



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
BOSTON, MA 02109-3912

CERTIFIED MAIL RETURN RECEIPT REQUESTED

JUL 08 2014

Christopher Ryan
Project Manager
Charter Environmental, Inc.
560 Harrison Avenue, 5th Floor
Boston, MA 01340

Re: Authorization to discharge under the Remediation General Permit (RGP) –
MAG910000. American Fiber & Finishing Site located at 247 Main Road, Colrain, MA
01340, Franklin County; Authorization # MAG910627

Dear Mr. Ryan:

Based on the review of a Notice of Intent (NOI) submitted by your firm Charter Environmental, Inc. on behalf of Covidien LP, for the site referenced above, the U.S. Environmental Protection Agency (EPA) hereby authorizes you, as the named Operator, to discharge in accordance with the provisions of the RGP at that site. Your authorization number is listed above.

The checklist enclosed with this RGP authorization indicates the pollutants which you are required to monitor. Also indicated on the checklist are the effluent limits, test methods and minimum levels (MLs) for each pollutant. Please note that the checklist does not represent the complete requirements of the RGP. Operators must comply with all of the applicable requirements of this permit, including influent and effluent monitoring, narrative water quality standards, record keeping, and reporting requirements, found in Parts I and II, and Appendices I – VIII of the RGP. See EPA's website for the complete RGP and other information at: <http://www.epa.gov/region1/npdes/mass.html#dgp>.

Please note the enclosed checklist includes parameters that you have marked "Believed Present".

Also, please note this permit authorization does not authorize the discharge of soils containing dioxin/furan contamination as these pollutants are not established in Appendix III of the RGP and also because EPA hasn't approved technology or a limitation to allow for the treatment reduction or elimination of dioxin/furan contamination.

Also, EPA reviewed the water treatment system schematic provided with the notice of intent (NOI), and is in the opinion that the "carbon vessels" labeled as an "optional" treatment system component, should be a "required" component of the treatment system to further help with the reduction of any contaminants in the filtered influent. Also, EPA recommends the filters used in the treatment processes potentially containing suspended sediments with traces of dioxin/furan particulates be disposed at a properly licensed hazardous waste site.

Also, please note that the metals included on the checklist are dilution dependent pollutants and subject to limitations based on a dilution factor range (DFR), due to the ample dilution at the point of discharge (106) the DFR applicable for this pollutant is within a dilution range greater than one hundred (>100) established in the RGP. (See the RGP Appendix IV for Massachusetts facilities). Therefore, the limit for antimony of 141 ug/L, copper of 520 ug/L, lead of 132 ug/L, nickel of 2,380 ug/L, selenium of 408 ug/L, zinc of 1,480 ug/L and iron of 5,000 ug/L, shall not be exceeded in the discharge.

This general permit and authorization to discharge will expire on September 9, 2015. You have reported this project will terminate on November 30, 2014. You are required to submit a Notice of Termination (NOT) to the attention of the contact person indicated below within 30 days of project completion.

Thank you in advance for your cooperation in this matter. Please contact Victor Alvarez at 617-918-1572 or Alvarez.Victor@epa.gov, if you have any questions.

Sincerely,



Thelma Murphy, Chief
Storm Water and Construction
Permits Section

Enclosure

cc: Robert Kubit, MassDEP
Spike Wheeler, Colrain CC

**2010 Remediation General Permit
Summary of Monitoring Parameters^[1]**

NPDES Authorization Number:	MAG9106027
Authorization Issued:	June, 2014
Facility/Site Name:	American Fiber and Finishing Site
Facility/Site Address:	247 Main Road, Colrain, MA 01340, Franklin County
	Email address of owner: Pat.Duft@Covidien.com
Legal Name of Operator:	Charter Environmental Inc.
Operator contact name, title, and Address:	Christopher Ryan, Project Manager Phone n: 857-246-6885
	Email: cryan@charterenvironmental.com
Estimated date of the site's Completion:	November 30, 2014
Category and Sub-Category:	Category III-Contaminated Construction Dewatering. Sub-category B. Known Contaminated Sites
RGP Termination Date:	September 10, 2015
Receiving Water:	Tailrace Brook to North River.

Monitoring & Limits are applicable if checked. All samples are to be collected as grab samples

	<u>Parameter</u>	<u>Effluent Limit/Method#/ML</u> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
✓	1. Total Suspended Solids (TSS)	30 milligrams/liter (mg/L) **, 50 mg/L for hydrostatic testing ** Me#160.2/ML5ug/L
	2. Total Residual Chlorine (TRC) ¹	Freshwater = 11 ug/L ** Saltwater = 7.5 ug/L **/ Me#330.5/ML 20ug/L
	3. Total Petroleum Hydrocarbons (TPH)	5.0 mg/L/ Me# 1664A/ML 5.0mg/L
	4. Cyanide (CN) ^{2, 3}	Freshwater = 5.2 ug/l ** Saltwater = 1.0 ug/L **/ Me#335.4/ML 10ug/L
	5. Benzene (B)	5ug/L /50.0 ug/L for hydrostatic testing only/ Me#8260C/ML 2 ug/L
	6. Toluene (T)	(limited as ug/L total BTEX)/ Me#8260C/ ML 2ug/L
	7. Ethylbenzene (E)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L
	8. (m,p,o) Xylenes (X)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L
	9. Total Benzene, Toluene, Ethyl Benzene, and Xylenes	100 ug/L/ Me#8260C/ ML 2ug/L

	<u>Parameter</u>	<u>Effluent Limit/Method#/ML</u> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	(BTEX) ⁴	
	10. Ethylene Dibromide (EDB) (1,2- Dibromoethane)	0.05 ug/l/ Me#8260C/ ML 10ug/L
	11. Methyl-tert-Butyl Ether (MtBE)	70.0 ug/l/Me#8260C/ML 10ug/L
	12.tert-Butyl Alcohol (TBA) (TertiaryButanol)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
	13. tert-Amyl Methyl Ether (TAME)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
	14. Naphthalene ⁵	20 ug/L /Me#8260C/ML 2ug/L
	15. Carbon Tetrachloride	4.4 ug/L /Me#8260C/ ML 5ug/L
	16. 1,2 Dichlorobenzene (o- DCB)	600 ug/L /Me#8260C/ ML 5ug/L
	17. 1,3 Dichlorobenzene (m- DCB)	320 ug/L /Me#8260C/ ML 5ug/L
	18. 1,4 Dichlorobenzene (p- DCB)	5.0 ug/L /Me#8260C/ ML 5ug/L
	18a. Total dichlorobenzene	763 ug/L - NH only /Me#8260C/ ML 5ug/L
	19. 1,1 Dichloroethane (DCA)	70 ug/L /Me#8260C/ ML 5ug/L
	20. 1,2 Dichloroethane (DCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
	21. 1,1 Dichloroethene (DCE)	3.2 ug/L/Me#8260C/ ML 5ug/L
	22. cis-1,2 Dichloroethene (DCE)	70 ug/L/Me#8260C/ ML 5ug/L
	23. Methylene Chloride	4.6 ug/L/Me#8260C/ ML 5ug/L
	24. Tetrachloroethene (PCE)	5.0 ug/L/Me#8260C/ ML 5ug/L
	25. 1,1,1 Trichloro-ethane (TCA)	200 ug/L/Me#8260C/ ML 5ug/L
	26. 1,1,2 Trichloro-ethane (TCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
	27. Trichloroethene (TCE)	5.0 ug/L /Me#8260C/ ML 5ug/L
	28. Vinyl Chloride (Chloroethene)	2.0 ug/L /Me#8260C/ ML 5ug/L
	29. Acetone	Monitor Only(ug/L)/Me#8260C/ML 50ug/L
	30. 1,4 Dioxane	Monitor Only /Me#1624C/ML 50ug/L
✓	31. Total Phenols	300 ug/L Me#420.1&420.2/ML 2 ug/L/ Me# 420.4 /ML 50ug/L
	32. Pentachlorophenol (PCP)	1.0 ug/L /Me#8270D/ML 5ug/L,Me#604 &625/ML 10ug/L
	33. Total Phthalates (Phthalate esters) ⁶	3.0 ug/L ** /Me#8270D/ML 5ug/L, Me#606/ML 10ug/L& Me#625/ML 5ug/L
	34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]	6.0 ug/L /Me#8270D/ML 5ug/L,Me#606/ML 10ug/L & Me#625/ML 5ug/L
	35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	10.0 ug/L

	<u>Parameter</u>	<u>Effluent Limit/Method#/ML</u> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	a. Benzo(a) Anthracene ⁷	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	b. Benzo(a) Pyrene ⁷	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	c. Benzo(b)Fluoranthene ⁷	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	d. Benzo(k)Fluoranthene ⁷	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	e. Chrysene ⁷	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	f. Dibenzo(a,h)anthracene ⁷	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	g. Indeno(1,2,3-cd) Pyrene ⁷	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)	100 ug/L
	h. Acenaphthene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	i. Acenaphthylene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	j. Anthracene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	k. Benzo(ghi) Perylene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	l. Fluoranthene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	m. Fluorene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	n. Naphthalene ⁵	20 ug/L / Me#8270/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	o. Phenanthrene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	p. Pyrene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	37. Total Polychlorinated Biphenyls (PCBs) ^{8,9}	0.000064 ug/L/Me# 608/ ML 0.5 ug/L
✓	38. Chloride	Monitor only/Me# 300.0/ ML 100 ug/L

	Metal parameter	Total Recoverable MA/Metal Limit H¹⁰ = 50 mg/l CaCO₃, Units = ug/l (11/12)		Minimum level=ML	
		Freshwater Limits			
✓	39. Antimony	5.6		ML	10
	40. Arsenic **	10		ML	20
	41. Cadmium **	0.2		ML	10
	42. Chromium III (trivalent) **	48.8		ML	15
	43. Chromium VI (hexavalent) **	11.4		ML	10
✓	44. Copper **	5.2		ML	15
✓	45. Lead **	1.3		ML	20
	46. Mercury **	0.9		ML	02
✓	47. Nickel **	29		ML	20
✓	48. Selenium **	5		ML	20
	49. Silver	1.2		ML	10
✓	50. Zinc **	66.6		ML	15
✓	51. Iron	1,000		ML	20

	Other Parameters	Limit
✓	52. Instantaneous Flow	Site specific in CFS
✓	53. Total Flow	Site specific in CFS
✓	54. pH Range for Class A & Class B Waters in MA	6.5-8.3; 1/Month/Grab ¹³
	55. pH Range for Class SA & Class SB Waters in MA	6.5-8.3; 1/Month/Grab ¹³
	56. pH Range for Class B Waters in NH	6.5-8; 1/Month/Grab ¹³
	57. Daily maximum temperature - Warm water fisheries	83°F; 1/Month/Grab ¹⁴
	58. Daily maximum temperature - Cold water fisheries	68°F; 1/Month/Grab ¹⁴
	59. Maximum Change in Temperature in MA - Any Class A water body	1.5°F; 1/Month/Grab ¹⁴
	60. Maximum Change in Temperature in MA - Any Class B water body- Warm Water	5°F; 1/Month/Grab ¹⁴
	61. Maximum Change in Temperature in MA - Any Class B water body - Cold water and Lakes/Ponds	3°F; 1/Month/Grab ¹⁴
	62. Maximum Change in Temperature in MA - Any Class SA water body - Coastal	1.5°F; 1/Month/Grab ¹⁴
	63. Maximum Change in Temperature in MA - Any Class SB water body - July to September	1.5°F; 1/Month/Grab ¹⁴
	64. Maximum Change in Temperature in MA -Any Class SB water body - October to June	4°F; 1/Month/Grab ¹⁴

Footnotes:

¹ Although the maximum values for TRC are 11ug/l and 7.5 ug/l for freshwater, and saltwater respectively, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., Method 330.5, 20 ug/l).

² Limits for cyanide are based on EPA's water quality criteria expressed as micrograms per liter. There is currently no EPA approved test method for free cyanide. Therefore, total cyanide must be reported.

³ Although the maximum values for cyanide are 5.2 ug/l and 1.0 ug/l for freshwater and saltwater, respectively, the compliance limits are equal to the minimum level (ML) of the Method 335.4 as listed in Appendix VI (i.e., 10 ug/l).

⁴ BTEX = sum of Benzene, Toluene, Ethylbenzene, and total Xylenes.

⁵ Naphthalene can be reported as both a purgeable (VOC) and extractable (SVOC) organic compound. If both VOC and SVOC are analyzed, the highest value must be used unless the QC criteria for one of the analyses is not met. In such cases, the value from the analysis meeting the QC criteria must be used.

⁶ The sum of individual phthalate compounds(not including the #34, Bis (2-Ethylhexyl) Phthalate . The compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.

Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measurement of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.

⁷ Although the maximum value for the individual PAH compounds is 0.0038 ug/l, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.

⁸ In the November 2002 WQC, EPA has revised the definition of Total PCBs for aquatic life as total PCBs is the sum of all homologue, all isomer, all congener, or all "Oroclor analyses." Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measure of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.

⁹ Although the maximum value for total PCBs is 0.000064 ug/l, the compliance limit is equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., 0.5 ug/l for Method 608 or 0.00005 ug/l when Method 1668a is approved).

¹⁰ Hardness. Cadmium, Chromium III, Copper, Lead, Nickel, Silver, and Zinc are Hardness Dependent.

¹¹ For a Dilution Factor (DF) from 1 to 5, metals limits are calculated using DF times the base limit for the metal. See Appendix IV. For example, iron limits are calculated using $DF \times 1,000 \text{ ug/L}$ (the iron base limit). Therefore DF is 1.5, the iron limit will be 1,500 ug/L; DF 2, then iron limit = $1,000 \times 2 = 2,000 \text{ ug/L}$, etc. not to exceed the DF=5.

¹² Minimum Level (ML) is the lowest level at which the analytical system gives a recognizable signal and acceptable calibration point for the analyte. The ML represents the lowest concentration at which an analyte can be measured with a known level of confidence. The ML is calculated by multiplying the laboratory-determined method detection limit by 3.18 (see 40 CFR Part 136, Appendix B).

¹³ pH sampling for compliance with permit limits may be performed using field methods as provided for in EPA test Method 150.1.

¹⁴ Temperature sampling per Method 170.1



U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Mail Code OEP06-4
Boston, MA 02109-3912
ATTN: Remediation General Permit NOI Processing

June 12, 2014
File No. 2112.05

Re: Notice of Intent for the Remediation General Permit
Temporary Construction Dewatering for Site Remediation
American Fiber & Finishing Site
247 Main Road, Colrain, Massachusetts
RTN 1-15068; Tier IC Permit #237246

Dear Sir/Madam:

On behalf of Covidien LP, Charter Environmental, Inc. (Charter) has submitted this Notice of Intent (NOI) to the U.S. EPA for coverage under the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) MAG910000. This letter and supporting documentation were prepared in accordance with the U.S. EPA guidance for construction dewatering under the RGP program. Charter is the remediation contractor for the project and will have direct responsibility for the dewatering activities at the Project Site. All subcontractors working on the project will be required to meet the requirements of this NOI and the RGP. The location of discharge to the tailrace brook upstream of the North River is shown on Figures 1 and 2, and the locations for proposed excavations are shown on Figure 2.

This NOI will cover construction activities associated with the remediation of the tailrace brook and former waste activated sludge lagoons (FWASLs) portions of the American Fiber & Finishing (AF&F) Site (RTN 1-15068). The remedial work is being conducted as a Phase IV Remedy Implementation in accordance with the Massachusetts Contingency Plan (MCP). The tailrace brook and FWASL site areas are located on the eastern portion of the North River LLC property (Map 107, Lot 2.12; operated by Barnhardt Manufacturing Company), and the central portion of the property owned by the Slowinski Funding Trust (Map 107, Lot 001), respectively, in Colrain, Massachusetts (Figure 1). The temporary construction dewatering will discharge via pumps and hoses to the tailrace brook just upstream of its confluence with the North River (Figures 1 and 2).

According to the Massachusetts Geographical Information System (MassGIS), the excavation activities will not impact Areas of Critical Environmental Concern (ACEC) or Habitats of Rare Wetland Wildlife. A review of the information on the U.S. Fish and Wildlife Service website led to the conclusion that the project will not impact federally-listed threatened or endangered species. A letter from that agency is included in Appendix D.



The excavation for the removal of contaminated sediment within the tailrace brook will require excavation to depths of approximately 18 to 30 inches below ground surface (bgs), depending on the location. Groundwater is anticipated to be encountered in close proximity to the existing streambed surface. Groundwater that flows into the excavations during excavation activities will be treated prior to discharge to the tailrace brook such that the discharged effluent meets the effluent limitations established by Appendix III and Appendix IV of the RGP Application. A schematic of the proposed dewatering treatment system is shown on Figure 3. The completed Notice of Intent for the Remediation General Permit form is included as Appendix A.

Covidien LP requests to be listed on the Permit as the Owner as defined by 40 CFR 122.2 as the owner of any "facility or activity" subject to regulation under the NPDES program. Covidien LP is considered a former owner/operator and potentially responsible party (PRP) under the MCP, but does not presently own either property where remediation work is being conducted. Charter requests to be listed on the Permit as the Operator. Discharge of treated water is scheduled to begin as early as July 1, 2014, pending authorization from the EPA and other agencies.

The following information regarding dioxin/furan data for site groundwater was provided to Victor Alvarez of USEPA in a letter from Sanborn, Head & Associates, Inc. (Sanborn Head) dated August 15, 2013, titled "NPDES Construction General Permit". Based on USEPA's review of the letter, Mr. Alvarez indicated to Sanborn Head in a telephone conversation on August 28, 2013 that the site can be covered under the Remediation General Permit provided that this information on dioxins/furans in groundwater is provided as part the NOI.

Dioxins/furans are a contaminant of concern for this Site. Dioxins and furans are comprised of chlorine molecules attached at different positions to two benzene rings. Based on a review of the physiochemical properties of 2,3,7,8-TCDD, they are generally not soluble in water (high K_{ow} , low solubility) and are generally immobile and sorb to fines in soil/sediment (high K_{ow} , high K_{oc}).

Several rounds of groundwater samples were collected as part of a Phase II Comprehensive Site Assessment (CSA) completed in accordance with the MCP. The groundwater samples were collected from an area upgradient of the tailrace brook, and downgradient of former buried wastewater pipes containing sludge with elevated levels of dioxins/furans¹. Results of the Phase II CSA groundwater sampling showed that none of the reported dioxin/furan

¹ Most of the wastewater pipes and sludge were excavated for off-site disposal in 2010 during Phase IV Remedy Implementation activities for that portion of the Site. Where the pipes could not be excavated, the sludge was removed using pressure cleaning and the pipes were grouted in-place.



Total Toxicity Equivalencies (TEQs) in any of the groundwater samples exceeded the MCP Method 1 GW-1 criteria of 30 parts per quadrillion (ppq). Dioxin/furan TEQs ranged from 0.0 ppq to approximately 13 ppq, but were typically less than 1 ppq. Based on the Phase II CSA data, the Method 1/Method 2 human health risk assessment concluded that a Condition of No Significant Risk exists for a resident exposed to on-Site groundwater through the drinking water pathway.

On May 15, 2013, an unfiltered, composite groundwater sample was collected from two locations adjacent to the tailrace brook streambed and submitted for the NPDES RGP list of parameters plus dioxins/furans via USEPA Method 8290. A composite groundwater sample that was filtered using a 0.45-micron filter was also collected and submitted for dioxin/furan analysis. The TEQs for the unfiltered and filtered groundwater samples were 3.2 and 0.071 ppq, respectively, which are one to two orders of magnitude less than the MCP Method 1 GW-1 standard and which indicate that dioxin/furan concentrations decreased by over an order of magnitude as a result of being filtered.

Based on the detected TSS concentration in the unfiltered groundwater sample, groundwater will be filtered prior to discharge to the tailrace brook. Dewatered groundwater will be pumped to fractionation tanks for primary settlement of suspended solids. Groundwater will then be pumped from the fractionation tanks through bag filters. Cartridge filters may be used as needed if TSS removal is not sufficient using bag filters. We also anticipate using carbon as a polishing step if needed based on the results of the effluent sampling.

Because dioxin/furans typically sorb to fines, we believe that filtering will serve as an effective method for removing the very low levels of any dioxin/furan-containing sediment suspended in dewatered groundwater. As documented above, the filtered groundwater sample analyzed for dioxins/furans demonstrated a TEQ of 0.071 ppq, which is greater than an order of magnitude less than the TEQ for the unfiltered groundwater sample and greater than two orders of magnitude less than the applicable MCP Method 1 GW-1 standard of 30 ppq.

Thank you for your consideration of this NOI/Permit. Please feel free to contact us if you wish to discuss the information contained in this application, or if any additional information is needed.

Very truly yours,
CHARTER ENVIRONMENTAL, INC.

