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January 10, 2019
File No. 04.0190664.13

US Environmental Protection Agency
Dewatering GP Processing
Industrial Permit Unit (OEP 06- 4)
5 Post Office Square – Suite 100
Boston, Massachusetts 02109-3912

Re: US Environmental Protection Agency
Dewatering GP Notice of Intent (NOI)
F107 Transmission Line Rebuild
Splice Vault Installation at Gundalow Landing
Newington, New Hampshire 03801

Dear Sir or Madam:

This letter transmits Notice of Intent (NOI) requesting a determination of coverage under the United States Environmental Protection Agency's (EPA's) Dewatering General Permit (DGP), pursuant EPA's National Pollutant Discharge Elimination System (NPDES) program. This NOI was prepared in accordance with the general requirements of the NPDES and related guidance documentation provided by EPA. The completed NOI Form is provided in **Appendix A**.

The proposed project is associated with the replacement of the existing F107 transmission line from Madbury Substation, in Durham, New Hampshire to the Portsmouth Substation in Newington, New Hampshire. The transmission line is being replaced as part of Eversource's Seacoast Reliability Project. The proposed dewatering activities covered under this NOI are for the construction of the F107 transmission line splice vault west of Gundalow Landing adjacent to Little Bay in Newington, New Hampshire.

1. GENERAL FACILITY INFORMATION

This NOI has been prepared for the management of water that will be generated during dewatering activities associated with the construction of a transmission line splice vault within the Eversource Right-of-Way adjacent to 44 Gundalow Landing in Newington, New Hampshire (the Site). A Site Locus is provided as **Figure 1** and a Site Plan is provided as **Figure 2**.

The proposed splice vault is a large concrete box buried at the Site where segments of the F107 line will be connected. The primary function of the vault is for splicing the lines during construction and for permanent access, maintenance, and repair of the

lines. The vault is approximately 10 feet by 35 feet and 10 feet high and has two manholes used to enter for line work and general maintenance. Installation of the splice vault will require excavation of approximately 7,500 cubic feet of material. Dewatering will be required during this excavation to lower the groundwater table as work is being performed.

Groundwater samples were taken from a monitoring well on the Site on October 5, 2018 in order to characterize the dewatering discharge. Samples were analyzed for metals, pH, and chloride. None of the 13 metal analytes were detected above the applicable respective NH Ambient Groundwater Quality Standards or NPDES Effluent Limitations. In addition, a surface water grab sample was collected from Little Bay and analyzed for hardness on October 10, 2018. Results are summarized in Table 1 below, and the analytical laboratory reports and provided in **Appendix B.**

Table 1
Groundwater Analytical Test Result - Metals, Hardness, and pH
F107 Transmission Line - Gundalow Landing
Newington, New Hampshire

Analytical Sample ID	MW-1	MW-1	Great Bay (Grab)	Laboratory Reporting Limit	Water Quality Criteria for Toxic Substances[2] (ug/l)	
Date collected	10/5/2018	10/10/2018	10/10/2018		Marine Acute	Marine Chronic
Metals (ug/l)						
Antimony, Total	ND	-	-	50	No Standard	No Standard
Arsenic, Total	ND	-	-	5	69	36
Cadmium, Total	ND	-	-	5	33	7.9
Chromium, Total	ND	ND	-	10	No Standard	No Standard
Chromium (Hexavalent)	-	ND	-	10	1100	50
Chromium (Trivalent)	-	ND	-	10	10300	No Standard
Copper, Total	ND	-	-	10	4.8	3.1
Iron, Total	19 J	-	-	50	No Standard	No Standard
Lead, Total	ND	-	-	10	210	8.1
Mercury, Total	ND	-	-	0.2	1.8	0.94
Nickel, Total	ND	-	-	25	74	8.2
Silver, Total	ND	-	-	7	1.9	No Standard
Zinc, Total	ND	-	-	50	90	81.0
pH (S.U.)	7.2	-	-	-	No Standard	No Standard
Chloride (mg/l)	463	-	-	12.5	No Standard	No Standard
Hardness (mg/l)	-	-	3,270	0.660	No Standard	No Standard

Notes:
1. ND indicates non-detected. "-" indicates not tested for that parameter. "J" indicates estimated value.
2. Water Quality Criteria for Toxic Substances as set forth in Table 1703-1 of Env-Wq 1700.

2. DISCHARGE INFORMATION

Groundwater will be pumped from the excavation directly into settling tanks. After sufficient time has passed to allow for the settling of suspended solids, the water will be pumped to dewatering filter bags and discharged to Little Bay via Outfall 1. Little Bay is designated as a Class B marine water and will accordingly receive a maximum and minimum monthly pH discharge of 8.0 and 6.5, respectively. The estimated maximum daily and average

monthly flows are 3,000 GPD and 1,800 GPD, respectively. The proposed discharge will be periodic and is scheduled to occur for approximately 21 days from mid-May to mid-June 2019.

3. CONTAMINANT INFORMATION

Based on the analytical laboratory results in **Appendix B**, there will be no pH neutralization or dechlorination chemicals used in the discharge. Information provided in the NHDES 2016 305(b)/303(d) list Watershed Report Card **(Appendix C)** indicates that the portion of Little Bay adjacent to Outfall 1 is not supporting/severely impaired for aquatic life and not supporting/marginally impaired for fish consumption and shellfishing. Discharge water characterization and the discharge standards covered in **Section 2** indicated that the proposed dewatering will not cause any new or exacerbate any existing water quality impairments.

4. DETERMINATION OF ENDANGERED SPECIES ACT ELIGIBILITY (ESA)

Preliminary US Fish and Wildlife Service IPaC review indicated the potential presence of the Northern Long-eared bat (NLEB) on Site **(see Appendix D)**. It was determined that the NLEB is not likely to occur in the project action area as defined in Appendix A given that there is no proposed tree removal or vegetative maintenance occurring at the Site. Therefore, the project is eligible under Criterion A. No other federally listed species were identified on or near the Site.

5. DOCUMENTATION OF NATIONAL HISTORIC PRESERVATION ACT (NHPA) REQUIREMENTS

Question 1: The site is considered a new facility and is avoiding any activity that involves subsurface disturbance for the implementation of dewatering activities.

Question 2: The property is not listed in the National Register of Historic Places and no prior surveys or disturbances have revealed the existence of a historic property or artifact. The entire project area, including the Site, was evaluated via a Phase 1A archeological survey in April 2015. The Site was not identified in this report as having any potential historic or cultural sensitivity, and no further archeological study was recommended. See **Appendix E** for NH Department of Historical Resources concurrence. Based on this information, the project is eligible under Criterion A.

6. SUMMARY

It is our opinion that the proposed discharge is eligible for coverage under the NPDES DGP. On behalf of Eversource, GZA is requesting coverage under the NPDES DGP for the discharge of groundwater to Little Bay in support of construction dewatering activities that are to take place in the Eversource Right-of-Way adjacent to 44 Gundalow Landing in Newington, New Hampshire.

Attachments include Locus Map, Site Plan, NOI form, Analytical Laboratory Results, Endangered Species Information, and Historical Preservation Information.

