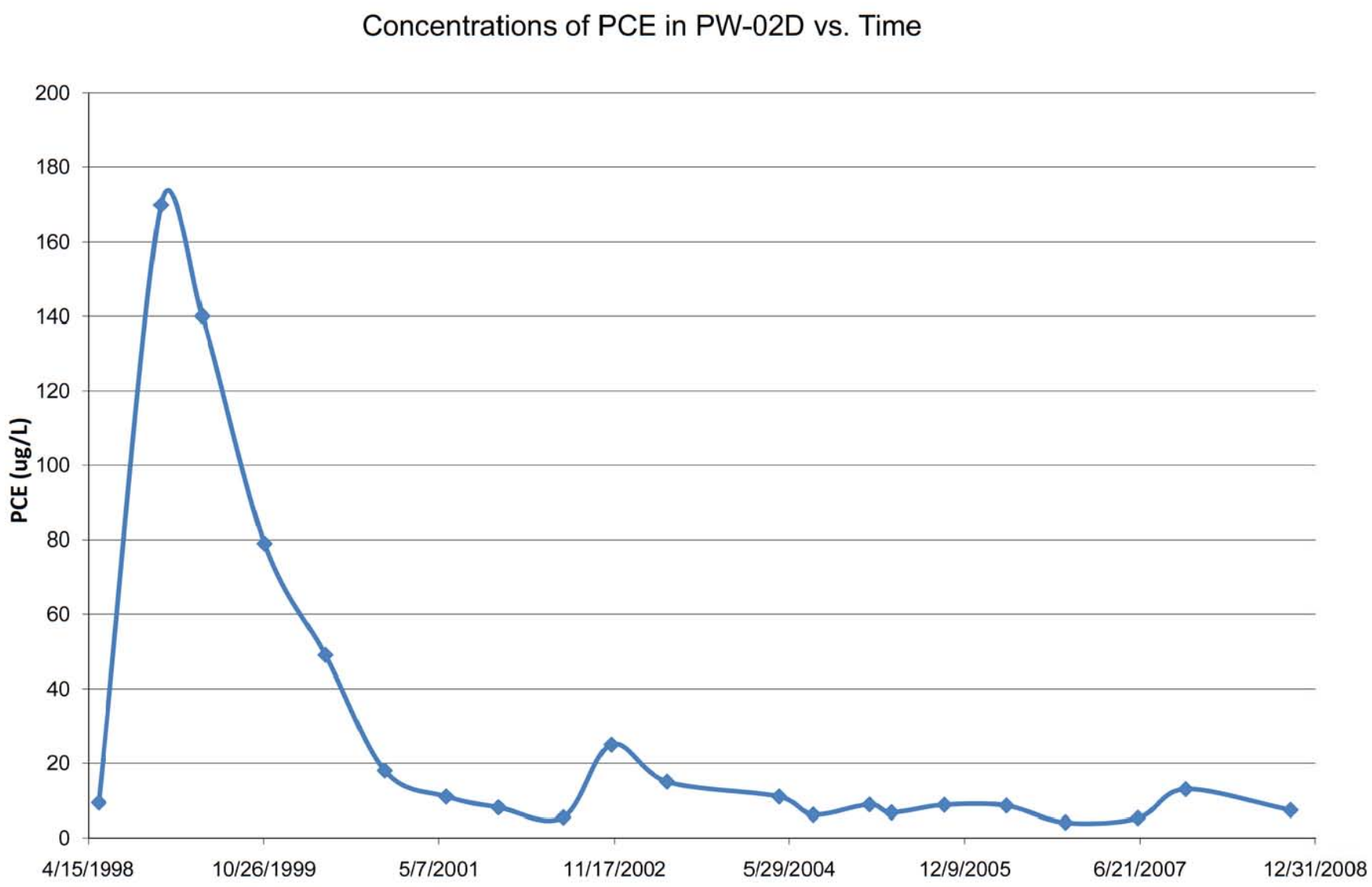
APPENDIX H

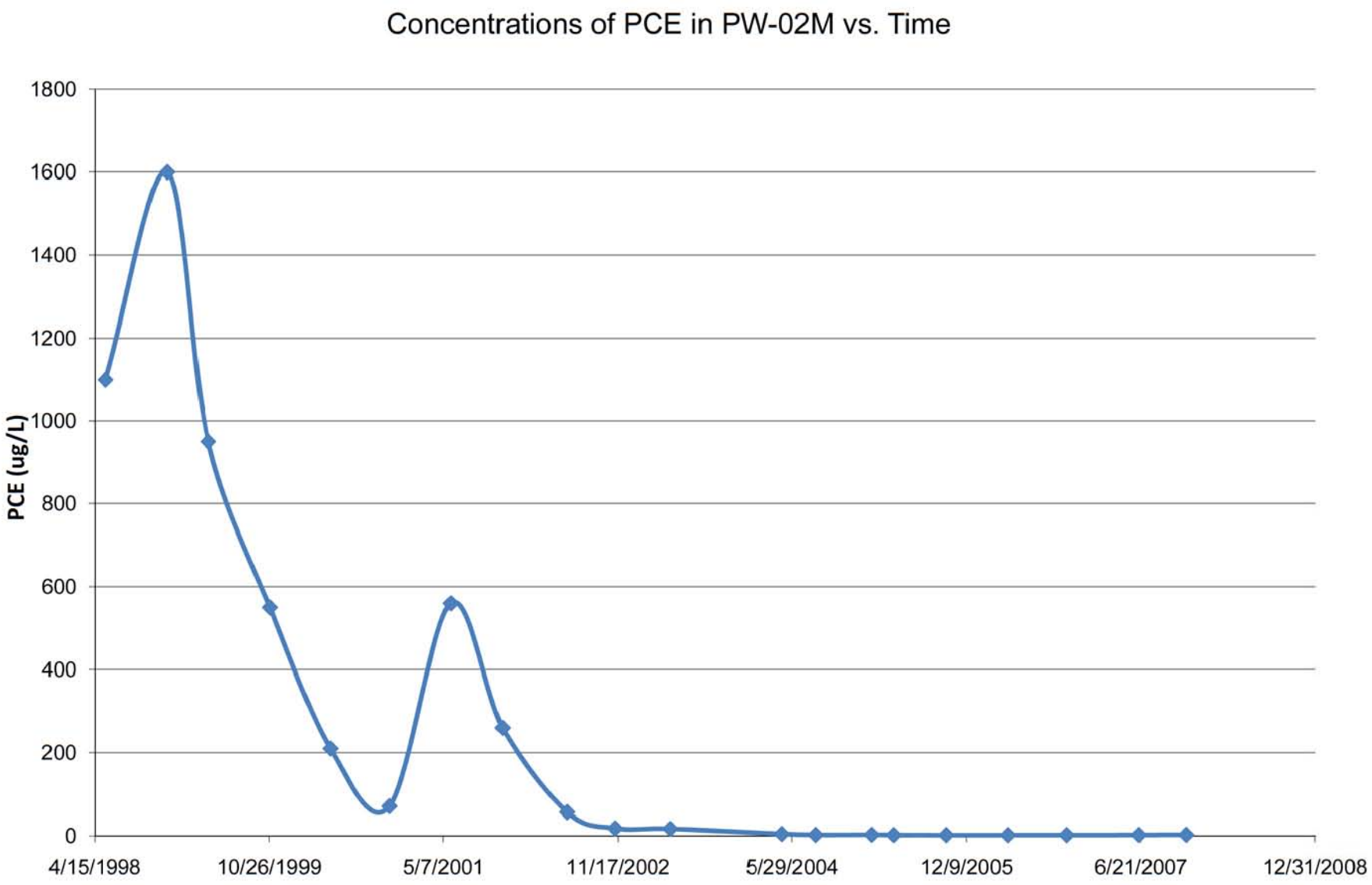
EXTERIOR WELL TETRACHLOROETHENE CONCENTRATION GRAPHS

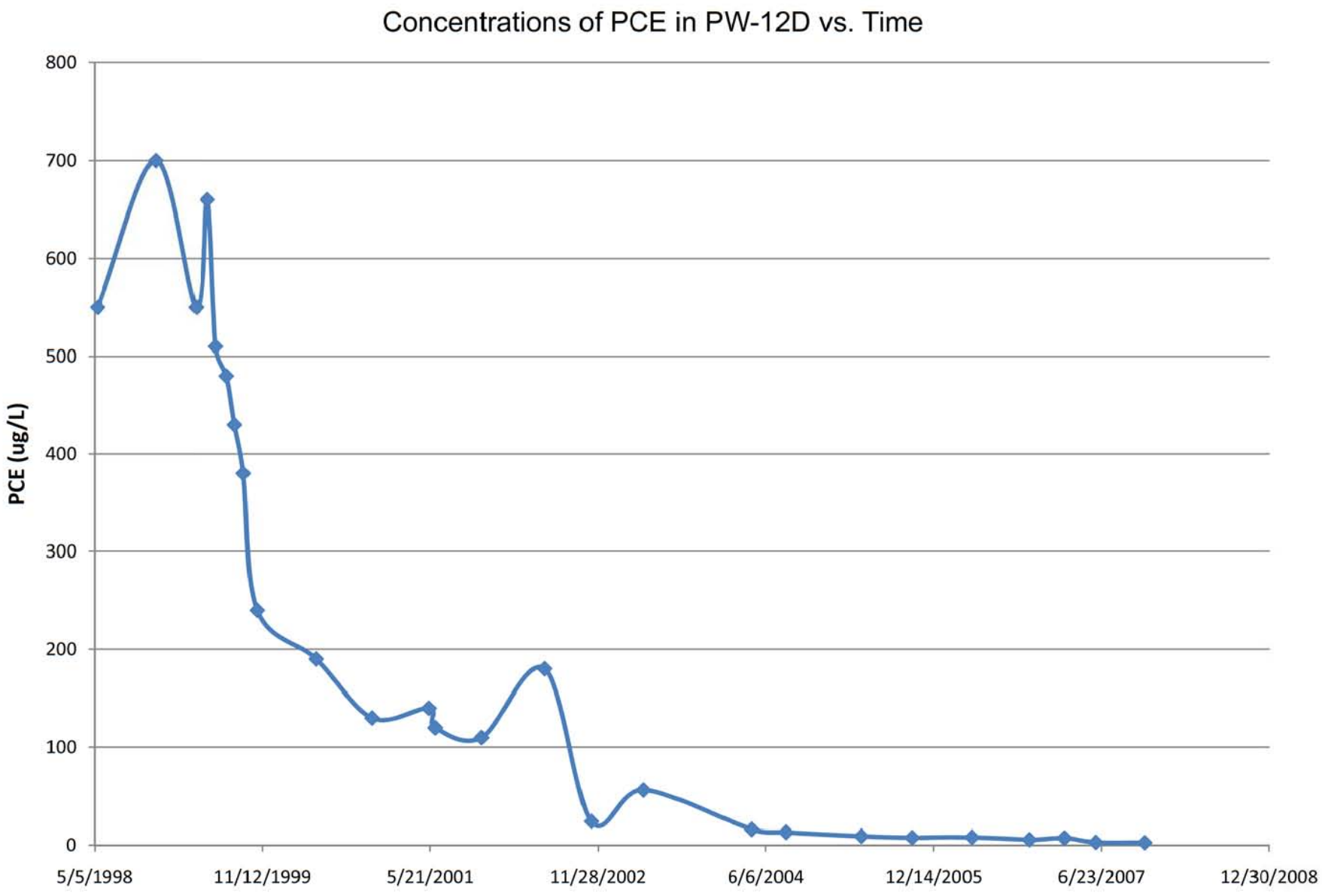

Concentrations of PCE in MW-16C vs. Time
PCE (ug/L)
1800
1600
1400
1200
1000
800
600
400
200
0
3/11/1997
9/1/1998
2/22/2000
8/14/2001
2/4/2003
7/27/2004
1/17/2006
7/10/2007
12/30/2008

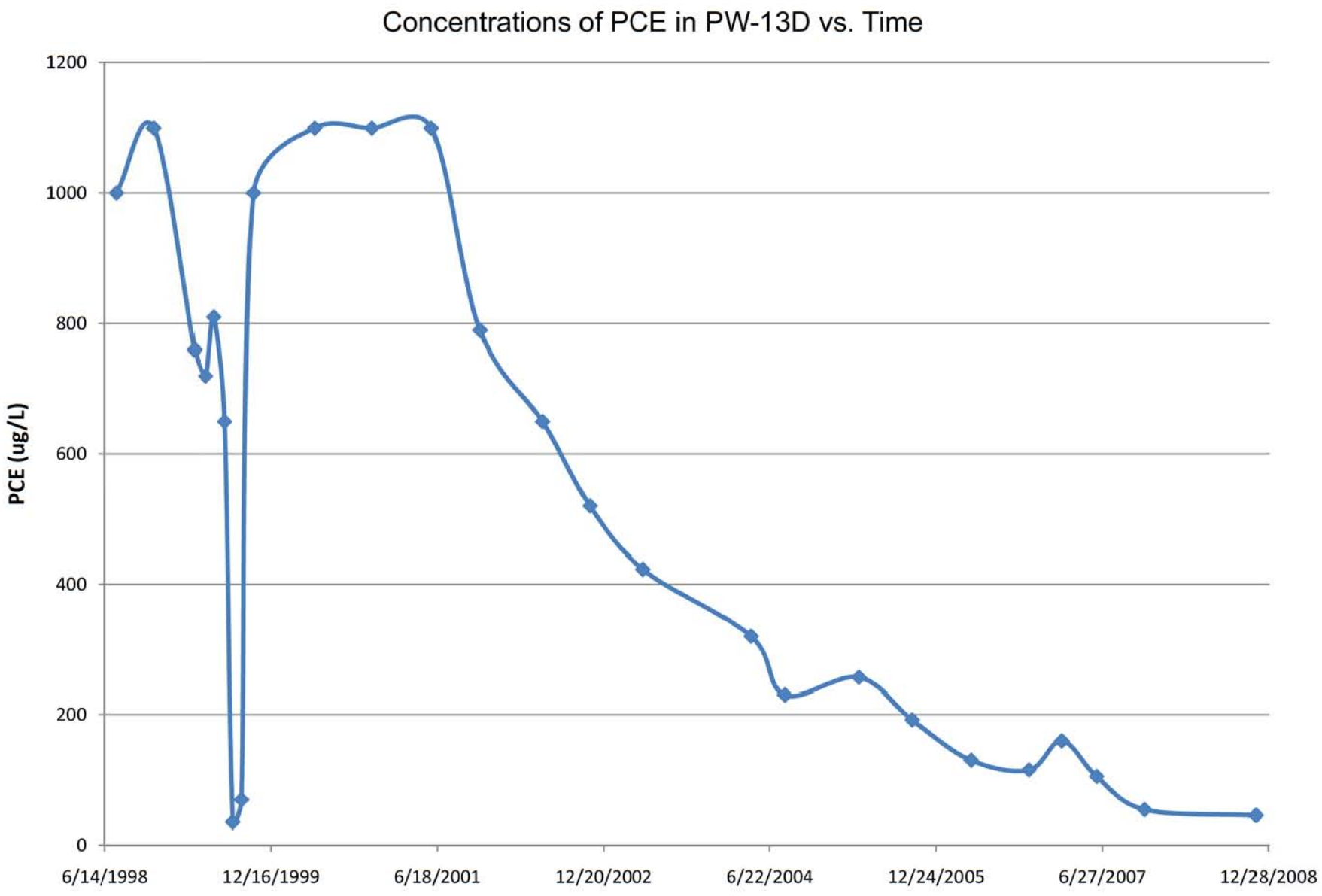

Concentrations of PCE in PW-01D vs. Time
PCE (ug/L)
250
200
150
100
50
0
4/5/1998
10/17/1999
4/29/2001
11/10/2002
5/23/2004
12/4/2005
6/17/2007
12/28/2008

