Environmental Resources Management

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5 FRM

20 October 2016 Reference: 0252540

Mr. Michael B. Smith Vermont Department of Environmental Conservation Waste Management Prevention Division One National Life Drive Davis One Montpelier, VT 05620-3704

Re: CAP Report #19

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 Corrective Action Plan (CAP) post-remediation monitoring 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.

POST-REMEDIATION MONITORING STATUS

Following discussion with and approval from VT DEC (per e-mail to ERM from Michael Smith, dated 18 September 2012), all Interim Remedial Measure (IRM) and CAP systems were deactivated on 25 September 2012 to enable initiation of post-remediation groundwater monitoring.

Post-remediation quarterly monitoring began in December 2012 and continued on a quarterly basis through March 2014. Semi-annual sampling began in September 2014 and continued until September 2015.

In February 2016, VT DEC agreed to a revised monitoring schedule (per email to ERM from Michael Smith, dated 8 February 2016), which includes annual sampling (September) of ERM-12 and ERM-16; and biennial

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sampling (every other year in September) of ERM-8, ERM-11S and ERM-13.

Annual sampling began in September 2016.

RESULTS AND RECOMMENDATIONS

Groundwater samples were collected using passive diffusion bags (PDBs) from two monitoring wells during the September 2016 annual sampling event.

The following attachments present groundwater monitoring results:

- Table 1 Groundwater Analytical Results
- Figures 3 and 4 Groundwater Analytical Results and Time-Series Plots
- Appendix A Laboratory Analytical Reports

Analytical results from groundwater samples collected in September 2016 indicate the following:

- PCE concentrations in ERM-12 and ERM-16 increased slightly from 2015 to 2016 and continue to exceed the VT GWQS, but are not in excess of historical highs. These two wells are located hydraulically downgradient of the source areas identified on the adjacent residential properties to the north (*Residential Property Investigation Fall 2011 and Spring 2012*, submitted to VT DEC 7 August 2012). As such, the continued VT GWQS exceedances are attributable to contamination migrating from the residential properties, not from the Energizer property.
- TCE concentrations in groundwater were not detected in either monitoring well sampled in 2016.

Based on the data collected during this reporting period, ERM has developed the following recommendations for future activities:

Mr. Michael B. Smith Vermont Department of Environmental Conservation 20 October 2016 Page 3

- Continue annual monitoring of ERM-12 and ERM-16, and biennial (every other year) monitoring of ERM-8, ERM-11S, and ERM-13 in September per VTDEC communication.
- Re-evaluate monitoring strategy following the September 2017 monitoring event, which will include sampling of all five current monitoring well locations.

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

Ethan C. Gyles, P.E.

Ethan G. Gyln

Project Manager

Cc: Mr. Jeffrey Gipson (Energizer)

Attachments:

 Table 1
 Summary of Groundwater Analytical Results

Figure 1 Site Locus Map

Figure 2 Site Plan

Figure 3 PCE Concentrations in Groundwater Samples

Figure 4 PCE Groundwater Time Series Plots

Appendix A Groundwater Analytical Results

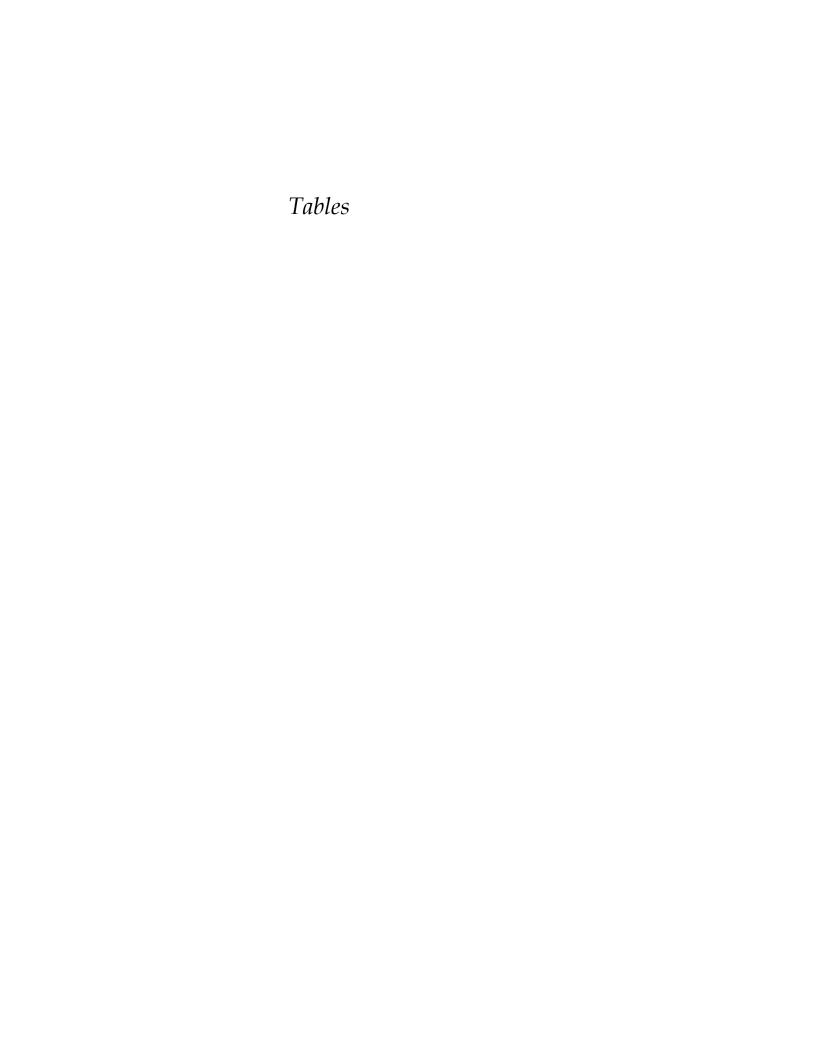


Table 1 Summary of Groundwater Analytical Results Energizer Facility 401 Gage Street, Bennington, VT

Location ID: Sample Date: Laboratory Sample Type:	Primary Groundwater Quality Standards Enforcement Standard	ERM-8 21-Feb-07 Alpha N	ERM-8 17-Jun-10 Alpha N	ERM-8 17-Jun-10 Alpha PDB	ERM-8 15-Sep-10 Alpha PDB	ERM-8 16-Dec-10 Alpha PDB	ERM-8 17-Mar-11 Alpha PDB	ERM-8 28-Jun-11 Alpha PDB	ERM-8 28-Jun-11 Alpha FD	ERM-8 25-Oct-11 Alpha PDB	ERM-8 21-Dec-11 Alpha PDB
Volatile Organics (VOCs) (ug/l)											
Tetrachloroethylene	5	62	7.7	8.9	7.7	2.7	4.4	7.9	7.7	7.0	3.2
Trichloroethylene	5	3.9	0.74	0.83	4.0	1.6	0.95	1.1	1.1	1.5	0.64
Cis-1,2-Dichloroethene	70	0.83	< 0.50	< 0.50	2.1	1.3	1.0	0.98	0.98	2.1	0.81
Trans-1,2-Dichloroethene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75

ug/l = Micrograms per liter.

< = Compound not detected. Method detection limit shown.</p>

Bold cells indicate concentrations greater than the laboratory detection limits.

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

Alpha = Alpha Woods Hole Laboratory Westboro, MA.

Stone = 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 1 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-8 22-Mar-12 Alpha PDB	ERM-8 22-Mar-12 Alpha FD	ERM-8 26-Jun-12 Alpha PDB	ERM-8 26-Jun-12 Alpha FD	ERM-8 25-Sep-12 Alpha PDB	ERM-8 12-Sep-13 Alpha PDB	ERM-8 12-Sep-13 Alpha FD	ERM-8 16-Sep-14 Alpha PDB	ERM-8 16-Sep-14 Alpha FD	ERM-8 23-Sep-15 Alpha PDB
Volatile Organics (VOCs) (ug/l)											
Tetrachloroethylene	5	1.5	1.5	2.3	2.3	1.5	0.97	0.98	2.0	2.0	1.6
Trichloroethylene	5	< 0.50	< 0.50	< 0.50	< 0.50	0.52	< 0.50	< 0.50	0.87	0.86	0.91
Cis-1,2-Dichloroethene	70	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75

ug/l = Micrograms per liter.

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N = Normal Sample.

Table 1 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-11S 23-Feb-07 Alpha N	ERM-11S 16-Jun-10 Alpha N	ERM-11S 16-Jun-10 Alpha PDB	ERM-11S 15-Sep-10 Alpha PDB	ERM-11S 16-Dec-10 Alpha PDB	ERM-11S 18-Mar-11 Alpha PDB	ERM-11S 28-Jun-11 Alpha PDB	ERM-11S 24-Oct-11 Alpha PDB	ERM-11S 21-Dec-11 Alpha PDB	ERM-11S 22-Mar-12 Alpha PDB
Volatile Organics (VOCs) (ug/l)											
Tetrachloroethylene	5	180	100	78	100	90	100	83	68	100	83
Trichloroethylene	5	< 2.5	< 0.50	< 0.50	5.3	< 1.2	< 1.0	< 1.2	< 1.2	< 0.50	< 0.50
Cis-1,2-Dichloroethene	70	< 2.5	< 0.50	< 0.50	< 1.2	< 1.2	< 1.0	< 1.2	< 1.2	< 0.50	< 0.50
Trans-1,2-Dichloroethene	100	< 3.8	< 0.75	< 0.75	< 1.9	< 1.9	< 1.5	< 1.9	< 1.9	< 0.75	< 0.75

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Analyses for VOCs performed by Alpha (EPA Method SW8260) and $\,$

Stone (EPA Method SW8260B). See Table for distinction.