If you have additional questions, please contact Ms. Jen Grawin at 603-232-8720 or at jennifer.grawin@gza.com.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Jennifer M. Grawin, CPESC
Project Manager

Deborah M. Zarta Gier, CNRP
Consultant/Reviewer

JMG/DMZ:tmd
\\GZABedford\Jobs\04Jobs\0190600s\04.0190664.00 - Eversource Geotech\04.0190664.13 - F107 Transmission Line\Work\Dewatering\Gundalow Landing DGP\1 - FINAL F107 DGP Gundalow Cover Letter 011019.docx

Attachments:
Figure 1 – Locus Plan
Figure 2 – Aerial Plan
Appendix A – NOI Form
Appendix B – Analytical Laboratory Results
Appendix C – Little Bay Water Quality Data
Appendix D – Endangered Species Information
Appendix E – Historical Preservation Information

cc: Eversource Energy, ATTN: Kurt Nelson
NHDES Wastewater Engineering Bureau

Appendix A – NOI Form

APPENDIX V

NOTICE OF INTENT INSTRUCTIONS AND SUGGESTED FORMATS AND MAILING ADDRESSES

I. Notice of Intent (NOI) Instructions

In order to be covered by the Dewatering General Permit (DGP) applicants must submit a written NOI to EPA and the appropriate state agency. The NOI consists of either the suggested NOI format included in Part II of this Appendix or another format of official correspondence that contains all of the required information listed in the General Permit and the NOI instructions.

A. Instructions for the NOI - At a minimum, the NOI must include the following information for each individual facility. Additional information may be attached as needed.

1. General facility information.

a) Provide the name and mailing address of the facility.

b) Provide the facility location address, including the latitude and longitude, if different from the mailing address. Provide the SIC code(s) and type of business.

c) Provide the legal name, address, telephone and fax number of the owner and operator (if not the owner) if different from the facility information. Indicate whether the owner is a Federal, State, Tribal, private or other entity.

d) Provide a topographic map indicating the location(s) of the facility and receiving water, and discharge point(s).

e) Provide the answer to the following questions:
   i. Has a prior NPDES permit been granted for this discharge? If yes, provide the permit number:
   ii. Is the discharge a "new discharger" as defined by 40 CFR Section 122.2?
   iii. Is the facility covered by an individual NPDES permit? If yes, provide the permit number.
   iv. Is there a pending application on file for any other permit with EPA for this discharge?

2. Discharge information.

a) Provide the name of the receiving water(s) into which each outfall will discharge and identify if it is freshwater or marine water and its state water quality classification.

b) Describe the activity (construction dewatering, dewatering of foundation sumps etc.) that

generates the discharge(s) to be covered by the permit. If available, please provide a facility water flow diagram. Also, if known, identify and describe any and all treatment methods and provide a technology diagram depicting the treatment of discharge at the facility.

c) Provide the number of outfalls; and for each outfall, provide the following information:

i. Please estimate the flow in GPD – both the maximum daily and average flow rate of the discharge in gallons per day;

ii. Provide the maximum and minimum monthly pH of discharge (in s.u.);

iii. Identify the source of the water being discharged (i.e. potable water, surface water, groundwater). If the source is groundwater, the facility shall submit effluent test results, as required in Section 4.4.5 of the General Permit. If the source is potable water, EPA will calculate the Total Residual Chlorine effluent limits.

iv. If known, state whether the discharge(s) is continuous, periodic (occurs regularly, for example monthly or seasonally, but is not continuous all year) or intermittent (occurs sometimes but not regularly), or both. If the discharge is periodic, specify the frequency (number of days or months per year) of the discharge and the specific months of discharge. If the discharge is intermittent, specify the number of days per year there is intermittent discharge. If the dewatering is temporary and will occur within a finite period of time, state the approximate start and end dates of dewatering.

v. Provide the latitude and longitude of each discharge point (outfall) with an accuracy of 100 feet (see EPA's siting tool at: http://www.epa.gov/tri/report/siting_tool/) and,

vi. If the source of the discharge is potable water, provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water. Also, please attach any calculation sheets used to support stream flow and dilution calculations. See Appendix VII for equations and additional information.

vii. For Massachusetts facilities only: Determine if the discharge is into an Area of Critical Environmental Concern (ACEC) and, if yes, provide the name of the ACEC. See Section 3.4 and Appendix 1 of the General Permit for more information on ACECs.

3. Contaminant Information.

a) If the facility uses any pH neutralization and/or dechlorination chemicals, provide the product name and manufacturer; maximum and average daily quantity used as well as the maximum and average daily expected concentrations (mg/l) in the discharge; and the vendor's reported aquatic toxicity (NOAEL and/or LC_{50} in percent for aquatic

organism(s)).

b) Please report any known remediation activities or water-quality issues in the vicinity of the discharge.

c) In order to be eligible for this permit, applicants will need to take a minimum of one sample of the untreated water at the construction site and have it analyzed for the metal parameters listed in Appendix VIII. If the levels of contamination for the proposed discharge are equal or less than the metal parameters listed in Appendix III of the RGP, the application will be eligible for a DGP. Otherwise, the applicant should apply for the Remediation General Permit (RGP) for contaminated discharges.

4. Determination of Endangered Species Act Eligibility (ESA)

Provide documentation of ESA eligibility and respond to all questions as required in Appendix IV

5. Documentation of National Historic Preservation Act (NHPA) Requirements

Provide documentation and respond to all questions as required in Appendix III:

6. Supplemental Information

Applicants should provide any supplemental information needed to meet the requirements of the permit, including, any analytical data used to support the application (see Section 3.c above), and any certification(s) required by the permit.

7. Signature Requirements

The Notice of Intent must be signed and dated by the operator in accordance with the signatory requirements of 40 CFR Section 122.22 (see below) including the following certification:

I certify under penalty of law that (1) no biocides or other chemical additives except for those used for pH adjustment and/or dechlorination are used in the dewatering system; (2) the discharge consists solely of dewatering and authorized pH adjustment and/or dechlorination chemicals; (3) the discharge does not come in contact with any raw materials, intermediate product, waste product or finished product; (4) if the discharge of dewatering subsequently mixes with other wastewater (i.e. stormwater) prior to discharging to the receiving water, any monitoring provided under this permit will be only for dewatering discharges; (5) where applicable, the facility has complied with the requirements of this permit specific to the Endangered Species Act and the National Historic Preservation Act; and (6) this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the

information submitted.

Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Federal regulations require this application to be signed as follows:
1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For partnership or sole proprietorship, by a general partner or the proprietor, respectively, or,
3. For a municipality, State, Federal or other public facility, by either a principal executive officer or ranking elected official.

B. Submission of NOI to EPA

Filing with EPA - All operators located in Massachusetts and New Hampshire that apply for coverage under this General Permit must submit a written NOI to EPA-New England. The completed, signed NOI formats and attachments must be submitted to EPA-NE electronically at: GeneralPermit.Dewatering@epa.gov, or mailed to:

US Environmental Protection Agency
Dewatering GP Processing
Industrial Permit Unit (OEP 06- 4)
5 Post Office Square – Suite 100
Boston, MA 02109-3912

Filing with the states - A copy of the NOI format filed with EPA-NE must also be filed with state agencies. The state agency may elect to develop a state specific form or other additional information requirements.