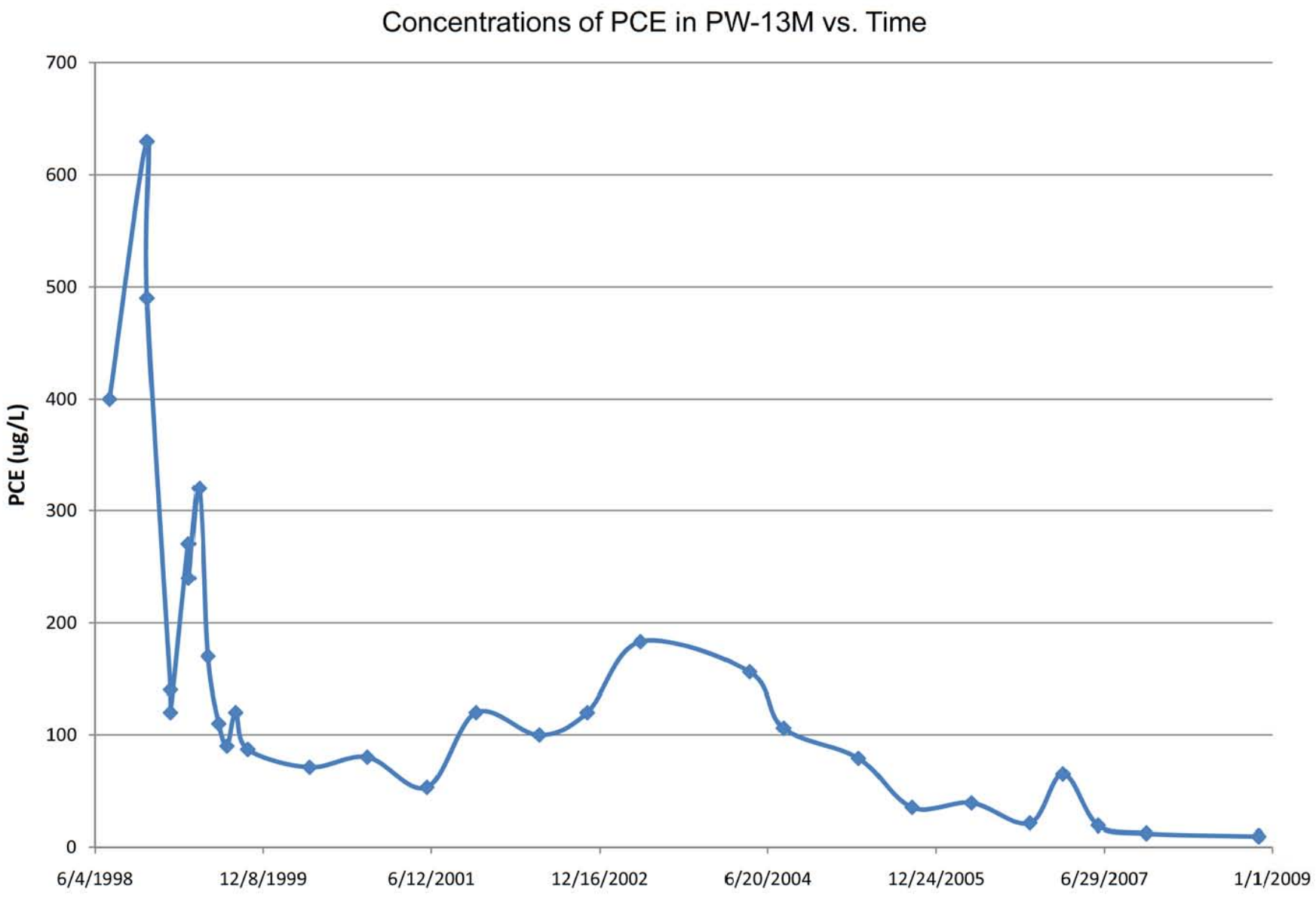

Concentrations of PCE in PW-01S vs. Time
PCE (ug/L)
4000
3500
3000
2500
2000
1500
1000
500
0
4/15/1998
10/26/1999
5/7/2001
11/17/2002
5/29/2004
12/9/2005
6/21/2007
12/31/2008

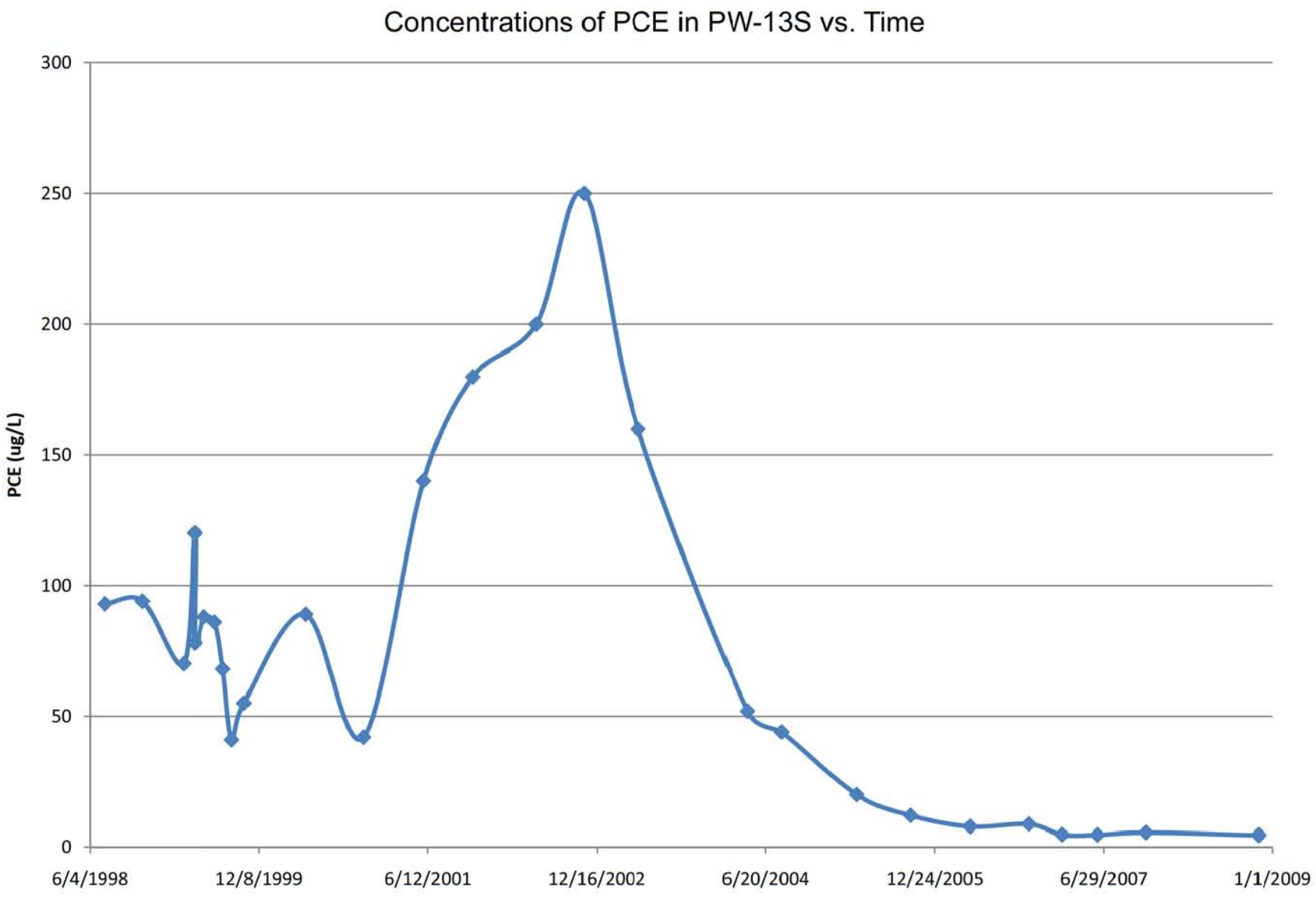

Concentrations of PCE in PW-02D vs. Time
PCE (ug/L)
200
180
160
140
120
100
80
60
40
20
0
4/15/1998
10/26/1999
5/7/2001
11/17/2002
5/29/2004
12/9/2005
6/21/2007
12/31/2008

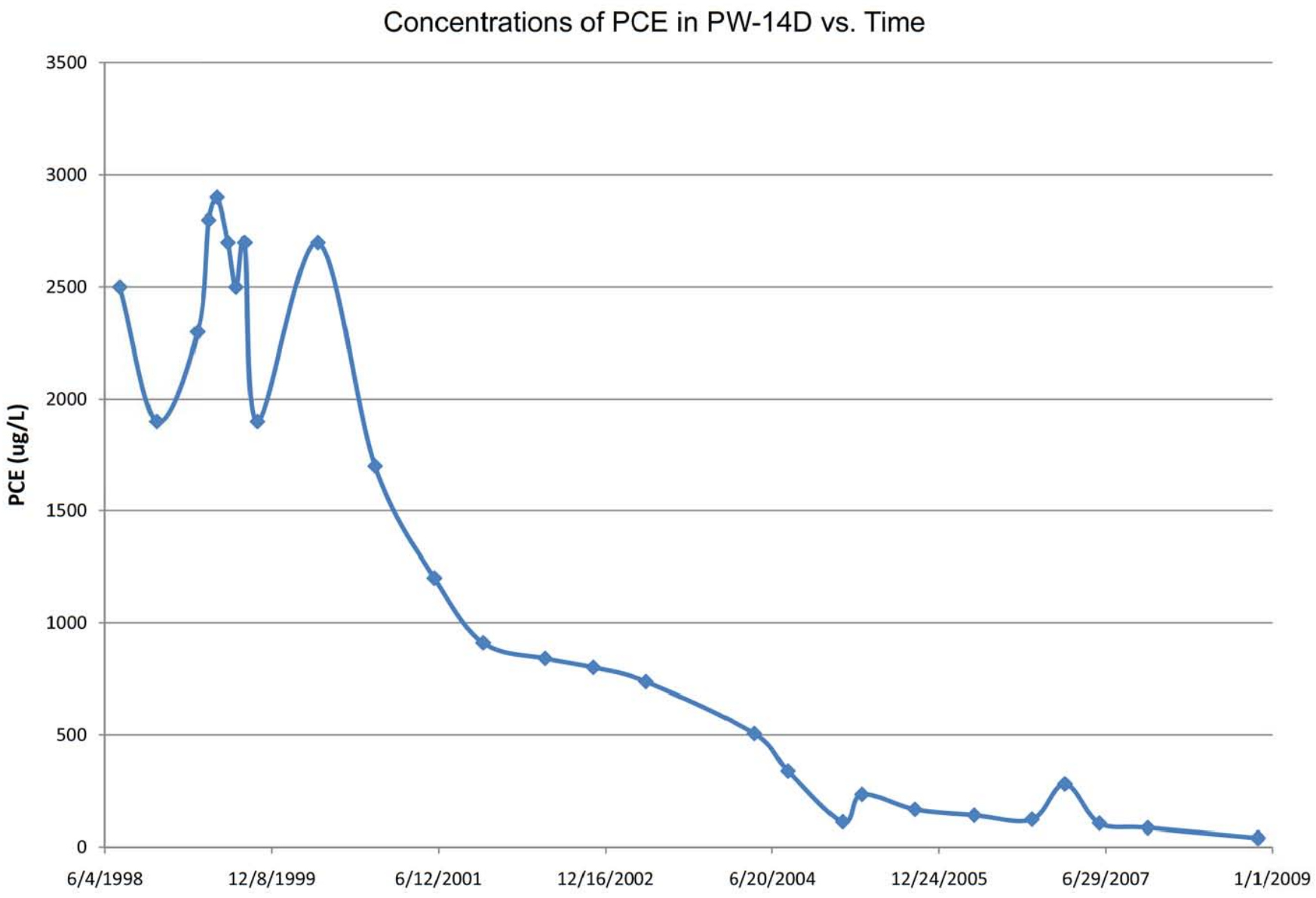

Concentrations of PCE in PW-02M vs. Time
PCE (ug/L)
1800
1600
1400
1200
1000
800
600
400
200
0
4/15/1998
10/26/1999
5/7/2001
11/17/2002
5/29/2004
12/9/2005
6/21/2007
12/31/2008

