ENVIRONMENTAL COMPLIANCE SERVICES, INC.
1 Elm Street, Suite 3, Waterbury, VT 05676 tel 802.241.4131 fax 802.244.6894 www.ecsconsult.com

January 28, 2016
Project No. 08-224566.00

Mr. John Greenan
Green Mountain Power Corporation
2152 Post Road
Rutland, VT 05701

Re: Initial 2015 Soil Sampling Results
Wetmore-Morse Substation #58
224 Church Hill Road, Barre, VT

Dear Mr. Greenan,

Environmental Compliance Services (ECS) is pleased to submit this summary report presenting the results of the initial characterization of shallow subsurface conditions at the Green Mountain Power Corporation (GMP) Wetmore-Morse #58 Substation (Site) located at 224 Church Hill Road in Barre, VT (Figure 1). This substation is being removed as part of the proposed Graniteville Substation Upgrade project in 2016.

The purpose of the subsurface characterization is to determine if soil and concrete within the substation fence have been impacted by leakage from oil-filled electrical equipment. Potential contaminants of concern assessed during the investigation were selected based on the historical site use as an active substation and included: total petroleum hydrocarbons (TPH) diesel range organics (DRO) by EPA Method 8015C, polychlorinated biphenyls (PCBs) by EPA Method 8082 following extraction by EPA Method 3540C, semi-volatile organic compounds (SVOCs) polycyclic aromatic hydrocarbon (PAH) fraction by EPA Method 8270D, and 8 Resource Conservation and Recovery Act (RCRA)-listed metals by EPA Method 6020. Soil samples were submitted to Eastern Analytical, Inc. of Concord, New Hampshire under chain of custody protocol for analysis.

Table 1 presents a summary of laboratory results for five shallow soil samples and two concrete samples within the energized substation. All soil sample laboratory results were compared to the U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) dated November 2015 for Industrial Soils and Vermont Department of Health (DOH) standards, if available.

Due to the energized state of the substation, the soil samples were collected on 28 December 2015 using a hand shovel to penetrate the surface material to a depth of approximately 0.5 feet. All non-disposable sampling tools were decontaminated between sample locations with alconox scrub and distilled water rinse. Soils consisted of approximately 1-inch of gravel fill material overlying medium to coarse sand and gravel. Soil samples were targeted around existing electrical oil-filled equipment, which include three 500-KVA transformers (manufactured dates of July 1997) and two pole-mounted transformers of unknown age with blue non-PCB labels affixed. The historical configuration of oil-filled equipment at the substation is unknown.

Composite soil samples were collected from 0-0.5 feet from the north and south sides of the transformer pad (3 grabs from each side, placed in a ziplock baggie to be homogenized before being transferred to 4-

oz jars. The remaining soil samples were collected as discrete samples. Composite concrete samples were collected at the two concrete pads within the substation with a hammer drill to approximately ½ inch and placed in a laboratory-supplied 4-oz jar. No obvious visual or olfactory evidence of contamination was noted on the concrete or in the shallow soils during sampling. Approximate sample locations are shown on the Site Plan in Figure 2.

Based on the results of soil and concrete sampling at the Wetmore-Morse substation, leakage from oil-filled equipment has impacted soil and concrete inside the substation fence. Most soil and concrete samples exceed at least one of the State of Vermont's soil screening values (SSVs) for industrial sites, with the exception of Pole T2. PCBs were detected in all soil samples, with PCB concentrations ranging from 0.10 milligrams per kilogram (mg/Kg) to 38 mg/Kg. PCBs were detected in the concrete breaker pad sample, but not in the transformer concrete pad sample. TPH concentrations were detected in all soil and concrete samples, ranging from 33 mg/Kg to 6,400 mg/Kg, with the highest concentrations detected in concrete samples. Several PAHs were detected above industrial RSLs. Arsenic concentrations in this data set range from 0.5 mg/Kg in soil at Pole T2 to 8.7 mg/Kg in concrete at the breaker pad. The EPA RSL standard for arsenic is 3.0 ppm for industrial sites; however, it is ECS' experience on other similar projects that the State of Vermont considers values less than 10 mg/Kg to be indicative of naturally occurring concentrations. No other RCRA 8 metals were detected above the RSLs. Laboratory results are summarized on Table 1.

Summary of Results and Disposal Recommendations

Based on the results of soil and concrete sampling at the Wetmore-Morse substation, ECS offers the following summary of results and recommendations for disposal of contaminated materials.

- Arsenic concentrations in this data set range from 0.5 mg/Kg in soil at Pole T2 to 8.7 mg/Kg in concrete at the breaker pad. The EPA RSL standard for arsenic is 3.0 ppm for industrial sites; however, the State of Vermont considers values less than 10 mg/Kg to be indicative of naturally occurring concentrations. No other RCRA 8 metals were detected above the RSLs.

- Several PAHs were detected in soil above the industrial RSL values at N. Trans Pad, S. Trans Pad, Pole T1 and Recloser samples. Concrete samples were not analyzed for PAHs.

- TPH DRO concentrations were detected in all soil and concrete samples, ranging from 33 mg/Kg to 6,400 mg/Kg, with the highest concentrations detected in concrete samples and soil sample Pole T1.

- PCBs were detected in six of the seven sample locations. Following the Environmental Protection Agency's guidance, four soil and concrete samples contained PCBs in excess of the EPA's high occupancy standard of 1 part per million (ppm). Given the anticipated age of the substation (<1978) and lack of documentation regarding PCB concentrations in transformer oil used historically in substation equipment, disposal of material from this substation should comply with the requirements of 40 CFR 761.

