



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 1

5 Post Office Square, Suite 100

BOSTON, MA 02109-3912

**CERTIFIED MAIL RETURN RECEIPT REQUESTED**

**FEB 04 2014**

Martin F. Hilfinger  
Senior Project Manager  
100 Crossing Boulevard  
Framingham, MA 01702

Re: Authorization to discharge under the Remediation General Permit (RGP) – 910000.  
Cumberland Farms Inc., site located at 99 Calef Highway, Epping, NH 03042,  
Rockingham County, Authorization # NHG910064

Dear Mr. Hilfinger:

Based on the review of a Notice of Intent (NOI) submitted by AECOM Environment on behalf of Cumberland Farms Inc., for the site referenced above, the U.S. Environmental Protection Agency (EPA) hereby authorizes you, as the named Owner and 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 check list 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 you have marked "Believed Present," and may or may have not exceeded Appendix III limits.

The checklist also includes other parameters for which your laboratory reports indicated there was insufficient sensitivity to detect these parameters at the minimum levels established in Appendix VI of the RGP.

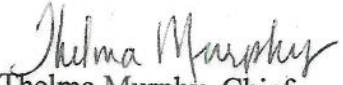
Also, please note that the metals included on the checklist are dilution dependent pollutants and subject to limitations based on selected dilution ranges and technology-based ceiling limitations. For each parameter the dilution factor 5.72 for this site is within

a dilution range greater than five to ten (>5 to 10), established in the RGP. (See the RGP Appendix IV for New Hampshire facilities). Therefore, the limits for trivalent chromium of 138 ug/L, copper of 14.5 ug/L, nickel of 290 ug/L and iron of 5,000 ug/L, are required to achieve permit compliance at your site.

This general permit and authorization to discharge will expire on September 9, 2015. You have reported this project will be completed on March 31, 2014. Regardless of its termination date 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](mailto:alvarez.victor@epa.gov), if you have any questions.

Sincerely,

  
Thelma Murphy, Chief  
Storm Water and Construction  
Permits Section

Enclosure

cc: Jeffrey Andrews, NHDES  
Sean Crowell, AECOM Environment



**2010 Remediation General Permit  
Summary of Monitoring Parameters<sup>[1]</sup>**

<b>NPDES Permit Number:</b>	<b>NHG910064</b>
Authorization Issued:	January, 2014
Facility/Site Name:	Cumberland Farms Inc.
Facility/Site Address:	99 Calef Highway/Rte 125, Epping, NH 03042 Email address of owner; Phone n: <a href="mailto:Mhilfinger@cumberldguf.com">Mhilfinger@cumberldguf.com</a> : Telephone No. 5082704484
Legal Name of Operator:	Cumberland Farms Inc.
Operator contact name, title, and Address:	Martin H. Hilfinger, Project Manager, 100 Crossing Boulevard, Framingham, MA 01702, Middlesex County Email Same as the Owner
Estimated Date of Completion:	March 31, 2014
Category and Sub-Category:	Category II- Non Petroleum Site Remediation. Sub-category C. Primarily Heavy Metals Sites
Receiving Water:	Lamprey River

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

	<u><b>Parameter</b></u>	<u><b>Effluent Limit/Method#/ML</b></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#60.2/5mL
	2. Total Residual Chlorine (TRC) <sup>1</sup>	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/5.0mg/LmL
	4. Cyanide (CN) <sup>2, 3</sup>	Freshwater = 5.2 ug/l ** Saltwater = 1.0 ug/l **/ Me#335.4/ML 5ug/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 (BTEX) <sup>4</sup>	100 ug/l )/ Me#8260C/ ML 2ug/L



	<b>Parameter</b>	<b>Effluent Limit/Method#/ML</b> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	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 <sup>5</sup>	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/ ML5ug/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/ML50 ug/L
	31. Total Phenols	300 ug/l Me#420.1&420.2/ML 2 ug/L/ Me# 420.4 /ML50 ug/L
	32. Pentachlorophenol (PCP)	1.0 ug/l /Me#8270D/ML5ug/L,Me#604 &625/ML10ug/L
	33. Total Phthalates (Phthalate esters) <sup>6</sup>	3.0 ug/L ** /Me#8270D/ML5ug/L,Me#606/ML10ug/L& Me#625/ML5ug/L
	34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]	6.0 ug/l /Me#8270D/ML5ug/L,Me#606/ML10ug/L& Me#625/ML5ug/L
	35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	10.0 ug/l



	<b><u>Parameter</u></b>	<b><u>Effluent Limit/Method#/ML</u></b> (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 <sup>7</sup>	0.0038 ug/l /Me#8270D/ ML5ug/L, Me#610/ML5ug/L& Me#625/ML5ug/L
	b. Benzo(a) Pyrene <sup>7</sup>	0.0038 ug/l /Me#8270D/ ML5ug/L, Me#610/ML5ug/L& Me#625/ML5ug/L
	c. Benzo(b)Fluoranthene <sup>7</sup>	0.0038 ug/l /Me#8270D/ ML5ug/L, Me#610/ML5ug/L& Me#625/ML5ug/L
	d. Benzo(k)Fluoranthene <sup>7</sup>	0.0038 ug/l /Me#8270D/ ML5ug/L, Me#610/ML5ug/L& Me#625/ML5ug/L
	e. Chrysene <sup>7</sup>	0.0038 ug/l /Me#8270D/ ML5ug/L, Me#610/ML5ug/L& Me#625/ML5ug/L
	f. Dibenzo(a,h)anthracene <sup>7</sup>	0.0038 ug/l /Me#8270D/ ML5ug/L, Me#610/ML5ug/L& Me#625/ML5ug/L
	g. Indeno(1,2,3-cd) Pyrene <sup>7</sup>	0.0038 ug/l /Me#8270D/ ML5ug/L, Me#610/ML5ug/L& Me#625/ML5ug/L
	36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)	100 ug/l
	h. Acenaphthene	X/Me#8270D/ML5ug/L,Me#610/ML5ug /L & Me#625/ML5ug/L
	i. Acenaphthylene	X/Me#8270D/ML5ug/L,Me#610/ML5ug/L & Me#625/ML5ug/L
	j. Anthracene	X/Me#8270D/ML5ug/L,Me#610/ML5ug/L & Me#625/ML5ug/L
	k. Benzo(ghi) Perylene	X/Me#8270D/ML5ug/L,Me#610/ML5ug/L & Me#625/ML5ug/L
	l. Fluoranthene	X/Me#8270D/ML5ug/L,Me#610/ML5ug/L & Me#625/ML5ug/L
	m. Fluorene	X/Me#8270D/ML5ug/L,Me#610/ML5ug/L & Me#625/ML5ug/L
	n. Naphthalene <sup>5</sup>	20 ug/l / Me#8270D/ ML5ug/L, Me#610/ML5ug/L & Me#625/ML5ug/L
	o. Phenanthrene	X/Me#8270D/ML5ug/L,Me#610/ML5ug/L & Me#625/ML5ug/L
	p. Pyrene	X/Me#8270D/ML5ug/L,Me#610/ML5ug/L & Me#625/ML5ug/L
	37. Total Polychlorinated Biphenyls (PCBs) <sup>8,9</sup>	0.000064 ug/L / Me# 608/ ML 0.5 ug/L
✓	38. Chloride	Monitor only/Me# 300.0/ ML 0.1ug/L

		<b><u>Total Recoverable NH/Metal Limit H<sup>10</sup> = 25 mg/l CaCO<sub>3</sub>, Units = ug/l (11/12)</u></b>		<b><u>Minimum level=ML</u></b>	
	<b><u>Metal parameter</u></b>	<b><u>Freshwater Limits</u></b>	<b><u>dilution</u></b>		



	<b>Metal parameter</b>	<b>Total Recoverable NH/Metal Limit H<sup>10</sup> = 25 mg/l CaCO<sub>3</sub>, Units = ug/l (11/12)</b>		<b>Minimum level=ML</b>	
		<b>Freshwater Limits</b>	<b>dilution</b>		
	39. Antimony	141		ML	10
	40. Arsenic **	10	36	ML	20
	41. Cadmium **	0.8		ML	10
✓	42. Chromium III (trivalent) **	138.0		ML	15
	43. Chromium VI (hexavalent) **	11.4		ML	10
✓	44. Copper **	14.5		ML	15
	45. Lead **	0.5		ML	20
	46. Mercury **	0.9		ML	02
✓	47. Nickel **	80.5		ML	20
	48. Selenium **	5		ML	20
	49. Silver	0.4		ML	10
	50. Zinc **	37		ML	15
✓	51. Iron	5,000		ML	20

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

**Footnotes:**

<sup>1</sup> 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).