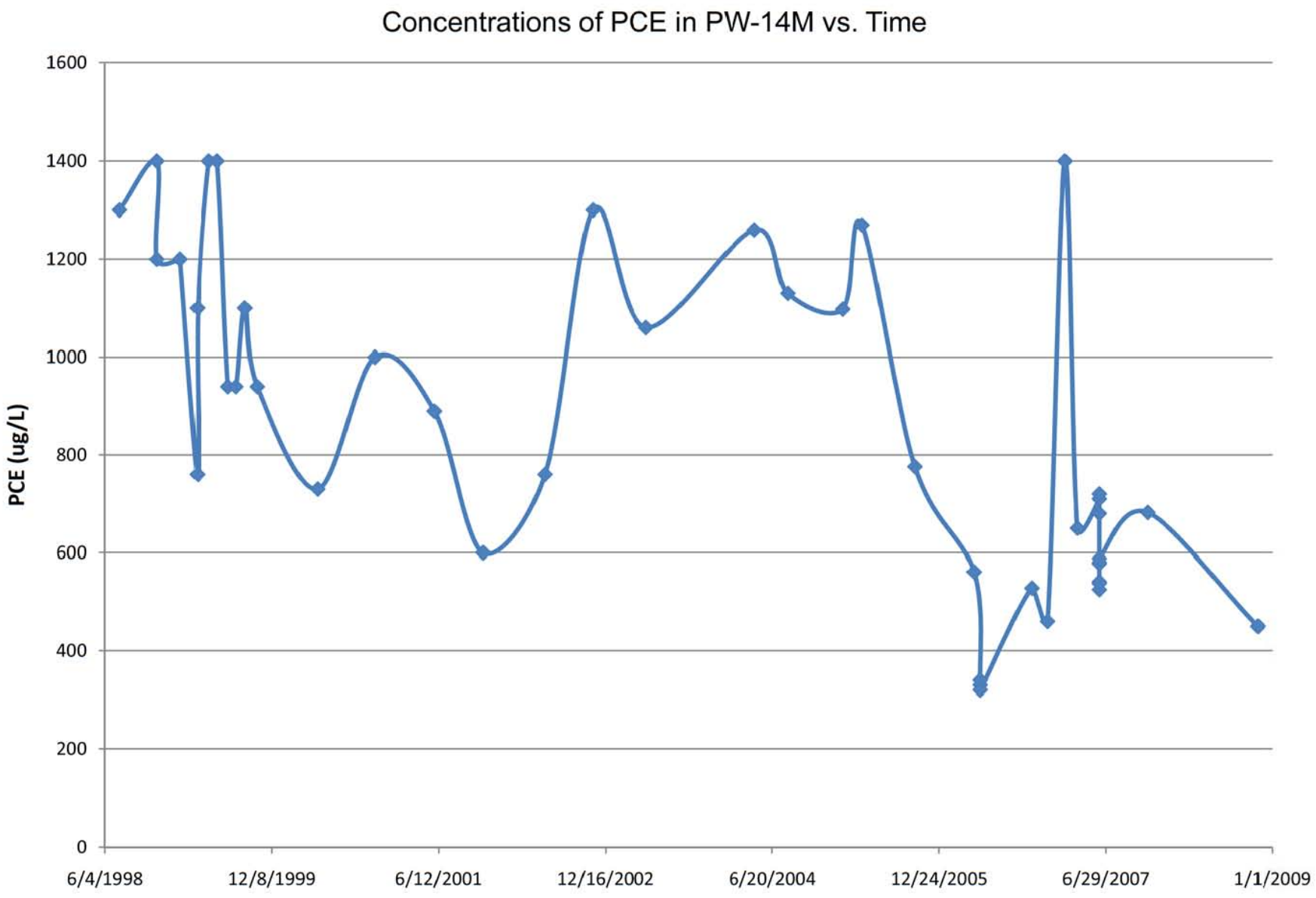

Concentrations of PCE in PW-12D vs. Time
PCE (ug/L)
800
700
600
500
400
300
200
100
0
5/5/1998
11/12/1999
5/21/2001
11/28/2002
6/6/2004
12/14/2005
6/23/2007
12/30/2008

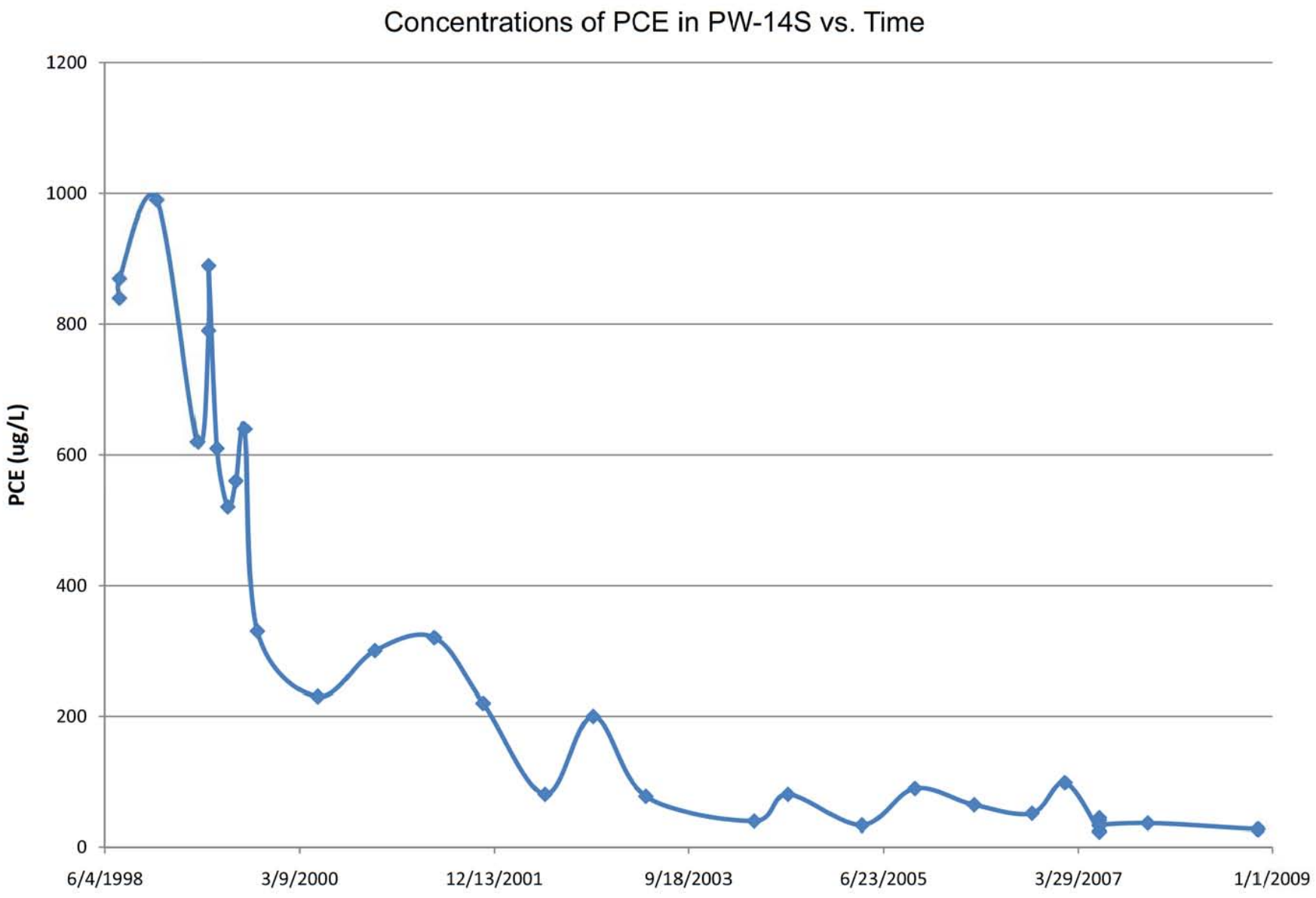

Concentrations of PCE in PW-13D vs. Time
PCE (ug/L)
1200
1000
800
600
400
200
0
6/14/1998
12/16/1999
6/18/2001
12/20/2002
6/22/2004
12/24/2005
6/27/2007
12/28/2008

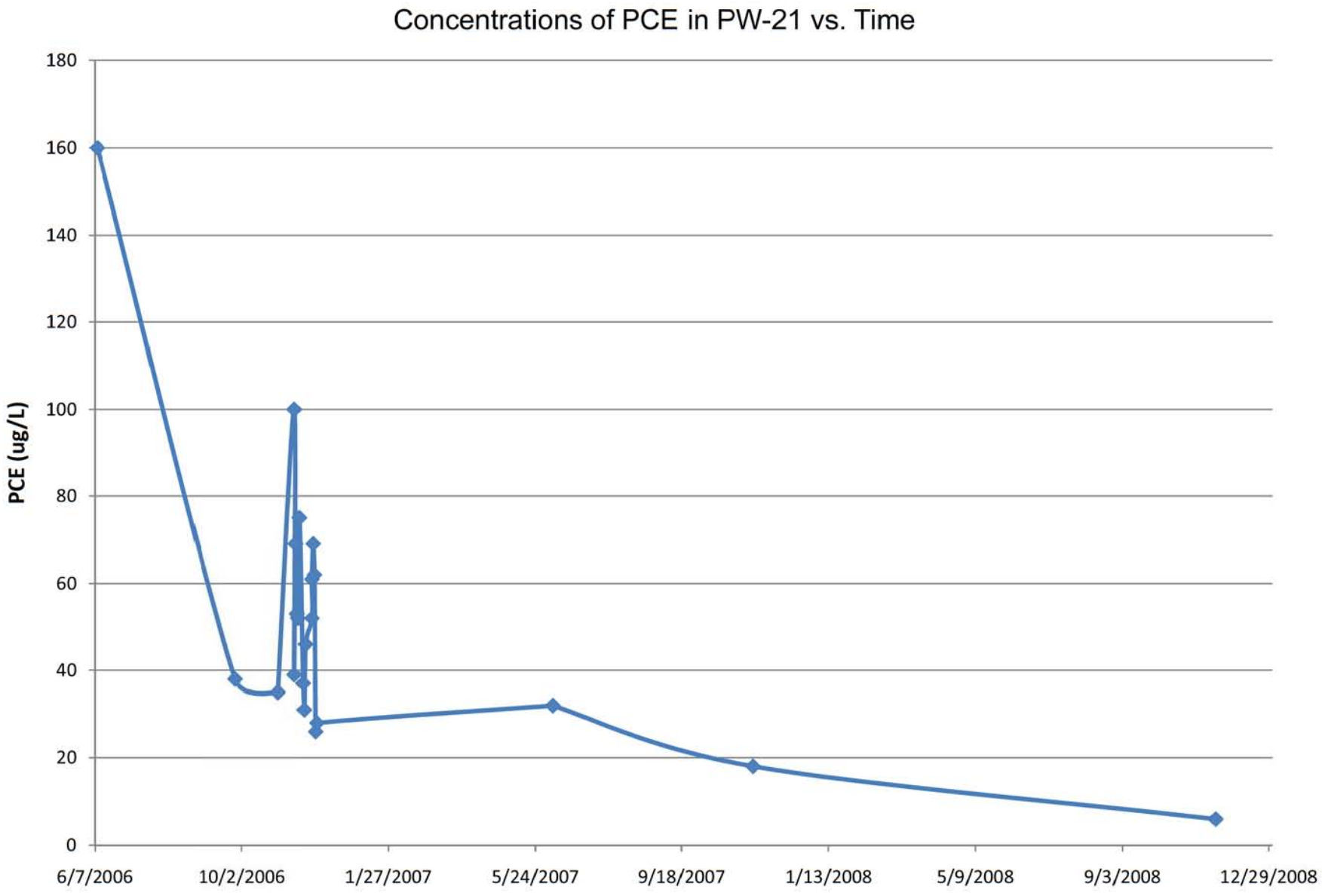

Concentrations of PCE in PW-13M vs. Time
PCE (ug/L)
700
600
500
400
300
200
100
0
6/4/1998
12/8/1999
6/12/2001
12/16/2002
6/20/2004
12/24/2005
6/29/2007
1/1/2009


Concentrations of PCE in PW-13S vs. Time
PCE (ug/L)
300
250
200
150
100
50
0
6/4/1998
12/8/1999
6/12/2001
12/16/2002
6/20/2004
12/24/2005
6/29/2007
1/1/2009


Concentrations of PCE in PW-14D vs. Time
PCE (ug/L)
3500
3000
2500
2000
1500
1000
500
0
6/4/1998
12/8/1999
6/12/2001
12/16/2002
6/20/2004
12/24/2005
6/29/2007
1/1/2009


Concentrations of PCE in PW-14M vs. Time
PCE (ug/L)
1600
1400
1200
1000
800
600
400
200
0
6/4/1998
12/8/1999
6/12/2001
12/16/2002
6/20/2004
12/24/2005
6/29/2007
1/1/2009


Concentrations of PCE in PW-14S vs. Time
PCE (ug/L)
1200
1000
800
600
400
200
0
6/4/1998
3/9/2000
12/13/2001
9/18/2003
6/23/2005
3/29/2007
1/1/2009


Concentrations of PCE in PW-21 vs. Time
PCE (ug/L)
180
160
140
120
100
80
60
40
20
0
6/7/2006
10/2/2006
1/27/2007
5/24/2007
9/18/2007
1/13/2008
5/9/2008
9/3/2008
12/29/2008

APPENDIX I

CORRESPONDENCE WITH AIR RESOURCES DIVISION

Weston Solutions, Inc.
Suite 2 West
43 Constitution Drive
Bedford, New Hampshire 03110
603-656-5400 • Fax 603-656-5401
www.westonsolutions.com

The Trusted Integrator for Sustainable Solutions

13 February 2009

Ms. Michele R. Andy
Air Permit Programs Manager
Stationary Source Management Bureau
P.O. Box 95
29 Hazen Drive
Concord, New Hampshire 03302-0095

Dear Ms. Andy,

Weston Solutions, Inc. (WESTON) is under contract with the New Hampshire Department of Environmental Services (NHDES) to operate the groundwater remediation facility at the Savage Municipal Water Supply Superfund Site (Savage Well) in Milford, New Hampshire. WESTON took over operations and maintenance (O&M) of this facility in January 2008 and has implemented several modifications to the system, including installation of new extraction wells.

