

# 2018 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT MERRIMACK STATION COAL ASH LANDFILL

Bow, New Hampshire

Prepared for Eversource Energy File No. 2025.06 January 2018



Mr. Allan Palmer Eversource Energy 431 River Road Bow, New Hampshire 03304 January 26, 2018 File No. 2025.06

Re: 2018 Annual Groundwater Monitoring and Corrective Action Report Merrimack Station Coal Ash Landfill Bow, New Hampshire

Dear Allan:

Sanborn, Head & Associates, Inc. (Sanborn Head) prepared this 2018 Annual Groundwater Monitoring and Corrective Action Report (Report) for the Merrimack Station Coal Ash Landfill site (Site) in Bow, New Hampshire, as required under 40 CFR Part 257.90(e) of the Standards for the Disposal of Coal Combustion Residuals (CCR) in Landfills and Surface Impoundments Rule. Groundwater monitoring at the Site was performed pursuant to 40 CFR Part 257.90 and this Report covers the reporting period from October 19, 2015 (40 CFR Part 257 effective date) through December 31, 2017.

## **REPORT REQUIREMENTS**

As required under 40 CFR Part 257.90(e), this Report includes the following information, as applicable:

- A map, aerial image, or diagram showing the CCR unit and the background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit (see Figures 1 and 2);
- Location of the monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;
- Monitoring data obtained under 40 CFR Parts 257.90 through 257.98, including:
  - □ the number of groundwater samples that were collected for analysis for each background and downgradient well (Table 1);
  - □ the dates the samples were collected (Table 1); and
  - whether the sample was required by the detection monitoring or assessment monitoring programs;
- A narrative discussion of transitions, if any, between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and

- Other information required to be included in the annual report as specified in 40 CFR Parts 257.90 through 257.98, which includes;
  - □ Groundwater elevations measured in each well immediately prior to purging and the rate and direction of groundwater flow, as calculated by the owner or operator of the CCR unit, each time groundwater is sampled (40 CFR Part 257.93[c]) (Table 2); and
  - Written demonstrations prepared by a qualified professional engineer demonstrating that a source other than the CCR unit caused the statistically significant increase (SSI) over background levels for a constituent or that the SSI resulted from an error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality (40 CFR Part 257.94[e][2]) (Attachment A).

## BACKGROUND

The Site has been operating since 1978 and was constructed in a former sand and gravel quarry on the property adjacent to the Merrimack Station electric power generation facility in Bow, New Hampshire. The landfill was constructed with a Hypalon geomembrane liner system and a leachate collection system, and receives coal ash from the nearby Merrimack Station electric power generation facility. A portion of the landfill was filled to final grade and was capped with a final cover system. A Locus Plan for the Site is provided as Figure 1 and the locations of the monitoring wells in relation to the landfill are indicated on the Facility Plan, Figure 2.

The groundwater quality at the Site has been routinely monitored for the past 30 years under New Hampshire Department of Environmental Services (NHDES) regulations. The current groundwater monitoring program, as prescribed by the NHDES Groundwater Release Detection Permit No. GWP-198400065-B-006, dated March 16, 2017, includes the collection of static groundwater level measurements and laboratory analyses of groundwater samples from five (5) overburden monitoring wells (i.e., SB-1, SB-4, SB-6, SB-13, and SB-14) on a semi-annual basis. The monitoring program and associated network have been generally consistent since the mid-1990s and the monitoring wells were installed between 1981 and 1993.

As discussed in the Groundwater Monitoring Well Network Verification (Sanborn Head, January 14, 2016, available in the Site's operating record), the five monitoring wells were certified as an appropriate groundwater monitoring system that was designed and constructed to meet the requirements of 40 CFR Part 257.91. There were no monitoring wells installed or decommissioned during the reporting period.

## SUMMARY OF GROUNDWATER MONITORING

As specified in 40 CFR Part 257.94(b), a detection monitoring program was initiated in October 2015, to include obtaining a minimum of eight independent samples for each background and downgradient well for the constituents listed in Appendix III and IV of 40 CFR Part 257 by October 17, 2017. A Sampling and Analysis Plan (Sanborn Head, last revised on October 7, 2016) was prepared to address the sampling and analysis requirements of 40 CFR part 257.93. Groundwater samples were collected by Eastern Analytical, Inc. (EAI) of Concord, New Hampshire using low-flow sampling techniques, based on the U.S.

Environmental Protection Agency (USEPA) Low Stress (Low Flow) Standard Operating Procedure, revised January 19, 2010. The samples were unfiltered and analyzed by EAI for the parameters identified in Appendix III (boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids) and Appendix IV (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, and radium 226 and 228 combined). Monitoring well SB-13 is considered the upgradient/background monitoring well. The other monitoring wells are downgradient of, or sidegradient to, the landfill.

The initial eight independent samples were taken for both background and downgradient wells for the constituents listed in Appendix III and IV. Starting in November 2017, semiannual detection monitoring, as specified in 40 CFR Part 257.94, was performed at the five wells for Appendix III constituents only. As described below, the statistical analysis of the groundwater monitoring data during the reporting period indicated that a transition between monitoring programs (i.e., to assessment monitoring) was not required.

Monitoring data, including the number of samples and sampling dates are summarized in Table 2. Analytical laboratory reports for all groundwater monitoring data are also provided in Attachment B. The depth to groundwater at each well was measured and reported by EAI, and are summarized on Table 2 as well as the inferred general groundwater flow direction.

## SUMMARY OF STATISTICAL ANALYSIS

As required under 40 CFR Part 257.90(b)(iv), Sanborn Head evaluated groundwater monitoring data for an SSI over background levels for the constituents listed in Appendix III of 40 CFR Part 257 at the five monitoring wells. On October 16, 2017, Sanborn Head issued a Statistical Method Selection Certification, applicable to the statistical analysis completed on the groundwater analytical data collected through April 19, 2017. The certification is available in the Site's operating record. Future statistical analyses of additional groundwater monitoring data reviewed by Sanborn Head under 40 CFR Part 257.93 may result in a change to the statistical method used, and future certifications will need to be revised accordingly.

The "parametric analysis of variance" (parametric ANOVA) method specified in 40 CFR Part 257.93(f)(1) was selected for the interwell evaluation of the parameter mean values for the Site monitoring wells (i.e., SB-1, SB-4, SB-6, and SB-14) to the upgradient monitoring well (i.e., SB-13). Based on this parametric ANOVA, a SSI of the mean sulfate concentration was identified at the downgradient well SB-4 relative to the mean sulfate concentration at the background monitoring well SB-13 for the April 19, 2017 detection monitoring sampling event. As such, pursuant to 40 CFR Part 257.94(e)(2), within 90 days of detecting the SSI, Sanborn Head prepared a written demonstration that the SSI resulted from natural variation in groundwater quality. The Demonstration of Natural Variation in Groundwater Quality, dated October 16, 2017, is provided in Attachment A. No additional SSI's over background levels for other constituents were observed during the reporting period.

Detection monitoring semi-annual groundwater data collected on November 17, 2017 is included in Table 1; however, the statistical analysis is on-going. As stipulated in 40 CFR Part 257.93(h)(2), the Site has 90 days from completing the sampling and analysis to determine

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whether there has been a SSI over background for any constituent at each monitoring well (i.e., by March 8, 2018).

## CONCLUSION

We understand that Eversource will be responsible for placing this Report in the Site's operating record by January 31, 2018. The next annual Report will be due January 31, 2019 for the time period from January 1, 2018 through December 31, 2018. Should you require additional information, please contact Mr. Allan Palmer of Eversource at (603) 634-2439, or the undersigned at (603) 415-6126.

Sincerely, Sanborn, Head & Associates, Inc.

Lisa Damiano, P.E. *Project Manager* 

LLD/ESS: lld

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Eric S. Steinhauser, P.E., CPESC, CPSWQ *Principal* 

Figure 1	Locus Plan							
Figure 2	Facility Plan							
Table 1	Summary of Analytical Results- Groundwater							
Table 2	Summary of Groundwater Level Measurements							
Attachment A – Demonstration of Natural Variation in Groundwater Quality								
Attachment I	3 – Analytical Laboratory Reports							
	Figure 1 Figure 2 Table 1 Table 2 Attachment I Attachment I							

**FIGURES** 





TABLES

#### TABLE 1 Summary of Analytical Results - Groundwater Merrimack Station Coal Ash Landfill Bow, New Hampshire

			Metals												Mi	scellaneous	Paramet	ameters						
	F								µg/L									μ	g/L		s.u		pCi/L	
Location	Date	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium	Chloride	Fluoride	Sulfate	Total Dissolved Solids	Ηq	Radium 226	Radium 228	Radium 226+228
Drin	king Water MCL	6	10	2,000	4	NS	5	NS	100	NS	15	NS	2	NS	50	2	NS	4,000	NS	NS	NS	NS	NS	5
	GW-1	6‡	10 ‡	2,000 ‡	4 ‡	620 ‡	5 ‡	NS ‡	100	NS ‡	15 ‡	NS	2 ‡	NS	50 ‡	2 ‡	NS	4,000	500,000	NS	NS	NS	NS	NS
	GW-2	NA	NA	NA	NA	NA	NA	NS	NA	NS	NA	NS	NA	NS	NA	NA	NS	t	+	NS	NS	NS	NS	NS
	2/24/2016	<1.0	<1.0	14	<1.0	60	<1.0	7,200	<1.0	<1.0	<1.0	<1,000	< 0.10	<1.0	<1.0	<1.0	44,000	<100	8,000	96,000	5.2	0.2 ±0.1	0.6 ±0.6	0.8 ±0.6
	4/25/2016	<1.0	<1.0	18	<1.0	100	<1.0	10,000	<1.0	<1.0	<1.0	<100	< 0.10	1.0	<1.0	<1.0	58,000	<100	9,000	120,000	5.7	0.5 ±0.2	$0.2 \pm 0.4$	$0.7 \pm 0.4$
	6/6/2016	<1.0	<1.0	16	<1.0	<50	<1.0	8,200	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	55,000	<100	7,000	140,000	5.5	0.6 ±0.3	0.2 ±0.5	0.8 ±0.5
	7/18/2016	<1.0	<1.0	16	<1.0	70	<1.0	8,600	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	60,000	<100	9,000	120,000	5.4	0.4 ±0.3	$0.0 \pm 0.6$	0.4 ±0.6
SB-1	8/30/2016	<1.0	<1.0	17	<1.0	<50	<1.0	7,900	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	49,000	<100	7,000	120,000	5.2	0.4 ±0.3	0.3 ±0.4	0.7 ±0.4
	10/17/2016	<1.0	<1.0	17	<1.0	<50	<1.0	9,700	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	60,000	<100	6,000	130,000	5.6	$0.6 \pm 0.4$	$0.0 \pm 0.4$	$0.6 \pm 0.4$
	11/29/2016	<1.0	<1.0	16	<1.0	<50	<1.0	8,000	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	62,000	<100	6,000	88,000	5.6	$1.0 \pm 0.4$	0.8 ±0.5	1.8 ±0.5
	4/19/2017	<1.0	<1.0	16	<1.0	<50	<1.0	10,000	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	56,000	<100	8,000	120,000	5.8	$0.4 \pm 0.3$	$0.2 \pm 0.5$	0.6 ±0.5
	2/22/2017	-1.0	-1.0	14	-1.0	50	-1.0	12,000	-1.0	-1.0	-1.0	-1.000	-0.10	-1.0	-1.0	-1.0	00,000	<100	0,000	120,000	5.7	02:01	10.00	12.00
	2/23/2016	<1.0	<1.0	14	<1.0	<50	<1.0	8,400	<1.0	<1.0	<1.0	<1,000	< 0.10	<1.0	<1.0	<1.0	95,000	<100	9,000	210,000	5.5	$0.3 \pm 0.1$	$1.0 \pm 0.6$	$1.3 \pm 0.0$
	4/25/2010	<1.0	<1.0	14	<1.0	<50	<1.0	9,300	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	110,000	<100	0,000	200,000	5.5	$0.3 \pm 0.3$	0.0 ±0.4	$0.5 \pm 0.4$
	7/19/2016	<1.0	<1.0	12	<1.0	<50	<1.0	8,000 7,900	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	100,000	<100	10,000	230,000	5.0	$0.2 \pm 0.2$	$0.4 \pm 0.5$	0.0 ±0.5
CD 4	7/18/2016	<1.0	<1.0	10	<1.0	<50	<1.0	7,800	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	100,000	<100	12,000	220,000	5.3	$0.4 \pm 0.3$	$0.4 \pm 0.6$	0.8 ±0.6
3D-4	8/30/2016	<1.0	<1.0	10	<1.0	<50	<1.0	6,800	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	88,000	<100	12,000	210,000	5.7	$0.2 \pm 0.2$	0.0 ±0.4	0.2 ±0.4
	10/1//2016	<1.0	<1.0	12	<1.0	<50	<1.0	8,400	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	100,000	<100	10,000	190,000	5./	$0.3 \pm 0.3$	0.0 ±0.5	$0.3 \pm 0.5$
	11/29/2016	<1.0	1.0	12	<1.0	<50	<1.0	7,000	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	100,000	<100	10,000	180,000	5.8	$0.7 \pm 0.3$	0.5 ±0.5	1.2 ±0.5
	4/19/2017	<1.0	<1.0	19	<1.0	<50	<1.0	10,000	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	77,000	<100	9,000	260,000	5.7	$0.3 \pm 0.3$	$0.0 \pm 0.5$	0.3 ±0.5
	2/22/2016	<1.0	<1.0	0.0	<1.0	<50	<1.0	10,000	<1.0	<1.0	<1.0	<1.000	<0.10	<1.0	<1.0	<1.0	77,000	<100	13,000	170,000	5.8	01+007	05+05	06+05
	4/25/2016	<1.0	<1.0	9.0	<1.0	<50	<1.0	5,300	<1.0	<1.0	<1.0	<1,000	< 0.10	<1.0	<1.0	<1.0	140,000	<100	7,000	220,000	5.0	$0.1 \pm 0.07$	0.5 ±0.5	$0.0 \pm 0.3$
	4/25/2016	<1.0	<1.0	10	<1.0	<50	<1.0	9,300	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	140,000	<100	2,000	220,000	5.0	$0.4 \pm 0.3$	$0.0 \pm 0.4$	$0.4 \pm 0.4$
	7/18/2016	<1.0	<1.0	17	<1.0	<50	<1.0	9,300	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	140,000	<100	9,000	270,000	5.2	$0.5 \pm 0.3$	0.0 ±0.5	$0.3 \pm 0.5$
SB-6	8/30/2016	<1.0	<1.0	18	<1.0	<50	<1.0	9,200	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	140,000	<100	9,000	280,000	5.7	$0.3 \pm 0.3$	$0.3 \pm 0.0$ 0.0 + 0.4	$0.0 \pm 0.0$ 0.4 +0.4
30-0	10/17/2016	<1.0	<1.0	10	<1.0	<50	<1.0	10,000	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	150,000	<100	9,000	260,000	5.8	$0.4 \pm 0.2$	0.0 ±0.4	$0.4 \pm 0.4$
	11/29/2016	<1.0	<1.0	16	<1.0	<50	<1.0	8 1 0 0	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	130,000	<100	9,000	230,000	5.8	$0.2 \pm 0.3$ 0 5 ± 0 2	0.8 +0.5	13+05
	4/19/2017	<1.0	<1.0	13	<1.0	<51	<1.0	7 400	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	100,000	<100	9,000	190,000	5.7	0.5 ±0.2	0.2 +0.5	0.6 ±0.5
	11/17/2017	110	110	15	1111	<50		9,900	110	-110	-110	4100	-0.10	11.0	110	110	130.000	<100	11.000	230.000	5.6	0.1 ±0.5	0.2 10.5	0.0 ±0.5
	2/23/2016	<10	<10	17	<10	< 50	<10	9,900	<10	<10	<10	<1.000	<0.10	<10	<10	<10	160,000	<100	6,000	270,000	53	06+01	03+06	09+06
	4/25/2016	<1.0	<1.0	17	<1.0	<50	<1.0	8,800	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	160,000	<100	7 000	290,000	5.5	0.0 ±0.1	0.1 +0.4	$0.5\pm0.0$
	6/6/2016	<1.0	<1.0	20	<1.0	<50	<1.0	9,900	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	170,000	<100	7,000	320,000	5.5	0.8 + 0.3	0.0 +0.5	0.8 + 0.5
	7/18/2016	<1.0	<1.0	18	<1.0	<50	<1.0	9 700	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	160,000	<100	8,000	330,000	53	0.8 ± 0.3	0.0 +0.6	0.8 + 0.6
SB-13	8/30/2016	<1.0	1.0	20	<1.0	<50	<1.0	8,100	2.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	150,000	<100	8,000	270,000	5.4	0.8 + 0.3	0.6 +0.4	1.4 +0.4
	10/17/2016	<1.0	<1.0	15	<1.0	<50	<1.0	8 800	2.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	150,000	<100	8,000	260,000	5.1	07+04	0.6 ±0.1	13+05
	11/29/2016	<1.0	<1.0	16	<1.0	<50	<1.0	7,400	1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	140.000	<100	8.000	240.000	5.7	$0.6 \pm 0.3$	0.7 ±0.5	$1.3 \pm 0.5$
	4/19/2017	<1.0	<1.0	16	<1.1	<51	<1.1	8.000	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	130.000	<100	8,000	270.000	5.6	$0.9 \pm 0.3$	$0.3 \pm 0.5$	$1.2 \pm 0.5$
	11/17/2017					<50		7,000									110,000	<100	9,000	220,000	5.8			
	2/24/2016	<1.0	<1.0	3.0	<1.0	<50	<1.0	6.100	<1.0	<1.0	<1.0	<1.000	< 0.10	<1.0	<1.0	<1.0	16.000	<100	4.000	56.000	5.1	0.2 ±0.08	0.0 ±0.5	0.2 ±0.5
	4/25/2016	<1.0	<1.0	9.0	<1.0	<50	<1.0	11,000	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	58,000	<100	3,000	140,000	5.6	0.8 ±0.5	0.2 ±0.1	1.0 ±0.5
	6/6/2016	<1.0	<1.0	6.0	<1.0	<50	<1.0	7,600	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	32,000	<100	4,000	100,000	5.4	0.5 ±0.2	0.2 ±0.5	0.7 ±0.5
	7/18/2016	<1.0	<1.0	3.0	<1.0	<50	<1.0	6,300	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	21,000	<100	5,000	68,000	5.3	0.2 ±0.2	0.3 ±0.5	0.5 ±0.5
SB-14	8/30/2016	<1.0	<1.0	2.0	<1.0	<50	<1.0	5,300	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	14,000	<100	4,000	71,000	5.8	0.4 ±0.3	0.4 ±0.5	0.8 ±0.5
	10/17/2016	<1.0	<1.0	2.0	<1.0	<50	<1.0	4,000	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	11,000	<100	4,000	29,000	5.6	0.2 ±0.3	0.0 ±0.5	0.2 ±0.5
	11/29/2016	<1.0	<1.0	2.0	<1.0	<50	<1.0	2,900	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	7,000	<100	4,000	12,000	5.2	0.2 ±0.4	0.2 ±0.5	0.4 ±0.5
	4/19/2017	<1.0	<1.0	10	<1.0	<50	<1.0	10,000	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	56,000	<100	5,000	120,000	5.6	0.7 ±0.3	$0.1 \pm 0.5$	0.8 ±0.5
	11/17/2017					<50		8,000									18,000	<100	5,000	59,000	5.6			

Notes:

1. Samples were collected by Eastern Analytical, Inc. (EAI) of Concord, New Hampshire on the dates indicated and analyzed by EAI for select metals by USEPA Method 6020. Additional analysis for general select wet chemistry parameters were completed by EAI. Analysis for radium 226 and 228 was completed by KNL Environmental Testing, Inc., of Tampa, Florida. Analysis for lithium was completed by SGS Accutest, of Marlborough, Massachussets (Feb. 2016), and Katahdin Analytical Services, of Scarborough, Maine (April 2016 through October 2016).

2. Concentrations are presented in micrograms per liter (µg/L) which are equivalent to parts per billion (ppb), or they are presented in picoCuries per liter (pCi/L) or pH standard units.

3. "<" indicates the analyte was not detected above the indicated laboratory reporting limit.

A blank indicates the sample was not analyzed for this parameter.

4. "GW-1" and "GW-2" Groundwater Standards are from the New Hampshire Department of Environmental Services (NHDES) Contaminated Sites Risk Characterization and Management Policy (RCMP) (January 1998, with 2000 through 2013 revisions/addenda). GW-1 Groundwater Standards are equivalent to the Ambient Groundwater Quality Standards (AGQSs) promulgated in Env-Or 600 (June 2015 with October 2016 amendment). The AGQS/GW-1 Groundwater Standards are intended to be protective of groundwater as a source of drinking water. The GW-2 Groundwater Standards apply to groundwater as a potential source of indoor air contamination.

5. "Drinking Water MCLs" are from the United States Environmental Protection Agency (EPA) website (accessed March 22, 2016). The Maximum Contaminant Level (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are enforceable standards for drinking water systems.

6. "†" indicates the RCMP lists as not currently available. "+" indicates the value provided is the corresponding "dissolved metal" NHDES standard for reference only; NHDES standards for total metals are listed in the RCMP. "NA" indicates the RCMP lists as not applicable. "NS" indicates the analyte is not listed in the RCMP or MCL list.

7. Bold values exceed the AGQS/GW-1 Groundwater Standard. Italic values exceed the GW-2 Groundwater Standard.

#### TABLE 2 Summary of Groundwater Level Measurements Merrimack Station Coal Ash Landfill Bow, New Hampshire

									Depths and	elevations in	n feet.						
		SB-1			SB-4			SB-6		SB-13			SB-14			Inferred	
Data																General	Inferred General
Date	Reference	Depth	Water	Reference	Depth	Water	Reference	Depth	Water	Reference	Depth	Water	Reference	Depth	Water	Groundwater	<b>Groundwater Flow</b>
	Elevation	to Water	Elevation	Elevation	to Water	Elevation	Elevation	to Water	Elevation	Elevation	to Water	Elevation	Elevation	to Water	Elevation	Flow Rate	Direction
																(feet/day)	
Feb-16	240.85	33.82	207.03	274.26	67.36	206.90	268.77	61.84	206.93	219.86	11.83	208.03	242.70	34.88	207.82	0.5 - 2.7	Northeast
Apr-16	240.85	32.19	208.66	274.26	65.63	208.63	268.77	60.07	208.70	219.86	10.16	209.70	242.70	33.13	209.57	0.5 - 2.5	Northeast
Jun-16	240.85	31.84	209.01	274.26	66.24	208.02	268.77	60.80	207.97	219.86	11.11	208.75	242.70	33.93	208.77	0.4 - 1.9	East
Jul-16	240.85	33.88	206.97	274.26	67.30	206.96	268.77	62.07	206.70	219.86	12.41	207.45	242.70	35.10	207.60	0.4 - 1.9	Northeast
Aug-16	240.85	35.09	205.76	274.26	68.54	205.72	268.77	63.19	205.58	219.86	13.76	206.10	242.70	36.39	206.31	0.3 - 1.4	Northeast
0ct-16	240.85	36.20	204.65	274.26	69.68	204.58	268.77	64.42	204.35	219.86	13.92	205.94	242.70	37.58	205.12	0.8 - 3.9	North-Northeast
Nov-16	240.85	36.40	204.45	274.26	69.93	204.33	268.77	64.69	204.08	219.86	15.14	204.72	242.70	37.80	204.90	0.3 - 1.6	East-Northeast
Apr-17	240.85	32.27	208.58	274.26	65.82	208.44	268.77	60.04	208.73	219.86	9.58	210.28	242.70	32.99	209.71	0.8 - 3.8	North-Northeast
Nov-17	240.85	32.87	207.98	274.26	66.39	207.87	268.77	60.97	207.80	219.86	11.33	208.53	242.70	34.08	208.62	0.4 - 1.8	Northeast

Notes:

1. Reference elevations were surveyed by PSNH and provided to Sanborn Head.

2. Depths to water were obtained from laboratory reports and field sampling sheets prepared by Eastern Analytical, Inc.

3. Inferred general groundwater flow rates and flow directions are approximate and are based on the limited hydrogeologic and groundwater elevation data available. Other interpretations are possible and actual conditions may vary from those indicated. Note that groundwater elevations, directions, and rates may change due to seasonal or other variations in temperature, precipitation, runoff, or other factors.

4. Approximate groundwater flow rates were calculated using an assumed saturated hydraulic conductivity of 100 to 500 feet per day, and an assumed porosity of 39%. Assumptions are generally consistent with values typical of medium-grained, clean sand. The calculated groundwater flow rate is equivalent to the average interstitial velocity or the seepage velocity.

# ATTACHMENT A

# DEMONSTRATION OF NATURAL VARIATION IN GROUNDWATER QUALITY



October 16, 2017 File No. 2025.06

Mr. Allan G. Palmer Eversource Energy Generation Field Office 431 River Road Bow, NH 03304

Re: Demonstration of Natural Variation in Groundwater Quality Data collected through April 19, 2017 Merrimack Station Coal Ash Landfill Bow, New Hampshire

Dear Allan:

Sanborn, Head & Associates, Inc. (Sanborn Head) prepared this Demonstration of Natural Variation in Groundwater Quality (Natural Variation Demonstration) for the Merrimack Station Coal Ash Landfill (landfill) located in Bow, New Hampshire. This Demonstration was prepared in accordance with our August 25, 2017 Proposal for Ongoing Groundwater Compliance Services for the Coal Combustion Residual (CCR) Rules (40 CFR Part 257).

Based on the "parametric analysis of variance" (parametric ANOVA) performed by Sanborn Head (see Statistical Method Selection Certification (Statistics Certification), dated October 13, 2017), a statistically significant increase (SSI) of the mean sulfate concentration was identified at the downgradient well SB-4 relative to the mean sulfate concentration at the background monitoring well SB-13. As such, pursuant to 40 CFR Part 257.94(e)(2), within 90 days of detecting the SSI, the owner or operator may provide a written demonstration from a qualified professional engineer that: (i) a source other than the CCR unit caused the SSI over background levels for a constituent; or (ii) the SSI resulted from either an error in sampling, analysis, or statistical evaluation; or natural variation in groundwater quality. Based on our understanding of the site characteristics and the natural variation in groundwater characteristics of the region, as discussed below, the SSI of the mean sulfate concentration at SB-4 is due to the natural variation in groundwater quality. Groundwater quality data are provided in Table 1 and monitoring well locations are indicated in Figure 1.

Sulfate occurs naturally in groundwater in the region through dissolution of sulfate-producing minerals (e.g., sulfide ores). The sulfate mean concentration of approximately 9.9 mg/L at SB-4 was within the range of sulfate concentrations measured in local and a regional USGS studies<sup>1,2</sup>. These studies reported sulfate concentrations in local stratified drift aquifers ranged from 4.6 mg/L to 14.0 mg/L, with a median of 8.05 mg/L, and sulfate concentrations in regional crystalline rock ranged from 0.31 mg/L to 68.48 mg/L, with a median of 13.42 mg/L. The sulfate concentrations are applicable to the site because the glacial outwash overburden at the site is eroded from the underlying crystalline rock and has similar mineralogical composition to the aquifers in the USGS studies. Additionally, the sulfate

<sup>&</sup>lt;sup>1</sup> "Geohydrology and Water Quality of Stratified-Draft Aquifers in the Middle Merrimack River Basin, South-Central New Hampshire", prepared by U.S. Geological Survey and dated 1995.

<sup>&</sup>lt;sup>2</sup> "Quality of Water from Crystalline Rock Aquifers in New England, New Jersey, and New York, 1995-2007", prepared by U.S. Department of the Interior and U.S. Geological Survey and dated 2012.

concentrations at SB-4 were much less than the New Hampshire Ambient Groundwater Quality Standard (AGQS) for sulfate of 500 mg/L. The AGQSs are intended to be protective of groundwater as a source of drinking water.

Analysis of other groundwater quality parameters indicate spatial variation in groundwater at the site in multiple parameters, including calcium, chloride, and sulfate. For instance, a statistically significant *decrease* in mean sulfate and mean calcium concentrations was observed at site well SB-14. The variance in parameter concentrations at other wells indicate that the upgradient/background well SB-13 may not necessarily be representative of background for each constituent at each site well, and that changes in groundwater quality are attributed to spatial variation rather than the landfill.

Lastly, had the SSI of the sulfate mean concentration at SB-4 been a result of a potential release of leachate from the landfill, we would anticipate SSIs of other parameters. The Merrimack Station Coal Ash Landfill is a coal ash landfill, and boron, molybdenum, and lithium are generally good indicator parameters for coal ash management facilities<sup>3</sup>. Groundwater quality conditions at SB-4 and the other site wells did not indicate a release – there were no SSIs of boron, molybdenum, lithium, or other indicator parameters at the site.

Considering the information currently available, intrawell statistical methods (e.g., comparing to the wells own background values) should be considered for future analysis of sulfate concentrations at site well SB-4. This approach was not considered for the initial statistical analysis that identified the subject SSI because only the background values data set was collected at the time of analysis.

Based on our understanding of the information presented herein, including the site characteristics, the groundwater monitoring data at SB-4, and natural variation of regional groundwater quality, it is our opinion that the SSI in sulfate concentration at well SB-4 is due to natural variation in groundwater quality.

Thank you for the opportunity to be of service to Eversource. We look forward to continuing to work with you on this project.

Sincerely, Sanborn, Head & Associates, Inc.

Harrison R. Roakes Senior Project Engineer HRR/LLD/AEA/ESS:hrr Enclosures: Table 1 – S

SAcon

Eric S. Steinhauser, P.E., CPESC, CPSWQ *Principal* 

s: Table 1 – Summary of Analytical Results - Groundwater Figure 1 – Monitoring Well Location Plan

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<sup>&</sup>lt;sup>3</sup> "Groundwater Quality Signatures for Assessing Potential Impacts from Coal Combustion Product Leachate," prepared by Electric Power Research Institute, dated October 2012.

#### TABLE 1 Summary of Analytical Results - Groundwater Merrimack Station Coal Ash Landfill Bow, New Hampshire

			Metals												Mi	scellaneous	s Paramet	ameters						
	-								µg/L									μ	g/L		s.u		pCi/L	
Location	Date	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium	Chloride	Fluoride	Sulfate	Total Dissolved Solids	Ηd	Radium 226	Radium 228	Radium 226+228
Drin	king Water MCL	6	10	2,000	4	NS	5	NS	100	NS	15	NS	2	NS	50	2	NS	4,000	NS	NS	NS	NS	NS	5
	GW-1	6‡	10 ‡	2,000 ‡	4 ‡	620 ‡	5 ‡	NS ‡	100	NS ‡	15 ‡	NS	2 ‡	NS	50 ‡	2 ‡	NS	4,000	500,000	NS	NS	NS	NS	NS
	GW-2	NA	NA	NA	NA	NA	NA	NS	NA	NS	NA	NS	NA	NS	NA	NA	NS	†	†	NS	NS	NS	NS	NS
	2/24/2016	<1.0	<1.0	14	<1.0	60	<1.0	7,200	<1.0	<1.0	<1.0	<1,000	< 0.10	<1.0	<1.0	<1.0	44,000	<100	8,000	96,000	5.2	0.2 ±0.1	0.6 ±0.6	0.8 ±0.6
	4/25/2016	<1.0	<1.0	18	<1.0	100	<1.0	10,000	<1.0	<1.0	<1.0	<100	< 0.10	1.0	<1.0	<1.0	58,000	<100	9,000	120,000	5.7	0.5 ±0.2	$0.2 \pm 0.4$	0.7 ±0.4
	6/6/2016	<1.0	<1.0	16	<1.0	<50	<1.0	8,200	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	55,000	<100	7,000	140,000	5.5	0.6 ±0.3	0.2 ±0.5	0.8 ±0.5
SB-1	7/18/2016	<1.0	<1.0	16	<1.0	70	<1.0	8,600	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	60,000	<100	9,000	120,000	5.4	$0.4 \pm 0.3$	$0.0 \pm 0.6$	0.4 ±0.6
50 1	8/30/2016	<1.0	<1.0	17	<1.0	<50	<1.0	7,900	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	49,000	<100	7,000	120,000	5.2	$0.4 \pm 0.3$	0.3 ±0.4	0.7 ±0.4
	10/17/2016	<1.0	<1.0	17	<1.0	<50	<1.0	9,700	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	60,000	<100	6,000	130,000	5.6	$0.6 \pm 0.4$	$0.0 \pm 0.4$	0.6 ±0.4
	11/29/2016	<1.0	<1.0	16	<1.0	<50	<1.0	8,000	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	62,000	<100	6,000	88,000	5.6	$1.0 \pm 0.4$	$0.8 \pm 0.5$	1.8 ±0.5
-	4/19/2017	<1.0	<1.0	16	<1.0	<50	<1.0	10,000	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	56,000	<100	8,000	120,000	5.8	$0.4 \pm 0.3$	0.2 ±0.5	0.6 ±0.5
	2/23/2016	<1.0	<1.0	14	<1.0	<50	<1.0	8,400	<1.0	<1.0	<1.0	<1,000	< 0.10	<1.0	<1.0	<1.0	95,000	<100	9,000	210,000	5.5	0.3 ±0.1	$1.0 \pm 0.6$	1.3 ±0.6
	4/25/2016	<1.0	<1.0	14	<1.0	<50	<1.0	9,300	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	110,000	<100	8,000	200,000	5.3	0.3 ±0.3	$0.0 \pm 0.4$	0.3 ±0.4
	6/6/2016	<1.0	<1.0	12	<1.0	<50	<1.0	8,000	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	110,000	<100	10,000	230,000	5.6	$0.2 \pm 0.2$	0.4 ±0.5	0.6 ±0.5
SB-4	7/18/2016	<1.0	<1.0	11	<1.0	<50	<1.0	7,800	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	100,000	<100	11,000	220,000	5.3	$0.4 \pm 0.3$	$0.4 \pm 0.6$	0.8 ±0.6
00 1	8/30/2016	<1.0	<1.0	10	<1.0	<50	<1.0	6,800	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	88,000	<100	12,000	210,000	5.7	$0.2 \pm 0.2$	$0.0 \pm 0.4$	0.2 ±0.4
	10/17/2016	<1.0	<1.0	12	<1.0	<50	<1.0	8,400	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	100,000	<100	10,000	190,000	5.7	0.3 ±0.3	0.0 ±0.5	0.3 ±0.5
	11/29/2016	<1.0	1.0	12	<1.0	<50	<1.0	7,000	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	100,000	<100	10,000	180,000	5.8	0.7 ±0.3	0.5 ±0.5	1.2 ±0.5
-	4/19/2017	<1.0	<1.0	19	<1.0	<50	<1.0	10,000	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	120,000	<100	9,000	260,000	5.7	0.3 ±0.3	0.0 ±0.5	0.3 ±0.5
	2/23/2016	<1.0	<1.0	9.0	<1.0	<50	<1.0	5,300	<1.0	<1.0	<1.0	<1,000	< 0.10	<1.0	<1.0	<1.0	80,000	<100	10,000	170,000	5.6	$0.1 \pm 0.07$	0.5 ±0.5	0.6 ±0.5
	4/25/2016	<1.0	<1.0	16	<1.0	<50	<1.0	9,300	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	140,000	<100	7,000	220,000	5.6	$0.4 \pm 0.3$	$0.0 \pm 0.4$	0.4 ±0.4
	6/6/2016	<1.0	<1.0	17	<1.0	<50	<1.0	9,300	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	140,000	<100	8,000	270,000	5.4	$0.5 \pm 0.3$	$0.0 \pm 0.5$	0.5 ±0.5
SB-6	7/18/2016	<1.0	<1.0	17	<1.0	<50	<1.0	9,200	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	140,000	<100	9,000	260,000	5.3	0.5 ±0.3	0.3 ±0.6	0.8 ±0.6
	8/30/2016	<1.0	<1.0	18	<1.0	<50	<1.0	9,100	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	140,000	<100	9,000	280,000	5.7	0.4 ±0.2	$0.0 \pm 0.4$	0.4 ±0.4
	10/17/2016	<1.0	<1.0	18	<1.0	<50	<1.0	10,000	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	150,000	<100	8,000	260,000	5.8	0.2 ±0.3	0.0 ±0.5	0.2 ±0.5
	11/29/2016	<1.0	<1.0	16	<1.0	<50	<1.0	8,100	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	130,000	<100	9,000	230,000	5.8	0.5 ±0.2	$0.8 \pm 0.5$	1.3 ±0.5
	4/19/2017	<1.0	<1.0	13	<1.1	<51	<1.1	7,400	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	100,000	<100	9,000	190,000	5.7	$0.4 \pm 0.3$	0.2 ±0.5	0.6 ±0.5
	2/23/2016	<1.0	<1.0	17	<1.0	<50	<1.0	9,900	<1.0	<1.0	<1.0	<1,000	< 0.10	<1.0	<1.0	<1.0	160,000	<100	6,000	270,000	5.3	0.6 ±0.1	$0.3 \pm 0.6$	0.9±0.6
	4/25/2016	<1.0	<1.0	17	<1.0	<50	<1.0	8,800	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	160,000	<100	7,000	290,000	5.5	$0.4 \pm 0.3$	$0.1 \pm 0.4$	$0.5 \pm 0.4$
	6/6/2016	<1.0	<1.0	20	<1.0	<50	<1.0	9,900	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	170,000	<100	7,000	320,000	5.5	$0.8 \pm 0.3$	$0.0 \pm 0.5$	0.8 ±0.5
SB-13	7/18/2016	<1.0	<1.0	18	<1.0	<50	<1.0	9,700	<1.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	160,000	<100	8,000	330,000	5.3	0.8 ±0.3	$0.0 \pm 0.6$	0.8 ±0.6
	8/30/2016	<1.0	1.0	20	<1.0	<50	<1.0	8,100	2.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	150,000	<100	8,000	270,000	5.4	$0.8 \pm 0.3$	$0.6 \pm 0.4$	1.4 ±0.4
	10/17/2016	<1.0	<1.0	15	<1.0	<50	<1.0	8,800	2.0	<1.0	<1.0	<100	< 0.10	<1.0	<1.0	<1.0	150,000	<100	8,000	260,000	5.1	$0.7 \pm 0.4$	0.6 ±0.5	$1.3 \pm 0.5$
	11/29/2016	<1.0	<1.0	16	<1.0	<50	<1.0	7,400	1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	140,000	<100	8,000	240,000	5.7	$0.6 \pm 0.3$	$0.7 \pm 0.5$	1.3 ±0.5
	4/19/2017	<1.0	<1.0	16	<1.1	<51	<1.1	8,000	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	130,000	<100	8,000	270,000	5.6	$0.9 \pm 0.3$	$0.3 \pm 0.5$	$1.2 \pm 0.5$
	2/24/2016	<1.0	<1.0	3.0	<1.0	<50	<1.0	6,100	<1.0	<1.0	<1.0	<1,000	< 0.10	<1.0	<1.0	<1.0	16,000	<100	4,000	56,000	5.1	$0.2 \pm 0.08$	$0.0 \pm 0.5$	$0.2 \pm 0.5$
	4/25/2016	<1.0	<1.0	9.0	<1.0	<50	<1.0	11,000	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	58,000	<100	3,000	140,000	5.6	0.8 ±0.5	0.2 ±0.1	1.0 ±0.5
	0/0/2010	<1.0	<1.0	0.0	<1.0	<50	<1.0	/,600	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	32,000	<100	4,000	100,000	5.4	$0.5 \pm 0.2$	0.2 ±0.5	$0.7 \pm 0.5$
SB-14	//18/2016	<1.0	<1.0	3.0	<1.0	<50	<1.0	6,300 E 200	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	21,000	<100	5,000	55,000	5.3 E 0	$0.2 \pm 0.2$	$0.3 \pm 0.5$	0.5 ±0.5
	0/30/2010	<1.0	<1.0	2.0	<1.0	< 3U	<1.0	5,300	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	14,000	<100	4,000	20,000	5.0	$0.4 \pm 0.3$ 0.2 ± 0.2	0.4 ±0.5	0.0 ±0.5
	11/20/2016	<1.0	<1.0	2.0	<1.0	< DU	<1.0	4,000	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	7 000	<100	4,000	12 000	5.0	$0.2 \pm 0.3$	0.0 ±0.5	$0.2 \pm 0.5$
	11/29/2010	<1.0	<1.0	2.0	<1.0	<50	<1.0	2,900	<1.0	<1.0	<1.0	<100	<0.10	<1.0	<1.0	<1.0	56,000	<100	5,000	12,000	5.2	$0.2 \pm 0.4$	$0.2 \pm 0.5$ 0.1 + 0.5	0.4 ±0.5
L	4/19/201/	\⊥.U	N1.U	10	N1.U	N0C/	×1.0	10,000	\1.U	×1.0	\1.U	~100	~U.1U	\l.U	\1.U	N1.U	50,000	~±00	3,000	120,000	5.0	0.7 ±0.3	0.1 10.3	0.0 ±0.5

Notes:

1. Samples were collected by Eastern Analytical, Inc. (EAI) of Concord, New Hampshire on the dates indicated and analyzed by EAI for select metals by USEPA Method 6020. Additional analysis for general select wet chemistry parameters were completed by EAI. Analysis for radium 226 and 228 was completed by KNL Environmental Testing, Inc., of Tampa, Florida. Analysis for lithium was completed by SGS Accutest, of Marlborough, Massachussets (Feb. 2016), and Katahdin Analytical Services, of Scarborough, Maine (April 2016 through October 2016).