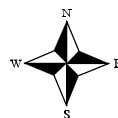
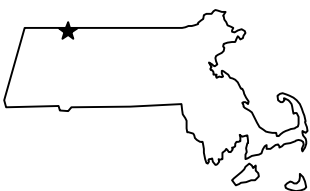
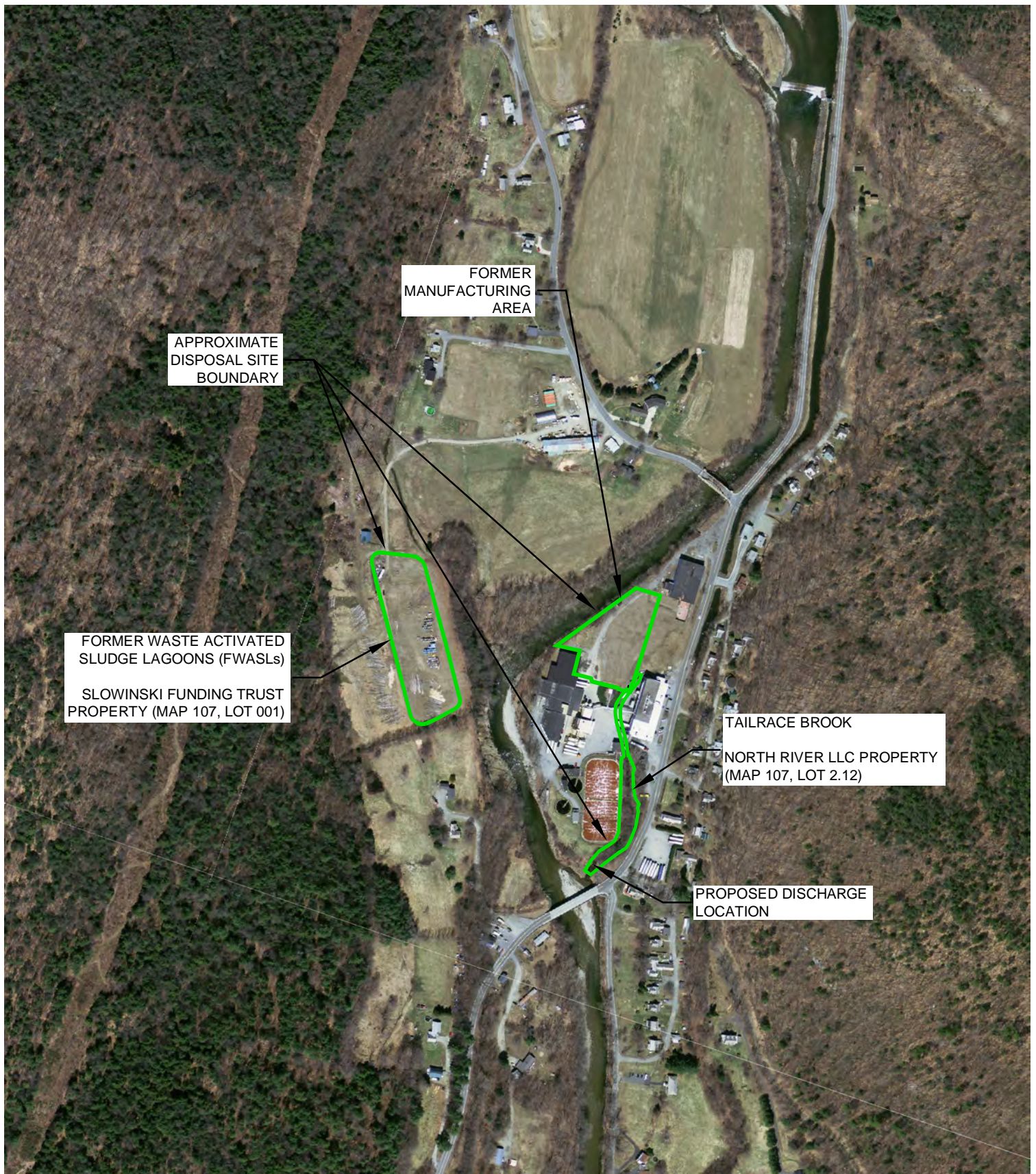
Christopher Ryan
Project Manager



encl. Figure 1 – Locus Plan
Figure 2 – Proposed Tailrace Streambed Excavation Plan
Figure 3 – Proposed Groundwater Treatment Schematic
Appendix A – Notice of Intent Form
Appendix B – Analytical Data
Appendix C – Dilution Calculations
Appendix D – Federal Correspondence
Appendix E – National Register of Historic Places and Massachusetts Historical
Commission Letter of No Historical Impacts
Appendix F – Best Management Practices Plan

cc: Town of Colrain Health Department
Town of Colrain Conservation Commission
Covidien LP – Patricia H. Duft, Kathryn Zeigler
Sanborn, Head & Associates, Inc. – Jennifer H. Sanborn, Mathew A. DiPilato

FIGURES



Notes:
Base map taken from "Office of
Geographic and Environmental
Information (MassGIS), Commonwealth
of Massachusetts Executive Office of
Environmental Affairs"
USGS Color Ortho Imagery 30cm:
Colrain, Massachusetts, REV: 2009

Drawn By: D.Dombrowsky
Designed By: J. Sanborn
Reviewed By: J. Sanborn
Project No: 2112.05
Date: June 2014

GRAPHICAL SCALE
0 500 1000 1500 FEET

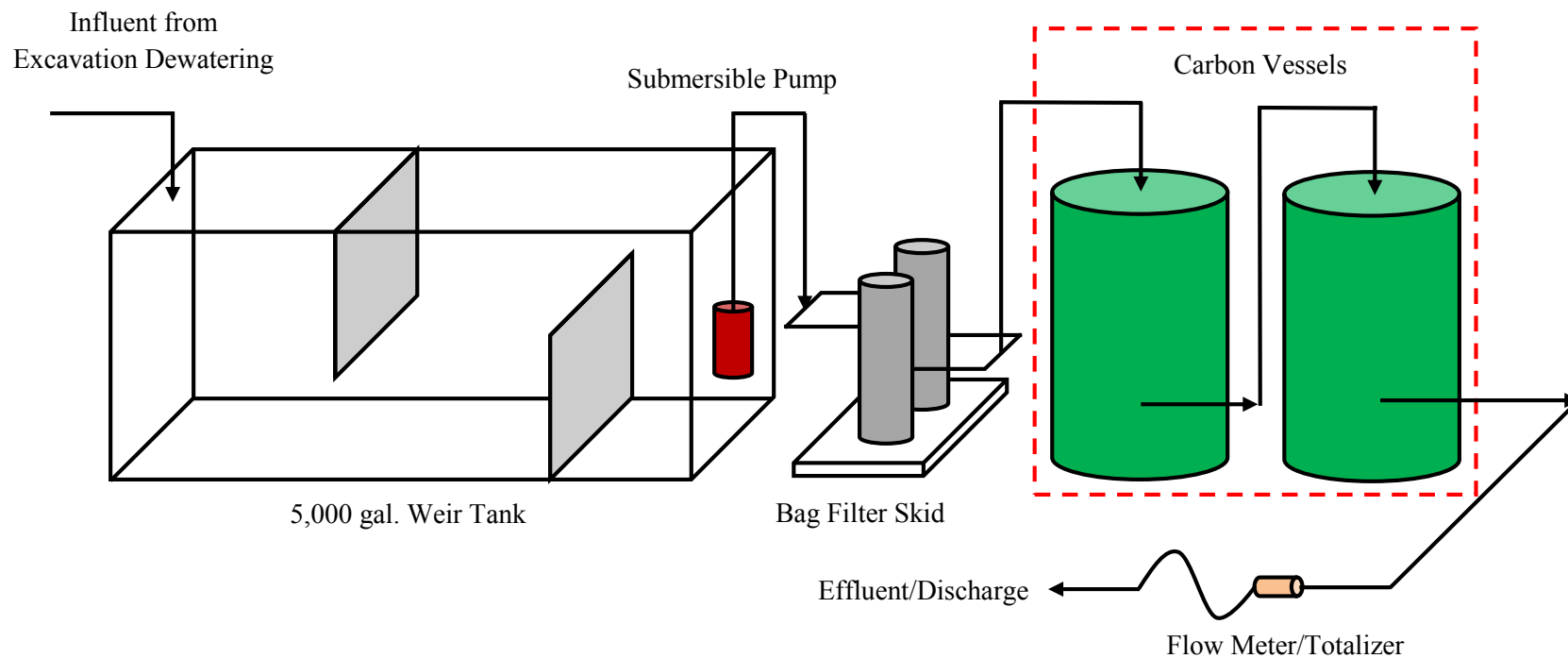
SANBORN HEAD

Figure 1

Locus Plan

NPDES Remediation
General Permit Notice of Intent

AF&F SITE
Colrain, Massachusetts



Notes:

- 1.) Figure is not to scale.
- 2.) The water treatment system is rated for 50 gallons per minute.
- 3.) All discharge water shall be routed to the treatment system.

Key

Optional System Component - - - -



89 Crawford Street
Leominster, Massachusetts 01453
Tel: 774.450.7177
Fax: 888.835.0617
www.lrt-llc.net

Water Treatment System Schematic
American Fiber & Finishing Site
Colrain, Massachusetts
LRT Project #2-1155

APPENDIX A

NOTICE OF INTENT FORM

B. Suggested Form for Notice of Intent (NOI) for the Remediation General Permit

1. General facility/site information. Please provide the following information about the site:

a) Name of facility/site : American Fiber & Finishing Site		Facility/site mailing address:	
Location of facility/site :	Facility SIC code(s):	Street: 247 Main Road	
longitude: 72.714517 W	N/A		
latitude: 42.6552 N			
b) Name of facility/site owner : Covidien LP		Town: Colrain	
Email address of facility/site owner: Pat.Duft@Covidien.com		State: MA	Zip: 01340
Telephone no. of facility/site owner : (314) 281-5914		County: Franklin	
Fax no. of facility/site owner : (314) 281-5986		Owner is (check one): 1. Federal <input type="radio"/> 2. State/Tribal <input type="radio"/>	
Address of owner (if different from site):		3. Private <input checked="" type="radio"/> 4. Other <input type="radio"/> if so, describe:	
Street: 444 McDonnell Blvd.			
Town: Hazelwood	State: MO	Zip: 63042	County: St. Louis
c) Legal name of operator :		Operator telephone no: 857-246-6800	
Charter Environmental, Inc.		Operator fax no.: 857-246-6885	Operator email: cryan@charterenvironmental.com
Operator contact name and title: Chris Ryan, Project Manager			
Address of operator (if different from owner):		Street: 560 Harrison Avenue, 5th Floor	
Town: Boston	State: MA	Zip: 02118	County: Suffolk

d) Check Y for “yes” or N for “no” for the following:

1. Has a prior NPDES permit exclusion been granted for the discharge? Y ☐ N ☒, if Y, number:
2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge?
Y ☐ N ☒, if Y, date and tracking #:
3. Is the discharge a “new discharge” as defined by 40 CFR 122.2? Y ☒ N ☐
4. For sites in Massachusetts, is the discharge covered under the Massachusetts Contingency Plan (MCP) and exempt from state permitting? Y ☒ N ☐

e) Is site/facility subject to any State permitting, license, or other action which is causing the generation of discharge? Y ☒ N ☐

If Y, please list:

1. site identification # assigned by the state of NH or

MA:

2. permit or license # assigned:

3. state agency contact information: name, location, and telephone number:

MassDEP Western Region: 413-784-1100
436 Dwight Street
Springfield, MA 01103

f) Is the site/facility covered by any other EPA permit, including:

1. Multi-Sector General Permit? Y ☐ N ☒,
if Y, number:
2. Final Dewatering General Permit? Y ☐ N ☒,
if Y, number:
3. EPA Construction General Permit? Y ☒ N ☐,
if Y, number:
4. Individual NPDES permit? Y ☐ N ☒,
if Y, number:
5. any other water quality related individual or general permit? Y ☐ N ☒, if Y, number:

g) Is the site/facility located within or does it discharge to an Area of Critical Environmental Concern (ACEC)? Y ☐ N ☒

h) Based on the facility/site information and any historical sampling data, identify the sub-category into which the potential discharge falls.

<u>Activity Category</u>	<u>Activity Sub-Category</u>
I - Petroleum Related Site Remediation	A. Gasoline Only Sites <input type="checkbox"/> B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) <input type="checkbox"/> C. Petroleum Sites with Additional Contamination <input type="checkbox"/>
II - Non Petroleum Site Remediation	A. Volatile Organic Compound (VOC) Only Sites <input type="checkbox"/> B. VOC Sites with Additional Contamination <input type="checkbox"/> C. Primarily Heavy Metal Sites <input type="checkbox"/>
III - Contaminated Construction Dewatering	A. General Urban Fill Sites <input type="checkbox"/> B. Known Contaminated Sites <input checked="" type="checkbox"/>

IV - Miscellaneous Related Discharges	A. Aquifer Pump Testing to Evaluate Formerly Contaminated Sites <input type="checkbox"/> B. Well Development/Rehabilitation at Contaminated/Formerly Contaminated Sites <input type="checkbox"/> C. Hydrostatic Testing of Pipelines and Tanks <input type="checkbox"/> D. Long-Term Remediation of Contaminated Sumps and Dikes <input type="checkbox"/> E. Short-term Contaminated Dredging Drain Back Waters (if not covered by 401/404 permit) <input type="checkbox"/>
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2. Discharge information. Please provide information about the discharge, (attaching additional sheets as necessary) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage:			
Temporary construction dewatering for remediation			
b) Provide the following information about each discharge:			
1) Number of discharge points:	2) What is the maximum and average flow rate of discharge (in cubic feet per second, ft ³ /s)?		
1	Max. flow <input type="text" value="0.11"/> Is maximum flow a design value ? Y <input checked="" type="radio"/> N <input type="radio"/> Average flow (include units) <input type="text" value="0.06 ft^3/s"/> Is average flow a design value or estimate? <input type="text" value="Estimate"/>		
3) Latitude and longitude of each discharge within 100 feet:			
pt.1: lat.	<input type="text" value="42.653992 N"/>	long.	<input type="text" value="-72.714753 W"/>
pt.2: lat.	<input type="text"/>	long.	<input type="text"/>
pt.3: lat.	<input type="text"/>	long.	<input type="text"/>
pt.4: lat.	<input type="text"/>	long.	<input type="text"/>
pt.5: lat.	<input type="text"/>	long.	<input type="text"/>
pt.6: lat.	<input type="text"/>	long.	<input type="text"/>
pt.7: lat.	<input type="text"/>	long.	<input type="text"/>
pt.8: lat.	<input type="text"/>	long.	<input type="text"/>
etc.			
4) If hydrostatic testing, total volume of the discharge (gals):		5) Is the discharge intermittent <input checked="" type="radio"/> or seasonal <input type="radio"/> ?	
<input type="text" value="N/A"/>		Is discharge ongoing? Y <input type="radio"/> N <input checked="" type="radio"/>	
c) Expected dates of discharge (mm/dd/yy): start <input type="text" value="07/01/2014"/> end <input type="text" value="11/30/2014"/>			
d) Please attach a line drawing or flow schematic showing water flow through the facility including:			
1. sources of intake water. 2. contributing flow from the operation. 3. treatment units. and 4. discharge points and receiving waters(s).			
<input type="text" value="See Figures 1 through 3"/>			

3. Contaminant information.

a) Based on the sub-category selected (see Appendix III), indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
1. Total Suspended Solids (TSS)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Composite	2540D	5,000	45,000			
2. Total Residual Chlorine (TRC)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	4500CL-D	20	ND			
3. Total Petroleum Hydrocarbons (TPH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	1664A	4,000	ND			
4. Cyanide (CN)	57125	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	9014	5	ND			
5. Benzene (B)	71432	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	0.5	ND			
6. Toluene (T)	108883	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
7. Ethylbenzene (E)	100414	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	2	ND			
9. Total BTEX ²	n/a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5	ND			
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) ³	106934	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	504.1	0.01	ND			
11. Methyl-tert-Butyl Ether (MtBE)	1634044	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	2	ND			
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	10	ND			

* Numbering system is provided to allow cross-referencing to Effluent Limits and Monitoring Requirements by Sub-Category included in Appendix III, as well as the Test Methods and Minimum Levels associated with each parameter provided in Appendix VI.

² BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

³ EDB is a groundwater contaminant at fuel spill and pesticide application sites in New England.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
13. tert-Amyl Methyl Ether (TAME)	9940508	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	2	ND			
14. Naphthalene	91203	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	2	ND			
15. Carbon Tetrachloride	56235	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
16. 1,2 Dichlorobenzene (o-DCB)	95501	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
17. 1,3 Dichlorobenzene (m-DCB)	541731	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
18. 1,4 Dichlorobenzene (p-DCB)	106467	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
18a. Total dichlorobenzene		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	3	ND			
19. 1,1 Dichloroethane (DCA)	75343	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
20. 1,2 Dichloroethane (DCA)	107062	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
21. 1,1 Dichloroethene (DCE)	75354	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
22. cis-1,2 Dichloroethene (DCE)	156592	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
23. Methylene Chloride	75092	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	2	ND			
24. Tetrachloroethene (PCE)	127184	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
25. 1,1,1 Trichloro-ethane (TCA)	71556	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
26. 1,1,2 Trichloro-ethane (TCA)	79005	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
27. Trichloroethene (TCE)	79016	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
28. Vinyl Chloride (Chloroethene)	75014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	1	ND			
29. Acetone	67641	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5	ND			
30. 1,4 Dioxane	123911	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C-SIM	3	ND			
31. Total Phenols	108952	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Composite	420.1	30	50			
32. Pentachlorophenol (PCP)	87865	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.8	ND			
33. Total Phthalates (Phthalate esters) ⁴		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D	5	ND			
34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]	117817	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D	3	ND			
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
a. Benzo(a) Anthracene	56553	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
b. Benzo(a) Pyrene	50328	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
c. Benzo(b)Fluoranthene	205992	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
d. Benzo(k)Fluoranthene	207089	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
e. Chrysene	21801	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
f. Dibenzo(a,h)anthracene	53703	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
g. Indeno(1,2,3-cd) Pyrene	193395	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			

⁴The sum of individual phthalate compounds.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
h. Acenaphthene	83329	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
i. Acenaphthylene	208968	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
j. Anthracene	120127	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
k. Benzo(ghi) Perylene	191242	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
l. Fluoranthene	206440	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
m. Fluorene	86737	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
n. Naphthalene	91203	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
o. Phenanthrene	85018	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
p. Pyrene	129000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	8270D-SIM	0.2	ND			
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	608	0.25	ND			
38. Chloride	16887006	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Composite	300.0	5,000	46,000			
39. Antimony	7440360	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Composite	6020A	0.5	0.8			
40. Arsenic	7440382	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	6020A	0.5	ND			
41. Cadmium	7440439	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	6020A	0.2	ND			
42. Chromium III (trivalent)	16065831	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	6020A	1.0	ND			
43. Chromium VI (hexavalent)	18540299	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	7196A	10	ND			
44. Copper	7440508	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Composite	6020A	1.5	3.8			
45. Lead	7439921	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Composite	6020A	0.5	1.6			
46. Mercury	7439976	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	7470A	0.2	ND			
47. Nickel	7440020	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Composite	6020A	1.0	25.8			
48. Selenium	7782492	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Composite	6020A	1	1			
49. Silver	7440224	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Composite	6020A	0.4	ND			
50. Zinc	7440666	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Composite	6020A	5.0	102.8			
51. Iron	7439896	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Composite	6010C	50	310			
Other (describe):		<input type="checkbox"/>	<input type="checkbox"/>								

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
Dioxins/furans (TEQ as TCDD)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Composite	8290	varies by congene	0.0000032			
		<input type="checkbox"/>	<input type="checkbox"/>								

b) For discharges where **metals** are believed present, please fill out the following (attach results of any calculations):

<p><i>Step 1:</i> Do any of the metals in the influent exceed the effluent limits in Appendix III (i.e., the limits set at zero dilution)? Y <input checked="" type="radio"/> N <input type="radio"/></p>	<p>If yes, which metals?</p> <p>Lead and Zinc</p>										
<p><i>Step 2:</i> For any metals which exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals?</p> <table border="1"> <tr> <td>Metal: Lead</td> <td>DF: 57</td> </tr> <tr> <td>Metal: Zinc</td> <td>DF: 57</td> </tr> <tr> <td>Metal:</td> <td>DF:</td> </tr> <tr> <td>Metal:</td> <td>DF:</td> </tr> <tr> <td>Etc.</td> <td></td> </tr> </table>	Metal: Lead	DF: 57	Metal: Zinc	DF: 57	Metal:	DF:	Metal:	DF:	Etc.		<p>Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)?</p> <p>Y <input type="radio"/> N <input checked="" type="radio"/> If Y, list which metals:</p>
Metal: Lead	DF: 57										
Metal: Zinc	DF: 57										
Metal:	DF:										
Metal:	DF:										
Etc.											