A vapor phase carbon treatment system was installed in the Savage Well plant to treat vapor emissions from the air strippers and a soil vapor extraction (SVE) system. The SVE system is no longer in use and was removed from the treatment plant in September 2008. Currently, the extracted groundwater is being treated by air stripping, and the vapor emissions from the air stripper are treated with vapor phase carbon before being discharged to the atmosphere. However, because of the low level of volatile organic compounds (VOCs) in the extracted groundwater, we would like to discontinue use of the vapor phase carbon treatment of the air stripper emissions. Therefore, WESTON is submitting updated VOC data for the existing air stripper emissions (prior to carbon treatment) to confirm that untreated air stripper emissions will not exceed Regulated Toxic Air Polutants (RTAPs), and that the vapor phase carbon system can be bypassed.

Prior correspondence between the Air Resources Division (ARD) and NHDES' previous O&M contractor, Veolia Water, Inc. indicated that a temporary air permit would not be required if vapor phase carbon treatment was discontinued due to the low level of emissions. However,

because WESTON has implemented changes in the groundwater extraction system, we are requesting an additional review to confirm that a temporary air permit would not be required after the extraction well modifications. A copy of ARD's previous correspondence with Veolia Water, Inc., dated January 6, 2006, is provided as Attachment A.

Groundwater extracted from the new shallow extraction wells is being treated by the existing tray aerators. To quantify current air emissions from the aerators, the tray aerator effluent vapor was sampled and analyzed for method TO-15 on December 3, 2008. Attachment B is the Test America Laboratory Report containing the results of the TO-15 analysis. Attachment C is a summary of the analytical data and calculations estimating the 24-Hr De Minimis and Annual De Minimis emissions.

Please review the analytical data, the total air emission data, and 24-Hr De Minimis and Annual De Minimis calculations summarized in Attachment B to confirm that an air emissions permit will not be necessary upon bypass of the carbon vessels.

If you have any questions concerning WESTON's activities at the Savage Municipal Water Supply Well Superfund Site, please contact me at 603-656-5410 or Erik Hall at 603-656-5436.

Very Truly Yours
WESTON SOLUTIONS, INC.

Bette L Nowack

Bette L. Nowack, P.E.
Project Manager

cc: Robin Mongeon, NHDES

ATTACHMENT A

AIR RESOURCES DIVISION LETTER

The State of New Hampshire
Department of Environmental Services

Michael P. Nolin
Commissioner

January 6, 2006

Mr. John Fritsch
Project Manager
Savage Municipal Water Supply Well Superfund Site
621 Elm Street
Milford, NH 03055

Re: No Permit Required for Ground Water Remediation System
Savage Municipal Water Supply Well Superfund Site
621 Elm Street, Milford, NH
Facility Identification # 33011912041; Application # FY05-0173

Dear Mr. Fritsch:

The New Hampshire Department of Environmental Services, Air Resources Division (DES) has reviewed your submittal received at DES on October 14, 2005 for the operation of a groundwater remediation system at the Savage Municipal Water Supply Well Superfund Site (Savage Well) in Milford, New Hampshire. This information was reviewed by DES to determine whether a Temporary Permit would be required for the facility. Details of DES's review are presented in the enclosed permit application review summary. Results of DES's review are summarized below:

- Potential emissions of Volatile Organic Compounds (VOCs) are less than 1 ton per year. This is less than the thresholds of 50 tons in any consecutive 12-month period (tpy) for Major Sources of air pollution in the New Hampshire Code of Administrative Rules Env-A 101.168(b)(3)b, *Major Source,* and 50 tpy for miscellaneous sources of VOCs in Env-A 1204.27, *Applicability Criteria and Compliance Options for Miscellaneous and Multicategory Stationary VOC Sources*. Therefore, a permit limiting VOC emissions to exempt the source from Major Source and VOC Reasonably Available Control Technology (RACT) requirements is not required pursuant to Env-A 607.01, *Specific Applicability for Temporary Permits*, (n) or (x), respectively.
- Actual emissions of VOCs are expected to be less than 1 tpy. Therefore, a permit is not required pursuant to Env-A 607.01(g).
- Potential emissions of Hazardous Air Pollutants (HAPs) are less than 1 tpy. This is less than the thresholds of 10 tpy for any single HAP, or 25 tpy for all HAPs combined for Major Sources in Env-A 101.168(b)(1)a. Therefore, a permit limiting HAP emissions to exempt the source from Major Source HAP requirements is not required pursuant to Env-A 607.01(aa).
- Several pollutants emitted from the facility are currently regulated under Env-A 1400, *Regulated Toxic Air Pollutants* (RTAPs). An analysis of the 24-hour and annual impacts of these pollutants was performed using the deminimus emission level method as allowed in Env-A 1406, *Methods of Demonstrating Compliance*. The analysis showed that the potential, uncontrolled RTAP emissions from the facility would be below their respective deminimus levels. Therefore, in accordance with Env-A 1404.01(b), *Permit Required*, a permit will not be required.

Based on the above determinations, a Temporary Permit will not be required for the groundwater remediation system. Any substantial deviations, such as a change in the amount or type of released pollutants or a physical change in the proposed process, shall require additional review. Please note that Env-A 1400 is updated annually and, regardless of whether a permit is required, Savage Well will need to maintain records sufficient to demonstrate compliance with the most recent list of RTAPs and AALs.

If you have any questions, please contact Barbara Dorfschmidt of the Air Resources Division, Stationary Source Management Bureau at (603) 271-6796 or via email at bdorfschmidt@des.state.nh.us.

Sincerely,

Michele R. Andy

Michele R. Andy
Air Permit Programs Manager
Stationary Source Management Bureau

Enc: Permit Application Review Summary

cc: Thomas Andrews, DES Hazardous Waste Remediation Bureau
Monty Saron, N.A. Water Systems

New Hampshire Department of Environmental Services	**PERMIT APPLICATION REVIEW SUMMARY**	**New Hampshire Department of Environmental Services** **Air Resources Division** **P.O. Box 95, 29 Hazen Drive** **Concord, NH 03302-0095** **Phone: 603-271-1370 Fax: 603-271-7053**

Facility:	Savage Well Superfund Site			**Engineer:**	Barbara Dorfschmidt	
Location:	Milford					
AFS #:	3301191204	**Application #:**	FY05-0173	**Date:**	1/6/06	Page 1 of 2

APPLICATION & OTHER COMMUNICATION:

Date	Description
10/14/05	Permit applicability determination request submitted

PROJECT DESCRIPTION

N.A. Water Systems submitted calculations for emissions from the Savage Municipal Water Supply Well Superfund Site (Savage Well) groundwater remediation facility and requested confirmation from DES that no permit is required for the site.

FACILITY/PROCESS DESCRIPTION

The groundwater remediation system consists of a groundwater extraction system (GWES) and a soil vapor extraction system (SVES). The GWES system consists of four extraction wells. Groundwater is extracted via submersible pumps that convey flow to equalization tanks inside the plant building. Two tray aerators remove VOCs from the contaminated groundwater. The air discharge from the aerators is routed to a pre-heater, then to a vapor phase carbon unit.

The SVES system is run intermittently since the groundwater levels at the site are frequently too high to operate it. The system consists of six wells. Soil vapors extracted by the SVE wells are routed via two headers to vapor phase carbon units at the treatment building.

POLLUTION CONTROL EQUIPMENT

There is a carbon absorption system used to control VOC emissions, but for this evaluation it was assumed that there is no control.

EMISSION CALCULATIONS/AIR TOXICS

The facility submitted summary data of the total VOC mass removed by the GWES and SVES systems based on sampling and flow data. Water samples are taken from the influent of the GWES and air measurements were made with a PID in the vapor stream influent from the SVES. Potential air emissions were estimated based on maximum values from the sampling data and the assumption that all of the VOCs are emitted into the atmosphere without any control (sample calculations are supplied in Attachment 2 of the submittal). Potential annual emissions were estimated assuming the maximum daily emissions occur on each day of the year. The following table summarizes the potential emissions and compares them to the applicable de minimus emission rates listed in Env-A 1400:

Pollutant	CAS #	Weight % of Total VOC	Emissions (lb/day)	De minimus (lb/day)	Emissions (lb/yr)	De minimus (lb/yr)
Tetrachloroethene	127-18-4	89%	2.90	4.8	1,059	1,743
cis-1,2-Dichloroethene	156-59-2	5%	0.16	130	58.4	47,425
Trichloroethene	79-01-6	6%	0.20	7.6	73.0	2,759
1,1,1-Trichloroethane	71-55-6	<1%	<0.03	54	<11.9	19,582
Total VOCs		100%	3.26		0.6 tpy	

Since potential emissions of RTAPs are less than the de minimus emission rates, the facility is able to show compliance without the use of controls and without permit restrictions. Note that actual emissions are estimated to be much less than the calculated potential emissions.

REVIEW OF REGULATIONS

State Regulations

Env-A 600 – *Permitting* (effective 7/28/04)

- 607.01(g) – NO – Potential emissions of VOC < 10 tpy.
- 607.01(n) – NO – The facility is a true minor source.
- 607.01(v) – NO – The facility does not require a permit for compliance with Env-A 1400.

Env-A 1200 – Prevention, Abatement, and Control of Stationary Source Air Pollution (effective 12/31/02)

- 1204.48 – NO – potential emissions of VOC are less than 50 tpy.

Env-A 1400 – *Regulated Toxic Air Pollutants* (effective 6/11/04)

- 1402 – NO – Device able to show compliance using the de minimus emission rates

Federal Regulations

None applicable.

SUMMARY AND CONCLUSIONS

No permit is required for this facility because:

1. VOC emissions are less than 10 tpy; and
2. The facility is able to show compliance with Env-A 1400 without the use of controls.

H:\Permitting\Source Files\Savage Well\05-0173\Savage Well_05-0173_Eng Sum.doc

ATTACHMENT B

TEST AMERICA

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

December 15, 2008

TestAmerica Laboratories, Inc.

Ms. Bette Nowack
Weston Solutions
43 Constitution Drive
Suite 2 West
Bedford, NH 03110

Re: Laboratory Project No. 28000
ETR: 129163

Dear Ms. Nowack:

Enclosed are the analytical results for the samples that were received by TestAmerica Burlington on December 5th, 2008. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 12/05/08 ETR No: 129163		
778161	INFLUENT-2008-12-03	12/03/08	AIR

Documentation of the condition of the samples at the time of their receipt and any exception to the laboratory's Sample Acceptance Policy is documented in the Sample Handling section of this submittal.

The analysis of sample INFLUENT-2008-12-03was accomplished at dilution based on a screen analysis to ensure quantitation of all target constituents within the range of calibrated instrument response.

Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 660-1990.

Sincerely,

Don Dawicki
Project Manager

30 Community Drive Suite 11 South Burlington, VT 05403 **tel** 802.660.1990 **fax** 802.660.1919 **www.testamericainc.com**

TO-14/15
Result Summary

CLIENT SAMPLE NO.

INFLUENT-2008-12-03

Lab Name: TAL Burlington

SDG Number: 129163

Dilution Factor: 6.06

Sample Matrix: AIR

Lab Sample No.: 778161

Date Analyzed: 12/07/2008

Date Received: 12/05/2008

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	3.0	U	3.0	15	U	15
1,2-Dichlorotetrafluoroethane	76-14-2	1.2	U	1.2	8.4	U	8.4
Chloromethane	74-87-3	3.0	U	3.0	6.2	U	6.2
Vinyl Chloride	75-01-4	1.2	U	1.2	3.1	U	3.1
1,3-Butadiene	106-99-0	3.0	U	3.0	6.6	U	6.6
Bromomethane	74-83-9	1.2	U	1.2	4.7	U	4.7
Chloroethane	75-00-3	3.0	U	3.0	7.9	U	7.9
Bromoethene	593-60-2	1.2	U	1.2	5.2	U	5.2
Trichlorofluoromethane	75-69-4	1.2	U	1.2	6.7	U	6.7
Freon TF	76-13-1	1.2	U	1.2	9.2	U	9.2
1,1-Dichloroethene	75-35-4	1.2	U	1.2	4.8	U	4.8
Acetone	67-64-1	30	U	30	71	U	71
Isopropyl Alcohol	67-63-0	30	U	30	74	U	74
Carbon Disulfide	75-15-0	3.0	U	3.0	9.3	U	9.3
3-Chloropropene	107-05-1	3.0	U	3.0	9.4	U	9.4
Methylene Chloride	75-09-2	3.0	U	3.0	10	U	10
tert-Butyl Alcohol	75-65-0	30	U	30	91	U	91
Methyl tert-Butyl Ether	1634-04-4	3.0	U	3.0	11	U	11
trans-1,2-Dichloroethene	156-60-5	1.2	U	1.2	4.8	U	4.8
n-Hexane	110-54-3	3.0	U	3.0	11	U	11
1,1-Dichloroethane	75-34-3	1.2	U	1.2	4.9	U	4.9
Methyl Ethyl Ketone	78-93-3	6.1		3.0	18		8.8
cis-1,2-Dichloroethene	156-59-2	5.1		1.2	20		4.8
Tetrahydrofuran	109-99-9	30	U	30	88	U	88
Chloroform	67-66-3	1.2	U	1.2	5.9	U	5.9
1,1,1-Trichloroethane	71-55-6	1.4		1.2	7.6		6.5
Cyclohexane	110-82-7	1.2	U	1.2	4.1	U	4.1
Carbon Tetrachloride	56-23-5	1.2	U	1.2	7.5	U	7.5
2,2,4-Trimethylpentane	540-84-1	1.2	U	1.2	5.6	U	5.6
Benzene	71-43-2	1.2		1.2	3.8		3.8
1,2-Dichloroethene (total)	540-59-0	5.1		1.2	20		4.8
1,2-Dichloroethane	107-06-2	1.2	U	1.2	4.9	U	4.9

TO-14/15
Result Summary

CLIENT SAMPLE NO.