<sup>2</sup> 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.

<sup>3</sup> 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).

<sup>4</sup> BTEX = sum of Benzene, Toluene, Ethylbenzene, and total Xylenes.

<sup>5</sup> 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.

<sup>6</sup> 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.*

<sup>7</sup> 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.

<sup>8</sup> 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.

<sup>9</sup> 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).

<sup>10</sup> Hardness. Cadmium, Chromium III, Copper, Lead, Nickel, Silver, and Zinc are Hardness Dependent.

<sup>11</sup> 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.

<sup>12</sup> 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).

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

<sup>14</sup> Temperature sampling per Method 170.1

**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 <b>facility/site</b> : 99 Calef Highway		<b>Facility/site</b> mailing address:	
Location of <b>facility/site</b> :	Facility SIC code(s):	Street:	
longitude: 71.0724	5211	99 Calef Highway/Route 125	
latitude: 43.0322			
b) Name of <b>facility/site owner</b> :		Town: Epping	
Email address of facility/site owner:		State:	Zip:
Mhilfinger@cumberlandgulf.com		NH	03042
Telephone no. of facility/site <b>owner</b> : (508) 270-4484		County: Rockingham	
Fax no. of facility/site <b>owner</b> : (781) 459-0454		<b>Owner</b> is (check one): 1. Federal <input type="radio"/> 2. State/Tribal <input type="radio"/>	
Address of <b>owner</b> (if different from site):		3. Private <input checked="" type="radio"/> 4. Other <input type="radio"/> if so, describe:	
Street: 100 Crossing Boulevard			
Town: Framingham	State: MA	Zip: 01702	County: Middlesex
c) Legal name of <b>operator</b> :		<b>Operator</b> telephone no: (508) 270-4484	
Cumberland Farms Inc.		<b>Operator</b> fax no.: (781) 459-0454	<b>Operator</b> email: mhilfingr@cumberlandgulf.com
<b>Operator</b> contact name and title:		Martin Hilfinger Senior Project Manager	
Address of <b>operator</b> (if different from owner):		Street: 100 Crossing Boulevard	
Town: Framingham	State: 01702	Zip: MA	County: Middlesex



<p>d) Check Y for "yes" or N for "no" for the following:</p> <p>1. Has a prior NPDES permit exclusion been granted for the discharge? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input style="width: 150px;" type="text"/></p> <p>2. Has a prior NPDES application (Form 1 &amp; 2C) ever been filed for the discharge? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, date and tracking #: <input style="width: 250px;" type="text"/></p> <p>3. Is the discharge a "new discharge" as defined by 40 CFR 122.2? Y <input checked="" type="radio"/> N <input type="radio"/></p> <p>4. For sites in Massachusetts, is the discharge covered under the Massachusetts Contingency Plan (MCP) and exempt from state permitting? Y <input type="radio"/> N <input type="radio"/></p>									
<p>e) Is site/facility subject to any State permitting, license, or other action which is causing the generation of discharge? Y <input type="radio"/> N <input checked="" type="radio"/></p> <p>If Y, please list:</p> <p>1. site identification # assigned by the state of NH or MA: <input style="width: 200px;" type="text"/></p> <p>2. permit or license # assigned: <input style="width: 150px;" type="text"/></p> <p>3. state agency contact information: name, location, and telephone number: <input style="width: 300px;" type="text"/></p>	<p>f) Is the site/facility covered by any other EPA permit, including:</p> <p>1. Multi-Sector General Permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input style="width: 100px;" type="text"/></p> <p>2. Final Dewatering General Permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input style="width: 100px;" type="text"/></p> <p>3. EPA Construction General Permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input style="width: 100px;" type="text"/></p> <p>4. Individual NPDES permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input style="width: 100px;" type="text"/></p> <p>5. any other water quality related individual or general permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input style="width: 100px;" type="text"/></p>								
<p>g) Is the site/facility located within or does it discharge to an Area of Critical Environmental Concern (ACEC)? Y <input type="radio"/> N <input checked="" type="radio"/></p>									
<p>h) Based on the facility/site information and any historical sampling data, identify the sub-category into which the potential discharge falls.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%; text-align: left; padding: 5px;"><u>Activity Category</u></th> <th style="width: 60%; text-align: left; padding: 5px;"><u>Activity Sub-Category</u></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">I - Petroleum Related Site Remediation</td> <td style="padding: 5px;"> 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"/> </td> </tr> <tr> <td style="padding: 5px;">II - Non Petroleum Site Remediation</td> <td style="padding: 5px;"> 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 checked="" type="checkbox"/> </td> </tr> <tr> <td style="padding: 5px;">III - Contaminated Construction Dewatering</td> <td style="padding: 5px;"> A. General Urban Fill Sites <input type="checkbox"/>  B. Known Contaminated Sites <input type="checkbox"/> </td> </tr> </tbody> </table>		<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 checked="" type="checkbox"/>	III - Contaminated Construction Dewatering	A. General Urban Fill Sites <input type="checkbox"/> B. Known Contaminated Sites <input type="checkbox"/>
<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 checked="" type="checkbox"/>								
III - Contaminated Construction Dewatering	A. General Urban Fill Sites <input type="checkbox"/> B. Known Contaminated Sites <input type="checkbox"/>								

IV - Miscellaneous Related Discharges	A. Aquifer Pump Testing to Evaluate Formerly Contaminated Sites <input type="checkbox"/> B. Well Development/Rehabilitation at Contaminated/Formely 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:	
CFI is purchasing the property to build a gas station. Excavation will occur for the installment of Underground Storage Tanks, 30' wide by 30' long by 15' deep. Groundwater to be discharged will occur at this point. Dewatering will occur during construction of foundation footers and drainage on site.	
b) Provide the following information about each discharge:	
1) Number of discharge points: 1	2) What is the <b>maximum</b> and <b>average flow rate</b> of discharge (in cubic feet per second, ft <sup>3</sup> /s)? Max. flow 0.56 cfs Is maximum flow a <b>design value</b> ? Y <input checked="" type="radio"/> N <input type="radio"/> Average flow (include units) 0.28 cfs Is average flow a design value or estimate? Design
3) Latitude and longitude of each discharge within 100 feet:	
pt.1: lat 43.032445 long -71.072496	pt.2: lat. long. ;
pt.3: lat. long.	pt.4: lat. long. ;
pt.5: lat. long.	pt.6: lat. long. ;
pt.7: lat. long.	pt.8: lat. long. ; 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"/> ? Is discharge ongoing? Y <input checked="" type="radio"/> N <input type="radio"/>
c) Expected dates of discharge (mm/dd/yy): start Jan 27, 2014 end Mar 31, 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).	