4. Treatment system information. Please describe the treatment system using separate sheets as necessary, including:

a) A description of the treatment system, including a schematic of the proposed or existing treatment system:

Groundwater encountered during construction activities will be pumped to a treatment system prior to discharge into the North River. The first element of the treatment system will be a weir fractionalization tank where solids will settle out. The effluent will then be passed through a bag filter. If needed, the effluent may be passed through carbon vessels for polishing. The effluent will then be discharged to the tailrace brook upstream of the confluence with the North River.

b) Identify each applicable treatment unit (check all that apply):	Frac. tank <input checked="" type="checkbox"/>	Air stripper <input type="checkbox"/>	Oil/water separator <input type="checkbox"/>	Equalization tanks <input type="checkbox"/>	Bag filter <input checked="" type="checkbox"/>	GAC filter <input checked="" type="checkbox"/>
	Chlorination <input type="checkbox"/>	De-chlorination <input type="checkbox"/>	Other (please describe):			

c) Proposed **average** and **maximum flow rates** (gallons per minute) for the discharge and the **design flow rate(s)** (gallons per minute) of the treatment system:

Average flow rate of discharge gpm Maximum flow rate of treatment system gpm
Design flow rate of treatment system gpm

d) A description of chemical additives being used or planned to be used (attach MSDS sheets):

None.

5. Receiving surface water(s). Please provide information about the receiving water(s), using separate sheets as necessary:

a) Identify the discharge pathway:	Direct to receiving water <input checked="" type="checkbox"/>	Within facility (sewer) <input type="checkbox"/>	Storm drain <input type="checkbox"/>	Wetlands <input type="checkbox"/>	Other (describe): <input type="text"/>
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b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:

Dewatering effluent will discharge via pumps and hose to the tailrace brook upstream of the confluence with the North River.

c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water:

1. For multiple discharges, number the discharges sequentially.
 2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water
- The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.

d) Provide the state water quality classification of the receiving water

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water cfs
Please attach any calculation sheets used to support stream flow and dilution calculations.

f) Is the receiving water a listed 303(d) water quality impaired or limited water? Y ☐ N ☒ If yes, for which pollutant(s)?

Is there a final TMDL? Y ☐ N ☒ If yes, for which pollutant(s)?

6. ESA and NHPA Eligibility.

Please provide the following information according to requirements of Permit Parts I.A.4 and I.A.5 Appendices II and VII.

a) Using the instructions in Appendix VII and information on Appendix II, under which criterion listed in Part I.C are you eligible for coverage under this general permit?

A ☐ B ☐ C ☐ D ☒ E ☐ F ☐

b) If you selected Criterion D or F, has consultation with the federal services been completed? Y ☒ N ☐ Underway ☐

c) If consultation with U.S. Fish and Wildlife Service and/or NOAA Fisheries Service was completed, was a written concurrence finding that the discharge is “not likely to adversely affect” listed species or critical habitat received? Y ☒ N ☐

d) Attach documentation of ESA eligibility as described in the NOI instructions and required by Appendix VII, Part I.C, Step 4.

e) Using the instructions in Appendix VII, under which criterion listed in Part II.C are you eligible for coverage under this general permit?

1 ☒ 2 ☐ 3 ☐

f) If Criterion 3 was selected, attach all written correspondence with the State or Tribal historic preservation officers, including any terms and conditions that outline measures the applicant must follow to mitigate or prevent adverse effects due to activities regulated by the RGP.

7. 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.

Appendix B includes the analytical data for a sample collected by Sanborn, Head & Associates, Inc. on May 15, 2013.

Appendix C includes calculations for the 7Q10 flows and the dilution factor for metals.


Appendix D includes information regarding Habitats of Rare Wildlife and correspondence from the US Fish and Wildlife Service and Massachusetts Division of Fisheries & Wildlife.

Appendix E includes a list of Historic Places in Colrain, Massachusetts and a Massachusetts Historical Commission letter of no historical impacts dated 5/6/13.

Appendix F includes the Best Management Practices Plan.

8. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

I certify under penalty of law that 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/Site Name:	American Fiber & Finishing Site
Operator signature:	
Printed Name & Title:	Christopher Ryan, Project Manager
Date:	6/9/14

APPENDIX B

ANALYTICAL DATA

TABLE 1
Summary of Groundwater Quality Data
NPDES Remediation General Permit
Colrain, MA

General Parameter	Analytical Method	Units	TAILRACE-RGP 5/15/2013	NPDES RGP Effluent Limit (2010)
Dioxin/Furan TEQ as 2,3,7,8-TCDD (Unfiltered)	8290	pg/L	3.2	NS
Dioxin/Furan TEQ as 2,3,7,8-TCDD (Filtered)	8290	pg/L	0.071	NS
Solids, Total Suspended	2540D	mg/l	45	30
Chloride	300.0	mg/l	46	Monitor Only
Cyanide, Total	9014	ug/l	<5	5.2
Chlorine, Total Residual ²	4500CL-D	ug/l	<20	11
TPH	1664A	mg/l	<4	5
Phenolics, Total	420.1	ug/l	50	300
Total Metals				
Chromium, Hexavalent	7196A	ug/l	<10	570*
Antimony, Total	6020A	ug/l	0.8	141*
Arsenic, Total	6020A	ug/l	<0.5	500*
Cadmium, Total	6020A	ug/l	<0.2	10*
Chromium, Total	6020A	ug/l	<1	1,710*
Copper, Total	6020A	ug/l	3.8	260*
Iron, Total	6010C	ug/l	310	5,000*
Lead, Total	6020A	ug/l	1.6	66*
Mercury, Total	7470A	ug/l	<0.2	2.3*
Nickel, Total	6020A	ug/l	25.8	1,451*
Selenium, Total	6020A	ug/l	1	250*
Silver, Total	6020A	ug/l	<0.4	57*
Zinc, Total	6020A	ug/l	102.8	1,480*
Pesticides				
1,2-Dibromoethane	504	ug/l	<0.01	0.05
Volatile Organic Compounds (VOCs)				
Methylene chloride	8260C	ug/l	<2	4.6
1,1-Dichloroethane	8260C	ug/l	<1	70
Chloroform	8260C	ug/l	<1	NS
Carbon tetrachloride	8260C	ug/l	<1	4.4
1,2-Dichloropropane	8260C	ug/l	<1	NS
Dibromochloromethane	8260C	ug/l	<1	NS
1,1,2-Trichloroethane	8260C	ug/l	<1	5
Tetrachloroethene	8260C	ug/l	<1	5
Chlorobenzene	8260C	ug/l	<1	NS
Trichlorofluoromethane	8260C	ug/l	<2	NS
1,2-Dichloroethane	8260C	ug/l	<1	5
1,1,1-Trichloroethane	8260C	ug/l	<1	200
Bromodichloromethane	8260C	ug/l	<1	NS
trans-1,3-Dichloropropene	8260C	ug/l	<0.5	NS
cis-1,3-Dichloropropene	8260C	ug/l	<0.5	NS
1,1-Dichloropropene	8260C	ug/l	<2	NS
Bromoform	8260C	ug/l	<2	NS
1,1,2,2-Tetrachloroethane	8260C	ug/l	<1	NS
Benzene	8260C	ug/l	<0.5	5
Toluene	8260C	ug/l	<1	see Total BTEX
Ethylbenzene	8260C	ug/l	<1	see Total BTEX
Chloromethane	8260C	ug/l	<2	NS
Bromomethane	8260C	ug/l	<2	NS
Vinyl chloride	8260C	ug/l	<1	2
Chloroethane	8260C	ug/l	<2	NS
1,1-Dichloroethene	8260C	ug/l	<1	3.2
trans-1,2-Dichloroethene	8260C	ug/l	<1	NS
Trichloroethene	8260C	ug/l	<1	5
1,2-Dichlorobenzene	8260C	ug/l	<1	600
1,3-Dichlorobenzene	8260C	ug/l	<1	320
1,4-Dichlorobenzene	8260C	ug/l	<1	5
Methyl tert butyl ether	8260C	ug/l	<2	70
p/m-Xylene	8260C	ug/l	<2	see Total BTEX
o-Xylene	8260C	ug/l	<1	see Total BTEX
Xylenes, Total	8260C	ug/l	<2	see Total BTEX
cis-1,2-Dichloroethene	8260C	ug/l	<1	70
Dibromomethane	8260C	ug/l	<2	NS
1,2,3-Trichloropropane	8260C	ug/l	<2	NS
Styrene	8260C	ug/l	<1	NS
Dichlorodifluoromethane	8260C	ug/l	<2	NS
Acetone	8260C	ug/l	<5	Monitor Only
Carbon disulfide	8260C	ug/l	<2	NS
2-Butanone	8260C	ug/l	<5	NS
4-Methyl-2-pentanone	8260C	ug/l	<5	NS
2-Hexanone	8260C	ug/l	<5	NS

TABLE 1
Summary of Groundwater Quality Data
NPDES Remediation General Permit
Colrain, MA

General Parameter	Analytical Method	Units	TAILRACE-RGP 5/15/2013	NPDES RGP Effluent Limit (2010)
Bromochloromethane	8260C	ug/l	<2	NS
Tetrahydrofuran	8260C	ug/l	<2	NS
2,2-Dichloropropane	8260C	ug/l	<2	NS
1,2-Dibromoethane ³	8260C	ug/l	<2	0.05
1,3-Dichloropropane	8260C	ug/l	<2	NS
1,1,1,2-Tetrachloroethane	8260C	ug/l	<1	NS
Bromobenzene	8260C	ug/l	<2	NS
n-Butylbenzene	8260C	ug/l	<2	NS
sec-Butylbenzene	8260C	ug/l	<2	NS
tert-Butylbenzene	8260C	ug/l	<2	NS
o-Chlorotoluene	8260C	ug/l	<2	NS
p-Chlorotoluene	8260C	ug/l	<2	NS
1,2-Dibromo-3-chloropropane	8260C	ug/l	<2	NS
Hexachlorobutadiene	8260C	ug/l	<0.6	NS
Isopropylbenzene	8260C	ug/l	<2	NS
p-Isopropyltoluene	8260C	ug/l	<2	NS
Naphthalene	8260C	ug/l	<2	20
n-Propylbenzene	8260C	ug/l	<2	NS
1,2,3-Trichlorobenzene	8260C	ug/l	<2	NS
1,2,4-Trichlorobenzene	8260C	ug/l	<2	NS
1,3,5-Trimethylbenzene	8260C	ug/l	<2	NS
1,2,4-Trimethylbenzene	8260C	ug/l	<2	NS
Ethyl ether	8260C	ug/l	<2	NS
Isopropyl Ether	8260C	ug/l	<2	NS
Tert-Butyl Alcohol	8260C	ug/l	<10	Monitor Only
Ethyl-Tert-Butyl-Ether	8260C	ug/l	<2	NS
Tertiary-Amyl Methyl Ether	8260C	ug/l	<2	Monitor Only
1,4-Dioxane	8260C-SIM	ug/l	<3	Monitor Only
Total BTEX ⁴	8260C	ug/l	<2	100
Semivolatile Organic Compounds (SVOCs)				
1,2,4-Trichlorobenzene	8270D	ug/l	<5	NS
Bis(2-chloroethyl)ether	8270D	ug/l	<2	NS
1,2-Dichlorobenzene	8270D	ug/l	<2	NS
1,3-Dichlorobenzene	8270D	ug/l	<2	NS
1,4-Dichlorobenzene	8270D	ug/l	<2	NS
3,3'-Dichlorobenzidine	8270D	ug/l	<5	NS
2,4-Dinitrotoluene	8270D	ug/l	<5	NS
2,6-Dinitrotoluene	8270D	ug/l	<5	NS
Azobenzene	8270D	ug/l	<2	NS
4-Bromophenyl phenyl ether	8270D	ug/l	<2	NS
Bis(2-chloroisopropyl)ether	8270D	ug/l	<2	NS
Bis(2-chloroethoxy)methane	8270D	ug/l	<5	NS
Isophorone	8270D	ug/l	<5	NS
Nitrobenzene	8270D	ug/l	<2	NS
Bis(2-ethylhexyl)phthalate ⁵	8270D	ug/l	<3	6
Butyl benzyl phthalate ⁵	8270D	ug/l	<5	see Total Phthalates
Di-n-butylphthalate ⁵	8270D	ug/l	<5	see Total Phthalates
Di-n-octylphthalate ⁵	8270D	ug/l	<5	see Total Phthalates
Diethyl phthalate ⁵	8270D	ug/l	<5	see Total Phthalates
Dimethyl phthalate ⁵	8270D	ug/l	<5	see Total Phthalates
Total Phthalates ⁶	8270D	ug/l	<5	3
Aniline	8270D	ug/l	<2	NS
4-Chloroaniline	8270D	ug/l	<5	NS
Dibenzofuran	8270D	ug/l	<2	NS
Acetophenone	8270D	ug/l	<5	NS
2,4,6-Trichlorophenol	8270D	ug/l	<5	NS
2-Chlorophenol	8270D	ug/l	<2	NS
2,4-Dichlorophenol	8270D	ug/l	<5	NS
2,4-Dimethylphenol	8270D	ug/l	<5	NS
2-Nitrophenol	8270D	ug/l	<10	NS
4-Nitrophenol	8270D	ug/l	<10	NS

TABLE 1
Summary of Groundwater Quality Data
NPDES Remediation General Permit
Colrain, MA

General Parameter	Analytical Method	Units	TAILRACE-RGP 5/15/2013	NPDES RGP Effluent Limit (2010)
2,4-Dinitrophenol	8270D	ug/l	<20	NS
Phenol	8270D	ug/l	<5	NS
2-Methylphenol	8270D	ug/l	<5	NS
3-Methylphenol/4-Methylphenol	8270D	ug/l	<5	NS
2,4,5-Trichlorophenol	8270D	ug/l	<5	NS
Acenaphthene ⁷	8270D-SIM	ug/l	<0.2	see Total Group II PAHs
2-Chloronaphthalene	8270D-SIM	ug/l	<0.2	NS
Fluoranthene ⁷	8270D-SIM	ug/l	<0.2	see Total Group II PAHs
Hexachlorobutadiene	8270D-SIM	ug/l	<0.5	NS
Naphthalene ⁷	8270D-SIM	ug/l	<0.2	20
Benzo(a)anthracene ⁸	8270D-SIM	ug/l	<0.2	0.2
Benzo(a)pyrene ⁸	8270D-SIM	ug/l	<0.2	0.2
Benzo(b)fluoranthene ⁸	8270D-SIM	ug/l	<0.2	0.2
Benzo(k)fluoranthene ⁸	8270D-SIM	ug/l	<0.2	0.2
Chrysene ⁸	8270D-SIM	ug/l	<0.2	0.2
Acenaphthylene ⁷	8270D-SIM	ug/l	<0.2	see Total Group II PAHs
Anthracene ⁷	8270D-SIM	ug/l	<0.2	see Total Group II PAHs
Benzo(ghi)perylene ⁷	8270D-SIM	ug/l	<0.2	see Total Group II PAHs
Fluorene ⁷	8270D-SIM	ug/l	<0.2	see Total Group II PAHs
Phenanthrene ⁷	8270D-SIM	ug/l	<0.2	see Total Group II PAHs
Dibenzo(a,h)anthracene ⁸	8270D-SIM	ug/l	<0.2	0.2
Indeno(1,2,3-cd)Pyrene ⁸	8270D-SIM	ug/l	<0.2	0.2
Pyrene ⁷	8270D-SIM	ug/l	<0.2	see Total Group II PAHs
2-Methylnaphthalene	8270D-SIM	ug/l	<0.2	NS
Pentachlorophenol	8270D-SIM	ug/l	<0.8	1
Hexachlorobenzene	8270D-SIM	ug/l	<0.8	NS
Hexachloroethane	8270D-SIM	ug/l	<0.8	NS
Total Group I PAHs	8270D-SIM	ug/l	<0.2	10
Total Group II PAHs	8270D-SIM	ug/l	<0.2	100
Polychlorinated Biphenyls (PCBs)				
Aroclor 1016 ¹¹	PCB-608	ug/l	<0.25	0.5
Aroclor 1221 ¹¹	PCB-608	ug/l	<0.25	0.5
Aroclor 1232 ¹¹	PCB-608	ug/l	<0.25	0.5
Aroclor 1242 ¹¹	PCB-608	ug/l	<0.25	0.5
Aroclor 1248 ¹¹	PCB-608	ug/l	<0.25	0.5
Aroclor 1254 ¹¹	PCB-608	ug/l	<0.25	0.5
Aroclor 1260 ¹¹	PCB-608	ug/l	<0.25	0.5
Total PCBs	PCB-608	ug/l	<0.25	0.5

- Notes:
1. The sample was collected by Sanborn, Head & Associates, Inc. personnel on the date indicated and was submitted to Alpha Analytical, Inc. of Westborough, MA for analysis. The sample is a composite of wells SH-1W and SH-2W.
 2. The Laboratory Reporting Limit (RL) meets the requirements of Appendix VI of the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) even though RL exceeds RGP Effluent Limit.
 3. RL achieved by laboratory was above the Effluent Limit.; however, 1,2-dibromoethane was also analytzed by Method 504, as shown, with an RL below the Effluent Limit.
 4. Total BTEX = Sum of benzene, toluene, ethylbenzene, and total xylenes.
 5. Individual phthalate compound.
 6. "Total phthalates" is the sum of individual phthalate compounds; According to RGP Q&A #37, the RL for total phthalates is the highest reported phthalate RL; RL is less than the requirements in Appendix VI of RGP, even though RL exceeds RGP Effluent Limit.
 7. Group II PAHs.
 8. Group I PAHs; Although the maximum value for the individual PAH compounds is 0.0038 ug/l, the compliance limits are equal to the minimum level of the test method used as listed in Appendix VI. According to Alpha the method detection limit for 8270 SIM is 0.20 ug/l.
 9. Sum of Group I PAHs.
 10. Sum of Group II PAHs.
 11. Individual PCB congener.
 12. Total of PCB congeners; Although the maximum value for total PCB's is 0.000064 ug/l, the compliance limit is equal to the minimum level of the test method used as listed in Appendix VI (i.e. 0.5 ug/l for Method 608).
 13. 'SHADED' values indicate exceedences of the NPDES RGP Effluent Limits; which were taken from Appendix III of the RGP.
 - '<' = analytes not detected above laboratory reporting limits
 - 'NS' = Not Specified
 - "*" = Effluent Limit reflects a dilution factor of 57
 14. Monitor Only means that the subject compound is not subject to a (criteria) limit, however, the the Permittee is still required to monitor and report the effluent concentration.
 15. Dioxin/furan TEQs were calculated using the 2005 World Health Organization TEFs, which MA DEP is currently transitioning to adopting.