INFLUENT-2008-12-03

Lab Name: TAL Burlington

SDG Number: 129163

Dilution Factor: 6.06

Sample Matrix: AIR

Lab Sample No.: 778161

Date Analyzed: 12/7/2008

Date Received: 12/5/2008

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	8.8		1.2	47		6.4
1,2-Dichloropropane	78-87-5	1.2	U	1.2	5.5	U	5.5
1,4-Dioxane	123-91-1	30	U	30	110	U	110
Bromodichloromethane	75-27-4	1.2	U	1.2	8.0	U	8.0
cis-1,3-Dichloropropene	10061-01-5	1.2	U	1.2	5.4	U	5.4
Methyl Isobutyl Ketone	108-10-1	3.0	U	3.0	12	U	12
Toluene	108-88-3	5.4		1.2	20		4.5
trans-1,3-Dichloropropene	10061-02-6	1.2	U	1.2	5.4	U	5.4
1,1,2-Trichloroethane	79-00-5	1.2	U	1.2	6.5	U	6.5
Tetrachloroethene	127-18-4	180		1.2	1200		8.1
Methyl Butyl Ketone	591-78-6	3.0	U	3.0	12	U	12
Dibromochloromethane	124-48-1	1.2	U	1.2	10	U	10
1,2-Dibromoethane	106-93-4	1.2	U	1.2	9.2	U	9.2
Chlorobenzene	108-90-7	1.2	U	1.2	5.5	U	5.5
Ethylbenzene	100-41-4	1.2	U	1.2	5.2	U	5.2
Xylene (m,p)	1330-20-7	3.2		3.0	14		13
Xylene (o)	95-47-6	1.2	U	1.2	5.2	U	5.2
Styrene	100-42-5	1.2	U	1.2	5.1	U	5.1
Bromoform	75-25-2	1.2	U	1.2	12	U	12
1,1,2,2-Tetrachloroethane	79-34-5	1.2	U	1.2	8.2	U	8.2
Xylene (total)	1330-20-7	3.2		1.2	14		5.2
4-Ethyltoluene	622-96-8	1.2	U	1.2	5.9	U	5.9
1,3,5-Trimethylbenzene	108-67-8	1.2	U	1.2	5.9	U	5.9
2-Chlorotoluene	95-49-8	1.2	U	1.2	6.2	U	6.2
1,2,4-Trimethylbenzene	95-63-6	1.2	U	1.2	5.9	U	5.9
1,3-Dichlorobenzene	541-73-1	1.2	U	1.2	7.2	U	7.2
1,4-Dichlorobenzene	106-46-7	1.2	U	1.2	7.2	U	7.2
1,2-Dichlorobenzene	95-50-1	1.2	U	1.2	7.2	U	7.2
1,2,4-Trichlorobenzene	120-82-1	3.0	U	3.0	22	U	22
Hexachlorobutadiene	87-68-3	1.2	U	1.2	13	U	13

TO-14/15
Result Summary

CLIENT SAMPLE NO.

CA120708LCS

Lab Name: TAL Burlington

SDG Number: 129163

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: CA120708

Date Analyzed: 12/7/2008

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	11		0.50	54		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	11		0.20	77		1.4
Chloromethane	74-87-3	10		0.50	21		1.0
Vinyl Chloride	75-01-4	10		0.20	26		0.51
1,3-Butadiene	106-99-0	11		0.50	24		1.1
Bromomethane	74-83-9	10		0.20	39		0.78
Chloroethane	75-00-3	10		0.50	26		1.3
Bromoethene	593-60-2	11		0.20	48		0.87
Trichlorofluoromethane	75-69-4	11		0.20	62		1.1
Freon TF	76-13-1	11		0.20	84		1.5
1,1-Dichloroethene	75-35-4	11		0.20	44		0.79
Acetone	67-64-1	10		5.0	24		12
Isopropyl Alcohol	67-63-0	9.4		5.0	23		12
Carbon Disulfide	75-15-0	10		0.50	31		1.6
3-Chloropropene	107-05-1	10		0.50	31		1.6
Methylene Chloride	75-09-2	10		0.50	35		1.7
tert-Butyl Alcohol	75-65-0	9.5		5.0	29		15
Methyl tert-Butyl Ether	1634-04-4	11		0.50	40		1.8
trans-1,2-Dichloroethene	156-60-5	10		0.20	40		0.79
n-Hexane	110-54-3	10		0.50	35		1.8
1,1-Dichloroethane	75-34-3	10		0.20	40		0.81
Methyl Ethyl Ketone	78-93-3	10		0.50	29		1.5
cis-1,2-Dichloroethene	156-59-2	11		0.20	44		0.79
Tetrahydrofuran	109-99-9	9.6		5.0	28		15
Chloroform	67-66-3	10		0.20	49		0.98
1,1,1-Trichloroethane	71-55-6	10		0.20	55		1.1
Cyclohexane	110-82-7	10		0.20	34		0.69
Carbon Tetrachloride	56-23-5	11		0.20	69		1.3
2,2,4-Trimethylpentane	540-84-1	10		0.20	47		0.93
Benzene	71-43-2	10		0.20	32		0.64
1,2-Dichloroethene (total)	540-59-0	21		0.20	83		0.79
1,2-Dichloroethane	107-06-2	10		0.20	40		0.81
n-Heptane	142-82-5	10		0.20	41		0.82

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TO-14/15
Result Summary

CLIENT SAMPLE NO.

CA120708LCS

Lab Name: TAL Burlington

SDG Number: 129163

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: CA120708

Date Analyzed: 12/7/2008

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	10		0.20	54		1.1
1,2-Dichloropropane	78-87-5	9.8		0.20	45		0.92
1,4-Dioxane	123-91-1	8.8		5.0	32		18
Bromodichloromethane	75-27-4	11		0.20	74		1.3
cis-1,3-Dichloropropene	10061-01-5	10		0.20	45		0.91
Methyl Isobutyl Ketone	108-10-1	10		0.50	41		2.0
Toluene	108-88-3	10		0.20	38		0.75
trans-1,3-Dichloropropene	10061-02-6	10		0.20	45		0.91
1,1,2-Trichloroethane	79-00-5	9.6		0.20	52		1.1
Tetrachloroethene	127-18-4	10		0.20	68		1.4
Methyl Butyl Ketone	591-78-6	9.7		0.50	40		2.0
Dibromochloromethane	124-48-1	11		0.20	94		1.7
1,2-Dibromoethane	106-93-4	9.9		0.20	76		1.5
Chlorobenzene	108-90-7	9.9		0.20	46		0.92
Ethylbenzene	100-41-4	10		0.20	43		0.87
Xylene (m,p)	1330-20-7	21		0.50	91		2.2
Xylene (o)	95-47-6	10		0.20	43		0.87
Styrene	100-42-5	10		0.20	43		0.85
Bromoform	75-25-2	11		0.20	110		2.1
1,1,2,2-Tetrachloroethane	79-34-5	9.9		0.20	68		1.4
Xylene (total)	1330-20-7	31		0.20	130		0.87
4-Ethyltoluene	622-96-8	12		0.20	59		0.98
1,3,5-Trimethylbenzene	108-67-8	11		0.20	54		0.98
2-Chlorotoluene	95-49-8	11		0.20	57		1.0
1,2,4-Trimethylbenzene	95-63-6	11		0.20	54		0.98
1,3-Dichlorobenzene	541-73-1	9.6		0.20	58		1.2
1,4-Dichlorobenzene	106-46-7	9.5		0.20	57		1.2
1,2-Dichlorobenzene	95-50-1	9.7		0.20	58		1.2
1,2,4-Trichlorobenzene	120-82-1	9.4		0.50	70		3.7
Hexachlorobutadiene	87-68-3	9.7		0.20	100		2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

CA120708LCSD

Lab Name: TAL Burlington

SDG Number: 129163

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: CA120708

Date Analyzed: 12/7/2008

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	11		0.50	54		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	11		0.20	77		1.4
Chloromethane	74-87-3	10		0.50	21		1.0
Vinyl Chloride	75-01-4	10		0.20	26		0.51
1,3-Butadiene	106-99-0	10		0.50	22		1.1
Bromomethane	74-83-9	10		0.20	39		0.78
Chloroethane	75-00-3	10		0.50	26		1.3
Bromoethene	593-60-2	11		0.20	48		0.87
Trichlorofluoromethane	75-69-4	11		0.20	62		1.1
Freon TF	76-13-1	12		0.20	92		1.5
1,1-Dichloroethene	75-35-4	11		0.20	44		0.79
Acetone	67-64-1	9.3		5.0	22		12
Isopropyl Alcohol	67-63-0	8.9		5.0	22		12
Carbon Disulfide	75-15-0	10		0.50	31		1.6
3-Chloropropene	107-05-1	10		0.50	31		1.6
Methylene Chloride	75-09-2	10		0.50	35		1.7
tert-Butyl Alcohol	75-65-0	9.1		5.0	28		15
Methyl tert-Butyl Ether	1634-04-4	10		0.50	36		1.8
trans-1,2-Dichloroethene	156-60-5	10		0.20	40		0.79
n-Hexane	110-54-3	10		0.50	35		1.8
1,1-Dichloroethane	75-34-3	10		0.20	40		0.81
Methyl Ethyl Ketone	78-93-3	9.8		0.50	29		1.5
cis-1,2-Dichloroethene	156-59-2	11		0.20	44		0.79
Tetrahydrofuran	109-99-9	9.1		5.0	27		15
Chloroform	67-66-3	10		0.20	49		0.98
1,1,1-Trichloroethane	71-55-6	11		0.20	60		1.1
Cyclohexane	110-82-7	11		0.20	38		0.69
Carbon Tetrachloride	56-23-5	11		0.20	69		1.3
2,2,4-Trimethylpentane	540-84-1	10		0.20	47		0.93
Benzene	71-43-2	10		0.20	32		0.64
1,2-Dichloroethene (total)	540-59-0	21		0.20	83		0.79
1,2-Dichloroethane	107-06-2	10		0.20	40		0.81
n-Heptane	142-82-5	10		0.20	41		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

CA120708LCSD

Lab Name: TAL Burlington

SDG Number: 129163

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: CA120708

Date Analyzed: 12/7/2008

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	10		0.20	54		1.1
1,2-Dichloropropane	78-87-5	9.9		0.20	46		0.92
1,4-Dioxane	123-91-1	8.2		5.0	30		18
Bromodichloromethane	75-27-4	11		0.20	74		1.3
cis-1,3-Dichloropropene	10061-01-5	10		0.20	45		0.91
Methyl Isobutyl Ketone	108-10-1	9.7		0.50	40		2.0
Toluene	108-88-3	9.6		0.20	36		0.75
trans-1,3-Dichloropropene	10061-02-6	9.8		0.20	44		0.91
1,1,2-Trichloroethane	79-00-5	9.1		0.20	50		1.1
Tetrachloroethene	127-18-4	9.9		0.20	67		1.4
Methyl Butyl Ketone	591-78-6	9.4		0.50	39		2.0
Dibromochloromethane	124-48-1	11		0.20	94		1.7
1,2-Dibromoethane	106-93-4	9.5		0.20	73		1.5
Chlorobenzene	108-90-7	9.4		0.20	43		0.92
Ethylbenzene	100-41-4	9.8		0.20	43		0.87
Xylene (m,p)	1330-20-7	19		0.50	83		2.2
Xylene (o)	95-47-6	9.4		0.20	41		0.87
Styrene	100-42-5	9.8		0.20	42		0.85
Bromoform	75-25-2	11		0.20	110		2.1
1,1,2,2-Tetrachloroethane	79-34-5	9.2		0.20	63		1.4
Xylene (total)	1330-20-7	29		0.20	130		0.87
4-Ethyltoluene	622-96-8	10		0.20	49		0.98
1,3,5-Trimethylbenzene	108-67-8	9.9		0.20	49		0.98
2-Chlorotoluene	95-49-8	10		0.20	52		1.0
1,2,4-Trimethylbenzene	95-63-6	9.8		0.20	48		0.98
1,3-Dichlorobenzene	541-73-1	8.9		0.20	54		1.2
1,4-Dichlorobenzene	106-46-7	8.8		0.20	53		1.2
1,2-Dichlorobenzene	95-50-1	8.9		0.20	54		1.2
1,2,4-Trichlorobenzene	120-82-1	8.1		0.50	60		3.7
Hexachlorobutadiene	87-68-3	8.4		0.20	90		2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK120708CA

Lab Name: TAL Burlington

SDG Number: 129163

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK1207

Date Analyzed: 12/7/2008

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50	U	0.50	1.0	U	1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.20	U	0.20	1.1	U	1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon Disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene Chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethene (total)	540-59-0	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK120708CA

Lab Name: TAL Burlington

SDG Number: 129163

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK1207

Date Analyzed: 12/7/2008

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.50	U	0.50	2.2	U	2.2
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
Xylene (total)	1330-20-7	0.20	U	0.20	0.87	U	0.87
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TestAmerica Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

* Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P ICP-AES
MS ICP-MS
CV Cold Vapor AA
AS Semi-Automated Spectrophotometric

FQA009:02.18.08:4
TestAmerica Burlington

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

WESTN1 SAMPLE NO.