### 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	grab	SM2540D	5000	161,000	219.38	161,000	109.69
2. Total Residual Chlorine (TRC)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SM4500-Cl-G	200	<200	0	<200	0
3. Total Petroleum Hydrocarbons (TPH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>								
4. Cyanide (CN)	57125	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	EPA.335.4	3.6	<3.6	0	<3.6	0
5. Benzene (B)	71432	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
6. Toluene (T)	108883	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
7. Ethylbenzene (E)	100414	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	2	<2	0	<2	0
9. Total BTEX <sup>2</sup>	n/a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	2	<2	0	<2	0
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) <sup>3</sup>	106934	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	0.05	<0.05	0	<.05	0
11. Methyl-tert-Butyl Ether (MtBE)	1634044	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	10	<10	0	<10	0

\* 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.

<sup>2</sup> BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

<sup>3</sup> 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	SW846 8260C	1	<1	0	<1	0
14. Naphthalene	91203	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
15. Carbon Tetrachloride	56235	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
16. 1,2 Dichlorobenzene (o-DCB)	95501	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
17. 1,3 Dichlorobenzene (m-DCB)	541731	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
18. 1,4 Dichlorobenzene (p-DCB)	106467	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
18a. Total dichlorobenzene		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	3	<3	0	<3	0
19. 1,1 Dichloroethane (DCA)	75343	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
20. 1,2 Dichloroethane (DCA)	107062	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
21. 1,1 Dichloroethene (DCE)	75354	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
22. cis-1,2 Dichloroethene (DCE)	156592	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
23. Methylene Chloride	75092	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	2	<2	0	<2	0
24. Tetrachloroethene (PCE)	127184	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
25. 1,1,1 Trichloro-ethane (TCA)	71556	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
26. 1,1,2 Trichloro-ethane (TCA)	79005	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0
27. Trichloroethene (TCE)	79016	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	1	<1	0	<1	0



<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	SW846 8260C	1	<1	0	<1	0
29. Acetone	67641	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	10	<10	0	<10	0
30. 1,4 Dioxane	123911	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 8260C	20	<20	0	<20	0
31. Total Phenols	108952	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab		1	<1	0	<1	0
32. Pentachlorophenol (PCP)	87865	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	1	<1	0	<1	0
33. Total Phthalates (Phthalate esters) <sup>4</sup>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	5	<5	0	<5	0
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	117817	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	6	<6	0	<6	0
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	10	<10	0	<10	0
a. Benzo(a) Anthracene	56553	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	5	<5	0	<0.1	0
b. Benzo(a) Pyrene	50328	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	.2	<0.2	0	<0.2	0
c. Benzo(b)Fluoranthene	205992	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	.1	<0.1	0	<0.1	0
d. Benzo(k)Fluoranthene	207089	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	.5	<0.5	0	<0.5	0
e. Chrysene	21801	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	5	<5	0	<5	0
f. Dibenzo(a,h)anthracene	53703	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	.1	<0.1	0	<0.1	0
g. Indeno(1,2,3-cd) Pyrene	193395	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	.1	<0.1	0	<0.1	0
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	100	<100	0	<40	0

<sup>4</sup>The 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	grab	846 3510C	5	<5	0	<5	0
i. Acenaphthylene	208968	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	5	<5	0	<5	0
j. Anthracene	120127	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	5	<5	0	<5	0
k. Benzo(ghi) Perylene	191242	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	5	<5	0	<5	0
l. Fluoranthene	206440	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	5	<5	0	<5	0
m. Fluorene	86737	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	5	<5	0	<5	0
n. Naphthalene	91203	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	5	1.05	0	1.05	0
o. Phenanthrene	85018	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	5	<5	0	<5	0
p. Pyrene	129000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	846 3510C	5	<5	0	<5	0
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
38. Chloride	16887006	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	grab	EPA 300.0	1000	17900	24.391	17900	12.19
39. Antimony	7440360	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 6010C	6	<6	0	<6	0
40. Arsenic	7440382	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	USEPA 6000/7000	.01	<0.01	0	<0.01	0
41. Cadmium	7440439	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	USEPA 6000/7000	.005	<0.005	0	<0.005	0
42. Chromium III (trivalent)	16065831	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	grab	SW846 6010C	10	14.5	.020	14.5	.010
43. Chromium VI (hexavalent)	18540299	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 6010C	50	0	0	0	0
44. Copper	7440508	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	grab	SW846 6010C	5	13	.018	13	.009
45. Lead	7439921	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	USEPA 6000/7000	.015	<.015	0	<.015	0
46. Mercury	7439976	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	EPA 245.1	0.3	<0.3	0	<0.3	0
47. Nickel	7440020	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	grab	SW846 6010C	5	8.6	0.012	8.6	0.006
48. Selenium	7782492	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	USEPA 6000/7000	.05	<0.05	0	<0.05	0
49. Silver	7440224	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	USEPA 6000/7000	.1	<0.1	0	<0.1	0
50. Zinc	7440666	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	SW846 6010C	35	<35	0	<35	0
51. Iron	7439896	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	grab	SW846 6010C	1500	12,200	16.623	12,200	8.412
Other (describe):		<input type="checkbox"/>	<input type="checkbox"/>	1	grab				0		0



Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
		<input type="checkbox"/>	<input type="checkbox"/>								
		<input type="checkbox"/>	<input type="checkbox"/>								

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

<b>Step 1:</b> 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"/>		<b>If yes, which metals?</b> Iron, Copper
<b>Step 2:</b> For any metals which exceed the <b>Appendix III</b> limits, calculate the <b>dilution factor (DF)</b> 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? Metal: Iron DF: 5.72 Metal: Copper DF: 5.72 Metal:            DF: Metal:            DF: Etc.		Look up the limit calculated at the corresponding dilution factor in <b>Appendix IV</b> . Do any of the metals in the <b>influent</b> have the potential to exceed the corresponding <b>effluent</b> limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y <input checked="" type="radio"/> N <input type="radio"/> If Y, list which metals: Iron

**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:

Water will be pumped from the excavation through 4 gel floc socks in parallel. Then, it will pass through a 20,000 gallon weir tank, a frac tank for settling, then through 20 micron bag filters (6). An aeration blower will be used in the weir tanks if necessary for better removal efficiency. The system discharges to a effluent manhole adjacent to the site. One train is proposed but a second train

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 type="checkbox"/>
	Chlorination <input type="checkbox"/>	De-chlorination <input type="checkbox"/>	Other (please describe):	Gel floc socks, weir tank, aeration blower.		

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):

Brand name HaloKlear: Gel-Floc and HaloKlear: DBP-2100 will be used as a flocculant to increase settling potential of the iron in the water.

**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 type="checkbox"/>	Within facility (sewer) <input type="checkbox"/>	Storm drain <input checked="" 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:

Into a storm drain, outfall into the Lamprey 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.

Discharge will be completed during the duration of construction activities on the site.

According to directions found on the New England Field Office of the U.S. Fish and Wildlife Service website, the site was found to be free of any endangered or threatened species. Although data from the website indicates that the threatened plant the whorled pogonia is found in Epping, it is not found in the site area. Additional endangered species GIS maps of the area were also consulted and it was found that no other endangered species were found in the area. Due to these reasons, it was determined that Criterion B in section 6 (a) was applicable.

