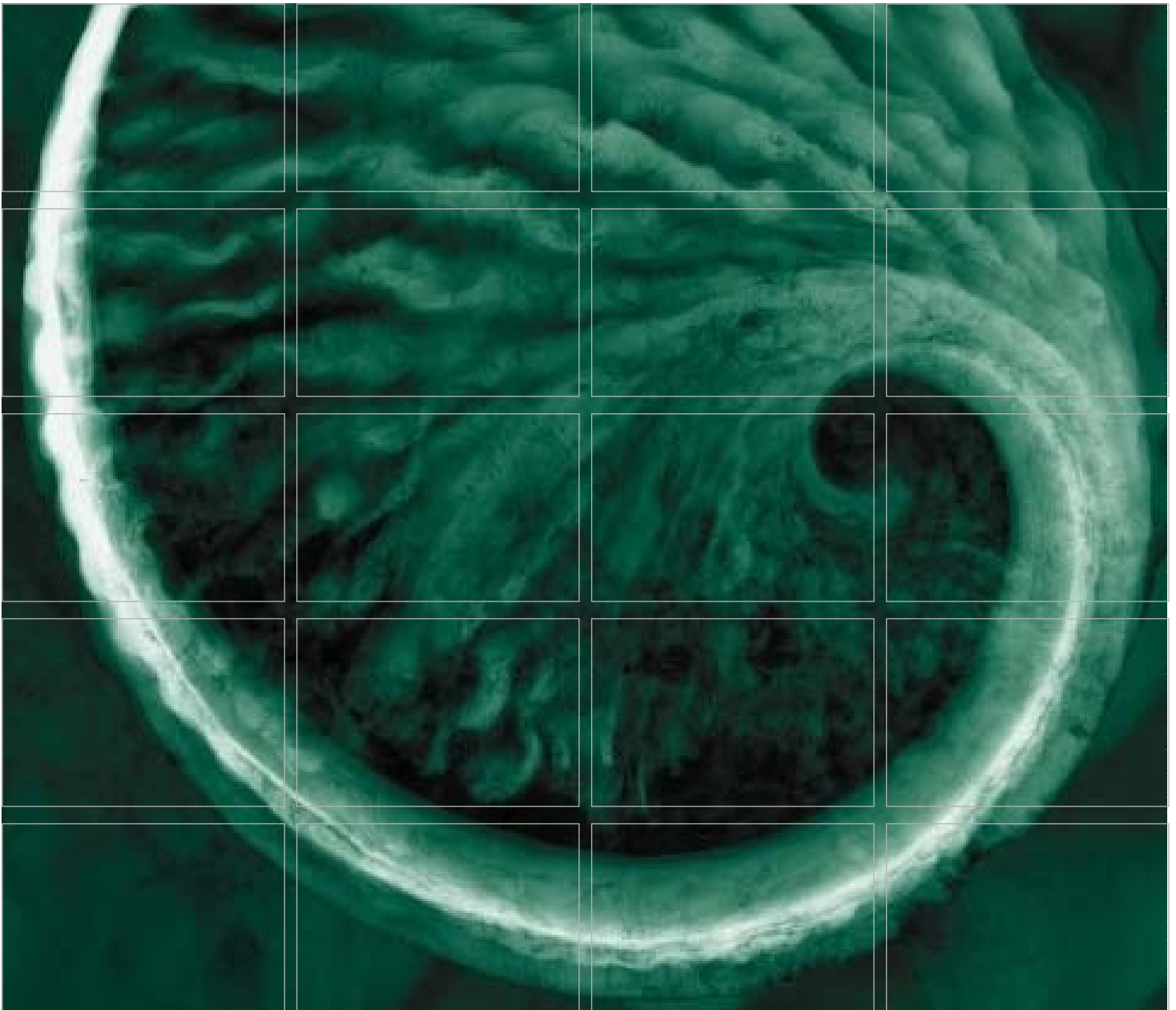




Interim Remedial Measure and Corrective Action Plan Operations, Maintenance, and Monitoring Report #3

**SMS #2006-3509
401 Gage Street
Bennington, Vermont**

**Prepared for:
Energizer Battery Manufacturing, Inc.
401 Gage Street
Bennington, Vermont 05201
(802) 442-6301**

**ERM Reference 0081293
6 November 2008**



Energizer Battery Manufacturing, Inc.

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Environmental Resources Management

399 Boylston Street

6th Floor

Boston, MA 02116

(617) 646-7800

(617) 267-6447 (fax)

FINAL REPORT

Energizer Battery Manufacturing, Inc.

Interim Remedial Measure and
Corrective Action Plan
Operations, Maintenance, and
Monitoring Report #3

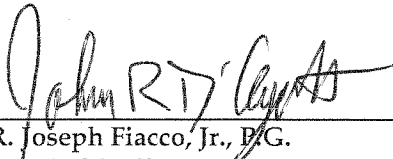
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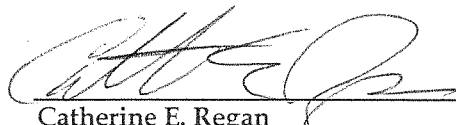
401 Gage Street

Bennington, Vermont

6 November 2008

ERM Reference 0081293


for R. Joseph Fiocco, Jr., P.G.
Principal-in-Charge


Catherine E. Regan
Project Manager

Environmental Resources Management
399 Boylston Street
6th Floor
Boston, MA 02116
(617) 646-7800
(617) 267-6447 (fax)

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EXECUTIVE SUMMARY

Environmental Resources Management (ERM) has prepared this Monitoring Report #3 for the Interim Remedial Measure (IRM) and Corrective Action Plan (CAP) remediation systems on behalf of Energizer Battery Manufacturing, Inc. (Energizer) for the Energizer facility at 401 Gage Street, Bennington, Vermont (the "Site"). The Vermont Department of Environmental Conservation (VTDEC), Sites Management Section has assigned the Site Number 2006-3509.

The IRM remediation system was designed and installed to contain tetrachloroethene (PCE) and trichloroethene (TCE) impacts to groundwater and soil gas along the northern Energizer facility property line. The CAP remediation system was designed and installed to abate PCE and TCE impacts to soil, groundwater, and soil gas in selected Areas of Concern (AOCs) at the Site. The remedial objective is to achieve applicable regulatory cleanup standards at the Energizer facility property line.

The IRM system consists of air sparging (AS) and soil vapor extraction (SVE) components. The CAP system consists of integrated steam injection, AS, and SVE components. The IRM and CAP systems have been operating since September 2007 and April 2008 respectively.

The purpose of this report is to document the operations, maintenance, and monitoring (OM&M) data collected for the IRM and CAP remediation systems during the period of July through September 2008.

1.0 INTRODUCTION

1.1 OVERVIEW

Environmental Resources Management (ERM) has prepared this Operations, Maintenance, and Monitoring (OM&M) Report #3 for the Interim Remedial Measure (IRM) and Corrective Action Plan (CAP) remediation systems on behalf of Energizer Holdings (Energizer) for the Energizer facility located at 401 Gage Street, Bennington, Vermont (the "Site"). The Vermont Department of Environmental Conservation (VTDEC), Sites Management Section has assigned the Site Number 2006-3509. This OM&M Report #3 documents relevant remediation and monitoring activities conducted from July through September 2008. A Site Locus Map is provided as [Figure 1](#).

1.2 SITE BACKGROUND

In February 2006, ERM conducted a limited soil and shallow groundwater investigation to determine if chlorinated solvents were present in the subsurface in the vicinity of an active vapor degreaser located in the northeast corner of Plant I ([Figure 2](#)). Operation of this degreaser was subsequently discontinued in 2007. The results of this initial investigation indicated that both tetrachloroethene (PCE) and trichloroethene (TCE) were present in soil and groundwater in the vicinity of the degreaser (ERM, 2006). Energizer verbally notified VTDEC of the findings of the initial investigation on 6 March 2006. Subsequently, written notification was provided to the VTDEC on 16 March 2006.

During 2006 and early 2007, ERM conducted a dynamic Triad site investigation in accordance with the VTDEC Site Investigation Procedure (VTDEC, 2005). In June 2007, ERM submitted a Site Investigation Report (SIR, ERM 2007a) to the VTDEC documenting the methods, results, and conclusions of the site investigation. The SIR concluded that remediation and/or management of Site soil, groundwater and soil gas was necessary.

Site investigation activities focused on delineation of the extent of PCE and TCE impacts in soil, groundwater and soil gas. ERM has identified six potential Areas of Concern (AOCs), which correspond to areas of former solvent usage at the facility ([Figure 2](#)):

- AOC-1: Former degreaser area;
- AOC-2: Former machine shop;
- AOC-3: Current production area;
- AOC-4: Former loading dock area;
- AOC-5: Former drain line; and
- AOC-6: Former process area sump.

The Corrective Action Feasibility Investigation (CAFI) was submitted to the VTDEC as part of the SIR. The CAFI documented a formal evaluation of potential Site remedial alternatives. Based on the results of the CAFI, ERM recommended implementation of the following remedial alternatives:

- A containment remedy consisting of focused shallow soil excavation and air sparge/soil vapor extraction (AS/SVE) along the northern Site boundary; and
- A source abatement remedy consisting of a combination of AS/SVE, steam-enhanced SVE, and possibly in-situ chemical oxidation (ISCO).

The containment remedy design is documented in the CAFI as an Interim Remedial Measure (IRM). The source area abatement remedy design is documented in the Corrective Action Plan Report (CAP, ERM 2007b). A Final Construction Report (ERM, 2008a) was submitted on 20 June 2008 to document the construction of the IRM and CAP remediation systems.

Quarterly operation, maintenance and monitoring (OM&M) reports were submitted on:

- 20 June 2008 - OM&M Report #1 (ERM, 2008b); and,
- 8 August 2008 - OM&M Report #2 (ERM, 2008c).

1.3 PURPOSE AND SCOPE

The purpose of this report is to document the OM&M data collected for the IRM and CAP remediation systems from July through September 2008. The following activities were conducted during this reporting period:

- Continued operation of the IRM and CAP AS/SVE system;
- Continued full-scale CAP steam operation;

- Commenced steam injection in four additional wells on 27 August 2008;
- Conducted OM&M of the IRM and CAP remediation systems; and
- Completed monthly and quarterly soil gas and groundwater monitoring.

1.4 ***REPORT ORGANIZATION***

The remainder of this report is divided into the following sections:

- Section 2.0 – Remediation System Operation and Maintenance
- Section 3.0 – Outdoor Ambient Air Sampling
- Section 4.0 – Soil Gas Monitoring
- Section 5.0 – Groundwater Monitoring
- Section 6.0 – Results and Recommendations

2.0

REMEDATION SYSTEM OPERATION AND MAINTENANCE

2.1

SOIL VAPOR EXTRACTION

There are 18 SVE wells (SVE-1 through SVE-18) that are part of the IRM system ([Figure 3](#)). Start-up of these wells occurred in September 2007. There are an additional 12 SVE wells (SVE-19 through SVE-27; SVE-30, SVE-31, and SVE-32) associated with the CAP system ([Figure 3](#)), which became operational in January 2008.

Vacuum, flow and differential pressure readings from the SVE system collected during this reporting period are summarized in [Tables 1 and 2](#).

There are three 5,000-pound vapor-phase carbon vessels (VGAC-301, -302, and -303) on-site. Two vessels are operated in parallel at one time, with the third vessel on stand-by.

Monthly grab air samples were collected from the inlet, midpoint and outlet air streams of the carbon vessels using clean, laboratory-certified, stainless steel Summa-type canisters. The air samples were analyzed by Alpha Woods Hole Laboratories of Westborough, Massachusetts (Alpha) for chlorinated volatile organic compounds (CVOCs) by Method TO-15. These data are used to estimate the contaminant mass removed by the SVE system over time.

Laboratory analytical results of the off-gas treatment system samples for this reporting period are summarized in [Table 3](#). These results are compared to previous monthly results to show the change in mass removal over the quarter. Laboratory analytical reports for these air samples are attached as [Appendix A](#). A graph showing total CVOCs removed since system start-up is provided as [Figure 4](#).

2.1.1

Vapor Carbon Vessels Change-out

Vessels VGAC-302 and -303 were operational from 2 April 2008 through 1 July 2008. Based on the data collected on 20 June 2008, it was determined that the carbon in VGAC-302 was spent and that vessel was taken out of service. On 1 July 2008, the vessels were reconfigured such that VGAC-303 and -301 were on-line. VGAC-303 was then taken off-line on 3 September 2008 based on data collected on 20 August 2008. The vessels were reconfigured such that VGAC-301 and -302 were on-line. The

carbon was replaced in VGAC-302 and VGAC-303 on 19 August 2008 and 7 October 2008, respectively.

2.2 *AIR SPARGING*

There are currently 55 AS wells operating in association with the IRM and CAP systems ([Figure 3](#)). There are also five inactive AS wells in AOC-2 (AS-69, AS-70, AS-71, AS-74 and AS-75), which can become operational, if needed.

Pressure and flow readings from the AS system during this reporting period are summarized in [Tables 4 and 5](#), respectively.

In September 2008, the air sparge blower (BL-200) motor was replaced.

2.3 *GENERAL SYSTEM PARAMETERS*

Additional system measurements were collected to monitor the operation of the AS/SVE remediation equipment. The measurements include:

- temperature of the AS and SVE blower effluent;
- temperature and pressure of the non-contact cooling water and effluent air at the air-to-water heat exchangers; and
- total combined flow of the SVE system.

A summary of these measurements for this reporting period is provided in [Table 6](#).

2.4 *STEAM INJECTION*

There are 14 steam injection wells (SIW-8 through SIW-21) associated with the CAP system to accelerate contaminant mass removal. Currently operating steam injection wells are SIW-8, SIW-9, SIW-10, SIW-11, SIW-13, SIW-14, SIW-15 and SIW-16 ([Figure 3](#)).

SIW-9, SIW-10, SIW-11, and SIW-13 were in operation at the beginning of this reporting period. Steam injection commenced at SIW-8, SIW-14, SIW-15 and SIW-16 on 27 August 2008. These steam injection wells were brought on-line after a 30-day system audit revealed that the system was

using less fuel than originally predicted and additional steam wells could be used without exceeding the monthly facility fuel cap.

Total steam injection mass per well per day was recorded using steam flow totalizers. The cumulative steam injection per well is summarized in [Figure 5](#).

To determine the subsurface temperatures during steam injection, temperature sensors were installed at various depths in 13 locations (TMP-1, TMP-2, TMP-3, TMP-11, TMP-12, TMP-13, TMP-46, TMP-53, TMP-56, TMP-57, TMP-59, TMP-61, and TMP-64).

The temperature readings for this reporting period are summarized as temperature versus time graphs in [Figures 6](#) through [13](#). Temperature graphs are shown only for temperature points near the current steam injection wells, SIW-8 through SIW-11 and SIW-13 through SIW-16. These temperature points are TMP-1, TMP-3, TMP-53, TMP-56, TMP-57, TMP-59, TMP-61 and TMP-64.

Soil gas samples were initially collected from four SVE wells (SVE-24 through 27) located within AOC 1 on a monthly basis to estimate the localized mass of contaminants removed. The SVE well list was expanded for the 27 August and 26 September 2008 sampling events to include SVE-1, SVE-3, SVE-22 and SVE-23. This expanded sampling list corresponds to the expansion of the steamed area into the alley. The air samples were analyzed by Alpha for CVOCs by Method TO-15. Laboratory analytical results for this reporting period are summarized in [Table 7](#). Laboratory analytical reports for these air samples are attached as [Appendix A](#).

Groundwater extraction wells EW-1, EW-3, EW-4, and EW-5 are no longer in operation. The horizontal extent of the steam has reached the extraction well locations and displaced the groundwater. The wells no longer pump water and have thus been shut down and isolated from the remediation system at the well head.

2.5

STEAM INJECTION - FUEL AND WATER USE

[Table 8](#) reports the fuel and water used to generate steam injected into the steam injection wells during this reporting period. Data used to complete these calculations was taken from the steam totalizer readings collected daily from each operating steam injection well.

Water use is calculated using the assumption that 1 pound of steam is approximately equivalent to 1 pound of water. Fuel usage is estimated using the following fuel assumptions:

- Latent heat of vaporization (LHV) = 905.25 british thermal units/pound (BTU/lb)
- Heat value of No. 4 fuel oil (HV)= 145,000 BTU/gallon (gal)
- Boiler efficiency (BE) = 85%
- Boiler water enthalpy (BWE) at 60 pounds per square inch gauge (psig) = 276.79 BTU/lb
- Makeup water enthalpy (MWE) at 60 degrees fahrenheit (°F) = 28.08 BTU/lb

Using the above assumptions, fuel use is calculated based on the energy balance required to convert water to saturated steam. The latent heat of vaporization (energy needed to convert water to steam) is added to the enthalpy of the warm boiler water and subtracted from the enthalpy of the cold makeup water to calculate the energy needed per pound of steam. This energy is converted into gallons of fuel using the assumed energy capacity of No. 4 fuel oil and the assumed boiler efficiency. The equation is written as follows:

$$\frac{\text{Gal of Fuel}}{\text{lb of Steam}} = \frac{(LHV + BWE - MWE)}{HV \times BE}$$

2.6 **MONITORING WELL DECOMMISSIONING**

On 4 and 6 September 2008, ERM decommissioned three monitoring wells, AS/SVMP-1, AS/SVMP-2 and SVMP-3 in the alley, north of the Former Degreaser Room. These wells were installed as part of the initial site AS/SVE pilot study and were decommissioned to minimize the potential for short circuiting of steam during operation of steam injection wells SIW-14, SIW-15 and SIW-16 located in this area. [Figure 3](#) shows the locations of all decommissioned site wells.

3.0

OUTDOOR AMBIENT AIR MONITORING

No outdoor ambient air sampling activities were conducted during this reporting period.