- GMP proposes to remove PCB contaminated materials from the substation and profile for disposal at a TSCA approved disposal facility or a RCRA hazardous waste landfill in accordance with the requirements of 40 CFR 761 (such as Waste Management's Model City Landfill in NY).

Following removal of this material, verification samples will be collected to ensure PCB cleanup goals are achieved. Any remaining material proposed for removal from the substation will be profiled for disposal at Casella's Waste USA landfill in Coventry, VT to achieve RSLs for PAHs, metals, and TPH.

- Impact to groundwater will be evaluated during removal activities. If evidence of soil contamination is observed at the water table, then groundwater testing may be recommended.

ECS recommends that this report be submitted to Mr. Gerold Noyes at the Vermont Department of Environmental Conservation (VT DEC) Sites Management Section due to the presence of compounds above applicable standards. The EPA Region 1 Coordinator should be notified of the presence of PCB remediation waste at the Wetmore-Morse Substation for authorization to conduct a self-implementing clean-up and disposal plan.

This investigation was prepared exclusively for GMP and was undertaken to assess specific environmental conditions on the subject property as presented in the work plan prepared by ECS. Analytical assessment and testing locations were selected in accordance with generally accepted engineering and environmental assessment practices within the substation fence. No other warranty, express or implied, is provided with respect to any location not assessed, tested or analyzed. Absolute assurance that any and all possible contamination at the site has been identified cannot be provided.

Please contact us if you have any questions or comments about the report at 802-241-4131.

Sincerely,
ENVIRONMENTAL COMPLIANCE SERVICES, INC.

Laura L. Woodard
Sr. Project Manager

Joseph J. Hayes, C.P.G., P.G.
Branch Manager

Attachments: Figure 1 - Site Location Map
Figure 2 - Site Plan
Table 1 – Initial Soil and Concrete Sample Results
Photodocumentation
Laboratory Report

Environmental Compliance Services, Inc.
1 Elm Street, Suite 3
Waterbury, VT 05676
Phone 802-241-4131 Fax 802-244-6894
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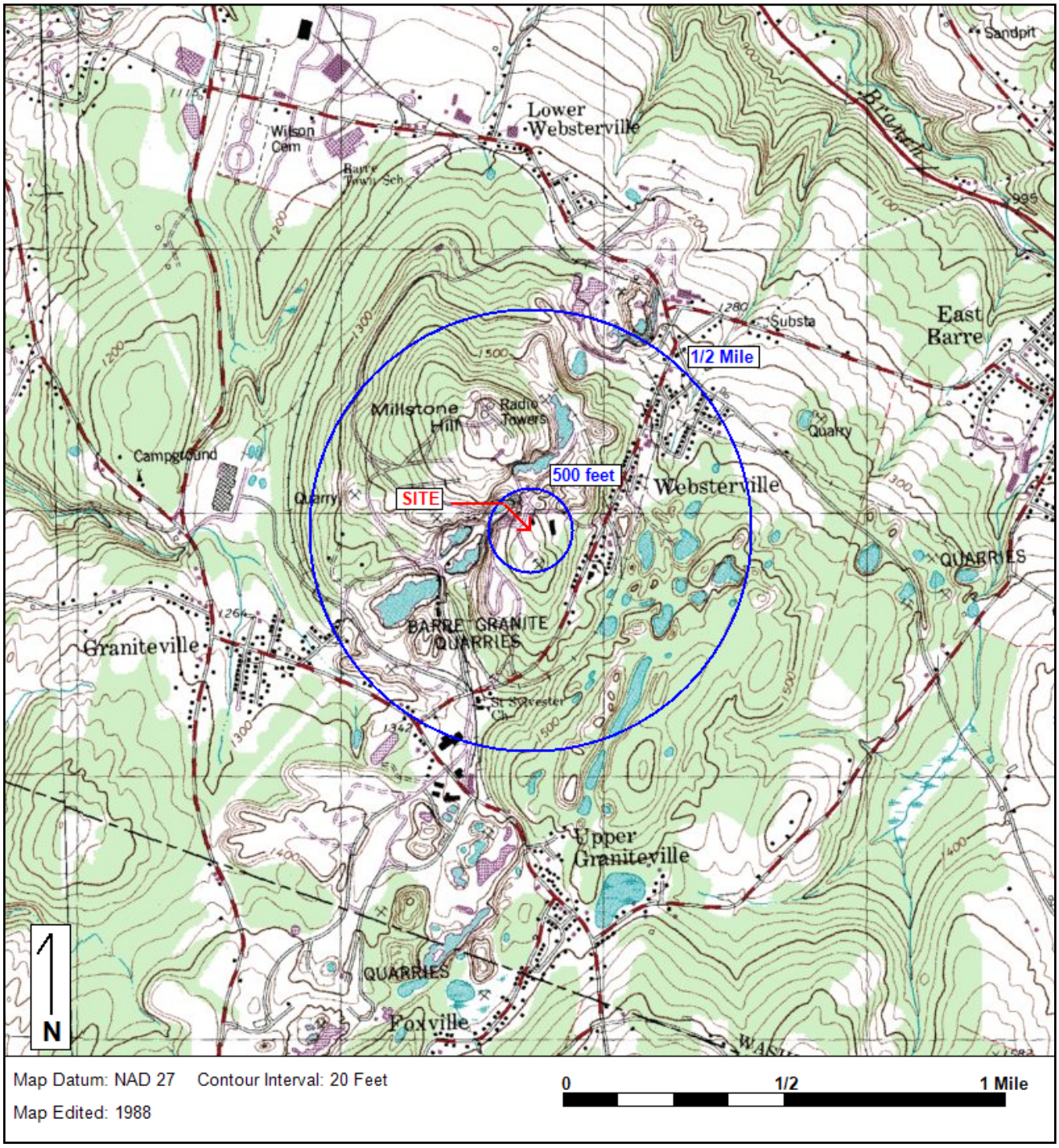
Wetmore-Morse Substation
224 Church Hill Road
Graniteville, VT