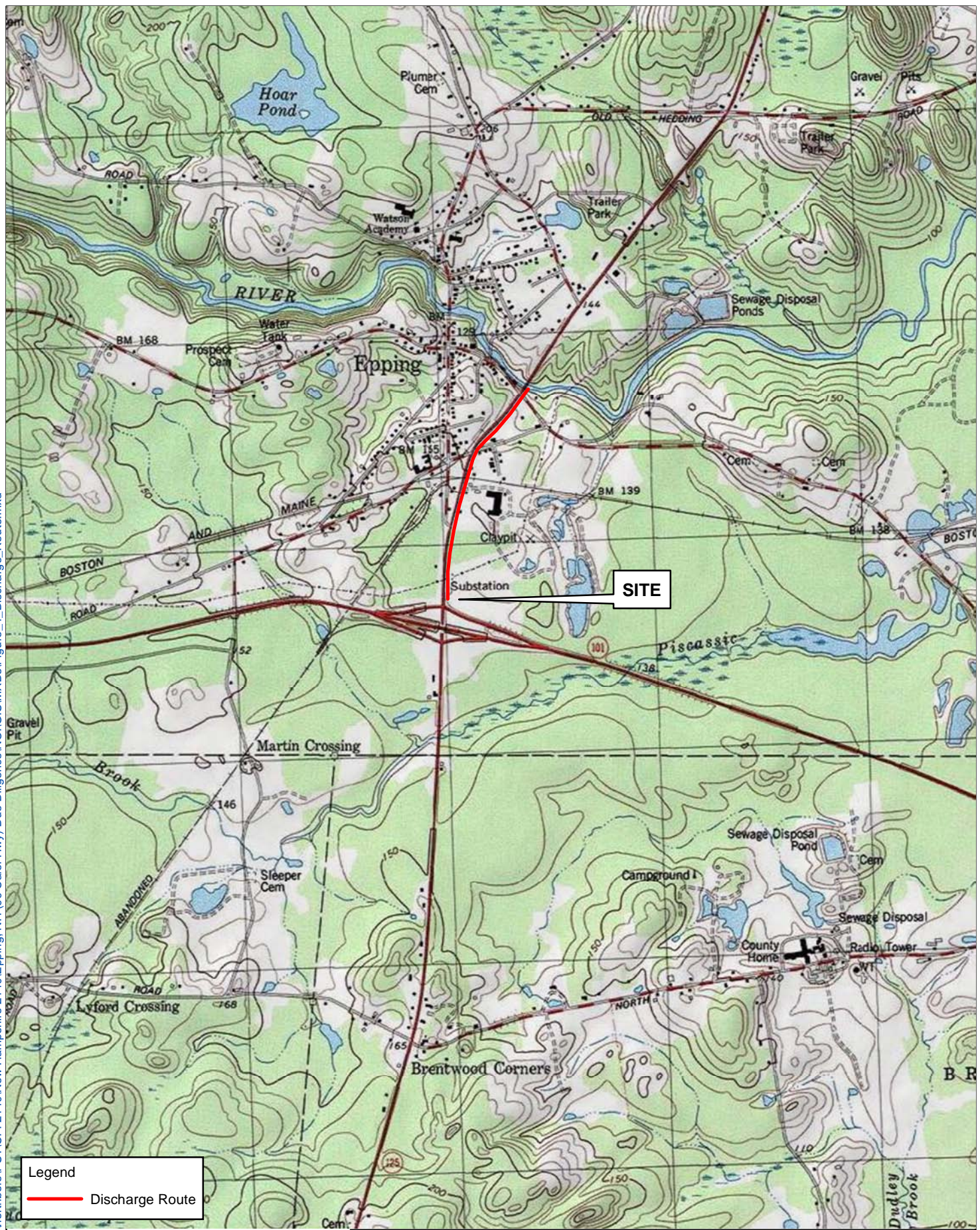
**8. Signature Requirements:** The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

*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:	99 Calef Highway
Operator signature:	
Printed Name & Title:	Martin F. Hiltfinger Senior Project Manager
Date:	1/21/14



Path: \\uswrtf1p001\northboro\PST\CFI 2140\New Hampshire 2140\Epping, NH (99 Calef Hwy) Due Diligence\NOI\GISMXDs\Figure 4\_Discharge\_Route.mxd



**AECOM**

CUMBERLAND FARMS, INC.  
99 CALEF HIGHWAY/ROUTE 125  
EPPING, NEW HAMPSHIRE  
60308487.204

FIGURE 4  
DISCHARGE ROUTE

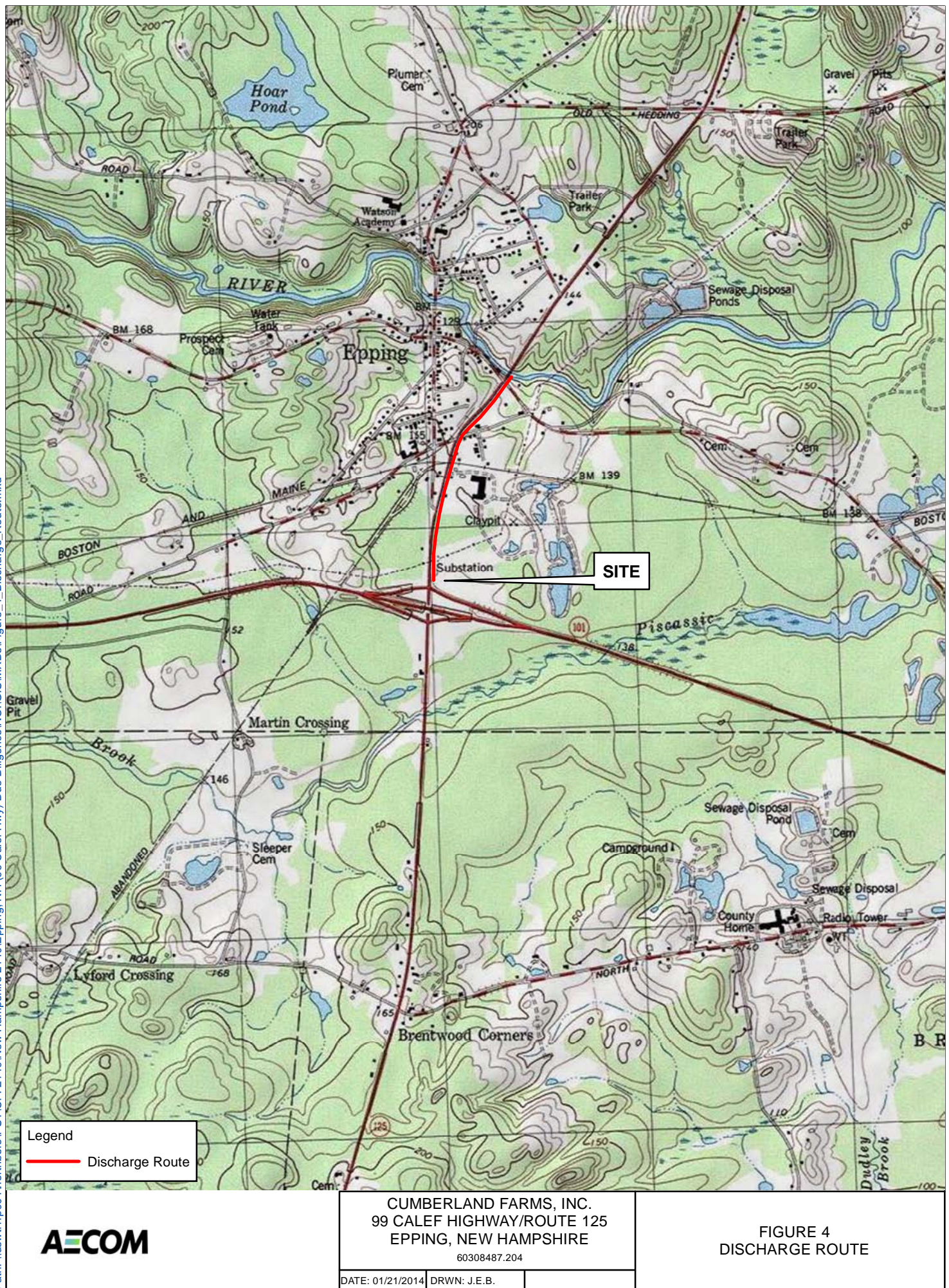
DATE: 01/21/2014 DRWN: J.E.B.