1. Discharges in Massachusetts

    a. Facilities located in Massachusetts with discharges to Class B or SB waters must: Provide a completed copy of the Notice of Intent to:

Massachusetts Department of Environmental Protection
Division of Watershed Management
8 New Bond Street
Worcester, MA 01606

The State of Massachusetts no longer will take an active participation in approving or certifying DGP discharges to Class B or SB waters. No transmittal form or fees are necessary to Class B & SB waters. The Notice of Intent to the State is for informational purposes only.

b. Facility located in Massachusetts with discharges to Class A or SA waters must: Provide a completed copy of the Notice of Intent. The completed state transmittal form, and a copy of the check for the appropriate State fee to:

Massachusetts Department of Environmental Protection
Division of Watershed Management
8 New Bond Street
Worcester, MA 01606

Submit the appropriate fee and copy of the transmittal form to:

MassDEP
P.O. Box 4062
Boston, MA 02211

The State Transmittal Form & Number for the Permit Application & Payment is found here:

http://www.mass.gov/eea/agencies/massdep/service/approval/transmital-form-for-payment.html

Discharges into Class A or SA waters require approval by the Massachusetts Department of Environmental Protection

2. Discharges in New Hampshire

All applicants must provide a completed copy of their Notice of Intent to:

New Hampshire Department of Environmental Services
Water Division, Wastewater Engineering Bureau
29 Hazen Drive, P.O. Box 95
Concord, New Hampshire 03302-0095

II. Suggested Notice of Intent (NOI) Format

1. General facility information. Please provide the following information about the facility.

a) Name of facility:
F107 Transmission Line Rebuild - Splice Vault Installation at Gundalow Landing

Mailing Address for the Facility:
Transmission Line Right of Way - N/A

b) Location Address of the Facility (if different from mailing address):

Facility Location

longitude: 70°51'5.19"W
latitude: 43° 5'54.92"N

Type of Business:
Transmission Line

Facility SIC codes:
4911 Electric Services

c) Name of facility owner: Eversource Energy **Owner's email:** dena.champy@eversource.com

Owner's Tel #: (508) 954-2736 **Owner's Fax #:** _____

Address of owner (if different from facility address)
13 Legends Drive
Hooksett, NH

Owner is (check one): 1. Federal____ 2. State _____ 3. Private__✓__ 4. Other _____(Describe)_____

Legal name of Operator, if not owner: _____

Operator Contact Name: _____

Operator Tel Number: _____ **Fax Number:** _____

Operator's email: _____

Operator Address (if different from owner)

d) Attach a topographic map indicating the location of the facility and the outfall(s) to the receiving water. Map attached? __✓__

e) Check Yes or No for the following:

1. **Has a prior NPDES permit been granted for the discharge? Yes ____ No__✓__ If Yes, Permit Number:** _____
2. **Is the discharge a "new discharger" as defined by 40 CFR Section 122.2? Yes__✓__ No_____**
3. **Is the facility covered by an individual NPDES permit? Yes_____ No__✓__ If Yes, Permit Number ____**
4. **Is there a pending application on file with EPA for this discharge? Yes _____ No __✓__ If Yes, date of submittal:**

2. Discharge information. Please provide information about the discharge, (attaching additional sheets as needed)

a) **Name of receiving water into which discharge will occur:** Little Bay - Adams Point Mooring Field
State Water Quality Classification: B **Freshwater:** _____ **Marine Water:** X

b) **Describe the discharge activities for which the owner/applicant is seeking coverage:**

✓ 1. **Construction dewatering of groundwater intrusion and/or storm water accumulation.**
2. **Short-term or long-term dewatering of foundation sumps.**
3. **Other.**

c) **Number of outfalls** 1

For each outfall:

d) **Estimate the maximum daily and average monthly flow of the discharge (in gallons per day – GPD). Max Daily Flow** 3000 **GPD**
Average Monthly Flow 1800 **GPD**

e.) **What is the maximum and minimum monthly pH of the discharge (in s.u.)? Max pH** 8.0 **Min pH** 6.5
In accordance with State of NH Class B waters.

f.) **Identify the source of the discharge (i.e. potable water, surface water, or groundwater). If groundwater, the facility shall submit effluent test results, as required in Section 4.4.5 of the General Permit.**
Groundwater

g.) **What treatment does the wastewater receive prior to discharge?**
None

h.) **Is the discharge continuous? Yes** _____ **No** ✓ **If no, is the discharge periodic (P) (occurs regularly, i.e., monthly or seasonally, but is not continuous all year) or intermittent (I) (occurs sometimes but not regularly) or both (B)** I
If (P), number of days or months per year of the discharge _____ **and the specific months of discharge** _____;
If (I), number of days/year there is a discharge approx. 21 days
Is the discharge temporary? Yes ✓ **No** _____
If yes, approximate start date of dewatering May 15, 2019 **approximate end date of dewatering** June 15, 2019

i.) **Latitude and longitude of each discharge within 100 feet (See http://www.epa.gov/tri/report/siting_tool): Outfall 1: long.** -70.854707 **lat.** 43.098010 **; Outfall 2: long.**_____ **lat.**_____**; Outfall 3: long.**_____ **lat.**_____.

j.) **If the source of the discharge is potable water, please provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water and attach any calculation sheets used to support stream flow and dilution calculations** N/A **cfs**
(See Appendix VII for equations and additional information)

MASSACHUSETTS FACILITIES: See Section 3.4 and Appendix 1 of the General Permit for more information on Areas of Critical Environmental Concern (ACEC):

k.) Does the discharge occur in an ACEC? Yes _____ No _____
If yes, provide the name of the ACEC: _____

3. Contaminant Information

a) Are any pH neutralization and/or dechlorination chemicals used in the discharge? If so, include the chemical name and manufacturer; maximum and average daily quantity used as well as the maximum and average daily expected concentrations (mg/l) in the discharge, and the vendor's reported aquatic toxicity (NOAEL and/or LC_{50} in percent for aquatic organism(s)).

b) Please report any known remediation activities or water-quality issues in the vicinity of the discharge.

4. Determination of Endangered Species Act Eligibility: Provide documentation of ESA eligibility as required at Part 3.4 and Appendix IV. In addition, respond to the following questions.

a) Which of the three eligibility criteria listed in Appendix IV, Criterion (A, B, or C) have you met? Criterion A
b) Please attach documentation with your NOI supporting your response. Please see Appendix IV for acceptable documentation

5. Documentation of National Historic Preservation Act requirements: Please respond to the following questions:

a) See Screening Process in Appendix III and respond to questions regarding your site and any historic properties listed or eligible for listing on the National Register of Historic Places. Question 1: Yes ✓ No ____ ; Question 2: No ✓ Yes _____

b) Have any State or Tribal historic preservation officers been consulted in this determination? Yes _____ or No ✓ If yes, attach the results of the consultation(s).

c) Which of the three National Historic Preservation Act eligibility criterion listed in Appendix III, Criterion (A, B, or C) have you met? Criterion A

d) Is the project located on property of religious or cultural significance to an Indian Tribe? Yes _____ or No ✓ If yes, provide that name of the Indian Tribe associated with the property. _____

6. Supplemental Information: Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit

7. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22 (see below) including the following certification:

I certify under penalty of law that (1) no biocides or other chemical additives except for those used for pH adjustment and/or dechlorination are used in the dewatering system; (2) the discharge consists solely of dewatering and authorized pH adjustment and/or dechlorination chemicals; (3) the discharge does not come in contact with any raw materials, intermediate product, water product or finished product; (4) if the discharge of dewatering subsequently mixes with other permitted wastewater (i.e. stormwater) prior to discharging to the receiving water, any monitoring provided under this permit will be only for dewatering discharge; (5) where applicable, the facility has complied with the requirements of this permit specific to the Endangered Species Act and National Historic Preservation Act; and (6) this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.

Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility Name: F107 Transmission Line Rebuild - Splice Vault Installation at Gundalow Landing

Operator signature:

Print Full Name and Title: Kurt I. Nelson

Date: 01/10/2019

Federal regulations require this application to be signed as follows:

1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For partnership or sole proprietorship, by a general partner or the proprietor, respectively, or,
3. For a municipality, State, Federal or other public facility, by either a principal executive officer or ranking elected official.

Appendix B – Analytical Laboratory Results

ALPHA ANALYTICAL

ANALYTICAL REPORT

Lab Number:	L1840555
Client:	GZA GeoEnvironmental, Inc. 5 Commerce Park N. Suite 201 Bedford, NH 03110
ATTN:	Leland Williams
Phone:	(603) 232-8724
Project Name:	F107-GUNDALOW LANDING
Project Number:	04.0190664.13
Report Date:	10/26/18

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

ALPHA ANALYTICAL

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1840555-01	MW-1	WATER	NEWINGTON, NH	10/05/18 10:45	10/08/18
L1840555-02	(FB) FIELD BLANK	WATER	NEWINGTON, NH	10/05/18 11:30	10/08/18

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Case Narrative

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

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

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

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

HOLD POLICY

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

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

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Case Narrative (continued)

Report Submission

October 26, 2018: This final report includes the results of all requested analyses.