2. Concentrations are presented in micrograms per liter (µg/L) which are equivalent to parts per billion (ppb), picoCuries per liter (pCi/L), or pH standard units.

3. "<" indicates the analyte was not detected above the indicated laboratory reporting limit.

A blank indicates the sample was not analyzed for this parameter.

4. "GW-1" and "GW-2" Groundwater Standards are from the New Hampshire Department of Environmental Services (NHDES) Contaminated Sites Risk Characterization and Management Policy (RCMP) (January 1998, with 2000 through 2013 revisions/addenda). GW-1 Groundwater Standards are equivalent to the Ambient Groundwater Quality Standards (AGQSs) promulgated in Env-Or 600 (June 2015 with October 2016 amendment). The AGQS/GW-1 Groundwater as a source of drinking water. The GW-2 Groundwater Standards apply to groundwater as a potential source of indoor air contamination.

5. "Drinking Water MCLs" are from the United States Environmental Protection Agency (EPA) website (accessed March 22, 2016). The Maximum Contaminant Level (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are enforceable standards for drinking water systems.

6. "†" indicates the RCMP lists as not currently available.

"\* indicates the value provided is the corresponding "dissolved metal" NHDES standard for reference only; NHDES standards for total metals are listed in the RCMP. "NA" indicates the RCMP lists as not applicable. "NS" indicates the analyte is not listed in the RCMP or MCL list.

7. Bold values exceed the AGQS/GW-1 Groundwater Standard.

Italic values exceed the GW-2 Groundwater Standard.



Figure 1
Monitoring Well Location Plan
Merrimack Station Coal Ash Landfill Bow, New Hampshire
Drawn By: L. Teal Designed By: L. Damiano/L. Teal Reviewed By: N. Roy / R. Nahlik Project No: 2025.03 Date: January 2016
Notes 1. The base map was developed from a drawing prepared by Public Service Company of New Hampshire's Engineering Division entitled, "Area Plan, Merrimack Station, Bow, N.H." The drawing was dated 5/1/90 and was last revised on 6/28/95.
<ol> <li>The location of site and site features shown should be considered approximate only.</li> </ol>
<ol> <li>Groundwater contours shown on this plan were developed based on groundwater level measurements in the monitoring wells made on April 30, 2014.</li> </ol>
Legend
SB-4 🔶 Monitoring Well
(210.5) Groundwater Elevation Measured on April 30, 2014
— · — — Right-Of-Way
Fence
Groundwater Contour (dashed where less constrained)
Feet 150' 75' 0 150' 300'
SANBORN   HEAD

# ATTACHMENT B

# ANALYTICAL LABORATORY REPORTS

SANBORN || HEAD

February 2016



Allan Palmer Eversource Energy 780 North Commercial Street, PO Box 330 Manchester, NH 03105-0330



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 153300 Client Identification: Merrimack Station Coal Ash Landfill - Low Flow Date Received: 2/25/2016

Dear Mr. Palmer:

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

- Solid samples are reported on a dry weight basis, unless otherwise noted
- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R:%Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

mm

Lorraine Olashaw, Lab Director

<u>3.14.16</u> Date # of pages (excluding cover letter)



EAI ID#: 153300

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Temperat Acceptable to	ure upon receipt (°C): 3.3 emperature range (°C): 0-6	3	Received on ice or cold packs (Yes/No): Y					
Lab ID	Sample ID	Date Received	Date Sampled	Sample % Dry Matrix Weight	Exceptions/Comments (other than thermal preservation)			
153300.01	SB-1	2/25/16	2/24/16	aqueous	Adheres to Sample Acceptance Policy			
153300.02	SB-4	2/25/16	2/23/16	aqueous	Adheres to Sample Acceptance Policy			
153300.03	SB-6	2/25/16	2/23/16	aqueous	Adheres to Sample Acceptance Policy			
153300.04	SB-13	2/25/16	2/23/16	aqueous	Adheres to Sample Acceptance Policy			
153300.05	SB-14	2/25/16	2/24/16	aqueous	Adheres to Sample Acceptance Policy			

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitibility, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.

All results contained in this report relate only to the above listed samples.

References include:

1) EPA 600/4-79-020, 1983

2) Standard Methods for Examination of Water and Wastewater, 20th Edition, 1998 and 22nd Edition, 2012

3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB

4) Hach Water Analysis Handbook, 2nd edition, 1992

Eastern Analytical, Inc.

www.eailabs.com | 800.287.0525 | customerservice@eailabs.com

## LABORATORY REPORT

# M

EAI ID#: 153300

### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	. SB-1	SB-4	SB-6	SB-13					
Lab Sample ID:	153300.01	153300.02	153300.03	153300.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	2/24/16	2/23/16	2/23/16	2/23/16		Δ١	nalveis		
Date Received:	2/25/16	2/25/16	2/25/16	2/25/16	Units	Date	Time	Method A	nalyst
Solids Dissolved	96	210	170	270	mg/L	02/29/16	16:10	2540C-97	SCW
Fluoride	< 0.1	< 0.1	< 0.1	< 0.1	mg/L	03/08/16	11:44	300.0	KD
Sulfate	8	9	10	6	mg/L	03/08/16	11:44	300.0	KD
Chloride	44	95	80	160	mg/L	02/26/16	10:44	4500CIE-97	KD

Sample ID:	SB-14	
Lab Sample ID:	153300.05	
Matrix:	aqueous	
Date Sampled:	2/24/16	
Date Received:	2/25/16	
Solids Dissolved	56	
Fluoride	< 0.1	
Sulfate	4	
Chloride	16	

Analysis										
Units	Date	Time	Method A	nalyst						
mg/L	02/29/16	16:10	2540C-97	scw						
mg/L	03/08/16	12:47	300.0	KD						
mg/L	03/08/16	12:47	300.0	KD						
mg/L	02/26/16	11:07	4500CIE-97	KD						

## LABORATORY REPORT

# M

## EAI ID#: 153300

### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	SB-1	SB-4	SB-6	SB-13					
Lab Sample ID:	153300.01	153300.02	153300.03	153300.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Data Samplad:	2/24/16	2/22/16	2/22/16	2/23/16	Applytical		Data of		
Date Sampled.	2/24/10	2/23/10	2/25/10	2/25/10	Matrix	Unite	Analysis	Method	Analyst
Date Received:	2/25/16	2/25/16	2/25/16	2/25/16	matrix	omis	7 analysis	metroa	Falleryot
Antimony	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	2/25/16	200.8	DS
Arsenic	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	2/25/16	200.8	DS
Barium	0.014	0.014	0.009	0.017	AqTot	mg/L	2/25/16	200.8	DS
Beryllium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	2/25/16	200.8	DS
Boron	0.06	< 0.05	< 0.05	< 0.05	AqTot	mg/L	2/25/16	200.8	DS
Calcium	7.2	8.4	5.3	9.9	AqTot	mg/L	2/25/16	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	2/25/16	200.8	DS
Chromium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	2/25/16	200.8	DS
Cobalt	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	2/25/16	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	2/25/16	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	< 0.0001	AqTot	mg/L	2/25/16	200.8	DS
Molybdenum	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	2/25/16	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	2/25/16	200.8	DS
Thallium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	2/25/16	200.8	DS
Sample ID:	SB-14								
Lab Sample ID:	153300.05								
Matrix:	aqueous								
Date Sampled:	2/24/16				Analytical		Date of		
Date Bangived	2/24/10				Matrix	Units	Analysis	Method	Analyst
Date Received.	2/25/16				۸ <del>۲</del> . ۴	···· ·· /1	0/05/46	200.0	De
Antimony	< 0.001				. Aqiot	mg/L	2/20/10	200.0	03
Arsenic	< 0.001				Agrot	mg/∟ ma/l	2/25/10	200.0	20
Barium	0.003				Aq10t AqTot	mg/L	2/25/10	200.0	
Beryllium	< 0.001				AqTot	mg/L	2/25/10	200.0	
Boron	< 0.05				AqTot	mg/L	2/25/16	200.0	
	6,1 10,001				AqTot	mg/L	2/25/16	200.0	
Cadmium	< 0.001				AqTot	mg/L	2/25/16	200.0	DS
Chromium	< 0.001				Adiot	ma/l	2/25/16	200.0	20
Copait	< 0.001					mg/⊑	2/25/16	200.0	20
Lead	< 0.001				Adiot	mg/L	2/25/16	200.0	20
wercury	< 0.0001				Aq10l	mg/L	2/25/16	200.0	20
wolypaenum	< 0.001				Aq10l	mg/L	2/25/16	200.0	20
	< 0.001					ma/L	2/25/16	200.0	20
maillum	< 0.00 I				74101	ing/L		200.0	



March 11, 2016 Report Date:

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	153300
<ul> <li>A starting of the starting of the</li></ul>	SB-1
	•
Durd TD#	

LUO TDH	
Sample Collection :	2-24-16/1500
Lab ID No:	16.1972
Lab Custody Date:	3-1-16/1050
Sample Description:	Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method.	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.8 ± 0.6	Calc	Calc	0.8
4020	Radium-226	pCi/L	0.2 ± 0.1	3-9-16/1651	EPA 903.1	0.2
4030	Radium-228	pCi/L	0,6±0,6	3-8-16/1023	EPA Ra-05	0.8

Alpha Standard, Th-230

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

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Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	153300
	SB-4

PWS ID# Sample Collection : 2-23-16/1040 Lab ID No: 16.1973 Lab Custody Date: 3-1-16/1050 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Cóntam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	1.3 ± 0.6	Calc	Calc	0,8
		·. ·				
4020	Radium-226	pCi/L	0.3 ±.0.1	3-9-16/1651	EPA 903,1	0.2
		-				
4030	Radium-228	pCi/d	1.0 ± 0.6	3-8-16/1023	EPA Ra-05	0.8

Alpha Standard: Th-230 unter W h

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

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Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	153300
	SB-6
DWC THH	

Sample Collection : 2-23-16/1300 Lab ID No: 16.1974 Lab Custody Date: 3-1-16/1050 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pC1/L	0.6±0.5	Calc	Calc	0.8
4020	Radium-226	pCi/L	0.1 ± 0.07	3-9-16/1651	EPA 903.1	0.2
4030	Radium-228	pC1/I	0.5 ± 0.5	3-8-16/1023	EPA Ra-05	0,8

Alpha Standard: Th-230

ames w Na

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

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Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field ( Client/	Field ID:	1533( 1533)		
		. ۲. ۳۰ <del>۹</del> ۷		
DWG TH			· · .	·

· ·	and a state of the	
	Sample Collection :	2-23-16/1515
	Lab ID No:	16.1975
	Lab Custody Date:	3-1-16/1050
	Sample Description:	Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Ūnits	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.9 ± 0.6	Calc	Calc	0.8
4020	Radium-226	pC1/L	0.6 ± 0.1	3-10-16/1228	EPA 903.1	0.2
4030	Radium-228	pCi/L	0.3 ± 0.6	3-8-16/1023	EPA Ra-05	0 = 8

Alpha Standard: Th-230

amer w Nager James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

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Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field (	Custody:	Client
Client	/Field ID:	153300
		SB-14
	in an	

EMS TDA	
Sample Collection :	2-23-16/1245
Lab ID No:	16.1976
Lab Custody Date:	3-1-16/1050
Sample Description:	Water
이 나는 것을 하는 것이 같아요.	

#### CERTIFICATE OF ANALYSIS

Contam Code	Farameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	$0.2 \pm 0.5$	Çalc	Calc	0.8
4020	Radium-226	pCi/L	0.2±0.08	3-10-16/1228	EPA 903.1	0.2
4030	Radium-228	pCi/D	0.0 ± 0.5	3-8-16/1023	EPA Ra-05	0.8

Alpha Standard: Th-230

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

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Sample ID       Date Sampled       Matrix       aParam         SB-1       2/24/2016       aqueous       Radium 226 & Rad	Professional laboratory services EAI SRB# 153300 ars Sample Notes Sam
SB-4 2/23/2016 aqueous Radium 226 & Rac	m 228 Combined Subcontract KNL /6.1972 - 75
SB-6 2/23/2016 aqueous Radium 226 & Rad 13:00	m 228 Combined Subcontract KNL
SB-13 2/23/2016 aqueous Radium 226 & Rad 15:15 75	Im 228 Combined Subcontract KNL
	X-11-2
EAI SRB# 153300 Project State: NH Results Neede Project ID: 164 OC Deliverab	by: Preferred date Std. Eastern Analytical Inc. PO Number: 44150 § ∃B □B+ □C □P. Please call prior to analyzing, if RUSH surcharges w
CompanyKNL Environmental TestingNotes aboutAddress3202 N. Florida Ave.Email pdf of rAddressTampa, FL 33603Samples collAccount #Please HOLL	roject:         sults and invoice to         sults and invoice to         e@eailabs.com.         e@eailabs.com.         ted via Low Flow Method         ilssolved metals analyses         Redinqueshed by         Date/Time         Received
Phone # 813-229-2879 1 Fax Number 813-229-0002	Relinquished by Date/Time Received
Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH C As a subcontract lab to EAI, you will defend, indemnify and hold Eastern Analytical, I arising out of the performance against this chain of custody but only in proportion to acts or omissions of you as a subcontract lab, your officers, agents or employees	301 Phone: (603)228-0525 1-800-287-0525 Fax: (603)228-4591 ., its officers, employees, and agents harmless from and against any and all liability, loss, expense or claims for in d to the extent such liability, loss, expense, or claims for injury or damages are caused by or result from the neglig

CHAIN	-OF-CUSTO	DY RECORD eastern and professional labor	alytical	3 <b>300</b> 10
Sample ID SB-14	Date Sampled Matrix	aParameters Radium 226 & Radium 228 Combined Subcontract KNL	Sample Notes	
			6.19	K
EAI SRB# 1533	300 Project State: NH Project ID: 164	Results Needed by: Preferred date     SHA       QC Deliverables       ⊠ A       □ A+       □ B       □ B+       □ C	Eastern Analytical Inc. PO Number: 2 Please call prior to analyzing, if RUSH surch	44150 charges will be applied.
Company KNL Address 3202 Address Tarn	Environmental Testing N. Florida Ave, pa, FL 33603	Notes about project: Email pdf of results and invoice to customerservice@eailabs.com. Samples collected via Low Flow Method	Samples Collected by:	
Phone # 813- Fax Number 813-	229-2879 229-0002		Relinquished by Date/Time	Received by
Easter As a subcontract lab to E arising out of the perform acts of omissions of you a	rn Analytical, Inc. 25 Chenell D Al, you will defend, indemnify and hold ance against this chain of custody but as a subcontract lab, your officers, age	Ir, Concord, NH 03301 Phone: (603)228-0525 Eastern Analytical, Inc., its officers, employees, and agents harm only in proportion to and to the extent such liability, loss, expense, ants or employees	1-800-287-0525 Fax: (603)228-4591 less from and against any and all liability, loss, expense of o or claims for injury or damages are caused by or result from	olaims for injury or damage m the negligent or intentionr
arising out of the perform acts or omissions of you a	ance against this chain of custody but as a subcontract lab, your officers, age	only in proportion to and to the extent social addaty, loss, expense, ants or employées	יסן רומנונוס דרו נוווועז ער אפורופלבס טוב השמסמי אל ער נפסטע ווסיו	01 810 110918908 01 816018018

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SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION. VERIFICATION, TESTING AND CERTIFICATION COMPANY.

e-Hardcopy 2.0 Automated Report

Technical Report for

Eastern Analytical, Inc.

Eastern Analytical, Inc., NH

Proj ID 164 PO#44154 EAI SRB# 153300

SGS Accutest Job Number: MC44555

Sampling Dates: 02/23/16 - 02/24/16

Report to:

ACCUTEST New England

Eastern Analytical 25 Chenell Drive Concord, NH 03301 MikeSerard@easternanalytical.com; Customerservice@eailabs.com

ATTN: Michael Serard

Total number of pages in report: 14



H. (Brad) Madadian Lab Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Client Service contact: Frank DAgostino 508-481-6200

Certifications: MA (M-MA136,SW846 NELAC) CT (PH-0109) NH (250210) RI (00071) ME (MA00136) FL (E87579) NY (11791) NJ (MA926) PA (6801121) ND (R-188) CO MN (11546AA) NC (653) IL (002337) WI (399080220) DoD ELAP (L-A-B L2235) This report shall not be reproduced, except in its entirety, without the written approval of SGS Accutest. Test results relate only to samples analyzed.

New England • 50 Deangelo Drive • Building 1 • Marlborough, MA 01752 • tel: 508-481-6200 • fax: 508-481-7753 • http://www.accutest.com





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14

SGS Accutest

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## Sample Summary

Eastern Analytical, Inc.

Job No: MC44555

Eastern Analytical, Inc., NH Project No: Proj ID 164 PO#44154 EAI SRB# 153300

Sample	Collected			Matr	ix	Client
Number	Date	Time By	Received	Code	е Туре	Sample ID
MC44555-1	02/24/16	15:00	02/26/16	AQ	Ground Water	SB-1
MC44555-2	02/23/16	10:40	02/26/16	AQ	Ground Water	SB-4
MC44555-5	3 02/23/16	13:00	02/26/16	AQ	Ground Water	SB-6
MC44555-4	02/23/16	15:15	02/26/16	AQ	Ground Water	SB-13
MC44555-5	<b>02/24/16</b>	12:45	02/26/16	AQ	Ground Water	SB-14

SGS /



## Summary of Hits

Job Number:	MC44555
Account:	Eastern Analytical, Inc.
Project:	Eastern Analytical, Inc., NH
Collected:	02/23/16 thru 02/24/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
MC44555-1	SB-1					
No hits reported	in this sample.					
MC44555-2	SB-4					
No hits reported	in this sample.					
MC44555-3	SB-6					
No hits reported	in this sample.					
MC44555-4	SB-13					
No hits reported	in this sample.					
MC44555-5	SB-14					
No hits reported i	in this sample.					







Section 3

Sample Results

Report of Analysis



## SGS Accutest

				Rep	ort of A	nalysis		Pa	ige 1 of 1
Client Sample II Lab Sample ID: Matrix:	D: SB-1 MC4 AQ -	4555-1 Ground W	Vater				Page 1 of 1 02/24/16 02/26/16 n/a Prep Method SW846 3010A <sup>2</sup>		
Project:	Easte	rn Analyti	cal, Inc.,	NH					
Total Metals An	alysis								
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Metho	d
Lithium <sup>a</sup>	<1000	1000	ug/1	1	02/29/16	03/03/16 EAD	L SW846 6010C <sup>1</sup>	SW846 3010A	2
<ul><li>(1) Instrument Q</li><li>(2) Prep QC Bate</li></ul>	C Batch: 1 h: MP258	MA18948 374							

(a) Elevated sample detection limit due to limited sample volume.





#### SGS Accutest

				Rep	ort of A	nalysis		Р	age 1 of 1
Client Sample II Lab Sample ID: Matrix:	D: SB-4 MC44 AQ - C	555-2 Ground V	Vater		P U		Date Sampled: Date Received: Percent Solids:	02/23/16 02/26/16 n/a	
Total Metals An	alysis		cai, mc.,	INF1 	······	<u></u>		<u> </u>	
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Metho	bd
Lithium <sup>a</sup>	< 1000	1000	ug/l	1	02/29/16	03/03/16 EAL	. SW846 6010C <sup>1</sup>	SW846 3010A	2
(1) Instrument Q (2) Prep QC Bate	C Batch: M h: MP2587	A18948 74							

(a) Elevated sample detection limit due to limited sample volume.


#### SGS Accutest

				Rep	ort of A	nalysis			Page 1 of 1
Client Sample II Lab Sample ID: Matrix:	D: SB-6 MC44 AQ -	l555-3 Ground W	ater					Date Sampled: Date Received: Percent Solids:	02/23/16 02/26/16 n/a
Project:	Eastern Analytical, Inc., NH								
Total Metals An	alysis								
Analyte	Result	RL	Units	DF	Prep	Analyzed	Ву	Method	Prep Method
Lithium <sup>a</sup>	<1000	1000	ug/l	1	02/29/16	03/03/16	EAL	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
<ul><li>(1) Instrument Q</li><li>(2) Prep QC Batc</li></ul>	C Batch: M h: MP258	MA18948 874							

(a) Elevated sample detection limit due to limited sample volume.





#### SGS Accutest

Report of Analysis Page									
Client Sample ID: SB-13 Lab Sample ID: MC44555-4 Matrix: AQ - Ground Wat		Vater				Date Sampled: Date Received: Percent Solids:	02/23/16 02/26/16 n/a		
Project:	Eastern Analytical, Inc., NH								
Total Metals An	alysis								
Analyte 3	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Metl	ıod
Lithium <sup>a</sup>	<1000	1000	ug/l	1	02/29/16	03/03/16 EAI	L SW846 6010C <sup>1</sup>	SW846 3010	A <sup>2</sup>
<ul><li>(1) Instrument QG</li><li>(2) Prep QC Batc</li></ul>	C Batch: h: MP25	MA18948 874							

(a) Elevated sample detection limit due to limited sample volume.





#### SGS Accutest

				Rep	ort of A	nalysis			Page 1 of 1
Client Sample ID: SB-14 Lab Sample ID: MC44555-5 Matrix: AQ - Ground Water				,	Date Sampled: Date Received:				
Project: Eastern Analytical, Inc.,			NH			Percent Solids:	11/a		
Total Metals An	alysis								<b>/</b>
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Meth	od
Lithium <sup>a</sup>	<1000	1000	ug/l	1	02/29/16	03/03/16 EAL	. SW846 6010C <sup>1</sup>	SW846 3010.	A 2
(1) Instrument Q (2) Prep QC Bate	C Batch: ch: MP25	MA18948 874							

(a) Elevated sample detection limit due to limited sample volume.



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Section 4

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody





MC44555

## CHAIN-OF-CUSTODY RECORD eastern analytical professional laboratory services

FALSER# 153300

			EAI SKB# 10000
Sample ID	Date Sampled Matrix	aParameters	Sample Notes
<i>İ</i> − SB-1	2/24/2016 aqueous Subo 15:00	contract - Metals by ICP-AES Method 6010	
<sup>}</sup> ^ SB-4	2/23/2016 aqueous Subc 10:40	contract - Metals by ICP-AES Method 6010	
- SB-6	2/23/2016 aqueous Subc 13:00	ontract - Metals by ICP-AES Method 6010	
<sup>/</sup> - SB-13	2/23/2016 aqueous Subc 15:15	ontract - Metals by ICP-AES Method 6010	
			INITIAL ASESSMENT WM GA
EAI SRB# Company Address Address Account # Phone #	# 153300       Project State: NH       Reg         Project ID: 164       M         Accutest Laboratory       Ns         495 Technology Center West,       Er         Marlboro, MA 01752       Sa         508-481-6200       Project State: NH	suits Needed by: Preferred date 2 Deliverables A A A+ B B B+ C P Des about project: mail pdf of results and invoice to istomerservice@eailabs.com. amples collected via Low Flow Method ease HOLD dissolved metals analyses	Eastern Analytical Inc. PO Number: 44154 Please call prior to analyzing, if RUSH surcharges will be applied. $\mathcal{NTCE}/SSC$ Somolef solved by: <u>All Market Solved</u> by: Relinquished by Date/Time Received by $\mathcal{LP}$
Fax Number			Relinquished by Date/Time Received by
	Eastern Analytical, Inc. 25 Chenell Dr. Con	cord, NH 03301 Phone: (603)228-0525	1-800-287-0525 Fax: (603)228-4591

As a subcontract lab to EAI, you will defend, indemnify and hold Eastern Analytical, Inc., its officers, employees, and agents harmless from and against any and all liability, loss, expense or claims for injury or damages arising out of the performance against this chain of custody but only in proportion to and to the extent such liability, loss, expense, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of you as a subcontract lab, your officers, agents or employees

MC44555: Chain of Custody Page 1 of 3



mc44555

## CHAIN-OF-CUSTODY RECORD eastern analytical professional laboratory services

#### EAI SRB# 153300

Sample ID Date Sampled Matrix aParameters Sample Notes 5- SB-14 aqueous Subcontract - Metals by ICP-AES Method 6010 2/24/2016 12:45



As a subcontract lab to EAI, you will defend, indemnify and hold Eastern Analytical, Inc., its officers, employees, and agents harmless from and against any and all liability, loss, expense or claims for injury or damages arising out of the performance against this chain of custody but only in proportion to and to the extent such liability, loss, expense, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of you as a subcontract lab, your officers, agents or employees

#### MC44555: Chain of Custody Page 2 of 3





#### SGS Accutest Sample Receipt Summary

Job Number: MC4	4555 Clien	t: EASTERN ANALYTICAL		Project: 164	
Date / Time Received: 2/26/	/2016 10:20:00 AM	Delivery Method:	UPS	Airbill #'s:	
Cooler Temps (Initial/Adjuste	d): <u>#1:(15.5/15.5);</u>				
Cooler Security Y	<u>or N</u> 3. COC	<u>YorN</u> Present: ☑ □	Sample Integrity	<u>r - Documentation</u>	<u>Yor N</u>
2. Custody Seals Intact:	4. Smpl Da	tes/Time OK	1. Sample labels p	present on bottles:	
Cooler Temperature	<u>Y</u> or N		3. Sample contain	er label / COC agree:	
1. Temp criteria achieved:			Sample Integrit	v - Condition	Y or N
2, Thermometer ID:	i		1. Sample recvd w	vithin HT:	
3. Cooler media:	Ice (Bag)	_	2. All containers a	ccounted for:	
4. No. Coolers:	1	_	3. Condition of sa	nple:	Intact
Quality Control Preservation	<u>YorNN/</u>	<u>A</u>	Sample Integrit	<u>y - Instructions</u>	<u>Y or N N/A</u>
2. Trip Blank listed on COC;		]	1. Analysis reque	sted is clear:	
3. Samples preserved properly:			3. Sufficient volum	ne recycl for analysis:	
4. VOCs headspace free:		]	4. Compositing in	structions clear:	
		-	5. Filtering instruc	ctions clear:	
Comments			1		—

MC44555: Chain of Custody Page 3 of 3 4.1 4

Accutest Labs	s of	New Engla	nd, Inc.		Mar 10,	2016 12:29 pm					
Job Number:	MC4	44555			· · · · · · · · · · · · · · · · · · ·						
Account:	Eas	astern Analytical, Inc.									
Project:	Eas	stern Analytical, Inc., NH									
Project Number:	Pro	j ID 164 PO#44	154 EAI SRB#	153300							
					Legend:	Hit					
Client Sample ID:		SB-1	SB-4	SB-6	SB-13	SB-14					
Lab Sample ID:		MC44555-1	MC44555-2	MC44555-3	MC44555-4	MC44555-5					
Date Sampled:		02/24/2016	02/23/2016	02/23/2016	02/23/2016	02/24/2016					
Matrix:		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
						<u> </u>					
Metals Analysis											
					· · · · · · · · · · · · · · · · · · ·	·····					
Lithium	ug/l	<1000 <sup>a</sup>	<1000 <sup>a</sup>	<1000 <sup>a</sup>	<1000 <sup>a</sup>	<1000 <sup>a</sup>					
Footnotes:											
<sup>a</sup> Elevated sample	dete	ction limit due t	o limited sample	e volume.							



CHAIN-OF-CUSTODY RECORD

153**300** <sup>6</sup><sub>2</sub>

	Composites need start			
Sample IDs	and stop dates/times	Matrix	Parameters and Sample Notes	# of containers
SB-1	2/24/16 15:00	aqueous Grab or Comp	AqTot/Cl/F/SO4/TDS/Rad226Rad228ComboSubKNL/ICPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mo.Se.T AqDis/ICPMets.B.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	6
Sampler confi	rms ID and parameters	s are accurate	Circle preservative/s: HCL (NO) H2SO4 NaOH MEOH Na2S204 (CE) Dissolved Sample F	ield Filtered 🔀
SB-4	2 23  <i>16</i> 10:40	aqueous Grabor Comp	AqTot/Cl/F/SO4/TDS/Rad226Rad228ComboSubKNL/iCPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mo.Se.T AqDis/ICPMets.B.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Ti	6
Sampler confi	I rms ID and parameters	s are accurate	Circle preservative/s: HCL (HNO, H2SO4 NaOH MEOH Na2S2O3 (CE) Dissolved Sample F	ield Filtered 🔀
SB-6	2/23/16 13:00	aqueous Grabor Comp	AqTot/Cl/F/SO4/TDS/Rad226Rad228ComboSubKNL/ICPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mo.Se.T AqDis/ICPMets.B.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	6
Sampler confi	rms ID and parameters	s are accurate	Circle preservative/s: HCL (HNO) H2SO4 NaOH MEOH Na2S2O3 (CE) Dissolved Sample F	ield Filtered 🔀
SB-13	2/23/16	aqueous Grab or Comp	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/ICPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mo.Se.T AqDis/ICPMets.B.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	6
Sampler confi	rms ID and parameters	s are accurate	Circle preservative/s: HCL (NO3 H2SO4 NaOH MEOH Na2S2O3 CE) Dissolved Sample F	ield Filtered

Please ensure this auto COC is accurate, adheres to permit or sampling requirements for this sampling event, and modify as necessary.

EAI Project ID 164	Results Needed by: Preferred date	ReportingOptions		
Project Name Merrimack Station Coal Ash Landfill -	Notes:	K HC	🗌 NO FAX	PO# PO#
			Partial FAX	Quote#:
State NH	Samples collected via Low Flow Method	EDD email	PDF Invoice	
Client (Pro Mgr) Allan Palmer	Please HOLD dissolved metals analyses	PDF prelim, NO FAX		Temp <u>3.3</u> °C
Customer Eversource Energy				
Address 780 North Commercial Street, PO		Samples Collected by:	. Oggne /EM	٠ 
City Manchester NH 03105-0330		Participad by	25/16 0600 Doto/Timo	Alan .
Phone 669-4000 Fax Choose one:	QC deliverables	CReunduisned by	Daternine	Keceived by
Email: allan.palmer@eversource.com	🛛 А 🗌 А+ 🔲 В 🗍 В+ 🔲 С 🔲 РС	Relinquished by	Date/Time	Received by
Direct 634-2439				

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ſ	<b>U</b> M		CHAIN-OF-CUSTODY RECORD	153300 PSCNH1	27
Sample IDs	Date/Time Composites need start and stop dates/times	Matrix	Parameters and Sample Notes	# of con	ntainers
SB-14	2/24/16 12:45	aqueous	AqTot/C!/F/SO4/TDS/Rad226Rad228ComboSubKNL/ICPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co AqDis/ICPMets.B.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	.Pb.Li.Hg.Mo.Se.Ti	6
Sampler confi	rms ID and parameters	s are accurate	Circle preservative/s: HCL (HNO, H,SO, NaOH MEOH Na,S,O, ICB Di	ssolved Sample Field Filtere	<sup>id</sup> 🔀

Please ensure this auto COC is accurate, adheres to permit or sampling requirements for this sampling event, and modify as necessary.

.

EAI Project ID 164		Results Needed by: Preferred date	ReportingOptions		
Project Name Merrimack Station C	oal Ash Landfill -	Notes:	HC HC	NO FAX	PO# <b>PO</b> #
State NH		Samples collected via Low Flow Method	EDD PDF	Partial FAX	Quote#:
Client (Pro Mgr) Allan Palmer		Please HOLD dissolved metals analyses	PDF prelim, NO FAX	🗆 EQUIS	Tom 3,3°C
Customer Eversource Energy	,		L e-mail Login Confirmation	1 	
Address 780 North Commer	cial Street, PO		Samples Collected by:	GagnelEA	
City Manchester NH 03	3105-0330		1 al	25146_0800/	Va-
Phone 669-4000 Fax (	Choose one:	QC deliverables	Reinquished by	Date/Time	Received by
Email: allan.palmer@eversource.co Direct 634-2439	m	🛛 А 🗆 А+ 🗆 В 🗆 В+ 💷 С 🗆 РС	Relinquished by	Date/Time	Received by

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April 2016



Allan Palmer Eversource Energy 780 North Commercial Street, PO Box 330 Manchester, NH 03105-0330



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 155246 Client Identification: Merrimack Station Coal Ash Landfill - Low Flow Date Received: 4/25/2016

Dear Mr. Palmer:

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

- Solid samples are reported on a dry weight basis, unless otherwise noted
- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R:%Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

manl

Lorraine Olashaw, Lab Director

# of pages (excluding cover letter)

# M

SAMPLE CONDITIONS PAGE

EAI ID#: 155246

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Temperat Acceptable to	ure upon receipt (°C): 1. emperature range (°C): 0-6	6		Received	on ice or cold packs (Yes/No): Υ
Lab ID	Sample ID	Date Received	Date Sampled	Sample % Dry Matrix Weight	Exceptions/Comments (other than thermal preservation)
155246.01	SB-1	4/25/16	4/25/16	aqueous	Adheres to Sample Acceptance Policy
155246.02	SB-4	4/25/16	4/25/16	aqueous	Adheres to Sample Acceptance Policy
155246.03	SB-6	4/25/16	4/25/16	aqueous	Adheres to Sample Acceptance Policy
155246.04	SB-13	4/25/16	4/25/16	aqueous	Adheres to Sample Acceptance Policy
155246.05	SB-14	4/25/16	4/25/16	aqueous	Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitibility, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.

All results contained in this report relate only to the above listed samples.