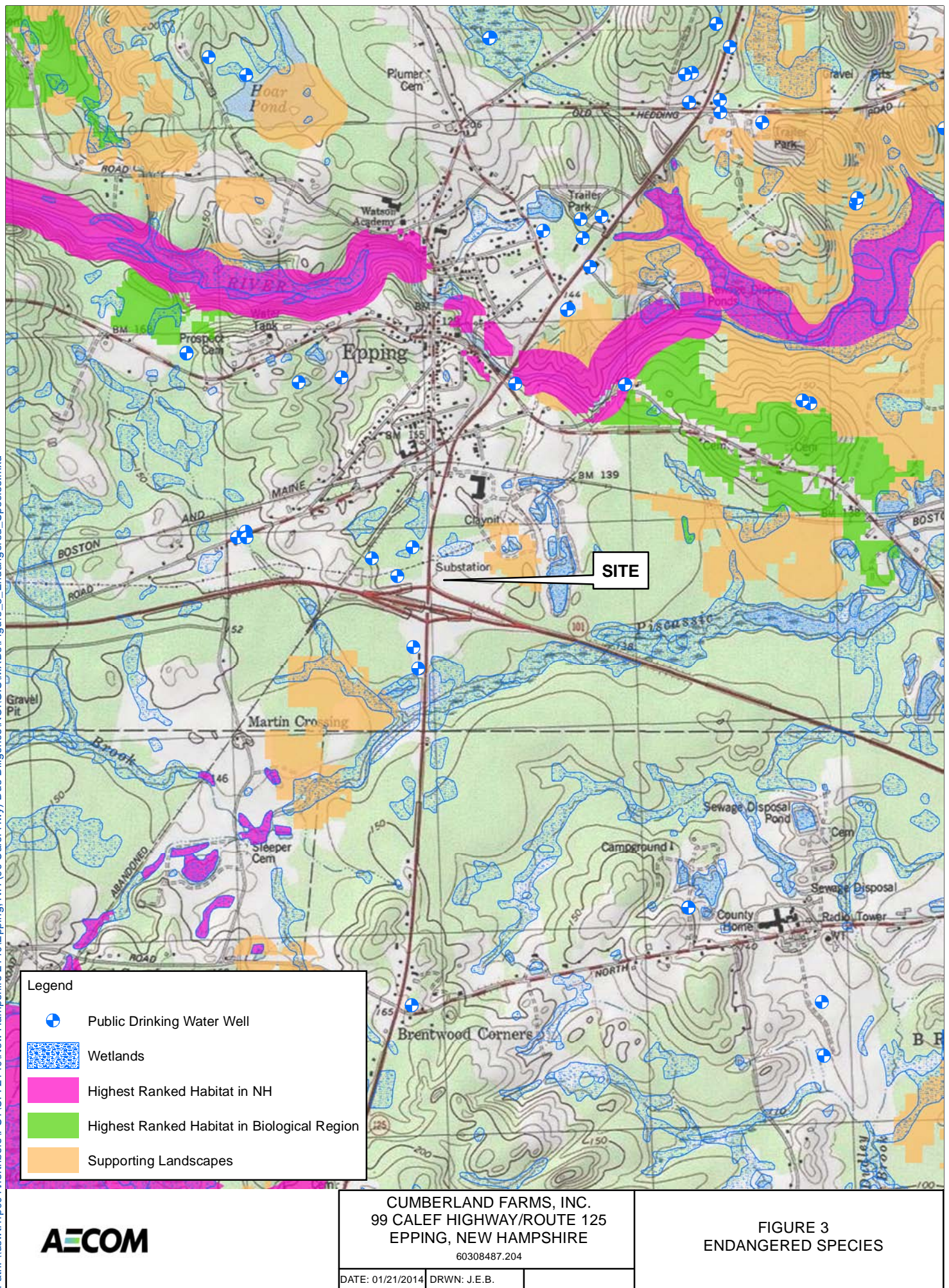


Path: \\uswrtf1p001\northboro\PST\CFI 2140\New Hampshire 2140\Epping, NH (99 Calef Hwy) Due Diligence\NOI\GISMXDs\Figure 4\_Discharge\_Route.mxd





Path: \\uswrtf1p001\northboro\PS\TCFI\2140New Hampshire 2140\Epping, NH (99 Calef Hwy) Due Diligence\NOI\GISMXDs\Figure 3. Endangered\_Species.mxd



**AECOM**

DATE: 01/21/2014 DRWN: J.E.B.





# 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, 2013

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 Mr. Brett Hillman of this office at 603-223-2541 if we can be of further assistance.

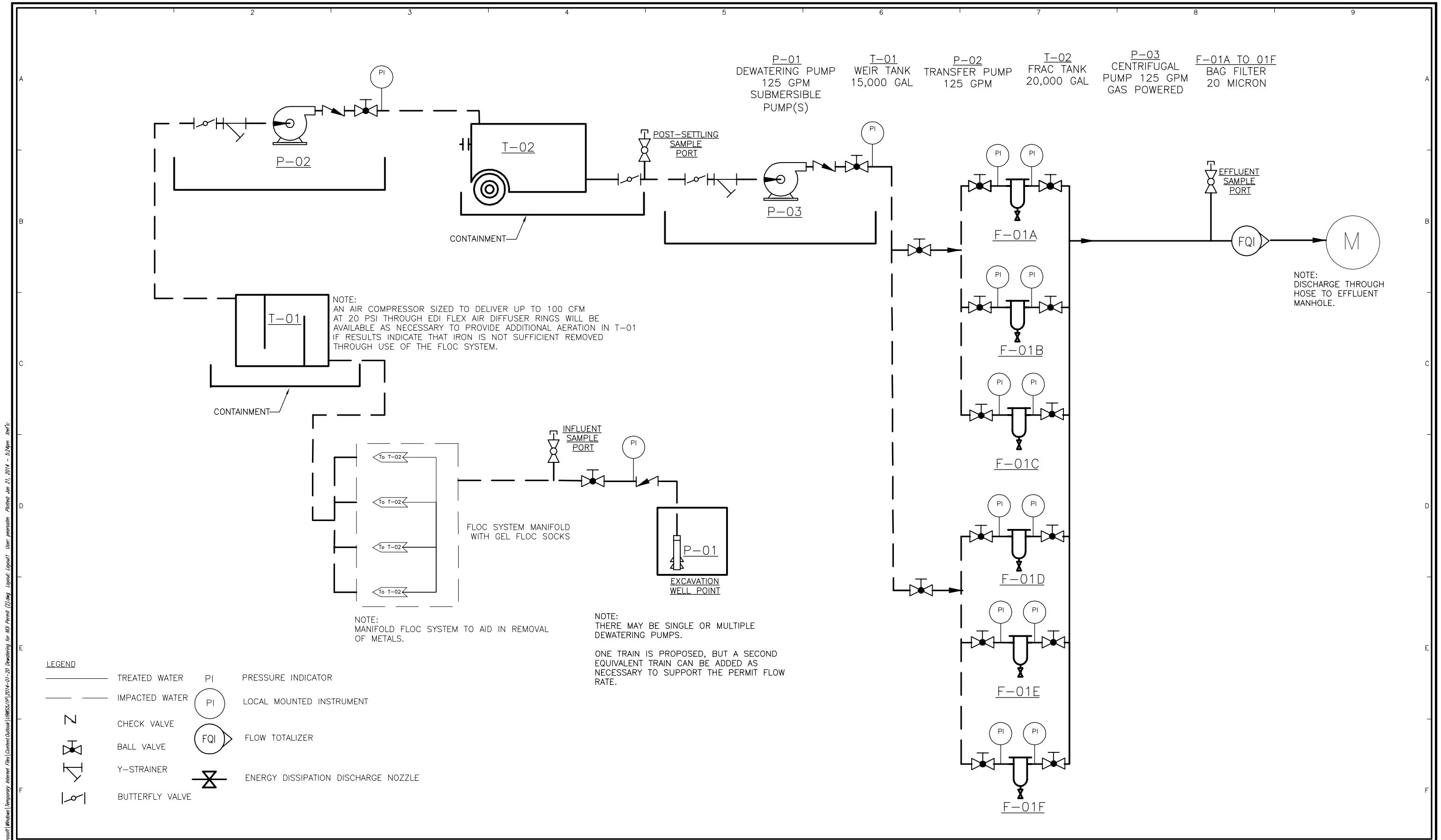
Sincerely yours,

Thomas R. Chapman  
Supervisor  
New England Field Office

Dilution Factor

$$\begin{aligned} &= \left( \frac{Q_d + Q_s}{Q_d} \right) * 0.9 \\ &= \left( \frac{0.56_{cfs} + 3.0_{cfs}}{0.56_{cfs}} \right) * 0.9 \\ &= 5.72 \end{aligned}$$