Quarterly active soil gas samples were collected from locations ASG-14, ASG-32, and ASG-33 on 25 September 2008 ([Figure 14](#)).

Prior to collection of the soil gas samples, the soil gas probes and tubing were purged of a minimum of three tubing volumes at a rate not exceeding 0.2 liters per minute. Helium was used as a tracer gas to determine whether ambient air was being drawn into the sampling zone. Samples were collected using clean, laboratory-certified, 6-liter, Summa-type canisters with two-hour calibrated regulators connected to the dedicated polyethylene tubing with a “swagelok®-type” fitting.

Soil gas samples were submitted to Alpha for analysis of CVOCs using EPA Method TO-15. Results were reported for site-specific target analytes. [Table 9](#) presents a summary of active soil gas sample results for the three wells sampled during this reporting period. [Figure 14](#) shows the PCE and TCE results from this reporting period. Time-series plots of PCE and TCE active soil gas concentrations for the three wells sampled during this reporting period are included as [Figures 15 and 16](#), respectively. Laboratory analytical reports are attached as [Appendix A](#).

Quarterly groundwater monitoring commenced in March 2008. The SIR (ERM, 2007a) showed general groundwater elevations at the site.

Quarterly groundwater samples were collected from monitoring wells ERM-12, ERM-13, ERM-14, ERM-16, ERM-17, ERM-18, ERM-19 and ERM-20 on 25 and 26 September 2008. Samples were collected using low-flow sampling techniques and submitted to Alpha for analysis of CVOCs by EPA Method 8260.

[Table 10](#) presents a summary of groundwater sample results for the eight wells sampled during this reporting period. [Figure 17](#) shows the PCE and TCE results from this reporting period. Time-series plots of PCE groundwater concentrations for the eight wells sampled during this reporting period are included as [Figure 18](#). Laboratory analytical reports are attached as [Appendix A](#).

6.0 RESULTS AND RECOMMENDATIONS

6.1 REMEDIATION SYSTEM OPERATION

6.1.1 IRM & CAP AS/SVE Systems

Based on the OM&M data collected during this reporting period, the following conclusions can be made regarding the operation of the remediation systems:

- Based on SVE system vacuum data and AS system injection data, the SVE system has capacity to capture the volume of vapor being injected by the AS system and vapor generated by the steam injection system.
- The vapor-phase activated carbon is effective in treating the SVE off-gas.
- The remediation equipment (i.e., blowers, moisture separators, heat exchangers) is operating as designed and has adequate capacity for operating the AS and SVE wells.
- The remediation water treatment system is operating as designed and has adequate capacity for treating water entering the system through the SVE moisture separators.
- The AS motor for BL-200 has been replaced and is operating normally.

6.1.2 CAP Steam Injection System

Full-scale steam injection has been ongoing during this reporting period with four additional steam injection wells added on 17 August 2008. The following conclusions can be made regarding the operation of the steam system:

- The average steam injection rate ranges between 250 and 700 lb/hr.
- All subsurface temperatures have been generally increasing, indicating ongoing conductive heating ([Figures 6 to 13](#)).

- Significant temperature increases indicating expansion of the steam bubble can be seen at TMP-57, TMP-1, TMP-61 and TMP-3.
- Fuel and water use is higher this reporting period as a result of the additional wells and an increase of injection amounts into SIW-9. The total monthly fuel and water usage rates continue to be less than originally estimated and the system is running efficiently.

6.2 *SVE AIR MONITORING*

The following conclusions can be made relative to the vapor-phase activated carbon and the SVE well-head sampling completed during this reporting period:

- PCE and TCE concentrations in soil gas measured in the SVE wells located within the southern portion of AOC-1 (SVE-24, -25, -26 and -27) have maintained relatively steady concentrations through the reporting period ([Table 7](#)). SVE-27 PCE concentrations have increased an order of magnitude as a result of increased steam injection in SIW-9.
- PCE and TCE concentrations in soil gas measured in the SVE wells located in the northern portion of AOC-1 (SVE-1, -3, -22, and -23) generally increased following start up of the steam injection system in this area.
- The VGAC air sampling results indicate that PCE and TCE mass removal rates have remained steady through this reporting period ([Figure 4](#)). Mass removal between the carbon beds has maintained above 98%, which is above the carbon change-out criteria of 95%.

6.3 *ACTIVE SOIL GAS MONITORING*

The following conclusions can be made relative to the active soil gas sampling completed during this reporting period:

- PCE concentrations at ASG-32 and ASG-33 have increased since the last quarterly sampling event ([Table 9](#)). Additional soil gas sampling will be performed to confirm concentrations detected in these wells.

- PCE concentrations in ASG-14 (downgradient monitoring location) have remained constant since the last reporting period.
- TCE concentrations at all the three soil gas locations were either low (2.05 ug/m³ at ASG-14) or below laboratory detection limits.
- ASG-14, ASG-32 and ASG-33 have now been sampled for one year and PCE concentrations over time suggest that there is seasonal variability in the soil gas concentrations as shown in [Figure 15](#).

6.4 *GROUNDWATER MONITORING*

The following conclusions can be made relative to the groundwater sampling completed during this reporting period:

- All quarterly monitoring wells have now been sampled for approximately one year and PCE concentrations over time suggest that there may be seasonal variability in the groundwater concentrations.
- PCE concentrations in ERM-12, ERM-13, ERM-14, ERM-15, ERM-16 and ERM-17 are lower when compared to concentrations detected last quarter.
- Concentrations of TCE have increased in ERM-12, ERM-13, ERM-16, ERM-17, ERM-19 and ERM-20 and concentrations of cis-1,2-Dichloroethene (cDCE) have also increased in ERM-16, ERM-17, ERM-19 and ERM-20. Increased concentrations of these PCE degradation products indicate an enhancement of bioremediation both in the vicinity and downgradient of the steam injection area.

6.5 *RECOMMENDATIONS*

The following are recommended for the next reporting period:

- Continue operation and maintenance of the IRM and CAP systems;
- Resample ASG-32 and ASG-33 to confirm the soil gas values measured at these wells.
- Continue active soil gas sampling at ASG-14, ASG-32, and ASG-33 to assess soil gas conditions; and

- Continue groundwater monitoring at ERM-12, ERM-13, ERM-14, ERM-15, ERM-16, ERM-17, ERM-19, and ERM-20 to assess the groundwater conditions.

ERM, 2006. Initial Shallow Groundwater Investigation Report. Environmental Resources Management. 13 March 2006.

ERM, 2007a. Site Investigation Report/Corrective Action Investigation. Environmental Resources Management. 14 June 2007.

ERM, 2007b. Corrective Action Plan. Environmental Resources Management. 30 July 2007, amended 1 October 2007.

ERM, 2008a. Final Construction Report. Environmental Resources Management. 20 June 2008.

ERM, 2008b. Interim Remedial Measure and Corrective Action Plan Operations, Maintenance and Monitoring Report #1. Environmental Resources Management. 20 June 2008.

ERM, 2008c. Interim Remedial Measure and Corrective Action Plan Operations, Maintenance and Monitoring Report #2. Environmental Resources Management. 8 August 2008.

Libremap.org, 1954. Bennington Quadrangle Topographic Map. Libremap.org. 1954.

Libremap.org, 1954. Pownel Quadrangle Topographic Map. Libremap.org. 1954.

VTDEC, 2005. Site Investigation Procedure. State of Vermont, Agency of Natural Resources, Waste Management Division, Sites Management Section. June 2005.

Tables

Table 1
SVE Wells - Vacuum Gauge Data
Energizer Facility
401 Gage Street Bennington, VT

WELL-ID	Gauge Location	15-Jul-08	21-Aug-08	17-Sep-08
SVE-35	North Basement	NR	NR	-
SVE-13	North Basement	9	9	8
SVE-17	North Basement	7	7	7
SVE-12	North Basement	6	6	6
SVE-18	North Basement	8	7	8
SVE-15	North Basement	8	8	8
SVE-11	North Basement	14	14	14
SVE-16	North Basement	12	10	11.5
SVE-14	North Basement	10	10	11
SVE-07	Room 24	8	8	8
SVE-08	Room 24	10	10	10
SVE-09	Room 24	7.5	8	8
SVE-10	Room 24	11	12	12
SVE-19	Room 24	4.0	3.0	2.0
SVE-20	Room 24	18	24	28
SVE-21	Room 24	10	20	22
SVE-22	Room 24	16	11	18
SVE-23	Room 24	10	21	24
SVE-02	Room 24	12	18	18
SVE-06	Room 24	10	10	10
SVE-03	Room 24	12	30	34
SVE-01	Room 24	22	13	20
SVE-04	Room 24	5	10	12
SVE-05	Room 24	20	20	17
SVE-26	Degreaser	18	24	26
SVE-27	Degreaser	18	20	22
SVE-25	Degreaser	18	20	22
SVE-24	Degreaser	20	20	22
SVE-31	Bldg 14	16	10	11
SVE-32	Bldg 14	10	8	8
SVE-30	Bldg 14	16	12	14

Notes:

Readings are in inches of water.

NR - no reading

Table 2
SVE Wells - Differential Pressure and Flow Data
Energizer Facility
401 Gage Street Bennington, VT

WELL-ID	Gauge Location	15-Jul-08		21-Aug-08		17-Sep-08	
		Differential Pressure	Flow Rate	Differential Pressure	Flow Rate	Differential Pressure	Flow Rate
SVE-35	North Basement	NR	NR	NR	NR	-	NR
SVE-13	North Basement	8	46	8	46	8	46
SVE-17	North Basement	5	37	4.5	35	5	37
SVE-12	North Basement	6.5	42	6	40	6	40
SVE-18	North Basement	7	43	6.25	41	6.25	41
SVE-15	North Basement	6.75	43	6	40	6	40
SVE-11	North Basement	7	43	6.25	41	6.5	42
SVE-16	North Basement	7.5	45	6.5	42	6.5	42
SVE-14	North Basement	7.5	45	7	43	6	40
SVE-07	Room 24	7	43	7.5	45	7.5	45
SVE-08	Room 24	5.5	39	5.75	39	6	40
SVE-09	Room 24	6.25	41	6.5	42	6.5	42
SVE-10	Room 24	6	40	6	40	6	40
SVE-19	Room 24	5.5	39	5.5	39	5	37
SVE-20	Room 24	0.5	12	1.5	20	0.5	12
SVE-21	Room 24	1.5	20	1.5	20	1.75	22
SVE-22	Room 24	0.25	9	3	29	3	29
SVE-23	Room 24	1	17	4.5	35	5	37
SVE-02	Room 24	6	40	12	56	12	56
SVE-06	Room 24	7	43	7.5	45	7	43
SVE-03	Room 24	5	37	1	17	0	0
SVE-01	Room 24	3	29	6	40	3.5	31
SVE-04	Room 24	5.5	39	10	52	10	52
SVE-05	Room 24	2.5	26	4	33	3	29
SVE-26	Degreaser	1	17	1	17	1	17
SVE-27	Degreaser	0.4	11	4.5	35	4.5	35
SVE-25	Degreaser	6.5	42	6	40	6.5	42
SVE-24	Degreaser	15	63	16	65	20	72
SVE-31	Bldg 14	4	33	2.25	25	2	24
SVE-32	Bldg 14	6.5	42	4	33	4.25	34
SVE-30	Bldg 14	4	33	2.5	26	2.25	25

Notes:

Differential pressure readings are in inches of water.

Flow rate readings are in standard cubic feet per minute (scfm).

NR - no reading

Table 3
SVE System - VGAC Cumulative Mass Removal
Energizer Facility
401 Gage Street, Bennington, VT

Parameter	Sample Loc	SVE-INF	SVE-MID	SVE-EFF	Mass	SVE-INF	SVE-MID	SVE-EFF	Mass	SVE-INF	SVE-MID	SVE-EFF	Mass
	Date Sampled	17-Jul-08	17-Jul-08	17-Jul-08	Removed	20-Aug-08	20-Aug-08	20-Aug-08	Removed	18-Sep-08	18-Sep-08	18-Sep-08	Removed
	Laboratory	Alpha	Alpha	Alpha		Alpha	Alpha	Alpha		Alpha	Alpha	Alpha	
		N	N	N		N	N	N		N	N	N	
Volatile Organic Compounds (VOCs, ug/m³)													
(EPA Method TO-15)													
Tetrachloroethene		4350	-	-		3570	204	-		4860	1580	12.0	
Trichloroethene		770	20.4	-		592	390	50.9		660	520	50.2	
Cis-1,2-dichloroethene		26.4	18.8	3.63		22.5	26.4	26.4		73.2	44.7	19.8	
Trans-1,2-dichloroethene		-	1.35	-		-	1.64	1.74		-	-	0.937	
					99.9%				98.1%				98.5%

Notes:

Units are in micrograms per cubic meter (ug/m³)

N = Normal Sample.

- = Non Detect

Table 4
Air Sparge Wells - Pressure Gauge Data
Energizer Facility
401 Gage Street Bennington, VT

Air Sparge Well-ID	Gauge Location	15-Jul-08	21-Aug-08	17-Sep-08
AS-45	North Basement	4.5	NR	*
AS-44	North Basement	3.75	NR	*
AS-42	North Basement	3.75	NR	*
AS-35	North Basement	3	NR	*
AS-48	North Basement	NR	NR	*
AS-47	North Basement	NR	NR	*
AS-34	North Basement	2.5	NR	*
AS-33	North Basement	2	NR	*
AS-32	North Basement	1.5	NR	*
AS-30	North Basement	2.25	NR	*
AS-25	North Basement	4.5	NR	*
AS-26	North Basement	4.5	NR	*
AS-27	North Basement	2.5	NR	*
AS-28	North Basement	2.5	NR	*
AS-29	North Basement	2.5	NR	*
AS-31	North Basement	4.3	NR	*
AS-39	North Basement	3.8	NR	*
AS-38	North Basement	3.5	NR	*
AS-37	North Basement	3	NR	*
AS-43	North Basement	5	NR	*
AS-41	North Basement	1	NR	*
AS-40	North Basement	4	NR	*
AS-36	North Basement	3	NR	*
AS-46	Room 24	NR	NR	NR
AS-13	Room 24	3.25	3.5	3.25
AS-12	Room 24	4	4.5	4.5
AS-11	Room 24	4.25	4.5	4.5
AS-10	Room 24	3	3.5	3.5
AS-09	Room 24	4	4	4.25
AS-08	Room 24	3.5	3.75	4
AS-07	Room 24	5	5	5
AS-06	Room 24	3	3	3.5
AS-01	Room 24	4.5	4.25	4.25
AS-05	Room 24	NR	NR	NR
AS-04	Room 24	3.5	3.75	4
AS-15	Room 24	4	4	4
AS-03	Room 24	4.25	4.5	4.75
AS-24	Room 24	2.5	2	2.5
AS-02	Room 24	4	4.5	5
AS-23	Room 24	3.5	4	4
AS-14	Room 24	3	3.25	3.25
AS-22	Room 24	4	4.25	4.5
AS-19	Room 24	2.5	3	3
AS-21	Room 24	3.75	3.5	3.5
AS-20	Room 24	5	5.25	5.5
AS-18	Room 24	2.25	3.25	3.25
AS-17	Room 24	3.25	3.5	3.3
AS-16	Room 24	2.5	2.8	3.0
AS-66	Degreaser	4	4	4
AS-56	Degreaser	3.75	4	4
AS-63	Degreaser	0	0	0
AS-62	Degreaser	4	4	4
AS-64	Degreaser	3.5	4	4.25
AS-61	Degreaser	3.75	4	5
AS-53	Degreaser	4	4.25	4.25
AS-60	Degreaser	4.25	0	0
AS-59	Degreaser	0	0	0
AS-54	Degreaser	NR	NR	NR
AS-55	Degreaser	2.75	3	3.5
AS-57	Degreaser	3.75	4.25	4

Notes:
Readings are in pounds per square inch (psi).
NR - no reading
* = "Shut down while AS motor replaced"

Table 5
Air Sparge Wells - Flow Data
EnerGizer Facility
401 Gage Street Bennington, VT

Air Sparge Well-ID	Gauge Location	15-Jul-08	21-Aug-08	17-Sep-08
AS-45	North Basement	10	NR	*
AS-44	North Basement	10	NR	*
AS-42	North Basement	10	NR	*
AS-35	North Basement	10	NR	*
AS-48	North Basement	NR	NR	*
AS-47	North Basement	NR	NR	*
AS-34	North Basement	10	NR	*
AS-33	North Basement	10	NR	*
AS-32	North Basement	10	NR	*
AS-30	North Basement	10.0	NR	*
AS-25	North Basement	10	NR	*
AS-26	North Basement	10	NR	*
AS-27	North Basement	10	NR	*
AS-28	North Basement	11	NR	*
AS-29	North Basement	11	NR	*
AS-31	North Basement	10	NR	*
AS-39	North Basement	10	NR	*
AS-38	North Basement	10	NR	*
AS-37	North Basement	10	NR	*
AS-43	North Basement	10	NR	*
AS-41	North Basement	10	NR	*
AS-40	North Basement	9.5	NR	*
AS-36	North Basement	10	NR	*
AS-46	Room 24	NR	NR	NR
AS-13	Room 24	10.5	9.5	10.5
AS-12	Room 24	9	10	10
AS-11	Room 24	9.5	10	11
AS-10	Room 24	10	10	11
AS-09	Room 24	10	10	11
AS-08	Room 24	10	10	10.5
AS-07	Room 24	10.5	10	10
AS-06	Room 24	10	10	10
AS-01	Room 24	10.5	10	10
AS-05	Room 24	NR	NR	NR
AS-04	Room 24	9	10	10
AS-15	Room 24	10	10	9.5
AS-03	Room 24	10	10	10
AS-24	Room 24	10	10	9.5
AS-02	Room 24	9	10.5	10.5
AS-23	Room 24	10	10	10
AS-14	Room 24	10.5	9	10
AS-22	Room 24	10	9.5	10
AS-19	Room 24	10.5	9.75	10.5
AS-21	Room 24	11.5	9.5	11
AS-20	Room 24	8.5	9.25	10
AS-18	Room 24	10	10	9.5
AS-17	Room 24	10	10	11
AS-16	Room 24	9.5	9.5	10.5
AS-66	Degreaser	4.5	4.5	5
AS-56	Degreaser	10	9	11.5
AS-63	Degreaser	7	8.5	9
AS-62	Degreaser	4.5	4.5	5
AS-64	Degreaser	4.5	4.5	5
AS-61	Degreaser	6.5	7	5
AS-53	Degreaser	14	15	17
AS-60	Degreaser	11	10	10
AS-59	Degreaser	1	3	2
AS-54	Degreaser	NR	NR	NR
AS-55	Degreaser	8	6.5	14.5
AS-57	Degreaser	11	15.5	10

Notes:

Readings are in standard cubic feet per minute (scfm).