October 16, 2018: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L1840555-01: The analysis of Hexavalent Chromium was received with the method required holding time exceeded and was cancelled at the client's request.

L1840555-01 and -02: The analysis of PFAAs via EPA 537(M)-Isotope Dilution was performed at the client's request.

L1840555-02 : The collection date and time on the chain of custody was 05-OCT-18 13:30; however, the collection date/time on the container label was 05-OCT-18 11:30. At the client's request, the collection date/time is reported as 05-OCT-18 11:30.

Perfluorinated Alkyl Acids by Isotope Dilution

The WG1168574-2 LCS recovery, associated with L1840555-01 and -02, is above the acceptance criteria for perfluoropentanesulfonic acid (pfpes) (157%); however, the associated samples are non-detect to the RL for this target analyte. The results of the original analysis are reported.

pH

WG1165659: A Laboratory Duplicate could not be performed due to insufficient sample volume available for analysis.

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

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative

Date: 10/26/18

ORGANICS

SEMIVOLATILES

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13
Lab Number: L1840555
Report Date: 10/26/18

SAMPLE RESULTS

Lab ID: L1840555-01
Client ID: MW-1
Sample Location: NEWINGTON, NH

Date Collected: 10/05/18 10:45
Date Received: 10/08/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 10/25/18 09:12
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/16/18 10:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	1.21	J	ng/l	1.82	0.119	1
Perfluoropentanoic Acid (PFPeA)	1.39	J	ng/l	1.82	0.078	1
Perfluorobutanesulfonic Acid (PFBS)	1.09	J	ng/l	1.82	0.100	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	1.82	0.444	1
Perfluorohexanoic Acid (PFHxA)	2.29		ng/l	1.82	0.115	1
Perfluoropentanesulfonic Acid (PFPeS)	0.996	J	ng/l	1.82	0.081	1
Perfluoroheptanoic Acid (PFHpA)	2.47		ng/l	1.82	0.084	1
Perfluorohexanesulfonic Acid (PFHxS)	4.08		ng/l	1.82	0.098	1
Perfluorooctanoic Acid (PFOA)	6.62		ng/l	1.82	0.046	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.82	0.176	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.82	0.141	1
Perfluorononanoic Acid (PFNA)	0.109	J	ng/l	1.82	0.092	1
Perfluorooctanesulfonic Acid (PFOS)	0.604	J	ng/l	1.82	0.101	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.82	0.173	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.82	0.264	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.82	0.276	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.82	0.228	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.82	0.174	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.82	0.202	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.82	0.206	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.82	0.339	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.82	0.083	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.82	0.082	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.82	0.065	1

Project Name: F107-GUNDALOW LANDING **Lab Number:** L1840555

Project Number: 04.0190664.13 **Report Date:** 10/26/18

SAMPLE RESULTS

Lab ID: L1840555-01 Date Collected: 10/05/18 10:45

Client ID: MW-1 Date Received: 10/08/18

Sample Location: NEWINGTON, NH Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	82		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	83		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	134		31-159
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	185		1-313
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	111		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	106		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	107		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	82		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	151		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	83		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	100		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	81		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	101		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	106		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	85		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	30		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	86		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	62		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	58		33-143

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13
Lab Number: L1840555
Report Date: 10/26/18

SAMPLE RESULTS

Lab ID: L1840555-02
Client ID: (FB) FIELD BLANK
Sample Location: NEWINGTON, NH

Date Collected: 10/05/18 11:30
Date Received: 10/08/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 10/25/18 08:56
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/16/18 10:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.71	0.112	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.71	0.073	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.71	0.094	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	1.71	0.418	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.71	0.108	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.71	0.076	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.71	0.079	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.71	0.092	1
Perfluorooctanoic Acid (PFOA)	0.243	J	ng/l	1.71	0.043	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.397	J	ng/l	1.71	0.166	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.71	0.133	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.71	0.086	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.71	0.096	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.71	0.163	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.71	0.249	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.71	0.260	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.71	0.214	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.71	0.164	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.71	0.190	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.71	0.194	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.71	0.319	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.71	0.078	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.71	0.077	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.71	0.062	1

Project Name: F107-GUNDALOW LANDING **Lab Number:** L1840555

Project Number: 04.0190664.13 **Report Date:** 10/26/18

SAMPLE RESULTS

Lab ID: L1840555-02 Date Collected: 10/05/18 11:30

Client ID: (FB) FIELD BLANK Date Received: 10/08/18

Sample Location: NEWINGTON, NH Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	85		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	85		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	121		31-159
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	204		1-313
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	111		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	107		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	107		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	81		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	129		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	73		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	81		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	82		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	118		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	118		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	82		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	54		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	101		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	70		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	58		33-143

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 10/25/18 08:06
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/16/18 10:20

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-02 Batch: WG1168574-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.131
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.086
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.110
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	2.00	0.488
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.126
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	2.00	0.089
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.092
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.108
Perfluorooctanoic Acid (PFOA)	0.092	J	ng/l	2.00	0.050
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	0.194
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.155
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.101
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.112
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.190
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	0.291
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	2.00	0.304
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.250
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.191
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.222
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.227
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.00	J	ng/l	2.00	0.373
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.092
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.090
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.072

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 10/25/18 08:06
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/16/18 10:20

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-02 Batch: WG1168574-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	92		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	87		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	114		31-159
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	173		1-313
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	117		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	112		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	97		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	89		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	138		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	80		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	80		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	80		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	117		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	109		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	89		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	41		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	94		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	69		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	59		33-143

Lab Control Sample Analysis
Batch Quality Control

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab	Associated sample(s): 01-02		Batch: WG1168574-2 WG1168574-3					
Perfluorobutanoic Acid (PFBA)	118		115		67-148	3		30
Perfluoropentanoic Acid (PFPeA)	125		116		63-161	7		30
Perfluorobutanesulfonic Acid (PFBS)	117		117		65-157	0		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	131		124		37-219	5		30
Perfluorohexanoic Acid (PFHxA)	126		116		69-168	8		30
Perfluoropentanesulfonic Acid (PFPeS)	**157**	Q	143		52-156	9		30
Perfluoroheptanoic Acid (PFHpA)	105		110		58-159	5		30
Perfluorohexanesulfonic Acid (PFHxS)	109		108		69-177	1		30
Perfluorooctanoic Acid (PFOA)	115		108		63-159	6		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	168		139		49-187	19		30
Perfluoroheptanesulfonic Acid (PFHpS)	141		115		61-179	20		30
Perfluorononanoic Acid (PFNA)	127		113		68-171	12		30
Perfluorooctanesulfonic Acid (PFOS)	104		93		52-151	11		30
Perfluorodecanoic Acid (PFDA)	129		109		63-171	17		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	144		120		56-173	18		30
Perfluorononanesulfonic Acid (PFNS)	128		121		48-150	6		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	122		141		60-166	14		30
Perfluoroundecanoic Acid (PFUnA)	125		128		60-153	2		30
Perfluorodecanesulfonic Acid (PFDS)	110		111		38-156	1		30
Perfluorooctanesulfonamide (FOSA)	108		95		46-170	13		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	113		116		45-170	3		30
Perfluorododecanoic Acid (PFDoA)	123		113		67-153	8		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab	Associated sample(s): 01-02		Batch:		WG1168574-2	WG1168574-3		
Perfluorotridecanoic Acid (PFTrDA)	97		95		48-158	2		30
Perfluorotetradecanoic Acid (PFTA)	143		129		59-182	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	87		90		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	79		85		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	125		134		31-159
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	176		170		1-313
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	116		122		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	117		113		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	109		126		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	86		91		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	105		113		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	77		92		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	85		112		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	81		98		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	91		102		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	106		107		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	81		86		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	52		68		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	104		99		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	62		73		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	59		68		33-143