File: C:\Users\jensalim\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\9WKSUJPI\2014-01-20 Dewatering for MD Permit (2) Long Layout.dwg User: jensalim Plotted: Jan 21, 2014 - 5:24pm 14x11



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NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE		

<b>AECOM</b>		CUMBERLAND FARMS INC. 99 CALEF HIGHWAY EPPING, NH		EXCAVATION DE-WATERING PROCESS FLOW DRAWING		DRAWING NUMBER: 1
AECOM www.aecom.com		PROJ. NUMBER: 60308487		DATE: 1/21/14		SHEET NUMBER: 1
						REVISION 0



**TABLE 2**  
**Groundwater Analytical Results**  
**Cumberland Farms Facility**  
**1 Main Street, Epping, NH**

Sample ID Sample Type Date	B-1 Grab 10/3/2013	NH AGQS
<b>Total Metals by USEPA 6000/7000 Series Methods (mg/L)</b>		
Silver	BDL	0.1
Arsenic	BDL	0.01
Barium	0.0346	2
Cadmium	BDL	0.005
Chromium	0.0072	0.1
Lead	BDL	0.015
Selenium	BDL	0.05
<b>Total Metals by USEPA 200 Series Methods (mg/L)</b>		
Mercury	BDL	NSA
<b>NH Full List VOCs by Method 8260 (µg/L)</b>		
1,1,2-Trichlorotrifluoroethane (Freon 113)	BDL	NSA
Acetone	BDL	6000
Acrylonitrile	BDL	5
Benzene	BDL	5
Bromobenzene	BDL	NSA
Bromochloromethane	BDL	NSA
Bromodichloromethane	BDL	0.6
Bromoform	BDL	4
Bromomethane	BDL	10
2-Butanone (MEK)	BDL	4000
n-Butylbenzene	BDL	260
sec-Butylbenzene	BDL	260
tert-Butylbenzene	BDL	260
Carbon disulfide	BDL	70
Carbon tetrachloride	BDL	5
Chlorobenzene	BDL	100
Chloroethane	BDL	NSA
Chloroform	BDL	70
Chloromethane	BDL	30
2-Chlorotoluene	BDL	100
4-Chlorotoluene	BDL	NSA
1,2-Dibromo-3-chloropropane	BDL	0.2
Dibromochloromethane	BDL	60
1,2-Dibromoethane (EDB)	BDL	0.05
Dibromomethane	BDL	NSA
1,2-Dichlorobenzene	BDL	600
1,3-Dichlorobenzene	BDL	600
1,4-Dichlorobenzene	BDL	75
Dichlorodifluoromethane (Freon 12)	BDL	1000
1,1-Dichloroethane	BDL	81
1,2-Dichloroethane	BDL	5
1,1-Dichloroethene	BDL	7
cis-1,2-Dichloroethene	BDL	70
trans-1,2-Dichloroethene	BDL	100
1,2-Dichloropropane	BDL	5
1,3-Dichloropropane	BDL	NSA
2,2-Dichloropropane	BDL	NSA

**TABLE 2**  
**Groundwater Analytical Results**  
**Cumberland Farms Facility**  
**1 Main Street, Epping, NH**

Sample ID Sample Type Date	B-1 Grab 10/3/2013	NH AGQS
<b>NH Full List VOCs by Method 8260 (µg/L) (continued)</b>		
1,1-Dichloropropene	BDL	NSA
cis-1,3-Dichloropropene	BDL	NSA
trans-1,3-Dichloropropene	BDL	NSA
Ethylbenzene	BDL	700
Hexachlorobutadiene	BDL	0.5
2-Hexanone (MBK)	BDL	
Isopropylbenzene	BDL	800
4-Isopropyltoluene	BDL	260
SW846 8260C	BDL	13
4-Methyl-2-pentanone (MIBK)	BDL	2000
Methylene chloride	BDL	5
Naphthalene	1.05	20
n-Propylbenzene	BDL	260
Styrene	BDL	100
1,1,1,2-Tetrachloroethane	BDL	70
1,1,2,2-Tetrachloroethane	BDL	2
Tetrachloroethene	BDL	5
Toluene	BDL	1000
1,2,3-Trichlorobenzene	BDL	NSA
1,2,4-Trichlorobenzene	BDL	70
1,3,5-Trichlorobenzene	BDL	40
1,1,1-Trichloroethane	BDL	200
1,1,2-Trichloroethane	BDL	5
Trichloroethene	BDL	5
Trichlorofluoromethane (Freon 11)	BDL	2000
1,2,3-Trichloropropane	BDL	40
1,2,4-Trimethylbenzene	BDL	330
1,3,5-Trimethylbenzene	BDL	330
Vinyl chloride	BDL	2
m,p-Xylene	BDL	NSA
o-Xylene	BDL	NSA
Tetrahydrofuran	BDL	154
Ethyl ether	BDL	NSA
Tert-amyl methyl ether	BDL	140
Ethyl tert-butyl ether	BDL	40
Di-isopropyl ether	BDL	120
Tert-Butanol / butyl alcohol	BDL	40
1,4-Dioxane	BDL	3
trans-1,4-Dichloro-2-butene	BDL	NSA
Ethanol	BDL	NSA
<b>NH Full List SVOCs by Method 846 3510C (µg/L)</b>		
Acenaphthene	BDL	420
Acenaphthylene	BDL	420
Aniline	BDL	NSA
Anthracene	BDL	2100
Azobenzene/Diphenyldiazene	BDL	NSA
Benzidine	BDL	0.8

**TABLE 2**  
**Groundwater Analytical Results**  
**Cumberland Farms Facility**  
**1 Main Street, Epping, NH**

Sample ID Sample Type Date	B-1 Grab 10/3/2013	NH AGQS
<b>NH Full List SVOCs by Method 846 3510C (µg/L) (continued)</b>		
Benzo (a) anthracene	BDL	0.1
Benzo (a) pyrene	BDL	0.2
Benzo (b) fluoranthene	BDL	0.1
sss	BDL	210
Benzo (k) fluoranthene	BDL	0.5
Benzoic acid	BDL	28000
Benzyl alcohol	BDL	NSA
Bis(2-chloroethoxy)methane	BDL	NSA
Bis(2-chloroethyl)ether	BDL	10
Bis(2-chloroisopropyl)ether	BDL	NSA
Bis(2-ethylhexyl)phthalate	BDL	6
4-Bromophenyl phenyl ether	BDL	NSA
Butyl benzyl phthalate	BDL	NSA
Carbazole	BDL	NSA
4-Chloro-3-methylphenol	BDL	NSA
4-Chloroaniline	BDL	28
2-Chloronaphthalene	BDL	NSA
2-Chlorophenol	BDL	35
4-Chlorophenyl phenyl ether	BDL	NSA
Chrysene	BDL	5
Dibenzo (a,h) anthracene	BDL	0.1
Dibenzofuran	BDL	NSA
1,2-Dichlorobenzene	BDL	600
1,3-Dichlorobenzene	BDL	600
1,4-Dichlorobenzene	BDL	75
3,3'-Dichlorobenzidine	BDL	1.3
2,4-Dichlorophenol	BDL	21
Diethyl phthalate	BDL	NSA
Dimethyl phthalate	BDL	50000
2,4-Dimethylphenol	BDL	140
Di-n-butyl phthalate	BDL	800
4,6-Dinitro-2-methylphenol	BDL	NSA
2,4-Dinitrophenol	BDL	14
2,4-Dinitrotoluene	BDL	10
2,6-Dinitrotoluene	BDL	NSA
Di-n-octyl phthalate	BDL	NSA
Fluoranthene	BDL	280
Fluorene	BDL	280
Hexachlorobenzene	BDL	1
Hexachlorobutadiene	BDL	0.5
Hexachlorocyclopentadiene	BDL	50
Hexachloroethane	BDL	1
Indeno (1,2,3-cd) pyrene	BDL	0.1
Isophorone	BDL	100
2-Methylnaphthalene	BDL	280
2-Methylphenol	BDL	40
3 & 4-Methylphenol	BDL	NSA