Table 2
Dioxin/Furan TEQ Calculations
NPDES RGP Groundwater Sample (2005 WHO TEFs)
AF&F Site
Colrain, Massachusetts
RTN 1-15068

Sample Designation	WHO TEFs (Note 2)	Tailrace-RGP		Tailrace-RGP (Filtered)	
Sample Date		5/15/2013	TEQ _n	5/15/2013	TEQ _n
Analytes, pg/L (Notes 6 and 7)					
2,3,7,8-TCDF	0.1	< 1.5	0.000	< 1.8	0.000
2,3,7,8-TCDD	1	< 1.9	0.00	< 1.8	0.00
1,2,3,7,8-PeCDF	0.03	< 1.6	0.000	< 1.4	0.000
2,3,4,7,8-PeCDF	0.3	< 1.2	0.00	< 1.2	0.00
1,2,3,7,8-PeCDD	1	< 2.10	0.00	< 1.3	0.00
1,2,3,4,7,8-HxCDF	0.1	EMPC, P 1.9	0.19	< 1.4	0
1,2,3,6,7,8-HxCDF	0.1	< 1.7	0	< 1.2	0
2,3,4,6,7,8-HxCDF	0.1	< 1.8	0.000	< 1.4	0.000
1,2,3,7,8,9-HxCDF	0.1	< 2	0.000	< 1.5	0.000
1,2,3,4,7,8-HxCDD	0.1	< 3.1	0.000	< 1.4	0.000
1,2,3,6,7,8-HxCDD	0.1	J 3.2	0.32	< 1.2	0
1,2,3,7,8,9-HxCDD	0.1	< 2.6	0	< 1.2	0
1,2,3,4,6,7,8-HpCDF	0.01	EMPC, I 5.5	0.055	< 1.4	0
1,2,3,4,7,8,9-HpCDF	0.01	< 4.2	0	< 1.6	0
1,2,3,4,6,7,8-HpCDD	0.01	210	2.1	J 5.4	0.054
OCDF	0.0003	EMPC, I 8.1	0.0024	J 5.5	0.0017
OCDD	0.0003	1,800	0.54	BJ 50	0.015
Other Congeners of (Note 4)					
TCDF		J 5.6	0.00	ND	0.00
TCDD		ND	0.00	ND	0.00
PeCDF		ND	0.00	ND	0.00
PeCDD		ND	0.00	ND	0.00
HxCDF		J 2.4	0.00	ND	0.00
HxCDD		J 14	0.00	ND	0.00
HpCDF		ND	0.00	ND	0.00
HpCDD		160	0.00	ND	0.00
TEQs - w/EMPCs			3.2		0.071

Table 2
Dioxin/Furan TEQ Calculations
NPDES RGP Groundwater Sample (2005 WHO TEFs)
AF&F Site
Colrain, Massachusetts
RTN 1-15068

Notes:

1. This table is intended to summarize the results of dioxin and furan analyses by USEPA Method 8290 on groundwater samples collected by Sanborn, Head & Associates, Inc. of Westford, MA (Sanborn Head) on the dates indicated. The data have been summarized from the analytical laboratory data reports prepared by Pace Analytical. The groundwater data are reported in picograms/liter (parts per quadrillion).
2. The source for the 2005 World Health Organization (WHO) Toxic Equivalency Factors (TEFs) is: <http://www.mass.gov/dep/cleanup/laws/tefpres.pdf> and Table 1 of "The 2005 World Health Organization Re-evaluation of Human Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds", Society of Toxicology, July 7, 2006.
3. The Total Toxicity Equivalency (TEQs) were calculated for each sample using the following formula: $TEQ = \sum (C_n * TEF_n)$, where C_n equals the concentration of the individual congener, and TEF_n equals the TEF for the individual congener, for all individual congeners listed in the table. The congeners listed with an "EMPC" flag were included in the calculation to be conservative. One-half of the detection limit was used in the calculation for congeners that were negated due to blank action by the data validator and congeners that were not detected at the Limit of Detection (LOD) as long as the congeners were detected in at least one sample from this matrix.
4. "Other Congeners of": Refers to the concentrations of the total congener class minus the concentration of the individual congeners of that type listed above it.
For example, TCDD = [Total TCDD](as listed by the lab) - [2,3,7,8-TCDD]; HxCDD = [Total HxCDD] - [1,2,3,4,7,8-HxCDD] - [1,2,3,6,7,8-HxCDD] - [1,2,3,7,8,9-HxCDD]; and so on. "ND" represents samples where the total congener was not detected above the Limit of Detection (LOD), the sum of individual congeners was greater than the the total congener concentration, or where blank action was taken by the data validator to negate the value ("UJ" flag)
5. The USEPA National Aquatic Water Quality Criteria (NAWQC) for human health (consumption of water and organisms) (1999 with revisions in 2002 and 2003) for TEQ as 2,3,7,8-TCDD is 0.005 pg/L. The MA DEP Risk-based Levels (Lowest Ecologically Based Criteria) for TEQ as 2,3,7,8-TCDD is 38 pg/L and was obtained from MA DEP, April 3, 2006, Documentation for the Derivation of MCP Numerical Standards spreadsheets.
6. An EPA Tier II-type Data Validation/Usability Checklist Review was performed for all data by New Environmental Horizons, Inc. (NEH) of Arlington, Massachusetts. The following qualifiers were used to describe the data:
"<": Analyte is not detected at the Limit of Detection (LOD)
"UJ<": Non-detect is estimated at the LOD
"UJ" or "U": Negated at level reported due to Blank Action
"J": Result is estimated
"EMPC": Estimated Maximum Possible Concentration
7. Congener abbreviations:
TCDD / TCDF: Tetrachlorinated dibenzop-dioxins / Tetrachlorinated dibenzofurans
PeCDD / PeCDF: Pentachlorinated dibenzo p-dioxins / Pentachlorinated dibenzofurans
HpCDD / HpCDF: Heptachlorinated dibenzo p-dioxins / Heptachlorinated dibenzofurans
HxCDD / HxCDF: Hexachlorinated dibenzo p-dioxins / Hexachlorinated dibenzofurans
OCDD / OCDF: Octachlorinated dibenzo p-dioxins / Octachlorinated dibenzofurans



ANALYTICAL REPORT

Lab Number:	L1308739
Client:	Sanborn, Head & Associates, Inc. 20 Foundry Street Concord, NH 03301
ATTN:	Jennifer Sanborn
Phone:	(603) 415-6137
Project Name:	AF & F
Project Number:	2112.04
Report Date:	05/22/13

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Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

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Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1308739-01	TAILRACE-RGP	COLRAIN, MA	05/15/13 10:50
L1308739-02	TRIP BLANK 20130515	COLRAIN, MA	05/15/13 00:00

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	NO
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES
A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO
For any questions answered "No", please refer to the case narrative section on the following page(s).		

Please note that sample matrix information is located in the Sample Results section of this report.



Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

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 all of the requirements of NELAC, for all NELAC accredited parameters. 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. 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. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for 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 free of charge for 30 days from the date the project is completed. After 30 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.

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

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Case Narrative (continued)

MCP Related Narratives

Volatile Organics

In reference to question H:

The initial calibration, associated with L1308739-01, did not meet the method required minimum response factor on the lowest calibration standard for tert-Butyl Alcohol (0.04235), as well as the average response factor for tert-Butyl Alcohol. In addition, a quadratic fit was utilized for Acetone.

The continuing calibration standard, associated with L1308739-01, is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

PCBs

In reference to question B:

At the client's request, the analytical method specified in the CAM protocol was not followed.


Metals

In reference to question I:

All samples were analyzed for a subset of MCP elements per the Chain of Custody.

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:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 05/22/13

ORGANICS

VOLATILES

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

SAMPLE RESULTS

Lab ID: L1308739-01
Client ID: TAILRACE-RGP
Sample Location: COLRAIN, MA
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 05/17/13 14:01
Analyst: SH

Date Collected: 05/15/13 10:50
Date Received: 05/15/13
Field Prep: Not Specified
Extraction Date: 05/16/13 15:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Microextractables by GC - Westborough Lab						
1,2-Dibromoethane	ND		ug/l	0.010	--	1

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

SAMPLE RESULTS

Lab ID: L1308739-01
 Client ID: TAILRACE-RGP
 Sample Location: COLRAIN, MA
 Matrix: Water
 Analytical Method: 97,8260C
 Analytical Date: 05/20/13 09:52
 Analyst: MM

Date Collected: 05/15/13 10:50
 Date Received: 05/15/13
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

SAMPLE RESULTS

Lab ID: L1308739-01
 Client ID: TAILRACE-RGP
 Sample Location: COLRAIN, MA

Date Collected: 05/15/13 10:50
 Date Received: 05/15/13
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

SAMPLE RESULTS

Lab ID: L1308739-01
 Client ID: TAILRACE-RGP
 Sample Location: COLRAIN, MA

Date Collected: 05/15/13 10:50
 Date Received: 05/15/13
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP Volatile Organics - Westborough Lab

tert-Butyl Alcohol	ND		ug/l	10	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	103		70-130

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

SAMPLE RESULTS

Lab ID: L1308739-01
Client ID: TAILRACE-RGP
Sample Location: COLRAIN, MA
Matrix: Water
Analytical Method: 97,8260C-SIM
Analytical Date: 05/20/13 09:52
Analyst: MM

Date Collected: 05/15/13 10:50
Date Received: 05/15/13
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	3.0	--	1

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 05/17/13 11:57
Analyst: SH

Extraction Date: 05/16/13 15:00

Parameter	Result	Qualifier	Units	RL	MDL
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG608574-1					
1,2-Dibromoethane	ND		ug/l	0.010	--

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C-SIM
Analytical Date: 05/20/13 07:42
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by SIM - Westborough Lab for sample(s): 01 Batch: WG609389-3					
1,4-Dioxane	ND		ug/l	3.0	--

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 05/20/13 07:42
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01 Batch: WG609393-3					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--



Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 05/20/13 07:42
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01 Batch: WG609393-3					
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	2.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--



Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 05/20/13 07:42
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01 Batch: WG609393-3					
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
tert-Butyl Alcohol	ND		ug/l	10	--

Tentatively Identified Compounds

No Tentatively Identified Compounds ND ug/l

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	86		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	112		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Microextractables by GC - Westborough Lab Associated sample(s): 01 Batch: WG608574-2								
1,2-Dibromoethane	125		-		70-130	-		20

MCP Volatile Organics by SIM - Westborough Lab Associated sample(s): 01 Batch: WG609389-1 WG609389-2								
1,4-Dioxane	128		115		70-130	11		20

Lab Control Sample Analysis Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG609393-1 WG609393-2								
Methylene chloride	96		92		70-130	4		20
1,1-Dichloroethane	109		104		70-130	5		20
Chloroform	104		99		70-130	5		20
Carbon tetrachloride	104		102		70-130	2		20
1,2-Dichloropropane	106		102		70-130	4		20
Dibromochloromethane	95		91		70-130	4		20
1,1,2-Trichloroethane	89		87		70-130	2		20
Tetrachloroethene	113		113		70-130	0		20
Chlorobenzene	99		98		70-130	1		20
Trichlorofluoromethane	104		104		70-130	0		20
1,2-Dichloroethane	94		90		70-130	4		20
1,1,1-Trichloroethane	106		100		70-130	6		20
Bromodichloromethane	97		90		70-130	7		20
trans-1,3-Dichloropropene	81		80		70-130	1		20
cis-1,3-Dichloropropene	100		93		70-130	7		20
1,1-Dichloropropene	102		97		70-130	5		20
Bromoform	86		84		70-130	2		20
1,1,2,2-Tetrachloroethane	87		82		70-130	6		20
Benzene	108		98		70-130	10		20
Toluene	91		92		70-130	1		20
Ethylbenzene	94		92		70-130	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG609393-1 WG609393-2								
Chloromethane	130		121		70-130	7		20
Bromomethane	95		96		70-130	1		20
Vinyl chloride	92		98		70-130	6		20
Chloroethane	87		90		70-130	3		20
1,1-Dichloroethene	103		101		70-130	2		20
trans-1,2-Dichloroethene	102		102		70-130	0		20
Trichloroethene	114		114		70-130	0		20
1,2-Dichlorobenzene	90		91		70-130	1		20
1,3-Dichlorobenzene	93		94		70-130	1		20
1,4-Dichlorobenzene	92		92		70-130	0		20
Methyl tert butyl ether	94		86		70-130	9		20
p/m-Xylene	99		96		70-130	3		20
o-Xylene	97		95		70-130	2		20
cis-1,2-Dichloroethene	113		110		70-130	3		20
Dibromomethane	106		94		70-130	12		20
1,2,3-Trichloropropane	82		78		70-130	5		20
Styrene	92		92		70-130	0		20
Dichlorodifluoromethane	126		112		70-130	12		20
Acetone	105		116		70-130	10		20
Carbon disulfide	90		89		70-130	1		20
2-Butanone	112		113		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG609393-1 WG609393-2								
4-Methyl-2-pentanone	97		88		70-130	10		20
2-Hexanone	88		84		70-130	5		20
Bromochloromethane	112		111		70-130	1		20
Tetrahydrofuran	100		89		70-130	12		20
2,2-Dichloropropane	97		96		70-130	1		20
1,2-Dibromoethane	93		92		70-130	1		20
1,3-Dichloropropane	85		84		70-130	1		20
1,1,1,2-Tetrachloroethane	99		92		70-130	7		20
Bromobenzene	96		96		70-130	0		20
n-Butylbenzene	90		88		70-130	2		20
sec-Butylbenzene	96		97		70-130	1		20
tert-Butylbenzene	100		97		70-130	3		20
o-Chlorotoluene	88		86		70-130	2		20
p-Chlorotoluene	87		85		70-130	2		20
1,2-Dibromo-3-chloropropane	80		60	Q	70-130	29	Q	20
Hexachlorobutadiene	95		102		70-130	7		20
Isopropylbenzene	101		97		70-130	4		20
p-Isopropyltoluene	97		97		70-130	0		20
Naphthalene	71		65	Q	70-130	9		20
n-Propylbenzene	92		92		70-130	0		20
1,2,3-Trichlorobenzene	75		73		70-130	3		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG609393-1 WG609393-2								
1,2,4-Trichlorobenzene	81		80		70-130	1		20
1,3,5-Trimethylbenzene	92		94		70-130	2		20
1,2,4-Trimethylbenzene	87		88		70-130	1		20
Ethyl ether	92		80		70-130	14		20
Isopropyl Ether	98		91		70-130	7		20
Ethyl-Tert-Butyl-Ether	94		87		70-130	8		20
Tertiary-Amyl Methyl Ether	90		84		70-130	7		20
tert-Butyl Alcohol	107		94		70-130	13		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	88		80		70-130
Toluene-d8	88		91		70-130
4-Bromofluorobenzene	89		94		70-130
Dibromofluoromethane	100		101		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG608574-3 QC Sample: L1308665-01 Client ID: MS Sample												
1,2-Dibromoethane	ND	0.253	0.327	129		-	-		70-130	-		20

SEMIVOLATILES

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

SAMPLE RESULTS

Lab ID: L1308739-01
 Client ID: TAILRACE-RGP
 Sample Location: COLRAIN, MA
 Matrix: Water
 Analytical Method: 97,8270D
 Analytical Date: 05/21/13 09:43
 Analyst: RC

Date Collected: 05/15/13 10:50
 Date Received: 05/15/13
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 05/16/13 21:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

SAMPLE RESULTS

Lab ID: L1308739-01
 Client ID: TAILRACE-RGP
 Sample Location: COLRAIN, MA

Date Collected: 05/15/13 10:50
 Date Received: 05/15/13
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP Semivolatile Organics - Westborough Lab

Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	35		15-110
Phenol-d6	25		15-110
Nitrobenzene-d5	59		30-130
2-Fluorobiphenyl	59		30-130
2,4,6-Tribromophenol	50		15-110
4-Terphenyl-d14	67		30-130

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

SAMPLE RESULTS

Lab ID: L1308739-01
 Client ID: TAILRACE-RGP
 Sample Location: COLRAIN, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 05/17/13 15:43
 Analyst: AS

Date Collected: 05/15/13 10:50
 Date Received: 05/15/13
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 05/16/13 21:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.20	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	ND		ug/l	0.20	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	0.20	--	1
Benzo(a)anthracene	ND		ug/l	0.20	--	1
Benzo(a)pyrene	ND		ug/l	0.20	--	1
Benzo(b)fluoranthene	ND		ug/l	0.20	--	1
Benzo(k)fluoranthene	ND		ug/l	0.20	--	1
Chrysene	ND		ug/l	0.20	--	1
Acenaphthylene	ND		ug/l	0.20	--	1
Anthracene	ND		ug/l	0.20	--	1
Benzo(ghi)perylene	ND		ug/l	0.20	--	1
Fluorene	ND		ug/l	0.20	--	1
Phenanthrene	ND		ug/l	0.20	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--	1
Pyrene	ND		ug/l	0.20	--	1
2-Methylnaphthalene	ND		ug/l	0.20	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	41		15-110
Phenol-d6	30		15-110
Nitrobenzene-d5	69		30-130
2-Fluorobiphenyl	63		30-130
2,4,6-Tribromophenol	69		15-110
4-Terphenyl-d14	72		30-130



Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D
Analytical Date: 05/19/13 17:29
Analyst: RC

Extraction Method: EPA 3510C
Extraction Date: 05/16/13 21:25

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01 Batch: WG608698-1					
Acenaphthene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--
Hexachlorobenzene	ND		ug/l	2.0	--
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--
2-Chloronaphthalene	ND		ug/l	2.0	--
1,2-Dichlorobenzene	ND		ug/l	2.0	--
1,3-Dichlorobenzene	ND		ug/l	2.0	--
1,4-Dichlorobenzene	ND		ug/l	2.0	--
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--
2,4-Dinitrotoluene	ND		ug/l	5.0	--
2,6-Dinitrotoluene	ND		ug/l	5.0	--
Azobenzene	ND		ug/l	2.0	--
Fluoranthene	ND		ug/l	2.0	--
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--
Hexachlorobutadiene	ND		ug/l	2.0	--
Hexachloroethane	ND		ug/l	2.0	--
Isophorone	ND		ug/l	5.0	--
Naphthalene	ND		ug/l	2.0	--
Nitrobenzene	ND		ug/l	2.0	--
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--
Benzo(a)anthracene	ND		ug/l	2.0	--
Benzo(a)pyrene	ND		ug/l	2.0	--
Benzo(b)fluoranthene	ND		ug/l	2.0	--
Benzo(k)fluoranthene	ND		ug/l	2.0	--



Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D
Analytical Date: 05/19/13 17:29
Analyst: RC

Extraction Method: EPA 3510C
Extraction Date: 05/16/13 21:25

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01 Batch: WG608698-1					
Chrysene	ND		ug/l	2.0	--
Acenaphthylene	ND		ug/l	2.0	--
Anthracene	ND		ug/l	2.0	--
Benzo(ghi)perylene	ND		ug/l	2.0	--
Fluorene	ND		ug/l	2.0	--
Phenanthrene	ND		ug/l	2.0	--
Dibenzo(a,h)anthracene	ND		ug/l	2.0	--
Indeno(1,2,3-cd)Pyrene	ND		ug/l	2.0	--
Pyrene	ND		ug/l	2.0	--
Aniline	ND		ug/l	2.0	--
4-Chloroaniline	ND		ug/l	5.0	--
Dibenzofuran	ND		ug/l	2.0	--
2-Methylnaphthalene	ND		ug/l	2.0	--
Acetophenone	ND		ug/l	5.0	--
2,4,6-Trichlorophenol	ND		ug/l	5.0	--
2-Chlorophenol	ND		ug/l	2.0	--
2,4-Dichlorophenol	ND		ug/l	5.0	--
2,4-Dimethylphenol	ND		ug/l	5.0	--
2-Nitrophenol	ND		ug/l	10	--
4-Nitrophenol	ND		ug/l	10	--
2,4-Dinitrophenol	ND		ug/l	20	--
Pentachlorophenol	ND		ug/l	10	--
Phenol	ND		ug/l	5.0	--
2-Methylphenol	ND		ug/l	5.0	--
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--
2,4,5-Trichlorophenol	ND		ug/l	5.0	--

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D
Analytical Date: 05/19/13 17:29
Analyst: RC

Extraction Method: EPA 3510C
Extraction Date: 05/16/13 21:25

Parameter	Result	Qualifier	Units	RL	MDL
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MCP Semivolatile Organics - Westborough Lab for sample(s): 01 Batch: WG608698-1

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	38		15-110
Phenol-d6	24		15-110
Nitrobenzene-d5	51		30-130
2-Fluorobiphenyl	65		30-130
2,4,6-Tribromophenol	79		15-110
4-Terphenyl-d14	87		30-130

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 05/17/13 14:31
Analyst: AS

Extraction Method: EPA 3510C
Extraction Date: 05/16/13 21:24

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 01 Batch: WG608701-1					
Acenaphthene	ND		ug/l	0.20	--
2-Chloronaphthalene	ND		ug/l	0.20	--
Fluoranthene	ND		ug/l	0.20	--
Hexachlorobutadiene	ND		ug/l	0.50	--
Naphthalene	ND		ug/l	0.20	--
Benzo(a)anthracene	ND		ug/l	0.20	--
Benzo(a)pyrene	ND		ug/l	0.20	--
Benzo(b)fluoranthene	ND		ug/l	0.20	--
Benzo(k)fluoranthene	ND		ug/l	0.20	--
Chrysene	ND		ug/l	0.20	--
Acenaphthylene	ND		ug/l	0.20	--
Anthracene	ND		ug/l	0.20	--
Benzo(ghi)perylene	ND		ug/l	0.20	--
Fluorene	ND		ug/l	0.20	--
Phenanthrene	ND		ug/l	0.20	--
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--
Pyrene	ND		ug/l	0.20	--
2-Methylnaphthalene	ND		ug/l	0.20	--
Pentachlorophenol	ND		ug/l	0.80	--
Hexachlorobenzene	ND		ug/l	0.80	--
Hexachloroethane	ND		ug/l	0.80	--

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 05/17/13 14:31
Analyst: AS

Extraction Method: EPA 3510C
Extraction Date: 05/16/13 21:24

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 01 Batch: WG608701-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	40		15-110
Phenol-d6	27		15-110
Nitrobenzene-d5	66		30-130
2-Fluorobiphenyl	55		30-130
2,4,6-Tribromophenol	68		15-110
4-Terphenyl-d14	75		30-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: AF & F

