

2 December 2011
Reference: 0122764

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 #13
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 June 2011 through October 2011.

REMEDIATION SYSTEM OPERATION STATUS

Components of the IRM and CAP systems continue to operate as designed and are maintained on an as-needed basis to enable continued system operation. During the reporting period, the IRM and CAP systems in operation included the full soil vapor extraction (SVE) system and a portion of the air sparge (AS) system (the portion along the shared driveway), which was reactivated on 14 October 2010.

The attached tables and figures contain operational data for the SVE and AS systems:

- Tables 1 and 2 – SVE System Data
- Tables 3 and 4 – AS System Data
- Table 5 – General System Parameters
- Figures 1 and 2 – Site Plan and Well Locations

RESULTS AND RECOMMENDATIONS

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

- Tables 6 and 7 – SVE System Effluent and Individual SVE Well Analytical Results
- Tables 8, 9, and 10 – ASG and Groundwater Analytical Results
- Figures 3 through 6 – ASG and Groundwater Analytical Results and Time-Series Plots
- Figure 7 – SVE System Individual Well Time-Series Plots

Laboratory analytical results are included in Appendices A and B.

Groundwater samples were collected from 23 monitoring wells during the June 2011 quarterly sampling event and from 12 monitoring wells during the October 2011 quarterly sampling event. VT DEC agreed to discontinue sampling at monitoring well ERM-5S after June 2011 due to continued tetrachloroethene (PCE) concentrations measured below the primary groundwater quality standard. In accordance with VT DEC approval, the total number of monitoring wells sampled in the source area was also reduced following the June sampling event. Groundwater monitoring was discontinued at EW-3, EW-5, SIW-9, SIW-10, SIW-11, SIW-12, SIW-13, SIW-14, SIW-15 and SIW-16 due to stable PCE concentrations exhibiting no evidence of rebound following completion of the source area steam injection program. Source area groundwater monitoring was continued at SIW-8, EW/TMP-1, and EW-4.

ASG samples were collected from five sampling locations during the June and October 2011 quarterly sampling events (ASG-18, -20, -28, -32, and -33). SVE system samples were collected from six locations in June 2011 (SVE-01, -22, -23, -24, -25 and -26). In accordance with VT DEC approval, SVE system sampling at SVE-23 and SVE-26 was discontinued after June 2011 due to similarities with concentrations detected at other SVE

monitoring locations. In October, SVE system samples were collected four locations (SVE-01, -22, -24, and -25)).

All downgradient ERM-designated wells and source area wells EW/TMP-1, EW-4 and EW-5 were sampled using passive diffusion bags (PDBs). Source area SIW wells, plus EW-3 were sampled using low-flow techniques due to well-head configurations preventing access for installation and retrieval of a PDB. Both PDB and low-flow analytical results are included in Table 7.

Analytical results from groundwater and soil gas samples collected in June and October 2011 indicate the following:

- PCE concentrations in 10 of the 13 source area monitoring wells continue to exhibit 96% to 99.996% decreases relative to historical maximum PCE concentrations (i.e. pre-remedial concentrations) (Table 10). The three wells that did not show significant PCE reductions had low or non detectable concentrations of PCE during the baseline sampling event.
- PCE concentrations in four of the 10 downgradient quarterly monitoring wells decreased in June/October 2011 when compared to the previous reporting period (December 2010/March 2011). PCE concentrations in the remaining six downgradient monitoring locations remained relatively consistent with data from the previous reporting period.
- PCE concentrations at three of the 10 downgradient quarterly monitoring wells (ERM-5S, ERM-6 and ERM-10) were below primary groundwater quality standards in June 2011 and/or October 2011.
- TCE concentrations in groundwater are below the primary groundwater quality standard in all of the downgradient quarterly monitoring wells sampled in June and October 2011.
- PCE concentrations in soil vapor at all active soil gas monitoring locations increased during this reporting period relative to the previous reporting period, which is consistent with the seasonal variability noted previously at the site.

- PCE concentrations fluctuated slightly in all SVE wells, similar to previous reporting periods. All PCE concentrations remained below baseline concentrations.
- TCE concentrations fluctuated slightly in all SVE wells, similar to previous reporting periods. TCE concentrations remained below baseline concentrations, except in SVE-24 and -25.
- SVE total effluent concentrations remained relatively consistent with data from the previous reporting period. Concentrations remain below established ambient air emission standards.

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 quarterly active soil gas samples from ASG-18, -20, -28, -32, and -33;
- Continue to collect groundwater samples from ERM-6, ERM-8, ERM-9S, ERM-10, ERM-11S, ERM-12, ERM-16, ERM-19, ERM-20, EW-TMP-1, EW-4, and SIW-8 on a quarterly basis to monitor site groundwater quality following source area remediation. Sampling of some wells may be discontinued following the December 2011 sampling event if concentrations detected during four consecutive sampling events are below the primary groundwater quality standard (e.g., ERM-10);
- Continue to collect quarterly system effluent air stream samples, and;
- Continue to collect quarterly SVE well samples from SVE-01, SVE-22, SVE-23, SVE-24, SVE-25 and SVE-26.

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

Sincerely,



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



Catherine E. Regan, P.E.
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>AS Wells – Vacuum Gauge Data</i>
Table 4	<i>AS 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>
Table 10	<i>Percent Reduction of Tetrachloroethene</i>
Figure 1	<i>Site Locus Map</i>
Figure 2	<i>Site Plan</i>
Figure 3	<i>PCE and TCE Concentrations in Active Soil Gas Samples – June & October 2011</i>
Figure 4	<i>PCE Active Soil Gas Time Series Plots</i>
Figure 5	<i>PCE & TCE in Groundwater Samples – June & October 2011</i>
Figure 6	<i>PCE Groundwater Time-Series Plots</i>
Figure 7	<i>SVE Time-Series Plots</i>
Appendix A	<i>Air Analytical Results (SVE & Soil Gas)</i>
Appendix B	<i>Groundwater Analytical Results</i>