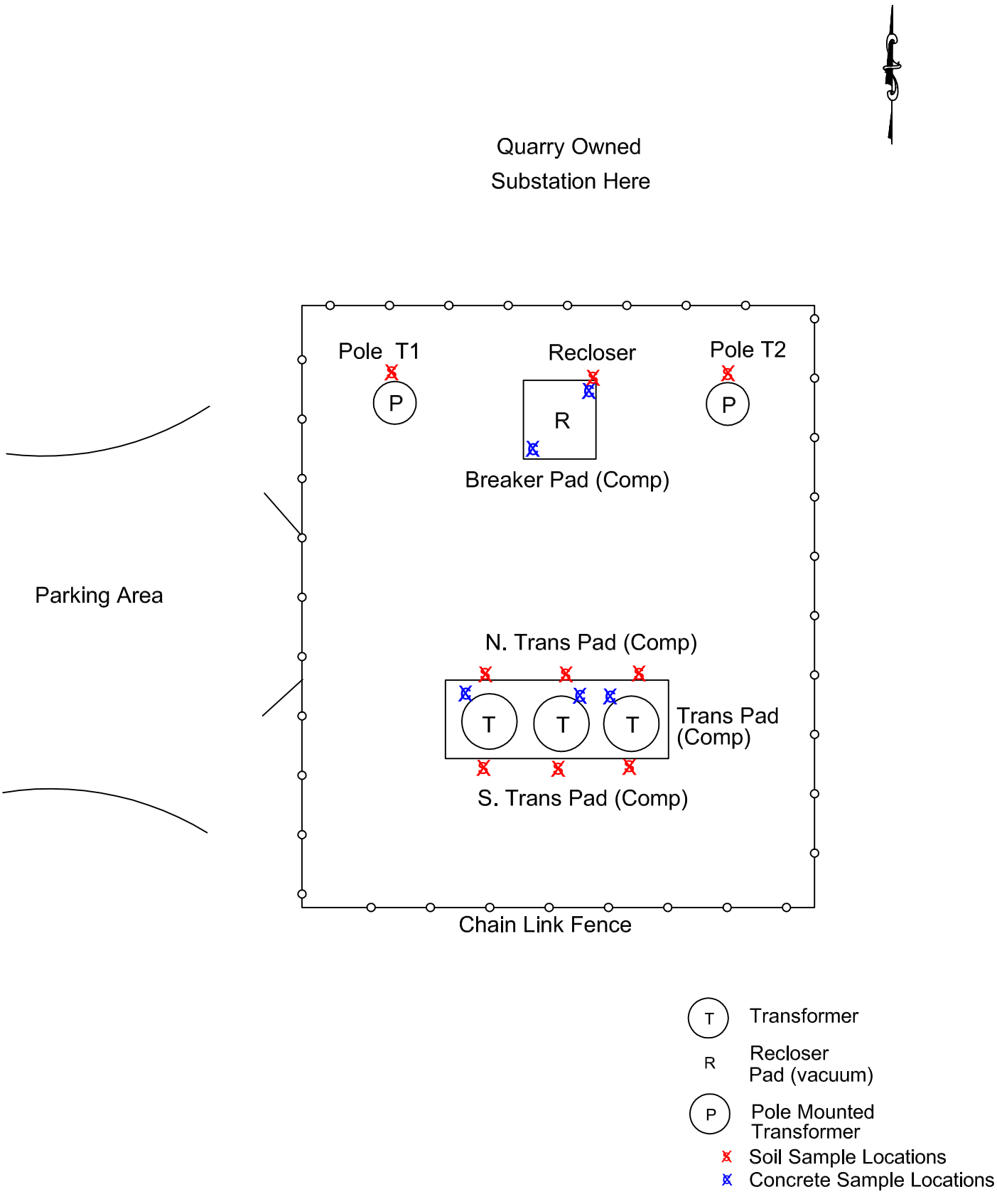
Figure 1: SITE LOCUS



Base Map: U.S. Geological Survey; Quadrangle Location: Barre East, VT

Lat/Lon: 44 9' 17.14" NORTH, 72 28' 37.5" WEST - UTM Coordinates: 18 701748.1 EAST / 4892157.2 NORTH

Generated By: Carol Farrington



ECS
1 Elm Street, Suite 3 * Waterbury, VT 05676
Phone: 802-241-4131 Fax: 802-244-6894
ecsconsult.com

PROJECT:
Wetmore-Morse Substation
Graniteville, VT

TITLE:
Site Plan

COMPUTER CADFILE: Box/224566/CADD

DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
AC	LW	LW	LW
SCALE:	DATE:	JOB NO.:	FIGURE NO.:
NTS	1-22-16	08-224566.00	2

Table 1
GMP Wetmore-Morse Substation
Initial Soil and Concrete Sample Results
ECS Project No. 08-224566.00