References include:

1) EPA 600/4-79-020, 1983

2) Standard Methods for Examination of Water and Wastewater, 20th Edition, 1998 and 22nd Edition, 2012

3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB

4) Hach Water Analysis Handbook, 2nd edition, 1992

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1

## LABORATORY REPORT

# M

#### EAI ID#: 155246

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

0	CD 1	SD 1	SB 6	SB-13					
Sample ID:	30-1	50-4	30-0	00-10					
Lab Sample ID:	155246.01	155246.02	155246.03	155246.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	4/25/16	4/25/16	4/25/16	4/25/16		A	nalysis		
Date Received:	4/25/16	4/25/16	4/25/16	4/25/16	Units	Date	Time	Method A	nalyst
Solids Dissolved	120	200	220	290	mg/L	04/27/16	11:30	2540C-97	SCW
Fluoride	< 0.1	< 0.1	< 0.1	< 0.1	mg/L	05/02/16	18:53	300.0	KD
Sulfate	9	8	7	7	mg/L	05/02/16	18:53	300.0	KD
Chloride	58	110	140	160	mg/L	05/03/16	10:13	4500CIE-97	KD

Sample ID:	SB-14
Lab Sample ID:	155246.05
Matrix:	aqueous
Date Sampled:	4/25/16
Date Received:	4/25/16
Solids Dissolved	140
Fluoride	< 0.1
Sulfate	3
Chloride	58

Analysis						
Units	Date	Time	Method A	nalyst		
mg/L	04/27/16	11:30	2540C-97	scw		
mg/L	05/02/16	21:11	300.0	KD		
mg/L	05/02/16	21:11	300.0	KD		
mg/L	05/03/16	10:33	4500CIE-97	KD		

## LABORATORY REPORT



EAI ID#: 155246

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	SB-1	SB-4	SB-6	SB-13					
l ab Sample ID:	155246.01	155246 02	155246 03	155246 04					
Matrix	00240.01	002-0.02	002-10.00	00210001					
Data Canada la da	aqueous	aqueous	aqueous	aqueous			Deter		
Date Sampled:	4/25/16	4/25/16	4/25/16	4/25/16	Analytical	11 4	Date of	NJ - 41J	A
Date Received:	4/25/16	4/25/16	4/25/16	4/25/16	Watrix	Units	Analysis	Method	Analyst
Antimony	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/26/16	200.8	DS
Arsenic	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/26/16	200.8	DS
Barium	0.018	0.014	0.016	0.017	AqTot	mg/L	4/26/16	200.8	DS
Beryllium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/26/16	200.8	DS
Boron	0.10	< 0.05	< 0.05	< 0.05	AqTot	mg/L	4/26/16	200.8	DS
Calcium	10	9.3	9.3	8.8	AqTot	mg/L	4/26/16	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/26/16	200.8	DS
Chromium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/26/16	200.8	DS
Cobalt	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/26/16	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/26/16	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	< 0.0001	AqTot	mg/L	4/26/16	200.8	DS
Molybdenum	0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/26/16	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/26/16	200.8	DS
Thallium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/26/16	200.8	DS
Sample ID:	SB-14								
Lab Sample ID:	155246.05								
Matrix:	aqueous								
Date Sampled:	4/25/16				Analytical		Date of		
Date Received:	4/25/16				Matrix	Units	Analysis	Method	Analyst
Antimony	< 0.001				AqTot	mg/L	4/26/16	200.8	DS
Arsenic	< 0.001				AqTot	mg/L	4/26/16	200.8	DS
Barium	0.009				AqTot	mg/L	4/26/16	200.8	DS
Beryllium	< 0.001				AqTot	mg/L	4/26/16	200.8	DS
Boron	< 0.05				AqTot	mg/L	4/26/16	200.8	DS
Calcium	. 11				AqTot	mg/L	4/26/16	200.8	DS
Cadmium	< 0.001				AqTot	mg/L	4/26/16	200.8	DS
Chromium	< 0.001				AqTot	mg/L	4/26/16	200.8	DS
Cobalt	< 0.001				AqTot	mg/L	4/26/16	200.8	DS
Lead	< 0.001				AqTot	mg/L	4/26/16	200.8	DS
Mercury	< 0.0001				AqTot	mg/L	4/26/16	200.8	DS
Molybdenum	< 0.001				AqTot	mg/L	4/26/16	200.8	DS
Selenium	< 0.001				AqTot	mg/L	4/26/16	200.8	DS
Thallium	< 0.001				AqTot	mg/L	4/26/16	200.8	DS



Report Date: May 10, 2016

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Field Custody: Client Client/Field ID: 155246 SB-1

PWS ID# Sample Collection : 4-25-16/1441 Lab ID No: 16.4611 Lab Custody Date: 5-3-16/0935 Sample Description: Water

CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.7 ± 0.4	Calo	Calc	0,5
4020	Radium-226	pCl/L	0.5 ± 0.2	5-5-16/1610	EPA 903.0	0.2
4030	Radium-228	pCi/L	0.2 ± 0.4	5-9-16/1523	EPA Ra-05	0.5
	2 <sup>8</sup>			N		

Alpha Standard: Th-230

James W. Hayes Laboratory Manager

Test results meet all requirements of the NETAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

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4



Report Date: May 10, 2016

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field C	ustody:	Client
Client/	Field ID:	155246
		SB-4
entration of the second se		· · ·
DWC TD#		

Sample Collection :	4-25-16/0957
Lab ID No:	16.4612
Lab Custody Date:	5-3-16/0935
Sample Description:	Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
401Q	Radium-226 + Radium-228	pCi/L	0.3±0.4	Calc	Calc	0.5
4020	Radium-226	pCi/L	$0.3 \pm 0.3$	5-9-16/1119	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.0±094	5-9-16/1523	EPA Ra-05	0.5

Alpha Standard: Th-230

amer ut Hager James W. Hayes 🛛

Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample (s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

KNL ENVIROMENTAL TESTING, INC. | 3202 NORTH FLORIDA AVENUE | TAMPA, FLORIDA 33603 813.229.2879 | KNLENVIRONMENTAL.COM

#### DOH Certification #E84025



Report Date: May 10, 2016

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	155246
	SB-6
	•

PWS ID# Sample Collection : 4-25-16/1001 Lab ID No: 16.4613 Lab Custody Date: 5-3-16/0935 Sample Description: Water

ame w Hages

James W. Hayes Laboratory Manager

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Résults	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.4 ± 0.4	Calc	Calc	0.5
4020	Radium-226	pCi/L	0.4 生 0.3	5-9-16/1119	EPA 903.0	Q.3
4030	Radium-228	pCi/i	0.0 ± 0.,4	5-9-16/1523	EPA Ra-05	0.5

Alpha Standard, Th-230

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

#### Page 1 of 1

KNL ENVIROMENTAL TESTING, INC. ] 3202 NORTH FLORIDA AVENUE | TAMPA, FLORIDA 33603 813.229,2879 [ KNLENVIRONMENTAL.COM



Report Date: May 10, 2016

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody	с. <mark>1</mark>	Client	
Client/Field	ID:	155246	
		SB-13	

PWS ID# Sample Collection : 4-25-16/1240 Lab ID No: 16.4614 Lab Custody Date: 5-3-16/0935 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Methöd De Li	tection mit
4010	Radium-226 + Radium-228	pCi/L	0,5±0.4	Calc	Calc	0.5
4020	Radium-226	pC1/L	0,4 ± 0,3	5-9-16/1119	EPA 903.0	Ŏ <u>+</u> 4
4030	Radium=228	pC1/L	0.1 ± 0.4	5-9+16/1523	EPA Ra-05	0'. 5

Alpha Standard: Th-230

amee W Nage James W. Haves Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

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KNL ENVIROMENTAL TESTING, INC. | 3202 NORTH FLORIDA AVENUE | TAMPA, FLORIDA 33803 813.229.2879 | KNLENVIRONMENTAL.COM



Report Date: May 10, 2016

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field	Custod	Y:	Client	
Client	/Field	ID:	155246	
			SB-14	÷
•	and the second s	•		,

PWS ID# Sample Collection : 4-25-16/1240 Lab ID No: 16.4615 Lab Custody Date: 5-3-16/0935 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	$1.0 \pm 0.4$	Calc	Calc	0.5
4020	Radium-226	pC1/L	0.8 ± 0.4	5- <b>9-16/11</b> 19	EPA 903.0	0.5
4030	Radium-228	pCi/L	0.2 ± 0.4	5-9-16/1523	EPA Ra-05	0.5

Alpha Standard: Th-230

Camer W Hayer James W. Haves Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

KNL ENVIROMENTAL TESTING, INC. 3202 NORTH FLORIDA AVENUE | TAMPA, FLORIDA 33603 813.229.2879 [ KNLENVIRONMENTAL.COM

6 & Radium 228 Combined Subcontract KNL	6. 461×2.15"
	and a second
6 & Radium 228 Combined Subcontract KNL	6.4612
6 & Radium 228 Combined Subcontract KNL	16.4613
6 & Radium 228 Combined Subcontract KNL	16.4619
	97 5-10-12
Needed by:       Preferred date       Std.       Eastern Analyt         Ilverables       Image: Std.       Please call pr         □ A+       □ B       □ B+       □ C       □ P	ical Inc. PO Number: 44442 ior to analyzing, if RUSH surcharges will be applied.
about project: pdf of results and invoice to	
les collected via Low Flow Method	v naterime Received by
	y Later line received by
Relinquishedky	y Date/Time Received by
1, NH 03301 Phone: (603)228-0525 1-800-287-0525	Fax: (603)228-4591
	& Radium 228 Combined Subcontract KNL         & Reded by: Preferred date         graphics         A+         D         A+         D         B

CHAIN-O	F-CUSTO	DY RECORD eastern an professional lat	halytical boratory services EAI SRB# 155	<b>کی کی</b> 10 کی
Sample ID	Date Sampled Matrix	aParameters	Sample Notes	
SB-14	4/25/2016 aqueous R	adium 226 & Radium 228 Combined Subcontract KNL	16.4615	
			· · · · ·	
			·	
·			Strong Me	6
EAI SRB# 155246	Project State: NH Project ID: 164	Results Needed by: Preferred date       QC Deliverables       ⊠ A     □ A+       □ B+     □ C	Eastern Analytical Inc. PO Number: 44 Please call prior to analyzing, if RUSH surchar	14.42 rges will be applied.
Company KNL Envir Address 3202 N. F Address Tampa, F	ronmental Testing Iorida Ave. L 33603	Notes about project: Email pdf of results and invoice to customerservice@eailabs.com. Samples collected via Low Flow Method	Samples Collected by:	Sen of
Account # Phone # 813-229-2	2879		Relinquished by DaterTime Re	Served by
Eastern Ana As a subcontract lab to EAI, you arising out of the performance ag acts or omissions of you as a sub	lytical, Inc. 25 Chenell Dr. will defend, indemnify and hold E painst this chain of custody but on ocontract lab, your officers, agent	<i>Concord, NH 03301 Phone: (603)228-0525</i> astern Analytical, Inc., its officers, employees, and agents harmlly in proportion to and to the extent such liability, loss, expense, s or employees	1-800-287-0525 Fax: (603)228-4591 less from and against any and all liability, loss, expense or clain, or claims for injury or damages are caused by or result from the	ns for injury or damages a negligent or intentional





May 9, 2016

Eastern Analytical, Inc. 25 Chenell Drive Concord,NH 03301

RE: Katahdin Lab Number: SJ2888 Project ID: 155246 NH 164 Project Manager: Ms. Kristen Schultz Sample Receipt Date(s): April 28, 2016

To Whom it May Concern:

Please find enclosed the following information:

- \* Report of Analysis (Analytical and/or Field)
- Chain of Custody (COC) \*
- \* Login Report

A copy of the Chain of Custody is included in the paginated report. The original COC is attached as an addendum to this report.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. The results contained in this report relate only to the submitted samples. This cover letter is an integral part of the ROA.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in an attached technical narrative or in the Report of Analysis.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Please go to http://www.katahdinlab.com/cert.html for copies of Katahdin Analytical Services Inc. current certificates and analyte lists.

Sincerely, KATAHDIN ANALYTICAL SERVICES

Auborah J Nadeau uthorized Signature

05/09/2016

Date

#### KATAHDIN ANALYTICAL SERVICES - INORGANIC DATA QUALIFIERS

The sampled date indicated on the attached Report(s) of Analysis (ROA) is the date for which a grab sample was collected or the date for which a composite sample was completed. Beginning and start times for composite samples can be found on the Chain-of-Custody.

U Indicates the compound was analyzed for but not detected above the specified level. This level may be the Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), the Limit of Detection (LOD) or Method Detection Limit (MDL) as required by the client.

Note: All results reported as "U" MDL have a 50% rate for false negatives compared to those results reported as "U" PQL "U" LOQ or "U" LOD, where the rate of false negatives is <1%.

- E Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.
- J Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), but above the Method Detection Limit (MDL).
- I-7 The laboratory's Practical Quantitation Level (PQL) or LOQ could not be achieved for this parameter due to sample composition, matrix effects, sample volume, or quantity used for analysis.
- A-4 Please refer to cover letter or narrative for further information.
- H\_ Please note that the regulatory holding time for \_\_\_\_\_\_ is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. \_\_\_\_\_\_ for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.

H1 - pH H2 - DO

H3 - sulfite

H4 - residual chlorine

- T1 The client did not provide the full volume of at least one liter for analysis of TSS. Therefore, the PQL of 2.5 mg/L could not be achieved.
- T2 The client provided the required volume of at least one liter for analysis of TSS, but the laboratory could not filter the full one liter volume due to the sample matrix. Therefore, the PQL of 2.5 mg/L could not be achieved.
- M1 The matrix spike and/or matrix spike duplicate recovery performed on this sample was outside of the laboratory acceptance criteria. Sample matrix is suspected. The laboratory criteria was met for the Laboratory Control Sample (LCS) analyzed concurrently with this sample.
- M2 The matrix spike and/or matrix spike duplicate recovery was outside of the laboratory acceptance criteria. The native sample concentration is greater than four times the spike added concentration so the spike added could not be distinguished from the native sample concentration.
- R1 The relative percent difference (RPD) between the duplicate analyses performed on this sample was outside of the laboratory acceptance criteria (when both values are greater than ten times the PQL).

MCL	Maximum Contaminant Level	NL	No limit
NFL	No Free Liquid Present	FLP	Free Liquid Present
NOD	No Odor Detected	TON	Threshold Odor Number

- D-1 As required by Method 5210B, APHA Standard Methods for the Examination of Water and Wastewater (21<sup>st</sup> edition), the BOD value reported for this sample is 'qualified' because the check standard run concurrently with the sample analysis did not meet the criteria specified in the method (198 +/- 30.5 mg/L). These results <u>may</u> not be reportable for compliance purposes.
- D-2 The measured final dissolved oxygen concentrations of all dilutions were less than the method-specified limit of 1 mg/L. The reported BOD result was calculated assuming a final oxygen concentration equal to 1 mg/L. The reported value should be considered a minimum value.
- D-3 The dilution water used to prepare this sample did not meet the method and/or regulatory criteria of less than 0.2 or 0.4 mg/L dissolved oxygen (DO) uptake over the five day period of incubation. These results <u>may</u> not be reportable for compliance purposes.



Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 SJ2888-001

 Report Date:
 5/9/2016

 PO No.:
 44443

 Project:
 155246 NH 164

Sample Description					1	Matrix	Filtered	1	Date Sampleo	d	Dat Recei	e ved	
SB-1						AQ	No(Tota	1)	04/25/201	16	04/28/2	2016	
Parameter	Resuit	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep F Method	Prepped Date	Ву	QC	Notes
LITHIUM	U 0,100	mg/L	0.100	1	0.1	EPA 200.7	5/6/16	EAM	EPA 200.7	4/29/16	TCS J	D29ICW1	



Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 SJ2888-002

 Report Date:
 5/9/2016

 PO No.:
 44443

 Project:
 155246 NH 164

Sample Description	_				ł	Matrix	Filtered	ł	Date Sample	d	Da Rece	te ived	
SB-4						AQ	No(Tota	1)	04/25/20	16	04/28	/2016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	Ву	QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	5/6/16	EAM	EPA 200.7	7 4/29/16	TCS	JD29ICW1	

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Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301

## Lab Sample ID: SJ2888-003 Report Date: 5/9/2016 PO No.: 44443 Project: 155246 NH 164

Sample Description						Matrix	Filtered	I	Date Sample	d	Date Receive	əd	- #1/****
SB-6						AQ	No(Tota	4)	04/25/20	16	04/28/20	16	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	Ву	QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	5/6/16	EAM	EPA 200.	7 4/29/16	TCS JD:	29ICW1	



Client:Eastern Analytical, Inc.Lab Sample ID:\$J2888-004Eastern Analytical, Inc.Report Date:5/9/201625 Chenell DrivePO No.:44443Concord, NH03301Project:155246 NH 164

Sample Description					1	Matrix	Filtered	I	Date Sample	d	Date Receiv	ed	
SB-13						AQ	No(Tota	i)	04/25/20	016	04/28/20	016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	By	Prep Method	Prepped Date	Ву	QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	5/6/16	EAM	EPA 200.	7 4/29/16	TCS JD	29ICW1	

Katahdin Analytical Services SJ2888 page 0000006 of 0000011



Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301

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Lab Sample ID:	SJ2888-005
Report Date:	5/9/2016
PO No.:	44443
Project:	155246 NH 164

Sample Description	ı					Matrix	Filtered	ľ	Date Sample	d	Date Receiv	ed	
SB-14	an gana din sa nganing kili tan manya di kat dan kan kan					AQ	No(Tota	1)	04/25/20	16	04/28/2	016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	Ву	QC	Notes
LITHIUM	U 0.100	ma/L	0.100	1	0.1	EPA 200.7	5/6/16	EAM	EPA 200.7	7 4/29/16	TCS JE	029ICW1	

Katahdin Analytical Services SJ2888 page 0000007 of 0000911

### Katahdin Analytical Services, LLC.

### Sample Receipt Condition Report

Client: Easter Analytical		KASPM: KSS		Sampled By: Cbat				
Project:		KIMS Entry By: 6~		Delivered By: EUPS				
KAS Work Order#: 5J2887/5J285	<i>ኛ</i> እ	KIMS Review By:	80	Received By: G~				
SDG #:	Cooler:	of	Date/Time	Rec.: 4-28-16/11:00				

Receipt Criteria	Y	N	EX*	NA	Comments and/or Resolution
1. Custody seals present / intact?		~			
2. Chain of Custody present in cooler?	/	-			
3. Chain of Custody signed by client?	~	r			
4. Chain of Custody matches samples?				•	
5. Temperature Blanks present? If not, take temperature of any sample w/ IR gun.				/	Temp (°C): ~/A
Samples received at <6 °C w/o freezing?					Note: Not required for metals (e)cept Hg soil) analysis.
Ice packs or ice present?					The lack of ice or ice packs (i.e. no attempt to begin cooling process) or insufficient ice may
If yes, was there sufficient ice to meet temperature requirements?					not meet certain regulatory requirements and may invalidate certain data.
If temp. out, has the cooling process begun (i.e. ice or packs present) and sample collection times <6hrs., but samples are not yet cool?				2	Note: No cooling process required for metals (except Hg soil) analysis.
6. Volatiles:		ļ			
Aqueous: No pubble larger than a pea?	<b> </b>	<u>.</u>			
Received in airtight container?				//	
Received in methanol?					
Methanol covering soil?				-	
D.I. Water - Received within 48 hour HT?					
Air: Refer to KAS COC for canister/flow controller requirements.	√ if a	ir inclu	ided	·	
7. Trip Blank present in cooler?					
8. Proper sample containers and volume?					
9. Samples within hold time upon receipt?	J				
10. Aqueous samples properly preserved? Metals, COD, NH3, TKN, O/G, phenol, TPO4, N+N, TOC, DRO, TPH – pH <2 Sulfide - >9 Cvanide – pH >12				<u> </u>	
* Log-In Notes to Exceptions: document any p	robler	ns wit	th sam	iples of	or discrepancies or pH adjustments.
				1	- p

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## CHAIN-OF-CUSTODY RECORD eastern analytical professional laboratory services

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EAI SRB# 155246

		SJ	2888	<i></i>	······································	EAI SRB# 1	55246
Sample ID	Date Sampled	J Matrix	aParameters			Sample Note	S
SB-1	4/25/2016   14:41	aqueous S	Subcontract - Metals by ICP-AES	Lithium			
SB-4	4/25/2016 9:57	aqueous S	Subcontract - Metals by ICP-AES	Li thium			
SB-6	4/25/2016 10:01	aqueous S	Subcontract - Metals by ICP-AES	Lithium			
SB-13	4/25/2016 12:40	aqueous S	Subcontract - Metals by ICP-AES	Lithium			
-			- - - -				
EAI SRB#	155246 Project St Projec	ate: NH t ID: 164	Results Needed by: Preferred QC Deliverables ⊠ A □ A+ □ B □ B+	date	Eastern Analytical In Please call prior to a	nc. PO Number: Inalyzing, if RUSH sui	44443 charges will be applied
Company Address Address Address	Katandin Analytical P.O. Box 720 Westbrook, ME 040	Services, )98	Email pdf of results and invo customerservice@eailabs.c Samples collected via Low I	oice to om. Flow Method	Samples Collected by	y:	Received by
Fax Number	926-7777		1		Relinquished by	Ч-2,9-16 /11/00 Date/Time	Received by
) As a subcontract	Eastern Analytical, Inc. 2	5 Chenell Dr.	: Concord, NH 03301 Ph Eastern Analytical, Inc., its officers, en	one: (603)228-0525 nployees, and agents he	5 1-800-287-0525 F armless from and against any and a	ax: (603)228-4591 Il liability, loss, expense o	r claims for injury or damage

arising out of the performance against this chain of custody but only in proportion to and to the extent such liability, loss, expense, or claims for injury or damages are caused by or result from the negligent or intentional -acts or omissions of you as a subcontract lab, your officers, agents or employees

# CHAIN-OF-CUSTODY RECORD eastern analytical *SJ-88*

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
SB-14	4/25/2016 12:54	aqueous	Subcontract - Metals by ICP-AES	Lithium

				,		
EAI SRB#	155246	Project State: NH	Results Needed by: Preferred date	Eastern Analytica	I Inc. PO Number:	44443
		Project ID: 164	$\left[ \square A \square A^{*} \square B \square B^{*} \square C \square P^{*} \right]$	Please call prior	to analyzing, if RUSH su	rcharges will be a
Company	Katahdin A	nalytical Services,	Notes about project:			
Address	P.O. Box 7	20	Email pdf of results and invoice to			
Address	Westbrook	, ME 04098	Samples collected via Low Flow Method	Samples Collecte	HULL ATTHE ISSE	TB.
Account #				Relinquished by	Date/Time	Received by
Phone #	926-7777		1		<u> </u>	200
x Number				Relinquished by	Date/Time	Received by
	Eastern Analy	rtical. Inc. 25 Chenell Dr	: Concord, NH 03301 Phone: (603)228-0525	1-800-287 <b>-0525</b>	Fax: (603)228-4591	

EAI SRB# 155246

A A A TZ + 1-	Katahdin Analytical Services	
/ VV <u>Natahdin</u> ANALYTICAL SERVICES	Login Chain of Custody Report (Ino1) May. 06, 2016 08:16 AM	Page: 1 of 1
Login Number: SJ2888	Quote/Incoming:	-
Account:EASTAN001 Eastern Analytical, Inc.	NoWeb Login Information:	
Project:	ANALYSIS INSTRUCTIONS CHECK NO. CLIENT PO#	: : : 44443
Primary Report Address: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive	CLIENT PROJECT MANAGE CONTRACT COOLER TEMPERATURE DELIVERY SERVICES EDD FORMAT	n/a UPS west.x/s
Concord,NH 03301 Primary Invoice Actives:	LOGIN INITIALS PM PROJECT NAME	GN KSS 155246 NH 164
Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive	QC LEVEL REGULATORY LIST REPORT INSTRUCTIONS	email pdf, EDD and invoice to
Concord,NH 03301 Report CC Addresses:	SDG ID SDG STATUS	

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#### Invoice CC Addresses:

Laboratory Sample ID	y Clie San	nt Iple Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Mailed	
SJ2888-1	SB-1		25-APR-16 14:41	28-APR-16			10-MAY-16	· _ · · · · · · · · · · · · · · · · · ·	
Matrix	Pradu	cf	Hold Date (shortest)	Bottle Type		Bottle (	Count	Comments	
Aqueous	\$ E200.7	'-LITHIUM	22-OCT-16	250mL Plasti	c+HNO3				
Aqueouis	S E200.7	-PREP	22-OCT-16	250mL Plastic	c+HNO3		•	•	
SJ2888-2	SB-4		25-APR-16 09:57	28-APR-16		<u> </u>	10-MAY-16	1. 1	******
Matrix	Produ	ct	Hold Date (shortest)	Bottle Type		Bottle (	Count	Comments	
Aqueous	S E200.7	-LITHIUM	22-OCT-16	250mL Plasti	c+HNO3				
Aqueous	S E200.7	-PREP	22-OCT-16	250mL Plasti	c+HNO3				
SJ2888-3	SB-6	<del>11 11 </del>	25-APR-16 10:01	28-APR-16		<u></u>	10-MAY-16		
Matrix	Produ	ct	Hold Date (shortest)	Bottle Type		Bottle (	Count	Comments	
Aqueous	S E200,7	-LITHIUM	22-OCT-16	250mL Plastic	c+HNO3				
Aqueous	S E200.7	-PREP	22-DCT-16	250mL Plastic	C+HNO3				
SJ2888-4	SB-13		25-APR-16 12:40	28-APR-16			10-MAY-16	<u></u>	
Matrix	Produ	ct	Hold Date (shortest)	Bottle Type	<u> </u>	Bottle (	Gaunt	Comments	
Aqueous	S E200.7	-LITHIUM	22-OCT-16	250mL Plasti	c+HNO3				
Aqueous	S E200.7	PREP	22-OCT-16	250mL Plastic	c+HNO3				
SJ2888-5	SB-14	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	25-APR-16 12:54	28-APR-16			10-MAY-16	- <u></u>	
Matrix	Pradu	ct	Hold Date (shortest)	Bottle Type		Bottle (	Count	Comments	
Aqueous	S E200.7	-LITHIUM	22-OCT-16	250mL Plastic	C+HNO3				
Aqueous	\$ E200.7	-PREP	22-OCT-16	250mL Plasti	C+HNO3				
								······································	

Total Samples: 5

Total Analyses:

: 10



## CHAIN-OF-CUSTODY RECORD

155246 PSCNH1 p/.52

	Date/ I Ime Composites need start			
Sample IDs	and stop dates/times	Matrix	Parameters and Sample Notes	# of containers
SB-1	4/25/16	aqueous Grab or Comp	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/ICPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mo.Se.T AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.TI	8
Sampler conf	irms ID and parameters	s are accurate	Circle preservative/s: HCL (HNO) H <sub>2</sub> SO <sub>4</sub> NaOH MEOH Na <sub>2</sub> S <sub>2</sub> O <sub>4</sub> (CB) Dissolved Sample F	ield Filtered 🔀
SB-4	4/25/16	aqueous	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/ICPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mo.Se.T	- آ
	09:57	Grab or Comp	AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	8
Sampler conf	irms ID and parameters	s are accurate	Circle preservative/s: HCL (HNO) H2SO4 NaOH MEOH Na2S203	ield Filtered 🔀
SB-6	4/25/16	aqueous	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/ICPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mo.Se.T AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	1 8
	10:0)	Grab or Comp		
Sampler confi	irms ID and parameters	s are accurate	Circle preservative/s: HCL (HO) H <sub>2</sub> SO <sub>4</sub> NaOH MEOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ICE) Dissolved Sample F	ield Filtered 📈
SB-13	4/25/16	aqueous Grabor Comp	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/ICPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mo.Se.T AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	8
	12:40			· , , <u> </u>
Sampler confi	irms ID and parameters	s are accurate	Circle preservative/s: HCL (HNO, H2SO4 NaOH MEOH Na2S203 (ICE)	ield Filtered X

Please ensure this auto COC is accurate, adheres to permit or sampling requirements for this sampling event, and modify as necessary.

EAI Project ID 164	Results Needed by: Preferred date	ReportingOptions		
Project Name Merrimack Station Coal Ash Landfill -	Notes:	НС	🗆 NO FAX	PO# PO#
State NH			Partial FAX	Quote#:
Client (Pro Mgr) Allan Palmer	Samples collected via Low Flow Method 2×125m	PDF prelim, NO FAX		- 10/35 35
Customer Eversource Energy	Please HOLD dissolved metals analyses	L] e-mail Login Confirmation		
Address 780 North Commercial Street, PO		Samples Collected by: Jo	5,5L/EAL	
City Manchester NH 03105-0330		14/25/	16 1725 11	<u> III II AN</u> ACT
Phone 669-4000 Fax Choose one:	QC deliverables	Refinquished by	Date/Time	Received by 7
Email: allan.palmer@eversource.com	🛛 А 🗆 А+ 🗆 В 🗍 В+ 🔲 С 🔲 РС	Relinguished by	Date/Time	Received by
Direct 634-2439 Eastern Ana	alytical, Inc. www.eailabs.com   800.287.0	525   customerservice@eail	labs.com	·

	ΛΛ		CHAIN-OF-CUSTODY RECORD	155246 <sup> </sup>
Sample IDs	Date/Time Composites need start and stop dates/times	Matrix	Parameters and Sample Notes	# of containers
SB-14	4/25/1C 12:54	aqueous Grab or Comp	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/ICPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mo.Se.T AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	1 8
Sampler confir	I ms ID and parameters	s are accurate	Circle preservative/s: HCL (ANO), H <sub>2</sub> SO <sub>4</sub> NaOH MEOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (OB) Dissolved Sample F	ield Filtered

Please ensure this auto COC is accurate, adheres to permit or sampling requirements for this sampling event, and modify as necessary.

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EAI Project ID 164 Project Name Merrimack Station Coal Ash Landfill - Low Flow	Results Needed by: Preferred date Notes:	ReportingOptions	□ NO FAX	PO# PO#
State NH	Samples collected via Low Flow Method	EDD email	PDF Invoice	Quote#: 1019999
Client (Pro Mgr) Allan Palmer	Lithium sub to Katahdin - 500mi HNO3 container	PDF prelim, NO FAX	EQUIS	Toma lo Coc
Customer Eversource Energy	Please HOLD dissolved metals analyses	L e-mail Login Confirmation		
Address 780 North Commercial Street, PO		لر:Samples Collected by	L,JG/EAI	Histig III . A.
City Manchester NH 03105-0330	·	4/25	5/16 1725 H	<u>IIIII I AU</u> DIA
Phone 669-4000 Fax Choose one:	QC deliverables	Religioushed by	Date/Time	Received by 7
Email: allan.palmer@eversource.com		Relinquished by	Date/Time	Received by
Direct 634-2439 Eastern Ana	alytical, Inc. www.eailabs.com   800.287.0	525   customerservice@eai	labs.com	

June 2016


Allan Palmer Eversource Energy 780 North Commercial Street, PO Box 330 Manchester NH 03105-0330 Subject: Laboratory Report Eastern Analytical, Inc. ID: 156851



Client Identification: Merrimack Station Coal Ash Landfill - Low Flow

Date Received: 6/6/2016

Report revision/reissue: Revision, replaces report dated 6/23/2016

Revision information: Wet chem report revised.

Dear Mr. Palmer:

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

Solid samples are reported on a dry weight basis, unless otherwise noted

- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R:%Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

anne/ Lorraine Olashaw, Lab Director

24.16 Date

# of pages (excluding cover letter)

25 Chenell Drive | Concord, NH 03301 | 800.287.0525 | www.eailabs.com

### SAMPLE CONDITIONS PAGE

EAI ID#: 156851

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Temperat Acceptable t	ure upon receipt (°C): 3. emperature range (°C): 0-6	3.1 Received on ice or cold packs (Yes/No): Y								
Lab ID	Sample ID	Date Received	Date Sampled	Sample % Dry Matrix Weight	Exceptions/Comments (other than thermal preservation)					
156851.01	SB-1	6/6/16	6/6/16	aqueous	Adheres to Sample Acceptance Policy					
156851. <b>0</b> 2	SB-4	6/6/16	6/6/16	aqueous	Adheres to Sample Acceptance Policy					
156851.03	SB-6	6/6/16	6/6/16	aqueous	Adheres to Sample Acceptance Policy					
156851.04	SB-13	6/6/16	6/6/16	aqueous	Adheres to Sample Acceptance Policy					
156851.05	SB-14	6/6/16	6/6/16	aqueous	Adheres to Sample Acceptance Policy					

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitibility, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.

All results contained in this report relate only to the above listed samples.

References include:

1) EPA 600/4-79-020, 1983

2) Standard Methods for Examination of Water and Wastewater, 20th Edition, 1998 and 22nd Edition, 2012

3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB

4) Hach Water Analysis Handbook, 2nd edition, 1992

Eastern Analytical, Inc.

www.eailabs.com | 800.287.0525 | customerservice@eailabs.com

# M

LABORATORY REPORT

EAI ID#: 156851

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	SB-1	SB-4	SB-6	SB-13					
Lab Sample ID:	156851.01	156851.02	156851.03	156851.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	6/6/16	6/6/16	6/6/16	6/6/16		A	nalvsis		
Date Received:	6/6/16	6/6/16	6/6/16	6/6/16	Units	Date	Time	Method A	nalysi
Solids Dissolved	140	230	270	320	mg/L	06/08/16	8:30	2540C-97	ATA
Fluoride	< 0.1	< 0.1	< 0.1	< 0.1	mg/L	06/14/16	19:57	300.0	KD
Sulfate	7	10	8	7	mg/L	06/14/16	19:57	300.0	KD
Chloride	55	110	140	170	mg/L	06/07/16	9:15	4500CIE-97	KD

Sample ID:	SB-14
Lab Sample ID:	156851.05
Matrix:	aqueous
Date Sampled:	6/6/16
Date Received:	6/6/16
Solids Dissolved	100
Fluoride	< 0.1
Sulfate	4
Chloride	32

Analysis												
Date	Time	Method Ar	nalyst									
06/08/16	8:30	2540C-97	ATA									
06/14/16	20:58	300.0	KD									
06/14/16	20:58	300.0	KD									
06/07/16	9:26	4500CIE-97	KD									
	Ana Date 06/08/16 06/14/16 06/07/16	Analysis           Date         Time           06/08/16         8:30           06/14/16         20:58           06/14/16         20:58           06/07/16         9:26	Analysis           Date         Time         Method Aa           06/08/16         8:30         2540C-97           06/14/16         20:58         300.0           06/14/16         20:58         300.0           06/07/16         9:26         4500CIE-97									

2

## M

EAI ID#: 156851

200.8

200.8

200.8

200.8

200.8

6/7/16

6/7/16

6/7/16

6/7/16

6/7/16

DS

DS

DS

DS

DS

3

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	SB-1	SB-4	SB-6	SB-13					
Lab Sample ID:	156851.01	156851.02	156851.03	156851.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	6/6/16	6/6/16	6/6/16	6/6/16	Analytical		Date of		
Date Received:	6/6/16	6/6/16	6/6/16	6/6/16	Matrix	Units	Analysis	Method	Analyst
Antimony	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	6/7/16	200.8	DS
Arsenic	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	6/7/16	200.8	DS
Barium	0.016	0.012	0.017	0.020	AqTot	mg/L	6/7/16	200.8	DS
Beryllium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	6/7/16	200.8	DS
Boron	< 0.05	< 0.05	< 0.05	< 0.05	AqTot	mg/L	6/7/16	200.8	DS
Calcium	8.2	8.0	9.3	9.9	AqTot	mg/L	6/7/16	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	6/7/16	200.8	DS
Chromium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	6/7/16	200.8	DS
Cobalt	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	6/7/16	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	6/7/16	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	< 0.0001	AqTot	mg/L	6/7/16	200.8	DS
Molybdenum	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	6/7/16	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	6/7/16	200.8	DS
Thallium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	6/7/16	200.8	DS
Sample ID:	SB-14								
Lab Sample ID:	156851,05								
Matrix:	aqueous								
Date Sampled:	6/6/16				Analytical		Date of		
Date Received:	6/6/16				Matrix	Units	Analysis	Method	Analyst
Antimony	< 0.001				Aq⊺ot	mg/L	6/7/16	200.8	DS
Arsenic	< 0.001				AqTot	mg/L	6/7/16	200.8	DS
Barium	0.006				AqTot	mg/L	6/7/16	200.8	DS
Beryllium	< 0.001				AqTot	mg/L	6/7/16	200.8	DS
Boron	< 0.05				AqTot	mg/L	6/7/16	200,8	DS
Calcium	7.6				AqTot	mg/L	6/7/16	200.8	DS
Cadmium	< 0.001				AqTot	mg/L	6/7/16	200.8	DS
Chromium	< 0.001				AqTot	mg/L	6/7/16	200.8	DS
Cobalt	< 0.001				AqTot	mg/L	6/7/16	200.8	DS

LABORATORY REPORT

< 0.001

< 0.0001

< 0.001

< 0.001

< 0.001

Lead

Mercury

Selenium

Thallium

Molybdenum

AqTot mg/L

AqTot mg/L

AqTot mg/L

AqTot mg/L

AqTot mg/L





June 16, 2016

Eastern Analytical, Inc. 25 Chenell Drive Concord,NH 03301

RE: Katahdin Lab Number: SJ4124 Project ID: 3949 Project Manager: Ms. Kristen Schultz Sample Receipt Date(s): June 08, 2016

To Whom it May Concern:

Please find enclosed the following information:

- \* Report of Analysis (Analytical and/or Field)
- \* Chain of Custody (COC)
- \* Login Report

A copy of the Chain of Custody is included in the paginated report. The original COC is attached as an addendum to this report.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. The results contained in this report relate only to the submitted samples. This cover letter is an integral part of the ROA.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in an attached technical narrative or in the Report of Analysis.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Please go to http://www.katahdinlab.com/cert.html for copies of Katahdin Analytical Services Inc. current certificates and analyte lists.