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N = Normal Sample.

Table 1 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-11S 26-Jun-12 Alpha PDB	ERM-11S 25-Sep-12 Alpha PDB	ERM-11S 12-Sep-13 Alpha PDB	ERM-11S 19-Dec-13 Alpha PDB	ERM-11S 16-Sep-14 Alpha PDB	ERM-11S 23-Sep-15 Alpha PDB
Volatile Organics (VOCs) (ug/l)							
Tetrachloroethylene	5	92	100	*	80	110	120
Trichloroethylene	5	< 0.50	< 0.50	*	< 0.50	< 0.50	< 0.50
Cis-1,2-Dichloroethene	70	< 0.50	< 0.50	*	< 0.50	< 0.50	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 0.75	*	< 0.75	< 0.75	< 0.75

^{*} No sample taken. No PDB in well.

ug/l = Micrograms per liter.

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Analyses for VOCs performed by Alpha (EPA Method SW8260) and

Stone (EPA Method SW8260B). See Table for distinction.

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N = Normal Sample.

Table 1 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 5-Sep-07 Stone N	ERM-12 5-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 26-Sep-08 Alpha N	ERM-12 10-Dec-08 Alpha N	ERM-12 11-Mar-09 Alpha N
Volatile Organics (VOCs) (ug/l)											
Tetrachloroethylene	5	120	210	180	150	72	69	190	84	290	60
Trichloroethylene	5	< 2.0	< 10	< 10	< 2.0	0.50	< 0.50	< 1.0	4.2	40	11
Cis-1,2-Dichloroethene	70	< 2.0	< 10	< 10	< 2.0	< 0.50	< 0.50	< 1.0	< 2.0	24	3.6
Trans-1,2-Dichloroethene	100	< 3.0	< 10	< 10	< 3.0	< 0.75	< 0.75	<1.5	< 3.0	< 3.0	< 1.5

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Stone = 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 1 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 17-Jun-09 Alpha N	ERM-12 16-Sep-09 Alpha N	ERM-12 8-Dec-09 Alpha N	ERM-12 30-Mar-10 Alpha N	ERM-12 16-Jun-10 Alpha N	ERM-12 16-Jun-10 Alpha PDB	ERM-12 15-Sep-10 Alpha PDB	ERM-12 16-Dec-10 Alpha PDB	ERM-12 18-Mar-11 Alpha PDB	ERM-12 18-Mar-11 Alpha PDB	ERM-12 28-Jun-11 Alpha PDB
Volatile Organics (VOCs) (ug/l)												
Tetrachloroethylene	5	32.8	50	39	58	100	100	120	62	70	70	54
Trichloroethylene	5	6.78	3.5	1.1	< 0.50	< 0.50	< 0.50	5.0	< 1.2	< 1.0	< 1.0	< 1.0
Cis-1,2-Dichloroethene	70	<2.0	< 1.2	< 0.50	< 0.50	< 0.50	< 0.50	< 1.2	< 1.2	< 1.0	< 1.0	< 1.0
Trans-1,2-Dichloroethene	100	<2.0	< 1.9	< 0.75	< 0.75	< 0.75	< 0.75	< 1.9	< 1.9	< 1.5	< 1.5	< 1.5

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Table 1 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 24-Oct-11 Alpha PDB	ERM-12 21-Dec-11 Alpha PDB	ERM-12 21-Mar-12 Alpha PDB	ERM-12 26-Jun-12 Alpha PDB	ERM-12 25-Sep-12 Alpha PDB	ERM-12 25-Sep-12 Alpha FD	ERM-12 11-Dec-12 Alpha PDB	ERM-12 11-Dec-12 Alpha FD	ERM-12 19-Mar-13 Alpha PDB	ERM-12 19-Jun-13 Alpha PDB
Volatile Organics (VOCs) (ug/l)	-	FO	00			T (7 0	100	100	01	
Tetrachloroethylene	5	53	80	57	55	76	78	120	120	91	66
Trichloroethylene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.2	< 0.50
Cis-1,2-Dichloroethene	70	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.2	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 1.9	< 0.75

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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 1 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 19-Jun-13 Alpha FD	ERM-12 12-Sep-13 Alpha PDB	ERM-12 19-Dec-13 Alpha PDB	ERM-12 19-Dec-13 Alpha FD	ERM-12 25-Mar-14 Alpha PDB	ERM-12 25-Mar-14 Alpha FD	ERM-12 16-Sep-14 Alpha PDB	ERM-12 23-Apr-15 Alpha PDB	ERM-12 23-Sep-15 Alpha PDB	ERM-12 28-Sep-16 Alpha PDB	ERM-12 28-Sep-16 Alpha FD
Volatile Organics (VOCs) (ug/l)												
Tetrachloroethylene	5	63	4.9	93	100	100	100	140	100	72	90	88
Trichloroethylene	5	< 0.50	< 0.50	< 1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cis-1,2-Dichloroethene	70	< 0.50	< 0.50	< 1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 0.75	< 1.5	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75

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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 1 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	ERM-13 10-Dec-08 Alpha N	ERM-13 11-Mar-09 Alpha N	ERM-13 17-Jun-09 Alpha N	ERM-13 16-Sep-09 Alpha N	ERM-13 7-Dec-09 Alpha N
Volatile Organics (VOCs) (ug/l)											
Tetrachloroethylene	5	16	40	15	23	8.4	34	13	4.13	5.4	3.1
Trichloroethylene	5	1.2	< 10	0.71	0.61	1.4	4.0	4.7	4.77	2.8	1.1
Cis-1,2-Dichloroethene	70	< 0.50	< 10	< 0.50	< 0.50	< 0.50	1.5	1.9	< 2.0	< 0.50	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 10	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 2.0	< 0.75	< 0.75

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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 1 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 30-Mar-10 Alpha N	ERM-13 15-Jun-10 Alpha N	ERM-13 15-Jun-10 Alpha FD	ERM-13 15-Sep-10 Alpha PDB	ERM-13 16-Dec-10 Alpha PDB	ERM-13 25-Sep-12 Alpha PDB	ERM-13 11-Dec-12 Alpha PDB	ERM-13 19-Mar-13 Alpha PDB	ERM-13 19-Mar-13 Alpha FD	ERM-13 19-Jun-13 Alpha PDB
Volatile Organics (VOCs) (ug/l)											
Tetrachloroethylene	5	1.8	1.4	1.2	1.8	1.0	0.96	< 0.50	< 0.50	< 0.50	0.88
Trichloroethylene	5	< 0.50	< 0.50	< 0.50	2.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cis-1,2-Dichloroethene	70	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75

ug/l = Micrograms per liter.

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FD = Field Duplicate.

N = Normal Sample.

Table 1 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 12-Sep-13 Alpha PDB	ERM-13 25-Mar-14 Alpha PDB	ERM-13 24-Sep-14 Alpha PDB	ERM-13 23-Sep-15 Alpha PDB
Volatile Organics (VOCs) (ug/l)					
Tetrachloroethylene	5	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethylene	5	< 0.50	< 0.50	< 0.50	< 0.50
Cis-1,2-Dichloroethene	70	< 0.50	< 0.50	< 0.50	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 0.75	< 0.75	< 0.75

ug/l = Micrograms per liter.

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Stone (EPA Method SW8260B). See Table for distinction.

FD = Field Duplicate.

N = Normal Sample.

Table 1 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	ERM-16 10-Dec-08 Alpha N	ERM-16 10-Mar-09 Alpha N	ERM-16 18-Jun-09 Alpha N	ERM-16 17-Sep-09 Alpha N	ERM-16 8-Dec-09 Alpha N
Volatile Organics (VOCs) (ug/l)											
Tetrachloroethylene	5	54	38	31	54	49	99	33	15.1	21	23
Trichloroethylene	5	1.5	< 10	< 0.50	< 0.50	2.5	23	6.0	6.43	3.6	2.0
Cis-1,2-Dichloroethene	70	< 0.50	< 10	< 0.50	< 0.50	0.82	11	2.5	< 2.0	< 0.50	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 10	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 2.0	< 0.75	< 0.75

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

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N = Normal Sample.