Sample ID				Substation Yard - Shallow Soil					Concrete	
				N. Trans Pad	S. Trans Pad	Pole T1	Pole T2	Recloser	Breaker Pad	Transformer Pad
Analysis	VT DOH Guidance	Date		12/28/2015	12/28/2015	12/28/2015	12/28/2015	12/28/2015	12/28/2015	12/28/2015
		Depth (feet)		0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'
		EPA RSLs - Nov 2015		Composite (3 Grabs)	Composite (3 Grabs)	Discrete	Discrete	Discrete	Composite (2 Grabs)	Composite (3 Grabs)
		Residential	Industrial							
PCB (µg/Kg)	mg/kg or ppm									
PCB-1248	0.12*	0.23	0.95	ND<0.02	ND<0.02	**0.10**	ND<0.02	ND<0.02	ND<0.08	ND<0.09
PCB 1254		0.24	0.97	ND<0.02	ND<0.02	**0.12**	ND<0.02	**0.22**	**0.41**	ND<0.09
PCB 1262		--	--	ND<0.02	ND<0.02	**0.16**	ND<0.02	ND<0.02	ND<0.08	ND<0.09
PCB 1268		0.24	0.99	**1.1**	**2.6**	ND<0.02	**0.23**	**38**	**1.7**	ND<0.09
SVOC PAHs (mg/Kg)	mg/kg or ppm									
Naphthalene	1.53	3.8	17	**0.43**	**0.012**	ND<0.008	ND<0.009	**1.2**	NA	NA
2-Methylnaphthalene	--	240	3,000	**0.23**	ND<0.008	ND<0.008	ND<0.009	**1.1**	NA	NA
Acenaphthylene	--	--	--	**0.89**	**0.22**	**4.2**	**0.13**	**2.5**	NA	NA
Acenaphthene	--	3,600	45,000	**0.42**	**0.013**	ND<0.008	ND<0.009	**0.98**	NA	NA
Fluorene	--	2,400	30,000	**0.45**	**0.029**	ND<0.008	**0.018**	**1.9**	NA	NA
Phenanthrene	--	--	--	**12.0**	**0.78**	**1.8**	**0.54**	**28**	NA	NA
Anthracene	--	18,000	230,000	**0.51**	**0.25**	**6.7**	**0.14**	**1.5**	NA	NA
Fluoranthene	--	2,400	30,000	**10**	**1.7**	**130**	**1.5**	**29**	NA	NA
Pyrene	--	1,800	23,000	**4.2**	**1.0**	**160**	**0.90**	**17**	NA	NA
Benz(a)anthracene	--	0.16	2.9	**0.45**	**0.22**	**52**	**0.14**	**1.4**	NA	NA
Chrysene	--	1.6	290	**2.2**	**0.92**	**67**	**0.51**	**6.5**	NA	NA
Benzo(b)fluoranthene	--	0.16	2.9	**1.7**	**1.1**	**53**	**0.54**	**5.2**	NA	NA
Benzo(k)fluoranthene	--	1.6	29	**0.55**	**0.36**	**18**	**0.17**	**1.5**	NA	NA
Benzo(a)pyrene	0.01	0.016	0.29	**0.34**	**0.30**	**22**	**0.12**	**1.3**	NA	NA
Indeno(1,2,3-cd)pyrene	--	0.16	2.9	**0.53**	**0.52**	**15**	**0.19**	**1.8**	NA	NA
Dibenz(a,h)anthracene		0.016	0.29	**0.088**	**0.090**	**3.7**	**0.030**	**0.39**	NA	NA
Benzo(ghi)perylene	--	--	--	**0.41**	**0.40**	**11**	**0.16**	**1.4**	NA	NA
Metals (mg/Kg or ppm)	mg/kg or ppm									
Arsenic	--	0.68	3.0	**2.7**	**3.0**	**0.5**	**0.6**	**2.6**	**8.7**	**8.2**
Barium	--	15,000	220,000	**41**	**68**	**99**	**110**	**98**	**100**	**98**
Cadmium	65.6	71	980	**2.8**	**2.4**	**2.0**	**1.3**	**3.2**	**5.0**	**2.2**
Chromium (assume III)	34,500	120,000	1,800,000	**16**	**21**	**9.7**	**9.9**	**13**	**19**	**23**
Lead	--	400	800	**44**	**89**	**43**	**38**	**110**	**12**	**33**
Mercury	--	11	46	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	**0.1**	**0.1**
Selenium	--	390	5,800	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Silver	--	390	5,800	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
TPH DRO (C10-C28)	mg/kg or ppm									
TPH DRO (C11-C28)	--	96	440	**320**	**99**	**2,100**	**33**	**380**	**2,300**	**6,400**

Notes:
SVOCs - Semi-Volatile Organic Compounds by EPA Method 8270. PAH = Polycyclic Aromatic Hydrocarbons
Metals by EPA Method 6010 (except Hg via method SW-7471)
TPH - total petroleum hydrocarbons by modified EPA Method 8100
RSL - EPA Region 9 Regional Screening Levels
ug/Kg - Microgram per Kilogram or parts per billion (ppb)
mg/Kg - Milligrams per Kilogram or parts per million (ppm)
ND - not detected to detection limit shown
Bold and yellow shaded values represent an exceedance of industrial RSL or Vermont industrial cleanup standard
Bold and grey shaded values represent an exceedance of residential RSL or Vermont residential cleanup standarc
* represents total PCBs
NA - compound not analyzed
**There is no current RSL for Total Chromium; elevated Chromium levels should be speciated for Chromium III and Chromium VI.

PHOTOGRAPHIC LOG

Environmental Compliance Services, Inc.
1 Elm St., Suite 3
Waterbury, Vermont 05676

Client Name:	**Site Location:**	**ECS Project #:**
Green Mountain Power Comp	Wetmore-Morse Substation, 244 Churchill Road, Barre, VT	*08-224566.00*

Photograph #1	
Description: GMP Wetmore-Morse Substation.	

Photograph #2	
Description: The transformers and structure in the left side of the photo are not owned by GMP and have not been evaluated as part of this investigation.	

PHOTOGRAPHIC LOG

Environmental Compliance Services, Inc.
1 Elm St., Suite 3
Waterbury, Vermont 05676

Client Name:	Site Location:	ECS Project #:
Green Mountain Power Comp	Wetmore-Morse Substation, 244 Churchill Road, Barre, VT	*08-224566.00*

Photograph #3

Description:
Three 500 KVA transformers on a concrete pad.

