

30 August 2010
Reference: 0095267

Mr. Michael B. Smith
Vermont Department of Environmental Conservation
Waste Management Division
103 South Main Street – West Office
Waterbury, Vermont 05671-0404



Re: IRM/CAP OM&M Report #10
Energizer Battery Manufacturing, Inc.
401 Gage Street
Bennington, Vermont 05201

Dear Michael:

Environmental Resources Management (ERM) is pleased to submit this letter report to the Vermont Department of Environmental Conservation (VT DEC) documenting the continued Operation Maintenance and Monitoring (OM&M) of 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 VT DEC Sites Management Section has assigned the Site Number 2006-3509.

The purpose of this letter report is to document the OM&M data collected for the IRM and CAP remediation systems from April through June 2010.

REMEDIATION SYSTEM OPERATION STATUS

Components of the CAP and IRM systems continue to operate as designed and are maintained on an as-needed basis to enable continued system operation. Per approval from the VT DEC, the IRM and CAP air sparge systems were shut down in May 2010 to allow for subsurface equilibration prior to the comprehensive quarterly groundwater sampling event in June 2010. The IRM and CAP SVE systems are currently operational.

Due to the shutdown of the CAP Steam Injection System in October 2009 and the continuously decreasing PCE and TCE concentrations measured in the SVE system, the sampling frequency of the individual SVE wells

was decreased from monthly to quarterly. This change was instituted in April 2010 with approval from the VT DEC.

The attached tables and figures contain operational data for the AS and SVE systems, and continued subsurface temperature monitoring data.

- Tables 1 through 4 – AS/SVE System Data
- Table 5 – General System Parameters
- Figures 1 through 3 – Site Plan and Well Locations
- Figures 5 through 10 – Temperature Data

RESULTS AND RECOMMENDATIONS

The following tables and figures present active soil gas (ASG) sampling, groundwater sampling, and SVE well and effluent sampling results:

- Tables 6 and 7 – SVE System Effluent Concentrations and Individual Well Concentrations
- Tables 8 and 9 – ASG and Groundwater Analytical Results
- Figures 11 through 14 – ASG and Groundwater Analytical Results and Time Series Plots
- Figure 15 – SVE System Individual Well Time Series Plots

Laboratory analytical results are included in Appendices A and B.

During the June 2010 quarterly sampling event, groundwater samples were collected from a larger number of monitoring wells than during previous quarterly sampling events. In addition to the routine compliance point monitoring wells (ERM-12, ERM-13, ERM-14, ERM-15, ERM-16, ERM-17, ERM-19 and ERM-20), samples were also collected from wells located along the downgradient site boundary within the zone of influence of the IRM air sparge system (ERM-6, ERM-8, ERM-9S, ERM-10, and ERM-11S).

Analytical results from active soil gas and groundwater samples collected between April and June 2010 indicate the following:

- All groundwater wells sampled during the June 2010 sampling event were sampled using both passive diffusion bag (PDB) and low-flow sampling techniques. The comparison of concentration data collected with the two methods indicates that PDB sampling

is appropriate for this site. Both low-flow and PDB analytical results are included in Table 9;

- PCE concentrations in groundwater continue to exhibit steady or decreasing trends in all monitoring wells with the exception of ERM-12, where PCE concentrations increased slightly;
- PCE concentrations in the five newly sampled monitoring wells decreased relative to baseline sampling concentrations (February 2007), with two of the wells decreasing in concentration by more than 85 percent (ERM-6 and ERM-8);
- TCE concentrations in groundwater are below the primary groundwater standard in all 13 monitoring wells sampled in June 2010;
- PCE concentrations in soil vapor at ASG-33 fluctuated between 506 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and $1,180 \mu\text{g}/\text{m}^3$. PCE concentrations measured in June 2010 are below the maximum concentration detected in December 2008;
- PCE concentrations in soil vapor at ASG-32 also fluctuated ($9,340 \mu\text{g}/\text{m}^3$ to $10,900 \mu\text{g}/\text{m}^3$). PCE concentrations in June 2010 are below the maximum concentration detected in December 2008;
- PCE concentrations continue to be below detection limits at ASG-13;
- TCE concentrations were close to or below laboratory method detection limits in all three soil vapor monitoring locations;
- PCE concentrations decreased in SVE wells SVE-1, SVE-22, and SVE-23, but increased in SVE-24, SVE-25, and SVE-26, with all concentrations remaining well below baseline concentrations;
- TCE concentrations increased in SVE wells SVE-1, SVE-23, SVE-24 and SVE-25, with concentrations in SVE-24 and SVE-25 being slightly higher than baseline concentrations;
- Monthly SVE total effluent concentrations increased over the quarter, but remain below established ambient air emission standards;
- The SVE system was monitored more frequently during May to ensure consistent operation following completion of system adjustments. Selected system readings were collected multiple times during May, but a full round of system parameters was

collected only once per month. "NR" was used in Tables 1 through 5 to denote readings that were not collected during the system adjustment activities;

- As discussed with and approved by VT DEC, the IRM and CAP air sparge systems were turned off in May 2010; thus, there is full air sparge system data for April 2010 and partial system data for May 2010, and;
- Temperature data included in this letter report represent temperature monitoring locations that were above 100 degrees Fahrenheit (°F) at one or more monitored depth during this quarter. All other temperature monitoring locations were below 100 °F at all depths during the past quarter (note: the temperature data were collected and reviewed, but not graphed). At the end of June 2010, subsurface temperatures greater than 100°F were measured at only two locations (TMP-56 and TMP-59).