NR - no reading

* = "Shut down while AS motor replaced"

Table 6
General System Parameters
Energizer Facility
401 Gage Street Bennington, VT

		15-Jul-08	23-Jul-08	31-Jul-08	7-Aug-08	12-Aug-08	21-Aug-08	29-Aug-08	5-Sep-08
Temperature Transmitter	Units								
TT-200	(°F)	179	200	204	204	202	175	175	186
TT-201		182	203	206	206	206	113	113	116
TT-202		99	80	78	77	78	69	69	71
TT-300		127	125	135	135	129	134	134	141
TT-301		126	124	135	134	128	133	133	140
TT-302		85	82	93	91	86	90	90	94
TT-500		63	62	67	65	64	65	65	69
TT-501		82	67	62	61	62	58	58	58
Pressure Gauge									
PG-200	PSI	8.0	9.0	8.0	9.0	9.0	9.5	9.5	64.0
PG-201		7.5	9.0	7.5	8.5	9.0	9.5	9.5	64.0
PG-202		6.5	7.5	7.0	8.0	7.5	8.0	8.0	51.0
PG-500		38.0	37.0	34.0	34.0	35.0	34.0	34.0	37.0
PG-501		0.0	7.0	17.0	17.0	18.0	17.0	17.0	17.0
Pressure Gauge									
PG-300	in. wc.	22	23	22	23	22	29	0	36
PG-301		NR	10.5	8	14	14	17	21	21
PG-302		4	5	13	5	5	5	5	14
PG-303		0	0	0	0	0	0	0	3
PG-304		9	9	9	9	9	15	18	0
Temperature Gauge									
TG-200	(°F)	185	210	220	210	210	140	168	150
TG-201		185	211	105	215	205	175	174	195
TG-202		95	76	75	76	76	69	68	70
TG-500		65	64	70	68	66	68	69	71
TG-501		80	68	62	62	64	60	58	59
TG-502		66	64			64	67	64	64
TG-300		86	84	92	91	88	92	95	94
Vacuum Transmitter									
VT-300	in. wc.	56	60	59	60	60	60	61	61
Pressure Transmitter									
PT-200	PSI	5.99	6.9	7	6.8	6.87	6.65	6.8	6.83
Air Velocity Transmitter									
AVT-300	FPM								
	CFM	NR	0.4	NR	NR	NR	NR	0.4	0.4
AVT-301	FPM								
	CFM	1396.4	1341.7	1340	1300	1295	NR	0	0
Heat Exchanger Flow Meter									
FMT500			4,906,900	4,906,900	4,906,900	4,906,900	4,906,900	28,557	28,557
FMT501			883,500	-	-	920,987	1,172,186	13,983	15,906

Notes:

- -- not collected

°F - degrees Fahrenheit

CFM - cubic feet per minute

FPM - feet per minute

PSI - pounds per square inch

in. wc.
ERM - inches of water column

Table 6
General System Parameters
Energizer Facility
401 Gage Street Bennington, VT

		14-Sep-08	17-Sep-08	18-Sep-08
Temperature Transmitter	Units			(AS blower now on)
TT-200	(°F)	189	175	172
TT-201		83	72	170
TT-202		73	72	87
TT-300		138	136	138
TT-301		137	136	137
TT-302		92	89	90
TT-500		68	67	66
TT-501		59	57	58
Pressure Gauge				
PG-200	PSI	2.5	2.0	9.0
PG-201		8.0	10.0	9.0
PG-202		8.0	8.5	7.8
PG-500		39.0	41.0	41.0
PG-501		17.0	17.0	18.0
Pressure Gauge				
PG-300	in. wc.	25	24	25
PG-301		15.5	15	-
PG-302		11	10	-
PG-303		2	2	-
PG-304		< 2	0	-
Temperature Gauge				
TG-200	(°F)	85	60	170
TG-201		200	180	180
TG-202		73	68	86
TG-500		70	68	68
TG-501		60	58	60
TG-502		64	62	62
TG-300		93	90	90
Vacuum Transmitter				
VT-300	in. wc.	60	60	60
Pressure Transmitter				
PT-200	PSI	7.06	7.2	6.6
Air Velocity Transmitter				
AVT-300	FPM			
	CFM	0.4	-	-
AVT-301	FPM			
	CFM	0	-	-
Heat Exchanger Flow Meter				
FMT500		28,557	28,557	28,557
FMT501		18,450	19,321	19,663

Notes:

- -- not collected

°F - degrees Fahrenheit

CFM - cubic feet per minute

FPM - feet per minute

PSI - pounds per square inch

in. wc. - inches of water column

Table 7
SVE System - AOC-1
Energizer Facility
401 Gage Street, Bennington, VT

	Location ID:	SVE-1	SVE-1	SVE-3	SVE-3	SVE-22	SVE-22	SVE-23	SVE-23
	Sample Date:	23-Aug-2008	26-Sep-2008	23-Aug-2008	26-Sep-2008	27-Aug-2008	26-Sep-2008	23-Aug-2008	26-Sep-2008
	Sample Type:	N	N	N	N	N	N	N	N
Volatile Organic Compounds (VOCs, ug/m³) (EPA Method TO-15)									
Tetrachloroethylene		239	2,290	6.89	56.6	4,850	19,000	9,930	5,820
Trichloroethylene		2,350	3,410	9.74	52.8	2,520	8,140	378	975
Cis-1,2-Dichloroethene		242	604	-	6.69	98.9	691	33.4	122
Trans-1,2-Dichloroethene		17.1	32.1	-	-	-	27.0	-	-

Notes:

Units are in ug/m³.

ug/m³ = micrograms per cubic meter.

Values in bold indicate concentrations above
method detection limit

- = Not Detected.

Analyses performed by Alpha Analytical Laboratories
of Westboro, MA.

Tabulated results include only those values reported
above method detection limits.

Table 7
SVE System - AOC-1
Energizer Facility
401 Gage Street, Bennington, VT

	Location ID:	SVE-24	SVE-24	SVE-24	SVE-25	SVE-25	SVE-25
	Sample Date:	28-Jul-2008	21-Aug-2008	26-Sep-2008	28-Jul-2008	21-Aug-2008	26-Sep-2008
	Sample Type:	N	N	N	N	N	N
Volatile Organic Compounds (VOCs, ug/m³) (EPA Method TO-15)							
Tetrachloroethylene		47,600	28,600	30,100	241	4,220	1,390
Trichloroethylene		2,310	786	644	766	1,640	869
Cis-1,2-Dichloroethene		-	-	-	-	-	-
Trans-1,2-Dichloroethene		-	-	-	-	-	-

Notes:

Units are in ug/m³.

ug/m³ = micrograms per cubic meter.

Values in bold indicate concentrations above
method detection limit

- = Not Detected.

Analyses performed by Alpha Analytical Laboratories
of Westboro, MA.

Tabulated results include only those values reported
above method detection limits.

Table 7
SVE System - AOC-1
Energizer Facility
401 Gage Street, Bennington, VT

	Location ID:	SVE-26	SVE-26	SVE-26	SVE-27	SVE-27	SVE-27
	Sample Date:	28-Jul-2008	21-Aug-2008	26-Sep-2008	28-Jul-2008	21-Aug-2008	26-Sep-2008
	Sample Type:	N	N	N	N	N	N
Volatile Organic Compounds (VOCs, ug/m³) (EPA Method TO-15)							
Tetrachloroethylene		13,200	2,760	1,940	137	289	1,330
Trichloroethylene		8,270	2,070	1,220	1,020	1,800	710
Cis-1,2-Dichloroethene		61.1	-	-	-	-	-
Trans-1,2-Dichloroethene		-	-	-	-	-	-

Notes:

Units are in ug/m³.

ug/m³ = micrograms per cubic meter.

Values in bold indicate concentrations above
method detection limit

- = Not Detected.

Analyses performed by Alpha Analytical Laboratories
of Westboro, MA.

Tabulated results include only those values reported
above method detection limits.

Table 8
Steam Injection System - Fuel and Water Use
Energizer Facility
401 Gage Street Bennington, VT

	Jul-08	Aug-08	Sep-08	Quarter Total
<i>Steam Use (lbs)</i>				
SIW-8	-	250	98,030	98,280
SIW-9*	183,631	168,029	168,217	519,877
SIW-10	166,020	154,956	102,143	423,119
SIW-11	142,604	152,604	116,231	411,439
SIW-13**	52,775	97,070	76,285	226,130
SIW-14	-	2,590	67,030	69,620
SIW-15	-	60	88,230	88,290
SIW-16	-	90	92,460	92,550
<i>Totals</i>				
Total Steam (lbs)	545,030	575,649	808,626	1,929,305
Total Water Used (gal)	72,888	76,983	108,139	258,010
Total Fuel Used (gal)	5,103	5,390	7,571	18,064

Assumptions:

average boiler pressure = 60 psig
latent heat of vaporization = 905.25 BTU/lb
makeup water enthalpy (60°F) = 28.08 BTU/lb
boiler water enthalpy (60 psig) = 276.79 BTU/lb
water density = 7.48 lb/gal
heat value No. 4 fuel oil = 145,000 BTU/gal
boiler efficiency = 85 %

Notes:

Assumed average boiler pressure
Assumed preheated 60°F makeup water in deaerator; heat to assumed avg pressure for saturated steam in boiler
Assumed makeup water is 60°F
- = SIW not in use at that time
* = Spoolpiece also used at SIW-12 and SIW-14 for short period of time.
** = Spool piece also used at SIW-14 for short period of time.

Table 9
Summary of Active Soil Gas Analytical Results
Energizer Facility
401 Gage Street, Bennington, VT

	Location ID:	ASG-14	ASG-14	ASG-14	ASG-14	ASG-14	ASG-14
	Sample Date:	27-Jul-2006	17-May-2007	5-Sep-2007	11-Mar-2008	17-Jun-2008	25-Sep-2008
	Sample Type:	N	N	N	N	N	N
Volatile Organic Compounds (VOCs, ug/m³) (EPA Method TO-15)							
Tetrachloroethylene		7,890	602	50.4	3.2	354	257
Trichloroethylene		222	38.4	20.9	6.38	1.55	2.05
Cis-1,2-Dichloroethene		< 19.8	< 1.98	0.515	< 0.792	< 0.792	< 0.792
Trans-1,2-Dichloroethene		< 19.8	< 1.98	0.4	< 0.792	< 0.792	< 0.792
Vinyl chloride		< 12.8	< 1.28	0.243	< 0.511	< 0.511	< 0.511

Notes:

ug/m³ = micrograms per cubic meter.

Values in bold indicate concentrations above
method detection limit

Table 9
Summary of Active Soil Gas Analytical Results
Energizer Facility
401 Gage Street, Bennington, VT

Location ID: Sample Date: Sample Type:	ASG-32 26-Jul-2007 N	ASG-32 17-Oct-2007 N	ASG-32 14-Nov-2007 N	ASG-32 18-Dec-2007 N	ASG-32 19-Feb-2008 N	ASG-32 17-Jun-2008 N	ASG-32 25-Sep-2008 N
Volatile Organic Compounds (VOCs, ug/m³) (EPA Method TO-15)							
Tetrachloroethylene	332	41.2	24.2	12.3	6.14	250	1,190
Trichloroethylene	162	70.8	1.84	0.256	< 1.07	< 1.07	< 5.37
Cis-1,2-Dichloroethene	< 1.98	< 1.98	< 0.079	< 0.079	< 0.792	< 0.792	< 3.96
Trans-1,2-Dichloroethene	< 1.98	< 1.98	< 0.079	< 0.079	< 0.792	< 0.792	< 3.96
Vinyl chloride	< 1.28	< 1.28	< 0.051	< 0.051	< 0.511	< 0.511	< 2.55

Notes:

ug/m³ = micrograms per cubic meter.

Values in bold indicate concentrations above
method detection limit

Table 9
Summary of Active Soil Gas Analytical Results
Energizer Facility
401 Gage Street, Bennington, VT

Location ID: Sample Date: Sample Type:	ASG-33 26-Jul-2007 N	ASG-33 17-Oct-2007 N	ASG-33 14-Nov-2007 N	ASG-33 18-Dec-2007 N	ASG-33 19-Feb-2008 N	ASG-33 17-Jun-2008 N	ASG-33 25-Sep-2008 N
Volatile Organic Compounds (VOCs, ug/m³) (EPA Method TO-15)							
Tetrachloroethylene	5,530	602	73.4	78.3	6.8	4,070	14,200
Trichloroethylene	109	65.9	2.69	1.09	< 1.07	8.01	< 26.8
Cis-1,2-Dichloroethene	3.8	< 1.98	< 0.079	< 0.079	< 0.792	< 0.792	< 19.8
Trans-1,2-Dichloroethene	< 1.98	< 1.98	< 0.079	< 0.079	< 0.792	< 0.792	< 19.8
Vinyl chloride	< 1.28	< 1.28	< 0.051	< 0.051	< 0.511	< 0.511	< 12.8

Notes:

ug/m³ = micrograms per cubic meter.

Values in bold indicate concentrations above
method detection limit

Table 10
Summary of Groundwater Analytical Results
Energizer Facility
401 Gage Street, Bennington, VT

Location ID: Sample Date: Laboratory Sample Type:	Primary Groundwater Quality Standards Enforcement Standard	ERM-12 27-Feb-07 Alpha N	ERM-12 4-Sep-07 Stone N	ERM-12 4-Sep-07 Stone FD	ERM-12 18-Dec-07 Alpha N	ERM-12 10-Mar-08 Alpha N	ERM-12 10-Mar-08 Alpha FD	ERM-12 16-Jun-08 Alpha N	ERM-12 25-Sep-08 Alpha N
Parameter									
Volatile Organics (VOCs) (ug/l)									
Tetrachloroethylene	5	120	210	180	150	72	69	190	84
Trichloroethylene	5	< 2.0	< 10	< 10	< 2.0	0.5	< 0.5	< 1.0	4.2
Cis-1,2-Dichloroethene	70	< 2.0	< 10	< 10	< 2.0	< 0.5	< 0.5	< 1	< 2.0
Trans-1,2-Dichloroethene	100	< 3.0	< 10	< 10	< 3.0	< 0.75	< 0.75	< 1.5	< 3.0

Notes:

ug/l = micrograms per liter.

< = Compound not detected. Method detection limit shown.

Bold cells indicate concentrations greater than the laboratory detection limits.

Shaded cells indicate exceedances of Primary Groundwater Quality Standards Enforcement Standard.

Tabulated results include only those analytes detected at least once above method detection limits.

Alpha is the Lab designation for Alpha Woods Hole Laboratory Westboro, MA.

Stone is the Lab designation for Stone Environmental, Inc. Montpelier, VT.

Analyses for VOCs performed by Alpha (EPA Method SW8260) and Stone (EPA Method SW8260B). See Table for distinction.

FD = Field Duplicate

N- Normal Sample

Table 10
Summary of Groundwater Analytical Results
Energizer Facility
401 Gage Street, Bennington, VT

Location ID: Sample Date: Laboratory Sample Type:	Primary Groundwater Quality Standards Enforcement Standard	ERM-13 27-Feb-07 Alpha N	ERM-13 5-Sep-07 Stone N	ERM-13 10-Mar-08 Alpha N	ERM-13 16-Jun-08 Alpha N	ERM-13 26-Sep-08 Alpha N
Parameter						
Volatile Organics (VOCs) (ug/l)						
Tetrachloroethylene	5	16	40	15	23	8.4
Trichloroethylene	5	1.2	< 10	0.71	0.61	1.4
Cis-1,2-Dichloroethene	70	< 0.50	< 10	< 0.5	< 0.5	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 10	< 0.75	< 0.75	< 0.75

Notes:

ug/l = micrograms per liter.

< = Compound not detected. Method detection limit shown.

Bold cells indicate concentrations greater than the laboratory detection limits.

Shaded cells indicate exceedances of Primary Groundwater Quality Standards Enforcement Standard.

Tabulated results include only those analytes detected at least once above method detection limits.

Alpha is the Lab designation for Alpha Woods Hole Laboratory Westboro, MA.

Stone is the Lab designation for Stone Environmental, Inc. Montpelier, VT.

Analyses for VOCs performed by Alpha (EPA Method SW8260) and Stone (EPA Method SW8260B). See Table for distinction.

N- Normal Sample

Table 10
Summary of Groundwater Analytical Results
Energizer Facility
401 Gage Street, Bennington, VT

Location ID: Sample Date: Laboratory Sample Type:	Primary Groundwater Quality Standards Enforcement Standard	ERM-14 22-May-07 Alpha N	ERM-14 4-Sep-07 Stone N	ERM-14 10-Mar-08 Alpha N	ERM-14 16-Jun-08 Alpha N	ERM-14 26-Sep-08 Alpha N
Parameter						
Volatile Organics (VOCs) (ug/l)						
Tetrachloroethylene	5	3.6	12	5.7	6.9	1.5
Trichloroethylene	5	< 0.50	< 10	< 0.5	< 0.5	< 0.50
Cis-1,2-Dichloroethene	70	< 0.50	< 10	< 0.5	< 0.5	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 10	< 0.75	< 0.75	< 0.75

Notes:

ug/l = micrograms per liter.