INFLUENT-
2008-12-03

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix: (soil/water) AIR Lab Sample ID: 778161

Sample wt/vol: 33.00 (g/mL) ML Lab File ID: 778161D2

Level: (low/med) LOW Date Received: 12/05/08

% Moisture: not dec. _____ Date Analyzed: 12/07/08

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 6.1

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	3.0	U
76-14-2	1,2-Dichlorotetrafluoroethan	1.2	U
74-87-3	Chloromethane	3.0	U
75-01-4	Vinyl Chloride	1.2	U
106-99-0	1,3-Butadiene	3.0	U
74-83-9	Bromomethane	1.2	U
75-00-3	Chloroethane	3.0	U
593-60-2	Bromoethene	1.2	U
75-69-4	Trichlorofluoromethane	1.2	U
76-13-1	Freon TF	1.2	U
75-35-4	1,1-Dichloroethene	1.2	U
67-64-1	Acetone	30	U
67-63-0	Isopropyl Alcohol	30	U
75-15-0	Carbon Disulfide	3.0	U
107-05-1	3-Chloropropene	3.0	U
75-09-2	Methylene Chloride	3.0	U
75-65-0	tert-Butyl Alcohol	30	U
1634-04-4	Methyl tert-Butyl Ether	3.0	U
156-60-5	trans-1,2-Dichloroethene	1.2	U
110-54-3	n-Hexane	3.0	U
75-34-3	1,1-Dichloroethane	1.2	U
78-93-3	Methyl Ethyl Ketone	6.1	
156-59-2	cis-1,2-Dichloroethene	5.1	
109-99-9	Tetrahydrofuran	30	U
67-66-3	Chloroform	1.2	U
71-55-6	1,1,1-Trichloroethane	1.4	
110-82-7	Cyclohexane	1.2	U
56-23-5	Carbon Tetrachloride	1.2	U
540-84-1	2,2,4-Trimethylpentane	1.2	U
71-43-2	Benzene	1.2	
540-59-0	1,2-Dichloroethene (total)	5.1	
107-06-2	1,2-Dichloroethane	1.2	U
142-82-5	n-Heptane	1.3	

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

WESTN1 SAMPLE NO.

INFLUENT-
2008-12-03

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix: (soil/water) AIR Lab Sample ID: 778161

Sample wt/vol: 33.00 (g/mL) ML Lab File ID: 778161D2

Level: (low/med) LOW Date Received: 12/05/08

% Moisture: not dec. _____ Date Analyzed: 12/07/08

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 6.1

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
79-01-6	Trichloroethene	8.8	
78-87-5	1,2-Dichloropropane	1.2	U
123-91-1	1,4-Dioxane	30	U
75-27-4	Bromodichloromethane	1.2	U
10061-01-5	cis-1,3-Dichloropropene	1.2	U
108-10-1	Methyl Isobutyl Ketone	3.0	U
108-88-3	Toluene	5.4	
10061-02-6	trans-1,3-Dichloropropene	1.2	U
79-00-5	1,1,2-Trichloroethane	1.2	U
127-18-4	Tetrachloroethene	180	
591-78-6	Methyl Butyl Ketone	3.0	U
124-48-1	Dibromochloromethane	1.2	U
106-93-4	1,2-Dibromoethane	1.2	U
108-90-7	Chlorobenzene	1.2	U
100-41-4	Ethylbenzene	1.2	U
1330-20-7	Xylene (m,p)	3.2	
95-47-6	Xylene (o)	1.2	U
100-42-5	Styrene	1.2	U
75-25-2	Bromoform	1.2	U
79-34-5	1,1,2,2-Tetrachloroethane	1.2	U
1330-20-7	Xylene (total)	3.2	
622-96-8	4-Ethyltoluene	1.2	U
108-67-8	1,3,5-Trimethylbenzene	1.2	U
95-49-8	2-Chlorotoluene	1.2	U
95-63-6	1,2,4-Trimethylbenzene	1.2	U
541-73-1	1,3-Dichlorobenzene	1.2	U
106-46-7	1,4-Dichlorobenzene	1.2	U
95-50-1	1,2-Dichlorobenzene	1.2	U
120-82-1	1,2,4-Trichlorobenzene	3.0	U
87-68-3	Hexachlorobutadiene	1.2	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

CA120708LCS

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix: (soil/water) AIR Lab Sample ID: CA120708LCS

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CHH10CQ

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 12/07/08

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	11	
76-14-2	1,2-Dichlorotetrafluoroethan	11	
74-87-3	Chloromethane	10	
75-01-4	Vinyl Chloride	10	
106-99-0	1,3-Butadiene	11	
74-83-9	Bromomethane	10	
75-00-3	Chloroethane	10	
593-60-2	Bromoethene	11	
75-69-4	Trichlorofluoromethane	11	
76-13-1	Freon TF	11	
75-35-4	1,1-Dichloroethene	11	
67-64-1	Acetone	10	
67-63-0	Isopropyl Alcohol	9.4	
75-15-0	Carbon Disulfide	10	
107-05-1	3-Chloropropene	10	
75-09-2	Methylene Chloride	10	
75-65-0	tert-Butyl Alcohol	9.5	
1634-04-4	Methyl tert-Butyl Ether	11	
156-60-5	trans-1,2-Dichloroethene	10	
110-54-3	n-Hexane	10	
75-34-3	1,1-Dichloroethane	10	
78-93-3	Methyl Ethyl Ketone	10	
156-59-2	cis-1,2-Dichloroethene	11	
109-99-9	Tetrahydrofuran	9.6	
67-66-3	Chloroform	10	
71-55-6	1,1,1-Trichloroethane	10	
110-82-7	Cyclohexane	10	
56-23-5	Carbon Tetrachloride	11	
540-84-1	2,2,4-Trimethylpentane	10	
71-43-2	Benzene	10	
540-59-0	1,2-Dichloroethene (total)	21	
107-06-2	1,2-Dichloroethane	10	
142-82-5	n-Heptane	10	

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

CA120708LCS

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix: (soil/water) AIR Lab Sample ID: CA120708LCS

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CHH10CQ

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 12/07/08

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
79-01-6	Trichloroethene	10	
78-87-5	1,2-Dichloropropane	9.8	
123-91-1	1,4-Dioxane	8.8	
75-27-4	Bromodichloromethane	11	
10061-01-5	cis-1,3-Dichloropropene	10	
108-10-1	Methyl Isobutyl Ketone	10	
108-88-3	Toluene	10	
10061-02-6	trans-1,3-Dichloropropene	10	
79-00-5	1,1,2-Trichloroethane	9.6	
127-18-4	Tetrachloroethene	10	
591-78-6	Methyl Butyl Ketone	9.7	
124-48-1	Dibromochloromethane	11	
106-93-4	1,2-Dibromoethane	9.9	
108-90-7	Chlorobenzene	9.9	
100-41-4	Ethylbenzene	10	
1330-20-7	Xylene (m,p)	21	
95-47-6	Xylene (o)	10	
100-42-5	Styrene	10	
75-25-2	Bromoform	11	
79-34-5	1,1,2,2-Tetrachloroethane	9.9	
1330-20-7	Xylene (total)	31	
622-96-8	4-Ethyltoluene	12	
108-67-8	1,3,5-Trimethylbenzene	11	
95-49-8	2-Chlorotoluene	11	
95-63-6	1,2,4-Trimethylbenzene	11	
541-73-1	1,3-Dichlorobenzene	9.6	
106-46-7	1,4-Dichlorobenzene	9.5	
95-50-1	1,2-Dichlorobenzene	9.7	
120-82-1	1,2,4-Trichlorobenzene	9.4	
87-68-3	Hexachlorobutadiene	9.7	

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

CA120708LCSD

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix: (soil/water) AIR Lab Sample ID: CA120708LCSD

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CHH10CQD

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 12/07/08

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	11	
76-14-2	1,2-Dichlorotetrafluoroethan	11	
74-87-3	Chloromethane	10	
75-01-4	Vinyl Chloride	10	
106-99-0	1,3-Butadiene	10	
74-83-9	Bromomethane	10	
75-00-3	Chloroethane	10	
593-60-2	Bromoethene	11	
75-69-4	Trichlorofluoromethane	11	
76-13-1	Freon TF	12	
75-35-4	1,1-Dichloroethene	11	
67-64-1	Acetone	9.3	
67-63-0	Isopropyl Alcohol	8.9	
75-15-0	Carbon Disulfide	10	
107-05-1	3-Chloropropene	10	
75-09-2	Methylene Chloride	10	
75-65-0	tert-Butyl Alcohol	9.1	
1634-04-4	Methyl tert-Butyl Ether	10	
156-60-5	trans-1,2-Dichloroethene	10	
110-54-3	n-Hexane	10	
75-34-3	1,1-Dichloroethane	10	
78-93-3	Methyl Ethyl Ketone	9.8	
156-59-2	cis-1,2-Dichloroethene	11	
109-99-9	Tetrahydrofuran	9.1	
67-66-3	Chloroform	10	
71-55-6	1,1,1-Trichloroethane	11	
110-82-7	Cyclohexane	11	
56-23-5	Carbon Tetrachloride	11	
540-84-1	2,2,4-Trimethylpentane	10	
71-43-2	Benzene	10	
540-59-0	1,2-Dichloroethene (total)	21	
107-06-2	1,2-Dichloroethane	10	
142-82-5	n-Heptane	10	

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

CA120708LCSD

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix: (soil/water) AIR Lab Sample ID: CA120708LCSD

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CHH10CQD

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 12/07/08

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
79-01-6	Trichloroethene	10	
78-87-5	1,2-Dichloropropane	9.9	
123-91-1	1,4-Dioxane	8.2	
75-27-4	Bromodichloromethane	11	
10061-01-5	cis-1,3-Dichloropropene	10	
108-10-1	Methyl Isobutyl Ketone	9.7	
108-88-3	Toluene	9.6	
10061-02-6	trans-1,3-Dichloropropene	9.8	
79-00-5	1,1,2-Trichloroethane	9.1	
127-18-4	Tetrachloroethene	9.9	
591-78-6	Methyl Butyl Ketone	9.4	
124-48-1	Dibromochloromethane	11	
106-93-4	1,2-Dibromoethane	9.5	
108-90-7	Chlorobenzene	9.4	
100-41-4	Ethylbenzene	9.8	
1330-20-7	Xylene (m,p)	19	
95-47-6	Xylene (o)	9.4	
100-42-5	Styrene	9.8	
75-25-2	Bromoform	11	
79-34-5	1,1,2,2-Tetrachloroethane	9.2	
1330-20-7	Xylene (total)	29	
622-96-8	4-Ethyltoluene	10	
108-67-8	1,3,5-Trimethylbenzene	9.9	
95-49-8	2-Chlorotoluene	10	
95-63-6	1,2,4-Trimethylbenzene	9.8	
541-73-1	1,3-Dichlorobenzene	8.9	
106-46-7	1,4-Dichlorobenzene	8.8	
95-50-1	1,2-Dichlorobenzene	8.9	
120-82-1	1,2,4-Trichlorobenzene	8.1	
87-68-3	Hexachlorobutadiene	8.4	

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MBLK120708CA

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix: (soil/water) AIR Lab Sample ID: MBLK120708CA

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CHHB01C

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 12/07/08

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.50	U
76-14-2	1,2-Dichlorotetrafluoroethan	0.20	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl Chloride	0.20	U
106-99-0	1,3-Butadiene	0.50	U
74-83-9	Bromomethane	0.20	U
75-00-3	Chloroethane	0.50	U
593-60-2	Bromoethene	0.20	U
75-69-4	Trichlorofluoromethane	0.20	U
76-13-1	Freon TF	0.20	U
75-35-4	1,1-Dichloroethene	0.20	U
67-64-1	Acetone	5.0	U
67-63-0	Isopropyl Alcohol	5.0	U
75-15-0	Carbon Disulfide	0.50	U
107-05-1	3-Chloropropene	0.50	U
75-09-2	Methylene Chloride	0.50	U
75-65-0	tert-Butyl Alcohol	5.0	U
1634-04-4	Methyl tert-Butyl Ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.20	U
110-54-3	n-Hexane	0.50	U
75-34-3	1,1-Dichloroethane	0.20	U
78-93-3	Methyl Ethyl Ketone	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.20	U
109-99-9	Tetrahydrofuran	5.0	U
67-66-3	Chloroform	0.20	U
71-55-6	1,1,1-Trichloroethane	0.20	U
110-82-7	Cyclohexane	0.20	U
56-23-5	Carbon Tetrachloride	0.20	U
540-84-1	2,2,4-Trimethylpentane	0.20	U
71-43-2	Benzene	0.20	U
540-59-0	1,2-Dichloroethene (total)	0.20	U
107-06-2	1,2-Dichloroethane	0.20	U
142-82-5	n-Heptane	0.20	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MBLK120708CA

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix: (soil/water) AIR Lab Sample ID: MBLK120708CA

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CHHB01C

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 12/07/08

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
79-01-6	Trichloroethene	0.20	U
78-87-5	1,2-Dichloropropane	0.20	U
123-91-1	1,4-Dioxane	5.0	U
75-27-4	Bromodichloromethane	0.20	U
10061-01-5	cis-1,3-Dichloropropene	0.20	U
108-10-1	Methyl Isobutyl Ketone	0.50	U
108-88-3	Toluene	0.20	U
10061-02-6	trans-1,3-Dichloropropene	0.20	U
79-00-5	1,1,2-Trichloroethane	0.20	U
127-18-4	Tetrachloroethene	0.20	U
591-78-6	Methyl Butyl Ketone	0.50	U
124-48-1	Dibromochloromethane	0.20	U
106-93-4	1,2-Dibromoethane	0.20	U
108-90-7	Chlorobenzene	0.20	U
100-41-4	Ethylbenzene	0.20	U
1330-20-7	Xylene (m,p)	0.50	U
95-47-6	Xylene (o)	0.20	U
100-42-5	Styrene	0.20	U
75-25-2	Bromoform	0.20	U
79-34-5	1,1,2,2-Tetrachloroethane	0.20	U
1330-20-7	Xylene (total)	0.20	U
622-96-8	4-Ethyltoluene	0.20	U
108-67-8	1,3,5-Trimethylbenzene	0.20	U
95-49-8	2-Chlorotoluene	0.20	U
95-63-6	1,2,4-Trimethylbenzene	0.20	U
541-73-1	1,3-Dichlorobenzene	0.20	U
106-46-7	1,4-Dichlorobenzene	0.20	U
95-50-1	1,2-Dichlorobenzene	0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.20	U