Table 1 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 30-Mar-10 Alpha N	ERM-16 15-Jun-10 Alpha N	ERM-16 15-Jun-10 Alpha FD	ERM-16 15-Jun-10 Alpha PDB	ERM-16 15-Sep-10 Alpha PDB	ERM-16 15-Dec-10 Alpha PDB	ERM-16 18-Mar-11 Alpha PDB	ERM-16 28-Jun-11 Alpha PDB	ERM-16 24-Oct-11 Alpha PDB	ERM-16 24-Oct-11 Alpha PDB	ERM-16 24-Oct-11 Alpha FD
Volatile Organics (VOCs) (ug/l)												
Tetrachloroethylene	5	18	24	18	12	3.3	7.7	23	15	6.3	6.3	6.2
Trichloroethylene	5	< 0.50	< 0.50	1.6	0.91	2.5	1.1	< 0.50	0.71	0.74	0.74	0.73
Cis-1,2-Dichloroethene	70	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75

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Location ID: Sample Date: Laboratory Sample Type:	Primary Groundwater Quality Standards Enforcement Standard	ERM-16 21-Dec-11 Alpha PDB	ERM-16 21-Dec-11 Alpha FD	ERM-16 22-Mar-12 Alpha PDB	ERM-16 26-Jun-12 Alpha PDB	ERM-16 25-Sep-12 Alpha PDB	ERM-16 11-Dec-12 Alpha PDB	ERM-16 19-Mar-13 Alpha PDB	ERM-16 19-Jun-13 Alpha PDB	ERM-16 12-Sep-13 Alpha PDB	ERM-16 19-Dec-13 Alpha PDB
Volatile Organics (VOCs) (ug/l)											
Tetrachloroethylene	5	3.7	3.5	6.1	< 0.50	4.9	4.7	18	9.0	4.9	17
Trichloroethylene	5	0.56	0.54	0.63	< 0.50	0.94	0.55	< 0.50	< 0.50	< 0.50	< 0.50
Cis-1,2-Dichloroethene	70	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75

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.

Alpha = Alpha Woods Hole Laboratory Westboro, MA.

Stone = 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 1 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 25-Mar-14 Alpha PDB	ERM-16 16-Sep-14 Alpha PDB	ERM-16 23-Apr-15 Alpha PDB	ERM-16 23-Apr-15 Alpha FD	ERM-16 23-Sep-15 Alpha PDB	ERM-16 23-Sep-15 Alpha FD	ERM-16 28-Sep-16 Alpha PDB
Volatile Organics (VOCs) (ug/l)								
Tetrachloroethylene	5	14	13	9.5	9.5	12	11	25
Trichloroethylene	5	< 0.50	0.58	0.68	0.64	< 0.50	< 0.50	< 0.50
Cis-1,2-Dichloroethene	70	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trans-1,2-Dichloroethene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75

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.

Alpha = Alpha Woods Hole Laboratory Westboro, MA.

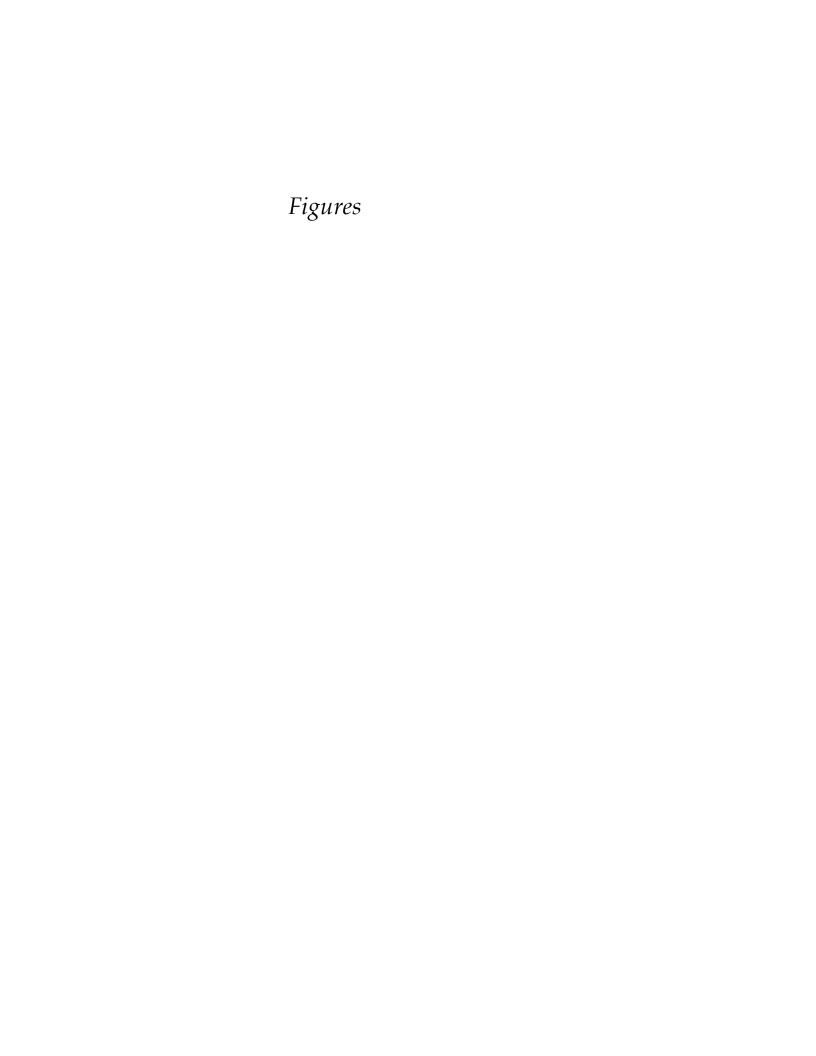
Stone = Stone Environmental, Inc. Montpelier, VT.

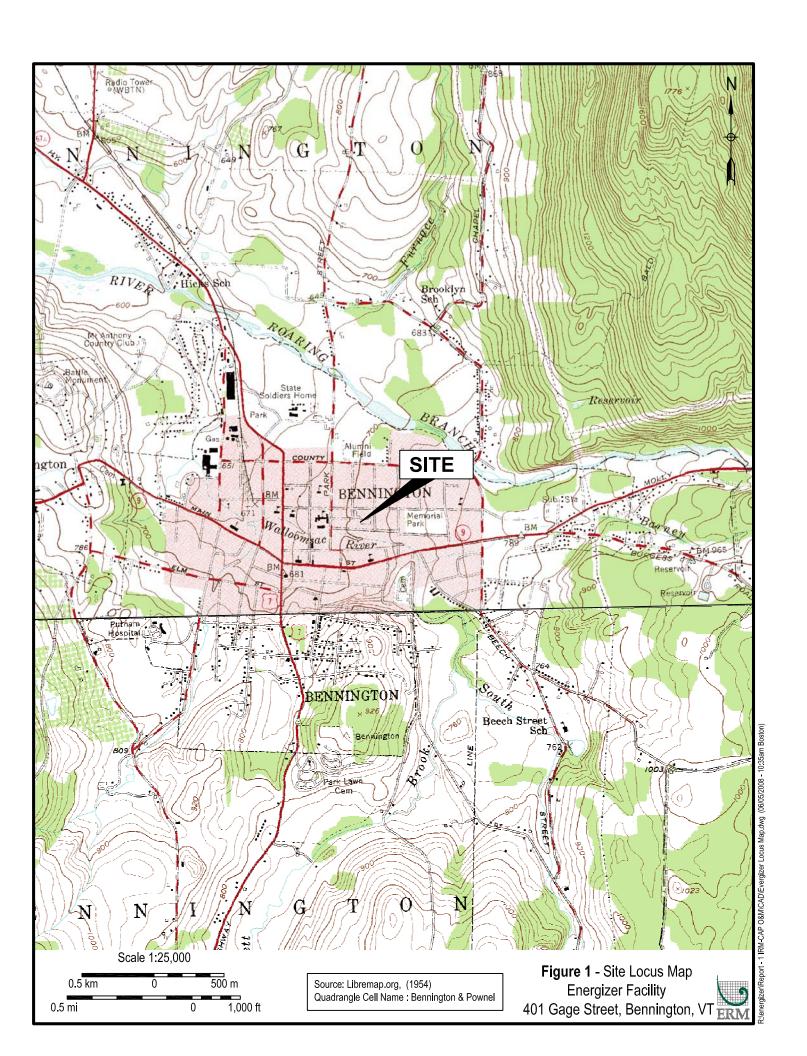
Analyses for VOCs performed by Alpha (EPA Method SW8260) and