METALS

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

SAMPLE RESULTS

Lab ID: L1840555-01
Client ID: MW-1
Sample Location: NEWINGTON, NH

Date Collected: 10/05/18 10:45
Date Received: 10/08/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.050	0.007	1	10/12/18 12:10	10/13/18 08:43	EPA 3005A	1,6010D	PE
Arsenic, Total	ND		mg/l	0.005	0.002	1	10/12/18 12:10	10/13/18 08:43	EPA 3005A	1,6010D	PE
Cadmium, Total	ND		mg/l	0.005	0.001	1	10/12/18 12:10	10/13/18 08:43	EPA 3005A	1,6010D	PE
Chromium, Total	ND		mg/l	0.010	0.002	1	10/12/18 12:10	10/13/18 08:43	EPA 3005A	1,6010D	PE
Copper, Total	ND		mg/l	0.010	0.002	1	10/12/18 12:10	10/13/18 08:43	EPA 3005A	1,6010D	PE
Iron, Total	0.019	J	mg/l	0.050	0.009	1	10/12/18 12:10	10/13/18 08:43	EPA 3005A	1,6010D	PE
Lead, Total	ND		mg/l	0.010	0.003	1	10/12/18 12:10	10/13/18 08:43	EPA 3005A	1,6010D	PE
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/15/18 11:13	10/15/18 14:00	EPA 7470A	1,7470A	MG
Nickel, Total	ND		mg/l	0.025	0.002	1	10/12/18 12:10	10/13/18 08:43	EPA 3005A	1,6010D	PE
Silver, Total	ND		mg/l	0.007	0.003	1	10/12/18 12:10	10/13/18 08:43	EPA 3005A	1,6010D	PE
Zinc, Total	ND		mg/l	0.050	0.002	1	10/12/18 12:10	10/13/18 08:43	EPA 3005A	1,6010D	PE

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13
Lab Number: L1840555
Report Date: 10/26/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1167451-1										
Antimony, Total	ND		mg/l	0.050	0.007	1	10/12/18 12:10	10/13/18 07:34	1,6010D	PE
Arsenic, Total	ND		mg/l	0.005	0.002	1	10/12/18 12:10	10/13/18 07:34	1,6010D	PE
Cadmium, Total	ND		mg/l	0.005	0.001	1	10/12/18 12:10	10/13/18 07:34	1,6010D	PE
Chromium, Total	ND		mg/l	0.010	0.002	1	10/12/18 12:10	10/13/18 07:34	1,6010D	PE
Copper, Total	ND		mg/l	0.010	0.002	1	10/12/18 12:10	10/13/18 07:34	1,6010D	PE
Iron, Total	ND		mg/l	0.050	0.009	1	10/12/18 12:10	10/13/18 07:34	1,6010D	PE
Lead, Total	ND		mg/l	0.010	0.003	1	10/12/18 12:10	10/13/18 07:34	1,6010D	PE
Nickel, Total	ND		mg/l	0.025	0.002	1	10/12/18 12:10	10/13/18 07:34	1,6010D	PE
Silver, Total	ND		mg/l	0.007	0.003	1	10/12/18 12:10	10/13/18 07:34	1,6010D	PE
Zinc, Total	ND		mg/l	0.050	0.002	1	10/12/18 12:10	10/13/18 07:34	1,6010D	PE

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1168132-1										
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/15/18 11:13	10/15/18 13:47	1,7470A	MG

Prep Information

Digestion Method: EPA 7470A

Lab Control Sample Analysis
Batch Quality Control

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1167451-2								
Antimony, Total	91		-		80-120	-		
Arsenic, Total	105		-		80-120	-		
Cadmium, Total	102		-		80-120	-		
Chromium, Total	96		-		80-120	-		
Copper, Total	93		-		80-120	-		
Iron, Total	100		-		80-120	-		
Lead, Total	101		-		80-120	-		
Nickel, Total	96		-		80-120	-		
Silver, Total	105		-		80-120	-		
Zinc, Total	102		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1168132-2								
Mercury, Total	100		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01	QC Batch ID: WG1167451-3					WG1167451-4	QC Sample: L1840779-05		Client ID: MS Sample			
Antimony, Total	0.010J	0.5	0.495	99		0.489	98		75-125	1		20
Arsenic, Total	0.004J	0.12	0.129	108		0.130	108		75-125	1		20
Cadmium, Total	ND	0.051	0.052	102		0.052	101		75-125	0		20
Chromium, Total	ND	0.2	0.195	98		0.190	95		75-125	3		20
Copper, Total	ND	0.25	0.235	94		0.228	91		75-125	3		20
Iron, Total	5.84	1	6.88	104		6.80	96		75-125	1		20
Lead, Total	ND	0.51	0.510	100		0.508	100		75-125	0		20
Nickel, Total	ND	0.5	0.476	95		0.474	95		75-125	0		20
Silver, Total	ND	0.05	0.051	102		0.051	101		75-125	1		20
Zinc, Total	ND	0.5	0.512	102		0.511	102		75-125	0		20
Total Metals - Mansfield Lab Associated sample(s): 01	QC Batch ID: WG1168132-3					QC Sample: L1840431-13			Client ID: MS Sample			
Mercury, Total	ND	0.005	0.00501	100		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01	QC Batch ID: WG1168132-4	QC Sample: L1840431-13	Client ID: DUP Sample			
Mercury, Total	ND	ND	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

SAMPLE RESULTS

Lab ID: L1840555-01
Client ID: MW-1
Sample Location: NEWINGTON, NH

Date Collected: 10/05/18 10:45
Date Received: 10/08/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	7.2		SU	-	NA	1	-	10/08/18 23:23	1,9040C	AS
Anions by Ion Chromatography - Westborough Lab										
Chloride	463.		mg/l	12.5	2.10	25	-	10/13/18 23:04	1,9056	JR

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1167968-1										
Chloride	ND		mg/l	0.500	0.083	1	-	10/13/18 15:28	1,9056	JR

Lab Control Sample Analysis
Batch Quality Control

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1165659-1								
pH	100		-		99-101	-		5
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1167968-2								
Chloride	103		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1167968-3 QC Sample: L1840555-01 Client ID: MW-1												
Chloride	463.	100	535	72		-	-		64-148	-		18

Lab Duplicate Analysis
Batch Quality Control

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1167968-4 QC Sample: L1840555-01 Client ID: MW-1						
Chloride	463.	463	mg/l	0		18

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1840555-01A	Plastic 60ml unpreserved	A	7	7	4.1	Y	Absent		CL-9056(28),HOLD-WETCHEM(),PH-9040(1)
L1840555-01B	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		AS-TI(180),AG-TI(180),CR-TI(180),NI-TI(180),CU-TI(180),PB-TI(180),SB-TI(180),ZN-TI(180),FE-TI(180),HG-T(28),CD-TI(180)
L1840555-01C	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		AS-TI(180),AG-TI(180),CR-TI(180),NI-TI(180),CU-TI(180),PB-TI(180),SB-TI(180),ZN-TI(180),FE-TI(180),HG-T(28),CD-TI(180)
L1840555-01D	Plastic 250ml unpreserved	A	NA		4.1	Y	Absent		A2-537-ISOTOPE(14)
L1840555-02A	Plastic 250ml unpreserved	A	NA		4.1	Y	Absent		A2-537-ISOTOPE(14)

*Values in parentheses indicate holding time in days

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

GLOSSARY

Acronyms

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

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

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

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

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

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

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

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

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

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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

Terms

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

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

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

Report Format: DU Report with 'J' Qualifiers

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13
Lab Number: L1840555
Report Date: 10/26/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name: F107-GUNDALOW LANDING
Project Number: 04.0190664.13

Lab Number: L1840555
Report Date: 10/26/18

REFERENCES

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

122 Determination of Selected Perfluorintated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537, EPA/600/R-08/092. Version 1.1, September 2009.