**TABLE 2**  
**Groundwater Analytical Results**  
**Cumberland Farms Facility**  
**1 Main Street, Epping, NH**

Sample ID Sample Type Date	B-1 Grab 10/3/2013	NH AGQS
<b>NH Full List SVOCs by Method 846 3510C (µg/L) (continued)</b>		
Naphthalene	BDL	20
2-Nitroaniline	BDL	NSA
3-Nitroaniline	BDL	NSA
4-Nitroaniline	BDL	NSA
Nitrobenzene	BDL	NSA
2-Nitrophenol	BDL	NSA
4-Nitrophenol	BDL	NSA
N-Nitrosodimethylamine	BDL	NSA
N-Nitrosodi-n-propylamine	BDL	NSA
N-Nitrosodiphenylamine	BDL	NSA
Pentachlorophenol	BDL	1
Phenanthrene	BDL	210
Phenol	BDL	4000
Pyrene	BDL	210
Pyridine	BDL	NSA
1,2,4-Trichlorobenzene	BDL	70
1-Methylnaphthalene	BDL	NSA
2,4,5-Trichlorophenol	BDL	700
2,4,6-Trichlorophenol	BDL	5
Pentachloronitrobenzene	BDL	NSA
1,2,4,5-Tetrachlorobenzene	BDL	NSA
<b>General Chemistry Parameters</b>		
Flashpoint	>150° F	NSA
pH	5.84	NSA

**Notes:**

bgs - below ground surface

ppm<sub>v</sub> - parts per million by volume

µg/L - micrograms per Liter, equivalent to parts per billion

VOCs - Volatile Organic Compounds

SVOCs - Semivolatile Organic Compounds

PID - photoionization detector

NH AGQS - New Hampshire Ambient Groundwater Quality Standards, Env-Or 600

BDL - below detection limit

NSA - No standard available

°F - degrees Fahrenheit

**Spectrum Analytical, Inc. - Criteria Comparison - Generated 12/23/2013 2:26 PM**

Client ID: Trip Blank

Matrix: Aqueous

Sampled: 10/3/2013

Method / Analyte	Units	Result	RDL	NH AGQS
<b>SW846 8260C</b>				
1,1,2-Trichlorotrifluoroethane (Freon 113)	µg/l	BRL	1	
Acetone	µg/l	BRL	10	6000
Acrylonitrile	µg/l	BRL	0.5	5
Benzene	µg/l	BRL	1	5
Bromobenzene	µg/l	BRL	1	
Bromochloromethane	µg/l	BRL	1	
Bromodichloromethane	µg/l	BRL	0.5	0.6
Bromoform	µg/l	BRL	1	4
Bromomethane	µg/l	BRL	2	10
2-Butanone (MEK)	µg/l	BRL	10	4000
n-Butylbenzene	µg/l	BRL	1	260
sec-Butylbenzene	µg/l	BRL	1	260
tert-Butylbenzene	µg/l	BRL	1	260
Carbon disulfide	µg/l	BRL	2	70
Carbon tetrachloride	µg/l	BRL	1	5
Chlorobenzene	µg/l	BRL	1	100
Chloroethane	µg/l	BRL	2	
Chloroform	µg/l	BRL	1	70
Chloromethane	µg/l	BRL	2	30
2-Chlorotoluene	µg/l	BRL	1	100
4-Chlorotoluene	µg/l	BRL	1	
1,2-Dibromo-3-chloropropane	µg/l	BRL	2	0.2
Dibromochloromethane	µg/l	BRL	0.5	60
1,2-Dibromoethane (EDB)	µg/l	BRL	0.5	0.05
Dibromomethane	µg/l	BRL	1	
1,2-Dichlorobenzene	µg/l	BRL	1	600
1,3-Dichlorobenzene	µg/l	BRL	1	600
1,4-Dichlorobenzene	µg/l	BRL	1	75
Dichlorodifluoromethane (Freon12)	µg/l	BRL	2	1000
1,1-Dichloroethane	µg/l	BRL	1	81
1,2-Dichloroethane	µg/l	BRL	1	5
1,1-Dichloroethene	µg/l	BRL	1	7
cis-1,2-Dichloroethene	µg/l	BRL	1	70
trans-1,2-Dichloroethene	µg/l	BRL	1	100
1,2-Dichloropropane	µg/l	BRL	1	5
1,3-Dichloropropane	µg/l	BRL	1	
2,2-Dichloropropane	µg/l	BRL	1	
1,1-Dichloropropene	µg/l	BRL	1	
cis-1,3-Dichloropropene	µg/l	BRL	0.5	
trans-1,3-Dichloropropene	µg/l	BRL	0.5	
Ethylbenzene	µg/l	BRL	1	700
Hexachlorobutadiene	µg/l	BRL	0.5	0.5

2-Hexanone (MBK)	µg/l	BRL	10	
Isopropylbenzene	µg/l	BRL	1	800
4-Isopropyltoluene	µg/l	BRL	1	260
Methyl tert-butyl ether	µg/l	BRL	1	13
4-Methyl-2-pentanone (MIBK)	µg/l	BRL	10	2000
Methylene chloride	µg/l	BRL	2	5
Naphthalene	µg/l	BRL	1	20
n-Propylbenzene	µg/l	BRL	1	260
Styrene	µg/l	BRL	1	100
1,1,1,2-Tetrachloroethane	µg/l	BRL	1	70
1,1,2,2-Tetrachloroethane	µg/l	BRL	0.5	2
Tetrachloroethene	µg/l	BRL	1	5
Toluene	µg/l	BRL	1	1000
1,2,3-Trichlorobenzene	µg/l	BRL	1	
1,2,4-Trichlorobenzene	µg/l	BRL	1	70
1,3,5-Trichlorobenzene	µg/l	BRL	1	40
1,1,1-Trichloroethane	µg/l	BRL	1	200
1,1,2-Trichloroethane	µg/l	BRL	1	5
Trichloroethene	µg/l	BRL	1	5
Trichlorofluoromethane (Freon 11)	µg/l	BRL	1	2000
1,2,3-Trichloropropane	µg/l	BRL	1	40
1,2,4-Trimethylbenzene	µg/l	BRL	1	330
1,3,5-Trimethylbenzene	µg/l	BRL	1	330
Vinyl chloride	µg/l	BRL	1	2
m,p-Xylene	µg/l	BRL	2	
o-Xylene	µg/l	BRL	1	
Tetrahydrofuran	µg/l	BRL	2	154
Ethyl ether	µg/l	BRL	1	
Tert-amyl methyl ether	µg/l	BRL	1	140
Ethyl tert-butyl ether	µg/l	BRL	1	40
Di-isopropyl ether	µg/l	BRL	1	120
Tert-Butanol / butyl alcohol	µg/l	BRL	10	40
1,4-Dioxane	µg/l	BRL	20	3
trans-1,4-Dichloro-2-butene	µg/l	BRL	5	
Ethanol	µg/l	BRL	400	