FORM I VOA

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix Spike - Sample No.: CA120708LCS

COMPOUND	SPIKE ADDED (ppbv)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ppbv)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	10		11	110	70-130
1,2-Dichlorotetrafluoro	10		11	110	70-130
Chloromethane	10		10	100	70-130
Vinyl Chloride	10		10	100	70-130
1,3-Butadiene	10		11	110	70-130
Bromomethane	10		10	100	70-130
Chloroethane	10		10	100	70-130
Bromoethene	10		11	110	70-130
Trichlorofluoromethane	10		11	110	70-130
Freon TF	10		11	110	70-130
1,1-Dichloroethene	10		11	110	70-130
Acetone	10		10	100	70-130
Isopropyl Alcohol	10		9.4	94	70-130
Carbon Disulfide	10		10	100	70-130
3-Chloropropene	10		10	100	70-130
Methylene Chloride	10		10	100	70-130
tert-Butyl Alcohol	10		9.5	95	70-130
Methyl tert-Butyl Ether	10		11	110	70-130
trans-1,2-Dichloroethen	10		10	100	70-130
n-Hexane	10		10	100	70-130
1,1-Dichloroethane	10		10	100	70-130
Methyl Ethyl Ketone	10		10	100	70-130
cis-1,2-Dichloroethene	10		11	110	70-130
Tetrahydrofuran	10		9.6	96	70-130
Chloroform	10		10	100	70-130
1,1,1-Trichloroethane	10		10	100	70-130
Cyclohexane	10		10	100	70-130
Carbon Tetrachloride	10		11	110	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix Spike - Sample No.: CA120708LCS

COMPOUND	SPIKE ADDED (ppbv)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ppbv)	LCS % REC #	QC. LIMITS REC.
2,2,4-Trimethylpentane	10		10	100	70-130
Benzene	10		10	100	70-130
1,2-Dichloroethene (tot	20		21	105	70-130
1,2-Dichloroethane	10		10	100	70-130
n-Heptane	10		10	100	70-130
Trichloroethene	10		10	100	70-130
1,2-Dichloropropane	10		9.8	98	70-130
1,4-Dioxane	10		8.8	88	70-130
Bromodichloromethane	10		11	110	70-130
cis-1,3-Dichloropropene	10		10	100	70-130
Methyl Isobutyl Ketone	10		10	100	70-130
Toluene	10		10	100	70-130
trans-1,3-Dichloroprope	10		10	100	70-130
1,1,2-Trichloroethane	10		9.6	96	70-130
Tetrachloroethene	10		10	100	70-130
Methyl Butyl Ketone	10		9.7	97	70-130
Dibromochloromethane	10		11	110	70-130
1,2-Dibromoethane	10		9.9	99	70-130
Chlorobenzene	10		9.9	99	70-130
Ethylbenzene	10		10	100	70-130
Xylene (m,p)	20		21	105	70-130
Xylene (o)	10		10	100	70-130
Styrene	10		10	100	70-130
Bromoform	10		11	110	70-130
1,1,2,2-Tetrachloroetha	10		9.9	99	70-130
Xylene (total)	30		31	103	70-130
4-Ethyltoluene	10		12	120	70-130
1,3,5-Trimethylbenzene	10		11	110	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix Spike - Sample No.: CA120708LCS

COMPOUND	SPIKE ADDED (ppbv)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ppbv)	LCS % REC #	QC. LIMITS REC.
2-Chlorotoluene	10		11	110	70-130
1,2,4-Trimethylbenzene	10		11	110	70-130
1,3-Dichlorobenzene	10		9.6	96	70-130
1,4-Dichlorobenzene	10		9.5	95	70-130
1,2-Dichlorobenzene	10		9.7	97	70-130
1,2,4-Trichlorobenzene	10		9.4	94	70-130
Hexachlorobutadiene	10		9.7	97	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix Spike - Sample No.: CA120708LCS

COMPOUND	SPIKE ADDED (ppbv)	LCSD CONCENTRATION (ppbv)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Dichlorodifluoromethane	10	11	110	0	25	70-130
1,2-Dichlorotetrafluoro	10	11	110	0	25	70-130
Chloromethane	10	10	100	0	25	70-130
Vinyl Chloride	10	10	100	0	25	70-130
1,3-Butadiene	10	10	100	10	25	70-130
Bromomethane	10	10	100	0	25	70-130
Chloroethane	10	10	100	0	25	70-130
Bromoethene	10	11	110	0	25	70-130
Trichlorofluoromethane	10	11	110	0	25	70-130
Freon TF	10	12	120	9	25	70-130
1,1-Dichloroethene	10	11	110	0	25	70-130
Acetone	10	9.3	93	7	25	70-130
Isopropyl Alcohol	10	8.9	89	5	25	70-130
Carbon Disulfide	10	10	100	0	25	70-130
3-Chloropropene	10	10	100	0	25	70-130
Methylene Chloride	10	10	100	0	25	70-130
tert-Butyl Alcohol	10	9.1	91	4	25	70-130
Methyl tert-Butyl Ether	10	10	100	10	25	70-130
trans-1,2-Dichloroethen	10	10	100	0	25	70-130
n-Hexane	10	10	100	0	25	70-130
1,1-Dichloroethane	10	10	100	0	25	70-130
Methyl Ethyl Ketone	10	9.8	98	2	25	70-130
cis-1,2-Dichloroethene	10	11	110	0	25	70-130
Tetrahydrofuran	10	9.1	91	5	25	70-130
Chloroform	10	10	100	0	25	70-130
1,1,1-Trichloroethane	10	11	110	10	25	70-130
Cyclohexane	10	11	110	10	25	70-130
Carbon Tetrachloride	10	11	110	0	25	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix Spike - Sample No.: CA120708LCS

COMPOUND	SPIKE ADDED (ppbv)	LCSD CONCENTRATION (ppbv)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
2,2,4-Trimethylpentane	10	10	100	0	25	70-130
Benzene	10	10	100	0	25	70-130
1,2-Dichloroethene (tot	20	21	105	0	25	70-130
1,2-Dichloroethane	10	10	100	0	25	70-130
n-Heptane	10	10	100	0	25	70-130
Trichloroethene	10	10	100	0	25	70-130
1,2-Dichloropropane	10	9.9	99	1	25	70-130
1,4-Dioxane	10	8.2	82	7	25	70-130
Bromodichloromethane	10	11	110	0	25	70-130
cis-1,3-Dichloropropene	10	10	100	0	25	70-130
Methyl Isobutyl Ketone	10	9.7	97	3	25	70-130
Toluene	10	9.6	96	4	25	70-130
trans-1,3-Dichloroprope	10	9.8	98	2	25	70-130
1,1,2-Trichloroethane	10	9.1	91	5	25	70-130
Tetrachloroethene	10	9.9	99	1	25	70-130
Methyl Butyl Ketone	10	9.4	94	3	25	70-130
Dibromochloromethane	10	11	110	0	25	70-130
1,2-Dibromoethane	10	9.5	95	4	25	70-130
Chlorobenzene	10	9.4	94	5	25	70-130
Ethylbenzene	10	9.8	98	2	25	70-130
Xylene (m,p)	20	19	95	10	25	70-130
Xylene (o)	10	9.4	94	6	25	70-130
Styrene	10	9.8	98	2	25	70-130
Bromoform	10	11	110	0	25	70-130
1,1,2,2-Tetrachloroetha	10	9.2	92	7	25	70-130
Xylene (total)	30	29	97	6	25	70-130
4-Ethyltoluene	10	10	100	18	25	70-130
1,3,5-Trimethylbenzene	10	9.9	99	10	25	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Matrix Spike - Sample No.: CA120708LCS

COMPOUND	SPIKE ADDED (ppbv)	LCSD CONCENTRATION (ppbv)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
2-Chlorotoluene	10	10	100	10	25	70-130
1,2,4-Trimethylbenzene	10	9.8	98	12	25	70-130
1,3-Dichlorobenzene	10	8.9	89	8	25	70-130
1,4-Dichlorobenzene	10	8.8	88	8	25	70-130
1,2-Dichlorobenzene	10	8.9	89	9	25	70-130
1,2,4-Trichlorobenzene	10	8.1	81	15	25	70-130
Hexachlorobutadiene	10	8.4	84	14	25	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 63 outside limits
Spike Recovery: 0 out of 126 outside limits

COMMENTS: _____

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

MBLK120708CA

Lab Name: TESTAMERICA BURLINGTON Contract: 28000

Lab Code: STLV Case No.: 28000 SAS No.: SDG No.: 129163

Lab File ID: CHHB01C Lab Sample ID: MBLK120708CA

Date Analyzed: 12/07/08 Time Analyzed: 2047

GC Column: RTX-624 ID: 0.32 (mm) Heated Purge: (Y/N) N

Instrument ID: C

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	CA120708LCS	CA120708LCS	CHH10CQ	1913
02	CA120708LCSD	CA120708LCSD	CHH10CQD	2000
03	INFLUENT-200	778161	778161D2	2134
04				
05				
06				
07				
08				
09				
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29				
30				

COMMENTS:

page 1 of 1

FORM IV VOA

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Bette Nowack	Samples Collected By:	1 of 1 COCs
Company: Weston Solutions Inc	Phone: 603-656-5400		
Address: 43 Constitution Drive	Email: Bette.Nowack@WestonSolutions.com		
City/State/Zip ~~Manchester, NH~~ Bedford, NH 03110			
Phone: 603-656-5400	Site Contact: Justin Warrington		
FAX: 603-656-5401	STL Contact: Don Daunilli		
Project Name: OK Tool / Savage Well	**Analysis Turnaround Time**		
Site: Milford, NH	Standard (Specify) X		
PO #	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type:	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
Carbon-Influent-2008-12-03	12-03-08	1518	1612	-24	-4	4212	2971	X											X

	12-03-08	Temperature (Fahrenheit)	
	Interior	Ambient	
Start			
Stop			
	Pressure (Inches of Hg)		
	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments: Sample of Post tray aerator gas stream

Samples Shipped by:	Date/Time: 12-04-08 1320	Samples Received by:	12/4/08 1320
Samples Relinquished by:	Date/Time: 12/4/08 1615	Received by: TA-WESTFIELD 12/4/08	1615 (No cooler/no ice)
Relinquished by: - SHIPPED FED EX →	Date/Time:	Received by: 12/5/08 0950	

Lab Use Only: Shipper Name: Opened by: Condition:

TestAmerica Burlington

SAMPLE RECEIPT & LOG IN CHECKLIST

Client:	WESTM	Date Received:	12/5/08	Log In Date:	12/05/08
ETR:	129163	Time Received:	0950	By:	CK
SDG:		Received By:	GTM	Signature:	[illegible]
Project:	28000	# Coolers Received:	1 Box	PM Signature:	
Samples Delivered By: ☒ Shipping Service ☐ Courier ☐ Hand ☐ Other (specify)				Date:	
List Air bill Number(s) or Attach a photocopy of the Air Bill:					

COOLER SCREEN	YES	NO	NA	COMMENTS
There is *no* evidence to indicate tampering	X			
Custody seals are present and intact		X		
Custody seal numbers are present			X	
If yes, list custody seal numbers:				

Thermal Preservation Type: ☐ Wet Ice ☐ Blue Ice ☒ None ☐ Other (specify)

IR Gun ID:	96	Correction Factor (CF) =	-2 °C				
Cooler 1:	Air °C	Cooler 6	°C	Cooler 11	°C	Cooler 16	°C
Cooler 2:	°C	Cooler 7	°C	Cooler 12	°C	Cooler 17	°C
Cooler 3:	°C	Cooler 8	°C	Cooler 13	°C	Cooler 18	°C
Cooler 4:	°C	Cooler 9	°C	Cooler 14	°C	Cooler 19	°C
Cooler 5	°C	Cooler 10	°C	Cooler 15	°C	Cooler 20	°C

Unless otherwise documented, the recorded temperature readings are adjusted readings to account for the CF of the IR Gun

EPA Criteria: 0-6°C, except for air and geo samples which should be at ambient temperature and tissue samples, which may be frozen.

Some clients require thermal preservation criteria of 2-4°C or other such criteria. The PM must notify SM when alternate criteria is specified.

SAMPLE CONDITION	YES	NO	NA	COMMENTS
Sample containers were received intact	X			
Legible sample labels are affixed to each container	X			

CHAIN OF CUSTODY (COC)	YES	NO	NA	COMMENTS
COC is present and includes the following information for each container:				
• Sample ID / Sample Description	X			See below
• Date of Sample Collection	X			
• Time of Sample Collection	X			
• Identification of the Sampler	X			
• Preservation Type			X	Ambient
• Requested Tests Method(s)	X			
• Necessary Signatures	X			
Internal Chain of Custody (ICOC) Required		X		
If yes to above, ICOC Record initiated for every Worksheet			X	

SAMPLE INTEGRITY / USABILITY	YES	NO	NA	COMMENTS
The sample container matches the COC	X			
Appropriate sample containers were received for the tests requested	X			
Samples were received within holding time	X			
Sufficient amount of sample is provided for requested analyses	X			
VOA vials do not have headspace or a bubble >6mm (1/4" diameter)			X	
Appropriate preservatives were used for the tests requested			X	
pH of inorganic samples checked and is within method specification			X	
If no, attach Inorganic Sample pH Adjustment Form			X	

ANOMALY / NCR SUMMARY

Sample id as listed on COC and id tag, was to long to fit in the 21 character space ~~pack~~ allowed on LMS, shortened id by removing the word carbon from the id upon logging sample into LMS.