Sincerely, KATAHDIN ANALYTICAL SERVICES

borah J Nadeau

Authorized Signature

06/16/2016

Date

#### KATAHDIN ANALYTICAL SERVICES - INORGANIC DATA QUALIFIERS

The sampled date indicated on the attached Report(s) of Analysis (ROA) is the date for which a grab sample was collected or the date for which a composite sample was completed. Beginning and start times for composite samples can be found on the Chain-of-Custody.

U Indicates the compound was analyzed for but not detected above the specified level. This level may be the Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), the Limit of Detection (LOD) or Method Detection Limit (MDL) as required by the client.

Note: All results reported as "U" MDL have a 50% rate for false negatives compared to those results reported as "U" PQL "U" LOQ or "U" LOD, where the rate of false negatives is <1%.

- E Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.
- J Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), but above the Method Detection Limit (MDL).
- I-7 The laboratory's Practical Quantitation Level (PQL) or LOQ could not be achieved for this parameter due to sample composition, matrix effects, sample volume, or quantity used for analysis.
- A-4 Please refer to cover letter or narrative for further information.
- H\_ Please note that the regulatory holding time for \_\_\_\_\_ is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. \_\_\_\_\_ for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.

H1 - pH H2 - DO H3 - sulfite

T1 The client did not provide the full volume of at least one liter for analysis of TSS. Therefore, the PQL of 2.5 mg/L could not be achieved.

- T2 The client provided the required volume of at least one liter for analysis of TSS, but the laboratory could not filter the full one liter volume due to the sample matrix. Therefore, the PQL of 2.5 mg/L could not be achieved.
- M1 The matrix spike and/or matrix spike duplicate recovery performed on this sample was outside of the laboratory acceptance criteria. Sample matrix is suspected. The laboratory criteria was met for the Laboratory Control Sample (LCS) analyzed concurrently with this sample.
- M2 The matrix spike and/or matrix spike duplicate recovery was outside of the laboratory acceptance criteria. The native sample concentration is greater than four times the spike added concentration so the spike added could not be distinguished from the native sample concentration.
- R1 The relative percent difference (RPD) between the duplicate analyses performed on this sample was outside of the laboratory acceptance criteria (when both values are greater than ten times the PQL).

MCL	Maximum Contaminant Level	NL	No limit
NFL	No Free Liquid Present	FLP	Free Liquid Present
NOD	No Odor Detected	TON	Threshold Odor Number

- D-1 As required by Method 5210B, APHA Standard Methods for the Examination of Water and Wastewater (21<sup>st</sup> edition), the BOD value reported for this sample is 'qualified' because the check standard run concurrently with the sample analysis did not meet the criteria specified in the method (198 +/- 30.5 mg/L). These results <u>may</u> not be reportable for compliance purposes.
- D-2 The measured final dissolved oxygen concentrations of all dilutions were less than the method-specified limit of 1 mg/L. The reported BOD result was calculated assuming a final oxygen concentration equal to 1 mg/L. The reported value should be considered a minimum value.
- D-3 The dilution water used to prepare this sample did not meet the method and/or regulatory criteria of less than 0.2 or 0.4 mg/L dissolved oxygen (DO) uptake over the five day period of incubation. These results <u>may</u> not be reportable for compliance purposes.

H4 - residual chlorine

### REPORT OF ANALYTICAL RESULTS nalytical, Inc. Lab Sample ID: SJ4124-001

Client:Eastern Analytical, Inc.Lab Sample ID:SJ4124-00Eastern Analytical, Inc.Report Date:6/16/201625 Chenell DrivePO No.:156851Concord, NH03301Project:3949

atandii

Sample Description						Matrix Filtered			Date Sample	d	Date Received	
SB-1				AQ			No(Total)		06/06/2016		06/08/2016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	6/14/16	EAM	EPA 200.	7 6/14/16	JSJF14ICW1	

#### REPORT OF ANALYTICAL RESULTS

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301

#### SJ4124-002 Lab Sample ID: Report Date: 6/16/2016 PO No.: Project:

15	6851	
39	49	
	Rota	Date

Sample Description					!	Matrix	Filtered No(Total)		Sampled 06/06/2016		Received	
SB-4				AQ							06/08/2016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By QC	Notes
LITHIUM	U 0.100	ma/L	0,100	1	0.1	EPA 200.7	6/14/16	EAM	EPA 200.1	7 6/14/16	JS JF14ICW1	



#### **REPORT OF ANALYTICAL RESULTS**

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Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 SJ4124-003

 Report Date:
 6/16/2016

 PO No.:
 156851

 Project:
 3949

Sample Description						Matrix	Filtered		Date Sample	d	Date Received		
SB-6	ar film a chu an an ann ann an ann an ann ann ann an				AQ		No(Total)		06/06/2016		06/08/2016		
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	Ву	QC	Notes
LITHIUM	U 0.100	ma/L	0,100	1	0.1	EPA 200.7	6/14/16	EAM	EPA 200,	7 6/14/16	JS J	F14ICW1	

#### Natahdin new sowess

#### **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301

SJ4124-004 Lab Sample ID: Report Date: 6/16/2016 PO No.: 156851 Project:

3949

Sample Description					I	Matrix	Filtered	ĺ	Date Sampled		Date Received	
SB-13				AQ		No(Total)		06/06/2016		06/08/2016		
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep F Method	repped Date	By QC	Notes
LITHIUM	U 0,100	mg/L	0.100	1	0.1	EPA 200.7	6/14/16	EAM	EPA 200.7	6/14/16	JS JF14ICW1	

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#### REPORT OF ANALYTICAL RESULTS

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301

atahdir suoru

 Lab Sample ID:
 SJ4124-005

 Report Date:
 6/16/2016

 PO No.:
 156851

 Project:
 3949

Sample Description						Matrix	Filtered		Date Sample	đ	Date Received	
SB-14		AQ			No(Total)		()	06/06/2016		06/08/2016	*****	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By QC	Notes
LITHUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	6/14/16	EAM	EPA 200.	7 6/14/16	JSJF14ICW1	

Katahdin Analytical Services, LLC.				Sample Receipt Condition Repo			
Client: Eastern Analytical			S PM:	KS	Sampled By: Cliss		
Project:		KIM	IMS Entry By:		Ap Delivered By: ()P5		
KAS Work Order#: ST 4/24			KIMS Review		Received By: AT		
SDG # Cooler:		of /	****************		Date/Time Rec.: / / //// //50		
Receipt Criteria	Y	Ŋ	EX*	NA	Comments and/or Resolution		
1. Custody seals present / intact?	an a	]					
2. Chain of Custody present in cooler?	17		1				
3. Chain of Custody signed by client?							
4. Chain of Custody matches samples?							
5. Temperature Blanks present? If not, take temperature of any sample w/ IR gun.				- /	Temp (°C): 3,1		
Samples received at <6 °C w/o freezing?	20 A FAST LODA			/	Note: Not required for metals (except Hg soil) analysis		
Ice packs or ice present?		ļ		1	The lack of ice or ice packs (i.e. no attempt		
If yes, was there sufficient ice to meet temperature requirements?				1	not meet certain regulatory requirements an may invalidate certain data.		
<ul> <li>If temp. out, has the cooling process begun (i.e. ice or packs present) and sample collection times &lt;6hrs., but samples are not vet cool?</li> </ul>					Note: No cooling process required for meta (except Hg soil) analysis.		
6. Volatiles:		1		17			
Aqueous: No bubble larger than a pea?	Į	ļ.					
Soll/Sediment:		-					
Received in airtight container?	Į	1		1_/			
Received in methanol?				<u> </u>			
Methanol covering soil?							
D.I. Water - Received within 48 hour HT?	<u> </u>	1					
Air: Refer to KAS COC for canister/flow	√ifa	air inc	luded				
7. Trip Blank present in cooler?					/		
8 Proper sample containers and volume?		1.					
9. Samples within hold time upon receipt?				oster programme			
40 Agunour gozploc property procented?							
Metals, COD, NH3, TKN, O/G, phenol,	. ,						
TPO4, N+N, TOC, DRO, TPH – pH <2		4					
Suinde - >9	· · · · · ·						
Cyanide – pH >12							
* Log-In Notes to Exceptions: document an	iy proble	ems v	with sa	mples	or discrepancies or pH adjustments.		
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QA-048 - Revision 6 - 07/20/2015

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1 8 9 11 190 0	Phone # Number	Address Address Address	AI SRB#		د <u>۔</u> س	<u>,</u> Ф	-4.		
	(ZUZ) 07	600 Tech Scarbord	<b>156851</b>						
	4-2400	nmology bugh, ME	Project Proj		6/6/2016	6/6/2016 9:24	6/6/2016 9:41	6/6/2016 12:40	Date Sam
		Way 04074	State: NH ect ID: 39		aqueou	aqueo	aqueo	aqueo	UST oled Matrix
		Ema custo custo	$\frac{19}{2000}$		ıs Subcont	IS Subcont	IS Subcont	ıs Subconti	
		il pdf of resu omerservice als: Lithiu tainers p	<u>is Needed b</u> eliverables		act - Metals	act - Metals	act - Metals	act - Metals	aParamete
		uts and inv @eailabs.c um only: er sampl	y: Preferrec B B+B+		by ICP-AES	by ICP-AES	by ICP-AES	by ICP-AES	
		oice to xom. 2 - 250						A STATUS AND A STATU	profes
			P V						ern an sional lab
	Relinqu	Sample	Eastern Please						alytical oratory se
	ished by	s Collected	Analytical s call prior to						nvices
	Date/	by: Date	Inc. PO I analyzing,						E A
	Time	116 1.	Number: <i>If RUSH su</i>			ACCUMATE AND A STATE A		La vite de la constanta de la c	SRB#
	Received	Received	4460 rcharges w						* 560 50 50 5
	by iso	2	ש וו be applie			1000 H 10 10 10 10 10 10 10 10 10 10 10 10 10		- 1667 / 1/7 JULY 14	10011111111111111111111111111111111111

		NV DEADDeastern and	alytical		13
		professional lab	oratory services	EAI SRB# 1561	
Sample ID	Date Sampled Matrix	aParameters	a da anticipat de la constant de la La constant de la cons	Sample Notes	
SB-14	6/6/2016 aqueous S	ubcontract - Metals by ICP-AES			
eoitvlen& ribdeteX					
EAI SRB# 156	851 Project State: NH Project ID: 3949	Results Needed by: Preferred date	Eastern Analytical In Please call prior to ar	c. PO Number: 44	子んの子 'ges will be applied.
Address Scar	hdin Analytical Services, Technmology Way borough, ME 04074	Notes about project: Email pdf of results and invoice to customerservice@eailabs.com. Metals: Lithium only: 2 - 250ml	Samples Collected by	21 01/10/0	SAN DE
Phone # (207	) 874-2400	containers per sample	reinquiswed by		OSII ANNON
, Fax Number			<b>Relinquished</b> by	Date/Time Rev	ceived by
Easter Has a subcontract lab to E/	m Analytical, Inc. 25 Chenell Dr. A, you will defend, indemnify and hold E	Concord, NH 03301 Phone: (603)228-0525 astern Analytical, Inc., its officers, employees, and agents harmk	1-800-287-0525 Fe less from and against any and all	tx: (603)228-4591 Hability, loss, expense or claim	ts for injury or damages
Carising out of the performation of you a	ance against this chain of custody but or ts a subcontract lab, your officers, agent	inverse in proportion to and to the extent such liability, loss, expense, or so remployees	or claims for injury or damages a	re caused by or result from the	a negligent or intentional

Katahdin Analytical Services sastry age 000000 fo 0100000 age 4214L2 services listing

13

AAT 11.	Katahdin Analytical Services	
ANALYTICAL SERVICES	Login Chain of Custody Report (Ino1) Jun. 08, 2016 02:01 PM	Page: 1 of 1
Login Number: SJ4124	Quote/incoming:	
Account:EASTAN001 Eastern Analytical Inc	NoWeb Login Information:	
	ANALYSIS INSTRUCTIONS	:
Project:	CHECK NO.	:
	CLIENT PO#	: 156851
Primary Report Address:	CLIENT PROJECT MANAGE	:
Eastern Analytical, Inc.	CONTRACT	:
Eastern Analytical, Inc.	COOLER TEMPERATURE	: 3.1
25 Chenell Drive	DELIVERY SERVICES	: UPS
	EDD FORMAT	: west.xls\
Concord,NH 03301	LOGIN INITIALS	: AP
n-customerservice@eailabs.com	PM	: KSS
Filmary invoice Address.	PROJECT NAME	: 3949
Eastern Analytical, Inc.	QC LEVEL	: 1
Eastern Analytical, Inc.	REGULATORY LIST	:
25 Chenell Drive	REPORT INSTRUCTIONS	<ul> <li>email pdf, EDD and invoice to customerservice@eailabs.com, no HC</li> </ul>
Concord,NH 03301	SDG ID	:
Report CC Addresses:	SDG STATUS	:

#### Invoice CC Addresses:

\$

Laboratory Sample ID	r Client Sample Number	Collect Date/Time	Receive Date PR	Verbal Date	Due Date	Mailed
SJ4124-1	SB-1	06-JUN-16 12:40	08-JUN-16	landinderfalentertation	18-JUN-16	ġġġġġġġġġġġġġġġġġġġġġġġġġġġġġġġġġġġġġ
<i>Matrix</i> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 03-DEC-16 03-DEC-16	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count 3 3	Ę	Comments
\$J4124-2	SB-4	06-JUN-16 09:41	08-JUN-16	\$2-04219749-444499986478-0449-44499864789494478494965478494965555-44494	18-JUN-16	ĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸ
Matrix Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	<i>Hold Date (shortest)</i> 03-DEC-16 03-DEC-16	Bottle Type 250mL Plastic+HNO 250mL Plastic+HNO	Bottle Cours 3 3	f	Comments
SJ4124-3	SB-6	06-JUN-16 09:24	08-JUN-16		18-JUN-16	
<i>Matrix</i> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 03-DEC-16 03-DEC-16	Bottle Type 250mL Plastic+HNO 250mL Plastic+HNO	Bottle Coum } }	ť	Comments
SJ4124-4	SB-13	06-JUN-16 12:14	08-JUN-16		18-JUN-16	₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩
<i>Matrix</i> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 03-DEC-16 03-DEC-16	Bottle Type 250mL Plastic+HNO 250mL Plastic+HNO	Bottle Coun 3 3	t	Comments
SJ4124-5	SB-14	06-JUN-16 11:20	08-JUN-16		18-JUN-16	ĦĦſŢŎĿĨĊĬŦŦŎŎĦĸĸĸŦĊĊŢŢŎſŎŢŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎ
Matrix Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 03-DEC-16 03-DEC-16	Bottle Type 250mL Plastic+HNO 250mL Plastic+HNO	Bottle Coun 3 3	t	Comments
Total Sam	ples: 5	Total Analyses:	10			<u>an an a</u>

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Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	156851
	SB-1

PWS ID# Sample Collection : 6-6-16/1240 Lab ID No: 16.6289 Lab Custody Date: 6-10-16/0945 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Delection Limit
4010	Radium-226 + Radium-228	pCi/L	0.8 ± 0.5	Calc	Calc	0.7
4020	Radium~226	pCi/L	0.6 ± 0.3	6-14-16/0941	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.2 ± 0.5	6-17-16/1029	EPA Ra-05	0.7

Alpha Standard: Th-230

James W Hager

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody: Client Client/Field ID: 156851 SB-4

PWS ID# Sample Collection : 6-6-16/0941 Lab ID No: 16.6290 Lab Custody Date: 6-10-16/0945 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-22	28 pCi/L	0,6 ± 0.5	Calc	Calc	0.7
4020	Radium-226	pCi/L	0.2 ± 0.2	6-14-16/0941	EPA 903.0	0.3
4030	Radium-228	pCi/L	0.4±0.5	6-17-16/1029	EPA Ra-05	0.7

Alpha Standard: Th-230

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	156851
	SB-6

PWS ID# Sample Collection : 6-6-16/0924 Lab ID No: 16.6291 Lab Custody Date: 6-10-16/0945 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.5 ± 0.5	Calc	Calc	0.7
4020	Radium-226	pCi/L	0.5 ± 0.3	6-14-16/0941	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.0 ± 0.5	6-17-16/1029	EPA Ra-05	0.7

Alpha Standard: Th-230

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	156851
	SB-13

PWS ID# Sample Collection : 6-6-16/1214 Lab ID No: 16.6292 Lab Custody Date: 6-10-16/0945 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.8 ± 0.5	Calc	Calc	0.7
4020	Radium-226	pCi/L	0.8 ± 0.3	6-14-16/0941	EPA 903.0	0.3
4030	Radium-228	pCi/L	$0.0 \pm 0.5$	6-17-16/1029	EPA Ra-05	0.7

Alpha Standard: Th-230

James W Hayes

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	156851
	SB-14

PWS ID# Sample Collection : 6-6-16/1120 Lab ID No: 16.6293 Lab Custody Date: 6-10-16/0945 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.7 ± 0.5	Calc	Calc	0.7
4020	Radium-226	pCi/L	0.5 ± 0.2	6-14-16/0941	EPA 903.0	0.4
4030	Radium-228	pCi/L	$0.2 \pm 0.5$	6-17-16/1029	EPA Ra-05	0.7

Alpha Standard: Th-230

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

### CHAIN-OF-CUSTODY RECORD eastern analytical

professional laboratory services

EAI SRB# 156851

Sample ID	Date Sample	d Matrix	aParameters	Sample Notes
SB-1	6/6/2016 12:40	aqueous	Radium 226 & Radium 228 Combined Subcontract KNL	14.6289
SB-4	6/6/2016 9:41	aqueous	Radium 226 & Radium 228 Combined Subcontract KNL	16.6290
SB-6	6/6/2016 9:24	aqueous	Radium 226 & Radium 228 Combined Subcontract KNL	16.6291
SB-13	6/6/2016 12:14	aqueous	Radium 226 & Radium 228 Combined Subcontract KNL	16.6292
				94 6-21-16
EAI SRB#	<b>156851</b> Project St Project	ate: NH t ID: 3949	Results Needed by:Preferred dateSEQC Deliverables $\square A \square A + \square B \square B + \square C \square P$	Eastern Analytical Inc. PO Number: 44602 Please call prior to analyzing, if RUSH surcharges will be applied.
Company	KNL Environmental	Testing	Notes about project:	
Address	3202 N. Florida Ave.		Email pdf of results and invoice to	
Address	Tampa, FL 33603		customerservice@eanabs.com.	Samples Collected by:
Account #				Relinquished by Date/Time Received by
Phone #	813-229-2879		1	Coll 21190 11-01-0
Fax <sub>-</sub> Number	813-229-0002			Relinquished by Date/Time Received by
р -	Eastern Analytical, Inc. 2:	5 Chenell Dr.	. Concord, NH 03301 Phone: (603)228-0525	1-800-287-0525 Fax: (603)228-4591

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Phone: (603)228-0525

Fax: (603)228-4591

As a subcontract lab to EAI, you will defend, indemnify and hold Eastern Analytical, Inc., its officers, employees, and agents harmless from and against any and all liability, loss, expense or claims for injury or damages arising out of the performance against this chain of custody but only in proportion to and to the extent such liability, loss, expense, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of you as a subcontract lab, your officers, agents or employees

### CHAIN-OF-CUSTODY RECORD eastern analytical professional laboratory services

EAI SRB# 156851

Sample ID	Date Sampled	Matrix	aParameters		Sample Notes
SB-14	6/6/2016 11:20	aqueous	Radium 226 & Radium 228 Combined Subcontract KNL	16.6293	

At h. 7.1-16 St-1 Eastern Analytical Inc. PO Number: 44602 EAI SRB# 156851 Project State: NH Results Needed by: Preferred date **QC** Deliverables Project ID: 3949 Please call prior to analyzing, if RUSH surcharges will be applied. XA A+ BB B+ CC P Notes about project: KNL Environmental Testing Company Email pdf of results and invoice to 3202 N. Florida Ave. Address customerservice@eailabs.com. Samples Collected by: Tampa, FL 33603 Address 10 S 530 Date/Time Account # Relinquished by Received by Phone # 813-229-2879 6-19-10 0042 Date/Time Received by Relinquished by Fax Number 813-229-0002 Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Fax: (603)228-4591 Phone: (603)228-0525 1-800-287-0525

As a subcontract lab to EAI, you will defend, indemnify and hold Eastern Analytical, Inc., its officers, employees, and agents harmless from and against any and all liability, loss, expense or claims for injury or damages arising out of the performance against this chain of custody but only in proportion to and to the extent such liability, loss, expense, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of you as a subcontract lab, your officers, agents or employees



CHAIN-OF-CUSTODY RECORD

156851

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· ::::::::::::::::::::::::::::::::::::	Date/Time		na na na sana ang sana ang sana ang sana sana	n bindh - Linz I. Linning - Li		·
Sample IDs	Composites need start and stop dates/times	Matrix	Parameters and Sample Notes			# o <b>f co</b> ntainers
SB-1	06/06/2016	aqueous Grabor Comp	AqTot/Cl/F/SO4/TDS/Rad226Rad228ComboSubKNL/ AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	ICPMets.B.Ca.Sb.As.Ba.Be.Cd.C	Cr.Co.Pb.Li.Hg.Mo.S	e.TI
	12:40			_	Dissolved Sample	
Sampler confirm	s ID and parameters	are accurate	Circle preservative/s: HCL (AND, H2SO4 NaOH MEOH	Na2S203 IGE		Field Fillered
SB-4	06/06/2016	aqueous Grab or Comp	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/ AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	ICPMets.B.Ca.Sb.As.Ba.Be.Cd.C	Cr.Co.Pb.Li.Hg.Mo.S	e.TI
	0941		1			
Sampler confirm	s ID and parameters	s are accurate	Circle preservative/s: HCL ( HO3 H2SO4 NaOH MEOH	Na25203 (QE)	Dissolved Sample	e Field Filtered
SB-6	06/06/2016	aqueous	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/	ICPMets.B.Ca.Sb.As.Ba.Be.Cd.C	r.Co.Pb.Li.Hg.Mo.S	e.TI
	09:24	Grab or Comp	AqDIS/ICPMEIS.SD.AS.B.Ba.Be.Cd.Cf.Co.PD.Ag.Se. H			
Sampler confirm	s ID and parameters	s are accurate	Circle preservative/s: HCL (HAW)3 H2SO4 NaOH MEOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (CE)	Dissolved Sample	e Field Filtered 🔀
SB-13	06/06/2016	aqueous Grabor Comp	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/I AqDis/JCPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.TI	ICPMets.B.Ca.Sb.As.Ba.Be.Cd.C	Cr.Co.Pb.Li.Hg.Mo.S	e.TI 7
	10011			,	Dissolved Sample	Field Filtered IV
Sampler confirm	s ID and parameters	are accurate	Circle preservative/s: HCL HNOT H2SO, NaOH MEOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (CE)	Dissoning Gumpk	
SB-14	06/06/2016	aqueous Grab or Comp	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/ AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.TI	ICP <b>Mets</b> .B.Ca.Sb.As.Ba.Be.Cd.C	r.Co.Pb.Li.Hg.Mo.S	ə.TI 7
Sampler confirm	s ID and parameters	s are accurate	Circle preservative/s: HCL KNO2 H2SO4 NaOH MEOH	Na2S2O3 (ICE)	Dissolved Sample	e Field Filtered
Please en	sure this auto CO	C is accurate	adharas to parmit or sampling requirements fo	withis sampling event and r	nodify as nacoss	0/1/
EAL Brojact ID 3949		0 10 10001 12:0,	denotes to permit of sampling requirements to		nouny as necess	ary.
Project Name Merri Low	imack Station Coal . Flow	Ash Landfill -	Results Needed by: Preferred date Notes:	ReportingOptions	□ NO FAX □ Partial FAX	PO# PO#
State NH	~ .		Samples collected via Low Flow Method	EDD email		71.
Client (Pro Mgr) Alla	n Palmer		Lithium sub to Katahdin - 500ml HNO3 container	e-mail Login Confirmation		Temp 2 · ) ° C
Customer Eve	North Commercial	Streat BO		Samples Collected by	R. J. (Ear)	ice Y YN□
Address 700 City Mar	chester NH 03105	-0330	· · ·	JAG 66/10	5 1500. J	as Jelins
Phone 669-4000	Fax Choo	ise one:		Belinguished by	Date/Time	Received by
Email: allan nalmor@			QC deliverables			
Direct 63/-9/30	creisource.com		MALLA+LIBLIB+LICLIPC	Relinguished by	Date/Time	Received by
DIECE 004-2403		Eastern Ana	alytical, Inc. www.eailabs.com   800.287.	.0525   customerservice@eail	abs.com	

July 2016



Allan Palmer Eversource Energy 780 North Commercial Street, PO Box 330 Manchester, NH 03105-0330



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 158396 Client Identification: Merrimack Station Coal Ash Landfill - Low Flow Date Received: 7/18/2016

Dear Mr. Palmer:

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

- Solid samples are reported on a dry weight basis, unless otherwise noted
- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R:%Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lorraine Olashaw, Lab Director

8.4.16 Date # of pages (excluding cover letter)

## SAMPLE CONDITIONS PAGE

EAI ID#: 158396

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Temperature upon receipt (°C): Acceptable temperature range (°C): 0-6		5.3		Re	ceived	on ice or cold packs (Yes/No): Υ
Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
158396.01	SB-1	7/18/16	7/18/16	aqueous		Adheres to Sample Acceptance Policy
158396.02	SB-4	7/18/16	7/18/16	aqueous		Adheres to Sample Acceptance Policy
158396.03	SB-6	7/18/16	7/18/16	aqueous		Adheres to Sample Acceptance Policy
158396.04	SB-13	7/18/16	7/18/16	aqueous		Adheres to Sample Acceptance Policy
158396.05	SB-14	7/18/16	7/18/16	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitibility, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.

All results contained in this report relate only to the above listed samples.

References include:

1) EPA 600/4-79-020, 1983

2) Standard Methods for Examination of Water and Wastewater, 20th Edition, 1998 and 22nd Edition, 2012

3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB

4) Hach Water Analysis Handbook, 2nd edition, 1992

Eastern Analytical, Inc.

www.eailabs.com | 800.287.0525 | customerservice@eailabs.com

### LABORATORY REPORT



EAI ID#: 158396

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	SB-1	SB-4	SB-6	SB-13	4				
Lab Sample ID:	158396.01	158396.02	158396.03	158396 04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	7/18/16	7/18/16	7/18/16	7/18/16		Δ.	nalveie		
Date Received:	7/18/16	7/18/16	7/18/16	7/18/16	Units	Date	Time	Method /	Analyst
Solids Dissolved	120	220	260	330	mg/L	07/20/16	16:30	2540C-97	ΑΤΑ
Fluoride	< 0.1	< 0.1	< 0.1	< 0.1	mg/L	07/25/16	14:06	300.0	KD
Suifate	9	11	9	8	mg/L	07/25/16	14:06	300.0	KD
Chloride	60	100	140	160	mg/L	07/25/16	14:06	300.0	KD

Sample ID:	SB-14	
Lab Sample ID:	158396.05	
Matrix:	aqueous	
Date Sampled:	7/18/16	
Date Received:	7/18/16	
Solids Dissolved	68	
Fluoride	< 0.1	
Sulfate	5	
Chloride	21	

Analysis											
Units	Date	Time	Method A	nalyst							
mg/L	07/20/16	16:30	2540C-97	ATA							
mg/L	07/25/16	16:24	300.0	KD							
mg/L	07/25/16	16:24	300.0	KD							
mg/L	07/25/16	16:24	300.0	KD							

### LABORATORY REPORT

## M

EAI ID#: 158396

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	SB-1	SB-4	SB-6	SB-13					
Lab Sample ID:	158396.01	158396.02	158396.03	158396.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	7/18/16	7/19/16	7/19/16	7/19/16	Applytical		Data of		
Date Bacoived:	7/10/10	7/10/10	7/10/10	7/10/10	Matrix	Unite	Analysis	Method	Analyst
Date Received.	//18/16	//18/16	//18/16	//18/16	matrix	Units	Analysis	Method	Analyst
Antimony	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	7/25/16	200.8	DS
Arsenic	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	7/25/16	200.8	DS
Barium	0.016	0.011	0.017	0.018	AqTot	mg/L	7/25/16	200.8	DS
Beryllium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	7/25/16	200.8	DS
Boron	0.07	< 0.05	< 0.05	< 0.05	AqTot	mg/L	7/25/16	200.8	DS
Calcium	8.6	7.8	9.2	9.7	AqTot	mg/L	7/25/16	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	7/25/16	200.8	DS
Chromium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	7/25/16	200.8	DS
Cobalt	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	7/25/16	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	7/25/16	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	< 0.0001	AqTot	mg/L	7/25/16	200.8	DS
Molybdenum	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	7/25/16	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	7/25/16	200.8	DS
Thallium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	7/25/16	200.8	DS
Sample ID:	SB-14								
Lab Sample ID:	158396.05								
Matrix:	aqueous								
Date Sampled	7/10/16				Analytical		Date of		
Date Bassived:	7/10/10				Matrix	Units	Analysis	Method	Analyst
Date Received.	//10/10								
Antimony	< 0.001				AqTot	mg/L	7/25/16	200.8	DS
Arsenic	< 0.001				AqTot	mg/L	7/25/16	200.8	DS
Barium	0.003				Aqlot	mg/L	7/25/16	200.8	DS
Beryllium	< 0.001				AqTot	mg/L	7/25/16	200.8	DS
Boron	< 0.05				Aqlot	mg/L	//25/16	200.8	DS
Calcium	6.3				AqTot	mg/L	7/25/16	200.8	DS
Cadmium	< 0.001				AqTot	mg/L	7/25/16	200.8	DS
Chromium	< 0.001				AqTot	mg/L	7/25/16	200.8	DS
Cobalt	< 0.001				AqTot	mg/L	7/25/16	200.8	DS
Lead	< 0.001				AqTot	mg/L	7/25/16	200.8	DS
Mercury	< 0.0001				AqTot	mg/L	7/25/16	200.8	DS
Molybdenum	< 0.001				AqTot	mg/L	7/25/16	200.8	DS
Selenium	< 0.001				AqTot	mg/L	7/25/16	200.8	DS
Thallium	< 0.001				AqTot	mg/L	7/25/16	200,8	DS



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	158396
	SB-1

PWS ID# Sample Collection : 7-18-16/1419 Lab ID No: 16.7815 Lab Custody Date: 7-25-16/0910 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.4 ± 0.6	Calc	Calc	1.0
4020	Radium-226	pCi/L	$0.4 \pm 0.3$	7-27-16/1039	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.0 ± 0.6	7-29-16/1029	EPA Ra-05	1.0

Alpha Standard: Th-230

James W Hayes

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Field Custody: Client Client/Field ID: 158396 SB-4

PWS ID#
Sample Collection : 7-18-16/1029
Lab ID No: 16.7816
Lab Custody Date: 7-25-16/0910
Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.8 ± 0.6	Calc	Calc	0.9
4020	Radium-226	pCi/L	0.4 ± 0.3	7-27-16/1039	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.4 ± 0.6	7-29-16/1029	EPA Ra-05	0.9

Alpha Standard: Th-230

James W Hayes

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Field Custody: Client Client/Field ID: 158396 SB-6

PWS ID# Sample Collection : 7-18-16/1338 Lab ID No: 16.7817 Lab Custody Date: 7-25-16/0910 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.8 ± 0.6	Calc	Calc	0.9
4020	Radium-226	pCi/L	0.5 ± 0.3	7-27-16/1039	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.3 ± 0.6	7-29-16/1029	EPA Ra-05	0.9

Alpha Standard: Th-230

James W Hayer

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Field Custody: Client Client/Field ID: 158396 SB-13

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.8 ± 0.6	Calc	Calc	1.0
4020	Radium-226	pCi/L	0.8 ± 0.3	7-26-16/1103	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.0 ± 0.6	7-29-16/1029	EPA Ra-05	1.0

Alpha Standard: Th-230

amer w Hager

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

Report Date: July 29, 2016

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Field Custody: Client Client/Field ID: 158396 SB-14

PWS ID#
Sample Collection : 7-18-16/1251
Lab ID No: 16.7819
Lab Custody Date: 7-25-16/0910
Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.5 ± 0.5	Calc	Calc	0.8
4020	Radium-226	pCi/L	0.2 ± 0.2	7-27-16/1039	EPA 903.0	0.3
4030	Radium-228	pCi/L	$0.3 \pm 0.5$	7-29-16/1030	EPA Ra-05	0.8

Alpha Standard: Th-230

ame W Hages

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

CHAI	N-OF-CUSTODY RECORD eastern a	nalytical boratory services	16,78/5-18 Eai srb# 158396	9
Sample ID	Date Sampled Matrix aParameters		Sample Notes	l
SB-1	7/18/2016 aqueous Radium 226 & Radium 228 Combined Subcontract KNI 14:19			
SB-4	7/18/2016 aqueous Radium 226 & Radium 228 Combined Subcontract KNL 10:29			
SB-6	7/18/2016 aqueous Radium 226 & Radium 228 Combined Subcontract KNL 13:38			•
SB-13	7/18/2016 aqueous Radium 226 & Radium 228 Combined Subcontract KNL 10:08			
		31-2-8 AB		-
EAI SRB# 158	<b>3396</b> Project State: NH Results Needed by: Preferred date Project ID: 3949 A A A A B A B B B B B C B C P	Eastern Analytical Please call prior to	Inc. PO Number: 44807 analyzing, if RUSH surcharges will be app	lied.
Company KNI Address 320 Address Tan	- Environmental Testing Notes about project: 2 N. Florida Ave. npa, FL 33603 Note: Lithing only: 2 - 250ml	Samples Collected	by:	
Account# Phone# 813	-229-2879 containers per sample	Retinquished-by	Date/Time Received by	
Fax Number 813	229-0002 am Analytical. Inc. 25 Chenell Dr. Concord. NH 03301 Phone: (603)228-0525	Relinquished by 1-800-287-0525	/Date/Time / Received by 07725716/09/00 KAV	
As a subcontract lab to l arising out of the perforn acts or omissions of you	EAI, you will defend, indemnify and hold Eastern Analytical, Inc., its officers, employees, and agents har nance against this chain of custody but only in proportion to and to the extent such liability, loss, expens as a subcontract lab, your officers, agents or employees	less from and against any and or claims for injury or damage	d all liability, loss, expense or claims for injury or da s are caused by or result from the negligent or inte	mages ntional

CHAIN-	OF-CUSTO	DY RECORD eastern an professional lab	alytical oratory services	6 7819 EAI SRB# 158396	10
SB-14	7/18/2016 aqueous R	adium 226 & Radium 228 Combined Subcontract KNL			
EAI SRB# 15839	6 Project State: NH Project ID: 3949	Results Needed by: Preferred date         QC Deliverables         ⊠ A □ A+ □ B □ B+ □ C □ P	Eastern Analytical Inc Please call prior to ana	., PO Number: 44807 Ilyzing, if RUSH surcharges will be a	applied.
Company KNL Er Address 3202 N Address Tampa	vvironmental Testing I. Florida Ave. , FL 33603	Notes about project: Email pdf of results and invoice to customerservice@eallabs.com. Motale: I ithium only: 2 - 250ml	Samples Collected by:_		
Account # 813_22	0_9870	containers per sample	Retinguished by	Date/Time Received by	N
Phone # 013-22 Fax Number 813-22	9-0002 9-0002	Concord NH 03301 Phone: (603)228-0525	Relinquished by	Date/Time/ T257C/0900 Received by T257C/0900 AX//	
As a subcontract lab to EAI, y arising out of the performance acts or omissions of you as a	you will defend, indemnify and hold E e against this chain of custody but or subcontract lab, your officers, agen	astern Analytical, Inc., its officers, employees, and agents harmly may in proportion to and to the extent such liability, loss, expense, its or employees	sss from and against any and all li or claims for injury or damages are	ability, loss, expense or claims for injury or , caused by or result from the negligent or i	r damages intentional





July 27, 2016

Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord,NH 03301

RE: Katahdin Lab Number: SJ5524 3949 Project ID: Project Manager: Ms. Kristen Schultz Sample Receipt Date(s): July 21, 2016

To Whom it May Concern:

Please find enclosed the following information:

- \* Report of Analysis (Analytical and/or Field)
- \* Chain of Custody (COC)
- \* Login Report

A copy of the Chain of Custody is included in the paginated report. The original COC is attached as an addendum to this report.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. The results contained in this report relate only to the submitted samples. This cover letter is an integral part of the ROA.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in an attached technical narrative or in the Report of Analysis.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Please go to http://www.katahdinlab.com/cert.html for copies of Katahdin Analytical Services Inc. current certificates and analyte lists.

Sincerely, KATAHDIN ANALYTICAL SERVICES

<u>Meborah</u> Madeau Authorized Signature

07/27/2016

Date
#### KATAHDIN ANALYTICAL SERVICES - INORGANIC DATA QUALIFIERS

The sampled date indicated on the attached Report(s) of Analysis (ROA) is the date for which a grab sample was collected or the date for which a composite sample was completed. Beginning and start times for composite samples can be found on the Chain-of-Custody.