LIMITATION OF LIABILITIES

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

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

Certification Information

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

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

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 10/8/18

ALPHA Job #: L1840555

ALPHA ANALYTICAL
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Client Information

Client: GZA GeoEnvironmental

Address: 5 Commerce Park N
Suite 201, Bedford NH 03110

Phone: 603-325-7131

Email: Leland.Williams@GZA.com

Additional Project Information:
ATTN: Leland Williams

Project Information

Project Name: FIOT - Gundalow landing

Project Location: Newington, NH

Project #: 04.0190664.13

Project Manager: DGL

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due:

Report Information - Data Deliverables

☐ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #: 20696

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____
☐ Yes ☐ No CT RCP Analytical Methods

ANALYSIS

VOC: ☐ 8260 ☐ 624 ☐ 524.2
SVOC: ☐ ABN ☐ PAH
METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15
METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13
EPH: ☐ Ranges & Targets ☐ Ranges Only
VPH: ☐ Ranges & Targets ☐ Ranges Only
☐ PCB ☐ PEST
TPH: ☐ Quant Only ☐ Fingerprint
NH PFAAs (EPA 537(M) Isotope)
Metals (As, Cu, Ag, Zn, Pb, Fe, Hg, Cd, Ni, Cr(tot), Cr III, Sb, Cl)
PH

SAMPLE INFO

Filtration
☐ Field
☐ Lab to do

Preservation
☐ Lab to do

Sample Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	TOTAL # BOTTLES
40855 -01	MW-1	10/5/18	1045	GW	LAW	4
02	~~MW-1~~ (FB) Field Blank	10/5/18	1130	GW	LAW	1

Container Type																
Container Type										P	P	-	P			
Preservative											C	-				

Container Type
P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
Leland Williams	10/5 - 1330	Fridge	10/5 - 1330
[signature]	10/8 - 1213	[signature] AAL	10/8 1213
[signature] AAL	10/8 1710	[signature]	10/8/18 17:20

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

Appendix C – Little Bay Water Quality Data

Welcome to New Hampshire's Watershed Report Cards built from the 2016, 305(b)/303(d)

Each Watershed Report Card covers a single 12 digit Hydrologic Unit Code (HUC12), on average a 34 square mile area. Each Watershed Report Card has three components;

1. REPORT CARD - A one page card that summarizes the overall use support for Aquatic Life, Primary Contact (i.e. Swimming), and Secondary Contact (i.e. Boating) Designated Uses on every Assessment Unit ID (AUID) within the HUC12.
2. HUC 12 MAP - A map of the watershed with abbreviated labels for each AUID within the HUC12.
3. ASSESSMENT DETAILS - Anywhere from one to forty pages with the detailed assessment information for each and every AUID in the Report Card and Map.

How are the Surface Water Quality Assessment determinations made?

All readily available data with reliable Quality Assurance/Quality Control is used in the biennial surface water quality assessments. For a full understanding of how the Surface Water Quality Standards (Env-Wq 1700) are translated into surface water quality assessments we urge the reader to review the 2016 Consolidated Assessment and Listing Methodology (CALM) at https://www.des.nh.gov/organization/divisions/water/wmb/swqa/2016/documents/r-wd-17-08.pdf

Where can I find more advanced mapping resources?

GIS files are available by assessment cycle at ftp://pubftp.nh.gov/DES/wmb/WaterQuality/SWQA/

I'd like to see the more raw water quality data?

The web mapping tool allows you to download the data used in the assessment of the primary contact and aquatic life designated uses by clicking on the "**Data Access** Waterbody Data (Aquatic Life and Swimming Uses)" link for any assessment unit. (http://www2.des.state.nh.us/WaterShed_SWQA/SWQA_Map.aspx)

How are assessments coded in the report card?

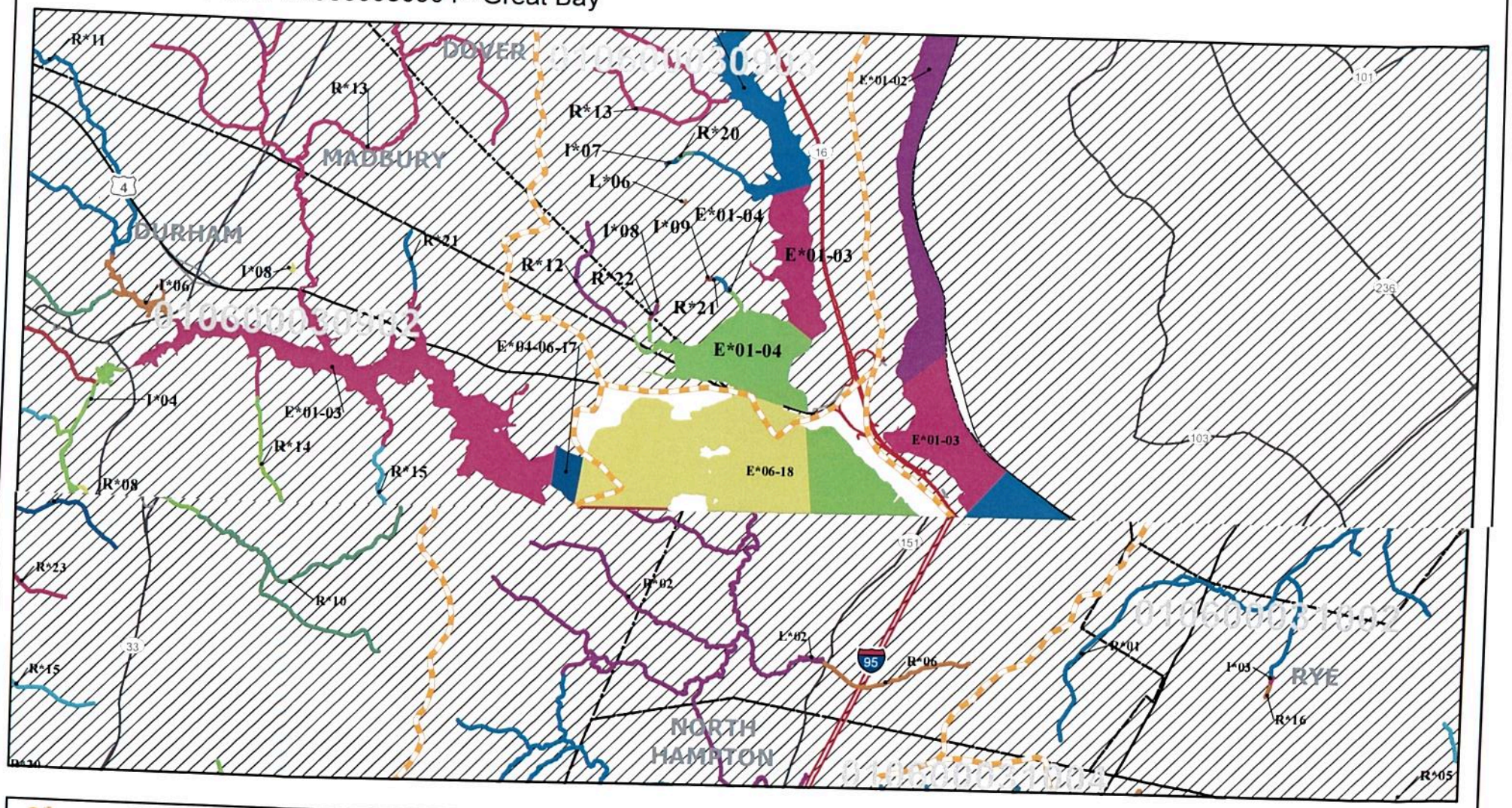
Assessment outcomes are displayed on a color scale as well as an alpha numeric scale that provides additional distinctions for the designated use and parameter level assessments as outlined in the table below.