< = Compound not detected. Method detection limit shown.

Bold cells indicate concentrations greater than the laboratory detection limits.

Shaded cells indicate exceedances of Primary Groundwater Quality Standards Enforcement Standard.

Tabulated results include only those analytes detected at least once above method detection limits.

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Stone is the Lab designation for Stone Environmental, Inc. Montpelier, VT.

Analyses for VOCs performed by Alpha (EPA Method SW8260) and Stone (EPA Method SW8260B). See Table for distinction.

N- Normal Sample

Table 10
Summary of Groundwater Analytical Results
Energizer Facility
401 Gage Street, Bennington, VT

Location ID: Sample Date: Laboratory Sample Type:	Primary Groundwater Quality Standards Enforcement Standard	ERM-15 22-May-07 Alpha N	ERM-15 4-Sep-07 Stone N	ERM-15 11-Mar-08 Alpha N	ERM-15 16-Jun-08 Alpha N	ERM-15 26-Sep-08 Alpha N
Parameter						
Volatile Organics (VOCs) (ug/l)						
Tetrachloroethylene	5	3.3	< 10	1.1	1.8	1.2
Trichloroethylene	5	0.63	< 10	< 0.5	< 0.5	< 0.50
Cis-1,2-Dichloroethene	70	< 0.50	< 10	< 0.5	< 0.5	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 10	< 0.75	< 0.75	< 0.75

Notes:

ug/l = micrograms per liter.

< = Compound not detected. Method detection limit shown.

Bold cells indicate concentrations greater than the laboratory detection limits.

Shaded cells indicate exceedances of Primary Groundwater Quality Standards Enforcement Standard.

Tabulated results include only those analytes detected at least once above method detection limits.

Alpha is the Lab designation for Alpha Woods Hole Laboratory Westboro, MA.

Stone is the Lab designation for Stone Environmental, Inc. Montpelier, VT.

Analyses for VOCs performed by Alpha (EPA Method SW8260) and Stone (EPA Method SW8260B). See Table for distinction.

N- Normal Sample

Table 10
Summary of Groundwater Analytical Results
Energizer Facility
401 Gage Street, Bennington, VT

Location ID: Sample Date: Laboratory Sample Type:	Primary Groundwater Quality Standards Enforcement Standard	ERM-16 22-May-07 Alpha N	ERM-16 4-Sep-07 Stone N	ERM-16 11-Mar-08 Alpha N	ERM-16 16-Jun-08 Alpha N	ERM-16 26-Sep-08 Alpha N
Parameter						
Volatile Organics (VOCs) (ug/l)						
Tetrachloroethylene	5	54	38	31	54	49
Trichloroethylene	5	1.5	< 10	< 0.5	< 0.5	2.5
Cis-1,2-Dichloroethene	70	< 0.50	< 10	< 0.5	< 0.5	0.82
Trans-1,2-Dichloroethene	100	< 0.75	< 10	< 0.75	< 0.75	< 0.75

Notes:

ug/l = micrograms per liter.

< = Compound not detected. Method detection limit shown.

Bold cells indicate concentrations greater than the laboratory detection limits.

Shaded cells indicate exceedances of Primary Groundwater Quality Standards Enforcement Standard.

Tabulated results include only those analytes detected at least once above method detection limits.

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Analyses for VOCs performed by Alpha (EPA Method SW8260) and Stone (EPA Method SW8260B). See Table for distinction.

N- Normal Sample

Table 10
Summary of Groundwater Analytical Results
Energizer Facility
401 Gage Street, Bennington, VT

Location ID: Sample Date: Laboratory Sample Type:	Primary Groundwater Quality Standards Enforcement Standard	ERM-17 22-May-07 Alpha N	ERM-17 5-Sep-07 Stone N	ERM-17 11-Mar-08 Alpha N	ERM-17 16-Jun-08 Alpha N	ERM-17 26-Sep-08 Alpha N
Parameter						
Volatile Organics (VOCs) (ug/l)						
Tetrachloroethylene	5	100	100	72	150	84
Trichloroethylene	5	< 1.2	< 10	0.63	< 1.0	5.2
Cis-1,2-Dichloroethene	70	< 1.2	< 10	< 0.5	< 1.0	2.0
Trans-1,2-Dichloroethene	100	< 1.9	< 10	< 0.75	< 1.5	< 1.9

Notes:

ug/l = micrograms per liter.

< = Compound not detected. Method detection limit shown.

Bold cells indicate concentrations greater than the laboratory detection limits.

Shaded cells indicate exceedances of Primary Groundwater Quality Standards Enforcement Standard.

Tabulated results include only those analytes detected at least once above method detection limits.

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Stone is the Lab designation for Stone Environmental, Inc. Montpelier, VT.

Analyses for VOCs performed by Alpha (EPA Method SW8260) and Stone (EPA Method SW8260B). See Table for distinction.

N- Normal Sample

Table 10
Summary of Groundwater Analytical Results
Energizer Facility
401 Gage Street, Bennington, VT

Location ID: Sample Date: Laboratory Sample Type:	Primary Groundwater Quality Standards Enforcement Standard	ERM-19 25-Jul-07 Alpha N	ERM-19 17-Oct-07 Alpha N	ERM-19 15-Nov-07 Alpha N	ERM-19 18-Dec-07 Alpha N	ERM-19 11-Mar-08 Alpha N	ERM-19 17-Jun-08 Alpha N	ERM-19 25-Sep-08 Alpha N
Parameter								
Volatile Organics (VOCs) (ug/l)								
Tetrachloroethylene	5	170	240	140	130	77	170	270
Trichloroethylene	5	< 2.0	1.5	< 2.5	< 2.5	< 1	< 1.0	8.5
Cis-1,2-Dichloroethene	70	< 2.0	< 0.50	< 2.5	< 2.5	< 1	< 1	19
Trans-1,2-Dichloroethene	100	< 2.0	< 0.75	< 3.8	< 3.8	< 1.5	< 1.5	< 3.0

Notes:

ug/l = micrograms per liter.

< = Compound not detected. Method detection limit shown.

Bold cells indicate concentrations greater than the laboratory detection limits.

Shaded cells indicate exceedances of Primary Groundwater Quality Standards Enforcement Standard.

Tabulated results include only those analytes detected at least once above method detection limits.

Alpha is the Lab designation for Alpha Woods Hole Laboratory Westboro, MA.

Stone is the Lab designation for Stone Environmental, Inc. Montpelier, VT.

Analyses for VOCs performed by Alpha (EPA Method SW8260) and Stone (EPA Method SW8260B). See Table for distinction.

N- Normal Sample

Table 10
Summary of Groundwater Analytical Results
Energizer Facility
401 Gage Street, Bennington, VT

Location ID: Sample Date: Laboratory Sample Type:	Primary Groundwater Quality Standards Enforcement Standard	ERM-20 25-Jul-07 Alpha N	ERM-20 17-Oct-07 Alpha N	ERM-20 15-Nov-07 Alpha N	ERM-20 18-Dec-07 Alpha N	ERM-20 11-Mar-08 Alpha N	ERM-20 17-Jun-08 Alpha N	ERM-20 25-Sep-08 Alpha N
Parameter								
Volatile Organics (VOCs) (ug/l)								
Tetrachloroethylene	5	190	280	160	74	96	150	240
Trichloroethylene	5	< 4.0	< 2.0	< 2.5	< 1.2	< 1	< 1.0	5.4
Cis-1,2-Dichloroethene	70	< 4.0	< 2.0	< 2.5	< 1.2	< 1	< 1.0	3.0
Trans-1,2-Dichloroethene	100	< 4.0	< 3.0	< 3.8	< 1.9	< 1.5	< 1.5	< 1.9

Notes:

ug/l = micrograms per liter.

< = Compound not detected. Method detection limit shown.

Bold cells indicate concentrations greater than the laboratory detection limits.

Shaded cells indicate exceedances of Primary Groundwater Quality Standards Enforcement Standard.

Tabulated results include only those analytes detected at least once above method detection limits.

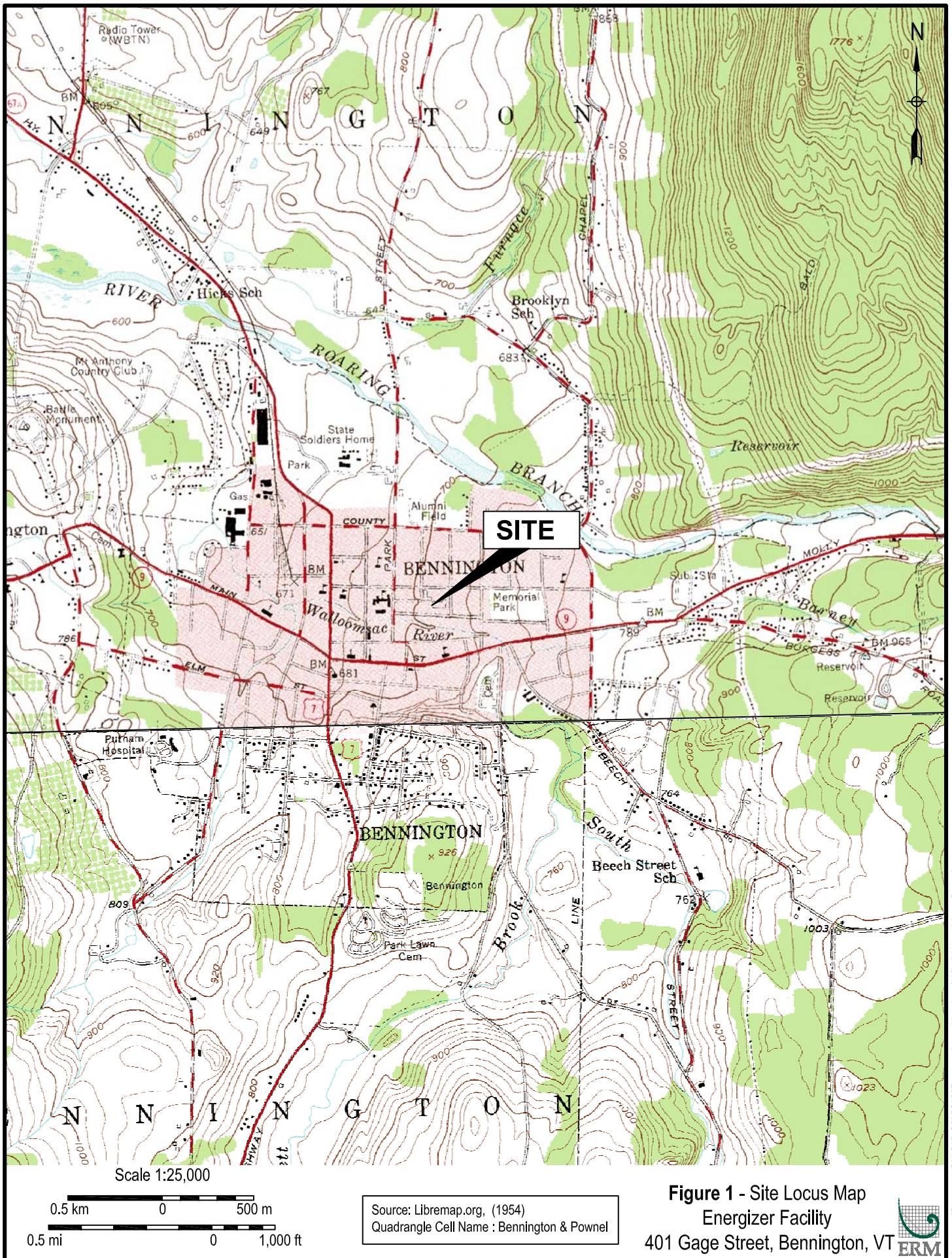
Alpha is the Lab designation for Alpha Woods Hole Laboratory Westboro, MA.

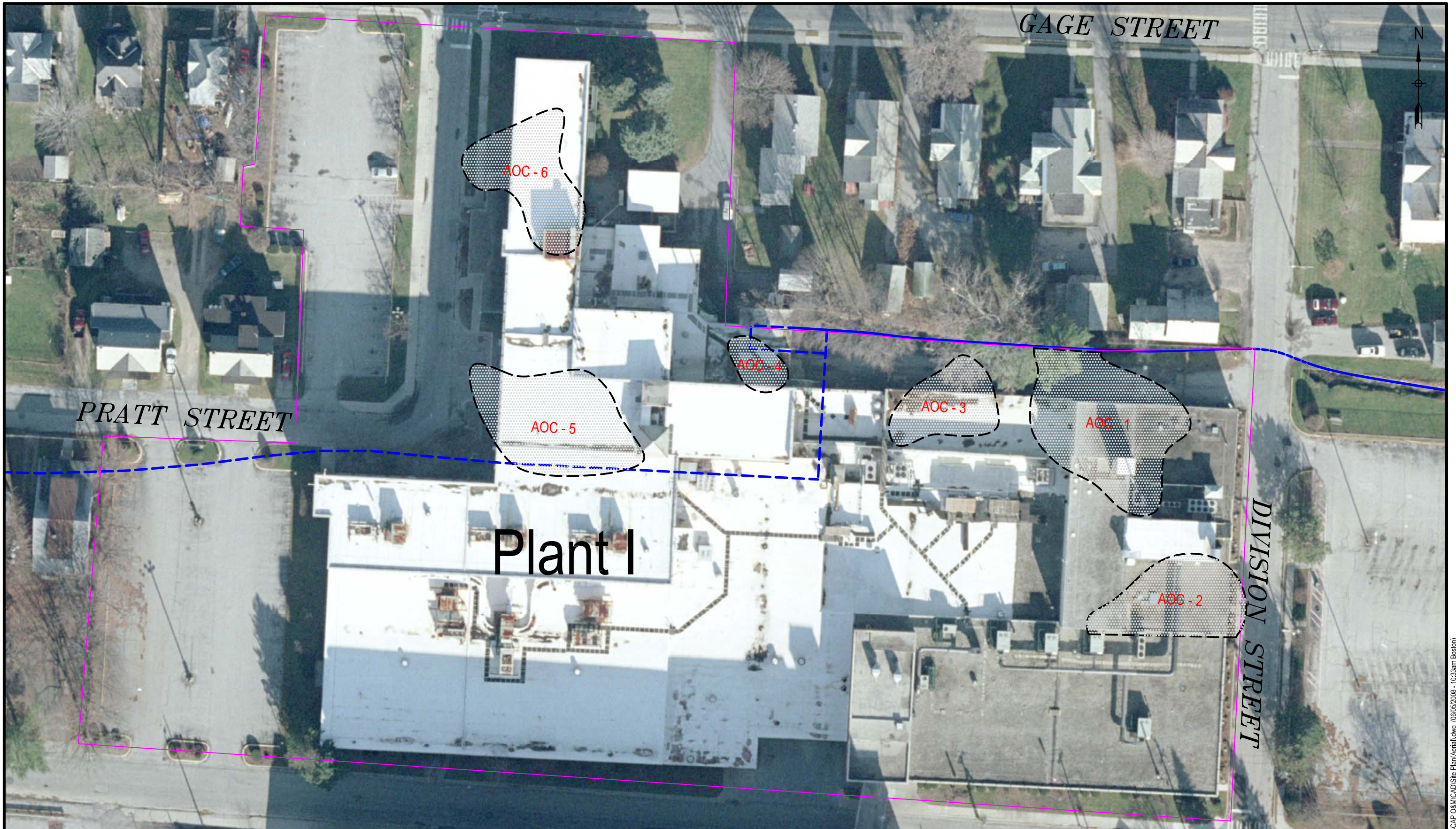
Stone is the Lab designation for Stone Environmental, Inc. Montpelier, VT.

Analyses for VOCs performed by Alpha (EPA Method SW8260) and Stone (EPA Method SW8260B). See Table for distinction.