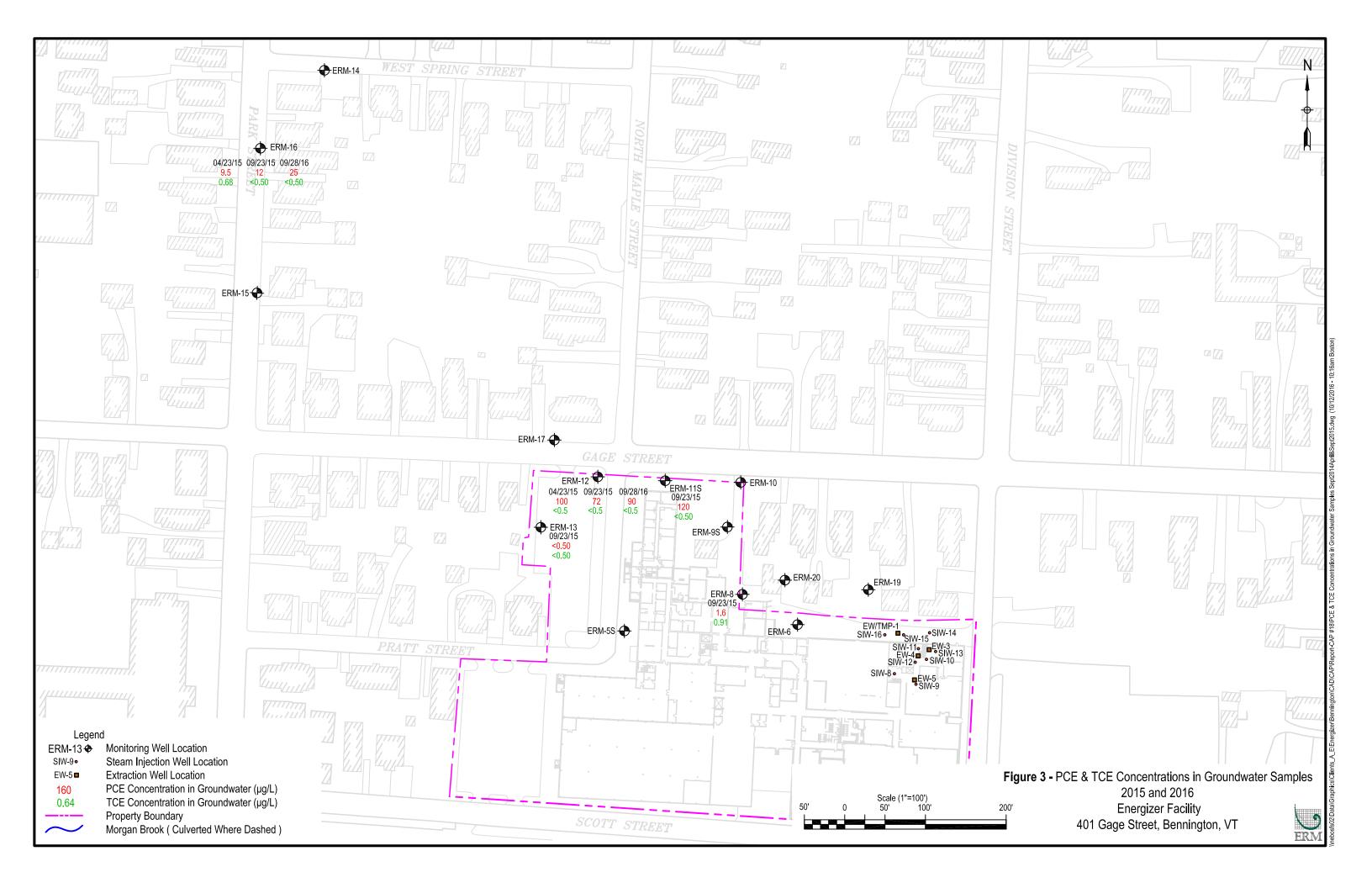
Stone (EPA Method SW8260B). See Table for distinction.

FD = Field Duplicate.

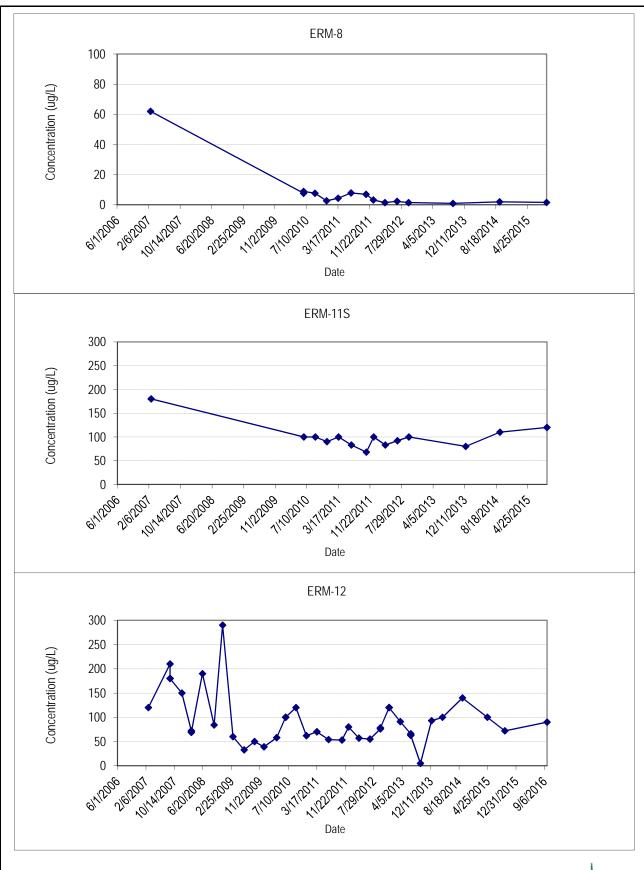
N = Normal Sample.

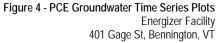




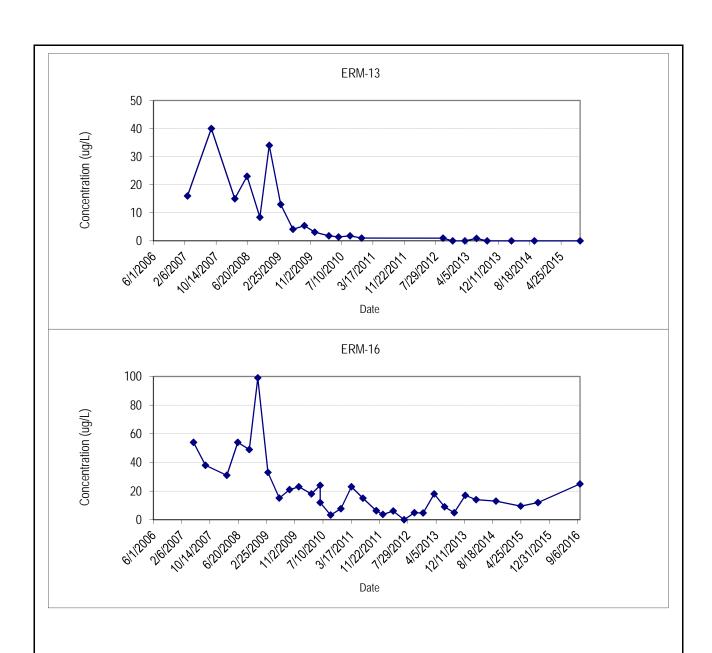














Appendix A – Groundwater Analytical Results



ANALYTICAL REPORT

Lab Number: L1630718

Client: ERM, Inc.

15 Park Row West

Suite 104

Providence, RI 02903

ATTN: Ethan Gyles
Phone: (401) 415-9606
Project Name: ENERGIZER

Project Number: 0252540

Report Date: 10/04/16

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Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), VA (460195), MD (348), IL (200077), NC (666), TX (T104704476), DOD (L2217), USDA (Permit #P-330-11-00240).

Eight Walkup Drive, Westborough, MA 01581-1019 508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ENERGIZER Project Number:

0252540

Lab Number: L1630718 Report Date: 10/04/16

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1630718-01	ERM-16-20160927-01	WATER	BENNINGTON, VT	09/27/16 10:30	09/28/16
L1630718-02	ERM-12-20160927-01	WATER	BENNINGTON, VT	09/27/16 11:15	09/28/16
L1630718-03	TB-001-20160927-01	WATER	BENNINGTON, VT	09/27/16 12:00	09/28/16
L1630718-04	DUP-001-20160927-01	WATER	BENNINGTON, VT	09/27/16 11:11	09/28/16



Project Name:ENERGIZERLab Number:L1630718Project Number:0252540Report Date:10/04/16

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.	

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Michelle M. Morris

Title: Technical Director/Representative Date: 10/04/16



ORGANICS



VOLATILES



Project Name: ENERGIZER

Project Number: 0252540

SAMPLE RESULTS

L1630718

Report Date: 10/04/16

Lab Number:

Lab ID: L1630718-01

Client ID: ERM-16-20160927-01 Sample Location: BENNINGTON, VT

Matrix: Water Analytical Method: 1,8260C

Analytical Date: 10/02/16 16:17

Analyst: PΚ

Date Collected:	09/27/16 10:30
Date Received:	09/28/16
Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - We	estborough Lab					
Methylene chloride	ND		ug/l	3.0		1
1,1-Dichloroethane	ND		ug/l	0.75		1
Chloroform	ND		ug/l	0.75		1
Carbon tetrachloride	ND		ug/l	0.50		1
1,2-Dichloropropane	ND		ug/l	1.8		1
Dibromochloromethane	ND		ug/l	0.50		1
1,1,2-Trichloroethane	ND		ug/l	0.75		1
Tetrachloroethene	25		ug/l	0.50		1
Chlorobenzene	ND		ug/l	0.50		1
1,2-Dichloroethane	ND		ug/l	0.50		1
1,1,1-Trichloroethane	ND		ug/l	0.50		1
Bromodichloromethane	ND		ug/l	0.50		1
trans-1,3-Dichloropropene	ND		ug/l	0.50		1
cis-1,3-Dichloropropene	ND		ug/l	0.50		1
1,3-Dichloropropene, Total	ND		ug/l	0.50		1
Bromoform	ND		ug/l	2.0		1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50		1
Chloromethane	ND		ug/l	2.5		1
Vinyl chloride	ND		ug/l	1.0		1
Chloroethane	ND		ug/l	1.0		1
1,1-Dichloroethene	ND		ug/l	0.50		1
trans-1,2-Dichloroethene	ND		ug/l	0.75		1
1,2-Dichloroethene, Total	ND		ug/l	0.50		1
Trichloroethene	ND		ug/l	0.50		1
1,2-Dichlorobenzene	ND		ug/l	2.5		1
1,3-Dichlorobenzene	ND		ug/l	2.5		1
1,4-Dichlorobenzene	ND		ug/l	2.5		1
cis-1,2-Dichloroethene	ND		ug/l	0.50		1
Dichlorodifluoromethane	ND		ug/l	5.0		1
1,2-Dibromoethane	ND		ug/l	2.0		1