U Indicates the compound was analyzed for but not detected above the specified level. This level may be the Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), the Limit of Detection (LOD) or Method Detection Limit (MDL) as required by the client.

Note: All results reported as "U" MDL have a 50% rate for false negatives compared to those results reported as "U" PQL "U" LOQ or "U" LOD, where the rate of false negatives is <1%.

- E Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.
- J Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), but above the Method Detection Limit (MDL).
- I-7 The laboratory's Practical Quantitation Level (PQL) or LOQ could not be achieved for this parameter due to sample composition, matrix effects, sample volume, or quantity used for analysis.
- A-4 Please refer to cover letter or narrative for further information.
- H\_ Please note that the regulatory holding time for \_\_\_\_\_ is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. \_\_\_\_\_ for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.

H1 - pH H2 - DO H3 - sulfite H4 - residual chlorine

- T1 The client did not provide the full volume of at least one liter for analysis of TSS. Therefore, the PQL of 2.5 mg/L could not be achieved.
- T2 The client provided the required volume of at least one liter for analysis of TSS, but the laboratory could not filter the full one liter volume due to the sample matrix. Therefore, the PQL of 2.5 mg/L could not be achieved.
- M1 The matrix spike and/or matrix spike duplicate recovery performed on this sample was outside of the laboratory acceptance criteria. Sample matrix is suspected. The laboratory criteria was met for the Laboratory Control Sample (LCS) analyzed concurrently with this sample.
- M2 The matrix spike and/or matrix spike duplicate recovery was outside of the laboratory acceptance criteria. The native sample concentration is greater than four times the spike added concentration so the spike added could not be distinguished from the native sample concentration.
- R1 The relative percent difference (RPD) between the duplicate analyses performed on this sample was outside of the laboratory acceptance criteria (when both values are greater than ten times the PQL).

MCL	Maximum Contaminant Level	NL	No limit
NFL	No Free Liquid Present	FLP	Free Liquid Present
NOD	No Odor Detected	TON	Threshold Odor Number

- D-1 As required by Method 5210B, APHA Standard Methods for the Examination of Water and Wastewater (21<sup>st</sup> edition), the BOD value reported for this sample is 'qualified' because the check standard run concurrently with the sample analysis did not meet the criteria specified in the method (198 +/- 30.5 mg/L). These results <u>may</u> not be reportable for compliance purposes.
- D-2 The measured final dissolved oxygen concentrations of all dilutions were less than the method-specified limit of 1 mg/L. The reported BOD result was calculated assuming a final oxygen concentration equal to 1 mg/L. The reported value should be considered a minimum value.
- D-3 The dilution water used to prepare this sample did not meet the method and/or regulatory criteria of less than 0.2 or 0.4 mg/L dissolved oxygen (DO) uptake over the five day period of incubation. These results <u>may</u> not be reportable for compliance purposes.



Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 SJ5524-001

 Report Date:
 7/27/2016

 PO No.:
 158396

 Project:
 3949

Sample Description						Matrix	Filtered	I	Date Sample	d	Date Received	
SB-1						AQ	No(Tota	l)	07/18/20	16	07/21/2016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	7/22/16	EAM	EPA 200.	7 7/22/16	JS JG22ICW1	



Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301

Lab Sample ID:	SJ5524-002
Report Date:	7/27/2016
PO No.:	158396
Project:	3949

Sample Description						Matrix	Filtered	l	Date Sample	d	Date Received		
SB-4					<u> </u>	AQ	No(Tota	1)	07/18/20	16	07/21/2016		
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	By	Prep Method	Prepped Date	ву QC	Notes	
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	7/22/16	EAM	EPA 200.	7 7/22/16	JS JG221C	W1	



Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 SJ5524-003

 Report Date:
 7/27/2016

 PO No.:
 158396

 Project:
 3949

Sample Description						Matrix Filtered		ĺ	Date Sampled		Date Received	
SB-6						AQ	No(Tota	1)	07/18/20	16	07/21/2016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	7/22/16	EAM	EPA 200.	7 7/22/16	JS JG221CW	1

# M Katahdin

# **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 SJ5524-004

 Report Date:
 7/27/2016

 PO No.:
 158396

 Project:
 3949

Sample Description						Matrix AQ	Filtered No(Tota	i)	Date Sample 07/18/20	d 16	Date Receiv 07/21/2	ved 016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep I Method	Prepped Date	Ву	QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	7/22/16	EAM	EPA 200.7	7/22/16	JS JO	5221CW1	

# M Katahdin

## **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 SJ5524-005

 Report Date:
 7/27/2016

 PO No.:
 158396

 Project:
 3949

Sample Description		<u> </u>				Matrix	Filtered		Date Sample	ed	Date Received	
SB-14						AQ	No(Tota	1)	07/18/20	16	07/21/2016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	7/22/16	EAM	EPA 200.	7 7/22/16	JS JG22ICW1	

Katahdin Analytical Service	es, LLC.	Sample Receipt Condition Report						
Client: Eastern And	tical	KAS PM: K.55		Sampled By: Clier	rt.			
Project:	)	KIMS Entry By: SC	>	Delivered By: ())				
-KAS Work Order#: 555534		KIMS Review By:	181	Received By: SO				
SDG #:	Cooler:	of	Date/Tim	e Rec.: 7-21-10	1200			

Receipt Criteria	Y	N	EX*	NA	Comments and/or Resolution
1. Custody seals present / intact?		$\checkmark$			
2. Chain of Custody present in cooler?					
3. Chain of Custody signed by client?	$\overline{\checkmark}$				
4. Chain of Custody matches samples?					
5. Temperature Blanks present? If not, take temperature of any sample w/ IR gun.		1			Temp (°C):  9,7
Samples received at <6 °C w/o freezing?		1			Note: Not required for metals (except Hg soil) analysis.
Ice packs or ice present?		$\checkmark$			The lack of ice or ice packs (i.e. no attempt to
If yes, was there sufficient ice to meet temperature requirements?				~	not meet certain regulatory requirements and may invalidate certain data.
If temp. out, has the cooling process begun (i.e. ice or packs present) and sample collection times <6hrs., but samples are not yet cool?					Note: No cooling process required for metals (except Hg soil) analysis.
6. Volatiles:					
Aqueous: No bubble larger than a pea?				$\checkmark$	
Soil/Sediment:					
Received in airtight container?				1	
Received in methanol?					
Methanol covering soil?				/	
D.I. Water - Received within 48 hour HT?				$\overline{}$	
Air: Refer to KAS COC for canister/flow controller requirements.	√ if ai	r inclu	ded		
7. Trip Blank present in cooler?				1.	
8. Proper sample containers and volume?	/				
9. Samples within hold time upon receipt?					
10. Aqueous samples properly preserved? Metals, COD, NH3, TKN, O/G, phenol, TPO4, N+N, TOC, DRO, TPH – pH <2 Sulfide - >9	/				
Cvanide – pH >12					
* Log-In Notes to Exceptions: document any n	roblen	as with		nles o	r discrenancies or pH adjustments
g annexe te Encoptioner document dry p		ie mit	, cam		a discropanises or priraujustments.

CHAIN-OF-CUSTODY RECORD eastern analytical S고등소식	stern analytical essional laboratory services EAI SRB# 158396
Sample ID Date Sampled Matrix aParameters	Sample Notes
SB-1 $7/18/2016$ aqueous Subcontract - Metals by ICP-AES $L + h = 0$ $n = 0$	Lithium Only A
SB-4 7/18/2016 aqueous Subcontract - Metals by ICP-AES	
SB-6 7/18/2016 aqueous Subcontract - Metals by ICP-AES	
USB-13 7/18/2016 aqueous Subcontract - Metals by ICP-AES	
Atical Servi	
Commany       Katahdin Analytical Services.       NH       Results Needed by: Preferred date       Eastern Analytica         S       EAI SRB# 158396       Project State: NH       Results Needed by: Preferred date       Eastern Analytica         S       Project ID: 3949       QC Deliverables       Prese call prior t         S       Project ID: 3949       A □ A+ □ B □ B+ □ C □ P       Prease call prior t	Eastern Analytical Inc. PO Number: 44808         P         Please call prior to analyzing, if RUSH surcharges will be applied.
<ul> <li>Company Katahdin Analytical Services,</li> <li>Address 600 Technmology Way</li> <li>Address Scarborough, ME 04074</li> <li>Address Scarborough, ME 04074</li> <li>Motals - Lithium only: 2 - 250ml</li> </ul>	Samples Collected by:
O Fax Number	Relinquished by Date/Time Received by Relinquished by Date/Time Received by
Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Phone: (603)228-0525 1-800-287-0525 Bas a subcontract lab to EAI, you will defend, indemnify and hold Eastern Analytical, Inc., its officers, employees, and agents harmless from and against any ar Carising out of the performance against this chain of custody but only in proportion to and to the extent such liability, loss, expense, or claims for injury or damaged tacts or omissions of you as a subcontract lab, your officers, agents or employees	3)228-0525       1-800-287-0525       Fax: (603)228-4591         and agents harmless from and against any and all liability, loss, expense or claims for injury or damages         ty, loss, expense, or claims for injury or damages are caused by or result from the negligent or intentional

Address	A ACCICLIC SEDIVIES IS	oitvlenA nibdsts≯	SB-14	Sample ID
600 Technmology Way Scarborough, ME 04074 (207) 874-2400	# <b>158396</b> Project State: NH Project ID: 3949 Katahdin Analytical Services,		7/18/2016 aqueous s	AIN-OF-CUSTO
Email pdf of results and invoice to customerservice@eailabs.com. Metals: Lithium only: 2 - 250ml containers per sample	Results Needed by: Preferred date QC Deliverables ⊠ A □ A+ □ B □ B+ □ C □ P Notes about project:		Subcontract - Metals by ICP-AES	DY RECORD eastern an aParameters
Samples Collected by: Relinguished by Date/Time Received by Relinguished by Date/Time Received by	Eastern Analytical Inc. PO Number: 44808 Please call prior to analyzing, if RUSH surcharges will be appli		un Only	nalytical aboratory services EAI SRB# 158396 Sample Notes



# Katahdin Analytical Services

Login Chain of Custody Report (Ino1) Jul. 21, 2016 01:00 PM Quote/Incoming:

Login Number: SJ5524		Quote/Incoming:	
Account:EASTAN001 Eastern Analytical Inc.	NoWeb	Login Information:	
Project:		ANALYSIS INSTRUCTIONS	:
		CLIENT PO#	: 158396
Primary Report Address:		CLIENT PROJECT MANAGE	
Eastern Analytical, Inc. Eastern Analytical, Inc.		CONTRACT COOLER TEMPERATURE DELIVERY SERVICES	: : 19.7 : UPS
25 Chenell Drive		EDD FORMAT	WEST-XLS
Concord,NH 03301 Printerservice@pailabs.com Printery Invoice Address.		LOGIN INITIALS PM PROJECT NAME	: SO : KSS : 3049
Eastern Analytical, Inc. Eastern Analytical, Inc.		QC LEVEL REGULATORY LIST	: 1 :
25 Chenell Drive		REPORT INSTRUCTIONS	<ul> <li>email pdf, EDD and invoice to customerservice@eailabs.com, no HC</li> </ul>
Concord,NH 03301		SDG ID	:
Report CC Addresses:		SDG STATUS	:

## Invoice CC Addresses:

Laborator Sample ID	y Client Sample Number	Collect Date/Time	Receive Date PR	Verbal Due Date Date	Mailed	
SJ5524-1	SB-1	18-JUL-16 14:19	21-JUL-16	02-AUG-10	3	
<i>Matrix</i> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 14-JAN-17 14-JAN-17	<b>Bottie Type</b> 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments	
SJ5524-2	SB-4	18-JUL-16 10:29	21-JUL-16	02-AUG-1	6	
<i>Matrix</i> Aqueous Aqueous	Product S E200,7-LITHIUM S E200,7-PREP	Hold Date (shortest) 14-JAN-17 14-JAN-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments	
SJ5524-3	SB-6	18-JUL-16 13:38	21-JUL-16	02-AUG-1	6	
Matrix Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	<i>Hold Date (shortest)</i> 14-JAN-17 14-JAN-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Battle Count	Comments	
SJ5524-4	SB-13	18-JUL-16 10:08	21-JUL-16	02-AUG-1	6	
<i>Matrix</i> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 14-JAN-17 14-JAN-17	<i>Bottle Type</i> 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments	
SJ5524-5	SB-14	18-JUL-16 12:51	21-JUL-16	02-AUG-1	6	
<b>Matrix</b> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shorlest) 14-JAN-17 14-JAN-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments	
Total San	nnies: 5	Total Analyses:	10			

Total Samples: 5

Total Analyses:

Direct 634-2439 Eastern An	Email: allan.palmer@eversource.com	Customer Eversource Energy Address 780 North Commercial Street, PO City Manchester NH 03105-0330 Phone 669-4000 Fax Choose one:	EAI Project ID 3545 Project Name Merrimack Station Coal Ash Landfill - Low Flow State NH Client (Pro Mor) Allan Palmer	Please ensure this auto COC is accurate,	${f X}$ Sampler confirms ID and parameters are accurate	SB-14 0-7/18/2016 aqueous	A Sampler confirms ID and parameters are accurate	دیت         دیت         دیت         دیت         aqueous           ۱۰۰۰۰۵         Grab or Comp         Grab or Comp	LAS Sampler confirms ID and parameters are accurate	13:38	SB-6 07+/16/2016 aqueous	X Sampler confirms ID and parameters are accurate	SB-4 07/16/2616 aqueous	Sampler confirms ID and parameters are accurate	IH:19 Grab or Comp	SB-1 07-16/2016 aqueous	Date/Time Composites need start Sample IDs and stop dates/limes Matrix	
alytical, Inc. www.eailabs.com   800.287.(	A DA+ DB DB+ DC DPC	Diss. Metals not needed per Oc deliverables	Results Needed by: Preferred date Notes: Notes: Samples collected via Low Flow Method	adheres to permit or sampling requirements for	Circle preservative/s: HCL HND? H,SO4 NaOH MEOH N	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/I0 AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.TI	Circle preservative/s: HCL KNO, H,SO4 NaOH MEOH N	AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	Circle preservative/s: HCL KNOJH,SO4 NaOH MEOH N	)	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/IC AqDis/ICPMlets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.TI	Circle preservative/s: HCL (HNO) H,SO, NaOH MEOH N	Aq1ot/CI/F/SO4/1DS/Rad225Kad228ComboSubKNL/IC AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.TI	Circle preservative/s: HCL(HNO, H2SO, NaOH MEOH N	Adhis/ICLUMers.00.48.0.00.00.00.00.00.00.00.00.00.00.00.00.	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/IC	Parameters and Sample Notes	
0525   customerservice@eailabs.com	Relinquished by Date/Time	□ e-mail Login Confirmation Samples Collected by: <u>Jk, JL (EP</u> <i>xkGl kr. 07/16/2016 16</i> Relinguished by Date/Time	ReportingOptions       NO FAX         X HC       Partial FA         EDD PDF       Partial FA         EDD email       PDF-Invo         PDF prelim, NO FAX       EQUIS	r this sampling event, and modify as ne	Va,S,O, CE Dissolved S	CPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg	Va <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (CE) Dissolved S		Version UCE	Dissolved S	CPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg	Na,S,O, (CE) Dissolved S	CPMets.B., Ca. Sp.As, ba, be, Cd, Cr, Co, Pp. Ll, ng			CPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg		
	Received by	Temp <u>- 12</u> Ice Y 対 N□ 1 <u>40 / //////////////////////////////////</u>	PO# PO# ice Quote#:	cessary.	sample Field Filtered X	Mo.Se.TI	sample Field Filtered	4		ample Field Filtered 🕅	Mo.Se.TI	sample Field Filtered		ample Field Filtered		Mo.Se.TI	# of containers	PSCNH1

August 2016



Allan Palmer Eversource Energy 780 North Commercial Street, PO Box 330 Manchester, NH 03105-0330



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 159903 Client Identification: Merrimack Station Coal Ash Landfill - Low Flow Date Received: 8/30/2016

Dear Mr. Palmer:

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

- Solid samples are reported on a dry weight basis, unless otherwise noted
- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R:%Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lorraine Olashaw, Lab Director

<u>9.21.16</u> Date # of pages (excluding cover letter)

# SAMPLE CONDITIONS PAGE



#### Client: Eversource Energy

### Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

<b>Temperature upon receipt (°C):</b> Acceptable temperature range (°C): 0-6		0.7		Received on ice or cold packs (Yes/No): Υ					
Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)			
159903.01	SB-1	8/30/16	8/30/16	aqueous		Adheres to Sample Acceptance Policy Dissolved metals canceled per customer request.			
159903.02	SB-4	8/30/16	8/30/16	aqueous		Adheres to Sample Acceptance Policy Dissolved metals canceled per customer request.			
159903.03	SB-6	8/30/16	8/30/16	aqueous	, ,	Adheres to Sample Acceptance Policy Dissolved metals canceled per customer request.			
159903.04	SB-13	8/30/16	8/30/16	aqueous		Adheres to Sample Acceptance Policy Dissolved metals canceled per customer request.			
159903.05	SB-14	8/30/16	8/30/16	aqueous		Adheres to Sample Acceptance Policy Dissolved metals canceled per customer request.			

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitibility, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.

All results contained in this report relate only to the above listed samples.

References include:

1) EPA 600/4-79-020, 1983

2) Standard Methods for Examination of Water and Wastewater, 20th Edition, 1998 and 22nd Edition, 2012

3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB

4) Hach Water Analysis Handbook, 2nd edition, 1992

Eastern Analytical, Inc.

www.eailabs.com | 800.287.0525 | customerservice@eailabs.com

# LABORATORY REPORT



EAI ID#: 159903

# Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	SB-1	SB-4	SB-6	SB-13					
Lab Sample ID:	159903.01	159903.02	159903.03	159903.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	8/30/16	8/30/16	8/30/16	8/30/16		Δ	nalveie		
Date Received:	8/30/16	8/30/16	8/30/16	8/30/16	Units	Date	Time	Method A	nalyst
Solids Dissolved	120	210	280	270	mg/L	08/31/16	16:00	2540C-97	ATA
Fluoride	< 0.1	< 0.1	< 0.1	< 0.1	mg/L	09/13/16	21:07	300.0	KD
Sulfate	7	12	9	- 8	mg/L	09/13/16	21:07	300.0	KD
Chloride	49	88	140	150	mg/L	08/31/16	11:05	4500CIE-97	KD

Sample ID:	SB-14
Lab Sample ID:	159903.05
Matrix:	aqueous
Date Sampled:	8/30/16
Date Received:	8/30/16
Solids Dissolved	71
Fluoride	< 0.1
Sulfate	4
Chloride	14

Analysis							
Units	Date	Time	Method A	nalyst			
mg/L	08/31/16	16:00	2540C-97	ΑΤΑ			
mg/L	09/13/16	23:25	300.0	KD			
mg/L	09/13/16	23:25	300.0	KD			
mg/L	08/31/16	11:22	4500CIE-97	KD			

# LABORATORY REPORT



EAI ID#: 159903

## Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	SB-1	SB-4	SB-6	SB-13					
Lab Sample ID:	159903.01	159903.02	159903.03	159903.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	8/30/16	8/30/16	8/30/16	8/30/16	Analytical		Date of		
Date Paceived:	0/30/10	0/00/10	8/30/16	0/00/10	Matrix	Units	Analysis	Method	Analyst
Date Necelveu.	8/30/16	8/30/16	8/30/16	8/30/16		010			· · · · · · <b>,</b>
Antimony	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	9/1/16	200.8	DS
Arsenic	< 0.001	< 0.001	< 0.001	0.001	AqTot	mg/L	9/1/16	200.8	DS
Barium	0.017	0.010	0.018	0.020	AqTot	mg/L	9/1/16	200.8	DS
Beryllium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	9/1/16	200.8	DS
Boron	< 0.05	< 0.05	< 0.05	< 0.05	AqTot	mg/L	9/1/16	200.8	DS
Calcium	7.9	6.8	9.1	8.1	AqTot	mg/L	9/1/16	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	9/1/16	200.8	DS
Chromium	< 0.001	< 0.001	< 0.001	0.002	AqTot	mg/L	9/1/16	200.8	DS
Cobalt	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	9/1/16	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	9/1/16	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	< 0.0001	AqTot	mg/L	9/1/16	200.8	DS
Molybdenum	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	9/1/16	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	9/1/16	200.8	DS
Thallium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	9/1/16	200.8	DS
Sample ID:	SB-14								
Lab Sample ID:	159903.05								
Matrix:	aqueous								
Date Sampled	8/30/16				Analytical		Date of		
Date Received:	8/30/16				Matrix	Units	Analysis	Method	Analyst
Antimony	< 0.001				AqTot	mg/L	9/1/16	200.8	DS
Arsenic	< 0.001				AqTot	mg/L	9/1/16	200.8	DS
Barium	0.002				AqTot	mg/L	9/1/16	200.8	DS
Beryllium	< 0.001				AqTot	mg/L	9/1/16	200.8	DS
Boron	< 0.05				AqTot	mg/L	9/1/16	200.8	DS
Calcium	5.3				AqTot	mg/L	9/1/16	200.8	DS
Cadmium	< 0.001				AqTot	mg/L	9/1/16	200.8	DS
Chromium	< 0.001				AqTot	mg/L	9/1/16	200.8	DS
Cobalt	< 0.001				AqTot	mg/L	9/1/16	200.8	DS
Lead	< 0.001				AqTot	mg/L	9/1/16	200.8	DS
Mercury	< 0.0001				AqTot	mg/L	9/1/16	200.8	DS
Molybdenum	< 0.001				AqTot	mg/L	9/1/16	200.8	DS
Selenium	< 0.001				AqTot	mg/L	9/1/16	200.8	DS
Thallium	< 0.001				AaTot	mg/L	9/1/16	200.8	DS

3



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	159903
	SB-1
PWS TD#	

	2월 28일 <u>- 전화한 일</u> 일을 알려요. 문야가 성공하는 -	
	Sample Collection	8-30-16/1323
7 37 8 8	Lab ID No:	16.9480
•	Lab Custody Date:	9-8-16/0945
	Sample Description:	Water
	しんしゃ あただい 一般 おんぴ	

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.7 主 0.4	Calc	Calc	0.7
4020	Radium-226	pCi/L	0.4 ± 0.3	9-12-16/1227	EPA 903,0	0.3
4030	Radium-228	pCi/L	0.3 ± 0.4	9-13-16/1108	EPA Ra-05	0.7

Alpha Standard: Th-230

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

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# Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field	Custody:	Client
Client	/Field ID:	159903
		SB-4
	s i station w	

	PWS ID#	
(dita estito d	Sample Collection :	8-30-16/1044
and pairs	Lab ID No:	16.9481
South 같이 같은 State	Lab Custody Date:	9-8-16/0945
	Sample Description:	Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	$0.2 \pm 0.4$	Calc	Calc	0.7
4020	Radium-226	pCi/L	0.2 ± 0.2	9-12-16/1227	EPA 903.Ó	0.4
4030	Radium-228	pCi/L	0.0 ± 0,4	9-13-16/1108	EPA Ra-05	0.7

Alpha Standard: Th-230

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James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

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5

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Cust	cody:	Client
Client/Fie	eld ID:	159903
		SB-6

<u>A</u> rab	PWS ID#	
, thiế, siện đạo	Sample Collection :	8-30-16/1336
, 12 × 1	Lab ID No:	16.9482
	Lab Custody Date:	9-8-16/0945
	Sample Description:	Water
- 14 J. M. J.		

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.4 ± 0.4	Calc	Calc	0.7
4020	Radium-226	pCi/L	0.4 ± 0.2	9-12-16/1227	EPA 903.0	0.3
4030	Radium-228	pCi/L	0.0 ± 0.4	9-13-16/1108	EPA Ra-05	0.7
Alpha Standa	ard: Th-230					

amle W

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

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Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	159903
	SB-13

	PWS ID	₽secan		
는 물건 같아요. 안 봐?	Sample	Colle	ection :	8-30-16/1004
	Lab ID	No:		16.9483
	Lab Cus	stody	Date:	9-8-16/0945
	Sample	Desci	ription:	Water
		1985 (J. 19		

#### CERTIFICATE OF ANALYSIS

.

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pC1/L	1.4 ± 0.4	Calc	Calc	0.7
4020	Radium-226	pCi/L	0.8 ± 0.3	9-12-16/1227	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.6 ± 0.4	9-13-16/1108	EPA Ra-05	0.7
Alpha Standa	ard: Th-230		Jame Jame Labora	- W Hagen s W. Hayes tory Manager		

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

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Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	159903
	SB-14

PWS ID# Sample Collection : 8-30-16/1150 Lab ID No: 16.9484 Lab Custody Date: 9-8-16/0945 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.8 ± 0.5	Calc	Calc	0.7
4020	Radium-226	pCi/L	$0.4 \pm 0.3$	9-12-16/1227	EPA 903.0	0.4
4030	Radium-228	pCi/L	$0.4 \pm 0.5$	9-14-16/1006	EPA Ra-05	0.7

Alpha Standard: Th-230

amale W

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

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CHAIN-OF-CU	JSTODY RECORD eastern and professional lab	oratory services EAI SRB# 159903 م
Sample ID Date Sample	ed Matrix aParameters	Sample Notes
SB-1 8/30/2016 13:23	aqueous Radium 226 & Radium 228 Combined Subcontract KNL	
SB-4 8/30/2016 10:44	aqueous Radium 226 & Radium 228 Combined Subcontract KNL	16.9480-88 gress
SB-6 8/30/2016	aqueous Radium 226 & Radium 228 Combined Subcontract KNL	
SB-13 8/30/2016 10:04	aqueous Radium 226 & Radium 228 Combined Subcontract KNL	
		ght 2-15-16
EAI SRB# <b>159903</b> Project S Projec Company KNL Environmental	Itate:     NH     Results Needed by:     Preferred date       ct ID:     3949     QC Deliverables       CD aliverables     A     A+     B       Testing     Notes about project:       Email pdf of results and invoice to	Eastern Analytical Inc. PO Number: 45041 Please call prior to analyzing, if RUSH surcharges will be applied.
Address Tampa, FL 33603 Address Tampa, FL 33603 Account # Phone # 813-229-2879	customerservice@eailabs.com. Motelet Lithium only: 2 250mL containere per eample	Samples Collected by: <u> 7-8-16</u> 945 <u> Relinquished by</u> Date/Time Received by
Fax wurnber 013-223-0002 Eastern Analytical, Inc. 2 As a subcontract lab to EAI, you will defend, ind	25 Chenell Dr. Concord, NH 03301 Phone: (603)228-0525 emnify and hold Eastern Analytical. Inc., its officers, employees, and agents hamile	neceived by 1-800-287-0525 הליקר (603)228-4591 are from and arainst any and all liability loss average or claims for initial or demonstration
arising out of the performance against this chair acts or omissions of you as a subcontract lab, y	or officers, agents or employees	ers iron and against any and an hability, loss, expense or claims for injury or damages or claims for injury or damages are caused by or result from the negligent or intentional

CHAIN	V-OF-CUSTO	DY RECORD eastern at professional la	aboratory services EAI SRB# 159903
SB-14	8/30/2016 aqueous R 11:50	adium 226 & Radium 228 Combined Subcontract KNL	, ,
			12-9484
EAI SRB# 159	903 Project State: NH Project ID: 3949	Results Needed by: Preferred date <u>QC Deliverables</u> X A A+ B B+ C C P	Eastern Analytical Inc. PO Number: 45041 Please call prior to analyzing, if RUSH surcharges will be applied
Company KNL Address 320; Address Tar	. Environmental Testing 2 N. Florida Ave. ıpa, FL 33603	Notes about project: Email pdf of results and invoice to customerservice@eailabs.com. Metals: Lithium only. 2 200ml	Samples Collected by:
Account# Phone# 813 Fax Number 813	-229-2879 -229-0002	Ceatainere-per-sermple	Retinquished by Date/Time Received by Retinquished by Date/Time Received by
Easte As a subcontract lab to E arising out of the perform acts or omissions of you	rm Analytical, Inc. 25 Chenell Dr. Al, you will defend, indemnify and hold E rance against this chain of custody but on as a subcontract lab, your officers, agent	<i>Concord, NH 03301 Phone: (603)228-0525</i> astern Analytical, Inc., its officers, employees, and agents harm ly in proportion to and to the extent such liability, loss, expense, s or employees	1-800-287-0525 Fax: (603)228-4591 miess from and against any and all liability, loss, expense or claims for injury or damage: e, or claims for injury or damages are caused by or result from the negligent or intentiona





September 14, 2016

Eastern Analytical, Inc. 25 Chenell Drive Concord,NH 03301

RE: Katahdin Lab Number:SJ6969Project ID:3949Project Manager:Ms. Kristen SchultzSample Receipt Date(s):September 02, 2016

To Whom it May Concern:

Please find enclosed the following information:

- \* Report of Analysis (Analytical and/or Field)
- \* Chain of Custody (COC)
- \* Login Report

A copy of the Chain of Custody is included in the paginated report. The original COC is attached as an addendum to this report.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. The results contained in this report relate only to the submitted samples. This cover letter is an integral part of the ROA.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in an attached technical narrative or in the Report of Analysis.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Please go to http://www.katahdinlab.com/cert.html for copies of Katahdin Analytical Services Inc. current certificates and analyte lists.

Sincerely, KATAHDIN ANALYTICAL SERVICES

**Authorized Signature** 

09/14/2016

Date

#### KATAHDIN ANALYTICAL SERVICES - INORGANIC DATA QUALIFIERS

The sampled date indicated on the attached Report(s) of Analysis (ROA) is the date for which a grab sample was collected or the date for which a composite sample was completed. Beginning and start times for composite samples can be found on the Chain-of-Custody.

U Indicates the compound was analyzed for but not detected above the specified level. This level may be the Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), the Limit of Detection (LOD) or Method Detection Limit (MDL) as required by the client.

Note: All results reported as "U" MDL have a 50% rate for false negatives compared to those results reported as "U" PQL "U" LOQ or "U" LOD, where the rate of false negatives is <1%.

- E Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.
- J Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), but above the Method Detection Limit (MDL).
- I-7 The laboratory's Practical Quantitation Level (PQL) or LOQ could not be achieved for this parameter due to sample composition, matrix effects, sample volume, or quantity used for analysis.
- A-4 Please refer to cover letter or narrative for further information.
- H\_ Please note that the regulatory holding time for \_\_\_\_\_\_ is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. \_\_\_\_\_\_ for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.

H1 - pH H2 - DO H3 - sulfite H4 - residual chlorine

- T1 The client did not provide the full volume of at least one liter for analysis of TSS. Therefore, the PQL of 2.5 mg/L could not be achieved.
- T2 The client provided the required volume of at least one liter for analysis of TSS, but the laboratory could not filter the full one liter volume due to the sample matrix. Therefore, the PQL of 2.5 mg/L could not be achieved.
- M1 The matrix spike and/or matrix spike duplicate recovery performed on this sample was outside of the laboratory acceptance criteria. Sample matrix is suspected. The laboratory criteria was met for the Laboratory Control Sample (LCS) analyzed concurrently with this sample.
- M2 The matrix spike and/or matrix spike duplicate recovery was outside of the laboratory acceptance criteria. The native sample concentration is greater than four times the spike added concentration so the spike added could not be distinguished from the native sample concentration.
- R1 The relative percent difference (RPD) between the duplicate analyses performed on this sample was outside of the laboratory acceptance criteria (when both values are greater than ten times the PQL).

MCL	Maximum Contaminant Level	NL	No limit
NFL	No Free Liquid Present	FLP	Free Liquid Present
NOD	No Odor Detected	TON	Threshold Odor Number

- D-1 As required by Method 5210B, APHA Standard Methods for the Examination of Water and Wastewater (21<sup>st</sup> edition), the BOD value reported for this sample is 'qualified' because the check standard run concurrently with the sample analysis did not meet the criteria specified in the method (198 +/- 30.5 mg/L). These results <u>may</u> not be reportable for compliance purposes.
- D-2 The measured final dissolved oxygen concentrations of all dilutions were less than the method-specified limit of 1 mg/L. The reported BOD result was calculated assuming a final oxygen concentration equal to 1 mg/L. The reported value should be considered a minimum value.
- D-3 The dilution water used to prepare this sample did not meet the method and/or regulatory criteria of less than 0.2 or 0.4 mg/L dissolved oxygen (DO) uptake over the five day period of incubation. These results <u>may</u> not be reportable for compliance purposes.