N- Normal Sample

Figures





- Legend
- Site Boundary
 - Morgan Brook (Dashed Where Culverted)
 - AOC - 1 Areas of Concern (AOC)
 - Potential Source Area

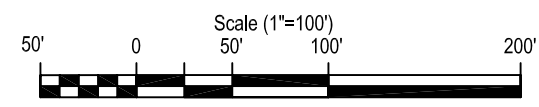
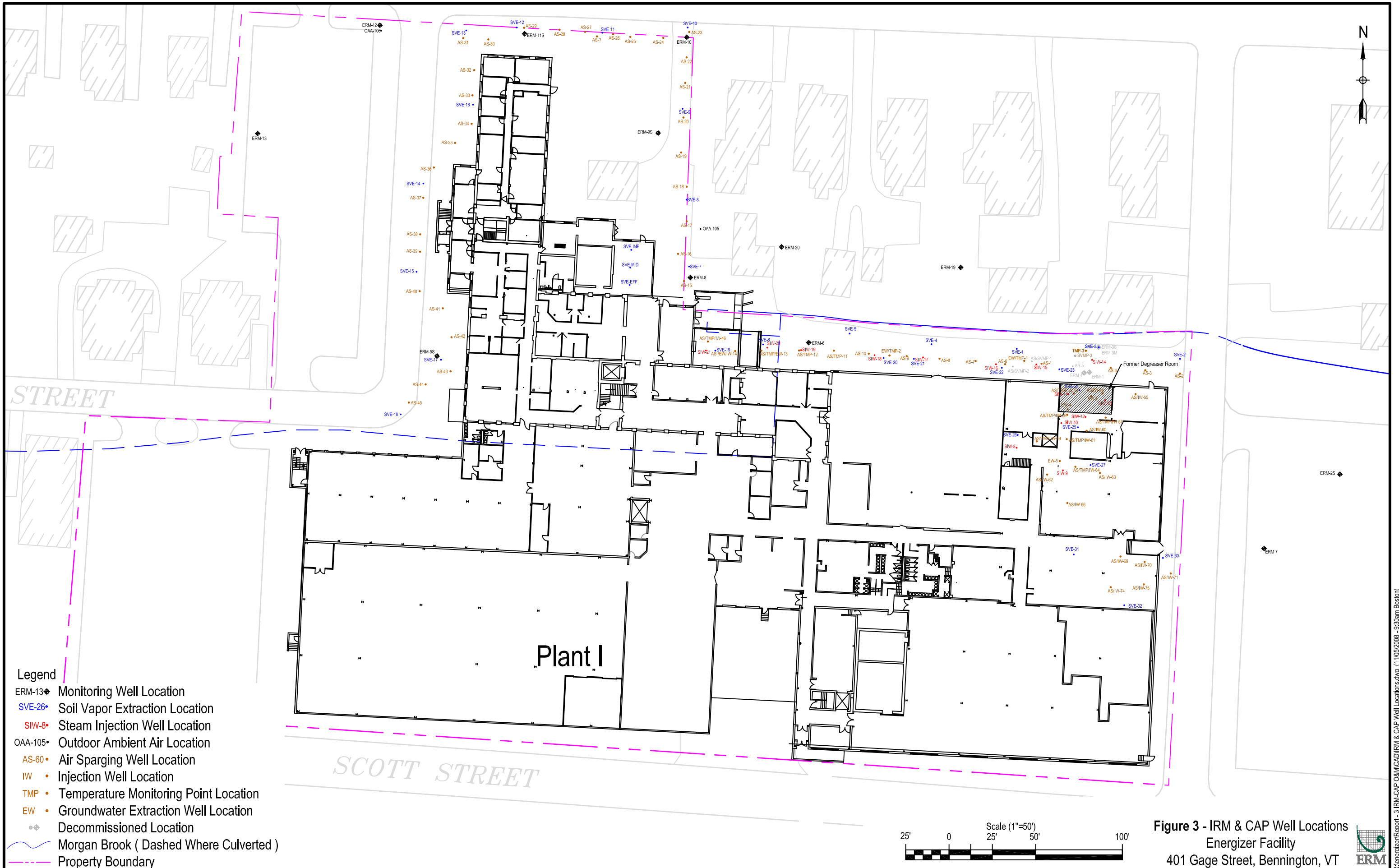


Figure 2 - Site Plan
Energizer Facility
401 Gage Street, Bennington, VT





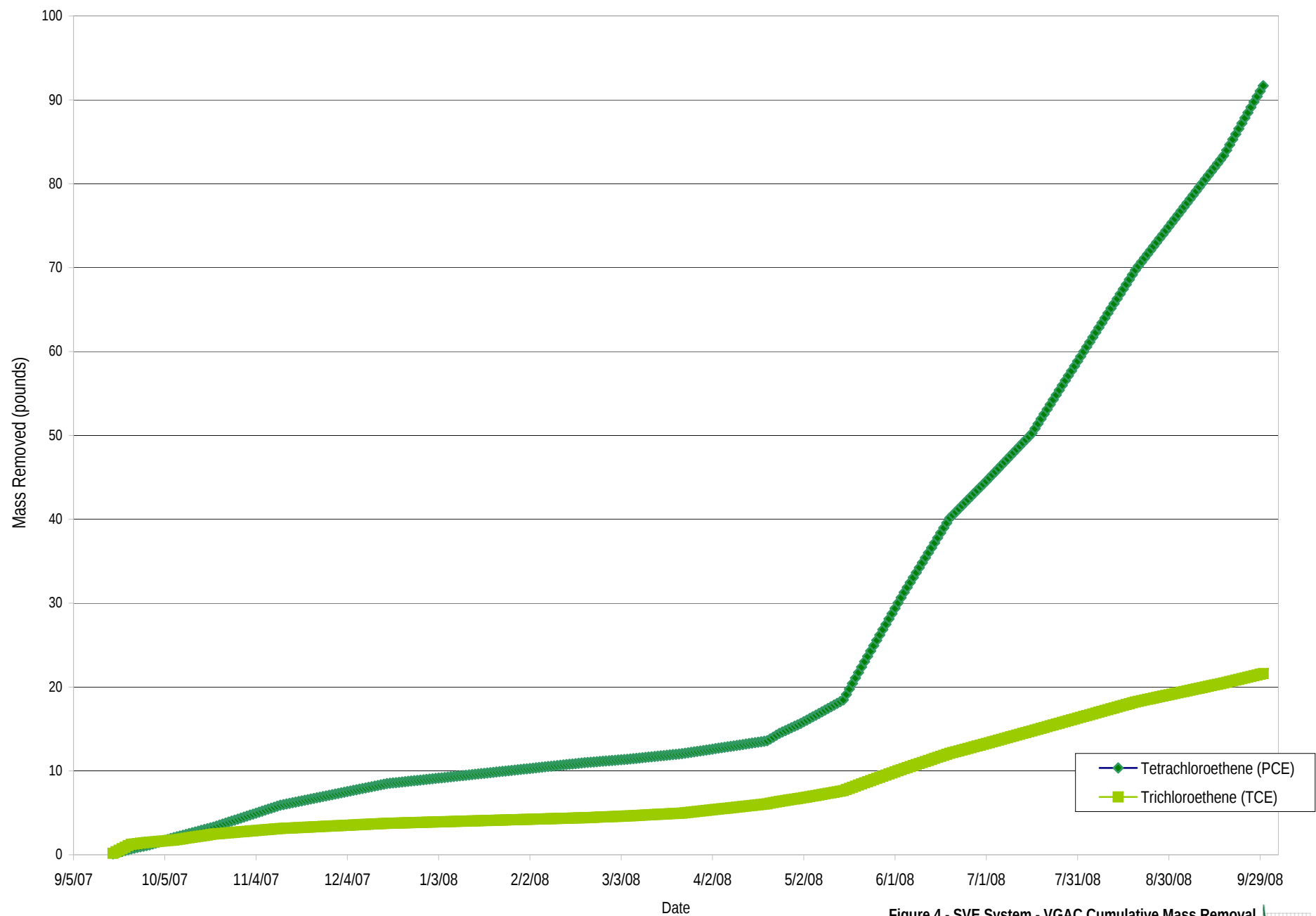


Figure 4 - SVE System - VGAC Cumulative Mass Removal

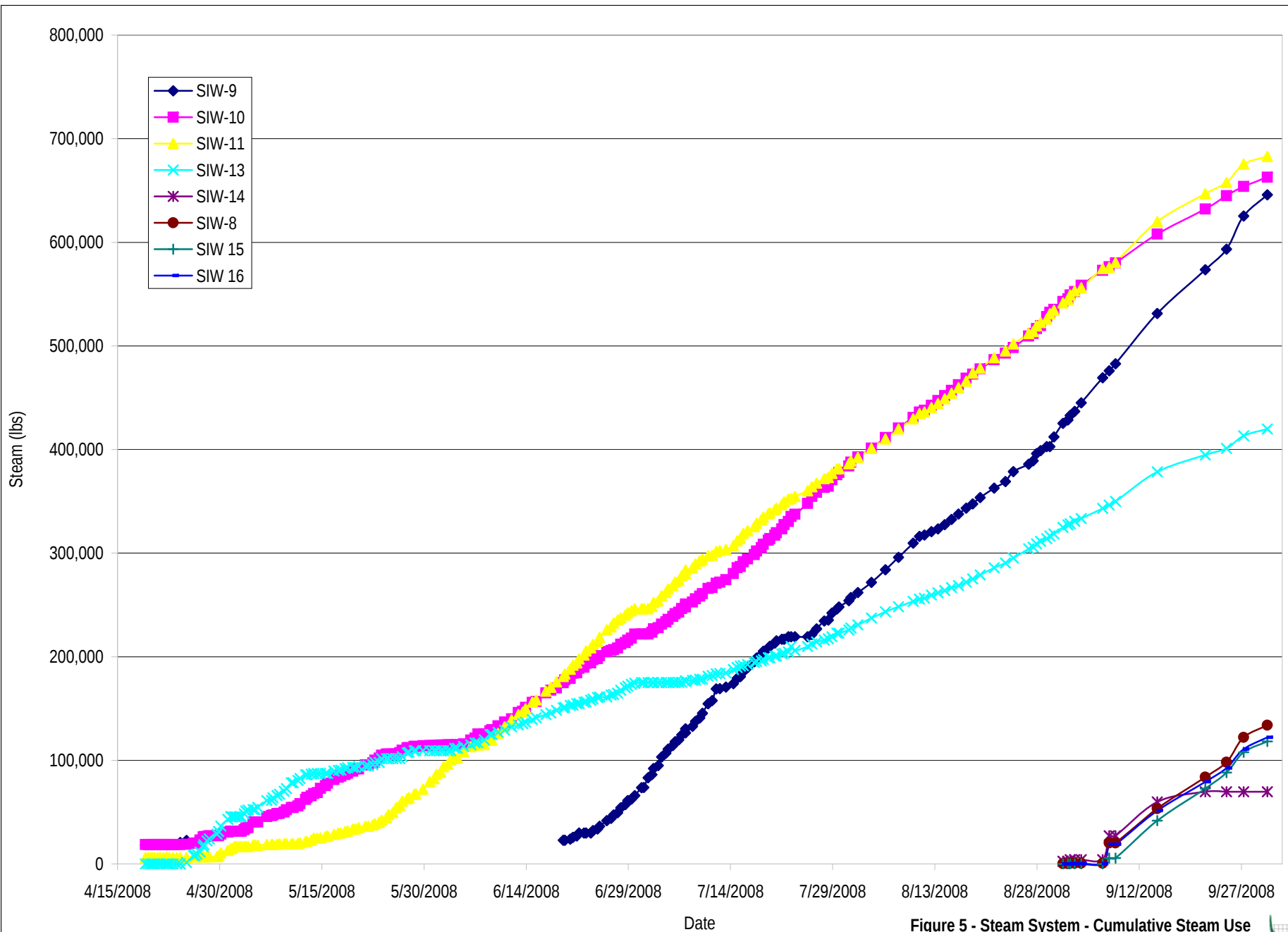


Figure 5 - Steam System - Cumulative Steam Use

Energizer Facility
401 Gage St, Bennington, VT



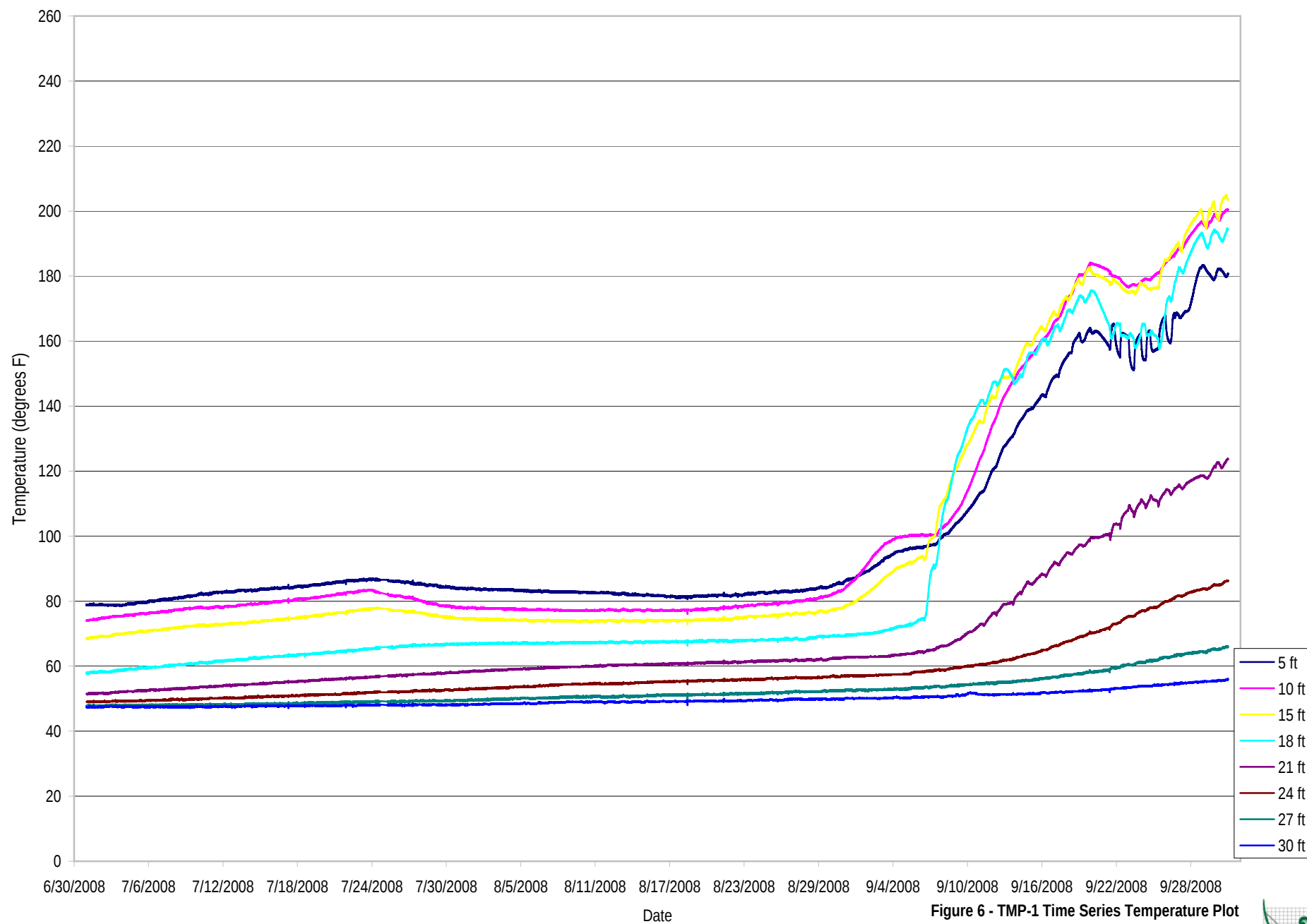


Figure 6 - TMP-1 Time Series Temperature Plot
Energizer Facility
401 Gage St, Bennington, VT



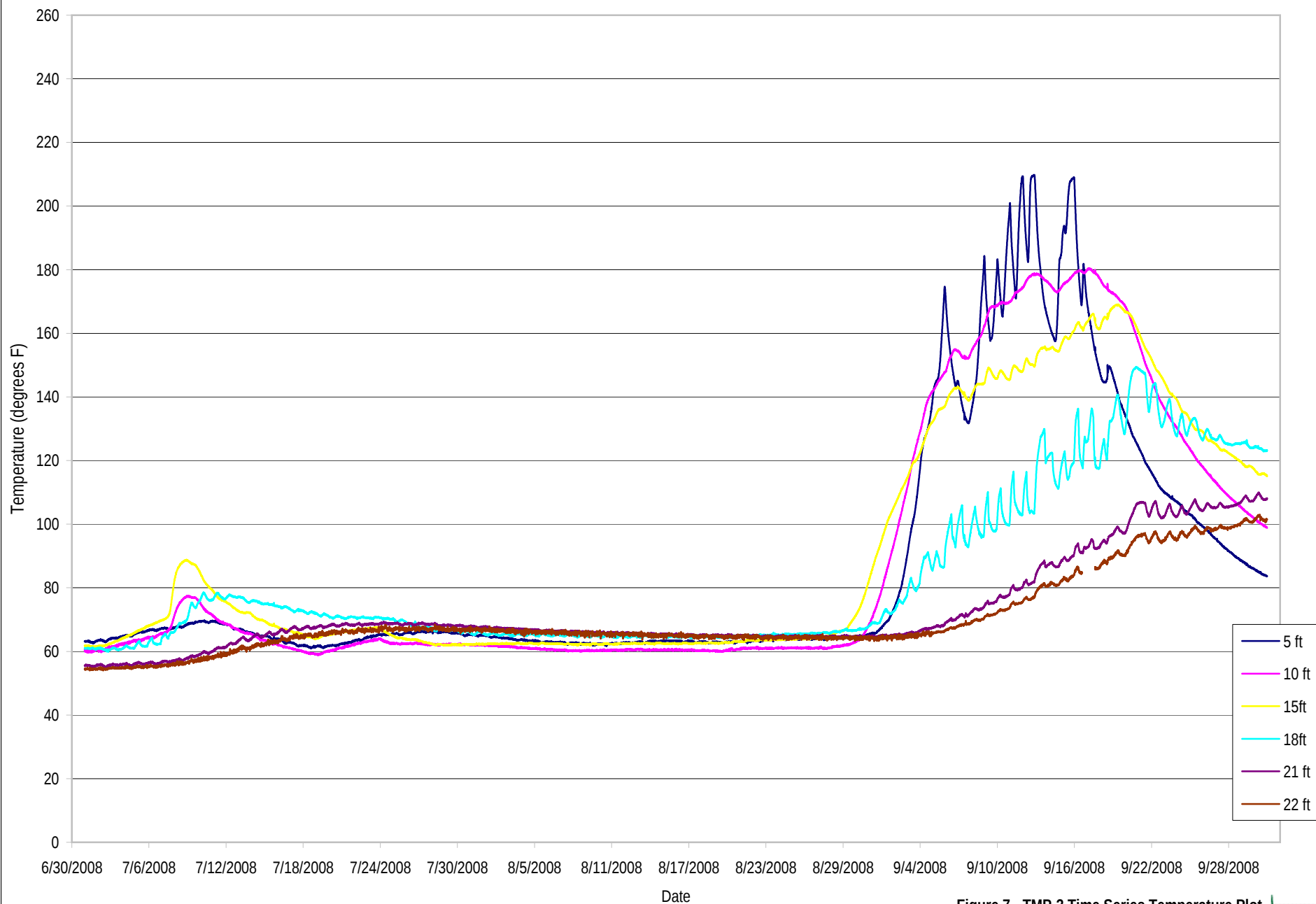
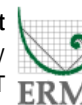