Photograph #4

Description:
Concrete pad at the vacuum recloser/breaker area.

PHOTOGRAPHIC LOG

Environmental Compliance Services, Inc.
1 Elm St., Suite 3
Waterbury, Vermont 05676

Client Name:	Site Location:	ECS Project #:
Green Mountain Power Comp	Wetmore-Morse Substation, 244 Churchill Road, Barre, VT	*08-224566.00*

Photograph #5

Description:
Soil sample location at the base of a pole-mounted transformer (Pole T1).

Photograph #6

Description:
Recloser concrete pad showing sample location.

Eastern Analytical, Inc.

professional laboratory & drilling services

Laura Woodard
ECS - Waterbury
1 Elm Street, Suite 3
Waterbury , VT 05676

ACCREDITED IN ACCORDANCE WITH nelac

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	151777
Client Identification:	GMP Wetmore - Morse Sub. | 08-224566.00
Date Received:	12/30/2015

Dear Ms. Woodard :

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 | 1.7.16 Date | 11 # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **151777**

Client: **ECS - Waterbury**

Client Designation: **GMP Wetmore - Morse Sub. | 08-224566.00**

Temperature upon receipt (°C): 4.5 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
151777.01	N. Trans Pad	12/30/15	12/28/15	soil	88.4	Adheres to Sample Acceptance Policy
151777.02	S. Trans Pad	12/30/15	12/28/15	soil	90.0	Adheres to Sample Acceptance Policy
151777.03	Pole T1	12/30/15	12/28/15	soil	84.6	Adheres to Sample Acceptance Policy
151777.04	Pole T2	12/30/15	12/28/15	soil	79.8	Adheres to Sample Acceptance Policy
151777.05	Recloser	12/30/15	12/28/15	soil	81.1	Adheres to Sample Acceptance Policy
151777.06	Breaker Pad	12/30/15	12/28/15	solid	95.4	Adheres to Sample Acceptance Policy
151777.07	Transformer Pad	12/30/15	12/28/15	solid	96.6	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

LABORATORY REPORT

EAI ID#: **151777**

Client: **ECS - Waterbury**

Client Designation: **GMP Wetmore - Morse Sub. | 08-224566.00**

Client Sample ID:	N. Trans Pad
Lab Sample ID:	151777.01
Matrix:	soil
Date Sampled:	12/28/15
Date Received:	12/30/15
Date Prepared:	12/31/15
Units	mg/kg
Method	8270D
Analyst	JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	**0.43**	1	1/6/16		
2-Methylnaphthalene	**0.23**	1	1/6/16		
Acenaphthylene	**0.89**	1	1/6/16		
Acenaphthene	**0.42**	1	1/6/16		
Fluorene	**0.45**	1	1/6/16		
Phenanthrene	**12**	5	1/6/16		
Anthracene	**0.51**	1	1/6/16		
Fluoranthene	**10**	5	1/6/16		
Pyrene	**4.2**	1	1/6/16		
Benzo[a]anthracene	**0.45**	1	1/6/16	0.1	.045
Chrysene	**2.2**	1	1/6/16	0.001	.0022
Benzo[b]fluoranthene	**1.7**	1	1/6/16	0.1	.17
Benzo[k]fluoranthene	**0.55**	1	1/6/16	0.01	.0055
Benzo[a]pyrene	**0.34**	1	1/6/16	1	.34
Indeno[1,2,3-cd]pyrene	**0.53**	1	1/6/16	0.1	.053
Dibenz[a,h]anthracene	**0.088**	1	1/6/16	1	.088
Benzo[g,h,i]perylene	**0.41**	1	1/6/16		
p-Terphenyl-D14 (surr)	**54 %R**		1/6/16		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.

LABORATORY REPORT

EAI ID#: **151777**

Client: **ECS - Waterbury**

Client Designation: **GMP Wetmore - Morse Sub. | 08-224566.00**

Client Sample ID:	S. Trans Pad
Lab Sample ID:	151777.02
Matrix:	soil
Date Sampled:	12/28/15
Date Received:	12/30/15
Date Prepared:	12/31/15
Units	mg/kg
Method	8270D
Analyst	JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	**0.012**	1	1/6/16		
2-Methylnaphthalene	< 0.008	1	1/6/16		
Acenaphthylene	**0.22**	1	1/6/16		
Acenaphthene	**0.013**	1	1/6/16		
Fluorene	**0.029**	1	1/6/16		
Phenanthrene	**0.78**	1	1/6/16		
Anthracene	**0.25**	1	1/6/16		
Fluoranthene	**1.7**	1	1/6/16		
Pyrene	**1.0**	1	1/6/16		
Benzo[a]anthracene	**0.22**	1	1/6/16	0.1	.022
Chrysene	**0.92**	1	1/6/16	0.001	.00092
Benzo[b]fluoranthene	**1.1**	1	1/6/16	0.1	.11
Benzo[k]fluoranthene	**0.36**	1	1/6/16	0.01	.0036
Benzo[a]pyrene	**0.30**	1	1/6/16	1	.3
Indeno[1,2,3-cd]pyrene	**0.52**	1	1/6/16	0.1	.052
Dibenz[a,h]anthracene	**0.090**	1	1/6/16	1	.09
Benzo[g,h,i]perylene	**0.40**	1	1/6/16		
p-Terphenyl-D14 (surr)	**64 %R**		1/6/16		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.