Project Name: ENERGIZER Lab Number: L1630718

Project Number: 0252540 **Report Date:** 10/04/16

SAMPLE RESULTS

Lab ID: L1630718-01 Date Collected: 09/27/16 10:30

Client ID: ERM-16-20160927-01 Date Received: 09/28/16 Sample Location: BENNINGTON, VT Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	
Volatile Organics by GC/MS - We	estborough Lab						
1,3-Dichloropropane	ND		ug/l	2.5		1	
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50		1	
o-Chlorotoluene	ND		ug/l	2.5		1	
p-Chlorotoluene	ND		ug/l	2.5		1	
Hexachlorobutadiene	ND		ug/l	0.50		1	
1,2,4-Trichlorobenzene	ND		ug/l	2.5		1	

	Acceptance						
Surrogate	% Recovery	Qualifier	Criteria				
1,2-Dichloroethane-d4	103		70-130				
Toluene-d8	100		70-130				
4-Bromofluorobenzene	110		70-130				
Dibromofluoromethane	100		70-130				



Project Name: ENERGIZER

Project Number: 0252540

SAMPLE RESULTS

Lab Number: L1630718

Report Date: 10/04/16

Lab ID: L1630718-02

Client ID: ERM-12-20160927-01 Sample Location: BENNINGTON, VT

Matrix: Water Analytical Method: 1,8260C

Analytical Date: 10/02/16 16:52

Analyst: PΚ Date Collected: 09/27/16 11:15 Date Received: 09/28/16 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	
Volatile Organics by GC/MS - Westbo	orough Lab						
Methylene chloride	ND		ug/l	3.0		1	
1,1-Dichloroethane	ND		ug/l	0.75		1	
Chloroform	ND		ug/l	0.75		1	
Carbon tetrachloride	ND		ug/l	0.50		1	
1,2-Dichloropropane	ND		ug/l	1.8		1	
Dibromochloromethane	ND		ug/l	0.50		1	
1,1,2-Trichloroethane	ND		ug/l	0.75		1	
Tetrachloroethene	90		ug/l	0.50		1	
Chlorobenzene	ND		ug/l	0.50		1	
1,2-Dichloroethane	ND		ug/l	0.50		1	
1,1,1-Trichloroethane	ND		ug/l	0.50		1	
Bromodichloromethane	ND		ug/l	0.50		1	
trans-1,3-Dichloropropene	ND		ug/l	0.50		1	
cis-1,3-Dichloropropene	ND		ug/l	0.50		1	
1,3-Dichloropropene, Total	ND		ug/l	0.50		1	
Bromoform	ND		ug/l	2.0		1	
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50		1	
Chloromethane	ND		ug/l	2.5		1	
Vinyl chloride	ND		ug/l	1.0		1	
Chloroethane	ND		ug/l	1.0		1	
1,1-Dichloroethene	ND		ug/l	0.50		1	
trans-1,2-Dichloroethene	ND		ug/l	0.75		1	
1,2-Dichloroethene, Total	ND		ug/l	0.50		1	
Trichloroethene	ND		ug/l	0.50		1	
1,2-Dichlorobenzene	ND		ug/l	2.5		1	
1,3-Dichlorobenzene	ND		ug/l	2.5		1	
1,4-Dichlorobenzene	ND		ug/l	2.5		1	
cis-1,2-Dichloroethene	ND		ug/l	0.50		1	
Dichlorodifluoromethane	ND		ug/l	5.0		1	
1,2-Dibromoethane	ND		ug/l	2.0		1	



Project Name: ENERGIZER Lab Number: L1630718

Project Number: 0252540 **Report Date:** 10/04/16

SAMPLE RESULTS

Lab ID: L1630718-02

Client ID: ERM-12-20160927-01 Sample Location: BENNINGTON, VT

Date Collected: 09/27/16 11:15 Date Received: 09/28/16

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	
Volatile Organics by GC/MS - We	estborough Lab						
1,3-Dichloropropane	ND		ug/l	2.5		1	
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50		1	
o-Chlorotoluene	ND		ug/l	2.5		1	
p-Chlorotoluene	ND		ug/l	2.5		1	
Hexachlorobutadiene	ND		ug/l	0.50		1	
1,2,4-Trichlorobenzene	ND		ug/l	2.5		1	

	Acceptance						
Surrogate	% Recovery	Qualifier	Criteria				
1,2-Dichloroethane-d4	100		70-130				
Toluene-d8	100		70-130				
4-Bromofluorobenzene	113		70-130				
Dibromofluoromethane	98		70-130				



Project Name: ENERGIZER

Project Number: 0252540

SAMPLE RESULTS

Lab Number: L1630718

Report Date: 10/04/16

Lab ID: L1630718-03

Client ID: TB-001-20160927-01 Sample Location: BENNINGTON, VT

Matrix: Water Analytical Method: 1,8260C Analytical Date: 10/02/16 17:26

Analyst: PΚ Date Collected: 09/27/16 12:00

Date Received: 09/28/16 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	
Volatile Organics by GC/MS - Westbo	rough Lab						
Methylene chloride	ND		ug/l	3.0		1	
1,1-Dichloroethane	ND		ug/l	0.75		1	
Chloroform	ND		ug/l	0.75		1	
Carbon tetrachloride	ND		ug/l	0.50		1	
1,2-Dichloropropane	ND		ug/l	1.8		1	
Dibromochloromethane	ND		ug/l	0.50		1	
1,1,2-Trichloroethane	ND		ug/l	0.75		1	
Tetrachloroethene	ND		ug/l	0.50		1	
Chlorobenzene	ND		ug/l	0.50		1	
1,2-Dichloroethane	ND		ug/l	0.50		1	
1,1,1-Trichloroethane	ND		ug/l	0.50		1	
Bromodichloromethane	ND		ug/l	0.50		1	
trans-1,3-Dichloropropene	ND		ug/l	0.50		1	
cis-1,3-Dichloropropene	ND		ug/l	0.50		1	
1,3-Dichloropropene, Total	ND		ug/l	0.50		1	
Bromoform	ND		ug/l	2.0		1	
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50		1	
Chloromethane	ND		ug/l	2.5		1	
Vinyl chloride	ND		ug/l	1.0		1	
Chloroethane	ND		ug/l	1.0		1	
1,1-Dichloroethene	ND		ug/l	0.50		1	
trans-1,2-Dichloroethene	ND		ug/l	0.75		1	
1,2-Dichloroethene, Total	ND		ug/l	0.50		1	
Trichloroethene	ND		ug/l	0.50		1	
1,2-Dichlorobenzene	ND		ug/l	2.5		1	
1,3-Dichlorobenzene	ND		ug/l	2.5		1	
1,4-Dichlorobenzene	ND		ug/l	2.5		1	
cis-1,2-Dichloroethene	ND		ug/l	0.50		1	
Dichlorodifluoromethane	ND		ug/l	5.0		1	
1,2-Dibromoethane	ND		ug/l	2.0		1	



Project Name: ENERGIZER Lab Number: L1630718

Project Number: 0252540 **Report Date:** 10/04/16

SAMPLE RESULTS

Lab ID: L1630718-03 Date Collected: 09/27/16 12:00

Client ID: TB-001-20160927-01 Date Received: 09/28/16 Sample Location: BENNINGTON, VT Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	
Volatile Organics by GC/MS - We	estborough Lab						
1,3-Dichloropropane	ND		ug/l	2.5		1	
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50		1	
o-Chlorotoluene	ND		ug/l	2.5		1	
p-Chlorotoluene	ND		ug/l	2.5		1	
Hexachlorobutadiene	ND		ug/l	0.50		1	
1,2,4-Trichlorobenzene	ND		ug/l	2.5		1	

			Acceptance	
Surrogate	% Recovery	Qualifier	Criteria	
1,2-Dichloroethane-d4	102		70-130	
Toluene-d8	101		70-130	
4-Bromofluorobenzene	111		70-130	
Dibromofluoromethane	99		70-130	