Figure 7 - TMP-3 Time Series Temperature Plot

Energizer Facility
401 Gage St, Bennington, VT



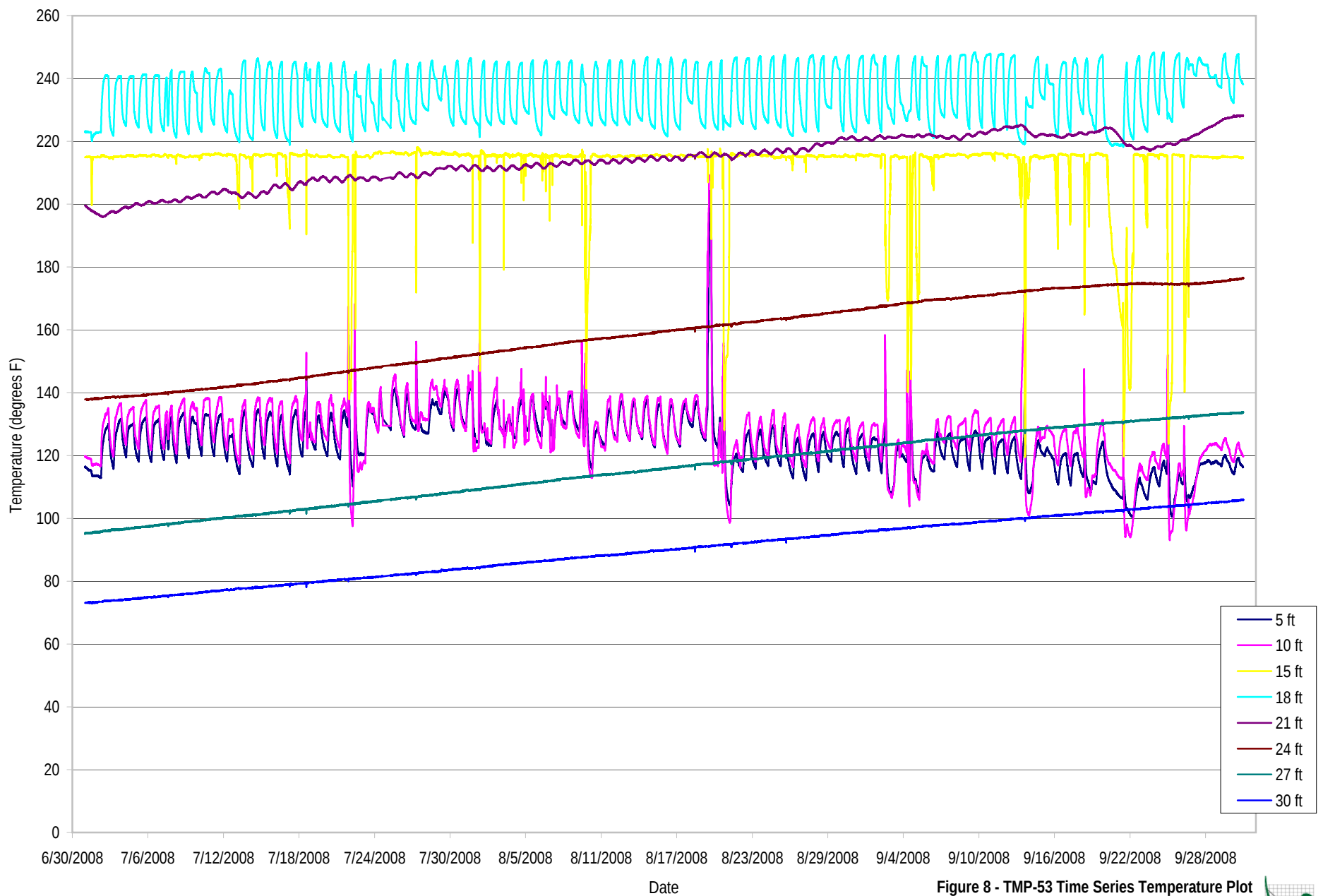


Figure 8 - TMP-53 Time Series Temperature Plot

Energizer Facility
401 Gage St, Bennington, VT



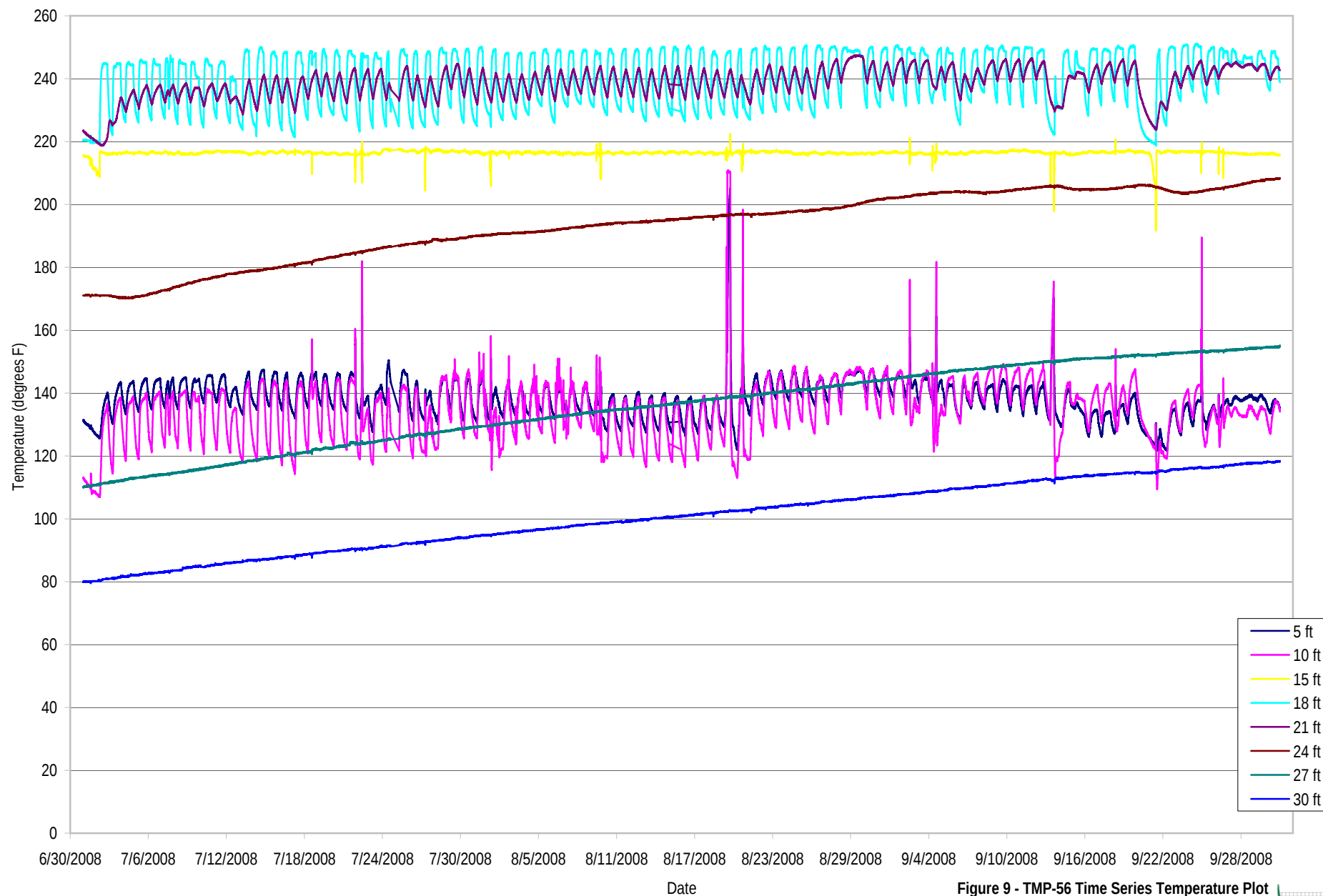


Figure 9 - TMP-56 Time Series Temperature Plot

Energizer Facility
401 Gage St, Bennington, VT



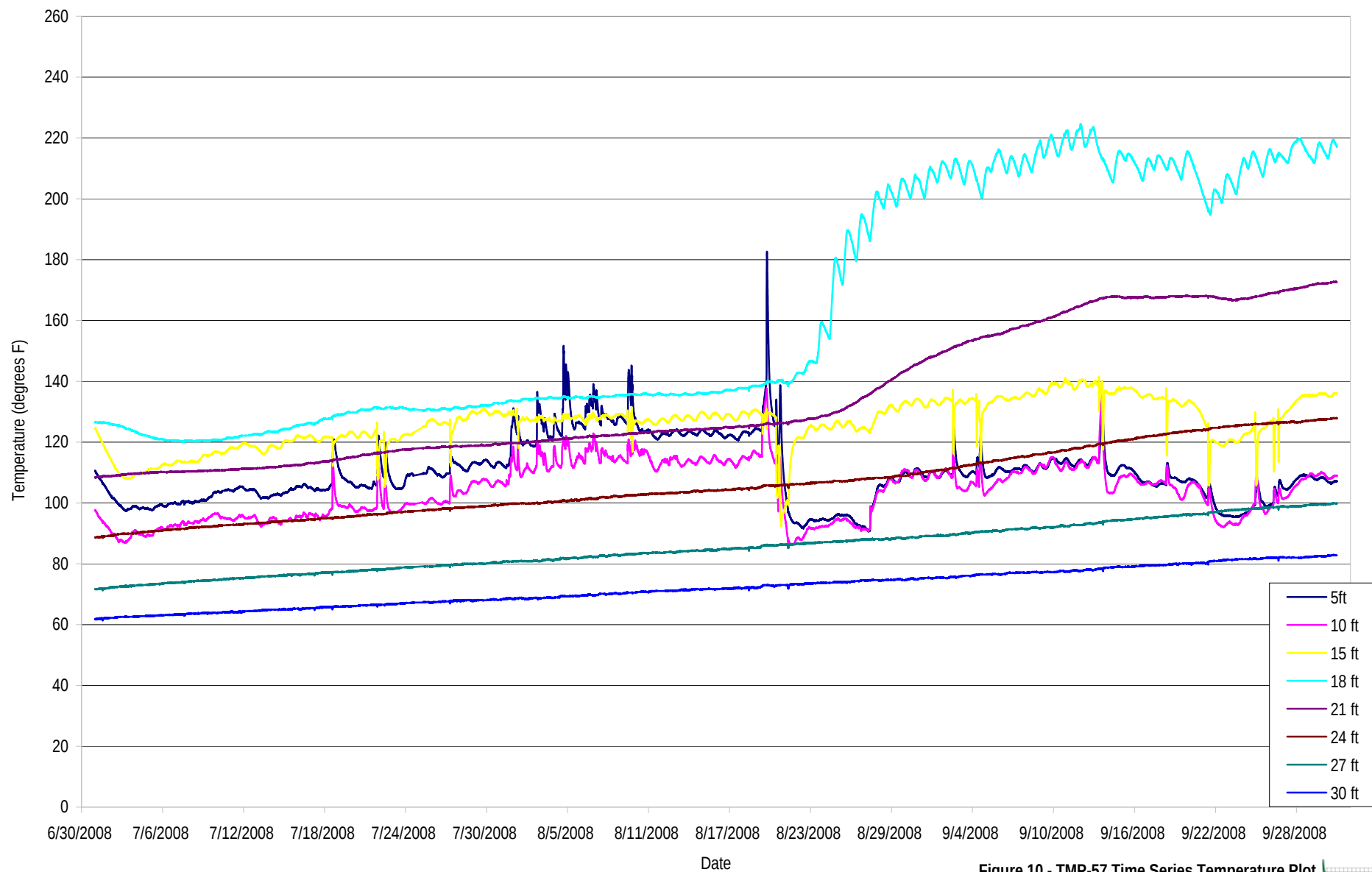


Figure 10 - TMP-57 Time Series Temperature Plot

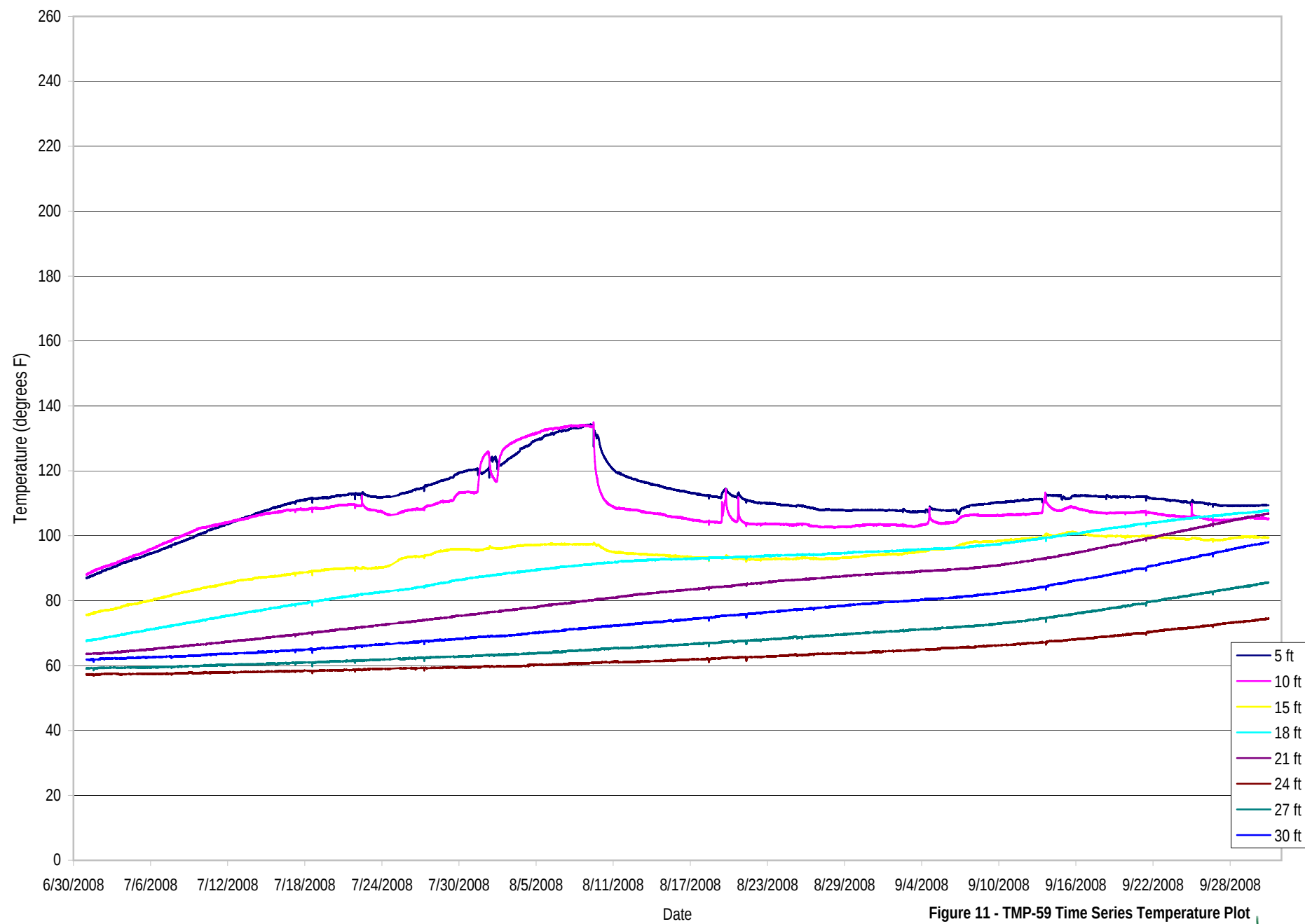


Figure 11 - TMP-59 Time Series Temperature Plot

Energizer Facility
401 Gage St, Bennington, VT



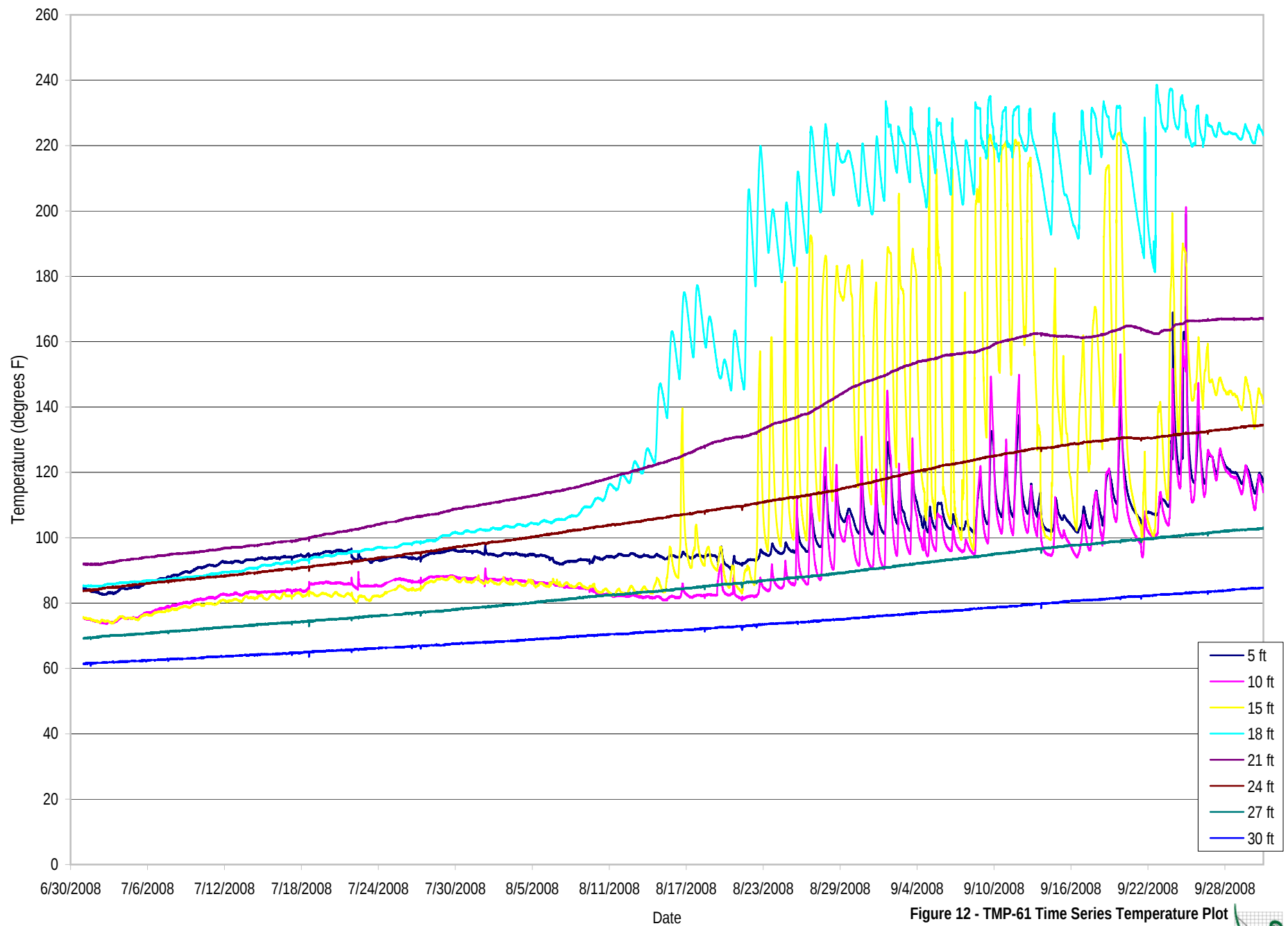


Figure 12 - TMP-61 Time Series Temperature Plot
Enerzizer Facility
401 Gage St, Bennington, VT