# MM<u>Katahdin</u>

# **REPORT OF ANALYTICAL RESULTS**

Client:Eastern Analytical, Inc.Lab Sample ID:SJ6969-001Eastern Analytical, Inc.Report Date:9/14/201625 Chenell DrivePO No.:45040Concord, NH03301Project:3949

Sample Description						Matrix	Filtered	I	Date Sample	eđ	Date Received	
SB-1					AQ		No(Tota	f)	08/30/20	016	09/02/2016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	9/7/16	EAM	EPA 200.	.7 9/7/16	MD JI07ICW	1

# / Katahdin

#### **REPORT OF ANALYTICAL RESULTS**

Client:Eastern Analytical, Inc.Lab Sample ID:SJ6969-002Eastern Analytical, Inc.Report Date:9/14/201625 Chenell DrivePO No.:45040Concord, NH03301Project:3949

Sample Description				Matrix	Filtered	ļ	Date Sample	d	Date Received			
SB-4					AQ		No(Tota	1)	08/30/20	16	09/02/2016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep I Method	Prepped Date	By QC	Notes
LITHIUM	U 0.100	mg/L	D.100	1	0.1	EPA 200.7	9/7/16	EAM	EPA 200.7	7 9/7/16	MD JI07ICW1	



Client: Eastern Analytical, Inc. Lab Sample ID: SJ6969-003 Eastern Analytical, Inc. Report Date: 9/14/2016 25 Chenell Drive PO No.: 45040 Concord, NH 03301 Project: 3949

Sample Description						Matrix	Filtered		Sample	ed	Receive	d	
SB-6					AQ	and b ( ) ( )	No(Tota	()	08/30/20	16	09/02/20	16	
Parameter	rameter Result Units		Adjusted PQL	Dilution PQL Anal Factor Me		Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By (	20	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	9/7/16	EAM	EPA 200.	7 9/7/16	MD JI07	ICW1	

Date

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301

Lab Sample ID:	SJ6969-004
Report Date:	9/14/2016
PO No.:	45040
Project:	3949

Sample Description				Matrix	Filtered	I	Date Sample	ed	Dai Recei	te ived			
SB-13		AQ		AQ	100 to 10	No(Total)		08/30/20	16	09/02/2016			
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	Ву	QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	9/7/16	EAM	EPA 200.	7 9/7/16	MD .	ID7ICW1	



Client:Eastern Analytical, Inc.Lab Sample ID:SJ6969-005Eastern Analytical, Inc.Report Date:9/14/201625 Chenell DrivePO No.:45040Concord, NH03301Project:3949

Sample Description				Matrix	Filtered	i	Date Sample	d	Date Receiv	ed			
SB-14					AQ		No(Tota	i)	08/30/20	16	09/02/2	D16	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	Ву	QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	9/7/16	EAM	EPA 200.	7 9/7/16	MD JIC	7ICW1	

Atanoin Analytical Dervices, LLC	, 5 e			Sa	mple Receipt Condition Repor
Client: Eastern Analytical		KAS	S PM:	<u> </u>	Sampled By: Client
Project:		КІМ	S Entry	By: S	Delivered By: Client
KAS Work Order#: SS 6969		KIM	S Revie	ew By:	KRI Received By: SO -
SDG #: Cooler:		of	1	-	Date/Time Rec.: 9-2-10 1010
Receipt Criteria	. Y	N	EX*	NA	Comments and/or Resolution
1. Custody seals present / intact?	-			~	·
2. Chain of Custody present in cooler?	1				
3. Chain of Custody signed by client?					
4. Chain of Custody matches samples?					
5. Temperature Blanks present? If not, take temperature of any sample w/ IR gun.					Temp (°C):
Samples received at <6 °C w/o freezing?	Vàr	· √			Note: Not required for metals (except Hg soil) analysis
Ice packs or ice present?	Bar a				The lack of ice or ice packs (i.e. no attempt begin cooling process) or insufficient ice ma
If yes, was there sufficient ice to meet temperature requirements?		-		444-14-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	not meet certain regulatory requirements ar may invalidate certain data.
If temp. out, has the cooling process begun (i.e. ice or packs present) and sample collection times <6hrs., but samples are not yet cool?					Note: No cooling process required for meta (except Hg soil) analysis.
6. Volatiles:	Scan (gran a				
Aqueous: No bubble larger than a pear			+		
Received in airtight container?	- CHARLEN				
Received in methanol?			ŀ		
Methanol covering soil?					
D.I. Water - Received within 48 hour HT?					
Air: Refer to KAS COC for canister/flow controller requirements.	√ifa	ir-inclu	ldeđ		· · · · · · · · · · · · · · · · · · ·
7. Trip Blank present in cooler?				].	
8. Proper sample containers and volume?					
9. Samples within hold time upon receipt?					· · · · · · · · · · · · · · · · · · ·
10. Aqueous samples properly preserved? Metals, COD, NH3, TKN, O/G, phenol,	ALIQUETITZATIONITZ				
TPO4, N+N, TOC, DRO, TPH – pH <2 Sulfide - >9			1		1

QA-048 - Revision 6 - 07/20/2015

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	G company       Katahdin Analytical Services,       Notes about project:         Address       600 Technmology Way       Email pdf of results and invoice to         Address       Scarborough, ME 04074       Email pdf of results and invoice to         Address       Scarborough, ME 04074       Metals: Lithium only: 2 - 250ml         Account #       (2017) 874-2400       Containers per sample	EAI SRB# 159903 Project State: NH Project ID: 3949 Project ID: 3949 ☐ A ☐ A+ ☐ B ☐ B+ ☐ C ☐ P Please call prior to :	uisB-13 8/30/2016 aqueous Subcontract - Metals by ICP-AES	SB-6 8/30/2016 aqueous Subcontract - Metals by ICP-AES	SB-4 8/30/2016 aqueous Subcontract - Metals by ICP-AES	SB-1 8/30/2016 aqueous Subcontract - Metals by ICP-AES	STU에에 Matrix aParameters	CHAIN-OF-CUSTODY RECORD eastern analytical professional laboratory services
Relinquished by Date/Time Received by	Relinguistred by: Relinguistred by Date/Time Relinguistred by Date/Time Received by	Eastern Analytical Inc. PO Number: 45040 Please call prior to analyzing, if RUSH surcharges will be applied					EAI SKER I DUUS Sample Notes	aboratory services

Eastern Ar	Address 600 Tecl Address 600 Tecl Address Scarbor Account # Phone # (207) 87.	969°S EAI SRB# 159903	ivnəS lsɔiវγlsnA nibdst	Ка	SB-14	Sample ID	CHAIN-
alytical, Inc. 25 Chenell Dr. (	hnmology Way bugh, ME 04074 4-2400	Project State: NH Project ID: 3949			8/30/2016 aqueous Su 11:50	Date Sampled Matrix	
Concord, NH 03301 Phone: (603)228-0525	Email pdf of results and invoice to customerservice@eailabs.com. Metals: Lithium only: 2 - 250ml containers per sample	Results Needed by: Preferred date         QC Deliverables         ⊠ A □ A+ □ B □ B+ □ C □ P         Notes about project:			bcontract - Metals by ICP-AES	aParameters	DY RECORD eastern an professional lat
1-800-287-0525 Fe	Samples Collected by: Relinquished by Relinquished by	Eastern Analytical Inc Please call prior to an					nalytical boratory services
X: (603)228-4591	2/2/16/005 Chull why Date/Time 73 Received by 12/16/DB Date/Time Received by	5. PO Number: 45040 alyzing, if RUSH surcharges will b				Sample Notes	EAI SRB# 159903
or damages	Brown	e applied.				A LONG TRANSPORT	20

A A TZ . 1.	Katahdin Analytical Services	
ANALYTICAL SERVICES	Login Chain of Custody Report (Ino1) Page: 1 o Sep. 02, 2016 11:34 AM	of 1
Login Number: SJ6969	Quote/Incoming:	
Account:EASTAN001 Eastern Analytical, Inc.	NoWeb Login Information:	
Project:	ANALYSIS INSTRUCTIONS : CHECK NO. : CLIENT PO# : 45040	
Primary Report Address: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive	CLIENT PROJECT MANAGE : CONTRACT : COOLER TEMPERATURE : 9.7 DELIVERY SERVICES : Client EDD FORMAT : WEST-XLS	
Concord,NH 03301 Primary Invoice Acceptions.com	LOGIN INITIALS : SO PM : KSS PROJECT NAME : 3940	
Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive	QC LEVEL       :         QC LEVEL       :         REGULATORY LIST       :         REPORT INSTRUCTIONS       : email pdf, EDD and invoice to customerservice@eailabs.com, no HC	2
Concord,NH 03301 Report CC Addresses:	SDG ID : SDG STATUS :	

# Invoice CC Addresses:

Laboratory Sample ID	Client Sample N	Colle umber Date	ect /Time	Receive Date	PR	Verbal Date	Due Date	Mailed	
SJ6969-1	SB-1	30-A	UG-16 13:23	02-SEP-16			14-SEP-16		ana aka Manana Manja, ana minjak da 193
<i>Matrix</i> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Но. 1 26- 26- 26-	<b>id Date (shortest)</b> FEB-17 FEB-17	<b>Bottle Type</b> 250mL Plastic 250mL Plastic	+HNO3 +HNO3	Bottle Cour	nf.	Camments	
SJ6969-2	9-2 SB-4		UG-16 10:44	02-SEP-16			14-SEP-16		
<i>Matrix</i> Aqueous Aqueous	Product           us         \$ E200.7-LITHIUM           us         \$ E200.7-PREP		<b>id Date (shortest)</b> FEB-17 FEB-17	Bottle Type 250mL Plastic 250mL Plastic	+HNO3 +HNO3	Bottle Cour	nt	Comments	
SJ6969-3	SB-6	30-A	UG-16 13:36	02-SEP-16			14-SEP-16		
Matrix Aqueous Aqueous	Product S E200.7-LITHIUN S E200.7-PREP	Ho A 26- 25-	<b>ld Date (shortest)</b> FEB-17 FEB-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3		Bottle Cou	nt	Comments	
SJ6969-4	SB-13	30-A	UG-16 10:04	02-SEP-16			14-SEP-16		
<i>Matrix</i> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Ho A 26- 26- 26-	<b>Id Date (shorfest)</b> FEB-17 FEB-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3		Bottle Cou	nt	Comments	
SJ6969-5	SB-14	30-A	UG-16 11:50	02-SEP-16	-		14-SEP-16		
<i>Matrix</i> Aqueous Aqueous	Matrix         Product           Aqueous         S         E200.7-LITHIUM           Aqueous         S         E200.7-PREP		id Date (shortest) FEB-17 FEB-17	<i>Bottle Type</i> 250mL Plastic 250mL Plastic	++HNO3 ++HNO3	Bottie Cou	nf	Comments .	

Total Samples: 5

Total Analyses: 10

Direct 634-2439	Email: allan.palmer@eversource.com	Phone 669-4000 Fax Choos	Address 780 North Commercial S City Manchester NH 03105-0	Client (Pro Mgr) Alian Paimer Customer Eversource Energy	State NH	EAI Project ID 3949 Project Name Merrimack Station Coal A	Please ensure this auto COC	Sampler confirms ID and parameters	05:11	SB-14 5/30/16	Sampler confirms ID and parameters	10:04	SB-13 8/30/16	Sampler confirms ID and parameters	13:36	SB-6 8-130116	Sampler confirms ID and parameters	10:44	SB-4 8/30/16	Sampler confirms ID and parameters	13:23	SB-1 8/30/16	Composites need start Sample IDs and stop dates/times	Date/Time		
Eastern An	-	e one:	treet, PO 330			sh Landfill -	is accurate,	ire accurate	Grab or Comp	aqueous	ire accurate	Grabor Comp	aqueous	ire accurate	Grab or Comp	aqueous	ire accurate	Grab or Comp	aqueous	re accurate	Grab or Comp	aqueous	Matrix			
alytical, Inc. www.eailabs.com   800.287.0	⊠А □А+ □В □В+ □С □РС	QC deliverables		Lithium sub to Katahdin - 500ml HNO3 container Please HOLD dissolved metals analyses	Samples collected via Low Flow Method	Results Needed by: Preferred date	adheres to permit or sampling requirements for i	Circle preservative/s: HCL (IND, H,SO, NaOH MEOH Na		AqTot/Cl/F/SO4/TDS/Rad226Rad228ComboSubKNL/ICl AqDis/ICPMets Sh As B Ba Be Cd Cr Co Pb Hd Se TI	Circle preservative/s: HCL ANO, H,SO, NaOH MEOH Na	רין ביינייניינייניינייניינייניינייניינייניינ	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/IC	Circle preservative/s: HCL HNO, H,SO, NaOH MEOH Na		AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/IC	Circle preservative/s: HCL ENO, H,SO, NaOH MEOH Na		AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/IC AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.TI	Circle preservative/s: HCL KNO2 H, SO, NaOH MEOH Na	עקטוארטרואופוטיסמיעטימימימייסמייסמייסטייסטיר מיוואיסטיע	AqTot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/IC	Parameters and Sample Notes		CHAIN-UF-CUSIUDY RECORD	
525   customerservice@eailɛ	Relinquished by	- to marking and	Samples Collected by 5.4	e-mail Login Confirmation	EDD PDF EDD email EDD email	ReportingOptions	this sampling event, and m	1,5,0, (CE)		PMets.B.Ca.Sb.As.Ba.Be.Cd.Cr	1,5,0, (CE)		PMets.B.Ca.Sb.As.Ba.Be.Cd.Cr	1,5,0, (CE)		PMets.B.Ca.Sb.As.Ba.Be.Cd.Cr	1,5,0, (CP)		PMets.B.Ca.Sb.As.Ba.Be.Cd.Cr	1,5,0, CE		PMets.B.Ca.Sb.As.Ba.Be.Cd.Cr				
abs.com	Date/Time Receive		Seegue Scheau (1971) 2/16/1602 C Date/Time Receive	Temp -	Partial FAX PDF Invoice C FOUNS	□ NO FAX PO#	odify as necessary.	Dissolved Sample Field Fil		Co.Pb.Li.Hg.Mo.Se.Tl	Dissolved Sample Field Fil		r.Co.Pb.Li,Hg.Mo.Se.Tl	Dissolved Sample Field Fil		r.Co.Pb.Li.Hg.Mo.Se.Tl	Dissolved Sample Field Fil		r.Co.Pb.Li.Hg.Mo.Se.Tl	Dissolved Sample Field Fil		r.Co,Pb,Li,Hg,Mo,Se,Tl	# of	[	1599	
	ed by	bu by				≠ PO#		tered K		Ŋ	tered 🔀		R	tered 🕅		x	tered 🕅		R	tered X	ſ	q	containers		03	

October 2016


Allan Palmer Eversource Energy 780 North Commercial Street, PO Box 330 Manchester, NH 03105-0330



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 161723 Client Identification: Merrimack Station Coal Ash Landfill - Low Flow Date Received: 10/17/2016

Dear Mr. Palmer:

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

- Solid samples are reported on a dry weight basis, unless otherwise noted
- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R:% Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Date

Lorraine Olashaw, Lab Director

# of pages (excluding cover letter)

## SAMPLE CONDITIONS PAGE

EAI ID#: 161723

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Temperature upon receipt (°C): 0.7				Received on ice or cold packs (Yes/No): Y			
Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)	
161723.01	SB-1	10/17/16	10/17/16	aqueous		Adheres to Sample Acceptance Policy	
161723.02	SB-4	10/17/16	10/17/16	aqueous		Adheres to Sample Acceptance Policy	
161723.03	SB-6	10/17/16	10/17/16	aqueous		Adheres to Sample Acceptance Policy	
161723.04	SB-13	10/17/16	10/17/16	aqueous		Adheres to Sample Acceptance Policy	
161723.05	SB-14	10/17/16	10/17/16	aqueous		Adheres to Sample Acceptance Policy	

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitibility, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.

All results contained in this report relate only to the above listed samples.

References include:

1) EPA 600/4-79-020, 1983

2) Standard Methods for Examination of Water and Wastewater, 20th Edition, 1998 and 22nd Edition, 2012

3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB

4) Hach Water Analysis Handbook, 2nd edition, 1992

Eastern Analytical, Inc.

www.eailabs.com | 800.287.0525 | customerservice@eailabs.com

#### LABORATORY REPORT

# M

EAI ID#: 161723

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	SB-1	SB-4	SB-6	SB-13					
Lab Sample ID:	161723.01	161723.02	161723.03	161723.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	10/17/16	10/17/16	10/17/16	10/17/16		A	nalvsis		
Date Received:	10/17/16	10/17/16	10/17/16	10/17/16	Units	Date	Time	Method A	nalyst
Solids Dissolved	130	190	260	260	mg/L	10/19/16	12:15	2540C-97	ATA
Fluoride	< 0.1	< 0.1	< 0.1	< 0.1	mg/L	10/31/16	12:18	300.0	KD
Sulfate	6	10	8	8	mg/L	10/31/16	12:18	300.0	KD
Chloride	60	100	150	150	mg/L	10/21/16	11:19	4500CIE-97	KD

Sample ID:	SB-14
Lab Sample ID:	161723.05
Matrix:	aqueous
Date Sampled:	10/17/16
Date Received:	10/17/16
Solids Dissolved	29
Fluoride	< 0.1
Sulfate	4
Chloride	11

Analysis						
Units	Date	Time	Method A	nalyst		
mg/L	10/19/16	12:15	2540C-97	ATA		
mg/L	10/31/16	13:18	300.0	KD		
mg/L	10/31/16	13:18	300.0	KD		
mg/L	10/21/16	11:24	4500CIE-97	KD		

#### LABORATORY REPORT

## M

#### EAI ID#: 161723

3

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	SB-1	SB-4	SB-6	SB-13					
Lab Sample ID:	161723.01	161723.02	161723.03	161723.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	, 10/17/16	, 10/17/16	10/17/16	, 10/17/16	Analytical		Date of		
Date Received:	10/17/16	10/17/16	10/17/16	10/17/16	Matrix	Units	Analysis	Method	Analyst
Antimony	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	10/20/16	200.8	DS
Arsenic	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	10/20/16	200.8	DS
Barium	0.017	0.012	0.018	0.015	AqTot	mg/L	10/20/16	200.8	DS
Beryllium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	10/20/16	200.8	DS
Boron	< 0.05	< 0.05	< 0.05	< 0.05	AqTot	mg/L	10/20/16	200.8	DS
Calcium	9.7	8.4	10	8.8	AqTot	mg/L	10/20/16	200.8	DS
Cadmium	< 0.001	< 0.001	< 0,001	< 0.001	AqTot	mg/L	10/20/16	200.8	DS
Chromium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	10/20/16	200.8	DS
Cobalt	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	10/20/16	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	10/20/16	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	< 0.0001	AqTot	mg/L	10/20/16	200.8	DS
Molybdenum	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	10/20/16	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	10/20/16	200.8	DS
Thallium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	10/20/16	200.8	DS
Sample ID:	SB-14								
Lab Sample ID:	161723.05								
Matrix:	aqueous								
Date Sampled:	10/17/16				Analytical		Date of		
Date Received:	10/17/16				Matrix	Units	Analysis	Method	Analyst
Antimony	< 0.001				AqTot	mg/L	10/20/16	200.8	DS
Arsenic	< 0.001				AqTot	mg/L	10/20/16	200.8	DS
Barium	0.002				Aq⊤ot	mg/L	10/20/16	200.8	DS
Beryllium	< 0.001				AqTot	mg/L	10/20/16	200.8	DS
Boron	< 0.05				AqTot	mg/L	10/20/16	200.8	DS
Calcium	4.0				AqTot	mg/L	10/20/16	200.8	DS
Cadmium	< 0.001				AqTot	mg/L	10/20/16	200.8	DS
Chromium	< 0.001				AqTot	mg/L	10/20/16	200.8	DS
Cobalt	< 0.001				Aq⊤ot	mg/L	10/20/16	200.8	DS
Lead	< 0.001				Aq⊤ot	mg/L	10/20/16	200.8	DS
Mercury	< 0.0001				AqTot	mg/L	10/20/16	200.8	DS
Molybdenum	< 0.001				AqTot	mg/L	10/20/16	200.8	DS
Selenium	< 0.001				AqTot	mg/L	10/20/16	200.8	DS
Thallium	< 0.001				AaTot	ma/L	10/20/16	200.8	DS





Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	161723
	SB-1

PWS ID# Sample Collection : 10-17-16/1414 Lab ID No: 16.11855 Lab Custody Date: 10-21-16/1015 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.6 ± 0.4	Calc	Calc	0.7
4020	Radium-226	pCi/L	$0.6 \pm 0.4$	10-27-16/1125	EPA 903.0	0.4
4030	Radium-228	pCi/L	$0.0 \pm 0.4$	10-29-16/1509	EPA Ra-05	0.7

Alpha Standard: Th-230

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



DOH Certification #E84025

Report Date: November 2, 2016

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Cust	tody:	Client
Client/Fie	eld ID:	161723
		SB-4

PWS ID# Sample Collection : 10-17-16/1113 Lab ID No: 16.11856 Lab Custody Date: 10-21-16/1015 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

and the second second						
Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.3 ± 0.5	Calc	Calc	0.8
4020	Radium-226	pCi/L	$0.3 \pm 0.3$	10-27-16/1125	EPA 903.0	0.5
4030	Radium-228	pCi/L	$0.0 \pm 0.5$	10-28-16/1804	EPA Ra-05	0.8

Alpha Standard: Th-230

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1





Client

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

	Field C	ustody:	Client
	Client/	Field ID:	161723
			SB-6
		4	
	PWS ID#		
<u> </u>	Sample	Collection :	10-17-16/1400
	Lab ID	No:	16.11857
	Lab Cus	stody Date:	10-21-16/1015
	Sample	Description:	Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.2 ± 0.5	Calc	Calc	0.7
4020	Radium-226	pCi/L	$0.2 \pm 0.3$	10-27-16/1125	EPA 903.0	0.5
4030	Radium-228	pCi/L	0.0 ± 0.5	10-29-16/1509	EPA Ra-05	0.7

Alpha Standard: Th-230

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody: Client/Field ID:	Client 161723 SB-13
PWS ID# Sample Collection :	10-17-16/1

Sample Collection :	10-17-16/1034
Lab ID No:	16.11858
Lab Custody Date:	10-21-16/1015
Sample Description:	Water

CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	$1.3 \pm 0.5$	Calc	Calc	0.7
4020	Radium-226	pCi/L	$0.7 \pm 0.4$	10-27-16/1125	EPA 903.0	0.4
4030	Radium-228	pCi/L	$0.6 \pm 0.5$	10-29-16/1509	EPA Ra-05	0.7

Alpha Standard: Th-230

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James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field	Custody:	Client
Client	/Field ID:	161723
		SB-14
	¥ 4	
	$\{G_{j,k}^{k},\dots,f_{k}\}_{j \in \mathbb{N}}$	

PWS ID# Sample Collection : 10-17-16/1231 Lab ID No: 16.11859 Lab Custody Date: 10-21-16/1015 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	$0.2 \pm 0.5$	Calc	Calc	0.7
4020	Radium-226	pCi/L	$0.2 \pm 0.3$	10-28-16/1431	BPA 903.0	0.4
4030	Radium-228	pCi/L	0.0 ± 0.5	10-29-16/1509	EPA Ra-05	0,7

Alpha Standard: Th-230

er w Hages

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

CHAIN-	-OF-CUSTODY RECORD eastern an	ه مoratory services EAI SRB# 161723	U U
Sample ID	Date Sampled Matrix aParameters	Sample Notes	
SB-1	10/17/2016 aqueous Radium 226 & Radium 228 Combined Subcontract KNL 14:14	K. 11835	
SB-4	10/17/2016 aqueous Radium 226 & Radium 228 Combined Subcontract KNL 11:13	16-11050	
0 8 9	10/17/2016 aqueous Radium 226 & Radium 228 Combined Subcontract KNL 14:00	16.11e57	
SB-13	10/17/2016 aqueous Radium 226 & Radium 228 Combined Subcontract KNL 10:34	16.1185B	
	Ar 11-3-16		
EAI SRB# 1617; Company KNL E Address 3202 1	23       Project State: NH       Results Needed by: Preferred date         Project ID: 3949       QC Deliverables         Invironmental Testing       ⊠ A □ A+ □ B □ B+ □ C □ P         Notes about project:       Notes about project:         V. Florida Ave.       Email pdf of results and invoice to	Eastern Analytical Inc. PO Number: 45289 Please call prior to analyzing, if RUSH surcharges will be applie	ed.
Address 3202 I Address Tampa Account#	a, FL 33603	Samples Collected by: <u> <u> <u> </u> /u></u>	
Phone # 813-22 Fax Number 813-22	29-2879 ' 29-0002 '	Relinquished by Date/Time Received by	
Eastern As a subcontract lab to EAI, arising out of the performant	Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Phone: (603)228-0525 you will defend, indemnify and hold Eastern Analytical, Inc., its officers, employees, and agents harm ce against this chain of custody but only in proportion to and to the extent such liability, loss, expense,	1-800-287-0525 Fax: (603)228-4591 iss from and against any and all liability, loss, expense or claims for injury or damages in claims for injury or damages are caused by or result from the negligent or intention	ge: Ma
acts or omissions of you as	a subcontract lab, your officers, agents or employees		

# 16172: le Notes le Notes ////////////////////////////////////	Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Phone: (603)228-0525 1-800-287-0525 Fax: (603)228-4 As a subcontract lab to EAI, you will defend, indemnify and hold Eastern Analytical, Inc., its officers, employees, and agents harmless from and against any and all llability, loss, expansion of the performance against this chain of custody but only in proportion to and to the extent such llability, loss, expense, or claims for injury or damages are caused by or nacts or omissions of you as a subcontract lab, your officers, agents or employees	Fax Number 813-229-0002 Relinquished by Date/Time	Phone # 813-229-2879	Account # Relinquished byDate/Time	Address Tampa, FL 33603 customerservice@eailabs.com. Samples Collected by:	Address 3202 N. Florida Ave. Email pdf of results and invoice to	company KNL Environmental Testing Notes about project:	Project ID: 3949 $\square$ A $\square$ A+ $\square$ B $\square$ B+ $\square$ C $\square$ P, Please call prior to analyzing, if RU	EAI SRB# 161723 Project State: NH Results Needed by: Preferred date Eastern Analytical Inc. PO Num	SB-14 10/17/2016 aqueous Radium 226 & Radium 228 Combined Subcontract KNL //	Sample in Date Sampled Matrix aParameters Sampi	EAI SRB	
	7525 F-ax: (603)228-4591 ainst any and all liability, loss, expense or claims for in ry or damages are caused by or result from the neglige	shed by Date/Time Received	102116 1015 14	hed by Date/Time Received	Collected by: 16/18/16 1530 UP			call prior to analyzing, if RUSH surcharges w	nalytical Inc. PO Number: 45289	16 11859	Sample Notes	vices EAI SRB# 161723	





November 2, 2016

Eastern Analytical, Inc. 25 Chenell Drive Concord,NH 03301

RE: Katahdin Lab Number:SJ8635Project ID:ID # 3949Project Manager:Ms. Kristen SchultzSample Receipt Date(s):October 19, 2016

To Whom it May Concern:

Please find enclosed the following information:

- \* Report of Analysis (Analytical and/or Field)
- \* Chain of Custody (COC)
- \* Login Report

A copy of the Chain of Custody is included in the paginated report. The original COC is attached as an addendum to this report.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. The results contained in this report relate only to the submitted samples. This cover letter is an integral part of the ROA.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in an attached technical narrative or in the Report of Analysis.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Please go to http://www.katahdinlab.com/cert.html for copies of Katahdin Analytical Services Inc. current certificates and analyte lists.

Sincerely, KATAHDIN ANALYTICAL SERVICES

**Authorized Signature** 

11/02/2016

Date

#### KATAHDIN ANALYTICAL SERVICES - INORGANIC DATA QUALIFIERS

The sampled date indicated on the attached Report(s) of Analysis (ROA) is the date for which a grab sample was collected or the date for which a composite sample was completed. Beginning and start times for composite samples can be found on the Chain-of-Custody.

U Indicates the compound was analyzed for but not detected above the specified level. This level may be the Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), the Limit of Detection (LOD) or Method Detection Limit (MDL) as required by the client.

Note: All results reported as "U" MDL have a 50% rate for false negatives compared to those results reported as "U" PQL "U" LOQ or "U" LOD, where the rate of false negatives is <1%.

- E Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.
- J Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), but above the Method Detection Limit (MDL).
- I-7 The laboratory's Practical Quantitation Level (PQL) or LOQ could not be achieved for this parameter due to sample composition, matrix effects, sample volume, or quantity used for analysis.
- A-4 Please refer to cover letter or narrative for further information.
- H\_ Please note that the regulatory holding time for \_\_\_\_\_ is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. \_\_\_\_\_ for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.

H1 - pH H2 - DO H3 - sulfite

H4 - residual chlorine

- T1 The client did not provide the full volume of at least one liter for analysis of TSS. Therefore, the PQL of 2.5 mg/L could not be achieved.
- T2 The client provided the required volume of at least one liter for analysis of TSS, but the laboratory could not filter the full one liter volume due to the sample matrix. Therefore, the PQL of 2.5 mg/L could not be achieved.
- M1 The matrix spike and/or matrix spike duplicate recovery performed on this sample was outside of the laboratory acceptance criteria. Sample matrix is suspected. The laboratory criteria was met for the Laboratory Control Sample (LCS) analyzed concurrently with this sample.
- M2 The matrix spike and/or matrix spike duplicate recovery was outside of the laboratory acceptance criteria. The native sample concentration is greater than four times the spike added concentration so the spike added could not be distinguished from the native sample concentration.
- R1 The relative percent difference (RPD) between the duplicate analyses performed on this sample was outside of the laboratory acceptance criteria (when both values are greater than ten times the PQL).

MCL	Maximum Contaminant Level	NL	No limit
NFL	No Free Liquid Present	FLP	Free Liquid Present
NOD	No Odor Detected	TON	Threshold Odor Number

- D-1 As required by Method 5210B, APHA Standard Methods for the Examination of Water and Wastewater (21<sup>st</sup> edition), the BOD value reported for this sample is 'qualified' because the check standard run concurrently with the sample analysis did not meet the criteria specified in the method (198 +/- 30.5 mg/L). These results <u>may</u> not be reportable for compliance purposes.
- D-2 The measured final dissolved oxygen concentrations of all dilutions were less than the method-specified limit of 1 mg/L. The reported BOD result was calculated assuming a final oxygen concentration equal to 1 mg/L. The reported value should be considered a minimum value.
- D-3 The dilution water used to prepare this sample did not meet the method and/or regulatory criteria of less than 0.2 or 0.4 mg/L dissolved oxygen (DO) uptake over the five day period of incubation. These results <u>may</u> not be reportable for compliance purposes.

## MM<u>Katahdin</u>

#### REPORT OF ANALYTICAL RESULTS

 Client:
 Eastern Analytical, Inc.
 Lab Sample ID:
 \$J8635-001

 Eastern Analytical, Inc.
 Report Date:
 11/2/2016

 25 Chenell Drive
 PO No.:

 Concord, NH 03301
 Project:
 ID # 3949

Sample Description						Matrix	Filtered	I	Date Sample	d	Date Received		
SB-1					AQ		No(Total)		10/17/2016		10/19/2016		
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By QC	Notes	
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	10/21/16	JS	EPA 200.1	7 10/21/16	MD JJ211CW1		



#### **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Lab Sample ID: SJ8635-002 Eastern Analytical, Inc. Report Date: 11/2/2016 25 Chenell Drive PO No.: Concord, NH 03301 Project: ID # 3949

Sample Description						Matrix	Filtered		Date Sample	d	Date Receiv		
SB-4						AQ	No(Total)		10/17/2016		10/19/2016		
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	Ву	QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	10/21/16	JS	EPA 200.	7 10/21/16	MD JJ	211CW1	

Katahdin Analytical Services SJ8635 page 0000004 of 0000011



#### **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 SJ8635-003

 Report Date:
 11/2/2016

 PO No.:
 Project:

 ID # 3949

Sample Description						Matrix	Filtered No(Total)		Date Sampled 10/17/2016		Date Received 10/19/2016		
SB-6					AQ								
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	Ву	QC	Notes
							10101110		CD4 000		100	UNKONALA	

LITHIUM U 0.100 mg/L 0.100 1 0.1 EPA 200.7 10/21/16 JS EPA 200.7 10/21/16 MD JJ21/CW1

## M Katahdin

#### **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301

## Lab Sample ID: SJ8635-004 Report Date: 11/2/2016 PO No.: Project: ID # 3949

Sample Description						Matrix AQ	Filtered No(Total)		Date Sampled 10/17/2016		Date Received 10/19/2016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	10/21/16	JS	EPA 200.	7 10/21/16	MD JJ21ICW1	

## MM Katahdin

#### **REPORT OF ANALYTICAL RESULTS**

 Client:
 Eastern Analytical, Inc.
 Lab Sample ID:
 SJ8635-005

 Eastern Analytical, Inc.
 Report Date:
 11/2/2016

 25 Chenell Drive
 PO No.:

 Concord, NH
 03301
 Project:
 ID # 3949

Sample Description						Matrix	Filtered	I	Date Sample	ed	Date Received	
SB-14						AQ	No(Tota	l)	10/17/20	16	10/19/2016	
Parameter	Resuit	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By QC	Notes
LITHIUM	U 0.100	ma/L	0.100	1	0.1	EPA 200.7	10/21/16	JS	EPA 200.1	7 10/21/16	MD JJ21ICW1	

Katahdin Analytical Service	s, LLC. Sample	<b>Receipt Condition Report</b>
Client: Eastern Analytic	KAS PM: KS	Sampled By: Chien f
Project:	KIMS Entry By: SO	Delivered By: UPS
KAS Work Order#: 558635	KIMS Review By: PM	H Received By: KuB
SDG #:	Cooler: of D	ate/Time Rec.: 10/19/16 @ 11:15

 $\sim$ 

Receipt Criteria	Y	N	EX*	NA	Comments and/or Resolution
1. Custody seals present / intact?					
2. Chain of Custody present in cooler?	$\checkmark$				
3. Chain of Custody signed by client?	1				
4. Chain of Custody matches samples?	<i>.</i>		/		
5. Temperature Blanks present? If not, take temperature of any sample w/ IR gun.				- -	Temp (°C):
Samples received at <6 °C w/o freezing?	1/				Note: Not required for metals (except Hg soil) analysis.
Ice packs or ice present?	/				The lack of ice or ice packs (i.e. no attempt to begin cooling process) or insufficient ice may
If yes, was there sufficient ice to meet temperature requirements?	1/				not meet certain regulatory requirements and may invalidate certain data.
If temp. out, has the cooling process begun (i.e. ice or packs present) and sample collection times <6hrs., but samples are not yet cool?					Note: No cooling process required for metals (except Hg soil) analysis.
6. Volatiles:		,			
Aqueous: No bubble larger than a pea?					
Soll/Sediment:				-	
Received in mothereol?			<u> </u>		
			·		
D I Water Boosived within 48 hour HT2					
Air Refer to KAS COC for capitar/flow	l if o		ded		
controller requirements.	Y II G	ir mulu	ueu		
7. Trip Blank present in cooler?		1			
8. Proper sample containers and volume?					·
9. Samples within hold time upon receipt?	$\checkmark$	,			
10. Aqueous samples properly preserved? Metals, COD, NH3, TKN, O/G, phenol, TPO4, N+N, TOC, DRO, TPH – pH <2 Sulfide - >9 Cvanide – pH >12				~	~
* Log-In Notes to Exceptions: document any p	robler	ns wit	h sam	ples c	r discrepancies or pH adjustments.
				ŀ	

			SJS	635	ļ
	OF-CUSTO	DY RECORD eastern ar	nalytical		19
				EAI SRB# 16	1723
Sample ID	Date Sampled Matrix	aParameters		Sample Notes	
SBA	10/17/2046 aqueous	Subcontract - Metals by ICP-AES			
SB-4	10/17/2016 aqueous	Subcontract - Metals by ICP-AES			
SB-6	10/17/2016 aqueous :	Subcontract - Metals by ICP-AES			
SB-13	10/17/2016 aqueous 1	Subcontract - Metals by ICP-AES			
EAI SRB# 16172: Company Katahdi	3 Project State: NH Project ID: 3949 n Analytical Services,	Results Needed by: Preferred date         QC Deliverables         ⊠ A □ A+ □ B □ B+ □ C □ P         Notes about project:	Eastern Analytical Inc Please call prior to ana	. PO Number: lyzing, if RUSH surch	arges will be applied.
Address 600 Tec Address Scarbor Account#	hnmology Way ough, ME 04074	Email pdf of results and invoice to customerservice@eailabs.com. Metals: Lithium only: 2 = 250ml containers per sample	Samples Gollected by:	Date/Time F	molauluto
Fax Number	·42400	-	Relinquished by	Date/Time F	eceived by
Eastern A, S a subcontract lab to EAI, yc arising out of the performance acts or omissions of you as a s	nalytical, Inc. 25 Chenell Dr. w will defend, indemnify and hold f against this chain of custody but o wbcontract lab, your officers, agen	Concord, NH 03301 Phone: (603)228-0525 Eastern Analytical, Inc., its officers, employees, and agents harm nly in proportion to and to the extent such liability, loss, expense, ts or employees	<i>1-800-287-0525 Fax</i> ness from and against any and all the , or claims for injury or damages are	: (603)228-4591 ability, loss, expense or cla caused by or result from t	ims for injury or damages ne negligent or intentional
acts of omissions of you as a s	subcontract lab, your onticers, agen	ts or employees			

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				558635	)
CHAIN-	OF-CUSTO	DY RECORD eastern ar	nalytical		20
		-		EAI SRB#	161723
Sample ID	Date Sampled Matrix	aParameters		Sample No	tes
SB-14	10/17/2016 aqueous \$	Subcontract - Metals by ICP-AES			
EAI SRB# 16172	3 Project State: NH	Results Needed by: Preferred date	Eastern Analytica	l Inc. PO Number:	
	Project ID: 3949	A A A+ B B+ C DP	Please call prior t	o analyzing, if RUSH su	ırcharges will be applied.
Company Katahd	in Analytical Services,	Notes about project:			
Address 600 Te	chnmology Way	Email pdf of results and invoice to customerservice@eailabs.com.	Samales Collected	l by:	
Account #		Metals: Lithium only: 2 - 250ml containers per sample	Relinquished by	Date/Time	Received by
Phone # (207) 8	74-2400			na na ang ang ang ang ang ang ang ang an	
Fax Number			<b>Relinquished</b> by	Date/Time	Received by
Eastern A	Analytical, Inc. 25 Chenell Dr.	Concord, NH 03301 Phone: (603)228-0525	1-800-287-0525	Fax: (603)228-4591	
arising out of the performance acts or omissions of you as a	against this chain of custody but or subcontract lab, your officers, agent	in proportion to and to the extent such liability, loss, expense, so remployees	ness from and against any an , or claims for injury or damag	o air liability, loss, expense o es are caused by or result fr	or claims for injury or damages orn the negligent or intentional

Katahdin Analytical Services SJ8635 page 000000 fo 0100000 fo 010000 fo 0100000 fo 0100000 fo 00000  fo 00000  fo 000000 fo 00000  fo 00000 fo 0000 fo 00000 fo 00000 fo 0000 fo 00000  fo 0000 fo 00000

ALAT 11	Katahdin Analytical Services	
ANALYTICAL SERVICES	Login Chain of Custody Report (Ino1) Oct. 20, 2016 11:14 AM	Page: 1 of 1
Login Number: SJ8635	-Quote/Incoming:	
Account:EASTAN001 Eastern Analytical, Inc.	NoWeb Login Information:	
Project:	ANALYSIS INSTRUCTIONS CHECK NO. CLIENT PO#	: : :
Primary Report Address:	CLIENT PROJECT MANAGE	ε:
Eastern Analytical, Inc. Eastern Analytical, Inc.	CONTRACT COOLER TEMPERATURE	: : 5.4
25 Chenell Drive	DELIVERY SERVICES EDD FORMAT	: UPS : WEST-XLS
Concord,NH 03301	LOGIN INITIALS	: SO
Primary Invoice Address.com	PM	: KSS
Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive	QC LEVEL REGULATORY LIST	: ID # 3949 : I :
• • • • • • • • • • • • • • • • • • •	REPORT INSTRUCTIONS	<ul> <li>email pdf, EDD and invoice to customerservice@eailabs.com, no HC</li> </ul>
Concord,NH 03301	SDG ID	:
Report CC Addresses:	SDG STATUS	:

#### Invoice CC Addresses:

Laborator	y Client Sample Number	Collect Date/Time	Receive Date PR	Verbal Due Date Date	Mailed
SJ8635-1	SB-1	17-OCT-16 14:14	19-OCT-16	31-OCT-16	·····
Matrix Aquecus Aquecus	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 15-APR-17 15-APR-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments
SJ8635-2	SB-4	17-OCT-16 11:13	19-OCT-16	31-OCT-16	₩₩₩
<i>Matrix</i> Aqueous Aqueous	Product S E200.7-LITHJUM S E200.7-PREP	Hold Date (shortest) 15-APR-17 15-APR-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments
SJ8635-3	SB-6	17-OCT-16 14:00	19-OCT-16	31-OCT-16	, , , , ,
<i>Matrix</i> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 15-APR-17 15-APR-17	Bottle Type 250mL Piastic+HNO3 250mL Piastic+HNO3	Bottle Count	Comments
SJ8635-4	SB-13	17-OCT-16 10:34	19-OCT-16	31-OCT-16	
<i>Mətrix</i> Aqueous Aqueous	Product S E200,7-LITHIUM S E200,7-PREP	Hold Date (shortest) 15-APR-17 15-APR-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments
SJ8635-5	SB-14	17-OCT-16 12:31	19-OCT-16	31-OCT-16	
<i>Matrix</i> Aquecus Aquecus	Product . S E200.7-LITHIUM S E200.7-PREP	Hold Dafe (shortest) 15-APR-17 15-APR-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments

Total Samples: 5

Total Analyses:

s: 10

Direct 634-2439 Eastern Ana	Email: allan.palmer@eversource.com	Address 780 North Commercial Street, PO City Manchester NH 03105-0330 Phone 669-4000 Fax Choose one:	Project Name Merrimack Station Coal Ash Landfill - Low Flow State NH Client (Pro Mgr) Allan Palmer Customer Eversource Energy	Please ensure this auto COC is accurate, EAI Project ID 3949	Sampler confirms ID and parameters are accurate	SB-14 ( ロ / 1 구 / 1 ( aqueous	Sampler confirms ID and parameters are accurate	SB-13 Iのしたいん aqueous	Sampler confirms ID and parameters are accurate	SB-6 $(\circ 17 16$ aqueous $ 4 : co$ Grab or Comp	Sampler confirms ID and parameters are accurate	SB-4 10/17/16 aqueous	Sampler confirms ID and parameters are accurate	SB-1 $I \circ [17] I \circ Gab or Comp$	Sample IDs and stop dates/limes Matrix	Date/Time	
lytical, Inc. www.eailabs.com   800.287.0	⊠А □А+ □В □В+ □С □РС	QC deliverables	Notes: Samples collected via Low Flow Method Lithium sub to Katahdin - 500ml HNO3 container Please HOLD dissolved metals analyses	adheres to permit or sampling requirements for Results Needed by: Preferred date	Circle preservative/s: HCL (HNO, H,SO, NaOH MEOH N	AqTot/Cl/F/SO4/TDS/Rad226Rad228ComboSubKNL/I0 AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	Circle preservative/s: HCL (HNO) H,SO, NaOH MEOH N	AqTot/Cl/F/SO4/TDS/Rad226Rad228ComboSubKNL/I0 AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.TI	Circle preservative/s: HCL (HND), H,SO, NaOH MEOH N	AqTot/Cl/F/SO4/TDS/Rad226Rad228ComboSubKNL/l0 AqDis/ICPMets.Sb.As,B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	Circle preservative/s: HCL (FINO, H,SO, NaOH MEOH N	AqTot/Cl/F/SO4/TDS/Rad226Rad228ComboSubKNL/l0 AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	Circle preservative/s: HCL (NO) H,SO, NaOH MEOH N	AqTot/Cl/F/SO4/TDS/Rad226Rad228ComboSubKNL/l0 AqDis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.TI	Parameters and Sample Notes		CHAIN-OF-CUSTODY RECOR
0525   customerservice@eailabs.com	Relinquished by Date/Time	Refinition by 19/17/16 16	X HC       Image: NO FAX         EDD PDF       Image: Partial FAX         EDD email       Image: PDF Invoice         PDF prelim, NO FAX       Image: PDF Invoice         Image: PDF Invoice       Image: PDF Invoice         Image: PDF Invoice	this sampling event, and modify as nece. ReportingOptions	la <sub>2</sub> S <sub>2</sub> O, (ICE) Dissolved Sam	CPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mc	la,S,O, (CE) Dissolved Sam	CPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mc	la,S,O, VCE Dissolved Sam	3PMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mc	ta,S,O, (Ch) Dissolved Sam	CPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mc	la <sub>2</sub> S <sub>2</sub> O <sub>3</sub> CE Dissolved Sam	CPMets.B.Ca.Sb.As.Ba.Be.Cd.Cr.Co.Pb.Li.Hg.Mc			
	Received by	Received by	PO# PO# Quote#: $ ^{0} _{35}$ $33$ Temp $\frac{0}{10}$ C	ssary.	nple Field Filtered	р.Se. TI	nple Field Filtered	o.Se.TI	nple Field Filtered	o.Se.TI	nple Field Filtered	5.Se.TI	nple Field Filtered	b.Se. TI	# of containers	Poun	161723

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November 2016



Eastern Analytical, Inc.

professional laboratory and drilling services

Allan Palmer Eversource Energy 780 North Commercial Street, PO Box 330 Manchester, NH 03105-0330



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 163327 Client Identification: Merrimack Station Coal Ash Landfill - Low Flow Date Received: 11/29/2016

Dear Mr. Palmer:

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

- Solid samples are reported on a dry weight basis, unless otherwise noted
- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R:%Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lorraine Olashaw, Lab Director



#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Temperat Acceptable t	temperature range (°C): 0-6	5.7		Re	eceived	on ice or cold packs (Yes/No): Y
Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
163327.01	SB-1	11/29/16	11/29/16	aqueous		Adheres to Sample Acceptance Policy Dissolved metals placed on HOLD per customer.
163327.02	SB-4	11/29/16	11/29/16	aqueous		Adheres to Sample Acceptance Policy Dissolved metals placed on HOLD per customer.
163327.03	SB-6	11/29/16	11/29/16	aqueous		Adheres to Sample Acceptance Policy Dissolved metals placed on HOLD per customer.
163327.04	SB-13	11/29/16	11/29/16	aqueous		Adheres to Sample Acceptance Policy Dissolved metals placed on HOLD per customer.
163327.05	SB-14	11/29/16	11/29/16	aqueous		Adheres to Sample Acceptance Policy Dissolved metals placed on HOLD per customer.