Project Number: 2112.04

Lab Number: L1308739

Report Date: 05/22/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG608698-2 WG608698-3								
Acenaphthene	76		79		40-140	4		20
1,2,4-Trichlorobenzene	65		68		40-140	5		20
Hexachlorobenzene	107		109		40-140	2		20
Bis(2-chloroethyl)ether	64		68		40-140	6		20
2-Chloronaphthalene	81		84		40-140	4		20
1,2-Dichlorobenzene	57		61		40-140	7		20
1,3-Dichlorobenzene	53		57		40-140	7		20
1,4-Dichlorobenzene	54		59		40-140	9		20
3,3'-Dichlorobenzidine	84		76		40-140	10		20
2,4-Dinitrotoluene	103		104		40-140	1		20
2,6-Dinitrotoluene	104		107		40-140	3		20
Azobenzene	72		74		40-140	3		20
Fluoranthene	95		98		40-140	3		20
4-Bromophenyl phenyl ether	105		107		40-140	2		20
Bis(2-chloroisopropyl)ether	49		51		40-140	4		20
Bis(2-chloroethoxy)methane	70		74		40-140	6		20
Hexachlorobutadiene	63		67		40-140	6		20
Hexachloroethane	44		48		40-140	9		20
Isophorone	70		73		40-140	4		20
Naphthalene	66		69		40-140	4		20
Nitrobenzene	68		70		40-140	3		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG608698-2 WG608698-3								
Bis(2-Ethylhexyl)phthalate	82		84		40-140	2		20
Butyl benzyl phthalate	89		89		40-140	0		20
Di-n-butylphthalate	86		87		40-140	1		20
Di-n-octylphthalate	92		92		40-140	0		20
Diethyl phthalate	90		91		40-140	1		20
Dimethyl phthalate	90		94		40-140	4		20
Benzo(a)anthracene	91		92		40-140	1		20
Benzo(a)pyrene	89		93		40-140	4		20
Benzo(b)fluoranthene	87		97		40-140	11		20
Benzo(k)fluoranthene	93		90		40-140	3		20
Chrysene	90		95		40-140	5		20
Acenaphthylene	87		90		40-140	3		20
Anthracene	92		94		40-140	2		20
Benzo(ghi)perylene	97		97		40-140	0		20
Fluorene	87		91		40-140	4		20
Phenanthrene	85		89		40-140	5		20
Dibenzo(a,h)anthracene	98		99		40-140	1		20
Indeno(1,2,3-cd)Pyrene	97		98		40-140	1		20
Pyrene	94		96		40-140	2		20
Aniline	36	Q	36	Q	40-140	0		20
4-Chloroaniline	50		46		40-140	8		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG608698-2 WG608698-3								
Dibenzofuran	84		88		40-140	5		20
2-Methylnaphthalene	72		74		40-140	3		20
Acetophenone	71		74		40-140	4		20
2,4,6-Trichlorophenol	101		102		30-130	1		20
2-Chlorophenol	73		78		30-130	7		20
2,4-Dichlorophenol	91		95		30-130	4		20
2,4-Dimethylphenol	62		78		30-130	23	Q	20
2-Nitrophenol	84		88		30-130	5		20
4-Nitrophenol	56		59		30-130	5		20
2,4-Dinitrophenol	103		88		30-130	16		20
Pentachlorophenol	83		79		30-130	5		20
Phenol	37		40		30-130	8		20
2-Methylphenol	68		74		30-130	8		20
3-Methylphenol/4-Methylphenol	65		71		30-130	9		20
2,4,5-Trichlorophenol	101		104		30-130	3		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG608698-2 WG608698-3

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	51		57		15-110
Phenol-d6	37		41		15-110
Nitrobenzene-d5	69		72		30-130
2-Fluorobiphenyl	90		93		30-130
2,4,6-Tribromophenol	113	Q	118	Q	15-110
4-Terphenyl-d14	103		105		30-130

MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 01 Batch: WG608701-2 WG608701-3

Acenaphthene	72		70		40-140	3	20
2-Chloronaphthalene	69		67		40-140	3	20
Fluoranthene	92		92		40-140	0	20
Hexachlorobutadiene	59		59		40-140	0	20
Naphthalene	69		68		40-140	1	20
Benzo(a)anthracene	97		98		40-140	1	20
Benzo(a)pyrene	74		74		40-140	0	20
Benzo(b)fluoranthene	85		80		40-140	6	20
Benzo(k)fluoranthene	94		103		40-140	9	20

Lab Control Sample Analysis

Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 01 Batch: WG608701-2 WG608701-3								
Chrysene	82		81		40-140	1		20
Acenaphthylene	75		74		40-140	1		20
Anthracene	83		82		40-140	1		20
Benzo(ghi)perylene	94		88		40-140	7		20
Fluorene	80		80		40-140	0		20
Phenanthrene	76		74		40-140	3		20
Dibenzo(a,h)anthracene	95		90		40-140	5		20
Indeno(1,2,3-cd)Pyrene	97		91		40-140	6		20
Pyrene	86		86		40-140	0		20
2-Methylnaphthalene	68		67		40-140	1		20
Pentachlorophenol	84		62		30-130	30	Q	20
Hexachlorobenzene	81		78		40-140	4		20
Hexachloroethane	60		63		40-140	5		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	51		51		15-110
Phenol-d6	36		33		15-110
Nitrobenzene-d5	79		76		30-130
2-Fluorobiphenyl	71		71		30-130
2,4,6-Tribromophenol	84		82		15-110
4-Terphenyl-d14	87		87		30-130

PCBS

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

SAMPLE RESULTS

Lab ID: L1308739-01
 Client ID: TAILRACE-RGP
 Sample Location: COLRAIN, MA
 Matrix: Water
 Analytical Method: 5,608
 Analytical Date: 05/21/13 17:25
 Analyst: JT

Date Collected: 05/15/13 10:50
 Date Received: 05/15/13
 Field Prep: Not Specified
 Extraction Method: EPA 608
 Extraction Date: 05/19/13 10:10
 Cleanup Method1: EPA 3665A
 Cleanup Date1: 05/20/13
 Cleanup Method2: EPA 3660B
 Cleanup Date2: 05/20/13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1016	ND		ug/l	0.250	--	1
Aroclor 1221	ND		ug/l	0.250	--	1
Aroclor 1232	ND		ug/l	0.250	--	1
Aroclor 1242	ND		ug/l	0.250	--	1
Aroclor 1248	ND		ug/l	0.250	--	1
Aroclor 1254	ND		ug/l	0.250	--	1
Aroclor 1260	ND		ug/l	0.250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	78		30-150
Decachlorobiphenyl	78		30-150

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,608
Analytical Date: 05/21/13 16:33
Analyst: JT

Extraction Method: EPA 608
Extraction Date: 05/19/13 10:10
Cleanup Method1: EPA 3665A
Cleanup Date1: 05/20/13
Cleanup Method2: EPA 3660B
Cleanup Date2: 05/20/13

Parameter	Result	Qualifier	Units	RL	MDL
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG609129-1					
Aroclor 1016	ND		ug/l	0.250	--
Aroclor 1221	ND		ug/l	0.250	--
Aroclor 1232	ND		ug/l	0.250	--
Aroclor 1242	ND		ug/l	0.250	--
Aroclor 1248	ND		ug/l	0.250	--
Aroclor 1254	ND		ug/l	0.250	--
Aroclor 1260	ND		ug/l	0.250	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	71		30-150
Decachlorobiphenyl	64		30-150

Matrix Spike Analysis

Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG609129-3 QC Sample: L1308739-01 Client ID: TAILRACE-RGP												
Aroclor 1016	ND	2.13	2.07	97		-	-		40-140	-		50
Aroclor 1260	ND	2.13	1.64	77		-	-		40-140	-		50

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
2,4,5,6-Tetrachloro-m-xylene	84				30-150
Decachlorobiphenyl	70				30-150

Lab Control Sample Analysis Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG609129-2								
Aroclor 1016	93		-		40-140	-		50
Aroclor 1260	89		-		40-140	-		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	70				30-150
Decachlorobiphenyl	79				30-150

Lab Duplicate Analysis Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG609129-4 QC Sample: L1308739-01 Client ID: TAILRACE-RGP						
Aroclor 1016	ND	ND	ug/l	NC		50
Aroclor 1221	ND	ND	ug/l	NC		50
Aroclor 1232	ND	ND	ug/l	NC		50
Aroclor 1242	ND	ND	ug/l	NC		50
Aroclor 1248	ND	ND	ug/l	NC		50
Aroclor 1254	ND	ND	ug/l	NC		50
Aroclor 1260	ND	ND	ug/l	NC		50

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	78		90		30-150
Decachlorobiphenyl	78		75		30-150

METALS

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

SAMPLE RESULTS

Lab ID: L1308739-01
Client ID: TAILRACE-RGP
Sample Location: COLRAIN, MA
Matrix: Water

Date Collected: 05/15/13 10:50
Date Received: 05/15/13
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Antimony, Total	0.0008		mg/l	0.0005	--	1	05/16/13 09:10	05/17/13 16:19	EPA 3005A	97,6020A	AK
Arsenic, Total	ND		mg/l	0.0005	--	1	05/16/13 09:10	05/17/13 16:19	EPA 3005A	97,6020A	AK
Cadmium, Total	ND		mg/l	0.0002	--	1	05/16/13 09:10	05/17/13 16:19	EPA 3005A	97,6020A	AK
Chromium, Total	ND		mg/l	0.0010	--	1	05/16/13 09:10	05/17/13 16:19	EPA 3005A	97,6020A	AK
Copper, Total	0.0038		mg/l	0.0015	--	1	05/16/13 09:10	05/17/13 16:19	EPA 3005A	97,6020A	AK
Iron, Total	0.31		mg/l	0.05	--	1	05/16/13 09:10	05/18/13 15:06	EPA 3005A	97,6010C	KL
Lead, Total	0.0016		mg/l	0.0005	--	1	05/16/13 09:10	05/17/13 16:19	EPA 3005A	97,6020A	AK
Mercury, Total	ND		mg/l	0.0002	--	1	05/17/13 10:03	05/20/13 10:09	EPA 7470A	97,7470A	JH
Nickel, Total	0.0258		mg/l	0.0010	--	1	05/16/13 09:10	05/17/13 16:19	EPA 3005A	97,6020A	AK
Selenium, Total	0.001		mg/l	0.001	--	1	05/16/13 09:10	05/17/13 16:19	EPA 3005A	97,6020A	AK
Silver, Total	ND		mg/l	0.0004	--	1	05/16/13 09:10	05/17/13 16:19	EPA 3005A	97,6020A	AK
Zinc, Total	0.1028		mg/l	0.0050	--	1	05/16/13 09:10	05/17/13 16:19	EPA 3005A	97,6020A	AK



Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Westborough Lab for sample(s): 01 Batch: WG608406-1										
Iron, Total	ND		mg/l	0.05	--	1	05/16/13 09:10	05/18/13 14:08	97,6010C	KL

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Westborough Lab for sample(s): 01 Batch: WG608407-1										
Antimony, Total	ND		mg/l	0.0005	--	1	05/16/13 09:10	05/17/13 15:58	97,6020A	AK
Arsenic, Total	ND		mg/l	0.0005	--	1	05/16/13 09:10	05/17/13 15:58	97,6020A	AK
Cadmium, Total	ND		mg/l	0.0002	--	1	05/16/13 09:10	05/17/13 15:58	97,6020A	AK
Chromium, Total	ND		mg/l	0.0010	--	1	05/16/13 09:10	05/17/13 15:58	97,6020A	AK
Copper, Total	ND		mg/l	0.0015	--	1	05/16/13 09:10	05/17/13 15:58	97,6020A	AK
Lead, Total	ND		mg/l	0.0005	--	1	05/16/13 09:10	05/17/13 15:58	97,6020A	AK
Nickel, Total	ND		mg/l	0.0010	--	1	05/16/13 09:10	05/17/13 15:58	97,6020A	AK
Selenium, Total	ND		mg/l	0.001	--	1	05/16/13 09:10	05/17/13 15:58	97,6020A	AK
Silver, Total	ND		mg/l	0.0004	--	1	05/16/13 09:10	05/17/13 15:58	97,6020A	AK
Zinc, Total	ND		mg/l	0.0050	--	1	05/16/13 09:10	05/17/13 15:58	97,6020A	AK

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Westborough Lab for sample(s): 01 Batch: WG608456-1										
Mercury, Total	ND		mg/l	0.0002	--	1	05/17/13 10:03	05/20/13 09:58	97,7470A	JH

Prep Information

Digestion Method: EPA 7470A



Lab Control Sample Analysis

Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Westborough Lab Associated sample(s): 01 Batch: WG608406-2 WG608406-3								
Iron, Total	110		110		80-120	0		20
MCP Total Metals - Westborough Lab Associated sample(s): 01 Batch: WG608407-2 WG608407-3								
Antimony, Total	90		90		80-120	0		20
Arsenic, Total	102		104		80-120	2		20
Cadmium, Total	111		113		80-120	2		20
Chromium, Total	84		84		80-120	0		20
Copper, Total	91		91		80-120	0		20
Lead, Total	95		97		80-120	2		20
Nickel, Total	94		94		80-120	0		20
Selenium, Total	106		111		80-120	5		20
Silver, Total	95		93		80-120	2		20
Zinc, Total	108		106		80-120	2		20
MCP Total Metals - Westborough Lab Associated sample(s): 01 Batch: WG608456-2 WG608456-3								
Mercury, Total	108		104		80-120	4		20

INORGANICS & MISCELLANEOUS

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

SAMPLE RESULTS

Lab ID: L1308739-01
Client ID: TAILRACE-RGP
Sample Location: COLRAIN, MA
Matrix: Water

Date Collected: 05/15/13 10:50
Date Received: 05/15/13
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	--	1	05/17/13 10:40	05/17/13 14:26	97,9014	JO
Chromium, Hexavalent	ND		mg/l	0.010	--	1	05/15/13 19:30	05/15/13 22:03	97,7196A	EL
General Chemistry - Westborough Lab										
Solids, Total Suspended	45.		mg/l	5.0	NA	1	-	05/16/13 14:20	30,2540D	DW
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	05/15/13 22:47	30,4500CL-D	EL
TPH	ND		mg/l	4.00	--	1	05/16/13 07:30	05/17/13 12:30	74,1664A	ML
Phenolics, Total	0.050		mg/l	0.030	--	1	05/16/13 16:00	05/16/13 18:21	4,420.1	MP
Anions by Ion Chromatography - Westborough Lab										
Chloride	46.0		mg/l	5.00	--	10	-	05/17/13 18:11	44,300.0	AU



Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab for sample(s): 01 Batch: WG608325-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	05/15/13 19:30	05/15/13 21:58	97,7196A	EL
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG608327-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	05/15/13 22:47	30,4500CL-D	EL
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG608388-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	05/16/13 14:20	30,2540D	DW
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG608447-1										
Phenolics, Total	ND		mg/l	0.030	--	1	05/16/13 16:00	05/16/13 18:19	4,420.1	MP
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG608508-1										
TPH	ND		mg/l	4.00	--	1	05/16/13 07:30	05/17/13 12:30	74,1664A	ML
MCP General Chemistry - Westborough Lab for sample(s): 01 Batch: WG608840-1										
Cyanide, Total	ND		mg/l	0.005	--	1	05/17/13 10:40	05/17/13 14:21	97,9014	JO
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG609380-1										
Chloride	ND		mg/l	0.500	--	1	-	05/17/13 16:59	44,300.0	AU

Lab Control Sample Analysis

Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG608325-2 WG608325-3								
Chromium, Hexavalent	104		104		80-120	0		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG608327-2								
Chlorine, Total Residual	97		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG608447-2								
Phenolics, Total	101		-		82-111	-		12
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG608508-2								
TPH	85		-		64-132	-		34
MCP General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG608840-3 WG608840-2								
Cyanide, Total	102		102		80-120	0		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG609380-2								
Chloride	93		-		90-110	-		

Matrix Spike Analysis Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG608447-4 QC Sample: L1308749-03 Client ID: MS Sample												
Phenolics, Total	ND	0.8	0.85	106		-	-		77-124	-		12
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG608508-4 QC Sample: L1308665-01 Client ID: MS Sample												
TPH	ND	20.2	16.5	82		-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG609380-3 QC Sample: L1308749-03 Client ID: MS Sample												
Chloride	1.08	4	5.18	102		-	-		40-151	-		18

Lab Duplicate Analysis Batch Quality Control

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG608327-3 QC Sample: L1308739-01 Client ID: TAILRACE-RGP						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG608388-2 QC Sample: L1308409-01 Client ID: DUP Sample						
Solids, Total Suspended	34	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG608447-3 QC Sample: L1308749-02 Client ID: DUP Sample						
Phenolics, Total	ND	ND	mg/l	NC		12
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG608508-3 QC Sample: L1308739-01 Client ID: TAILRACE-RGP						
TPH	ND	ND	mg/l	NC		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG609380-4 QC Sample: L1308749-03 Client ID: DUP Sample						
Chloride	1.08	1.10	mg/l	2		18

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1308739-01A	Vial HCl preserved	A	N/A	5.5	Y	Absent	MCP-8260-10(14)
L1308739-01B	Vial HCl preserved	A	N/A	5.5	Y	Absent	MCP-8260-10(14)
L1308739-01D	Vial HCl preserved	A	N/A	5.5	Y	Absent	MCP-8260SIM-10(14)
L1308739-01E	Vial HCl preserved	A	N/A	5.5	Y	Absent	MCP-8260SIM-10(14)
L1308739-01F	Vial HCl preserved	A	N/A	5.5	Y	Absent	MCP-8260SIM-10(14)
L1308739-01G	Vial Na2S2O3 preserved	A	N/A	5.5	Y	Absent	504(14)
L1308739-01H	Vial Na2S2O3 preserved	A	N/A	5.5	Y	Absent	504(14)
L1308739-01I	Vial Na2S2O3 preserved	A	N/A	5.5	Y	Absent	504(14)
L1308739-01J	Amber 1000ml unpreserved	A	7	5.5	Y	Absent	MCP-8270SIM-10(7)
L1308739-01K	Amber 1000ml unpreserved	A	7	5.5	Y	Absent	MCP-8270SIM-10(7)
L1308739-01L	Amber 1000ml Na2S2O3	A	7	5.5	Y	Absent	PCB-608(7)
L1308739-01M	Amber 1000ml Na2S2O3	A	7	5.5	Y	Absent	PCB-608(7)
L1308739-01N	Amber 1000ml HCl preserved	A	N/A	5.5	Y	Absent	TPH-1664(28)
L1308739-01O	Amber 1000ml HCl preserved	A	N/A	5.5	Y	Absent	TPH-1664(28)
L1308739-01P	Amber 1000ml H2SO4 preserved	A	<2	5.5	Y	Absent	TPHENOL-420(28)
L1308739-01Q	Plastic 1000ml unpreserved	A	7	5.5	Y	Absent	TSS-2540(7)
L1308739-01R	Plastic 500ml unpreserved	A	7	5.5	Y	Absent	CL-300(28),TRC-4500(1)
L1308739-01S	Plastic 500ml unpreserved	A	7	5.5	Y	Absent	MCP-HEXCR7196-10(1)
L1308739-01T	Plastic 250ml NaOH preserved	A	>12	5.5	Y	Absent	MCP-TCN9014-10(14)
L1308739-01U	Plastic 250ml HNO3 preserved	A	<2	5.5	Y	Absent	MCP-FE-6010T-10(180),MCP-CR-6020T-10(180),MCP-7470T-10(28),MCP-CU-6020T-10(180),MCP-ZN-6020T-10(180),MCP-AS-6020T-10(180),MCP-NI-6020T-10(180),MCP-AG-6020T-10(180),MCP-CD-6020T-10(180),MCP-SE-6020T-10(180),MCP-PB-6020T-10(180),MCP-SB-6020T-10(180)
L1308739-01X	Amber 1000ml unpreserved	A	7	5.5	Y	Absent	MCP-8270-10(7)

*Values in parentheses indicate holding time in days



Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1308739-01Y	Amber 1000ml unpreserved	A	7	5.5	Y	Absent	MCP-8270-10(7)
L1308739-01Z	Amber 1000ml H2SO4 preserved	A	<2	5.5	Y	Absent	TPHENOL-420(28)
L1308739-02A	Vial HCl preserved	A	N/A	5.5	Y	Absent	HOLD(14)
L1308739-02B	Vial HCl preserved	A	N/A	5.5	Y	Absent	HOLD(14)

Container Comments

L1308739-01Q

L1308739-01S

L1308739-01T

*Values in parentheses indicate holding time in days



Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
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.

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.

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 five times (5x) 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.
- 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 RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported

Report Format: Data Usability Report



Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

Data Qualifiers

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.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: AF & F
Project Number: 2112.04

Lab Number: L1308739
Report Date: 05/22/13

REFERENCES

- 4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.
- 5 Methods for the Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A, Part 136, 40 CFR (Code of Federal Regulations).
- 14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.
- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.
- 44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- 74 Method 1664, Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.
- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

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.



Certificate/Approval Program Summary

Last revised December 19, 2012 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. **NELAP Accredited Solid Waste/Soil.**

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Selenium, Silver, Sodium, Thallium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP) 504.1, Ethylene Dibromide (EDB) 504.1, 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223, Enumeration and P/A), E. Coli. – Colilert (SM9223, Enumeration and P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform-EC Medium (SM 9221E).

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), CT-Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), E. Coli – Colilert (SM9223 Enumeration), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E), Enterococcus - Enterolert.

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, CT-Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP (Silvex), Dalapon, Volatile Organics (SW 8260), Acid Extractables (Phenols) (SW 8270), Benzidines (SW 8270), Phthalates (SW 8270), Nitrosamines (SW 8270), Nitroaromatics & Cyclic Ketones (SW 8270), PAHs (SW 8270), Haloethers (SW 8270), Chlorinated Hydrocarbons (SW 8270).)