LABORATORY REPORT

EAI ID#: **151777**

Client: **ECS - Waterbury**

Client Designation: **GMP Wetmore - Morse Sub. | 08-224566.00**

Client Sample ID:	Pole T1
Lab Sample ID:	151777.03
Matrix:	soil
Date Sampled:	12/28/15
Date Received:	12/30/15
Date Prepared:	12/31/15
Units	mg/kg
Method	8270D
Analyst	JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.8	114	1/6/16		
2-Methylnaphthalene	< 0.8	114	1/6/16		
Acenaphthylene	**4.2**	114	1/6/16		
Acenaphthene	< 0.8	114	1/6/16		
Fluorene	< 0.8	114	1/6/16		
Phenanthrene	**1.8**	114	1/6/16		
Anthracene	**6.7**	114	1/6/16		
Fluoranthene	**130**	114	1/6/16		
Pyrene	**160**	114	1/6/16		
Benzo[a]anthracene	**52**	114	1/6/16	0.1	5.2
Chrysene	**67**	114	1/6/16	0.001	.067
Benzo[b]fluoranthene	**53**	114	1/6/16	0.1	5.3
Benzo[k]fluoranthene	**18**	114	1/6/16	0.01	.18
Benzo[a]pyrene	**22**	114	1/6/16	1	22
Indeno[1,2,3-cd]pyrene	**15**	114	1/6/16	0.1	1.5
Dibenz[a,h]anthracene	**3.7**	114	1/6/16	1	3.7
Benzo[g,h,i]perylene	**11**	114	1/6/16		
p-Terphenyl-D14 (surr)	**DOR**		1/6/16		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.

DOR: Diluted out of range.

Detection limits elevated due to sample matrix causing internal standard failure in undiluted analysis.

LABORATORY REPORT

EAI ID#: **151777**

Client: **ECS - Waterbury**

Client Designation: **GMP Wetmore - Morse Sub. | 08-224566.00**

Client Sample ID:	Pole T2
Lab Sample ID:	151777.04
Matrix:	soil
Date Sampled:	12/28/15
Date Received:	12/30/15
Date Prepared:	12/31/15
Units	mg/kg
Method	8270D
Analyst	JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.009	1	1/6/16		
2-Methylnaphthalene	< 0.009	1	1/6/16		
Acenaphthylene	**0.13**	1	1/6/16		
Acenaphthene	< 0.009	1	1/6/16		
Fluorene	**0.018**	1	1/6/16		
Phenanthrene	**0.54**	1	1/6/16		
Anthracene	**0.14**	1	1/6/16		
Fluoranthene	**1.5**	1	1/6/16		
Pyrene	**0.90**	1	1/6/16		
Benzo[a]anthracene	**0.14**	1	1/6/16	0.1	.014
Chrysene	**0.51**	1	1/6/16	0.001	.00051
Benzo[b]fluoranthene	**0.54**	1	1/6/16	0.1	.054
Benzo[k]fluoranthene	**0.17**	1	1/6/16	0.01	.0017
Benzo[a]pyrene	**0.12**	1	1/6/16	1	.12
Indeno[1,2,3-cd]pyrene	**0.19**	1	1/6/16	0.1	.019
Dibenz[a,h]anthracene	**0.030**	1	1/6/16	1	.03
Benzo[g,h,i]perylene	**0.16**	1	1/6/16		
p-Terphenyl-D14 (surr)	**57 %R**		1/6/16		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 151777

Client: **ECS - Waterbury**

Client Designation: **GMP Wetmore - Morse Sub. | 08-224566.00**

Client Sample ID:	Recloser
Lab Sample ID:	151777.05
Matrix:	soil
Date Sampled:	12/28/15
Date Received:	12/30/15
Date Prepared:	12/31/15
Units	mg/kg
Method	8270D
Analyst	JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	**1.2**	1	1/6/16		
2-Methylnaphthalene	**1.1**	1	1/6/16		
Acenaphthylene	**2.5**	1	1/6/16		
Acenaphthene	**0.98**	1	1/6/16		
Fluorene	**1.9**	1	1/6/16		
Phenanthrene	**28**	12	1/6/16		
Anthracene	**1.5**	1	1/6/16		
Fluoranthene	**29**	12	1/6/16		
Pyrene	**17**	12	1/6/16		
Benzo[a]anthracene	**1.4**	1	1/6/16	0.1	.14
Chrysene	**6.5**	1	1/6/16	0.001	.0065
Benzo[b]fluoranthene	**5.2**	1	1/6/16	0.1	.52
Benzo[k]fluoranthene	**1.5**	1	1/6/16	0.01	.015
Benzo[a]pyrene	**1.3**	1	1/6/16	1	1.3
Indeno[1,2,3-cd]pyrene	**1.8**	1	1/6/16	0.1	.18
Dibenz[a,h]anthracene	**0.39**	1	1/6/16	1	.39
Benzo[g,h,i]perylene	**1.4**	1	1/6/16		
p-Terphenyl-D14 (surr)	**43 %R**		1/6/16		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.

LABORATORY REPORT

EAI ID#: **151777**

Client: **ECS - Waterbury**

Client Designation: **GMP Wetmore - Morse Sub. | 08-224566.00**

Sample ID:	N. Trans Pad	S. Trans Pad	Pole T1	Pole T2	Recloser	Breaker Pad	Transformer Pad
Lab Sample ID:	151777.01	151777.02	151777.03	151777.04	151777.05	151777.06	151777.07
Matrix:	soil	soil	soil	soil	soil	solid	solid
Date Sampled:	12/28/15	12/28/15	12/28/15	12/28/15	12/28/15	12/28/15	12/28/15
Date Received:	12/30/15	12/30/15	12/30/15	12/30/15	12/30/15	12/30/15	12/30/15
Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date of Extraction/Prep:	12/31/15	12/31/15	12/31/15	12/31/15	12/31/15	12/31/15	12/31/15
Date of Analysis:	1/4/16	1/4/16	1/4/16	1/4/16	1/4/16	1/4/16	1/4/16
Analyst:	SS	SS	SS	SS	SS	SS	SS
Method:	8015CDRO	8015CDRO	8015CDRO	8015CDRO	8015CDRO	8015CDRO	8015CDRO
Dilution Factor:	1	1	11	1	6	5	25
DRO (Diesel Range C10-C28)	**320**	**99**	**2100**	**33**	**380**	**2300**	**6400**
p-Terphenyl-D14 (surr)	**97 %R**	**69 %R**	**DOR**	**51 %R**	**MI**	**86 %R**	**MI**

DOR: Diluted out of range.
MI: Matrix interference.