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.

All results contained in this report relate only to the above listed samples.

References include:

1) EPA 600/4-79-020, 1983

2) Standard Methods for Examination of Water and Wastewater, 20th Edition, 1998 and 22nd Edition, 2012

3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB

4) Hach Water Analysis Handbook, 2nd edition, 1992

Eastern Analytical, Inc.

www.easternanalytical.com | 800.287.0525 | customerservice@easternanalytical.com

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#### EAI ID#: 163327

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

		· · · · · · · ·					
Sample ID:	SB-1	SB-14					
Lab Sample ID:	163327.01	163327.05					
Matrix:	aqueous	aqueous					
Date Sampled:	11/29/16	11/29/16		Δι	nalvsis		
Date Received:	11/29/16	11/29/16	Units	Date	Time	Method A	Analyst
Solids Dissolved	88	12	mg/L	12/01/16	14:20	2540C-97	ATA
Fluoride	< 0.1	< 0.1	mg/L	12/06/16	22:26	300.0	KD
Sulfate	6	4	mg/L	12/06/16	22:26	300.0	KD
Chloride	62	7	mg/L	12/06/16	22:26	300.0	KD <sub>.</sub>

Sample ID:	SB-4	SB-6	SB-13					
Lab Sample ID:	163327.02	163327.03	163327.04					
Matrix:	aqueous	aqueous	aqueous					
Date Sampled:	11/29/16	11/29/16	11/29/16		Ana	alysis		
Date Received:	11/29/16	11/29/16	11/29/16	Units	Date	Time	Method A	nalyst
Solids Dissolved	180	230	240	mg/L	12/01/16	14:20	2540C-97	ATA
Fluoride	< 0.1	< 0.1	< 0.1	mg/L	12/07/16	1:19	300.0	KD
Sulfate	10	9	8	mg/L	12/07/16	1:19	300.0	KD
Chloride	100	130	140	mg/L	12/07/16	12:09	300.0	KD



### LABORATORY REPORT

#### EAI ID#: 163327

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	SB-1	SB-4	SB-6	SB-13					
Lab Sample ID:	163327.01	163327.02	163327.03	163327.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	11/29/16	11/29/16	11/29/16	11/29/16	Analytical		Date of		
Date Received:	11/29/16	11/29/16	11/29/16	11/29/16	Matrix	Units	Analysis	Method	Analyst
Antimon <b>y</b>	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	12/1/16	200.8	DS
Arsenic	< 0.001	0.001	< 0.001	< 0.001	AqTot	mg/L	12/1/16	200.8	DS
Barium	0.016	0.012	0.016	0.016	AqTot	mg/L	12/1/16	200.8	DS
Beryllium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	12/1/16	200.8	DS
Boron	< 0.05	< 0.05	< 0.05	< 0.05	AqTot	mg/L	12/1/16	200.8	DS
Calcium	8.0	7.0	8.1	7.4	AqTot	mg/L	12/1/16	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	12/1/16	200.8	DS
Chromium	< 0.001	< 0.001	< 0.001	0.001	AqTot	mg/L	12/1/16	200.8	DS
Cobait	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	12/1/16	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	12/1/16	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	< 0.0001	AqTot	mg/L	12/1/16	200.8	DS
Molybdenum	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	12/1/16	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	12/1/16	200.8	DS
Thallium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	12/1/16	200.8	DS
Sample ID:	SB-14								
Lab Sample ID:	163327.05								
Matrix:	aqueous								
Date Sampled:	11/29/16				Analytical		Date of		
Date Received:	11/29/16				Matrix	Units	Analysis	Method	Analyst
Antimony	< 0.001				AqTot	mg/L	12/1/16	200.8	DS
Arsenic	< 0.001				AqTot	mg/L	12/1/16	200.8	DS
Barium	0.002				AqTot	mg/L	12/1/16	200.8	DS
Beryllium	< 0.001				AqTot	mg/L	12/1/16	200.8	DS
Boron	< 0.05				AqTot	mg/L	12/1/16	200.8	DS
Calcium	2.9				AqTot	mg/L	12/1/16	200.8	DS
Cadmium	< 0.001				AqTot	mg/L	12/1/16	200.8	DS
Chromium	< 0.001				AqTot	mg/L	12/1/16	200.8	DS
Cobalt	< 0.001				AqTot	mg/L	12/1/16	200.8	DS
Lead	< 0.001				AqTot	mg/L	12/1/16	200.8	DS
Mercury	< 0.0001				Aq⊤ot	mg/L	12/1/16	200.8	DS
Molybdenum	< 0.001				AqTot	mg/L	12/1/16	200.8	DS
Selenium	< 0.001				AqTot	mg/L	12/1/16	200.8	DS
Thallium	< 0.001				AqTot	mg/L	12/1/16	200.8	DS

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Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Field Custody: Client Client/Field ID: 163327 SB-1

PWS ID# Sample Collection : 11-29-16/1338 Lab ID No: 16.14458 Lab Custody Date: 12-9-16/1030 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	1.8 ± 0.5	Calc	Calc	0.8
4020	Radium-226	pCi/L	$1.0 \pm 0.4$	12-16-16/1018	EPA 903.0	0.3
4030	Radium-228	pCi/L	$0.8 \pm 0.5$	12-19-16/1113	EPA Ra-05	0.8

Alpha Standard: Th-230

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James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

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4



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody:	Client
Client/Field ID:	163327
	SB-4
119 g	

PWS ID#

sample collection :	11-23-10/1012
Lab ID No:	16.14459
Lab Custody Date:	12-9-16/1030
Sample Description:	Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Análysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	$1.2 \pm 0.5$	Calc	Calc	0.7
4020	Radium-226	pCi/L	$0.7 \pm 0.3$	12-16-16/1018	EPA 903.0	0.3
4030	Radium-228	pCi/L	$0.5 \pm 0.5$	12-19-16/1113	EPA Ra-05	0.7

Alpha Standard: Th-230

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Field Custody: Client Client/Field ID: 163327 SB-6

PWS ID# Sample Collection : 11-29-16/1305 Lab ID No: 16.14460 Lab Custody Date: 12-9-16/1030 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	1.3 ± 0.5	Calc	Calc	0.8
4020	Radium-226	pCi/L	$0.5 \pm 0.2$	12-16-16/1018	EPA 903.0	0.3
4030	Radium-228	pCi/L	0.8 ± 0.5	12-27-16/1108	EPA Ra-05	0.8

Alpha Standard: Th-230

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Field Custody: Client Client/Field ID: 163327 SB-13

PWS ID# Sample Collection : 11-29-16/1531 Lab ID No: 16.14461 Lab Custody Date: 12-9-16/1030 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	$1.3 \pm 0.5$	Calc	Calc	0.7
4020	Radium-226	pCi/L	0.6 ± 0.3	12-16-16/1018	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.7 ± 0.5	12-23-16/1033	EPA Ra-05	0.7

Alpha Standard: Th-230

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Field Custody: Client Client/Field ID: 163327 SB-14

PWS ID# Sample Collection : 11-29-16/1150 Lab ID No: 16.14462 Lab Custody Date: 12-9-16/1030 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.4 ± 0.5	Calc	Calc	0.7
4020	Radium-226	pCi/L	$0.2 \pm 0.4$	12-19-16/1533	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.2 ± 0.5	12-23-16/1033	EPA Ra-05	0.7

Alpha Standard: Th-230

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James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

Sample ID Date Sam	USTODY RECORD eastern al professional la	nalytical aboratory services EAI SRB# 1633 Sample Notes
SB-1 11/29/20	6 aqueous Radium 226 & Radium 228 Combined Subcontract KNL	16.14
SB-4   11/29/20-	6 aqueous Radium 226 & Radium 228 Combined Subcontract KNL	16.1.
SB-6   11/29/20-	6 aqueous Radium 226 & Radium 228 Combined Subcontract KNL	6.14
SB-13   11/29/20-   15:31	6 aqueous Radium 226 & Radium 228 Combined Subcontract KNL	( 16-14
EAI SRB# <b>163327</b> Project Proj	State: NH Results Needed by: Preferred date State ect ID: 3949 A A A+ B B+ C P	Eastern Analytical Inc. PO Please call prior to analyzing
Company KNL Environment Address 3202 N. Florida Av Address Tampa, FL 33603 Account #	al Testing Notes about project: Pe. Email pdf of results and invoice to customerservice@eailabs.com.	Samples Collected by:
Phone # 813-229-2879 Fax Number 813-229-0002		Relinquished by Date
Eastern Analytical, Inc	. 25 Chenell Dr. Concord, NH 03301 Phone: (603)228-0525	1-800-287-0525 Fax: (603)
As a subcontract lab to EAI, you will defend, in arising out of the performance against this cha	Idemnify and hold Eastern Analytical, Inc., its officers, employees, and agents harr	(a) shiidai jiy pac ma tanicas pac was con

aboratory services	EAI SRB# 163 Sample Notes
	16.14462
Eastern Analytic Please call prior	al Inc. PO Number: 45 to analyzing, if RUSH surcha
Samples Collecte	nd by: / /2/37/6 / S3C
	1 alto el Mar
Relinquished by	Date/Time Re
1-800-287-0525 nless from and against any a	Fax: (603)228-4591
	Eastern Analytic Please call prior Relinquished by 1-800-287-0525

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December 19, 2016

Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord,NH 03301

RE:	Katahdin Lab Number:	TJ0241
	Project ID:	3949 - EAI SRB# 163327
	Project Manager:	Ms. Kristen Schultz
	Sample Receipt Date(s):	December 06, 2016

To Whom it May Concern:

Please find enclosed the following information:

- \* Report of Analysis (Analytical and/or Field)
- \* Chain of Custody (COC)
- \* Login Report

A copy of the Chain of Custody is included in the paginated report. The original COC is attached as an addendum to this report.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. The results contained in this report relate only to the submitted samples. This cover letter is an integral part of the ROA.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in an attached technical narrative or in the Report of Analysis.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Please go to http://www.katahdinlab.com/cert.html for copies of Katahdin Analytical Services Inc. current certificates and analyte lists.

Sincerely, KATAHDIN ANALYTICAL SERVICES

**Authorized Signature** 

12/19/2016

Date

#### KATAHDIN ANALYTICAL SERVICES - INORGANIC DATA QUALIFIERS

The sampled date indicated on the attached Report(s) of Analysis (ROA) is the date for which a grab sample was collected or the date for which a composite sample was completed. Beginning and start times for composite samples can be found on the Chain-of-Custody.

U Indicates the compound was analyzed for but not detected above the specified level. This level may be the Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), the Limit of Detection (LOD) or Method Detection Limit (MDL) as required by the client.

Note: All results reported as "U" MDL have a 50% rate for false negatives compared to those results reported as "U" PQL "U" LOQ or "U" LOD, where the rate of false negatives is <1%.

- E Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.
- J Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), but above the Method Detection Limit (MDL).
- I-7 The laboratory's Practical Quantitation Level (PQL) or LOQ could not be achieved for this parameter due to sample composition, matrix effects, sample volume, or quantity used for analysis.
- A-4 Please refer to cover letter or narrative for further information.

H2 - DO

H\_ Please note that the regulatory holding time for \_\_\_\_\_\_ is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. \_\_\_\_\_\_ for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.

H1 - pH

H3 - sulfite

H4 - residual chlorine

- T1 The client did not provide the full volume of at least one liter for analysis of TSS. Therefore, the PQL of 2.5 mg/L could not be achieved.
- T2 The client provided the required volume of at least one liter for analysis of TSS, but the laboratory could not filter the full one liter volume due to the sample matrix. Therefore, the PQL of 2.5 mg/L could not be achieved.
- M1 The matrix spike and/or matrix spike duplicate recovery performed on this sample was outside of the laboratory acceptance criteria. Sample matrix is suspected. The laboratory criteria was met for the Laboratory Control Sample (LCS) analyzed concurrently with this sample.
- M2 The matrix spike and/or matrix spike duplicate recovery was outside of the laboratory acceptance criteria. The native sample concentration is greater than four times the spike added concentration so the spike added could not be distinguished from the native sample concentration.
- R1 The relative percent difference (RPD) between the duplicate analyses performed on this sample was outside of the laboratory acceptance criteria (when both values are greater than ten times the PQL).

MCL	Maximum Contaminant Level	NL	No limit
NFL	No Free Liquid Present	FLP	Free Liquid Present
NOD	No Odor Detected	TON	Threshold Odor Number

- D-1 As required by Method 5210B, APHA Standard Methods for the Examination of Water and Wastewater (21<sup>st</sup> edition), the BOD value reported for this sample is 'qualified' because the check standard run concurrently with the sample analysis did not meet the criteria specified in the method (198 +/- 30.5 mg/L). These results <u>may</u> not be reportable for compliance purposes.
- D-2 The measured final dissolved oxygen concentrations of all dilutions were less than the method-specified limit of 1 mg/L. The reported BOD result was calculated assuming a final oxygen concentration equal to 1 mg/L. The reported value should be considered a minimum value.
- D-3 The dilution water used to prepare this sample did not meet the method and/or regulatory criteria of less than 0.2 or 0.4 mg/L dissolved oxygen (DO) uptake over the five day period of incubation. These results <u>may</u> not be reportable for compliance purposes.

# Katahdin ANALITICAL SPEVICES

### **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 TJ0241-001

 Report Date:
 12/16/2016

 PO No.:
 45508

 Project:
 3949 - EAI SRB# 163327

Sample Description				1. ger milji - ger sign an sama ger sign an sama ger sign an		Matrix	Filtered		Date Sample	d	Date Receiv	red	
SB-1						AQ	No(   ota	I)	11/29/20	16	12/06/2	016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	Ву	QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	12/9/16	MD	EPA 200.	7 12/7/16	MD JL	071CW1	

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# M Katahdin

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### REPORT OF ANALYTICAL RESULTS

Client:	Eastern Analytical, Inc.	Lab Sample ID:	TJ0241-002
	Eastern Analytical, Inc.	Report Date:	12/16/2016
	25 Chenell Drive	PO No.:	45508
	Concord, NH 03301	Project:	3949 - EAI SRB# 163327

±.

Sample Description				Matrix	Filtered		Date Sampled		Date Received			
SB-4						AQ	No(Tota	)	11/29/20	16	12/06/2016	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	12/9/16	MD	EPA 200.	7 12/7/16	MD JL071CW1	

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# Katahdin Katahdin

## **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 TJ0241-003

 Report Date:
 12/16/2016

 PO No.:
 45508

 Project:
 3949 - EAI SRB# 163327

Sample Description				Matrix	Filtered		Date Sample	d	Date Receive				
\$B-6						AQ	No(Tota	)	11/29/20	16	12/06/20	16	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	Ву	QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	12/9/16	MD	EPA 200.	7 12/7/16	MD JL0	7ICW1	

# MA Katahdin

# **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 TJ0241-004

 Report Date:
 12/16/2016

 PO No.:
 45508

 Project:
 3949 - EAI SRB# 163327

Sample Description						Matrix	Filtered	1	Date Sample	d	Date Receive	d	
SB-13						AQ	No(Tota	l)	11/29/20	16	12/06/20	16	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By (	QC	Notes
LITHIUM	U 0.100	mg/i_	0.100	1	0.1	EPA 200.7	12/9/16	MD	EPA 200.	7 12/7/16	MD JLO	7ICW1	



### **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 TJ0241-005

 Report Date:
 12/16/2016

 PO No.:
 45508

 Project:
 3949 - EAI SRB# 163327

Sample Description SB-14					Matrix AQ		Filtered No(Total)		Date Sampled 11/29/2016		Date Received 12/06/2016		
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	By	Prep Method	Prepped Date	Ву	QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	12/9/16	MD	EPA 200.	7 12/7/16	MD JI	_07ICW1	

# Katahdin Analytical Services, LLC.

# Sample Receipt Condition Report

Client: Easten Analyti	cal	KAS PM: 4,55		Sampled By: Client			
Project:		KIMS Entry By: 50	Delivered By:	$\tilde{\mathbf{b}}$			
-KAS Work Order#: TSO 241		KIMS Review By:	VQ	Received By: 50			
SDG #:	Cooler:	of	Date/Time	Rec.: 12-10-14	930		

Receipt Criteria	Y	N	EX*	NA	Comments and/or Resolution
1. Custody seals present / intact?		$\checkmark$	[		
2. Chain of Custody present in cooler?	/				
3. Chain of Custody signed by client?	/				
4. Chain of Custody matches samples?	~				
5. Temperature Blanks present? If not, take temperature of any sample w/ IR gun.		~			Temp (°C): -0,4
Samples received at <6 °C w/o freezing?	/				Note: Not required for metals (except Hg soil) analysis.
Ice packs or ice present?	L.	[			The lack of ice or ice packs (i.e. no attempt to begin cooling process) or insufficient ice may
If yes, was there sufficient ice to meet temperature requirements?					not meet certain regulatory requirements and may invalidate certain data.
If temp. out, has the cooling process begun (i.e. ice or packs present) and sample collection times <6hrs., but samples are not yet cool?					Note: No cooling process required for metals (except Hg soil) analysis.
6. Volatiles:					
Aqueous: No bubble larger than a pea?	<b> </b>		<b>_</b>		
Soil/Sediment:					
Received in airtight container?	Į				
Received in methanol?				$\mid$	
Methanol covering soil?			4		
D.I. Water - Received within 48 hour HT?		<u>[</u>	1		
Air: Refer to KAS COC for canister/flow controller requirements.	l√ifa	uir inclu	nqeq	<b>.</b>	
7. Trip Blank present in cooler?		<u> </u>			
8. Proper sample containers and volume?		+			
9. Samples within hold time upon receipt?	-	F			
10. Aqueous samples properly preserved? Metals, COD, NH3, TKN, O/G, phenol, TPO4, N+N, TOC, DRO, TPH – pH <2					
Sulfide - >9			1		
Cyanide – pH >12			<u></u>		
* Log-In Notes to Exceptions: document any	proble	ms wi	th san	nples	or discrepancies or pH adjustments.

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a subcontract ta sing out of the p ts or omissions of	ax Number	Address Address Account # Phone #	Company	EAI SRB#	SB-13	SB-6	SB-4	SB-1	ample ID	CH/
Eastern Analytical, Inc. 25 CF ab to EAI, you will defend, indemnify erformance against this chain of cu of you as a subcontract lab, your off		(207) 874-2400	Project ID: Katahdin Analytical Ser	163327 Project State:	11/29/2016   a	11/29/2016   a	11/29/2016   a	11/29/2016 a	Date Sampled N	AIN-OF-CUS
enell Dr. Concord, NH 03301 Phone: (603)228-0525 and hold Eastern Analytical, Inc., its officers, employees, and agents harr tody but only in proportion to and to the extent such liability, loss, expense zers, agents or employees		4 Metals: Lithium only: 2 - 250ml containers per sample	3949     QC Deliverables       Image: A line A+ □ B □ B+ □ C □ P       Vices,     Notes about project:       Email off of results and invoice to	NH Results Needed by: Preferred date Std	ueous Subcontract - Metals by ICP-AES	ueous Subcontract - Metals by ICP-AES	ueous	ueous Subcontract - Metals by ICP-AES	atrix aParameters	TODY RECORD eastern ar professional la
1-800-287-0525 Falless from and against any and all or claims for injury or damages a	<b>Relinquished by</b>	Samples Collected by	Please call prior to a	Eastern Analytical Ir						halytical boratory services
ax: (603)228-4591 Hability, loss, expense or c re caused by or result from	Date/Time	12/5/10 (5:30) Date/Time	nalyzing, if RUSH surc	nc. PO Number:					Sample Notes	EAI SRB# 16
laims for injury or damage the negligent or intentiona	Received by	TRS Received by	harges will be applied	15508						<b>3327</b> 20

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Eastern Ana ab to EAI, you erformance ag of you as a sub		(207) 874	Scarboro	Katahdin 600 Tech		163327			POCI	IN-C
lytical, Inc. will defend, inc alinst this chai contract lab, y		-2400	ugh, ME (	Analytical nmology \	Proje	Project S	11/29/2016 11:50	Date Sampi		- F-C
25 Chenell I lemnify and ho n of custody bu our officers, ac			04074	Services, Nay	ct ID: 3949	itate: NH	aqueous	eu marix		USTO
Dr. Concora ld Eastern Ana lt only in propo gents or emplo		conta	Meta	Email	A N	Results	Subcontrac	-		Yac
, NH 03301 lytical, Inc., its rtion to and to yees		liners pei	ls: Lithiur	about proje		Needed by:	t - Metais by	ararameters		REC
Phon officers, empli the extent suci		' sample	n only: 2	s and invoic and invoic	3 □ 8 ₽	Preferred da	CP-AES		•	ORD
e: (603)228 oyees, and age h liability, loss,			: - 250ml	5 5		afe V				easter professic
ents harmless expense, or i		<b></b>		<u></u>		- B				'n anal mal labor
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525 F inst any and a y or damages	hed by	hed by	Johner	Collected by	all prior to a	nalytical I				lices
ax: (603)22 Il llability, loss, are caused by	Date/Tir	Date/Tir	12/51	-	ınalyzing, if .	nc. PO Nu		50		FAISH
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or damage: yr intentiona	-	-			e applied.			at had to Constitution		21

	Kata	hdin Analytical Services	
ANALYTICAL SERVICES	Login Chi	ain of Custody Report (Ino1) Dec. 07, 2016 11:58 AM	Page: 1 of 1
Login Number: TJ0241		Quote/Incoming:	
Account:EASTAN001 Eastern Analytical. Inc.	NoWeb	Login Information:	
· · ·		ANALYSIS INSTRUCTIONS	:
Project:		CHECK NO.	:
		CLIENT PO#	: 45508
Primary Report Address:		CLIENT PROJECT MANAGE	:
Eastern Analytical, Inc.		CONTRACT	•
Eastern Analytical, Inc.		COOLER TEMPERATURE	: -0.4
25 Chenell Drive		DELIVERY SERVICES	: UPS
		EDD FORMAT	: WEST-XLS
Concord,NH 03301		LOGIN INITIALS	; so
Pricustomerservice@eallabs.com		PM	: KSS
		, PROJECT NAME	: 3949 - EAI SRB# 163327
Eastern Analytical, inc.		QC LEVEL	:
Eastern Analytical, Inc.		REGULATORY LIST	7 1
20 Unenell Urive		REPORT INSTRUCTIONS	<ul> <li>email pdf, EDD and invoice to customerservice@eailabs.com, no HC</li> </ul>
Concord,NH 03301		SDG ID	:
		SDG STATUS	:

#### Report CC Addresses: Invoice CC Addresses:

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date PR	Verbal Due Date Date	Mailed	
TJ0241-1	SB-1	29-NOV-16 13:38	06-DEC-16	18-DEC	2-16	*
<i>Matrix</i> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 28-MAY-17 28-MAY-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments	-
TJ0241-2	SB-4	29-NOV-16 10:15	06-DEC-16	18-DEC	-16	<u> </u>
<i>Matrix</i> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 28-MAY-17 28-MAY-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments	•••
TJ0241-3	SB-6	29-NOV-16 13:05	06-DEC-16	18-DEC	-16	
<b>Matrix</b> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 28-MAY-17 28-MAY-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments	-
TJ0241-4	SB-13	29-NOV-16 15:31	06-DEC-16	18-DEC	-16	·····
<b>Matrix</b> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 28-MAY-17 28-MAY-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments	-
TJ0241-5	SB-14	29-NOV-16 11:50	06-DEC-16	18-DEC	C-16	
<b>Matrix</b> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 28-MAY-17 28-MAY-17	Bottie Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments	-
Total Sam	ples: 5	Total Analyses:	10	·	<u>NAMA:</u>	

Notesting by	ailabs.com	0525   customerservice@e	cal, Inc. www.eailabs.com   800.287.(	بے Eastern Analyt	Direct 634-2439
Received by	Date/Time	Relinguished by	A TA+ TR TR+ TC TPC	-	Email: allan.palmer@eversource.com
Received by	Date/Time	Relinquished by		-0330	City Manchester NH 03105 Phone 669-4000 Fax Choo
PUllan Chur	20/2011 1710	Samples Collected by:		Street, PO	Address 780 North Commercial
		LJ e-mail Login Contirmatio	ase HOLD dissolved metals analyses	P	Customer Eversource Energy
Tem <u>5,7</u> °C		PDF prelim, NO FAX	nples collected via Low Flow Method ilum sub to Katahdin - 500ml HNO3 container	Sa	State NH Client (Pro Mgr) Allan Palmer
PO# PO# Quote#:	Partial FAX		ites:	Ash Landfill - N	Project Name Merrimack Station Coal / Low Flow
8 	]	ReportingOptions	sults Needed by: Preferred date	- 77	EAI Project ID 3949
ary.	d modify as necess	· this sampling event, and	eres to permit or sampling requirements for	is accurate, adl	Please ensure this auto CO0
le Field Filtered X	Dissolved Sample	1a,S,O, ICE	cle preservative/s: HCL KNO, H,SO, NaOH MEOH N	are accurate C	<b>V</b> Sampler confirms ID and parameters
. [			Ċ	Grab or Comp	11:50
ie, TI	d.Cr.Co.Pb.Li,Hg.Mo.S	CPMets,B,Ca.Sb.As,Ba,Be,Cc	rot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/IC Dis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.T1	aqueous Aq	SB-14 11/29/2016
le Field Filtered X	Dissolved Sample	va,S,O, CE	cle preservative/s: HCL HNOD H,SO4, NaOH MEOH N	are accurate C	Sampler confirms ID and parameters
1				Grab or Comp	15:31
ie.TI	1.Cr.Co.Pb.Li.Hg.Mo.S	CPMets,B.Ca.Sb.As.Ba.Be.Cc	-ot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/IC )is/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.TI	aqueous Aq	SB-13 11/29/2016
le Field Filtered <u>X</u>	Dissolved Sampl	va,S,O, (C)	cle preservative/s: HCLAND, H2SO4, NaOH MEOH N	are accurate C	Sampler confirms ID and parameters
				Grab or Comp	13/05
e Ti	1.Cr.Co.Pb.Li.Hg.Mo.S	CPMets.B.Ca.Sb.As,Ba.Be.Cc	ot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/( 0is/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	aqueous Aq	SB-6 (1/29/2016
le Field Filtered 🔀	Dissolved Sample	4a,S,O,	cle preservative/s: HCL/AND, H,SO, NaOH MEOH N	are accurate C	<b>凶</b> Sampler confirms ID and parameters
•				Grab or Comp	10:15
e.T	1.Cr.Co.Pb.Li.Hg.Mo.S	CPMets.B.Ca.Sb.As.Ba.Be.Cc	ot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/IC bis/ICPMets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.TI	aqueous Aq	SB-4 11/29/2016
e Field Filtered	Dissolved Sample	4a,S,O, CE	cle preservative/s: HCICHNO, H2SO4 NaOH MEOH N	are accurate C	Sampler confirms ID and parameters
0			JISTIC FINIERS, SD, AS, B, DA, BE, CQ, CL, CO, FD, Fg, 3et 11	Grab or Comp	13:38
e,TI	1.Cr.Co.Pb.Li.Hg.Mo.S	CPMets, B.Ca.Sb.As.Ba,Be.Cc	ot/CI/F/SO4/TDS/Rad226Rad228ComboSubKNL/IC	aqueous Aq	SB-1 11/29/2016
# of containers			ameters and Sample Notes	Matrix Pa	Date/Time Composites need start Sample IDs and stop dates/times
TCC:::-					
163327			CHAIN-OF-CUSTODY RECOR		

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April 2017



Eastern Analytical, Inc.

professional laboratory and drilling services

Allan Palmer Eversource Energy 780 North Commercial Street, PO Box 330 Manchester, NH 03105-0330



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 167806 Client Identification: Merrimack Station Coal Ash Landfill - Low Flow Date Received: 4/19/2017

Dear Mr. Palmer:

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

- Solid samples are reported on a dry weight basis, unless otherwise noted
- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R:%Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

bename Oustran

Lorraine Olashaw, Lab Director





# SAMPLE CONDITIONS PAGE

## EAI ID#: 167806

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Temperat Acceptable	t <b>ure upon receipt (°C):</b> temperature range (°C): 0-6	3.1		Re	eceived	on ice or cold packs (Yes/No): Υ
Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
167806.01	SB-1	4/19/17	4/19/17	aqueous		Adheres to Sample Acceptance Policy Diss. metals are on HOLD per customer.
167806.02	SB-4	4/19/17	4/19/17	aqueous		Adheres to Sample Acceptance Policy Diss. metals are on HOLD per customer.
167806.03	SB-6	4/19/17	4/19/17	aqueous		Adheres to Sample Acceptance Policy Diss. metals are on HOLD per customer.
167806.04	SB-13	4/19/17	4/19/17	aqueous		Adheres to Sample Acceptance Policy Diss. metals are on HOLD per customer.
167806.05	SB-14	4/19/17	4/19/17	aqueous		Adheres to Sample Acceptance Policy Diss. metals are on HOLD per customer.

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, lgnitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.

All results contained in this report relate only to the above listed samples.

References include:

1) EPA 600/4-79-020, 1983

2) Standard Methods for Examination of Water and Wastewater, 20th Edition, 1998 and 22nd Edition, 2012

3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB

4) Hach Water Analysis Handbook, 2nd edition, 1992

Eastern Analytical, Inc.

www.easternanalytical.com | 800.287.0525 | customerservice@easternanalytical.com

## EAI ID#: 167806

## Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	SB-1	SB-4	SB-6	SB-13					
Lab Sample ID:	167806.01	167806.02	167806.03	167806.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	4/19/17	4/19/17	4/19/17	4/19/17		A	nalysis		
Date Received:	4/19/17	4/19/17	4/19/17	4/19/17	Units	Date	Time	Method /	Analyst
Solids Dissolved	120	260	190	270	mg/L	04/21/17	10:15	2540C-97	ΑΤΑ
Fluoride	< 0.1	< 0.1	< 0.1	< 0.1	mg/L	04/26/17	21:11	300.0	KD
Sulfate	8	9	9	8	mg/L	04/26/17	21:11	300.0	KD
Chloride	56	120	100	130	mg/L	04/26/17	21:11	300.0	KD

Sample ID:	SB-14
Lab Sample ID:	167806.05
Matrix:	aqueous
Date Sampled:	4/19/17
Date Received:	4/19/17
Solids Dissolved	120
Fluoride	< 0.1
Sulfate	5
Chloride	56

	Ana	alysis		
Units	Date	Time	Method A	nalyst
mg/L	04/21/17	10:15	2540C-97	ATA
mg/L	04/27/17	2:47	300.0	KD
mg/L	04/27/17	2:47	300.0	KD
mg/L	04/27/17	2:47	300.0	KD

2

# LABORATORY REPORT

# EAI ID#: 167806

## Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill - Low Flow

Sample ID:	SB-1	SB-4	SB-6	SB-13					
Lab Sample ID:	167806.01	167806.02	167806.03	167806.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	4/19/17	4/19/17	4/19/17	4/19/17	Analytical		Date of		
Date Received:	4/19/17	4/19/17	4/19/17	4/19/17	Matrix	Units	Analysis	Method	Analyst
Antimony	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/20/17	200.8	DS
Arsenic	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/20/17	200.8	DS
Barium	0.016	0.019	0.013	0.016	AqTot	mg/L	4/20/17	200.8	DS
Beryllium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/20/17	200.8	DS
Boron	< 0.05	< 0.05	< 0.05	< 0.05	AqTot	mg/L	4/20/17	200.8	DS
Calcium	10	10	7.4	8.0	AqTot	mg/L	4/20/17	200.8	DS
Cadmium	< 0,001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/20/17	200.8	DS
Chromium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/20/17	200.8	DS
Cobalt	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/20/17	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/20/17	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	< 0.0001	AqTot	mg/L	4/20/17	200.8	DS
Molybdenum	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/20/17	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/20/17	200.8	DS
Thallium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	4/20/17	200.8	DS
Sample ID:	SB-14					`			
Lab Sample ID:	167806.05								
Matrix:	aqueous								
Date Sampled:	4/19/17				Analytical		Date of		
Date Received:	4/19/17				Matrix	Units	Analysis	Method	Analyst
Antimon <b>y</b>	< 0.001				AqTot	mg/L	4/20/17	200.8	DS
Arsenic	< 0.001				AqTot	mg/L	4/20/17	200.8	DS
Barium	0.010				AqTot	mg/L	4/20/17	200.8	DS
Beryllium	< 0.001				AqTot	mg/L	4/20/17	200.8	DS
Boron	< 0.05				AqTot	mg/L	4/20/17	200.8	DS
Calcium	10				AqTot	mg/L	4/20/17	200.8	DS
Cadmium	< 0.001				AqTot	mg/L	4/20/17	200.8	DS
Chromium	< 0.001				AqTot	mg/L	4/20/17	200.8	DS
Cobalt	< 0.001				AqTot	mg/L	4/20/17	200.8	DS
Lead	< 0.001				AqTot	mg/L	4/20/17	200.8	DS
Mercury	< 0.0001				AqTot	mg/L	4/20/17	200.8	DS
Molybdenum	< 0.001				AqTot	mg/L	4/20/17	200.8	DS
Selenium	< 0.001				AqTot	mg/L	4/20/17	200.8	DS
Thallium	< 0.001				AqTot	mg/L	4/20/17	200.8	DS



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Field Custody: Client Client/Field ID: 167806 SB-1

167806 SB-1 Project ID No. 3949

PWS ID# Sample Collection : 4-19-17/1511 Lab ID No: 17.4645 Lab Custody Date: 4-25-17/1030 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.6 ± 0.5	Calc	Calc	0.7
4020	Radium-226	pCi/L	0.4 ± 0.3	5-4-17/1201	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.2 ± 0.5	5-4-17/1124	EPA Ra-05	0.7

Alpha Standard: Th-230

James W Hages

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Field Custody: Client Client/Field ID: 167806 SB-4 Project ID No. 3949

PWS ID# Sample Collection : 4-19-17/1016 Lab ID No: 17.4646 Lab Custody Date: 4-25-17/1030 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.3 ± 0.5	Calc	Calc	0.7
4020	Radium-226	pCi/L	0.3 ± 0.3	5-4-17/1201	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.0 ± 0.5	5-4-17/1124	EPA Ra-05	0.7

Alpha Standard: Th-230

ames W Hages

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

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Field Custody:	Client
Client/Field ID:	167806 SB-6
	Project ID No. 3949
PWS ID#	

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PWS ID# Sample Collection : 4-19-17/1321 Lab ID No: 17.4647 Lab Custody Date: 4-25-17/1030 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.6 ± 0.5	Calc	Calc	0.7
4020	Radium-226	pCi/L	$0.4 \pm 0.3$	5-4-17/1201	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.2 ± 0.5	5-4-17/1124	EPA Ra-05	0.7

Alpha Standard: Th-230

amer w Hages

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Field Custody: Client Client/Field ID: 167806 SB-13 Project ID No. 3949 PWS ID# Sample Collection : 4-19-17/1102 Lab ID No: 17.4648 Lab Custody Date: 4-25-17/1030

#### CERTIFICATE OF ANALYSIS

Sample Description: Water

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	$1.2 \pm 0.5$	Calc	Calc	0.7
4020	Radium-226	pCi/L	$0.9 \pm 0.3$	5-4-17/1201	EPA 903.0	0.4
4030	Radium-228	pCi/L	0.3 ± 0.5	5-4-17/1124	EPA Ra-05	0.7

Alpha Standard: Th-230

amer w Hages

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

# Page 1 of 1

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7



Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Field Custody: Client Client/Field ID: 167806 SB-14 Project ID No. 3949

PWS ID# Sample Collection : 4-19-17/1254 Lab ID No: 17.4649 Lab Custody Date: 4-25-17/1030 Sample Description: Water

#### CERTIFICATE OF ANALYSIS

Contam Code	Parameter	Units	Results	Analysis Date/Time	Method	Detection Limit
4010	Radium-226 + Radium-228	pCi/L	0.8 ± 0.5	Calc	Calc	0.7
4020	Radium-226	pCi/L	0.7 ± 0.3	5-4-17/1201	EPA 903.0	0.3
4030	Radium-228	pCi/L	0.1 ± 0.5	5-4-17/1124	EPA Ra-05	0.7

Alpha Standard: Th-230

amer w Hages

James W. Hayes Laboratory Manager

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed. Contact person: Jim Hayes (813) 229-2879.