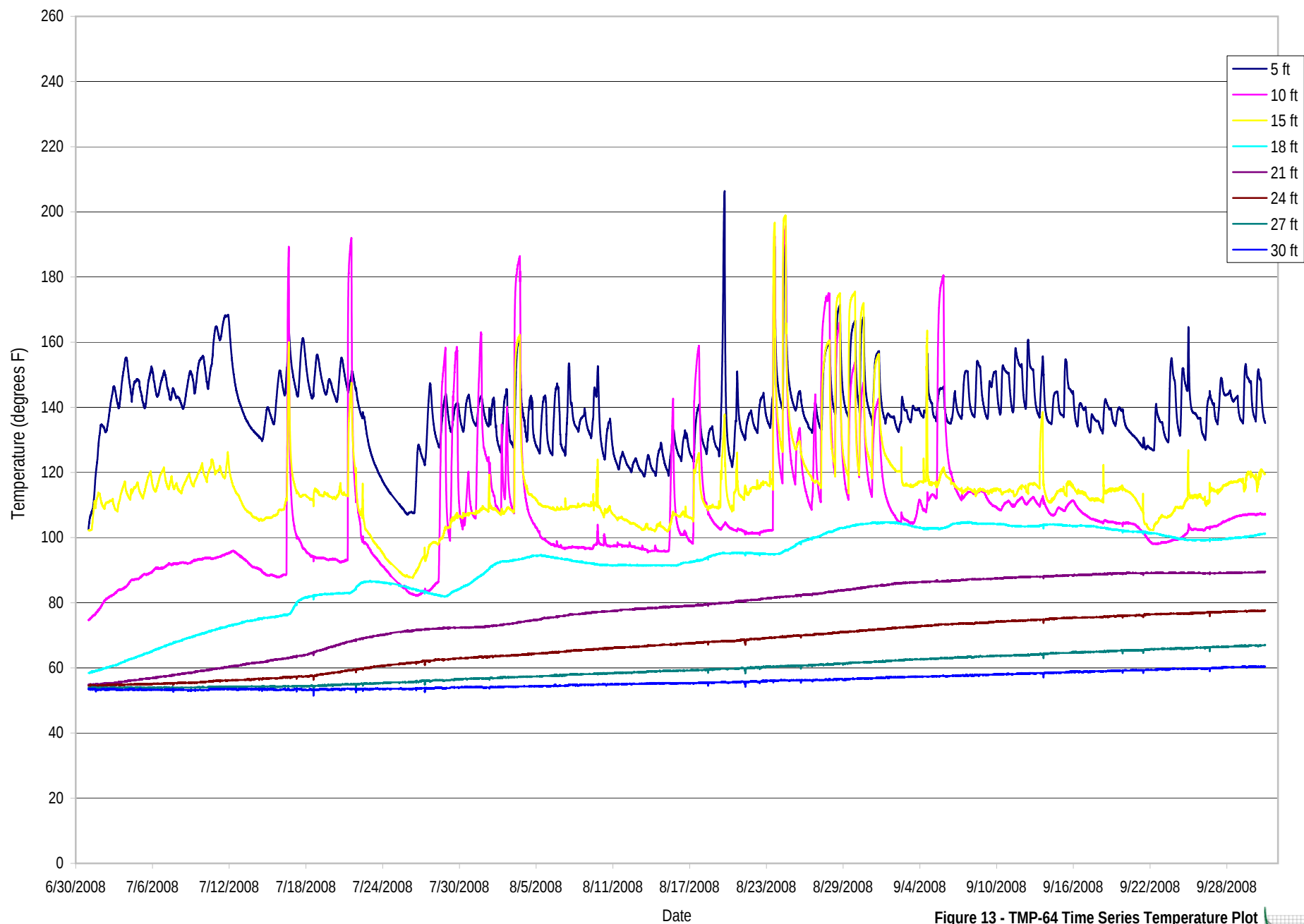
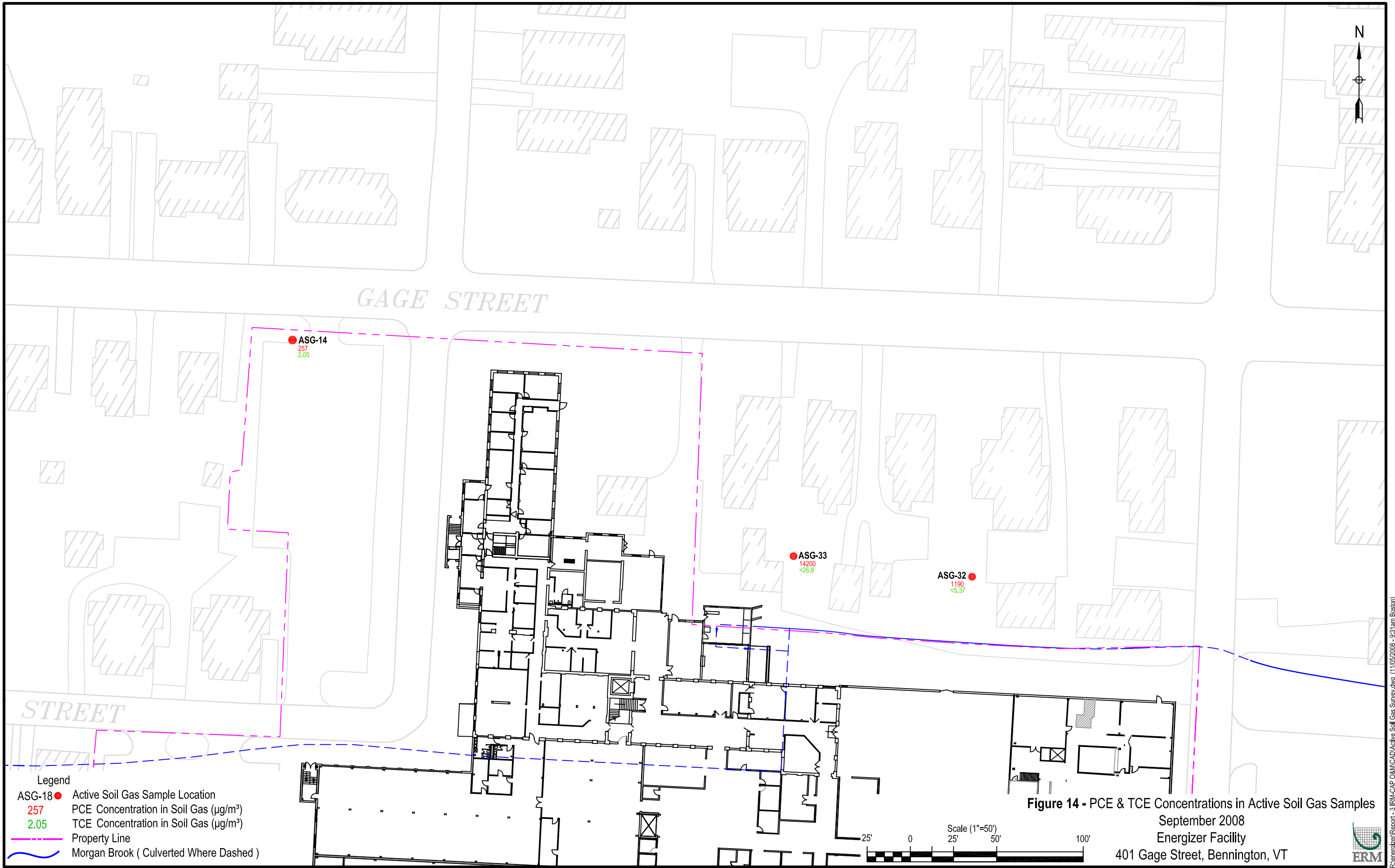


Figure 13 - TMP-64 Time Series Temperature Plot

Energizer Facility
401 Gage St, Bennington, VT





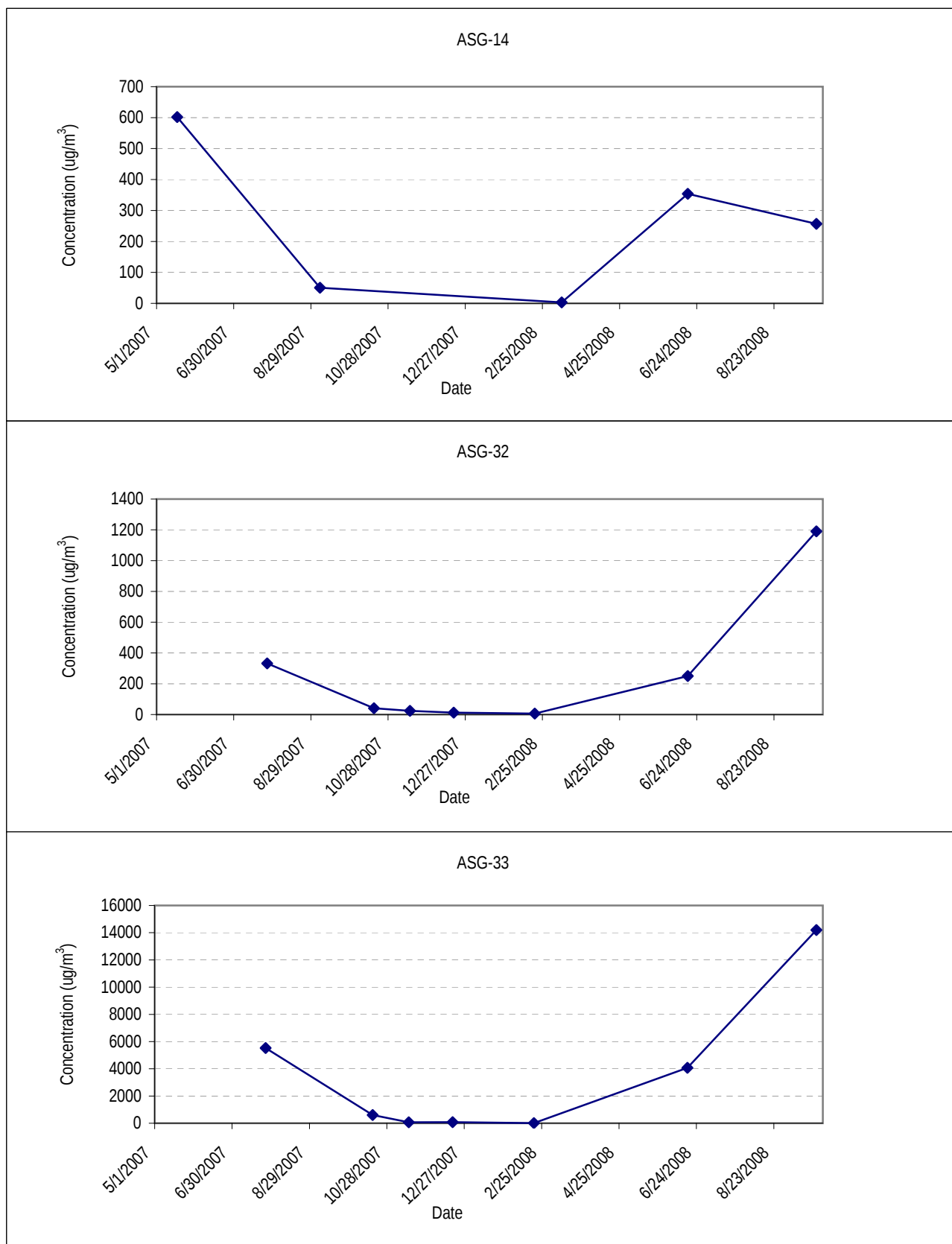


Figure 15 - PCE Active Soil Gas Time Series Plots
Energiizer Facility
401 Gage St, Bennington, VT



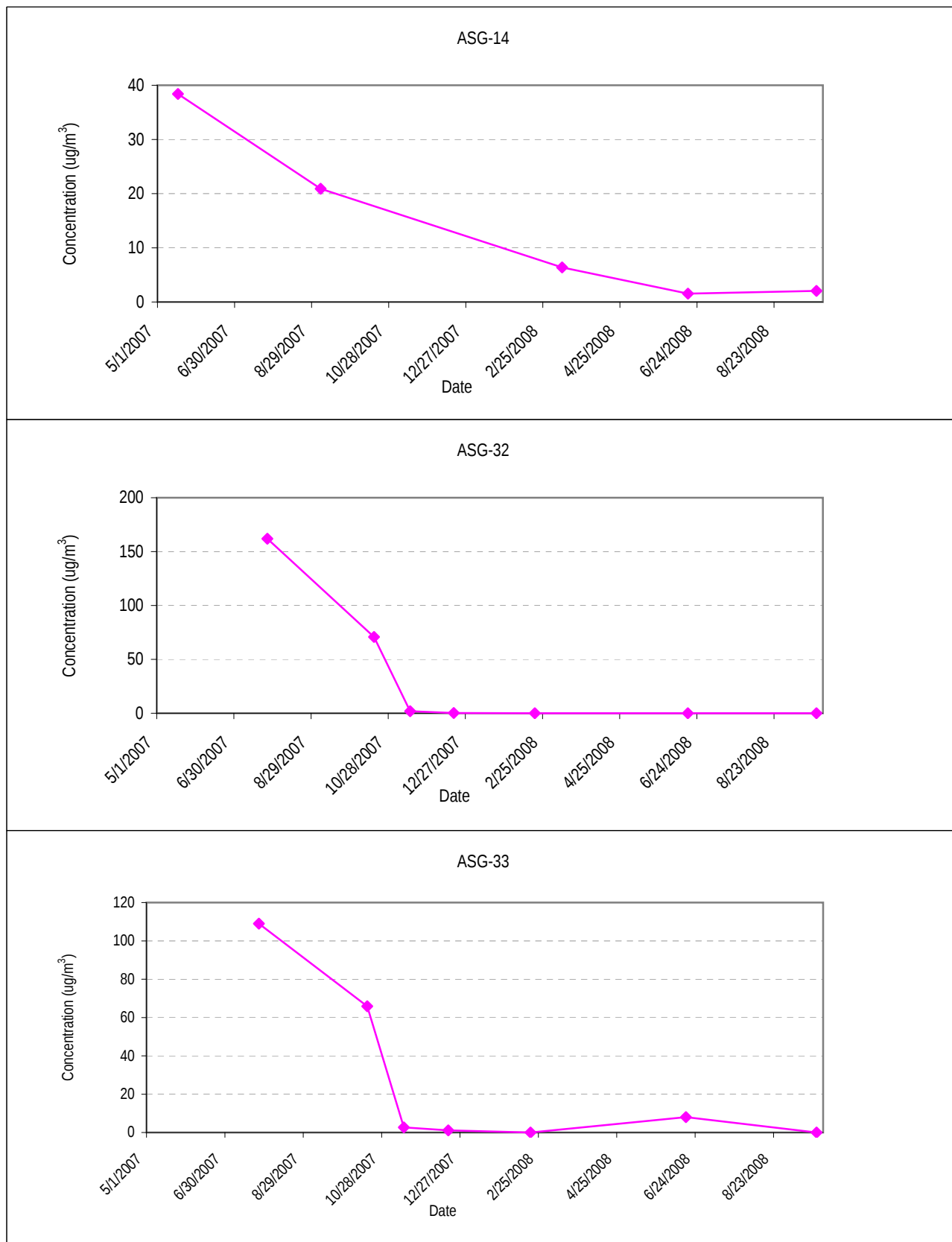
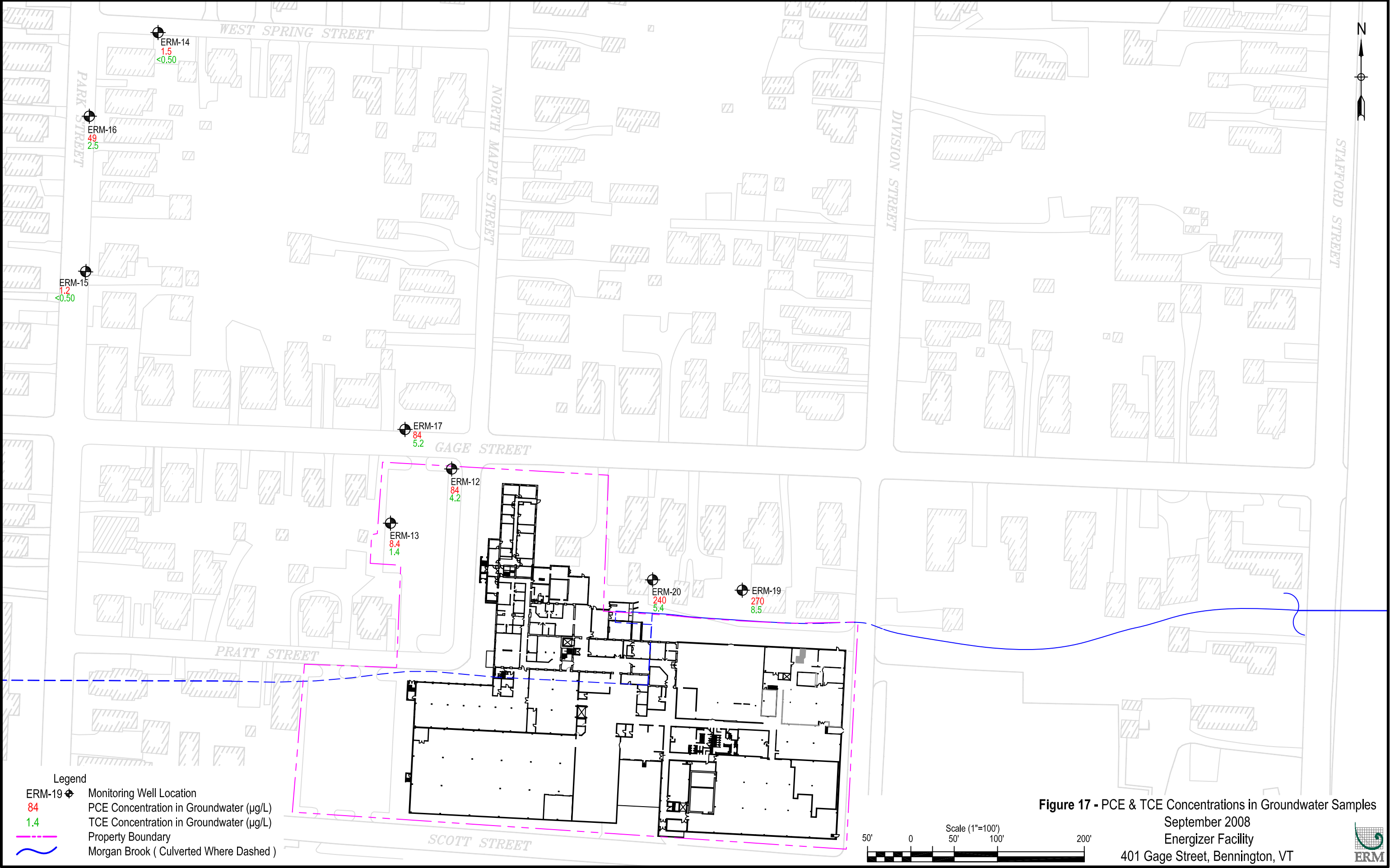