		Severe Not Supporting, Severe	**Poor** Not Supporting, Marginal	**Likely Bad** Insufficient Information – Potentially Not Supporting	**No Data** No Data	**Likely Good** Insufficient Information – Potentially Full Supporting	**Marginal** Full Support, Marginal	**Good** Full Support, Good
CATEGORY	**Description**							
*Category 2	Meets standards						2-M or 2-OBS	2-G
Category 3	Insufficient Information			3-PNS	3-ND	3-PAS		
Category 4	Does not Meet Standards;							
4A	TMDL^ Completed	4A-P	4A-M or 4A-T					
4B	Other enforceable measure will correct the issue.	4B-P	4B-M or 4B-T					
4C	Non-pollutant (i.e. exotic weeds)	4C-P	4C-M					
Category 5	TMDL^ Needed	5-P	5-M or 5-T					

* "Category 1" only exists at the Assessment Unit Level.

^ TMDL stands for Total Maximum Daily Load studies (http://des.nh.gov/organization/divisions/water/wmb/tmdl/index.htm)

AUIDs For HUC12: 010600030904 - Great Bay



HUC12 Boundaries
Town Boundaries
Major Roads
Interstate Highway
US Highway
State Highway

Assessment Unit Coloring
AUs Ending with:
0 =
1 =
2 =
3 =
4 =
5 =
6 =
7 =
8 =
9 =

N
W E
S

Abbrv. Label	HUC 12
L*03	010700060201

AUID = NHLAK700060201-03

Assessment Unit IDs are derived from the HUC12 they reside within. The labels have been shortened on this map for presentation purposes.
Example: the Label "L*03" in HUC12 = 010700060201 represents AUID = "NHLAK700060201-03"
In rare cases where an AUID extends beyond the boundary of a single HUC12, additional portions of the end of the HUC 12 number have also been replaced.

0 0.5 1 1.5 2 Miles

Scale:1:50,530

S:\WD-Watershed\WQ_Planning\305b_303d\2016\AUIDs\HUC12Maps

Assessment Unit ID NHEST600030904-06-10
Assessment Unit Name ADAMS POINT MOORING FIELD SZ
Primary Town DURHAM

Size 0.3570 SQUARE MILES
Beach N
Assessment Unit Category*~ 5-P

2016, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit

Designated Use Description	*Desig. Use Category	Desig. Use Threat	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category*	TMDL Priority	Source Name (Impairments only)
Aquatic Life	5-P		.ALPHA.-ENDOSULFAN(ENDOSULFAN 1)	N	2006	N/A	3-ND		
			.BETA.-ENDOSULFAN (ENDOSULFAN 2)	N	2006	N/A	3-ND		
			2-METHYLNAPHTHALENE	N	2006	N/A	3-ND		
			ACENAPHTHENE	N	2006	N/A	3-ND		
			ACENAPHTHYLENE	N	2006	2006	3-ND		
			ALUMINUM	N	2006	2006	3-ND		
			AMMONIA (UN-IONIZED)	N	2015	N/A	2-G		
			ANTHRACENE	N	2006	N/A	3-ND		
			ANTIMONY	N	2006	N/A	3-ND		
			ARSENIC	N	2006	2006	3-ND		
			BENZO(A)PYRENE (PAHS)	N	2006	2000	3-ND		
			BENZO[A]ANTHRACENE	N	2006	2000	3-ND		
			BENZO[B]FLUORANTHENE	N	2006	N/A	3-ND		
			BENZO[G,H,I]PERYLENE	N	2006	N/A	3-ND		
			BENZO[K]FLUORANTHENE	N	2006	N/A	3-ND		
			BIPHENYL	N	2006	N/A	3-ND		
			CADMIUM	N	2006	2004	3-ND		
			CHRYSENE (C1-C4)	N	2006	N/A	3-ND		
			COPPER	N	2006	N/A	3-ND		
			Chlorophyll-a		2013	NA	2-M		
			DDD	N	2006	N/A	3-ND		
			DDE	N	2006	N/A	3-ND		
			DDT	N	2006	N/A	3-ND		
			DIBENZ[A,H]ANTHRACENE	N	2006	2006	3-ND		
			DIELDRIN	N	2006	N/A	3-ND		
			Dissolved oxygen saturation		2013	NA	2-M		
			ENDOSULFAN SULFATE	N	2006	N/A	3-ND		
			ENDRIN	N	2006	N/A	3-ND		

Severe	Poor	Likely Bad	No Data	Likely Good	Marginal	Good
Not Supporting, Severe	Not Supporting, Marginal	Insufficient Information – Potentially Full Supporting	No Data	Insufficient Information – Potentially Full Supporting	Full Support, Marginal	Full Support, Good

*DES Categories; 2-G = Supports Parameter well above criteria, 2-M = Supports Parameter marginally above criteria, 2-OBS = Exceeds WQ criteria but natural therefore not a WQ exceedence, 3-ND = Insufficient Information/No data, 3-PAS= Insufficient Information/Potentially Attaining Standard, 3-PNS= Insufficient Information/Potentially Not Attaining Standard, (4A=Impaired/TMDL Completed, 4B=Impaired/Other Measure will rectify Impairment, 4C=Impaired/Non-Pollutant, 5=Impaired/TMDL needed) M=Marginal Impairment, P=Severe Impairment, T=Threatened (http://des.nh.gov/organization/divisions/water/wmb/swqa/index.htm)

Assessment Unit ID NHEST600030904-06-10
Assessment Unit Name ADAMS POINT MOORING FIELD SZ
Primary Town DURHAM

Size 0.3570 SQUARE MILES
Beach N
Assessment Unit Category*- 5-P

2016, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit

Designated Use Description	*Desig. Use Category	Desig. Use Threat	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category*	TMDL Priority	Source Name (Impairments only)
Aquatic Life	5-P		Estuarine Bioassessments	N	2013	MED.	5-P	LOW	Source Unknown
			FLUORANTHENE	N	2006	2006	3-ND		
			FLUORENE	N	2006	N/A	3-ND		
			HEXACHLOROBENZENE	N	2006	N/A	3-ND		
			INDENO[1,2,3-CD]PYRENE	N	2006	N/A	3-ND		
			IRON	N	2006	N/A	3-ND		
			LEAD	N	2006	2006	3-ND		
			LINDANE	N	2006	N/A	3-ND		
			Light Attenuation Coefficient	N	2013	MED.	5-M	LOW	Source Unknown
			MERCURY	N	2006	2006	3-ND		
			NAPHTHALENE	N	2006	N/A	3-ND		
			NICKEL	N	2006	2001	3-ND		
			Nitrogen (Total)	N	2013	MED.	3-PNS		
			OXYGEN, DISSOLVED	N	2015	2004	2-G		
			PH	N	2009	2000	3-ND		
			PHENANTHRENE	N	2006	N/A	3-ND		
			POLYCHLORINATED BIPHENYLS	N	2004	N/A	3-ND		
			PYRENE	N	2006	N/A	3-ND		
			SILVER	N	2006	2006	3-ND		
			TOXAPHENE	N	2006	N/A	3-ND		
			TRANS-NONACHLOR	N	2006	N/A	3-ND		
			ZINC	N	2006	N/A	3-ND		
				N	2006	N/A	3-ND		
Drinking Water After Adequate Treatment	2-G		ESCHERICHIA COLI	N	2009	2009	3-ND		
			FECAL COLIFORM	N	2015	2015	3-PNS		
Fish Consumption	5-M		Mercury	N			5-M	LOW	Source Unknown
									Atmospheric Deposition - Toxics