Project Name: ENERGIZER

Project Number: 0252540

SAMPLE RESULTS

Lab Number: L1630718

Report Date: 10/04/16

Lab ID: L1630718-04

Client ID: DUP-001-20160927-01 Sample Location: BENNINGTON, VT

Matrix: Water Analytical Method: 1,8260C Analytical Date: 10/02/16 18:01

Analyst: PΚ

Date Collected:	09/27/16 11:11
Date Received:	09/28/16
Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - We	estborough Lab					
Methylene chloride	ND		ug/l	3.0		1
1,1-Dichloroethane	ND		ug/l	0.75		1
Chloroform	ND		ug/l	0.75		1
Carbon tetrachloride	ND		ug/l	0.50		1
1,2-Dichloropropane	ND		ug/l	1.8		1
Dibromochloromethane	ND		ug/l	0.50		1
1,1,2-Trichloroethane	ND		ug/l	0.75		1
Tetrachloroethene	88		ug/l	0.50		1
Chlorobenzene	ND		ug/l	0.50		1
1,2-Dichloroethane	ND		ug/l	0.50		1
1,1,1-Trichloroethane	ND		ug/l	0.50		1
Bromodichloromethane	ND		ug/l	0.50		1
trans-1,3-Dichloropropene	ND		ug/l	0.50		1
cis-1,3-Dichloropropene	ND		ug/l	0.50		1
1,3-Dichloropropene, Total	ND		ug/l	0.50		1
Bromoform	ND		ug/l	2.0		1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50		1
Chloromethane	ND		ug/l	2.5		1
Vinyl chloride	ND		ug/l	1.0		1
Chloroethane	ND		ug/l	1.0		1
1,1-Dichloroethene	ND		ug/l	0.50		1
trans-1,2-Dichloroethene	ND		ug/l	0.75		1
1,2-Dichloroethene, Total	ND		ug/l	0.50		1
Trichloroethene	ND		ug/l	0.50		1
1,2-Dichlorobenzene	ND		ug/l	2.5		1
1,3-Dichlorobenzene	ND		ug/l	2.5		1
1,4-Dichlorobenzene	ND		ug/l	2.5		1
cis-1,2-Dichloroethene	ND		ug/l	0.50		1
Dichlorodifluoromethane	ND		ug/l	5.0		1
1,2-Dibromoethane	ND		ug/l	2.0		1



Project Name: ENERGIZER Lab Number: L1630718

Project Number: 0252540 **Report Date:** 10/04/16

SAMPLE RESULTS

Lab ID: L1630718-04

Client ID: DUP-001-20160927-01

Sample Location: BENNINGTON, VT

Date Collected: 09/27/16 11:11

Date Received: 09/28/16 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	
Volatile Organics by GC/MS - We	stborough Lab						
1,3-Dichloropropane	ND		ug/l	2.5		1	
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50		1	
o-Chlorotoluene	ND		ug/l	2.5		1	
p-Chlorotoluene	ND		ug/l	2.5		1	
Hexachlorobutadiene	ND		ug/l	0.50		1	
1,2,4-Trichlorobenzene	ND		ug/l	2.5		1	

Surrogate	% Recovery	Qualifier	Acceptance Criteria	
1,2-Dichloroethane-d4	102		70-130	
Toluene-d8	99		70-130	
4-Bromofluorobenzene	111		70-130	
Dibromofluoromethane	99		70-130	



Project Name:ENERGIZERLab Number:L1630718Project Number:0252540Report Date:10/04/16

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C Analytical Date: 1,8260C 10/02/16 12:50