Maine Department of Human Services Certificate/Lab ID: 2009024.

Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 2540C, 4500CI-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500CI-D, 4500CI-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, 9010B, 9040B, 9030B, 7470A, 7196A, 2340B, EPA 200.7, 6010B, 6010C, 200.8, 6020, 245.1, 1311, 1312, 3005A, Enterolert, 9223B, 9222D. Organic Parameters: 608, 624, 625, 8081A, 8081B, 8082, 8082A, 8330, 8151A, 8260B, 8260C, 8270C, 8270D, 3510C, 3630C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Solid Waste/Soil (Inorganic Parameters: 9010B, 9012A, 9014, 9030B, 9040B, 9045C, 6010B, 6010C, 6020, 6020A, 7471A, 7471B, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260B, 8270C, 8270D, 8330, 8151A, 8081A, 8081B, 8082, 8082A, 3540C, 3546, 3580A, 3630C, 5030B, 5035.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.

Drinking Water (Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; Colilert/QT SM9223B; MF-SM9222D.)

Non-Potable Water (Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn); 245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: 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-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. *Microbiology Parameters:* (ColilertQT SM9223B; Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. *NELAP Accredited.*

Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. *Organic Parameters:* 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, SW-846 6010C, 6020A, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 350.2, 351.1, 353.2, 410.4, 420.1, 426C, 1664A, SW-846 9010B, 9010C, 9030, 9040B, 9040C, SM2120B, 2310B, 2320B, 2340B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 4500SO3-B, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D, 3060A. *Organic Parameters:* SW-846 3510C, 3630C, 5030B, 8260C, 8270D, 8330, EPA 624, 625, 608, SW-846 8082A, 8081B, 8015C, 8151A, 8330, 8270D-SIM.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010C, 6020A, 7196A, 7471B, 1010, 1010A, 1030, 9010C, 9012B, 9014, 9030B, 9040C, 9045C, 9045D, 9050, 9065, 9251, 1311, 1312, 3005A, 3050B, 3060A. *Organic Parameters:* SW-846 3540C, 3546, 3050B, 3580A, 3620D, 3630C, 5030B, 5035, 8260C, 8270D, 8270D-SIM, 8330, 8151A, 8015B, 8015C, 8082A, 8081B.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. *NELAP Accredited.*

Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.1, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. *Organic Parameters:* EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500CI-E, EPA 300.0, SM2120B, 2340B, SM4500F-BC, EPA 200.7, 200.8, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM2520B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 7470A, 5540C, SM4500H-B, 4500SO3-B, SM3500Cr-D, 4500CN-CE, EPA 245.1, SW-846 9040B, 9040C, 3005A, 3015, EPA 6010B, 6010C, 6020, 6020A, 7196A, 3060A, SW-846 9010C, 9030B. *Organic Parameters:* SW-846 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8011, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 1,4-Dioxane by NJ Modified 8270, 8015B, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 6010C, 6020, 6020A, 7196A, 3060A, 9030B, 1010, 1010A, 1030, 1311, 1312, 3005A, 3050B, 7471A, 7471B, 9010C, 9012B, 9014, 9038, 9040B, 9040C, 9045C, 9045D, 9050A, 9065, 9251. *Organic Parameters:* SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3546, 3580A, 3620C, 3630C, 5030B, 5035L, 5035H, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. *NELAP Accredited.*

Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500NO3-F, 2540C, SM 2510B. *Organic Parameters:* EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6010C, 6020, 6020A, EPA 7196A, SM3500Cr-D, EPA 245.1, 7470A, SM2120B, LACHAT 10-204-00-1-A, 4500CN-CE, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 3015, 9010C, 9030B. *Organic Parameters:* EPA 624, 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 625, 608, 8081A, 8081B, 8151A, 8330, 8082, 8082A, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1010A, 1030, EPA 6010B, 6010C, 7196A, 7471A, 7471B, 9012B, 9014, 9065, 9050A, EPA 1311, 1312, 3005A, 3050B, 9010C, 9030B, 9040C, 9045D. *Organic Parameters:* EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8015B, 8015C, 8081A, 8081B, 8151A, 8330, 8082 8082A, 3540C,

3546, 3580A, 5030B, 5035A-H, 5035A-L.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. (Inorganic Parameters: SM2310B, 2320B, 4500Cl-E, 4500Cn-E, 9014, Lachat 10-204-00-1-X, 1010A, 1030, 4500NO₃-F, 353.2, 4500P-E, 4500SO₄-E, 300.0, 4500S-D, 5310B, 5310C, 6010C, 6020A, 200.7, 200.8, 3500Cr-B, 7196A, 245.1, 7470A, 7471B, 1311, 1312. Organic Parameters: 608, 8081B, 8082A, 624, 8260B, 625, 8270D, 8151A, 8015C, 504.1, MA-EPH, MA-VPH.)

Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters: Chloride EPA 300.0. Organic Parameters: 524.2)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. **NELAP Accredited.**

Drinking Water (Inorganic Parameters: 200.7, 200.8, 300.0, 332.0, 2120B, 2320B, 2510B, 2540C, 4500-CN-CE, 4500F-C, 4500H+-B, 4500NO₃-F, 5310C. Organic Parameters: EPA 524.2, 504.1)

Non-Potable Water (Inorganic Parameters: EPA 120.1, 1312, 3005A, 3015, 3060A, 200.7, 200.8, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P, BE, 245.1, 300.0, 350.1, 350.2, 351.1, 353.2, 420.1, 6010C, 6020A, 7196A, 7470A, 9030B, 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 3500Cr-D, 426C, 4500CN-CE, 4500Cl-E, 4500F-B, 4500F-C, 4500H+-B, 4500NH₃-H, 4500NO₂-B, 4500NO₃-F, 4500S-D, 4500SO₃-B, 5310BCD, 5540C, 9010C, 9040C. Organic Parameters: EPA 3510C, 3630C, 5030B, 625, 624, 608, 8081B, 8082A, 8151A, 8260C, 8270D, 8270D-SIM, 8330, 8015C, NJ-EPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3005A, 3050B, 3060A, 6010C, 6020A, 7196A, 7471B, 9010C, 9012B, 9014, 9040B, 9045D, 9050A, 9065, SM 4500NH₃-BH, 9030B, 9038, 9251. Organic Parameters: 3540C, 3546, 3580A, 3620C, 3630C, 5035, 8015C, 8081B, 8082A, 8151A, 8260C, 8270D, 8270D-SIM, 8330, NJ-EPH.)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. **NELAP Accredited via NJ-DEP.**

Refer to MA-DEP Certificate for Potable and Non-Potable Water.

Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commission on Environmental Quality Certificate/Lab ID: T104704476. **NELAP Accredited.**

Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH₃-H, 4500NO₂B, 4500P-E, 4500 S²⁻ D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Virginia Division of Consolidated Laboratory Services Certificate/Lab ID: 460195. **NELAP Accredited.**

Drinking Water (Inorganic Parameters: EPA 200.7, 200.8, 300.0, 2510B, 2120B, 2540C, 4500CN-CE, 245.2, 2320B, 4500F-C, 4500NO₃-F, 5310C. Organic Parameters: EPA 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 200.7, 200.8, 245.1, 300.0, 3005A, 3015, 1312, 6010B, 6010C, 3060A, 353.2, 420.1, 6020, 6020A, SM4500S-D, SM4500-CN-CE, Lachat 10-204-00-1-X, 7196A, 7470A, 9010B, 9040B, 2310B, 2320B, 2510B, 2540B, 2540C, 3500Cr-D, 426C, 4500Cl-E, 4500F-B, 4500F-C, 4500PE, 510AC, 5210B, 5310B 5310C, 5540C. Organic Parameters: EPA 3510C, 3630C, 5030B, 8260B, 608, 624, 625, 8081A, 8081B, 8082, 8082A, 8151A, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330,)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1010A, 1030, 3060A, 3050B, 1311, 1312, 6010B, 6010C, 6020, , 7196A, 7471A, 7471B, 6020A, 9030B, 9010B, 9012A, 9014 9040B, 9045C, 9050A, 9065. Organic Parameters: EPA 5030B, 5035, 3540C, 3546, 355B0, 3580A, 3630C, 6020A, 8260B, 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330.)

Department of Defense, L-A-B Certificate/Lab ID: L2217.

Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6010C, 6020, 6020A, 245.1, 245.2, 7470A, 9040B, 9010B, 180.1. 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO₃-F, 4500CL-D, 5220D, 5310C, 2130B, 2320B, 2540C, 3005A, 3015, 9010B, 9056, 7196A, 3500-Cr-D. Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330A, 8082, 8082A, 8081A, 8081B, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 6010C, 7471A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 9012A, 9040B, 9045C, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8260C, 8270C,

8270D, 8270C-SIM, 8270D-SIM, 8330A/B-prep, 8082, 8082A, 8081A, 8081B, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:

EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methyl naphthalenes, Total Dimethyl naphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO₂ in a soil matrix, NO₃ in a soil matrix. **EPA 9071:** Total Petroleum Hydrocarbons, Oil & Grease.

7A
Volatile Organics CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1308739

Instrument ID: Jack.i Calibration Date: 20-MAY-2013 Time: 06:04

Lab File ID: 0520A04 Init. Calib. Date(s): 03-MAY-2 03-MAY-2

Sample No: 8260 CCAL Init. Calib. Times : 13:14 16:31

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
=====	=====	=====	=====	=====	=====	
dichlorodifluoromethane_____	.55091	.69208	.1	26	20	F
chloromethane_____	.45768	.59589	.1	30	20	F
vinyl chloride_____	.85256	.78229	.1	-8	20	
bromomethane_____	.25973	.2473	.1	-5	20	
chloroethane_____	.48219	.41975	.1	-13	20	
trichlorofluoromethane_____	.82962	.86366	.1	4	20	
ethyl ether_____	.28649	.26356	.05	-8	20	
1,1,-dichloroethene_____	.5153	.53048	.1	3	20	
carbon disulfide_____	1.5127	1.367	.1	-10	20	
methylene chloride_____	.57135	.54895	.1	-4	20	
acetone_____	100	105	.1	5	20	
trans-1,2-dichloroethene_____	.56181	.57098	.1	2	20	
methyl tert butyl ether_____	1.2427	1.1633	.1	-6	20	
tert butyl alcohol_____	.04223	.0452	.05	7	20	F
Diisopropyl Ether_____	2.3961	2.3435	.01	-2	20	
1,1-dichloroethane_____	1.3148	1.4296	.2	9	20	
Ethyl-Tert-Butyl-Ether_____	2.0632	1.9445	.05	-6	20	
cis-1,2-dichloroethene_____	.63289	.71773	.1	13	20	
2,2-dichloropropane_____	.89218	.86492	.05	-3	20	
bromochloromethane_____	.29281	.32775	.05	12	20	
chloroform_____	1.0308	1.0751	.2	4	20	
carbontetrachloride_____	.84619	.88134	.1	4	20	
tetrahydrofuran_____	.18167	.18267	.05	1	20	
1,1,1-trichloroethane_____	.9432	.99894	.1	6	20	
1,1-dichloropropene_____	.77384	.7888	.05	2	20	
2-butanone_____	100	112	.1	12	20	
benzene_____	2.2068	2.3798	.5	8	20	
Tertiary-Amyl Methyl Ether_____	1.3408	1.2093	.05	-10	20	
1,2-dichloroethane_____	.87648	.82415	.1	-6	20	
trichloroethene_____	.49617	.56424	.2	14	20	
dibromomethane_____	.32311	.34389	.05	6	20	
1,2-dichloropropane_____	.69282	.73829	.1	7	20	
bromodichloromethane_____	.77011	.74758	.2	-3	20	
cis-1,3-dichloropropene_____	.88652	.88591	.2	0	20	
toluene_____	1.6673	1.5229	.4	-9	20	
tetrachloroethene_____	.64759	.72971	.2	13	20	
4-methyl-2-pentanone_____	.19401	.18812	.1	-3	20	
trans-1,3-dichloropropene_____	.87667	.71122	.1	-19	20	

FORM VII MCP-8260-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1308739

Instrument ID: Jack.i Calibration Date: 20-MAY-2013 Time: 06:04

Lab File ID: 0520A04 Init. Calib. Date(s): 03-MAY-2 03-MAY-2

Sample No: 8260 CCAL Init. Calib. Times : 13:14 16:31

Compound	RRF	RRF	MIN RRF	%D	MAX %D
=====	=====	=====	=====	=====	=====
1,1,2-trichloroethane	.39138	.34884	.1	-11	20
chlorodibromomethane	.57938	.55082	.1	-5	20
1,3-dichloropropane	.88503	.75557	.05	-15	20
1,2-dibromoethane	.5106	.47667	.1	-7	20
2-hexanone	.41537	.36382	.1	-12	20
chlorobenzene	1.7681	1.7558	.5	-1	20
ethyl benzene	3.0563	2.8654	.1	-6	20
1,1,1,2-tetrachloroethane	.63756	.62965	.05	-1	20
p/m xylene	1.1988	1.1860	.1	-1	20
o xylene	1.1759	1.1392	.3	-3	20
bromoform	.71962	.62252	.1	-13	20
styrene	1.9932	1.8326	.3	-8	20
isopropylbenzene	2.7474	2.7720	.1	1	20
bromobenzene	1.4505	1.3915	.05	-4	20
n-propylbenzene	5.7313	5.2473	.05	-8	20
1,1,2,2,-tetrachloroethane	1.1317	.98533	.3	-13	20
2-chlorotoluene	4.3220	3.7874	.05	-12	20
1,2,3-trichloropropane	.95351	.78336	.05	-18	20
1,3,5-trimethylbenzene	4.2212	3.8673	.05	-8	20
4-chlorotoluene	4.0671	3.5389	.05	-13	20
tert-butylbenzene	3.3313	3.3218	.05	0	20
1,2,4-trimethylbenzene	4.3877	3.8174	.05	-13	20
sec-butylbenzene	4.4866	4.3109	.01	-4	20
p-isopropyltoluene	3.8210	3.6904	.05	-3	20
1,3-dichlorobenzene	2.5705	2.3809	.6	-7	20
1,4-dichlorobenzene	2.6275	2.4256	.5	-8	20
n-butylbenzene	3.0493	2.7432	.05	-10	20
1,2-dichlorobenzene	2.4940	2.2521	.4	-10	20
1,2-dibromo-3-chloropropane	.1956	.15753	.05	-19	20
1,2,4-trichlorobenzene	1.1733	.95366	.2	-19	20
hexachlorobutadiene	.4749	.4524	.05	-5	20
naphthalene	2.4669	1.7509	.05	-29	20
1,2,3-trichlorobenzene	.94942	.71376	.05	-25	20
=====	=====	=====	=====	=====	=====
dibromofluoromethane	.27945	.27939	.05	0	20
1,2-dichloroethane-d4	.33825	.29645	.05	-12	20
toluene-d8	1.1161	.9808	.01	-12	20
4-bromofluorobenzene	.91879	.81797	.05	-11	20

F
F

FORM VII MCP-8260-10

Report Prepared for:

Mary Davis
Alpha Analytical
8 Walkup Drive
Westboro MA 01581

**REPORT OF
LABORATORY
ANALYSIS FOR
PCDD/PCDF**

Report Prepared Date:

July 22, 2013

Report Information:

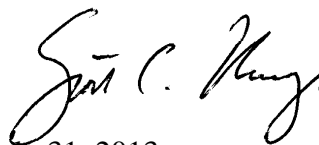
Pace Project #: 10229130
Sample Receipt Date: 05/17/2013
Client Project #: L1308740
Client Sub PO #: N/A
State Cert #: N/A

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Scott Unze, your Pace Project Manager.

This report has been reviewed by:



July 31, 2013

Scott Unze, Project Manager
(612) 607-6383
(612) 607-6444 (fax)
scott.unze@pacelabs.com



Report of Laboratory Analysis

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The results relate only to the samples included in this report.



DISCUSSION

This report presents the results from the analyses performed on one sample submitted by a representative of Alpha Analytical. The sample was analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using a modified version of USEPA Method 8290. Reporting limits were based on signal-to-noise measurements. Estimated Maximum Possible Concentration (EMPC) values were treated as positives in the toxic equivalence calculations. This report was revised to present toxic equivalence values calculated using the 2005 WHO toxic equivalence factors.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extract ranged from 69-90%. All of the labeled standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

In some cases, interfering substances impacted the determinations of PCDD or PCDF congeners; the affected values were flagged "I" where incorrect isotope ratios were obtained or "P" where polychlorinated diphenyl ethers were present. Concentrations below the calibration range were flagged "J" and should be regarded as estimates.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to contain trace levels of OCDD and OCDF. These were below the calibration range of the method. OCDF was not detected in the field sample. Also, the OCDD level reported for the field sample was higher than the corresponding blank level by two orders of magnitude. These results indicate that the sample processing steps did not contribute significantly to the levels reported for the field sample.

Laboratory spike samples were also prepared with the sample batch using clean water that had been fortified with native standard materials. The results show that the spiked native compounds were recovered at 90-121% with relative percent differences of 0.9-6.8%. These results indicate high degrees of accuracy and precision for these determinations. Matrix spikes were not prepared with the sample batch.

REPORT OF LABORATORY ANALYSIS

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Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Mississippi	MN00064
Alaska	MN00064	Montana	92
Arizona	AZ0014	Nebraska	
Arkansas	88-0680	Nevada	MN_00064_200
California	01155CA	New Jersey (NE	MN002
Colorado	MN00064	New Mexico	MN00064
Connecticut	PH-0256	New York (NEL	11647
EPA Region 5	WD-15J	North Carolina	27700
EPA Region 8	8TMS-Q	North Dakota	R-036
Florida (NELAP	E87605	Ohio	4150
Georgia (DNR)	959	Oklahoma	D9922
Guam	959	Oregon (ELAP)	MN200001-005
Hawaii	SLD	Oregon (OREL	MN300001-001
Idaho	MN00064	Pennsylvania	68-00563
Illinois	200012	Saipan	MP0003
Indiana	C-MN-01	South Carolina	74003001
Indiana	C-MN-01	Tennessee	2818
Iowa	368	Tennessee	02818
Kansas	E-10167	Texas	T104704192-08
Kentucky	90062	Utah (NELAP)	PAM
Louisiana	03086	Virginia	00251
Maine	2007029	Washington	C755
Maryland	322	West Virginia	9952C
Michigan	9909	Wisconsin	999407970
Minnesota	027-053-137	Wyoming	8TMS-Q


REPORT OF LABORATORY ANALYSIS


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Report No.....10229130

Appendix A

Sample Management

	Document Name: Sample Condition Upon Receipt Form	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-L-213-rev.06	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt	Client Name: <u>Alpha</u>	Project #:	WO# : 10229130  10229130
	Courier: <input type="checkbox"/> Fed Ex <input checked="" type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Client <input type="checkbox"/> Commercial <input type="checkbox"/> Pace <input type="checkbox"/> Other:		
Tracking Number: <u>12E041330192277289</u>			
Custody Seal on Cooler/Box Present? <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Seals Intact? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Optional: Proj. Due Date: Proj. Name:
Packing Material: <input type="checkbox"/> Bubble Wrap <input checked="" type="checkbox"/> Bubble Bags <input type="checkbox"/> None <input type="checkbox"/> Other:		Temp Blank? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Thermom. Used: <input type="checkbox"/> B88A912167504 <input type="checkbox"/> 80512447 <input checked="" type="checkbox"/> 72337080 Type of Ice: <input checked="" type="checkbox"/> Wet <input type="checkbox"/> Blue <input type="checkbox"/> None <input type="checkbox"/> Samples on ice, cooling process has begun			
Cooler Temp Read (°C): <u>1.4</u>		Cooler Temp Corrected (°C): <u>1.6</u>	Biological Tissue Frozen? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Temp should be above freezing to 6°C		Correction Factor: <u>+1.2</u>	Date and Initials of Person Examining Contents: <u>KO 5-17-1</u>
Comments:			

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13. All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>12) Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl Sample # Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION	Field Data Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Person Contacted: _____	Date/Time: _____
Comments/Resolution: _____	

Project Manager Review: _____ **Date:** 05/17/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Reporting Flags

- A = Reporting Limit based on signal to noise
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interference present
- J = Estimated value
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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Appendix B

Sample Analysis Summary



Method 8290 Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	TAILRACE-RGP		
Lab Sample ID	10229130001		
Filename	F130529B_08		
Injected By	SMT		
Total Amount Extracted	905 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	05/15/2013 10:50
ICAL ID	F130506	Received	05/17/2013 08:54
CCal Filename(s)	F130529B_01 & F130530A_03	Extracted	05/24/2013 13:45
Method Blank ID	BLANK-36576	Analyzed	05/30/2013 06:43

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.5	2,3,7,8-TCDF-13C	2.00	70
Total TCDF	5.6	----	1.5 J	2,3,7,8-TCDD-13C	2.00	80
				1,2,3,7,8-PeCDF-13C	2.00	79
2,3,7,8-TCDD	ND	----	1.9	2,3,4,7,8-PeCDF-13C	2.00	79
Total TCDD	ND	----	1.9	1,2,3,7,8-PeCDD-13C	2.00	90
				1,2,3,4,7,8-HxCDF-13C	2.00	69
1,2,3,7,8-PeCDF	ND	----	1.6	1,2,3,6,7,8-HxCDF-13C	2.00	74
2,3,4,7,8-PeCDF	ND	----	1.2	2,3,4,6,7,8-HxCDF-13C	2.00	72
Total PeCDF	ND	----	1.4	1,2,3,7,8,9-HxCDF-13C	2.00	76
				1,2,3,4,7,8-HxCDD-13C	2.00	77
1,2,3,7,8-PeCDD	ND	----	2.1	1,2,3,6,7,8-HxCDD-13C	2.00	69
Total PeCDD	ND	----	2.1	1,2,3,4,6,7,8-HpCDF-13C	2.00	74
				1,2,3,4,7,8,9-HpCDF-13C	2.00	83
1,2,3,4,7,8-HxCDF	----	1.9	1.9 P	1,2,3,4,6,7,8-HpCDD-13C	2.00	81
1,2,3,6,7,8-HxCDF	ND	----	1.7	OCDD-13C	4.00	77
2,3,4,6,7,8-HxCDF	ND	----	1.8			
1,2,3,7,8,9-HxCDF	ND	----	2.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	4.3	----	1.8 J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	3.1	2,3,7,8-TCDD-37Cl4	0.20	78
1,2,3,6,7,8-HxCDD	3.2	----	2.5 J			
1,2,3,7,8,9-HxCDD	ND	----	2.6			
Total HxCDD	17.0	----	2.8 J			
1,2,3,4,6,7,8-HpCDF	----	5.5	3.3 I	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	4.2	Equivalence: 3.2 pg/L		
Total HpCDF	ND	----	3.8	(Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	210.0	----	5.5			
Total HpCDD	370.0	----	5.5			
OCDF	----	8.1	7.0 I			
OCDD	1800.0	----	7.2			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit.