Severe	Poor	Likely Bad	No Data	Likely Good	Marginal	Good
Not Supporting, Severe	Not Supporting, Marginal	Insufficient Information – Potentially Full Supporting	No Data	Insufficient Information – Potentially Full Supporting	Full Support, Marginal	Full Support, Good

*DES Categories; 2-G = Supports Parameter well above criteria, 2-M = Supports Parameter marginally above criteria, 2-OBS = Exceeds WQ criteria but natural therefore not a WQ exceedence, 3-ND = Insufficient Information/No data, 3-PAS= Insufficient Information/Potentially Attaining Standard, 3-PNS= Insufficient Information/Potentially Not Attaining Standard, (4A=Impaired/TMDL Completed, 4B=Impaired/Other Measure will rectify Impairment, 4C=Impaired/Non-Pollutant, 5=Impaired/TMDL needed) M=Marginal Impairment, P=Severe Impairment, T=Threatened (http://des.nh.gov/organization/divisions/water/wmb/swqa/index.htm)

Assessment Unit ID NHEST600030904-06-10
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Size 0.3570 SQUARE MILES
Beach N
Assessment Unit Category*~ 5-P

2016, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit

Designated Use Description	*Desig. Use Category	Desig. Use Threat	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category*	TMDL Priority	Source Name (Impairments only)
Fish Consumption	5-M		Polychlorinated biphenyls	N			5-M	LOW	Source Unknown
Primary Contact Recreation	2-M		CHLOROPHYLL-A	N	2015	2014	2-M		
			ENTEROCOCCUS	N	2015	2010	2-G		
Secondary Contact Recreation	2-G		ENTEROCOCCUS	N	2015	2006	2-G		
Shellfishing	5-M		Dioxin (including 2,3,7,8-TCDD)	N			5-M	LOW	Source Unknown
			Fecal Coliform	N			3-PNS		
			Mercury	N			5-M	LOW	Atmospheric Deposition - Toxics
									Source Unknown
			Polychlorinated biphenyls	N			5-M	LOW	Source Unknown
Wildlife	3-ND								

Severe	Poor	Likely Bad	No Data	Likely Good	Marginal	Good
Not Supporting, Severe	Not Supporting, Marginal	Insufficient Information – Potentially Full Supporting	No Data	Insufficient Information – Potentially Full Supporting	Full Support, Marginal	Full Support, Good

*DES Categories; 2-G = Supports Parameter well above criteria, 2-M = Supports Parameter marginally above criteria, 2-OBS = Exceeds WQ criteria but natural therefore not a WQ exceedence, 3-ND = Insufficient Information/No data, 3-PAS= Insufficient Information/Potentially Attaining Standard, 3-PNS= Insufficient Information/Potentially Not Attaining Standard, (4A=Impaired/TMDL Completed, 4B=Impaired/Other Measure will rectify Impairment, 4C=Impaired/Non-Pollutant, 5=Impaired/TMDL needed) M=Marginal Impairment, P=Severe Impairment, T=Threatened (http://des.nh.gov/organization/divisions/water/wmb/swqa/index.htm)

Appendix D – Endangered Species Information

IPaC **U.S. Fish & Wildlife Service**

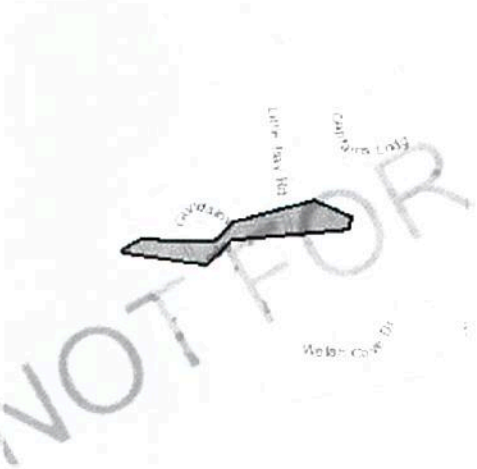
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Rockingham County, New Hampshire



Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

http://www.fws.gov/newengland

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Northern Long-eared Bat Myotis septentrionalis — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9045

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Buff-breasted Sandpiper Calidris subruficollis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9488	Breeds elsewhere
Canada Warbler Cardellina canadensis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Dunlin Calidris alpina arcticola This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere

Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Nelson's Sparrow Ammodramus nelsoni This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Sep 5
Prairie Warbler Dendroica discolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Red-throated Loon Gavia stellata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Saltmarsh Sparrow Ammodramus caudacutus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Sep 5
Semipalmated Sandpiper Calidris pusilla This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ( )
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

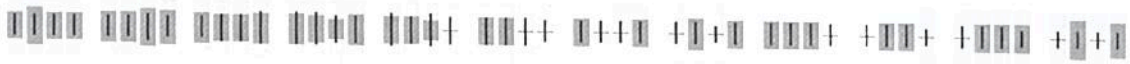
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

■ probability of presence breeding season | survey effort – no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

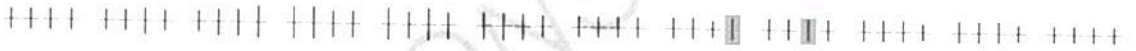
Bald Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



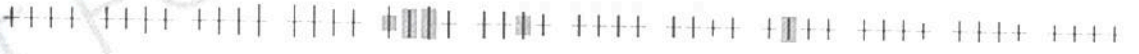
Black-billed Cuckoo
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Bobolink
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Buff-breasted Sandpiper
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Canada Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Dunlin
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Lesser Yellowlegs
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wood Thrush
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER POND
PUBHh

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix E – Historical Preservation Information

NEW HAMPSHIRE DIVISION OF HISTORICAL RESOURCES
State of New Hampshire, Department of Cultural Resources
19 Pillsbury Street, Concord, NH 03301-3570
TDD Access: Relay NH 1-800-735-2964
www.nh.gov/nhdhr

603-271-3483
603-271-3558
FAX 603-271-3433
preservation@dcr.nh.gov

October 5, 2016

Sarah Allen
Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03301

Re: Report Reviews: *Results of Phase IB Archaeological Survey Madbury, Durham, Newington and Portsmouth, NH.* Seacoast Reliability Project, prepared and submitted by Victoria Bunker, Inc. (R&C 6528)

Dear Ms. Allen:

The Division of Historical Resources (Division) is in receipt of your request for review for the report prepared by Dr. Victoria Bunker of Victoria Bunker, Inc. for the project cited above. The Division concurs with the recommendations provided and finds the information acceptable as written. The Phase IA identified twenty eight areas of sensitivity in Newington and Durham where archaeological testing was recommended. Phase IB testing identified two historic sites both in Durham, the remainder of the areas yielded negative results, no further survey was recommended.

In accordance with the National Historic Preservation Act of 1966 (P.L. 89-655), as amended, and as implemented by regulations of the Federal Advisory Council on Historic Preservation ("36 CFR Part 800: Protection of Historic Properties"), the New Hampshire Division of Historical Resources/State Historic Preservation Office has reviewed the undertaking referenced above to identify potential effects on properties listed, or potentially eligible for listing, in the National Register of Historic Places.

Based upon the information provided in the above cited report, it has been determined that additional Phase II testing will be required if avoidance is not feasible for the LaRoche Brook historic site (27 ST 105). The second site identified Langmaid Road Quarry site (27 ST 119) was not considered potentially eligible, no further work was recommended for this resource. Please contact me at 603-271-2813 for discussion on avoidance measures or continued survey.

Sincerely,

Edna Feighner

Edna Feighner
Review and Compliance Coordinator, Archaeologist

Cc: Catherine Finneran, Eversource
Dena Champy, Project Manager
Kurt Nelson, Eversource
Mark Doperalski, Eversource