Figure 16 - TCE Active Soil Gas Time Series Plots
Energizer Facility
401 Gage St, Bennington, VT





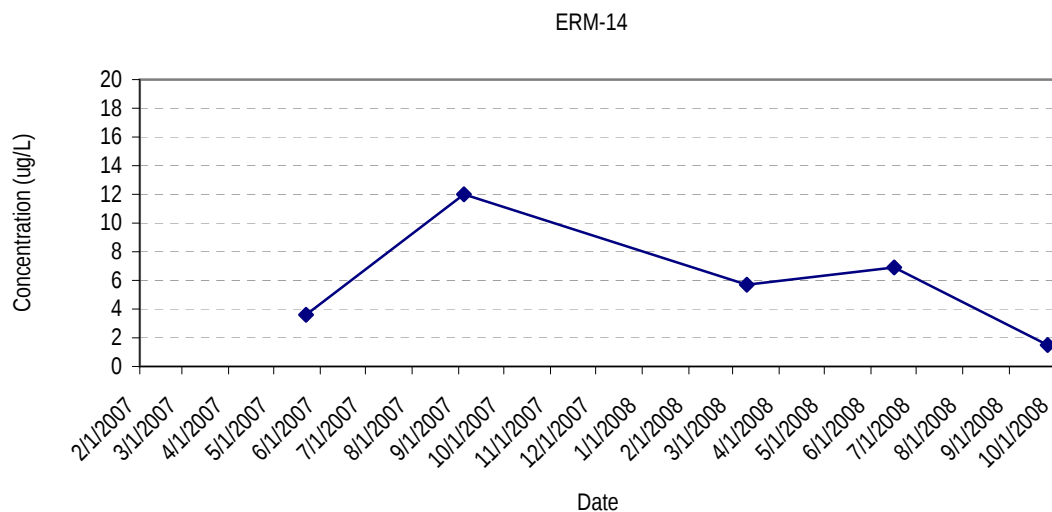
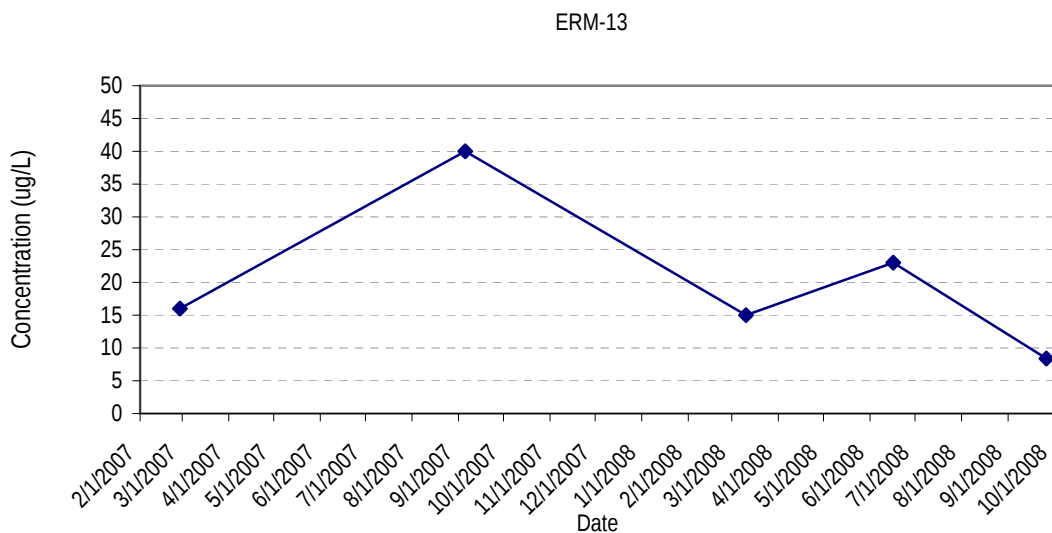
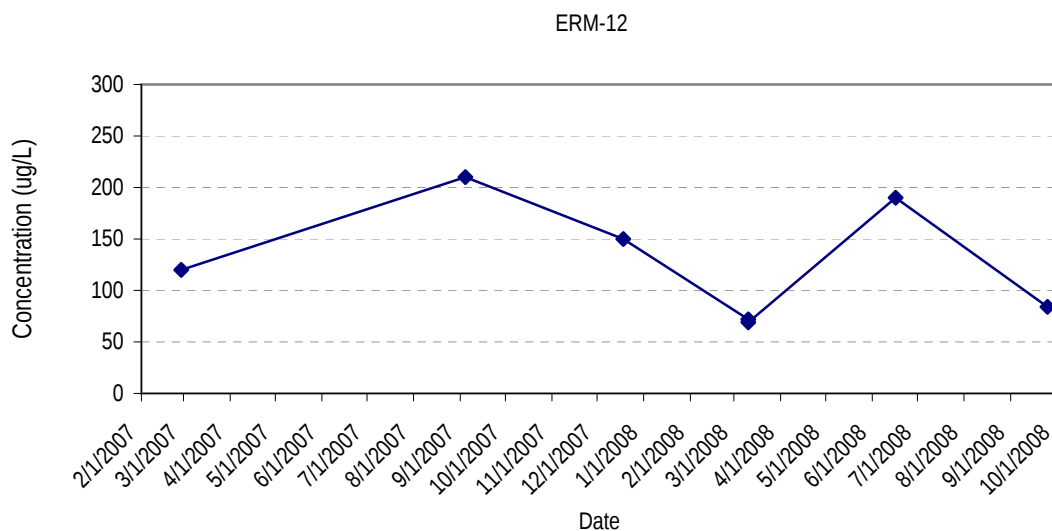


Figure 18 - PCE Groundwater Time Series Plots
Energiizer Facility
401 Gage St, Bennington, VT



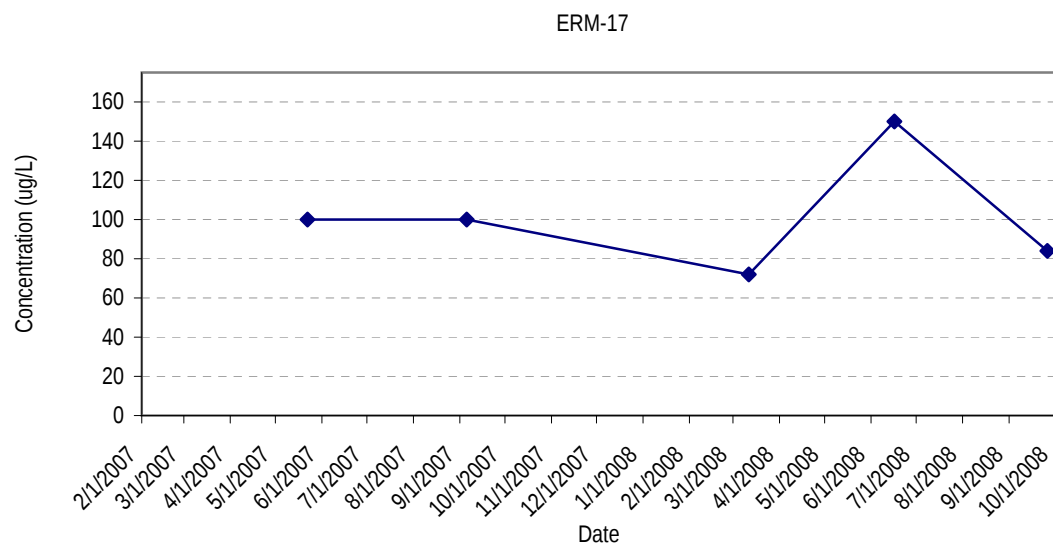
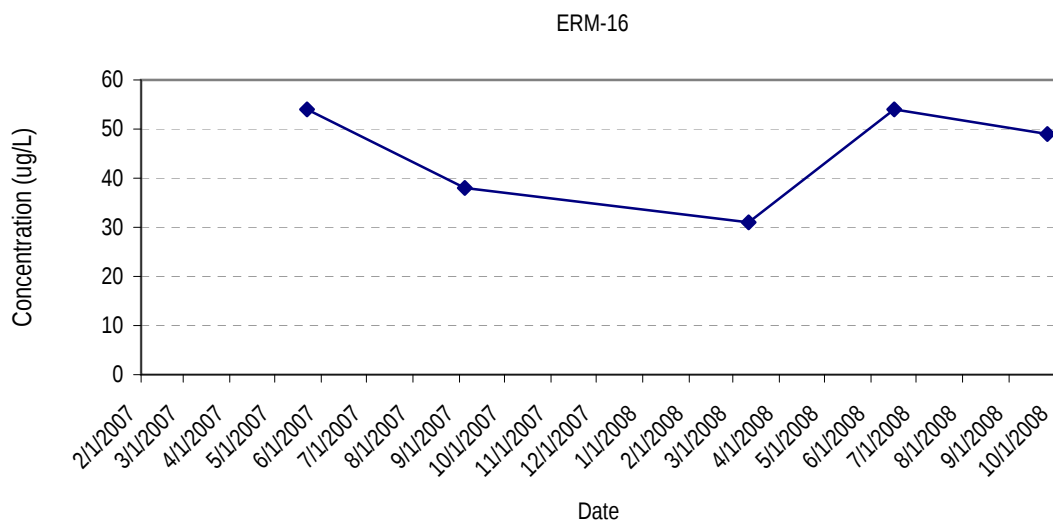
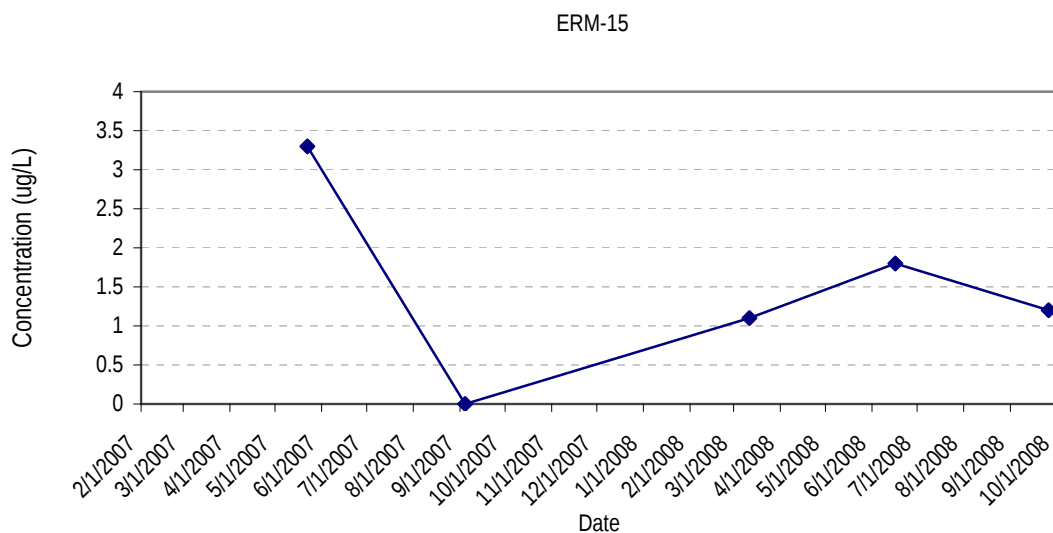


Figure 18 - PCE Groundwater Time Series Plots
Energizer Facility
401 Gage St, Bennington, VT



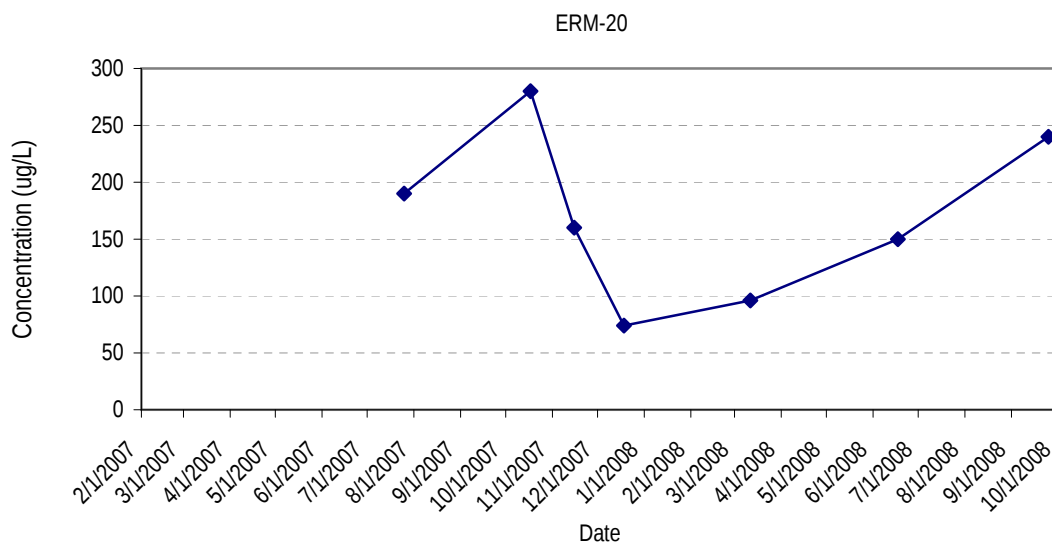
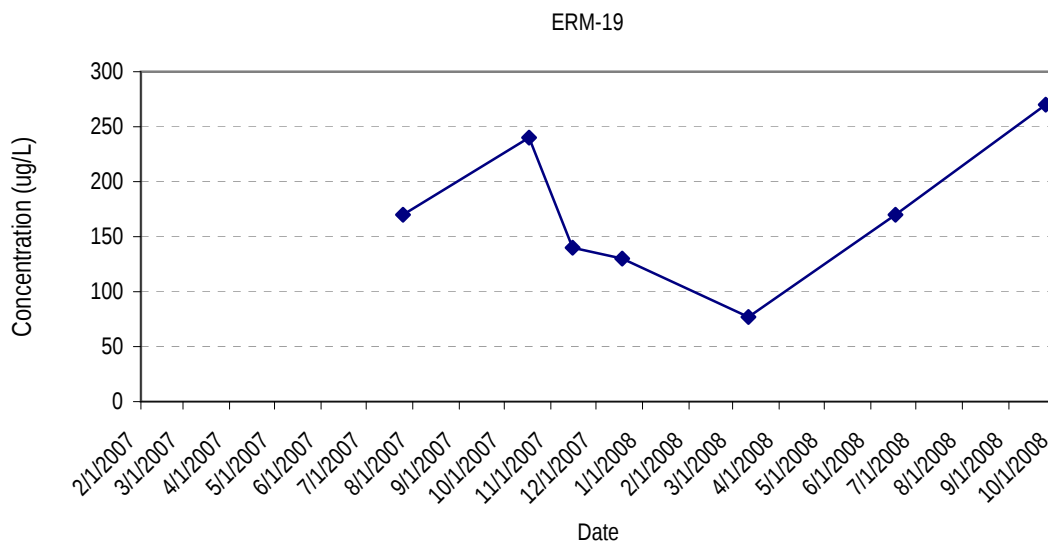


Figure 18 - PCE Groundwater Time Series Plots
Energizer Facility
401 Gage St, Bennington, VT