Page 1 of 1

CHAIN	-OF-CUSTO	DY RECORD eastern an professional lat	boratory services	Page 1
Sample ID	Date Sampled Matrix	aParameters	Sample Not	38
SB-1	4/19/2017 aqueous 1 15:11	Radium 226 & Radium 228 Combined Subcontract KNL	17. 4645	
SB-4	4/19/2017   aqueous   1   10:16	Radium 226 & Radium 228 Combined Subcontract KNL	17.4646	
SB-6	4/19/2017 aqueous 1 13:21	Radium 226 & Radium 228 Combined Subcontract KNL	17.4647	
SB-13	4/19/2017   aqueous   1   11:02	Radium 226 & Radium 228 Combined Subcontract KNL	17.4648	
EAI ID# 16780	<b>3</b> Project State: NH Project ID: 3949	Results Needed by: Preferred date       St_4         QC Deliverables       □         ☑ A □ A+ □ B □ B+ □ C □ P	PO #:46061 EAI ID# 1678 Please call prior to analyzing, if RUSH su	106 rcharges will be applied.
Company KNLI Address 3202	Environmental Testing N. Florida Ave.	Notes about project: Email pdf of results and invoice to customerservice@eailabs.com.	Samples Collected by:	
Account #			Relinquished by Date/Time	Received by
Phone # 813-2	29-2879		1-35-14 1030	Beceived by
Fax Number 813-2	29-0002		Kelinquisned by Dater Line	Necessed by
Eastern As a subcontract lab to EA arising out of the performan	n Analytical, Inc. 25 Chenell Dr I, you will defend, indemnify and hold against this chain of course	Concord, NH 03301 Phone: (603)228-0525 Eastern Analytical, Inc., its officers, employees, and agents harming in proportion to and to the extent such liability. loss, expense, the completence	<i>1-800-287-0525 Fax: (603)228-4591</i> nless from and against any and all liability, loss, expense 0, or claims for injury or damages are caused by or result fr	or claims for injury or damages om the negligent or intentional
acts or omissions of you as	a subcontract lab, your officers, ager	its or employees		

Company       KNL Environmental Testing       Notes about project:         Address       3202 N. Florida Ave.       Email pdf of results and invoice to         Address       Tampa, FL 33603       Email pdf of results and invoice to         Account #       813-229-2879       Email pdf of results and invoice         Fax Number       813-229-0002       813-229-0002	Company       KNL Environmental Testing       Notes about project:         Address       3202 N. Florida Ave.       Email pdf of results and invoice to         Address       Tampa, FL 33603       Email pdf of results and invoice to         Account #       813-229-2879       Date/Time         Phone #       813-229-2879       Date/Time         Relinquished by       Date/Time       Recei	Company       KNL Environmental Testing       Notes about project:         Address       3202 N. Florida Ave.       Email pdf of results and invoice to         Address       Tampa, FL 33603       Email pdf of results and invoice to         Account #       813-229-2879       Unit of the subscription	Company       KNL Environmental Testing       Notes about project:         Address       3202 N. Florida Ave.       Email pdf of results and invoice to         Address       Tampa, FL 33603       Email pdf of results and invoice to         Account #       Company       Notes about project:	Company       KNL Environmental Testing       Notes about project:         Address       3202 N. Florida Ave.       Email pdf of results and invoice to         Address       Tampa, FL 33603       Email pdf of results and invoice to	Company       KNL Environmental Testing       Notes about project:         Address       3202 N. Florida Ave.       Email pdf of results and invoice to         Address       Tampa. Fl. 33603       customerservice@eailabs.com.	Company     KNL Environmental Testing     Notes about project:       Address     3202 N. Florida Ave.     Email pdf of results and invoice to	company KNL Environmental Testing <u>Notes about project:</u>			Project ID: 3949 QC Deliverables	EAI ID# 167806 Project State: NH Results Needed by: Preferred date State PO #:46061 EAI ID# 167806	SB-14          1/192017          anumizes comments succentrated with           1/2:54          1/2:54                    /1/2:4           1/2:54                             //1/2:4	Sample ID Date Sampled Matrix a Parameters Sample Notes	EAI ID# 167806	CHAIN-OF-CUSTODY RECORD eastern analytical
AUSH surcharges will be applied.	WSH surcharges will be applied.	WSH surcharges will be applied.	WSH surcharges will be applied. <u>2017 1530 UPS</u> 1e Received by	WSH surcharges will be applied.	WSH surcharges will be applied.	WSH surcharges will be applied.	USH surcharges will be applied.	USH surcharges will be applied.	USH surcharges will be applied.		167806		ple Notes	<b>6</b> Page 2	10





May 3, 2017

Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord,NH 03301

RE:	Katahdin Lab Number:	SK3195
	Project ID:	EAI ID#167806, Project 3949
	Project Manager:	Mr. Galen Nickerson
	Sample Receipt Date(s):	April 21, 2017

To Whom it May Concern:

Please find enclosed the following information:

- \* Report of Analysis (Analytical and/or Field)
- \* Chain of Custody (COC)
- \* Login Report

A copy of the Chain of Custody is included in the paginated report. The original COC is attached as an addendum to this report.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. The results contained in this report relate only to the submitted samples. This cover letter is an integral part of the ROA.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in an attached technical narrative or in the Report of Analysis.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Please go to http://www.katahdinlab.com/cert.html for copies of Katahdin Analytical Services Inc. current certificates and analyte lists.

Sincerely, KATAHDIN ANALYTICAL SERVICES

Dimad

Authorized Signature

05/03/2017

Date

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#### KATAHDIN ANALYTICAL SERVICES - INORGANIC DATA QUALIFIERS

The sampled date indicated on the attached Report(s) of Analysis (ROA) is the date for which a grab sample was collected or the date for which a composite sample was completed. Beginning and start times for composite samples can be found on the Chain-of-Custody.

U Indicates the compound was analyzed for but not detected above the specified level. This level may be the Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), the Limit of Detection (LOD) or Method Detection Limit (MDL) as required by the client.

Note: All results reported as "U" MDL have a 50% rate for false negatives compared to those results reported as "U" PQL "U" LOQ or "U" LOD, where the rate of false negatives is <1%.

- E Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.
- J Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Practical Quantitation Level (PQL) (also called Limit of Quantitation (LOQ)), but above the Method Detection Limit (MDL).
- I-7 The laboratory's Practical Quantitation Level (PQL) or LOQ could not be achieved for this parameter due to sample composition, matrix effects, sample volume, or quantity used for analysis.
- A-4 Please refer to cover letter or narrative for further information.
- H\_ Please note that the regulatory holding time for \_\_\_\_\_\_ is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. \_\_\_\_\_\_ for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.

H1 - pH H2 - DO H3 - sulfite H4 - residual chlorine

- T1 The client did not provide the full volume of at least one liter for analysis of TSS. Therefore, the PQL of 2.5 mg/L could not be achieved.
- T2 The client provided the required volume of at least one liter for analysis of TSS, but the laboratory could not filter the full one liter volume due to the sample matrix. Therefore, the PQL of 2.5 mg/L could not be achieved.
- M1 The matrix spike and/or matrix spike duplicate recovery performed on this sample was outside of the laboratory acceptance criteria. Sample matrix is suspected. The laboratory criteria was met for the Laboratory Control Sample (LCS) analyzed concurrently with this sample.
- M2 The matrix spike and/or matrix spike duplicate recovery was outside of the laboratory acceptance criteria. The native sample concentration is greater than four times the spike added concentration so the spike added could not be distinguished from the native sample concentration.
- R1 The relative percent difference (RPD) between the duplicate analyses performed on this sample was outside of the laboratory acceptance criteria (when both values are greater than ten times the PQL).

MCL	Maximum Contaminant Level	NL	No limit
NFL	No Free Liquid Present	FLP	Free Liquid Present
NOD	No Odor Detected	TON	Threshold Odor Number

- D-1 As required by Method 5210B, APHA Standard Methods for the Examination of Water and Wastewater (21<sup>st</sup> edition), the BOD value reported for this sample is 'qualified' because the check standard run concurrently with the sample analysis did not meet the criteria specified in the method (198 +/- 30.5 mg/L). These results <u>may</u> not be reportable for compliance purposes.
- D-2 The measured final dissolved oxygen concentrations of all dilutions were less than the method-specified limit of 1 mg/L. The reported BOD result was calculated assuming a final oxygen concentration equal to 1 mg/L. The reported value should be considered a minimum value.
- D-3 The dilution water used to prepare this sample did not meet the method and/or regulatory criteria of less than 0.2 or 0.4 mg/L dissolved oxygen (DO) uptake over the five day period of incubation. These results <u>may</u> not be reportable for compliance purposes.

# atahdin ICAL SERVICES

#### **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301

Lab Sample ID: SK3195-001 Report Date: 5/1/2017 PO No.: 46062 Project: EAI ID#167806, Project 3949

Sample Description		ann ann an Saol a chuide à dhaile an Saol	and a state of the	90-100 (10) (10) (10) (10) (10) (10) (10) (		Matrix	Filtered		Date Sample	d	Date Received	
SB-1						AQ	No(Tota	1)	04/19/20	17	04/21/2017	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	4/27/17	MD	EPA 200.7	4/27/17	MD KD271CV	V1 ·

# MM Katahdin

#### **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 SK3195-002

 Report Date:
 5/1/2017

 PO No.:
 46062

 Project:
 EAI ID#167806, Project 3949

Sample Description						Matrix	Filtered		Date Sample	əd	Date Received	
SB-4				1. ( ( ), , , , ) al m <sub>1</sub> , <u>p</u> , interpretation <b>q</b> , , , , , ) <b>q</b>		AQ	No(Tota	)	04/19/20	17	04/21/2017	- <del>7.0</del>
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	By	Prep Method	Prepped Date	By QC	Notes
LITHUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	4/27/17	MD	EPA 200.	7 4/27/17	MD KD27ICW	1

# M Katahdin

### **REPORT OF ANALYTICAL RESULTS**

Client:Eastern Analytical, Inc.Lab Sample ID:SK3195-003Eastern Analytical, Inc.Report Date:5/1/201725 Chenell DrivePO No.:46062Concord, NH03301Project:EAI ID#167806, Project 3949

Sample Description						Matrix	Filtered		Date Sample	bd	Dat Recei	e ved	
SB-6					an de pape la constitut d'ar an	AQ	No(Total	I)	04/19/20	117	04/21/	2017	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	By	QC	Notes
LITHUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	4/27/17	MD	EPA 200.	7 4/27/17	MDK	D27ICW1	

# M Katahdin

## **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 SK3195-004

 Report Date:
 5/1/2017

 PO No.:
 46062

 Project:
 EAI ID#167806, Project 3949

Sample Description					ł	Matrix	Filtered		Date Sample	đ	Da Rece	lə ived	
SB-13						AQ	No(Tota	)	04/19/20	17	04/21/	2017	
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	Ву	Prep Method	Prepped Date	Ву	QC	Notes
LITHUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	4/27/17	MD	EPA 200.	7 4/27/11	MD	CO27ICW1	



#### **REPORT OF ANALYTICAL RESULTS**

Client: Eastern Analytical, Inc. Eastern Analytical, Inc. 25 Chenell Drive Concord, NH 03301 
 Lab Sample ID:
 SK3195-005

 Report Date:
 5/1/2017

 PO No.:
 46062

 Project:
 EAI ID#167806, Project 3949

Sample Description SB-14		and a manufacture of the last set of	nim talagin 2 mj. dha kura kura kura kura kura kura			Matrix AQ	Filtered No(Tota	l 1)	Date Sampled 04/19/201	d 17	Date Received 04/21/2017	ur Maladiry, wearing a suffice
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	By	Prep F Method	Prepped Date	By QC	Notes
LITHIUM	U 0.100	mg/L	0.100	1	0.1	EPA 200.7	4/27/17	MD	EPA 200.7	4/27/17	MD KD27ICW1	

Katahdin Analytical Service	s, LLC. Samj	Sample Receipt Condition Report					
Client: Eastern Analytica	KAS PM: K.SS	Sampled By: Client					
Project:	KIMS Entry By:	Delivered By: ())25					
KAS Work Order#: SK-3(95	KIMS Review By:	Received By: 50					
SDG #:	Cooler:of	Date/Time Rec.: 4-21-17 1130					

Receipt Criteria	Y	N	EX*	NA	Comments and/or Resolution
1. Custody seals present / intact?	-	-			
2. Chain of Custody present in cooler?	~				
3. Chain of Custody signed by client?	/				
4. Chain of Custody matches samples?	/	[			
5_ Temperature Blanks present? If not, take temperature of any sample w/ IR gun.	-			/	_Temp (℃):
Samples received at <6 °C w/o freezing?					Note: Not required for metals (except Hg soil) analysis.
ice packs or ice present?					The lack of ice or ice packs (i.e. no attempt to begin cooling process) or insufficient ice may
If yes, was there sufficient ice to meet temperature requirements?					not meet certain regulatory requirements and may invalidate certain data.
If temp. out, has the cooling process begun (i.e. ice or packs present) and sample collection times <6hrs., but samples are not yet cool?				/	Note: No cooling process required for metals (except Hg soil) analysis.
6. Volatiles:					
Aqueous: No bubble larger than a pea?		ļ	ļ		
Soil/Sediment:					
Received in airlight container?	ļ	<u> </u>		<u>ب</u>	
Received in methanol?				$\mid$	
Methanol covering soil?	L	<u> </u>	1		
D.I. Water - Received within 48 hour HT?	1	L			
Air: Refer to KAS COC for canister/flow controller requirements.	√ifa		Jded		
7. Trip Blank present in cooler?				<	T
8. Proper sample containers and volume?	$\leq$				
9. Samples within hold time upon receipt?	/				
10. Aqueous samples properly preserved? Metais, COD, NH3, TKN, O/G, phenol, TPO4, N+N, TOC, DRO, TPH – pH <2	-				
<sup>-</sup> Sulfide - >9		ļ		4	
Cyanide – pH >12		1	1	1	1
* Log-In Notes to Exceptions: document any	proble	ms w	ith sar	nples	or discrepancies or pH adjustments.

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45	EAI ID# 10/ 800	гаус
ate Sampled Matrix aParameters	Sample Not	S.Q.
/19/2017 aqueous Subcontract - Metals by ICP-AES 5:11		
/19/2017 aqueous Subcontract - Metais by ICP-AES 0:16		
/19/2017 aqueous Subcontract - Metals by ICP-AES		
/19/2017 aqueous Subcontract - Metals by ICP-AES		
-		
Project State:     NH     Results Needed by:     Preferred date     )'t'd'       Project ID:     3949     QC Deliverables       QA     A+     B     B+     C     P	PO #:46062 EAI ID# 1678 Please call prior to analyzing, if RUSH su	306 rcharges will b
Notes about project:         nology Way       Email pdf of results and invoice to         h. ME 04074       customerservice@eailabs.com.	Samples Collected by:	
400 containers per sample	Relinquished by Date/Time	Received by
	Relinquished by Date/Time	Received by
ical in 35 Chanali Dr. Concord NIH 02201 Dhone: (A02)328-0525	1-800-087-0505 Fax: 16031008-4591	
	1	In-Constraint       aPerameters       Sample Matrix       Sample Not CP-AES         19/2017       aqueous       Subcontract - Metals by ICP-AES       Subcontract - Metals by ICP-AES         19/2017       aqueous       Subcontract - Metals by ICP-AES       State         19/2017       Accontract - Metals by ICP-AES       State       Po         19/2017       Accontract - Metals by ICP-AES       Po       #.46062       EAI ID# 1678         10/2017       Metals: Lifthium only:       Po       #.46062       EAI

CHAIN-	OF-CUSTO	DY RECORD grofessional lat	boratory services EAI ID	<b>⊭ 167806</b>	Page 2
Sample ID	Date Sampled Matrix	aParameters		Sample Not	85
SB-14	4/19/2017 aqueous s 12:54	Subcontract - Metals by ICP-AES			
EAI ID# 167806	Project State: NH	Results Needed by: Preferred date Std	PO #:46062	EAI 10# 1678	06
	Project ID: 3949	OC Deliverables ⊠A □A+ □B □B+ □C □P	Please call prior to	analyzing, if RUSH su	rcharges will be appl
Company Katahdi	n Analytical Services, hnmology Way	Notes about project: Email pdf of results and invoice to			
Address 500 lec	ough, ME 04074	customerservice@eailabs.com. Mefals: Lithium only: 2 - 250ml	Samples Collected	by: +1/20/17	San nes
Account #		containers per sample	Relinquished by	Date/Time	Received by
Phone # (207) 87	74-2400		Relinquished by	Date/Time	Received by
, Fax Number			1 000 000 000	E-v: /6/19/998_/501	
Eastern A As a subcontract lab to EAI, yo	nalytical, Inc. 25 Chenell Dr au will defend, indemnify and hold in	Concord, NH 03301 Phone: (603)228-0525 Eastern Analytical, Inc., its officers, employees, and agents harm	<i>1-800-287-0525</i> nless from and against any and a or claims for iniury or damage	Fax: (603)228-4591   all liability, loss, expense ( s are caused by or result fr	or claims for injury or dam om the negligent or intent
alising out of the periodication	against this officer officers, ager	nts or employees			

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∕M∕K.	atahdin
ANALYTICAL	SERVICES

Login Number: SK3195

#### **Katahdin Analytical Services**

Page: 1 of 1

## Login Chain of Custody Report (Ino1) Apr. 21, 2017

12:00 PM Quote/Incoming:

Account:EASTAN001	NoWeb		
Eastern Analytical, Inc.		Login information:	
•		ANALYSIS INSTRUCTIONS	:
Project:		CHECK NO.	:
		CLIENT PO#	: 46062
Primary Report Address:		CLIENT PROJECT MANAGE	:
Eastern Analytical, Inc.		CONTRACT	:
Eastern Analytical, Inc.		COOLER TEMPERATURE	: n/a
25 Chenell Drive		DELIVERY SERVICES	UPS
		EDD FORMAT	: WEST-XLS
Concord,NH 03301		LOGIN INITIALS	: 50
or customerservice@eailabs.com		PM	: KSS
- i mary mode Modess.		PROJECT NAME	: EAI ID#167806, Project 3949
Eastern Analytical, Inc.		QC LEVEL	: 1
Eastern Analytical, Inc.		<b>REGULATORY LIST</b>	•
25 Chenell Drive		REPORT INSTRUCTIONS	<ul> <li>email pdf, EDD and invoice to customerservice@eailabs.com, no HC</li> </ul>
Concord,NH 03301		SDG ID	:
Report CC Addresses;		SDG STATUS	:

#### Invoice CC Addresses:

Laborator Sample ID	y Client Sample Number	Collect Date/Time	Receive Date PR	Verbal Due Date Date	Malled	
SK3195-1	SB-1	19-APR-17 15:11	21-APR-17	03-MA)	/-17	
Matrix Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 16-0CT-17 16-0CT-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments	addrefer
SK3195-2	SB-4	19-APR-17 10:16	21-APR-17	03-MA)	(-17	
Matrix Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 16-0CT-17 16-0CT-17	<b>Bottle Type</b> 250mL Plastic+HNO3 250mL Plastic+HNO3	Battle Count	Comments	
SK3195-3	SB-6	19-APR-17 13:21	21-APR-17	03-MA)	(-17	<u></u>
Matrix Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shartest) 16-OCT-17 16-OCT-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Battle Count	Comments	
SK3195-4	SB-13	19-APR-17 11:02	21-APR-17	03-MA)	(-17	
Matrix Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 16-0CT-17 16-0CT-17	Bolile Type 250mL Piestic+HNO3 250mL Piestic+HNO3	Botile Count	Comments	
SK3195-5	SB-14	19-APR-17 12:54	21-APR-17	03-MA	1-17	
<b>Matrix</b> Aqueous Aqueous	Product S E200.7-LITHIUM S E200.7-PREP	Hold Date (shortest) 16-0CT-17 16-0CT-17	Bottle Type 250mL Plastic+HNO3 250mL Plastic+HNO3	Bottle Count	Comments	
Total San	nples: 5	Total Analyses:	10			

	ilahs com	)525   customerservice@ea	www.eailabs.com   800.287.0	alytical, Inc.	Eastern Ar	9	Direct 634-243
Received by	Date/Time	Relinquished by				lmer@eversource.com	Email: allan.pa
Received by	$\frac{30(\mathcal{F} - 17:30)}{\text{Date/Time}}$	Relinquished by	25 Foo	DC deliver	-0330 se one:	, /80 North Commercial / Manchester NH 03105- 00 Fax Choo	Address City Phone 669-40
Temp 31 °C		⊠ EDD email ⊠ PDF prelim, NO FAX □ e-mail Login Confirmatior	lected via Low Flow Method to Katahdin - 500ml HNO3 container D dissolved metals analyses	Samples col Lithium sub Please HOL		NH ) Allan Palmer r Eversource Energy	State Client (Pro Mgr Custome
PO# PO#	NO FAX Partial FAX	ReportingOptions M HC M EDD PDF	eded by: Preferred date	Results Ne Notes:	Ash Landfill -	3949 Merrimack Station Coal / Low Flow	EAI Project ID Project Name
sary.	modify as neces	this sampling event, and	permit or sampling requirements for	, adheres to	C is accurate	se ensure this auto COC	Pleas
ple Field Filtered	Dissolved Sam	la,S,O <sub>1</sub> (CE)	IVative/s: HCL (IND, H,SO4 NAOH MEOH N	Circle prese	are accurate	nfirms ID and parameters	Sampler co
•		·			Grab or Comp	12:54	
Se.TI	Cr.Co.Pb.Li.Hg.Mo.	CPMets.B.Ca.Sb.As.Ba,Be,Cd.	ate Sh As B Ba Ba Cd Cr Co Dh Ho Sa TI	AqTot/CI/F/S	aqueous	+106/p1/40	SB-14
ole Field Filtered	Dissolved Sam	la,S,O, (CE)	vative/s: HCL MNO, H,SO4 NaOH MEOH N	Circle prese	are accurate	nfirms ID and parameters	Sampler co
8	ſ		ets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	AqDis/ICPM	aqueous Grab or Comp	, coll	
Se,TI	Cr.Co.Pb.Li.Hg.Mo.	CPMets.B.Ca.Sb.As.Ba.Be.Cd.	3O4/TDS/Rad226Rad228ComboSubKNL/IC	AqTot/CI/F/S		- cullelizert	SB-13
ple Field Filtered	Dissolved Sam	la_S_O_ CE	rvative/s: HCL MND, H.SO, NaOH MEOH N	Circle prese	are accurate	nfirms ID and parameters	Sampler co
Se.TI	.Cr.Co.Pb.Li.Hg.Mo.	CPMets.B.Ca.Sb.As.Ba.Be.Cd	3O4/TDS/Rad226Rad228ComboSubKNL/IC ets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	AqTot/CI/F/8 AqDis/ICPM	aqueous Grab or Comp	5,2)	ى ھ ە
ple Field Filtered	Dissolved Sam	la,S,O, (CE)	Invative/s: HCL (HNO, H,SO, NaOH MEOH N	Circle prese	are accurate	nfirms ID and parameters	Sampler co
						21:01	
Se.TI	.Cr.Co.Pb.Li.Hg.Mo.	CPMets.B.Ca.Sb.As.Ba.Be.Cd.	3O4/TDS/Rad226Rad228ComboSubKNL/IC ets,Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.Tl	AqTot/CI/F/S AqDis/ICPM	aqueous Grab or Comp	04/19/2017	SB-4
ple Field Filtered	Dissolved Sam	la,S,O, (CE)	Invative/s: HCL MOD H, SO4 NAOH MEOH N	Circle prese	are accurate	nfirms ID and parameters	Sampler co
					Grab or Comp	15:11	
Se.TI	.Cr.Co.Pb.Ll.Hg.Mo.	CPMets.B.Ca.Sb.As.Ba.Be.Cd	304/TDS/Rad226Rad228ComboSubKNL/IC ets.Sb.As.B.Ba.Be.Cd.Cr.Co.Pb.Hg.Se.TI	AqTot/CI/F/8 AqDis/ICPM	aqueous	tioe pil 40	SB-1
# of containers			and Sample Notes	Parameters	Matrix	and stop dates/times	Sample IDs
						Date/Time Composites need start	
FOONT							1
167806			AIN-OF-CUSTODY RECOR	CH			
November 2017



Eastern Analytical, Inc.

professional laboratory and drilling services

Allan Palmer Eversource Energy 780 North Commercial Street, PO Box 330 Manchester, NH 03105-0330



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 176142 Client Identification: Merrimack Station Coal Ash Landfill Date Received: 11/17/2017

Dear Mr. Palmer:

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

Solid samples are reported on a dry weight basis, unless otherwise noted

- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit

%R:%Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lequie Mushan

Lorraine Olashaw, Lab Director

# of pages (excluding cover letter)

### SAMPLE CONDITIONS PAGE

EAI ID#: 176142

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill

Temperat	ure upon receipt (°C):	1.7	1.7 Received on ice or cold packs (Yes/No): Υ								
Acceptable t	emperature range (°C): 0-6										
Lab ID	Sample ID	Date Received	Date Sampled	Sample % Dry Matrix Weight	Exceptions/Comments (other than thermal preservation)						
176142.01	SB-1	11/17/17	11/17/17	aqueous	Adheres to Sample Acceptance Policy						
176142.02	SB-4	11/17/17	11/17/17	aqueous	Adheres to Sample Acceptance Policy						
176142.03	SB-6	11/17/17	11/17/17	aqueous	Adheres to Sample Acceptance Policy						
176142.04	SB-13	11/17/17	11/17/17	aqueous	Adheres to Sample Acceptance Policy						
176142.05	SB-14	11/17/17	11/17/17	aqueous	Adheres to Sample Acceptance Policy						

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis. Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the

recommended 15 minute hold time.

All results contained in this report relate only to the above listed samples.

References include:

1) EPA 600/4-79-020, 1983

2) Standard Methods for Examination of Water and Wastewater, 20th Edition, 1998 and 22nd Edition, 2012

3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB

4) Hach Water Analysis Handbook, 2nd edition, 1992

Eastern Analytical, Inc.

www.easternanalytical.com | 800.287.0525 | customerservice@easternanalytical.com

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## LABORATORY REPORT

EAI ID#: 176142

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill

Sample ID:	SB-1	SB-4	SB-6	SB-13					
Lab Sample ID:	176142.01	176142.02	176142.03	176142.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	11/17/17	11/17/17	11/17/17	11/17/17		A	nalysis		
Date Received:	11/17/17	11/17/17	11/17/17	11/17/17	Units	Date	Time	Method A	Analyst
Solids Dissolved	120	170	230	220	mg/L	11/20/17	15:10	2540C-97	ATA
Fluoride	< 0.1	< 0.1	< 0.1	< 0.1	mg/L	11/28/17	5:09	300.0	KD
Sulfate	8	13	11	9	mg/L	11/28/17	5:09	300.0	KD
Chloride	68	77	130	110	mg/L	11/29/17	16:11	4500CIE-97	′ KD

Sample ID:	SB-14	
Lab Sample ID:	176142.05	
Matrix:	aqueous	
Date Sampled:	11/17/17	
Date Received:	11/17/17	
Solids Dissolved	59	
Fluoride	< 0.1	
Sulfate	5	
Chloride	18	

Analysis											
Units	Date	Time	Method Ai	nalyst							
mg/L	11/20/17	15:10	2540C-97	ATA							
mg/L	11/28/17	8:02	300.0	KD							
mg/L	11/28/17	8:02	300.0	KD							
mg/L	11/29/17	16:19	4500CIE-97	KD							

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### LABORATORY REPORT

EAI ID#: 176142

### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill

Sample ID:	SB-1	SB-4	SB-6	SB-13				-	
Lab Sample ID:	176142.01	176142.02	176142.03	176142.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	11/17/17	11/17/17	11/17/17	11/17/17	Analytical		Date of		
Date Received:	11/17/17	11/17/17	11/17/17	11/17/17	Matrix	Units	Analysis	Method	Analyst
Boron Calcium	0.05 12	< 0.05 <b>10</b>	< 0.05 <b>9.9</b>	< 0.05 <b>7.0</b>	AqTot AqTot	mg/L mg/L	11/21/17 11/21/17	200.8 200.8	DS DS

Sample ID:	SB-14
Lab Sample ID:	176142.05
Matrix:	aqueous
Date Sampled:	11/17/17
Date Received:	11/17/17
Boron Calcium	< 0.05 <b>8.0</b>

Analytical Matrix	Units	Date of Analysis	Method	Analyst
AqTot	mg/L	11/21/17	200.8	DS
AqTot	mg/L	11/21/17	200.8	DS

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LABORATORY REPORT

#### Client: Eversource Energy

Client Designation: Merrimack Station Coal Ash Landfill

Sample ID:	SB-1	SB-4	SB-6	SB-13				
Lab Sample ID:	176142.01	176142.02	176142.03	176142.04				
Matrix:	aqueous	aqueous	aqueous	aqueous				
Date Sampled:	11/17/17	11/17/17	11/17/17	11/17/17		Date of		
Date Received:	11/17/17	11/17/17	11/17/17	11/17/17	Units	Analysis	Method	Analyst
Field pH	5.7	5.8	5.6	5.8	SU	11/17/17	SM4500	H JG

Sample ID:	SB-14		
Lab Sample ID:	176142.05		
Matrix:	aqueous		
Date Sampled:	11/17/17	Date of	
Date Received:	11/17/17	Units Analysis	Method Analyst
Field pH	5.6	SU 11/17/17	SM4500H JL

Eas:	tern Analytic	<i>المحمد المعالمة</i> al, Inc.	CHAIN-OF-CUSTODY RECORD	طب 176142
Sample IDs	Date/Time Composites need start and stop dates/times	Matrix	Parameters and Sample Notes	# of containers
SB-1	11/17/2017 11:29 JL	aqueous Grab or Comp	AqTot/F/CI/FieldpH/SO4/TDS/ICPMets.B.Ca	υ
A Sampler confirm	ہ s ID and parameters	are accurate	Circle preservative/s: HCL (NOA H,SOA NAOH MEOH NAAS,OA (CE)	Dissolved Sample Field Filtered
SB-4	11/17/2017	aqueous	AqTot/F/Cl/FieldpH/SO4/TDS/ICPMets.B.Ca	ω
	09:54	Grab or Comp		
<b>必</b> Sampler confirm	I I I I I I I I I I I I I I I I I I I	are accurate	Circle preservative/s: HCL (FNO, H,SO, NaOH MEOH Na,S,O, (CD)	Dissolved Sample Field Filtered
SB-6	11/17/2017	aqueous	AqTot/F/Cl/FieldpH/SO4/TDS/ICPMets.B.Ca	З
	12:04	Grab or Comp		
Sampler confirm	I ID and parameters	are accurate	Circle preservative/s: HCL (HNO, H,SO, NaOH MEOH Na,S,O, (CE	Dissolved Sample Field Filtered
SB-13	+106/71/11	aqueous	AqTot/F/CI/FieldpH/SO4/TDS/ICPMets.B.Ca	ω
	09:50	Grab or Comp		
Sampler confirm	ID and parameters	are accurate	Circle preservative/s: HCL (HNO, H,SO, NaOH MEOH Na,S,O, (CE)	Dissolved Sample Field Filtered
Please en	sure this auto COC	is accurate, a	adheres to permit or sampling requirements for this sampling even	, and modify as necessary.
EAI Project ID 3949 Project Name Mer	) rimack Station Coal <i>A</i>	sh Landfill	Results Needed by:   Preferred date   ReportingOptions     Notes:   X HC	NO FAX PO# 02291429
State NH Client (Pro Mgr) All	an Palmer		⊠ EDD PUF	$\square PDF Invoice$ AX $\square EQUIS$ Temp $\square \circ C$
Customer Ev Address 78(	ersource Energy ) North Commercial S	treet, PO	Samples Collect	ad by: JG, JL (GAI) Ice Y/HND
City Ma	nchester NH 03105-	0330	Soling like and here	MMMM OSHI - CENT - FICE/FILIT
Phone 669-4000	Fax Choos	se one:	QC deliverables	E and the second s

Eastern Analytical, Inc. www.easternanalytical.com | 800.287.0525 | customerservice@easternanalytical.com

**Relinquished** by

Date/Time

Received by

⊠А □А+ □В □В+ □С □РС

Email: allan.palmer@eversource.com

Direct 634-2439

Direct 634-2439	Email: allan.palmer(	Phone 669-4000	City Ma	Address 780	Customer Eve	Client (Pro Mgr) Alla	State NH	Project Name Meri	EAI Project ID 3949	Please en	Sampler confirm		SB-14	Sample IDs		<b>M</b> Eas
Easter	@eversource.com	Fax Choos	nchester NH 03105-(	) North Commercial S	ersource Energy	an Palmer		rimack Station Coal A		sure this auto COC	ns ID and parameters	13:32	+10c/+1/11	Date/Time Composites need start and stop dates/times		dern Analytic
n Analytical,		e one:	0330	treet, PO				sh Landfill		is accurate,	are accurate	Grab or Comp	adijeolis	Matrix		$\frac{h_{20}}{a}$ , finc.
Inc. www.easternanalytical.com   800.287	⊠А ПА+ ПВ ПВ+ ПС ПРС	QC deliverables						Notes:	Results Needed by: Preferred date	adheres to permit or sampling requirements for	Circle preservative/s: HCL MOO, H,SO, NaOH MEOH N		AqTot/F/Cl/FieldpH/SO4/TDS/ICPMets.B.Ca	Parameters and Sample Notes		CHAIN-OF-CUSTODY RECORI
.0525   customerservice@eas	Relinquished by	Keilinguisnea by	the inter	Samples Collected by:	L e-mail Login Contirmation	PDF prelim, NO FAX	X EDD PDF X EDD email	N HC	, ReportingOptions	this sampling event, and m						U
ternanalytical.com	Date/Time	Date/Time	2/2017 1430	JG,JL(EAI)		EQUIS	Partial FAX PDF Invoice	<b>NO FAX</b>		rodify as necessa	Dissolved Sample					_
	Received by	Keceived by	MIMM				Quote#:	PO# 02291429		ary.	le Field Filtered	U	2	# of containers	모 PSCNH1	176142