LABORATORY REPORT

EAI ID#: **151777**

Client: **ECS - Waterbury**

Client Designation: **GMP Wetmore - Morse Sub. | 08-224566.00**

Sample ID:	N. Trans Pad	S. Trans Pad	Pole T1	Pole T2	Recloser	Breaker Pad	Transformer Pad
Lab Sample ID:	151777.01	151777.02	151777.03	151777.04	151777.05	151777.06	151777.07
Matrix:	soil	soil	soil	soil	soil	solid	solid
Date Sampled:	12/28/15	12/28/15	12/28/15	12/28/15	12/28/15	12/28/15	12/28/15
Date Received:	12/30/15	12/30/15	12/30/15	12/30/15	12/30/15	12/30/15	12/30/15
% Solid:	88.4	90	84.6	79.8	81.1	95.4	96.6
Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date of Extraction/Prep:	1/4/16	1/4/16	1/4/16	1/4/16	1/4/16	1/4/16	1/4/16
Date of Analysis:	1/5/16	1/5/16	1/5/16	1/5/16	1/5/16	1/5/16	1/5/16
Analyst:	AR	AR	AR	AR	AR	AR	AR
Extraction Method:	3540C	3540C	3540C	3540C	3540C	3540C	3540C
Analysis Method:	8082	8082	8082	8082	8082	8082	8082
Dilution Factor:	1	1	1	1	1	5	5
PCB-1016	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.08	< 0.09
PCB-1221	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.08	< 0.09
PCB-1232	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.08	< 0.09
PCB-1242	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.08	< 0.09
PCB-1248	< 0.02	< 0.02	**0.10**	< 0.02	< 0.02	< 0.08	< 0.09
PCB-1254	< 0.02	< 0.02	**0.12**	< 0.02	**0.22**	**0.41**	< 0.09
PCB-1260	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.08	< 0.09
PCB-1262	< 0.02	< 0.02	**0.16**	< 0.02	< 0.02	< 0.08	< 0.09
PCB-1268	**1.1**	**2.6**	< 0.02	**0.23**	**38**	**1.7**	< 0.09
TMX (surr)	**76 %R**	**85 %R**	**57 %R**	**77 %R**	**54 %R**	**57 %R**	**63 %R**
DCB (surr)	**MI**	**MI**	**70 %R**	**MI**	**MI**	**MI**	**61 %R**

Acid clean-up was performed on the samples and associated batch QC.

Breaker Pad, Transformer Pad: Detection limits elevated due to limited initial sample amount.

N. Trans Pad: PCB-1268 result obtained from a 4X dilution analyzed on 1/5/2016.
S. Trans Pad: PCB-1268 result obtained from a 10X dilution analyzed on 1/5/2016.
Recloser: PCB-1268 result obtained from a 200X dilution analyzed on 1/5/2016.
Breaker Pad: PCB-1268 result obtained from a 2X dilution analyzed on 1/5/2016.

MI: Matrix Interference

LABORATORY REPORT

EAI ID#: **151777**

Client: **ECS - Waterbury**

Client Designation: **GMP Wetmore - Morse Sub. | 08-224566.00**

Sample ID:	Breaker Pad	Transformer Pad			Analysis			
Lab Sample ID:	151777.06	151777.07						
Matrix:	solid	solid						
Date Sampled:	12/28/15	12/28/15						
Date Received:	12/30/15	12/30/15	**Units**	**Date**	**Time**	**Method**	**Analyst**	
pH	**12.2**	**12.0**	SU	1/04/16	12:00	9045	SCW	

LABORATORY REPORT

EAI ID#: **151777**

Client: **ECS - Waterbury**

Client Designation: **GMP Wetmore - Morse Sub. | 08-224566.00**

Sample ID:	N. Trans Pad	S. Trans Pad	Pole T1	Pole T2					
Lab Sample ID:	151777.01	151777.02	151777.03	151777.04					
Matrix:	soil	soil	soil	soil					
Date Sampled:	12/28/15	12/28/15	12/28/15	12/28/15	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	12/30/15	12/30/15	12/30/15	12/30/15					
Arsenic	**2.7**	**3.0**	**0.5**	**0.6**	SolTotDry	mg/kg	1/6/16	6020	DS
Barium	**41**	**68**	**99**	**110**	SolTotDry	mg/kg	1/6/16	6020	DS
Cadmium	**2.8**	**2.4**	**2.0**	**1.3**	SolTotDry	mg/kg	1/6/16	6020	DS
Chromium	**16**	**21**	**9.7**	**9.9**	SolTotDry	mg/kg	1/6/16	6020	DS
Lead	**44**	**89**	**43**	**38**	SolTotDry	mg/kg	1/6/16	6020	DS
Mercury	< 0.1	< 0.1	< 0.1	< 0.1	SolTotDry	mg/kg	1/6/16	6020	DS
Selenium	< 0.5	< 0.5	< 0.5	< 0.5	SolTotDry	mg/kg	1/6/16	6020	DS
Silver	< 0.5	< 0.5	< 0.5	< 0.5	SolTotDry	mg/kg	1/6/16	6020	DS