FSR002:12.19.07:3
TestAmerica Burlington

ATTACHMENT C

DATA SUMMARY AND CALCULATIONS

ATTACHMENT C

The following are the analytical data, the total air emission data, and 24-Hr De Minimis and Annual De Minimis calculations:

Table 1: Air emissions detections from the Savage Well tray aerator effluent.

Target Compound	CAS Number	Results ug/m^3
Tetrachloroethene	127-18-4	1200
Trichloroethene	79-01-6	47
Toluene	108-88-3	20
cis-1,2-Dichloroethene	156-59-2	20
1,2-Dichloroethene (total)	540-59-0	20
Methyl Ethyl Ketone	78-93-3	18
Xylene (total)	1330-20-7	14
Xylene (m,p)	1330-20-7	14
1,1,1-Trichloroethane	71-55-6	7.6
n-Heptane	142-82-5	5.3
Benzene	71-43-2	3.8

The Savage Well plant discharged approximately 585,532,297 cubic feet of vapor in 2008 from the effluent of the carbon vessel. The total contamination in a pounds per day basis was determined as follows:

$$lb/day = C_E \frac{ug}{m^3} * V_T \frac{cf}{yr} * \frac{g}{10^6 ug} * \frac{m^3}{35.3cf} * \frac{lb}{453.59g} * \frac{yr}{365days}, \text{ (Eq. 1)}$$

where C_E was the concentration of a compound in the effluent and V_T was the volumetric flow rate of vapor through the plant.

The total tons per year were then determined by:

$$ton/year = \frac{lb}{day} * \frac{365days}{year} * \frac{ton}{2000lb}. \text{ (Eq. 2)}$$

The maximum potential contamination produced by the Savage Well plant was determined by taking the maximum volumetric discharge of 1205 cfm on November 2, 2008 and extending the rate throughout the year with the discharge data from December 3. This results in equation 1 changing to:

$$lb/day = C_E \frac{ug}{m^3} * V_T \frac{cf}{\min} * \frac{g}{10^6 ug} * \frac{m^3}{35.3cf} * \frac{lb}{453.59g} * \frac{60\min}{day}. \text{ (Eq. 3)}$$

The calculations from equations 1, 2, and 3 can be found in Table 2 along with Section II: Total Facility Emissions Data of the ARD Form-1.

Table 2: Total Facility Emissions Data

Target Compound	CAS Number	Results ug/m^3	Actual lb/hr	Potential lb/hr	Actual ton/yr	Potential ton/yr
Tetrachloroethene	127-18-4	1200	0.0050	0.0054	0.022	0.0237
Trichloroethene	79-01-6	47	0.00020	0.00021	0.00086	0.000930
Toluene	108-88-3	20	0.000083	0.000090	0.00037	0.000396
cis-1,2-Dichloroethene	156-59-2	20	0.000083	0.000090	0.00037	0.000396
1,2-Dichloroethene (total)	540-59-0	20	0.000083	0.000090	0.00037	0.000396
Methyl Ethyl Ketone	78-93-3	18	0.000075	0.000081	0.00033	0.000356
Xylene (total)	1330-20-7	14	0.000058	0.000063	0.00026	0.000277
Xylene (m,p)	1330-20-7	14	0.000058	0.000063	0.00026	0.000277
1,1,1-Trichloroethane	71-55-6	7.6	0.000032	0.000034	0.00014	0.000150
n-Heptane	142-82-5	5.3	0.000022	0.000024	0.000097	0.000105
Benzene	71-43-2	3.8	0.000016	0.000017	0.000069	0.000075
Total			0.00550	0.00595	0.02409	0.02605

Each of these values can then be converted and compared to the 24-Hr De Minimis and Annual De Minimis from Table Env-A 1450-1.

Table 3: De Minimis values for target compounds at Savage Well.

Target Compound	In-Stack Conc. ug/m^3	24-hr AAL ug/m^3	Annual AAL ug/m^3	Actual lb / day	24-Hr De Minimis lb / day	Actual lb/yr	Annual De Minimis lb / yr
Tetrachloroethene	1200	607	405	0.120	4.8	43.883	1743
Trichloroethene	47	961	640	0.00471	7.6	1.719	2759
Toluene	20	5000	5000	0.00200	39	0.731	14353
cis-1,2-Dichloroethene	20	16521	7867	0.00200	130	0.731	47425
1,2-Dichloroethene (total)	20	16521	7867	0.00200	130	0.731	47425
Methyl Ethyl Ketone	18	5000	5000	0.00180	39	0.658	14353
Xylene (total)	14	1550	100	0.00140	12	0.512	1641
Xylene (m,p)	14	1550	100	0.00140	12	0.512	1641
1,1,1-Trichloroethane	7.6	6821	4548	0.00076	54	0.278	19582
n-Heptane	5.3	8249	5500	0.00053	65	0.194	23681
Benzene	3.8	5.7	3.8	0.00038	0.045	0.139	16

Each of the target compounds' in-stack concentration, with the exception of tetrachloroethane, falls below 50% of the 24-hr and annual ambient air limit (AAL). Each of the target compounds' concentration is below both the 24-Hr de minimis and the annual de minimis emission levels.

The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

April 24, 2009

Ms. Bette L. Nowack
Project Manager
Suite 2 West
43 Constitution Drive
Bedford, NH 03110

Re: No Permit Required for Ground Water Remediation System
Savage Municipal Water Supply Well Superfund Site
621 Elm Street, Milford, NH
Facility Identification # 33011912041; Application # 09-0037

Dear Ms. Nowack:

The New Hampshire Department of Environmental Services, Air Resources Division (DES) has reviewed your submittal received at DES on February 19, 2009 for the operation of a groundwater remediation system at the Savage Municipal Water Supply Well Superfund Site (Savage Well) in Milford, New Hampshire. This information was reviewed by DES to determine whether a Temporary Permit would be required for the facility. Details of DES' review are presented in the enclosed permit application review summary. Results of DES' review are summarized below:

- Potential emissions of Volatile Organic Compounds (VOCs) are less than 1 ton per year. This is less than the thresholds of 50 tons in any consecutive 12-month period (tpy) for Major Sources of air pollution in the New Hampshire Code of Administrative Rules Env-A 101.113(b)(3)b, *Major Source,* and 50 tpy for miscellaneous sources of VOCs in Env-A 1204.28, *Applicability Criteria for Miscellaneous and Multicategory Stationary VOC Sources*. Therefore, a permit limiting VOC emissions to exempt the source from Major Source and VOC Reasonably Available Control Technology (RACT) requirements is not required pursuant to Env-A 607.01, *Specific Applicability for Temporary Permits*, (n) or (x), respectively.
- Actual emissions of VOCs are expected to be less than 1 tpy. Therefore, a permit is not required pursuant to Env-A 607.01(g).
- Potential emissions of Hazardous Air Pollutants (HAPs) are less than 1 tpy. This is less than the thresholds of 10 tpy for any single HAP, or 25 tpy for all HAPs combined for Major Sources in Env-A 101.113(b)(1)a. Therefore, a permit limiting HAP emissions to exempt the source from Major Source HAP requirements is not required pursuant to Env-A 607.01(aa).
- Several pollutants emitted from the facility are currently regulated under Env-A 1400, *Regulated Toxic Air Pollutants* (RTAPs). An analysis of the 24-hour and annual impacts of these pollutants was performed using the deminimus emission level method as allowed in Env-A 1406, *Methods of Demonstrating Compliance*. The analysis showed that the uncontrolled RTAP emissions from the facility would be below their respective deminimus levels. Therefore, in accordance with Env-A 1404.01(b), *Permit Required*, a permit will not be required.

Based on the above determinations, a Temporary Permit will not be required for the groundwater remediation system. Any substantial deviations, such as a change in the amount or type of released

pollutants or a physical change in the proposed process, shall require additional review. Please note that Env-A 1400 is updated annually and, regardless of whether a permit is required, Savage Well will need to maintain records sufficient to demonstrate compliance with the most recent list of RTAPs and AALs.

If you have any questions, please contact Patricia North of the Air Resources Division, Permitting and Environmental Health Bureau at (603) 271-0901 or via email at patricia.north@des.nh.gov.

Sincerely,

Michele R. Andy

Michele R. Andy
Administrator
Permitting and Environmental Health Bureau

Enc: Permit Application Review Summary

cc: R. Mongeon, DES Hazardous Waste Remediation Bureau

NHDES	PERMIT APPLICATION REVIEW SUMMARY	NH Department of Environmental Services Air Resources Division P.O. Box 95, 29 Hazen Drive Concord, NH 03302-0095 Phone: 603-271-1370 Fax: 603-271-7053

Facility:	Savage Well Superfund Site			**Engineer:**	PRN	
Location:	Milford					
AFS #:	3301191204	**Application #:**	09-0037	**Date:**	March 9, 2009	Page 1 of 2

PROJECT DESCRIPTION

Weston Solutions, Inc. submitted analytical data and calculations for emissions from the Savage Municipal Water Supply Superfund Site (Savage Well) ground water remediation system, and requested that DES review and confirm that no permit would be required for the removal of the vapor phase carbon treatment system.

CHANGES FROM PREVIOUS PERMIT

N/A

FACILITY DESCRIPTION/PERMIT HISTORY

The groundwater remediation system consists of a groundwater extraction system (GWES) and a soil vapor extraction system (SVES). The GWES system consists of extraction wells. Groundwater is extracted via submersible pumps that convey flow to equalization tanks inside the plant building. Tray aerators remove VOCs from the contaminated groundwater. The air discharge from the aerators is routed to a pre-heater, then to a vapor phase carbon unit.

A no permit required letter was issued by DES on January 6, 2006 for these systems.

PROCESS/DEVICE DESCRIPTION

The SVES system is run intermittently since the groundwater levels at the site are frequently too high to operate it. The system consists of several wells. Soil vapors extracted by the SVES wells are routed to the vapor phase carbon unit at the treatment building.

POLLUTION CONTROL EQUIPMENT

There is a carbon absorption system used to control VOC emissions, but for this evaluation, it was assumed that there is no control.

EMISSION CALCULATIONS

Analytical results were used to calculate emissions from the SVES system.

RTAPs

The analytical results were converted from ug/m3 to lb/year and lb/hour values for comparison to the de minimis levels.

RTAP	CAS #	$\mu g/m^3$	Lb/day	Lb/yr	Compliance
MEK	78-93-3	18	0.0018	0.66	De minimis
Cis-1,2-Dichloroethene	156-59-2	20	0.0020	0.73	De minimis
1,1,1-Trichloroethane	71-55-6	7.6	0.00076	0.28	De minimis
Benzene	71-43-2	3.8	0.00038	0.14	De minimis
1,2-Dichloroethene	540-59-0	20	0.0020	0.73	De minimis
Trichloroethylene	79-01-6	47	0.0047	1.7	De minimis
Toluene	108-88-3	20	0.0020	0.73	De minimis
Perchloroethylene	127-18-4	1,200	0.12	44	De minimis
Xylene	1330-20-7	14	0.0014	0.51	De minimis

HAPs

HAP emissions are less than the 10/25 tpy applicability limit for a major source. Total HAP emissions were calculated to be 0.024 tpy and the single highest HAP [PCE] was calculated to be 0.022 tpy.

VOCs

Total VOC emissions were calculated to be 0.025 tpy.

MODELING

N/A

EMISSION TESTING

A one-hour canister sample was taken at the effluent of the SVES before the influent to the vapor phase carbon unit. The sample was analyzed for TO15 compounds.

COMPLIANCE STATUS

Reports/Fees

NA - no permit

REVIEW OF REGULATIONS

State Regulations

Env-A 600 – Permitting (effective 6-8-06)

- 607.01(g) – NO – Potential VOC emissions <10tpy;
- 607.01(n) – NO – facility is a true minor source of HAP;
- 607.01(v) – NO – does not require a permit for compliance with Env-A 1400;

Env- A 1200 – Prevention, Abatement, and Control of Stationary Source Air Pollution (effective 2-26-05)

VOC RACT

- 1204.48 – NO – potential VOC emissions are < 50tpy;

Env-A 1400 – Regulated Toxic Air Pollutants (effective 11-9-07)

- 1402 – NO – compliance demonstrated using de minimis emission rates;

Federal Regulations

None applicable

SUMMARY AND CONCLUSIONS

No permit required since actual VOC emissions are < 10tpy and the facility can demonstrate compliance with Env-A 1400 without the use of controls.

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Savage Wells Superfund Site - Milford

RTAP	CAS Number	ug/m^3	lb/day	lb/yr	De minimis lb/day	De minimis lb/yr	PASS? Yes/No
MEK	78-93-3	18	0.0018	0.66	39	14,353	Yes
cis-1,2-Dichloroethene	156-59-2	20	0.0020	0.73	130	47,425	Yes
1,1,1-Trichloroethane	71-55-6	7.6	0.00076	0.28	54	19,582	Yes
Benzene	71-43-2	3.8	0.00038	0.14	0.045	16	Yes
1,2-Dichloroethene	540-59-0	20	0.0020	0.73	130	47,425	Yes
Trichloroethene	79-01-6	47	0.0047	1.7	7.6	2,759	Yes
Toluene	108-88-3	20	0.0020	0.73	39	14,353	Yes
PCE	127-18-4	1,200	0.12	44	4.8	1,743	Yes
Xylene	1330-20-7	14	0.0014	0.51	12	1,641	Yes
			VOC - TPY	**0.025**			
			Single HAP - TPY	**0.022**			
			Total HAP TPY	**0.024**			

volume of vapor released in 2008 = 585,532,297 ft^3/yr = 16,580,430 m^3/yr

Conversion factor: 1 ug = 2.20E-09 lb

Equations: lb/yr = (ug/m^3 * 16,580,430 m^3/yr) * 2.20E-09lb/ug

lb/day = lb/yr * 1yr/365days

AFS: 3301191204
APP: 09-0037