J = Estimated value
P = PCDE Interference
I = Interference present

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

REPORT OF LABORATORY ANALYSIS

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Method 8290 Blank Analysis Results

Lab Sample ID	BLANK-36576	Matrix	Water
Filename	F130529A_10	Dilution	NA
Total Amount Extracted	1000 mL	Extracted	05/24/2013 13:45
ICAL ID	F130506	Analyzed	05/29/2013 18:04
CCal Filename(s)	F130529A_05 & F130529B_01	Injected By	SMT

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.73	2,3,7,8-TCDF-13C	2.00	75
Total TCDF	ND	----	0.73	2,3,7,8-TCDD-13C	2.00	87
				1,2,3,7,8-PeCDF-13C	2.00	85
2,3,7,8-TCDD	ND	----	1.30	2,3,4,7,8-PeCDF-13C	2.00	85
Total TCDD	ND	----	1.30	1,2,3,7,8-PeCDD-13C	2.00	98
				1,2,3,4,7,8-HxCDF-13C	2.00	79
1,2,3,7,8-PeCDF	ND	----	0.83	1,2,3,6,7,8-HxCDF-13C	2.00	87
2,3,4,7,8-PeCDF	ND	----	0.61	2,3,4,6,7,8-HxCDF-13C	2.00	85
Total PeCDF	ND	----	0.72	1,2,3,7,8,9-HxCDF-13C	2.00	83
				1,2,3,4,7,8-HxCDD-13C	2.00	83
1,2,3,7,8-PeCDD	ND	----	1.10	1,2,3,6,7,8-HxCDD-13C	2.00	80
Total PeCDD	ND	----	1.10	1,2,3,4,6,7,8-HpCDF-13C	2.00	84
				1,2,3,4,7,8,9-HpCDF-13C	2.00	90
1,2,3,4,7,8-HxCDF	ND	----	0.64	1,2,3,4,6,7,8-HpCDD-13C	2.00	90
1,2,3,6,7,8-HxCDF	ND	----	0.55	OCDD-13C	4.00	89
2,3,4,6,7,8-HxCDF	ND	----	0.56			
1,2,3,7,8,9-HxCDF	ND	----	0.68	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.61	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.20	2,3,7,8-TCDD-37Cl4	0.20	90
1,2,3,6,7,8-HxCDD	ND	----	1.30			
1,2,3,7,8,9-HxCDD	ND	----	1.00			
Total HxCDD	ND	----	1.20			
1,2,3,4,6,7,8-HpCDF	ND	----	1.10	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	1.30	Equivalence: 0.0041 pg/L		
Total HpCDF	ND	----	1.20	(Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	1.60			
Total HpCDD	ND	----	1.60			
OCDF	4.6	----	2.70 J			
OCDD	9.0	----	3.30 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

RL = Reporting Limit

J = Estimated value

REPORT OF LABORATORY ANALYSIS

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Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCS-36577	Matrix	Water
Filename	F130529A_06	Dilution	NA
Total Amount Extracted	1010 mL	Extracted	05/24/2013 13:45
ICAL ID	F130506	Analyzed	05/29/2013 14:53
CCal Filename(s)	F130529A_05 & F130529B_01	Injected By	SMT
Method Blank ID	BLANK-36576		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.20	100	2,3,7,8-TCDF-13C	2.0	77
Total TCDF				2,3,7,8-TCDD-13C	2.0	89
				1,2,3,7,8-PeCDF-13C	2.0	87
2,3,7,8-TCDD	0.20	0.18	90	2,3,4,7,8-PeCDF-13C	2.0	87
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	100
				1,2,3,4,7,8-HxCDF-13C	2.0	79
1,2,3,7,8-PeCDF	1.0	1.1	110	1,2,3,6,7,8-HxCDF-13C	2.0	89
2,3,4,7,8-PeCDF	1.0	1.1	106	2,3,4,6,7,8-HxCDF-13C	2.0	84
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	83
				1,2,3,4,7,8-HxCDD-13C	2.0	85
1,2,3,7,8-PeCDD	1.0	0.93	93	1,2,3,6,7,8-HxCDD-13C	2.0	79
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	82
				1,2,3,4,7,8,9-HpCDF-13C	2.0	90
1,2,3,4,7,8-HxCDF	1.0	1.1	115	1,2,3,4,6,7,8-HpCDD-13C	2.0	91
1,2,3,6,7,8-HxCDF	1.0	1.1	106	OCDD-13C	4.0	87
2,3,4,6,7,8-HxCDF	1.0	1.1	111			
1,2,3,7,8,9-HxCDF	1.0	1.1	111	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	1.1	109	2,3,7,8-TCDD-37Cl4	0.20	84
1,2,3,6,7,8-HxCDD	1.0	1.1	112			
1,2,3,7,8,9-HxCDD	1.0	1.1	113			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	1.1	112			
1,2,3,4,7,8,9-HpCDF	1.0	1.0	105			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	1.0	100			
Total HpCDD						
OCDF	2.0	2.2	111			
OCDD	2.0	2.2	108			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
R = Recovery outside of target range

Y = RF averaging used in calculations
Nn = Value obtained from additional analysis
NA = Not Applicable
* = See Discussion

REPORT OF LABORATORY ANALYSIS

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Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCSD-36578	Matrix	Water
Filename	F130529A_07	Dilution	NA
Total Amount Extracted	983 mL	Extracted	05/24/2013 13:45
ICAL ID	F130506	Analyzed	05/29/2013 15:43
CCal Filename(s)	F130529A_05 & F130529B_01	Injected By	SMT
Method Blank ID	BLANK-36576		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.21	107	2,3,7,8-TCDF-13C	2.0	74
Total TCDF				2,3,7,8-TCDD-13C	2.0	86
				1,2,3,7,8-PeCDF-13C	2.0	84
2,3,7,8-TCDD	0.20	0.19	93	2,3,4,7,8-PeCDF-13C	2.0	84
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	94
				1,2,3,4,7,8-HxCDF-13C	2.0	77
1,2,3,7,8-PeCDF	1.0	1.1	112	1,2,3,6,7,8-HxCDF-13C	2.0	87
2,3,4,7,8-PeCDF	1.0	1.1	110	2,3,4,6,7,8-HxCDF-13C	2.0	81
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	84
				1,2,3,4,7,8-HxCDD-13C	2.0	83
1,2,3,7,8-PeCDD	1.0	0.98	98	1,2,3,6,7,8-HxCDD-13C	2.0	78
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	82
				1,2,3,4,7,8,9-HpCDF-13C	2.0	89
1,2,3,4,7,8-HxCDF	1.0	1.2	121	1,2,3,4,6,7,8-HpCDD-13C	2.0	88
1,2,3,6,7,8-HxCDF	1.0	1.1	107	OCDD-13C	4.0	84
2,3,4,6,7,8-HxCDF	1.0	1.2	116			
1,2,3,7,8,9-HxCDF	1.0	1.1	115	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	1.1	114	2,3,7,8-TCDD-37Cl4	0.20	86
1,2,3,6,7,8-HxCDD	1.0	1.2	118			
1,2,3,7,8,9-HxCDD	1.0	1.2	117			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	1.1	113			
1,2,3,4,7,8,9-HpCDF	1.0	1.1	107			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	1.1	106			
Total HpCDD						
OCDF	2.0	2.3	114			
OCDD	2.0	2.3	113			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
R = Recovery outside of target range

Y = RF averaging used in calculations
Nn = Value obtained from additional analysis
NA = Not Applicable
* = See Discussion

REPORT OF LABORATORY ANALYSIS

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Method 8290

Spike Recovery Relative Percent Difference (RPD) Results

Client Alpha Analytical

Spike 1 ID LCS-36577
Spike 1 Filename F130529A_06

Spike 2 ID LCSD-36578
Spike 2 Filename F130529A_07

Compound	Spike 1 %REC	Spike 2 %REC	%RPD
2,3,7,8-TCDF	100	107	6.8
2,3,7,8-TCDD	90	93	3.3
1,2,3,7,8-PeCDF	110	112	1.8
2,3,4,7,8-PeCDF	106	110	3.7
1,2,3,7,8-PeCDD	93	98	5.2
1,2,3,4,7,8-HxCDF	115	121	5.1
1,2,3,6,7,8-HxCDF	106	107	0.9
2,3,4,6,7,8-HxCDF	111	116	4.4
1,2,3,7,8,9-HxCDF	111	115	3.5
1,2,3,4,7,8-HxCDD	109	114	4.5
1,2,3,6,7,8-HxCDD	112	118	5.2
1,2,3,7,8,9-HxCDD	113	117	3.5
1,2,3,4,6,7,8-HpCDF	112	113	0.9
1,2,3,4,7,8,9-HpCDF	105	107	1.9
1,2,3,4,6,7,8-HpCDD	100	106	5.8
OCDF	111	114	2.7
OCDD	108	113	4.5

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

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Report Prepared for:

Mary Davis
Alpha Analytical
8 Walkup Drive
Westboro MA 01581

**REPORT OF
LABORATORY
ANALYSIS FOR
PCDD/PCDF**

Report Prepared Date:

July 22, 2013

Report Information:

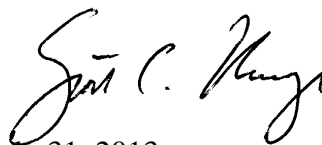
Pace Project #: 10232372
Sample Receipt Date: 06/15/2013
Client Project #: L1308698
Client Sub PO #: N/A
State Cert #: N/A

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Brittany Hansen, your Pace Project Manager.

This report has been reviewed by:



July 31, 2013

Scott Unze, Project Manager
(612) 607-6383
(612) 607-6444 (fax)
scott.unze@pacelabs.com



Report of Laboratory Analysis

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The results relate only to the samples included in this report.



DISCUSSION

This report presents the results from the analysis performed on one sample submitted by a representative of Alpha Analytical. The sample was analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using a modified version of USEPA Method 8290. The reporting limits were based on signal-to-noise measurements. Estimated Maximum Possible Concentration (EMPC) values were treated as positives in the toxic equivalence calculations. The sample was received and extracted outside of the 30-day hold time recommended in the method, therefore, the reported values should be regarded as minimum possible concentrations. This report was revised to present toxic equivalence values calculated using the 2005 WHO toxic equivalence factors.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extract ranged from 58-91%. All of the labeled standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained. Concentrations below the calibration range were flagged "J" and should be regarded as estimates.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to contain a trace level of OCDD. This level was below the calibration range of the method. The OCDD level reported for the field sample was similar to the corresponding blank level and was flagged "B" on the results table; this may be, at least partially, attributed to the background. It should be noted that levels less than ten times the background are not generally considered to be statistically different from the background.

Laboratory spike samples were also prepared with the sample batch using clean water that had been fortified with native standard materials. The results show that the spiked native compounds were recovered at 87-110% with relative percent differences of 0.0-4.1%. These results indicate high degrees of accuracy and precision for these determinations. Matrix spikes were not prepared with the sample batch.

REPORT OF LABORATORY ANALYSIS

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Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Mississippi	MN00064
Alaska	MN00064	Montana	92
Arizona	AZ0014	Nebraska	
Arkansas	88-0680	Nevada	MN_00064_200
California	01155CA	New Jersey (NE	MN002
Colorado	MN00064	New Mexico	MN00064
Connecticut	PH-0256	New York (NEL	11647
EPA Region 5	WD-15J	North Carolina	27700
EPA Region 8	8TMS-Q	North Dakota	R-036
Florida (NELAP	E87605	Ohio	4150
Georgia (DNR)	959	Oklahoma	D9922
Guam	959	Oregon (ELAP)	MN200001-005
Hawaii	SLD	Oregon (OREL	MN300001-001
Idaho	MN00064	Pennsylvania	68-00563
Illinois	200012	Saipan	MP0003
Indiana	C-MN-01	South Carolina	74003001
Indiana	C-MN-01	Tennessee	2818
Iowa	368	Tennessee	02818
Kansas	E-10167	Texas	T104704192-08
Kentucky	90062	Utah (NELAP)	PAM
Louisiana	03086	Virginia	00251
Maine	2007029	Washington	C755
Maryland	322	West Virginia	9952C
Michigan	9909	Wisconsin	999407970
Minnesota	027-053-137	Wyoming	8TMS-Q

REPORT OF LABORATORY ANALYSIS


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Report No.....10232372

Appendix A

Sample Management

DateTime

	Document Name: Sample Condition Upon Receipt Form	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-L-213-rev.06	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt	Client Name: <u>Alpha</u>	Project #:	WO# : 10232372
	Courier: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Client <input type="checkbox"/> Commercial <input type="checkbox"/> Pace <input type="checkbox"/> Other:	 10232372	
Tracking Number: <u>7960 0782 2555</u>			

Custody Seal on Cooler/Box Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Seals Intact? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Optional: Proj. Due Date: _____ Proj. Name: _____
Packing Material: <input type="checkbox"/> Bubble Wrap <input checked="" type="checkbox"/> Bubble Bags <input type="checkbox"/> None <input type="checkbox"/> Other: _____	Temp Blank? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Thermom. Used: <input checked="" type="checkbox"/> B88A912167504 <input type="checkbox"/> 80512447 <input type="checkbox"/> 72337080	Type of Ice: <input checked="" type="checkbox"/> Wet <input type="checkbox"/> Blue <input type="checkbox"/> None	<input type="checkbox"/> Samples on ice, cooling process has begun
Cooler Temp Read (°C): <u>5.9</u>	Cooler Temp Corrected (°C): <u>5.8</u>	Biological Tissue Frozen? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Temp should be above freezing to 6°C	Correction Factor: <u>-0.1</u>	Date and Initials of Person Examining Contents: <u>KO 6-15-1</u>

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed: _____ Lot # of added preservative: _____
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

CLIENT NOTIFICATION/RESOLUTION	Field Data Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Person Contacted: _____	Date/Time: _____
Comments/Resolution: _____	

Project Manager Review: _____ Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Reporting Flags

- A = Reporting Limit based on signal to noise
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interference present
- J = Estimated value
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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Appendix B

Sample Analysis Summary



Method 8290 Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	TAILRACE-RGP (FILTERED)		
Lab Sample ID	10232372001		
Filename	P130630B_04		
Injected By	BAL		
Total Amount Extracted	963 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	05/15/2013 10:50
ICAL ID	P130624	Received	06/15/2013 11:30
CCal Filename(s)	P130630B_02 & P130630B_14	Extracted	06/17/2013 21:30
Method Blank ID	BLANK-36785	Analyzed	06/30/2013 20:08

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.8	2,3,7,8-TCDF-13C	2.00	58
Total TCDF	ND	----	1.8	2,3,7,8-TCDD-13C	2.00	70
				1,2,3,7,8-PeCDF-13C	2.00	75
2,3,7,8-TCDD	ND	----	1.8	2,3,4,7,8-PeCDF-13C	2.00	76
Total TCDD	ND	----	1.8	1,2,3,7,8-PeCDD-13C	2.00	82
				1,2,3,4,7,8-HxCDF-13C	2.00	89
1,2,3,7,8-PeCDF	ND	----	1.4	1,2,3,6,7,8-HxCDF-13C	2.00	91
2,3,4,7,8-PeCDF	ND	----	1.2	2,3,4,6,7,8-HxCDF-13C	2.00	89
Total PeCDF	ND	----	1.3	1,2,3,7,8,9-HxCDF-13C	2.00	86
				1,2,3,4,7,8-HxCDD-13C	2.00	86
1,2,3,7,8-PeCDD	ND	----	1.3	1,2,3,6,7,8-HxCDD-13C	2.00	80
Total PeCDD	ND	----	1.3	1,2,3,4,6,7,8-HpCDF-13C	2.00	78
				1,2,3,4,7,8,9-HpCDF-13C	2.00	83
1,2,3,4,7,8-HxCDF	ND	----	1.4	1,2,3,4,6,7,8-HpCDD-13C	2.00	83
1,2,3,6,7,8-HxCDF	ND	----	1.2	OCDD-13C	4.00	76
2,3,4,6,7,8-HxCDF	ND	----	1.4			
1,2,3,7,8,9-HxCDF	ND	----	1.5	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	1.4	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.4	2,3,7,8-TCDD-37Cl4	0.20	66
1,2,3,6,7,8-HxCDD	ND	----	1.2			
1,2,3,7,8,9-HxCDD	ND	----	1.2			
Total HxCDD	ND	----	1.3			
1,2,3,4,6,7,8-HpCDF	ND	----	1.4	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	1.6	Equivalence: 0.071 pg/L		
Total HpCDF	ND	----	1.5	(Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	5.4	----	1.9 J			
Total HpCDD	5.4	----	1.9 J			
OCDF	5.5	----	2.8 J			
OCDD	50.0	----	2.8 BJ			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

RL = Reporting Limit.