Sample ID:	Recloser	Breaker Pad	Transformer Pad					
Lab Sample ID:	151777.05	151777.06	151777.07					
Matrix:	soil	solid	solid					
Date Sampled:	12/28/15	12/28/15	12/28/15	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	12/30/15	12/30/15	12/30/15					
Arsenic	**2.6**	**8.7**	**8.2**	SolTotDry	mg/kg	1/6/16	6020	DS
Barium	**98**	**100**	**98**	SolTotDry	mg/kg	1/6/16	6020	DS
Cadmium	**3.2**	**5.0**	**2.2**	SolTotDry	mg/kg	1/6/16	6020	DS
Chromium	**13**	**19**	**23**	SolTotDry	mg/kg	1/6/16	6020	DS
Lead	**110**	**12**	**33**	SolTotDry	mg/kg	1/6/16	6020	DS
Mercury	< 0.1	**0.1**	**0.1**	SolTotDry	mg/kg	1/6/16	6020	DS
Selenium	< 0.5	< 0.5	< 0.5	SolTotDry	mg/kg	1/6/16	6020	DS
Silver	< 0.5	< 0.5	< 0.5	SolTotDry	mg/kg	1/6/16	6020	DS

Page 1 of 1

CHAIN-OF-CUSTODY RECORD

151777

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

SAMPLE I.D.	SAMPLING DATE/TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE/TIME	MATRIX (SEE BELOW)	GRAB/*COMPOSITE	VOC: 524.2 BTEX; 524.2 BTEX 524.2 MTBE ONLY; 8260B 624 VTICS 1, 4 DIOXANE; 8021B BTEX HALOS; 8015B GRO MAVPH	SVOC: 8270D 625 SVTICS EDB DBCP; ABN A BN 2MN; TPH8100 LI L2; 8015B DRO MAEPH; PEST 608 PCB 608 PEST 8081A PCB 8082 *; OIL & GREASE 1664 TPH 1664	TCLP: TCLP 1311 ABN METALS VOC PEST HERB	METALS: DISSOLVED METALS (LIST BELOW); TOTAL METALS (LIST BELOW) 8	INORGANICS: TS TSS TDS SPEC. CON.; BR CL F SO4 NO2 NO3 NO2NO3; BOD CBOD T. ALK.; TKN NH3 T. PHOS. O. PHOS.; pH T. RES. CHLORINE; COD PHENOLS TOC DOC; TOTAL CYANIDE TOTAL SULFIDE; REACTIVE CYANIDE REACTIVE SULFIDE FLASHPOINT IGNITABILITY	MICRO: TOTAL COLIFORM E. COLI FECAL COLIFORM; ENTEROCOCCI HETEROTROPHIC PLATE COUNT	OTHER	# OF CONTAINERS 4 OZ	NOTES MEOH VIAL #
N. Trans Pad	12/28/15 1220	S	C		X		X	X			X		2	* Soxhlet extraction on PCB analysis
S. Trans Pad	12/28/15 1230	S	C		X		X	X			X		2	
Pole T1	12/28/15 1235	S	G		X		X	X			X		2	
Pole T2	12/28/15 1240	S	G		X		X	X			X		2	
Recloser	12/28/15 1245	S	G		X		X	X			X		2	
Breaker Pad	12/28/15 1155	C	C				X	X			X	X	1	
Transformer Pad	12/28/15 1145	C	C				X	X			X	X	1	

MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER C = concrete

PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

PROJECT MANAGER: Laura Woodard

COMPANY: ECS, Inc.

ADDRESS: 1 Elm Street, Ste 3

CITY: Waterbury STATE: VT ZIP: 05676

PHONE: 802-241-4131 EXT.:

FAX: 802-244-6894

E-MAIL: lwoodard@ecsconsult.com

SITE NAME: GMP Wetmore-Morse Sub.

PROJECT #: 08-~~224345.01~~ 224566.00

STATE: NH MA ME (VT) OTHER:

REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR GWP, OIL FUND, BROWNFIELD OR OTHER:

QUOTE #: PO #:

DATE NEEDED: Standard TAT

QA/QC REPORTING LEVEL

A B C

OR

PRESUMPTIVE CERTAINTY

REPORTING OPTIONS

PRELIMS: YES OR (NO)

IF YES: FAX OR (PDF)

ELECTRONIC OPTIONS

NO FAX E-MAIL (PDF) EQUIS

TEMP. 4.5 °C

ICE? (YES) NO

SAMPLER(S): Laura Woodard

RELINQUISHED BY: Laura Woodard DATE: 12/28/15 TIME: 1400 RECEIVED BY: C Bateman

RELINQUISHED BY: C Bateman DATE: 12/30/15 TIME: 11:43 RECEIVED BY: G Blair

RELINQUISHED BY: G Blair DATE: 12/30/15 TIME: 15:20 RECEIVED BY:

METALS: (8 RCRA) 13 PP FE, MN PB, CU

OTHER METALS:

SAMPLES FIELD FILTERED? ☐ YES ☒ NO

NOTES: (IE: SPECIAL DETECTION LIMITS, BILLING INFO, IF DIFFERENT)

Bill to Green Mountain Power – John Greenan.

SITE HISTORY: substation

SUSPECTED CONTAMINATION: dielectric oil

FIELD READINGS: —

Eastern Analytical, Inc.
Professional ... & drilling services
25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | FAX: 603.228.4591 | E-MAIL: CUSTOMERSERVICE@EAILABS.COM | WWW.EAILABS.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)