Analyst: PD

Methylene chloride ND ug/l 3.0 1,1-Dichloroethane ND ug/l 0.75 Chloroform ND ug/l 0.75 Chloroform ND ug/l 0.50 1,2-Dichloropropane ND ug/l 1.8 Dibromochloromethane ND ug/l 0.50 1,1,2-Trichloroethane ND ug/l 0.50 1,1,2-Trichloroethane ND ug/l 0.50 Chlorobenzene ND ug/l 0.50 Tetrachloroethane ND ug/l 0.50 1,2-Dichloroethane ND ug/l 0.50 1,1,1-Trichloroethane ND ug/l 0.50 1,3-Dichloropropene ND ug/l 0.50 trans-1,3-Dichloropropene ND ug/l 0.50 1,3-Dichloropropene, Total ND ug/l	Parameter	Result	Qualifier Units	s RL	MDL
1,1-Dichloroethane	Volatile Organics by GC/MS	- Westborough Lab	for sample(s):	01-04 Batch:	WG938083-5
1,1-Dichloroethane	Methylene chloride	ND	ug/l	3.0	
Chloroform ND ug/l 0.75 Carbon tetrachloride ND ug/l 0.50 1,2-Dichloropropane ND ug/l 1.8 1,1,2-Trichloroethane ND ug/l 0.50 1,1,2-Trichloroethane ND ug/l 0.50 Tetrachloroethane ND ug/l 0.50 Chlorobenzene ND ug/l 0.50 1,2-Dichloroethane ND ug/l 0.50 1,2-Dichloroethane ND ug/l 0.50 1,1-Trichloroethane ND ug/l 0.50 1,3-Dichloropropene ND ug/l 0.50 trans-1,3-Dichloropropene ND ug/l 0.50 1,3-Dichloropropene, Total ND ug/l 0.50 1,2-Dichloroethane ND ug/l 0.50 1,1,2,2-Tetrachloroethane ND ug/		ND			
Carbon tetrachloride ND ug/l 0.50 1,2-Dichloropropane ND ug/l 1.8 Dibromochloromethane ND ug/l 0.50 1,1,2-Trichloroethane ND ug/l 0.50 Tetrachloroethane ND ug/l 0.50 Chlorobenzene ND ug/l 0.50 1,2-Dichloroethane ND ug/l 0.50 1,2-Dichloroethane ND ug/l 0.50 1,1,1-Trichloroethane ND ug/l 0.50 1,3-Dichloropropene ND ug/l 0.50 trans-1,3-Dichloropropene ND ug/l 0.50 1,3-Dichloropropene, Total ND ug/l 0.50 1,2-Dichloropropene, Total ND ug/l 0.50 1,1,2,2-Tetrachloroethane ND ug/l 0.50 Vinyl chloride ND		ND			
1,2-Dichloropropane ND	Carbon tetrachloride	ND			
Dibromochloromethane ND ug/l 0.50 1,1,2-Trichloroethane ND ug/l 0.75 Tetrachloroethane ND ug/l 0.50 Chlorobenzene ND ug/l 0.50 1,2-Dichloroethane ND ug/l 0.50 1,1,1-Trichloroethane ND ug/l 0.50 Bromodichloromethane ND ug/l 0.50 trans-1,3-Dichloropropene ND ug/l 0.50 trans-1,3-Dichloropropene ND ug/l 0.50 1,3-Dichloropropene, Total ND ug/l 0.50 Bromoform ND ug/l 0.50 1,1-2,2-Tetrachloroethane ND ug/l 0.50 Chloromethane ND ug/l 1.0 Chloroethane ND ug/l 1.0 1,1-Dichloroethene ND ug/l	1,2-Dichloropropane	ND			
Tetrachloroethene ND ug/l 0.50 Chlorobenzene ND ug/l 0.50 1,2-Dichloroethane ND ug/l 0.50 1,1,1-Trichloroethane ND ug/l 0.50 Bromodichloromethane ND ug/l 0.50 trans-1,3-Dichloropropene ND ug/l 0.50 cis-1,3-Dichloropropene ND ug/l 0.50 1,3-Dichloropropene, Total ND ug/l 0.50 Bromoform ND ug/l 0.50 1,1,2,2-Tetrachloroethane ND ug/l 0.50 Chloromethane ND ug/l 0.50 Vinyl chloride ND ug/l 1.0 Chloroethane ND ug/l 0.50 1,1-Dichloroethene ND ug/l 0.50 trans-1,2-Dichloroethene ND ug/l	Dibromochloromethane	ND			
Chlorobenzene ND ug/l 0.50 1,2-Dichloroethane ND ug/l 0.50 1,1,1-Trichloroethane ND ug/l 0.50 Bromodichloromethane ND ug/l 0.50 trans-1,3-Dichloropropene ND ug/l 0.50 cis-1,3-Dichloropropene ND ug/l 0.50 1,3-Dichloropropene, Total ND ug/l 0.50 Bromoform ND ug/l 0.50 1,1,2,2-Tetrachloroethane ND ug/l 0.50 1,1,2,2-Tetrachloroethane ND ug/l 0.50 Chloromethane ND ug/l 1.0 Vinyl chloride ND ug/l 1.0 Vinyl chloride ND ug/l 0.50 1,1-Dichloroethene ND ug/l 0.50 trans-1,2-Dichloroethene ND ug/l<	1,1,2-Trichloroethane	ND	ug/l	0.75	
1,2-Dichloroethane ND	Tetrachloroethene	ND	ug/l	0.50	
1,1,1-Trichloroethane ND ug/l 0.50 Bromodichloromethane ND ug/l 0.50 trans-1,3-Dichloropropene ND ug/l 0.50 cis-1,3-Dichloropropene ND ug/l 0.50 1,3-Dichloropropene, Total ND ug/l 0.50 Bromoform ND ug/l 2.0 1,1,2,2-Tetrachloroethane ND ug/l 0.50 Chloromethane ND ug/l 2.5 Vinyl chloride ND ug/l 1.0 Chloroethane ND ug/l 1.0 1,1-Dichloroethene ND ug/l 0.50 trans-1,2-Dichloroethene ND ug/l 0.50 1,2-Dichloroethene, Total ND ug/l 0.50 1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/	Chlorobenzene	ND	ug/l	0.50	
Bromodichloromethane ND ug/l 0.50 trans-1,3-Dichloropropene ND ug/l 0.50 cis-1,3-Dichloropropene ND ug/l 0.50 1,3-Dichloropropene, Total ND ug/l 0.50 Bromoform ND ug/l 2.0 1,1,2,2-Tetrachloroethane ND ug/l 0.50 Chloromethane ND ug/l 2.5 Vinyl chloride ND ug/l 1.0 Chloroethane ND ug/l 1.0 1,1-Dichloroethene ND ug/l 0.50 trans-1,2-Dichloroethene ND ug/l 0.75 1,2-Dichloroethene, Total ND ug/l 0.50 Trichloroethene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichloroethene ND ug/l	1,2-Dichloroethane	ND	ug/l	0.50	
trans-1,3-Dichloropropene ND ug/l 0.50 cis-1,3-Dichloropropene ND ug/l 0.50 1,3-Dichloropropene, Total ND ug/l 0.50 Bromoform ND ug/l 2.0 1,1,2,2-Tetrachloroethane ND ug/l 0.50 Chloromethane ND ug/l 2.5 Vinyl chloride ND ug/l 1.0 Chloroethane ND ug/l 1.0 1,1-Dichloroethene ND ug/l 0.50 trans-1,2-Dichloroethene ND ug/l 0.50 1,2-Dichloroethene, Total ND ug/l 0.50 1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichloroethene ND ug/l	1,1,1-Trichloroethane	ND	ug/l	0.50	
cis-1,3-Dichloropropene ND ug/l 0.50 1,3-Dichloropropene, Total ND ug/l 0.50 Bromoform ND ug/l 2.0 1,1,2,2-Tetrachloroethane ND ug/l 0.50 Chloromethane ND ug/l 2.5 Vinyl chloride ND ug/l 1.0 Chloroethane ND ug/l 1.0 1,1-Dichloroethene ND ug/l 0.50 trans-1,2-Dichloroethene ND ug/l 0.75 1,2-Dichloroethene, Total ND ug/l 0.50 Trichloroethene ND ug/l 0.50 1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichloroethene ND ug/l 2.5 1,4-Dichloroethene ND ug/l <t< td=""><td>Bromodichloromethane</td><td>ND</td><td>ug/l</td><td>0.50</td><td></td></t<>	Bromodichloromethane	ND	ug/l	0.50	
1,3-Dichloropropene, Total ND ug/l 0.50 Bromoform ND ug/l 2.0 1,1,2,2-Tetrachloroethane ND ug/l 0.50 Chloromethane ND ug/l 2.5 Vinyl chloride ND ug/l 1.0 Vinyl chloride ND ug/l 1.0 Chloroethane ND ug/l 0.50 1,1-Dichloroethene ND ug/l 0.50 trans-1,2-Dichloroethene ND ug/l 0.50 1,2-Dichloroethene, Total ND ug/l 0.50 1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichlorobenzene ND ug/l 2.5 1,4-Dichloroethene ND ug/l 0.50	trans-1,3-Dichloropropene	ND	ug/l	0.50	
Bromoform ND ug/l 2.0 1,1,2,2-Tetrachloroethane ND ug/l 0.50 Chloromethane ND ug/l 2.5 Vinyl chloride ND ug/l 1.0 Chloroethane ND ug/l 1.0 1,1-Dichloroethene ND ug/l 0.50 trans-1,2-Dichloroethene ND ug/l 0.75 1,2-Dichloroethene, Total ND ug/l 0.50 Trichloroethene ND ug/l 0.50 1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichlorobenzene ND ug/l 2.5 1,4-Dichloroethene ND ug/l 0.50	cis-1,3-Dichloropropene	ND	ug/l	0.50	
1,1,2,2-Tetrachloroethane ND ug/l 0.50 Chloromethane ND ug/l 2.5 Vinyl chloride ND ug/l 1.0 Chloroethane ND ug/l 1.0 1,1-Dichloroethene ND ug/l 0.50 trans-1,2-Dichloroethene ND ug/l 0.50 1,2-Dichloroethene, Total ND ug/l 0.50 Trichloroethene ND ug/l 2.5 1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichlorobenzene ND ug/l 2.5 cis-1,2-Dichloroethene ND ug/l 0.50	1,3-Dichloropropene, Total	ND	ug/l	0.50	
Chloromethane ND ug/l 2.5 Vinyl chloride ND ug/l 1.0 Chloroethane ND ug/l 1.0 1,1-Dichloroethene ND ug/l 0.50 trans-1,2-Dichloroethene ND ug/l 0.50 1,2-Dichloroethene, Total ND ug/l 0.50 Trichloroethene ND ug/l 2.5 1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichlorobenzene ND ug/l 2.5 cis-1,2-Dichloroethene ND ug/l 0.50	Bromoform	ND	ug/l	2.0	
Vinyl chloride ND ug/l 1.0 Chloroethane ND ug/l 1.0 1,1-Dichloroethene ND ug/l 0.50 trans-1,2-Dichloroethene ND ug/l 0.50 1,2-Dichloroethene, Total ND ug/l 0.50 Trichloroethene ND ug/l 2.5 1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichlorobenzene ND ug/l 2.5 cis-1,2-Dichloroethene ND ug/l 0.50	1,1,2,2-Tetrachloroethane	ND	ug/l	0.50	
Chloroethane ND ug/l 1.0 1,1-Dichloroethene ND ug/l 0.50 trans-1,2-Dichloroethene ND ug/l 0.75 1,2-Dichloroethene, Total ND ug/l 0.50 Trichloroethene ND ug/l 0.50 1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichlorobenzene ND ug/l 2.5 cis-1,2-Dichloroethene ND ug/l 0.50	Chloromethane	ND	ug/l	2.5	
1,1-Dichloroethene ND ug/l 0.50 trans-1,2-Dichloroethene ND ug/l 0.75 1,2-Dichloroethene, Total ND ug/l 0.50 Trichloroethene ND ug/l 0.50 1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichlorobenzene ND ug/l 2.5 cis-1,2-Dichloroethene ND ug/l 0.50	Vinyl chloride	ND	ug/l	1.0	
trans-1,2-Dichloroethene ND ug/l 0.75 1,2-Dichloroethene, Total ND ug/l 0.50 Trichloroethene ND ug/l 0.50 1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichlorobenzene ND ug/l 2.5 cis-1,2-Dichloroethene ND ug/l 0.50	Chloroethane	ND	ug/l	1.0	
1,2-Dichloroethene, Total ND ug/l 0.50 Trichloroethene ND ug/l 0.50 1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichlorobenzene ND ug/l 2.5 cis-1,2-Dichloroethene ND ug/l 0.50	1,1-Dichloroethene	ND	ug/l	0.50	
Trichloroethene ND ug/l 0.50 1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichlorobenzene ND ug/l 2.5 cis-1,2-Dichloroethene ND ug/l 0.50	trans-1,2-Dichloroethene	ND	ug/l	0.75	
1,2-Dichlorobenzene ND ug/l 2.5 1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichlorobenzene ND ug/l 2.5 cis-1,2-Dichloroethene ND ug/l 0.50	1,2-Dichloroethene, Total	ND	ug/l	0.50	
1,3-Dichlorobenzene ND ug/l 2.5 1,4-Dichlorobenzene ND ug/l 2.5 cis-1,2-Dichloroethene ND ug/l 0.50	Trichloroethene	ND	ug/l	0.50	
1,4-Dichlorobenzene ND ug/l 2.5 cis-1,2-Dichloroethene ND ug/l 0.50	1,2-Dichlorobenzene	ND	ug/l	2.5	
cis-1,2-Dichloroethene ND ug/l 0.50	1,3-Dichlorobenzene	ND	ug/l	2.5	
3	1,4-Dichlorobenzene	ND	ug/l	2.5	
Dichlorodifluoromethane ND ug/l 5.0	cis-1,2-Dichloroethene	ND	ug/l	0.50	
	Dichlorodifluoromethane	ND	ug/l	5.0	



Project Name:ENERGIZERLab Number:L1630718

Project Number: 0252540 **Report Date:** 10/04/16

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C Analytical Date: 1,8260C 10/02/16 12:50

Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westb	orough Lab	for sample	(s): 01-04	Batch:	WG938083-5
1,2-Dibromoethane	ND		ug/l	2.0	
1,3-Dichloropropane	ND		ug/l	2.5	
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	
o-Chlorotoluene	ND		ug/l	2.5	
p-Chlorotoluene	ND		ug/l	2.5	
Hexachlorobutadiene	ND		ug/l	0.50	
1,2,4-Trichlorobenzene	ND		ug/l	2.5	

		Acceptance	
%Recovery	Qualifier	Criteria	
105		70-130	
101		70-130	
110		70-130	
99		70-130	
	105 101 110	%Recovery Qualifier 105 101 110	105 70-130 101 70-130 110 70-130



Project Name: ENERGIZER

Project Number: 0252540

Lab Number: L1630718

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	RPD Qual Limits	
Volatile Organics by GC/MS - Westborough	Lab Associated	sample(s):	01-04 Batch:	WG938083-3	WG938083-4			
Methylene chloride	96		94		70-130	2	20	
1,1-Dichloroethane	100		100		70-130	0	20	
Chloroform	110		100		70-130	10	20	
Carbon tetrachloride	120		120		63-132	0	20	
1,2-Dichloropropane	100		98		70-130	2	20	
Dibromochloromethane	87		84		63-130	4	20	
1,1,2-Trichloroethane	96		90		70-130	6	20	
2-Chloroethylvinyl ether	85		80		70-130	6	20	
Tetrachloroethene	100		98		70-130	2	20	
Chlorobenzene	100		97		75-130	3	25	
Trichlorofluoromethane	100		93		62-150	7	20	
1,2-Dichloroethane	100		99		70-130	1	20	
1,1,1-Trichloroethane	110		100		67-130	10	20	
Bromodichloromethane	110		100		67-130	10	20	
trans-1,3-Dichloropropene	89		85		70-130	5	20	
cis-1,3-Dichloropropene	110		100		70-130	10	20	
1,1-Dichloropropene	110		100		70-130	10	20	
Bromoform	84		81		54-136	4	20	
1,1,2,2-Tetrachloroethane	95		92		67-130	3	20	
Benzene	110		100		70-130	10	25	
Toluene	100		100		70-130	0	25	