J = Estimated value

B = Less than 10x higher than method blank level

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

REPORT OF LABORATORY ANALYSIS

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Method 8290 Blank Analysis Results

Lab Sample ID	BLANK-36785	Matrix	Water
Filename	F130621B_08	Dilution	NA
Total Amount Extracted	1030 mL	Extracted	06/17/2013 21:30
ICAL ID	F130506	Analyzed	06/21/2013 19:27
CCal Filename(s)	F130621B_01 & F130621B_18	Injected By	BAL

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.88	2,3,7,8-TCDF-13C	2.00	56
Total TCDF	ND	----	0.88	2,3,7,8-TCDD-13C	2.00	76
				1,2,3,7,8-PeCDF-13C	2.00	73
2,3,7,8-TCDD	ND	----	1.60	2,3,4,7,8-PeCDF-13C	2.00	76
Total TCDD	ND	----	1.60	1,2,3,7,8-PeCDD-13C	2.00	96
				1,2,3,4,7,8-HxCDF-13C	2.00	83
1,2,3,7,8-PeCDF	ND	----	0.73	1,2,3,6,7,8-HxCDF-13C	2.00	81
2,3,4,7,8-PeCDF	ND	----	0.49	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	ND	----	0.61	1,2,3,7,8,9-HxCDF-13C	2.00	79
				1,2,3,4,7,8-HxCDD-13C	2.00	98
1,2,3,7,8-PeCDD	ND	----	1.60	1,2,3,6,7,8-HxCDD-13C	2.00	81
Total PeCDD	ND	----	1.60	1,2,3,4,6,7,8-HpCDF-13C	2.00	87
				1,2,3,4,7,8,9-HpCDF-13C	2.00	86
1,2,3,4,7,8-HxCDF	ND	----	0.93	1,2,3,4,6,7,8-HpCDD-13C	2.00	92
1,2,3,6,7,8-HxCDF	ND	----	0.71	OCDD-13C	4.00	84
2,3,4,6,7,8-HxCDF	ND	----	0.86			
1,2,3,7,8,9-HxCDF	ND	----	0.97	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.87	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	2.10	2,3,7,8-TCDD-37Cl4	0.20	71
1,2,3,6,7,8-HxCDD	ND	----	2.20			
1,2,3,7,8,9-HxCDD	ND	----	1.70			
Total HxCDD	ND	----	2.00			
1,2,3,4,6,7,8-HpCDF	ND	----	1.20	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	1.60	Equivalence: 0.0060 pg/L		
Total HpCDF	ND	----	1.40	(Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	2.10			
Total HpCDD	ND	----	2.10			
OCDF	ND	----	3.60			
OCDD	20	----	5.30 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

RL = Reporting Limit

J = Estimated value

REPORT OF LABORATORY ANALYSIS

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Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCS-36786	Matrix	Water
Filename	U130621B_10	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	06/17/2013 21:30
ICAL ID	U130621	Analyzed	06/21/2013 22:08
CCal Filename(s)	U130621B_08 & U130621B_25	Injected By	BAL
Method Blank ID	BLANK-36785		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.21	105	2,3,7,8-TCDF-13C	2.0	58
Total TCDF				2,3,7,8-TCDD-13C	2.0	75
				1,2,3,7,8-PeCDF-13C	2.0	68
2,3,7,8-TCDD	0.20	0.18	88	2,3,4,7,8-PeCDF-13C	2.0	71
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	81
				1,2,3,4,7,8-HxCDF-13C	2.0	82
1,2,3,7,8-PeCDF	1.0	1.0	102	1,2,3,6,7,8-HxCDF-13C	2.0	88
2,3,4,7,8-PeCDF	1.0	1.0	102	2,3,4,6,7,8-HxCDF-13C	2.0	90
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	87
				1,2,3,4,7,8-HxCDD-13C	2.0	90
1,2,3,7,8-PeCDD	1.0	0.87	87	1,2,3,6,7,8-HxCDD-13C	2.0	88
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	81
				1,2,3,4,7,8,9-HpCDF-13C	2.0	91
1,2,3,4,7,8-HxCDF	1.0	1.0	101	1,2,3,4,6,7,8-HpCDD-13C	2.0	92
1,2,3,6,7,8-HxCDF	1.0	0.98	98	OCDD-13C	4.0	79
2,3,4,6,7,8-HxCDF	1.0	1.0	101			
1,2,3,7,8,9-HxCDF	1.0	0.99	99	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	1.0	103	2,3,7,8-TCDD-37Cl4	0.20	72
1,2,3,6,7,8-HxCDD	1.0	1.1	109			
1,2,3,7,8,9-HxCDD	1.0	0.96	96			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	1.0	102			
1,2,3,4,7,8,9-HpCDF	1.0	0.95	95			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	0.92	92			
Total HpCDD						
OCDF	2.0	2.1	106			
OCDD	2.0	2.1	103			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
R = Recovery outside of target range

Y = RF averaging used in calculations
Nn = Value obtained from additional analysis
NA = Not Applicable
* = See Discussion

REPORT OF LABORATORY ANALYSIS

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Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCSD-36787	Matrix	Water
Filename	U130621B_11	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	06/17/2013 21:30
ICAL ID	U130621	Analyzed	06/21/2013 22:53
CCal Filename(s)	U130621B_08 & U130621B_25	Injected By	BAL
Method Blank ID	BLANK-36785		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.21	105	2,3,7,8-TCDF-13C	2.0	58
Total TCDF				2,3,7,8-TCDD-13C	2.0	74
				1,2,3,7,8-PeCDF-13C	2.0	67
2,3,7,8-TCDD	0.20	0.18	89	2,3,4,7,8-PeCDF-13C	2.0	70
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	82
				1,2,3,4,7,8-HxCDF-13C	2.0	83
1,2,3,7,8-PeCDF	1.0	1.0	103	1,2,3,6,7,8-HxCDF-13C	2.0	88
2,3,4,7,8-PeCDF	1.0	1.0	103	2,3,4,6,7,8-HxCDF-13C	2.0	88
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	88
				1,2,3,4,7,8-HxCDD-13C	2.0	90
1,2,3,7,8-PeCDD	1.0	0.90	90	1,2,3,6,7,8-HxCDD-13C	2.0	86
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	82
				1,2,3,4,7,8,9-HpCDF-13C	2.0	89
1,2,3,4,7,8-HxCDF	1.0	1.0	101	1,2,3,4,6,7,8-HpCDD-13C	2.0	91
1,2,3,6,7,8-HxCDF	1.0	0.98	98	OCDD-13C	4.0	78
2,3,4,6,7,8-HxCDF	1.0	1.0	105			
1,2,3,7,8,9-HxCDF	1.0	1.0	102	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	1.0	103	2,3,7,8-TCDD-37Cl4	0.20	71
1,2,3,6,7,8-HxCDD	1.0	1.1	110			
1,2,3,7,8,9-HxCDD	1.0	1.0	100			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	1.1	106			
1,2,3,4,7,8,9-HpCDF	1.0	0.98	98			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	0.93	93			
Total HpCDD						
OCDF	2.0	2.1	106			
OCDD	2.0	2.1	106			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
R = Recovery outside of target range

Y = RF averaging used in calculations
Nn = Value obtained from additional analysis
NA = Not Applicable
* = See Discussion

REPORT OF LABORATORY ANALYSIS

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Method 8290

Spike Recovery Relative Percent Difference (RPD) Results

Client Alpha Analytical

Spike 1 ID LCS-36786
Spike 1 Filename U130621B_10

Spike 2 ID LCSD-36787
Spike 2 Filename U130621B_11

Compound	Spike 1 %REC	Spike 2 %REC	%RPD
2,3,7,8-TCDF	105	105	0.0
2,3,7,8-TCDD	88	89	1.1
1,2,3,7,8-PeCDF	102	103	1.0
2,3,4,7,8-PeCDF	102	103	1.0
1,2,3,7,8-PeCDD	87	90	3.4
1,2,3,4,7,8-HxCDF	101	101	0.0
1,2,3,6,7,8-HxCDF	98	98	0.0
2,3,4,6,7,8-HxCDF	101	105	3.9
1,2,3,7,8,9-HxCDF	99	102	3.0
1,2,3,4,7,8-HxCDD	103	103	0.0
1,2,3,6,7,8-HxCDD	109	110	0.9
1,2,3,7,8,9-HxCDD	96	100	4.1
1,2,3,4,6,7,8-HpCDF	102	106	3.8
1,2,3,4,7,8,9-HpCDF	95	98	3.1
1,2,3,4,6,7,8-HpCDD	92	93	1.1
OCDF	106	106	0.0
OCDD	103	106	2.9

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

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APPENDIX C

DILUTION CALCULATIONS

PURPOSE:

To calculate the dilution factor (DF) for metal concentrations in a potential discharge from on-site construction dewatering activities.

METHOD:

$$DF = (Q_d + Q_s) / Q_d$$

Where:

DF = Dilution Factor

Q_d = Maximum flow rate of the discharge in cubic feet per second (cfs)

Q_s = Receiving water 7Q10 flow (cfs) where 7Q10 is the minimum flow (cfs) for 7 consecutive days with a recurrence interval of 10 years

GIVEN:

1.0 gpm = 0.00223 cfs

Q_d = 50 gpm from the system = 0.111 cfs

Q_s = 6.3 cfs of flow in the North River (USGS Gage 01169000) [Reference 1]

CALCULATION:

$$DF = (0.111 \text{ cfs} + 6.3 \text{ cfs}) / 0.111 \text{ cfs}$$

$$DF = \underline{57.8}$$

RESULTS:

The resulting dilution factor to be used when discharging to the North River is **57**.

REFERENCES:

- [1] Commonwealth of Massachusetts Executive Office of Environmental Affairs et. al., *Technical Memorandum TM-33-5, Deerfield Watershed 2000 DWM Quality Monitoring Data*, December 2003. (Refer to Attachment A)

Table A2: Deerfield River Basin 2000 Precipitation Data Summary
(reported in inches of rainfall)

Survey Dates	5 Days Prior			4 Days Prior			3 Days Prior			2 Days Prior			1 Day Prior			Sample Date		
	Hth	Afld	Gfld	Hth	Afld	Gfld	Hth	Afld	Gfld	Hth	Afld	Gfld	Hth	Afld	Gfld	Hth	Afld	Gfld
25 Jul	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29 Aug	0.00	MFR	0.33	0.00	MFR	0.00	0.00	MFR	0.00	0.00	MFR	0.00	0.00	MFR	0.00	0.00	MFR	0.00
17 Oct	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.21

MFR-Missing from record, T= trace amounts, DEM Office of Water Resources precipitation stations: Hth = Heath; Gfld = Greenfield, NOAA/NWS precipitation station: Afld = Ashfield

Table A3: Deerfield River at Charlemont, MA-USGS Flow Data Summary
Discharge in Cubic Feet per Second (cfs)
USGS Gage # 01168500

Survey Dates	5 Days Prior	4 Days Prior	3 Days Prior	2 Days Prior	1 Day Prior	Sample Date	Monthly Mean	POR* Mean
25 July	794	869	795	550	1090	988	1353	454
29 Aug	1340	1190	1180	1110	832	1070	1374	461
17 Oct	782	666	362	314	455	1050e	626	606

7Q10 @ USGS, Gage 01168500 = 34 cfs,

*Period of Record: 1913 - present (mean annual discharge = 902 cfs), e = estimated

Table A4: North River at Shattuckville, MA-USGS Flow Data Summary
Discharge in Cubic Feet per Second (cfs)
USGS Gage # 01169000

Survey Dates	5 Days Prior	4 Days Prior	3 Days Prior	2 Days Prior	1 Day Prior	Sample Date	Monthly Mean	POR* Mean
25 July	222	173	155	127	108	97	316	69.5
29 Aug	343	184	141	137	103	90	285	52.4
17 Oct	94	86	81	76	80	104	129	101

7Q10 @ USGS, Gage 01169000 = 6.3 cfs,

*Period of Record: 1940 - present (mean annual discharge = 299 cfs), e = estimated

Table A5: South River near Conway, MA-USGS Flow Data Summary
Discharge in Cubic Feet per Second (cfs)
USGS Gage # 01169900

Survey Dates	5 Days Prior	4 Days Prior	3 Days Prior	2 Days Prior	1 Day Prior	Sample Date	Monthly Mean	POR* Mean
25 July	43	39	51	35	30	28	80.7	22.6
29 Aug	70	44e	36	32	30	29	91.9	18.8
17 Oct	19	18	17	16	17	25	24.3	29.5

7Q10 @ USGS, Gage 01169900 = 2.0 cfs,

*Period of Record: 1966 - present (mean annual discharge = 53.4 cfs), e = estimated

APPENDIX D

FEDERAL CORRESPONDENCE



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 3301
PHONE: (603)223-2541 FAX: (603)223-0104
URL: www.fws.gov/newengland

Consultation Tracking Number: 05E1NE00-2014-SLI-0259

May 22, 2014

Project Name: American Fiber & Finishing Site Remediation

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: American Fiber & Finishing Site Remediation

Official Species List

Provided by:

New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 3301
(603) 223-2541
<http://www.fws.gov/newengland>

Consultation Tracking Number: 05E1NE00-2014-SLI-0259

Project Type: Dredge / Excavation

Project Description: This project entails the remediation of the American Fiber & Finishing site and is being conducted in accordance with the Massachusetts Contingency Plan. Excavation dewatering will occur within the tailrace brook and will be treated and discharged to the tailrace brook just upstream of its confluence with the North River.



United States Department of Interior
Fish and Wildlife Service

Project name: American Fiber & Finishing Site Remediation

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-72.7143594 42.6544381, -72.7149883 42.6537199, -72.7157801 42.6543811, -72.7164472 42.6548232, -72.717047 42.6553731, -72.7187754 42.6554749, -72.7194234 42.6579099, -72.7174461 42.6577828, -72.7161114 42.6566727, -72.7149752 42.6557968, -72.7144109 42.6556793, -72.7143594 42.6544381)))

Project Counties: Franklin, MA



United States Department of Interior
Fish and Wildlife Service

Project name: American Fiber & Finishing Site Remediation

Endangered Species Act Species List

There are a total of 0 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed on the **Has Critical Habitat** lines may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

There are no listed species identified for the vicinity of your project.



United States Department of Interior
Fish and Wildlife Service

Project name: American Fiber & Finishing Site Remediation

Critical habitats that lie within your project area

There are no critical habitats within your project area.



United States Department of the Interior



FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
<http://www.fws.gov/newengland>

January 7, 2014

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

<http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm>

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact Maria Tur of this office at 603-223-2541 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Barnstable	Piping Plover	Threatened	Coastal Beaches	All Towns
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Chatham
	Sandplain gerardia	Endangered	Open areas with sandy soils.	Sandwich and Falmouth.
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Bourne (north of the Cape Cod Canal)
Berkshire	Bog Turtle	Threatened	Wetlands	Egremont and Sheffield
Bristol	Piping Plover	Threatened	Coastal Beaches	Fairhaven, Dartmouth, Westport
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Fairhaven, New Bedford, Dartmouth, Westport
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Taunton
Dukes	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Piping Plover	Threatened	Coastal Beaches	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Aquinnah and Chilmark
	Sandplain gerardia	Endangered	Open areas with sandy soils.	West Tisbury
Essex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Gloucester, Essex and Manchester
	Piping Plover	Threatened	Coastal Beaches	Gloucester, Essex, Ipswich, Rowley, Revere, Newbury, Newburyport and Salisbury
Franklin	Northeastern bulrush	Endangered	Wetlands	Montague, Warwick
	Dwarf wedgemussel	Endangered	Mill River	Whately
Hampshire	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Hadley
	Puritan tiger beetle	Threatened	Sandy beaches along the Connecticut River	Northampton and Hadley
	Dwarf wedgemussel	Endangered	Rivers and Streams.	Hatfield, Amherst and Northampton
Hampden	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Southwick
Middlesex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Groton
Nantucket	Piping Plover	Threatened	Coastal Beaches	Nantucket
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Nantucket
	American burying beetle	Endangered	Upland grassy meadows	Nantucket
Plymouth	Piping Plover	Threatened	Coastal Beaches	Scituate, Marshfield, Duxbury, Plymouth, Wareham and Mattapoisett
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Kingston, Middleborough, Carver, Plymouth, Bourne, Wareham, Halifax, and Pembroke
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Plymouth, Marion, Wareham, and Mattapoisett.
Suffolk	Piping Plover	Threatened	Coastal Beaches	Winthrop
Worcester	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Leominster

- Eastern cougar and gray wolf are considered extirpated in Massachusetts.
- Endangered gray wolves are not known to be present in Massachusetts, but dispersing individuals from source populations in Canada may occur statewide.
- Critical habitat for the Northern Red-bellied Cooter is present in Plymouth County.

APPENDIX E

NATIONAL REGISTER OF HISTORIC PLACES

Appendix E
National Register of Historic Places
Research Documentation
Tailrace Brook, Colrain, Massachusetts

Site Name	Address	Date Listed
Colrain Center Historic District	Main, Greenfield, Jacksonville Rds., Streeter Ln, River and Coburn Sts.	11/15/2006
Smith, Arthur A., Covered Bridge	W of Colrain on Lyonsville Rd	2/3/1983

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

APPENDIX A

MASSACHUSETTS HISTORICAL COMMISSION
220 MORRISSEY BOULEVARD
BOSTON, MASS. 02125
617-727-8470, FAX: 617-727-5128

RECEIVED

APR 29 2013

MASS. HIST. COMM

53743

PROJECT NOTIFICATION FORM

Project Name: American Fiber and Finishing Site
Location / Address: Adamsville Road and 247 Main Road
City / Town: Colrain
Project Proponent
Name: Covidien, LP
Address: 444 McDonnell Blvd
City/Town/Zip/Telephone: Hazelwood, MO 63042

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

Agency Name

U.S. Army Corps of Engineers
MA DEP
Colrain Conservation Commission

Type of License or funding (specify)

Category 2 Permit
401 Water Quality Certificate
Order of conditions

Project Description (narrative):

Remediation of contaminated soil and sediment at two locations near to North River, and restoration of wetland resource areas following remediation, including stabilization of an eroding bank. See project plans for details.

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.

No Demolition.

Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.

No.

Does the project include new construction? If so, describe (attach plans and elevations if necessary).

No new building construction.

After review of MHC files and the materials you submitted, it has been determined that this project is unlikely to affect significant historic or archaeological resources.

5/31/96 (Effective 7/1/93) - corrected

950 CMR - 275

Jonathan K. Patton

Archaeologist / Preservation Planner

Massachusetts Historical Commission

+ C. Karen & Adams, USACOE - New England District
Kate Atwood, USACOE - New England District

5/6/13
Date

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

APPENDIX A (continued)

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.

What is the total acreage of the project area?

Woodland 0 acres
Wetland 0.24 acres
Floodplain 0.89 acres
Open space 1.33 acres
Developed 4.10 acres

Wetlands = River, Bank and Wetlands

Productive Resources:
Agriculture 0.32 acres
Forestry 0 acres
Mining/Extraction 0 acres
Total Project Acreage 6.88 acres

What is the acreage of the proposed new construction? _____ acres

What is the present land use of the project area?

Industrial, open space, and agricultural

Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

Signature of Person submitting this form: Valerie Miller Date: 4/25/13

Name: Valerie Miller

Address: c/o New England Environmental, Inc., 15 Research Drive

City/Town/Zip: Amherst, MA 01002

Telephone: (413) 658-2062

REGULATORY AUTHORITY

950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.

APPENDIX F

BEST MANAGEMENT PRACTICES PLAN

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Notice of Intent for the Remediation General Permit
Temporary Construction Dewatering at the AF&F Site
247 Main Road
Colrain, Massachusetts
RTN 1-15068; Tier IC Permit #237246

This Best Management Practices Plan (BMPP) has been prepared in accordance with the requirements of the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) for Massachusetts (MAG910000). This BMPP is in support of an RGP application for dewatering during remediation activities at the American Fiber & Finishing (AF&F) Site in Colrain, Massachusetts. The dewatering discharge will be conveyed using pumps and hoses and discharged to the North River in Colrain, MA.

The following practices will be adhered to during construction dewatering at the site.

Site Security

During construction activities, the dewatering system will be secured using standard construction practices. The fractionalization tank and associated filters, pumps and flow meters will be located in a fenced area or otherwise secured to limit access. All associated piping will be secured and checked regularly. Any system failure, vandalism, or other incidents will be addressed in a timely manner to prevent the discharge of oil or hazardous materials from exceeding the limits of the RGP.

Minimizing Sediment in Influent

Crushed stone sumps constructed as far as possible from the active excavation area will be used as the suction points for the dewatering system intakes. Efforts will be made to manage the pumping such that the amount of sediment in the influent to the treatment system is minimized.

Management of Generated Wastes

Excavations will be conducted within the limits of a Massachusetts Contingency Plan (MCP) release site. As such the wastes that are generated during the operation of the dewatering treatment system will be managed as MCP wastes. The anticipated wastes are sediment that accumulates in the fractionalization tank, used bag filters, and miscellaneous wastes associated with water quality sampling activities.

The sediment will be tested and disposed of at a licensed facility that is permitted to accept material with the documented physical and chemical characteristics of the sediment. The used bag filters and the miscellaneous sampling wastes will be appropriately disposed of as solid or contaminated wastes, based on their characteristics.

Prohibition of Discharge Exceeding Design Flow

The subcontractor providing the treatment system will provide the Operator with information on the design capacity of the treatment system and the features included in the design to monitor the flow rate to ensure that the capacity is not exceeded. The system will be monitored with a continuous flow meter such that the overall system flow does not exceed the lowest design capacity of an individual treatment system unit.

Preventative Maintenance Required

The treatment system will likely include two bag filters installed in parallel so the system does not need to be shut down for bag filter changeout. Each vessel will be equipped with gauges and sampling points to allow for measurement of pressure drop across the filters and sampling of influent and effluent streams. The bag filters will be replaced whenever the pressure drop across the filters exceeds the system's design criteria. The subcontractor will be responsible for developing and implementing a preventative maintenance plan and schedule based on the specific design of the treatment system.

Employee Training

The field staff of the Operator and the subcontractor will be instructed regarding the water quality limits contained in the RGP and the critical need to operate the treatment system as designed. The staff will also be provided guidance on how to reduce the sediment content that is pumped into the treatment system. Personnel who have responsibilities related to the dewatering efforts will be informed of the contents of the RGP, this BMPP and the NOI.

Management of Run-on and Runoff

Hay bales and silt fences as well as sloped grades will be used as needed to construct a berm around the perimeter of the site to prevent rainfall from migrating off-site or into the excavation. If stockpiles of soil are generated, the stockpiles of contaminated soils will be placed on plastic sheets and then covered with sheeting and bermed with hay bales until off-site transport occurs.

Erosion, Scouring and Sediment Control

Considering the design flow of the system and the cobble-bottom of the North River where the discharge structure will be located, it is not anticipated that the dewatering discharge will cause erosion, stream scouring at the discharge point, or additional sedimentation in the North River.