Based on the OM&M data collected during this reporting period, ERM has developed the following recommendations regarding operation of the remediation systems:

- Continue operation and maintenance of the CAP and IRM SVE systems under current operating parameters;
- Continue to collect and review temperature data from all temperature monitoring locations, and continue to graph TMP-56 and TMP-59 until all temperatures at all depths are below 100°F;
- Continue to collect monthly active soil gas samples from ASG-32 and ASG-33 to monitor trends in soil gas concentrations;
- Pursuant to recent discussions with the VT DEC, additional active soil gas samples will be collected from ASG-16, ASG-17, ASG-18, ASG-20, and ASG-28 to monitor soil gas concentrations closer to nearby residential structures;
- Continue to collect groundwater samples from ERM-6, ERM-8, ERM-9S, ERM-10, ERM-11s, ERM-12, ERM-13, ERM-14, ERM-15, ERM-16, ERM-17, ERM-19, and ERM-20 on a quarterly basis to monitor site groundwater quality following source area remediation. In addition, we propose to add ERM-5S to this list. Pending approval by the VT DEC, ERM will use the passive diffusion bag (PDB) sampling method during future sampling events. Laboratory analysis of groundwater samples will continue

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to target chlorinated contaminants of concern by focusing on the 8021C list of analytes;

- As all subsurface temperature monitoring points at all depths are currently below 120°F (i.e., the target temperature for safely sampling source area groundwater), source area groundwater sampling will be initiated during the September quarterly groundwater monitoring event and will include the following remediation wells: EW-1, EW-3, EW-4, EW-4, SIW-8, SIW-9, SIW-10, SIW-11, SIW-12, SIW-13, SIW-14, SIW-15, and SIW-16. Groundwater samples will be collected from these wells using PDB sampling techniques, where possible, and low-flow sampling techniques at locations where PDBs cannot be deployed due to remedial well head configurations;
- Continue to collect monthly system effluent air stream samples, and;
- Continue to collect quarterly individual SVE well samples.

Please call either of the undersigned at (617) 646-7800 if you have any questions or require additional information.

Sincerely,



R. Joseph Fiacco, Jr., P.G.
Principal-in-Charge



Catherine E. Regan
Project Manager

Cc: Mr. Jeffrey Gipson (Energizer)

Attachments:

Table 1	<i>SVE Wells – Vacuum Gauge Data</i>
Table 2	<i>SVE Wells – Differential Pressure and Flow Data</i>
Table 3	<i>Air Sparge Wells – Pressure Gauge Data</i>
Table 4	<i>Air Sparge Wells – Flow Data</i>
Table 5	<i>General System Parameters</i>
Table 6	<i>SVE System – Effluent Concentrations</i>
Table 7	<i>SVE System – AOC-1 Mass Removal</i>
Table 8	<i>Summary of Active Soil Gas Analytical Results</i>
Table 9	<i>Summary of Groundwater Analytical Results</i>
Figure 1	<i>Site Locus Map</i>
Figure 2	<i>Site Plan</i>
Figure 3	<i>IRM & CAP Well Locations</i>
Figure 4	<i>SVE System – VGAC Cumulative Mass Removal</i>
Figure 5	<i>TMP-1 – Time Series Temperature Plot</i>
Figure 6	<i>TMP-53 – Time Series Temperature Plot</i>
Figure 7	<i>TMP-56 – Time Series Temperature Plot</i>
Figure 8	<i>TMP-57 – Time Series Temperature Plot</i>
Figure 9	<i>TMP-59 – Time Series Temperature Plot</i>
Figure 10	<i>TMP-61 – Time Series Temperature Plot</i>
Figure 11	<i>PCE and TCE Concentrations in Active Soil Gas Samples – January, February, and March 2009</i>
Figure 12	<i>PCE Active Soil Gas Time Series Plots</i>
Figure 13	<i>PCE & TCE in Groundwater Samples – March 2009</i>
Figure 14	<i>PCE Groundwater Time Series Plots (pages 1-3)</i>
Figure 15	<i>SVE Time Series Plots</i>

Appendix A – Air Analytical Results (SVE & Soil Gas)

Appendix B – Groundwater Analytical Results