Project Name: ENERGIZER

Project Number: 0252540

Lab Number: L1630718

arameter	LCS %Recovery	Qual	LCSD %Recovery	' Qual	%Recovery Limits	RPD	Qual	RPD Limits
olatile Organics by GC/MS - Westborough	gh Lab Associated	sample(s):	01-04 Batch:	WG938083-3	WG938083-4			
Ethylbenzene	100		100		70-130	0		20
Chloromethane	76		72		64-130	5		20
Bromomethane	100		100		39-139	0		20
Vinyl chloride	100		100		55-140	0		20
Chloroethane	99		95		55-138	4		20
1,1-Dichloroethene	95		91		61-145	4		25
trans-1,2-Dichloroethene	100		100		70-130	0		20
Trichloroethene	100		100		70-130	0		25
1,2-Dichlorobenzene	93		90		70-130	3		20
1,3-Dichlorobenzene	100		97		70-130	3		20
1,4-Dichlorobenzene	97		94		70-130	3		20
Methyl tert butyl ether	100		92		63-130	8		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	100		100		70-130	0		20
cis-1,2-Dichloroethene	100		98		70-130	2		20
Dibromomethane	100		99		70-130	1		20
1,4-Dichlorobutane	100		100		70-130	0		20
Iodomethane	95		96		70-130	1		20
1,2,3-Trichloropropane	98		92		64-130	6		20
Styrene	105		105		70-130	0		20
Dichlorodifluoromethane	84		79		36-147	6		20



Project Name: ENERGIZER

Project Number: 0252540

Lab Number: L1630718

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	RPD Qual Limits	
Volatile Organics by GC/MS - Westborough I	Lab Associated	sample(s):	01-04 Batch: \	WG938083-3	WG938083-4			
Acetone	66		62		58-148	6	20	
Carbon disulfide	86		81		51-130	6	20	
2-Butanone	82		77		63-138	6	20	
Vinyl acetate	93		90		70-130	3	20	
4-Methyl-2-pentanone	78		72		59-130	8	20	
2-Hexanone	72		69		57-130	4	20	
Ethyl methacrylate	81		79		70-130	3	20	
Acrolein	80		71		70-130	12	20	
Acrylonitrile	88		80		70-130	10	20	
Bromochloromethane	100		100		70-130	0	20	
Tetrahydrofuran	75		72		58-130	4	20	
2,2-Dichloropropane	130		120		63-133	8	20	
1,2-Dibromoethane	97		91		70-130	6	20	
1,3-Dichloropropane	96		92		70-130	4	20	
1,1,1,2-Tetrachloroethane	100		98		64-130	2	20	
Bromobenzene	100		100		70-130	0	20	
n-Butylbenzene	99		96		53-136	3	20	
sec-Butylbenzene	100		100		70-130	0	20	
tert-Butylbenzene	100		100		70-130	0	20	
o-Chlorotoluene	100		110		70-130	10	20	
p-Chlorotoluene	110		110		70-130	0	20	



Project Name: ENERGIZER

Project Number: 0252540

Lab Number: L1630718

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	RPD Qual Limits	
Volatile Organics by GC/MS - Westborough	Lab Associated	sample(s):	01-04 Batch:	WG938083-3	WG938083-4			
1,2-Dibromo-3-chloropropane	74		69		41-144	7	20	
Hexachlorobutadiene	80		75		63-130	6	20	
Isopropylbenzene	110		110		70-130	0	20	
p-Isopropyltoluene	100		100		70-130	0	20	
Naphthalene	63	Q	62	Q	70-130	2	20	
n-Propylbenzene	110		110		69-130	0	20	
1,2,3-Trichlorobenzene	51	Q	50	Q	70-130	2	20	
1,2,4-Trichlorobenzene	66	Q	63	Q	70-130	5	20	
1,3,5-Trimethylbenzene	110		110		64-130	0	20	
1,3,5-Trichlorobenzene	81		78		70-130	4	20	
1,2,4-Trimethylbenzene	110		110		70-130	0	20	
trans-1,4-Dichloro-2-butene	93		88		70-130	6	20	
Halothane	100		99		70-130	1	20	
Ethyl ether	93		91		59-134	2	20	
Methyl Acetate	91		84		70-130	8	20	
Ethyl Acetate	90		83		70-130	8	20	
Isopropyl Ether	100		98		70-130	2	20	
Cyclohexane	100		99		70-130	1	20	
tert-Butyl Alcohol	90		80		70-130	12	20	
Ethyl-Tert-Butyl-Ether	100		100		70-130	0	20	
Tertiary-Amyl Methyl Ether	97		93		66-130	4	20	



Project Name: ENERGIZER

Project Number: 0252540

Lab Number:

L1630718

Report Date:

10/04/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
olatile Organics by GC/MS - Westborough I	ab Associated	sample(s):	01-04 Batch:	WG938083-3	WG938083-4			
1,4-Dioxane	80		70		56-162	13		20
1,1,2-Trichloro-1,2,2-Trifluoroethane	100		96		70-130	4		20
Methyl cyclohexane	100		98		70-130	2		20
1,4-Diethylbenzene	100		98		70-130	2		20
4-Ethyltoluene	110		110		70-130	0		20
1,2,4,5-Tetramethylbenzene	93		90		70-130	3		20

	LCS	LCSD		Acceptance		
Surrogate	%Recovery	Qual	%Recovery	Qual	Criteria	
1,2-Dichloroethane-d4	102		101		70-130	
Toluene-d8	102		101		70-130	
4-Bromofluorobenzene	112		113		70-130	
Dibromofluoromethane	101		101		70-130	



Project Name:ENERGIZERLab Number: L1630718Project Number:0252540Report Date: 10/04/16

Sample Receipt and Container Information

Were project specific reporting limits specified?

Cooler Information Custody Seal

Cooler

A Absent

Container Information Temp								
Container ID	Container Type	Cooler	рН	deg C	Pres	Seal	Analysis(*)	
L1630718-01A	Vial HCl preserved	Α	N/A	6.0	Υ	Absent	8260-CHLR(14)	
L1630718-01B	Vial HCI preserved	Α	N/A	6.0	Υ	Absent	8260-CHLR(14)	
L1630718-01C	Vial HCI preserved	Α	N/A	6.0	Υ	Absent	8260-CHLR(14)	
L1630718-02A	Vial HCI preserved	Α	N/A	6.0	Υ	Absent	8260-CHLR(14)	
L1630718-02B	Vial HCI preserved	Α	N/A	6.0	Υ	Absent	8260-CHLR(14)	
L1630718-02C	Vial HCI preserved	Α	N/A	6.0	Υ	Absent	8260-CHLR(14)	
L1630718-03A	Vial HCI preserved	Α	N/A	6.0	Υ	Absent	8260-CHLR(14)	
L1630718-03B	Vial HCI preserved	Α	N/A	6.0	Υ	Absent	8260-CHLR(14)	
L1630718-03C	Vial HCI preserved	Α	N/A	6.0	Υ	Absent	8260-CHLR(14)	
L1630718-04A	Vial HCI preserved	Α	N/A	6.0	Υ	Absent	8260-CHLR(14)	
L1630718-04B	Vial HCI preserved	Α	N/A	6.0	Υ	Absent	8260-CHLR(14)	
L1630718-04C	Vial HCI preserved	Α	N/A	6.0	Υ	Absent	8260-CHLR(14)	



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GLOSSARY

Acronyms

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated

values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis

of PAHs using Solid-Phase Microextraction (SPME).

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of

analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of

analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any

adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for

which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's

reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL

includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less

precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the

values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the

associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound

list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a "Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

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Data Qualifiers

- reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
- H The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I The lower value for the two columns has been reported due to obvious interference.
- M Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P The RPD between the results for the two columns exceeds the method-specified criteria.
- Q The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- **R** Analytical results are from sample re-analysis.
- **RE** Analytical results are from sample re-extraction.
- S Analytical results are from modified screening analysis.
- J Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- **ND** Not detected at the reporting limit (RL) for the sample.

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REFERENCES

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc. Facility: Company-wide

Department: Quality Assurance

Title: Certificate/Approval Program Summary

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Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624: m/p-xylene, o-xylene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-

Tetramethylbenzene: 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.

SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility

SM 2540D: TSS EPA 3005A NPW

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Nitrate-N, Fluoride, Sulfate; EPA 353.2: Nitrate-N, Nitrite-N; SM4500NO3-F: Nitrate-N, Nitrite-N; SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B

EPA 332: Perchlorate; EPA 524.2: THMs and VOCs; EPA 504.1: EDB, DBCP.

Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D.

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, EPA 350.1: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, SM4500NO3-F, EPA 353.2: Nitrate-N, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), EPA 600/4-81-045: PCB-Oil.

Microbiology: SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.

Mansfield Facility:

Drinking Water

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. EPA 200.8: Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. EPA 245.1 Hg.

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

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