***Comparison criteria values are provided as a convenience for client review.***

***The user should verify that these values are the most current, and that concentrations and units are accurate.***

***Please report any discrepancies to our Quality Assurance Department.***

Report Date:  
20-Jan-14 14:21



- ☒ Final Report  
☐ Re-Issued Report  
☐ Revised Report

**SPECTRUM ANALYTICAL, INC.**

*Featuring*

**HANIBAL TECHNOLOGY**

***Laboratory Report***

AECOM Environment  
250 Apollo Drive  
Chelmsford, MA 01824  
Attn: Cheryl Cormier

Project: CFI - Epping, NH  
Project #: 60308487

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB83173-01	MW-1	Ground Water	13-Jan-14 16:25	14-Jan-14 10:50

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.  
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110  
Connecticut # PH-0777  
Florida # E87600/E87936  
Maine # MA138  
New Hampshire # 2538  
New Jersey # MA011/MA012  
New York # 11393/11840  
Pennsylvania # 68-04426/68-02924  
Rhode Island # 98  
USDA # S-51435



Authorized by:

Nicole Leja  
Laboratory Director

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.

Please note that this report contains 14 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

*Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at [www.spectrum-analytical.com](http://www.spectrum-analytical.com) for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey, Pennsylvania and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, NJ-MA012, PA-68-04426 and FL-E87936).*

*Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.*



## CASE NARRATIVE:

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

The samples were received 4.8 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

### EPA 245.1/7470A

#### Samples:

SB83173-01                      *MW-I*

---

The Reporting Limit has been raised to account for matrix interference.

Mercury

### SM4500-Cl-G

#### Samples:

SB83173-01                      *MW-I*

---

The Reporting Limit has been raised to account for matrix interference.

Total Residual Chlorine

### SW846 6010C

#### Spikes:

1401253-MSD1                      *Source: SB83173-01*

---

The spike recovery was outside of QC acceptance limits for the MS, MSD and/or PS due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Iron

1401253-PS1                      *Source: SB83173-01*

---

The spike recovery was outside of QC acceptance limits for the MS, MSD and/or PS due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Iron

#### Samples:

SB83173-01                      *MW-I*

---

IMRL raised to correlate to batch QC reporting limits.

Zinc

### SW846 7196A/SM3500CrD

#### Samples:

SB83173-01                      *MW-I*

---

The Reporting Limit has been raised to account for matrix interference.

Hexavalent Chromium

## Sample Acceptance Check Form

Client: AECOM Environment - Chelmsford, MA  
 Project: CFI - Epping , NH / 60308487  
 Work Order: SB83173  
 Sample(s) received on: 1/14/2014  
 Received by: Allison Edens

*The following outlines the condition of samples for the attached Chain of Custody upon receipt.*

	<u>Yes</u>	<u>No</u>	<u>N/A</u>
1. Were custody seals present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Were custody seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Were samples received at a temperature of $\leq 6^{\circ}\text{C}$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Were samples cooled on ice upon transfer to laboratory representative?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Were samples refrigerated upon transfer to laboratory representative?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Were sample containers received intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Were samples accompanied by a Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Did sample container labels agree with Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Were samples received within method-specific holding times?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sample Identification

MW-1

SB83173-01

Client Project #

60308487

Matrix

Ground Water

Collection Date/Time

13-Jan-14 16:25

Received

14-Jan-14

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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**Volatile Organic Compounds**Gasoline Range OrganicsPrepared by method VPH - EPA 5030C Water

	Gasoline Range Organics (C5-C12)	< 0.4	D	mg/l	0.4	0.009	5	Mod 8015	16-Jan-14	17-Jan-14	mp	1401113	X
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Surrogate recoveries:

615-59-8	2,5-Dibromotoluene (PID)	88			70-130 %			"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (FID)	95			70-130 %			"	"	"	"	"	

**Semivolatile Organic Compounds by GC**Polychlorinated BiphenylsPrepared by method SW846 3510C

12674-11-2	Aroclor-1016	< 0.208		µg/l	0.208	0.0766	1	SW846 8082A	16-Jan-14	17-Jan-14	IMR	1401106	X
11104-28-2	Aroclor-1221	< 0.208		µg/l	0.208	0.132	1	"	"	"	"	"	X
11141-16-5	Aroclor-1232	< 0.208		µg/l	0.208	0.108	1	"	"	"	"	"	X
53469-21-9	Aroclor-1242	< 0.208		µg/l	0.208	0.124	1	"	"	"	"	"	X
12672-29-6	Aroclor-1248	< 0.208		µg/l	0.208	0.108	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	< 0.208		µg/l	0.208	0.136	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	< 0.208		µg/l	0.208	0.114	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	< 0.208		µg/l	0.208	0.144	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	< 0.208		µg/l	0.208	0.0859	1	"	"	"	"	"	X

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	55			30-150 %			"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	60			30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	55			30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	50			30-150 %			"	"	"	"	"	

**Extractable Petroleum Hydrocarbons**Diesel Range OrganicsPrepared by method SW846 3510C

68476-30-2	Fuel Oil #2	< 0.2		mg/l	0.2	0.2	1	8015DM	15-Jan-14	16-Jan-14	SEP	1401054	
68476-31-3	Fuel Oil #4	< 0.2		mg/l	0.2	0.02	1	"	"	"	"	"	
68553-00-4	Fuel Oil #6	< 0.2		mg/l	0.2	0.2	1	"	"	"	"	"	
M09800000	Motor Oil	< 0.2		mg/l	0.2	0.2	1	"	"	"	"	"	
J00100000	Aviation Fuel	< 0.2		mg/l	0.2	0.06	1	"	"	"	"	"	
	Unidentified	< 0.2		mg/l	0.2	0.06	1	"	"	"	"	"	
	Other Oil	< 0.2		mg/l	0.2	0.02	1	"	"	"	"	"	
	Diesel Range Organics (DRO) C10-C28	< 0.2		mg/l	0.2	0.2	1	"	"	"	"	"	X

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	56			40-140 %			"	"	"	"	"	
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**Total Metals by EPA 200/6000 Series Methods**

	Preservation	Field Preserved		N/A			1	EPA 200/6000 methods			BJW	1400939	
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**Total Metals by EPA 6000/7000 Series Methods**

7440-47-3	Chromium	0.0145		mg/l	0.0050	0.0009	1	SW846 6010C	17-Jan-14	20-Jan-14	TBC	1401253	X
7440-50-8	Copper	0.0130		mg/l	0.0050	0.0011	1	"	"	17-Jan-14	"	"	X
7439-89-6	Iron	12.2		mg/l	0.0150	0.0074	1	"	"	"	"	"	X

*This laboratory report is not valid without an authorized signature on the cover page.*

Sample Identification

MW-1

SB83173-01

Client Project #

60308487

Matrix

Ground Water

Collection Date/Time

13-Jan-14 16:25

Received

14-Jan-14

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
<b>Total Metals by EPA 6000/7000 Series Methods</b>													
7440-02-0	Nickel	0.0086		mg/l	0.0050	0.0007	1	SW846 6010C	17-Jan-14	17-Jan-14	EDT	1401253	X
7440-36-0	Antimony	< 0.0060		mg/l	0.0060	0.0014	1	"	"	"	"	"	X
7440-66-6	Zinc	< 0.0350	R06	mg/l	0.0350	0.0020	1	"	"	20-Jan-14	"	"	X
<b>Total Metals by EPA 200 Series Methods</b>													
7439-97-6	Mercury	< 0.00030	R01	mg/l	0.00030	0.00008	1	EPA 245.1/7470A	17-Jan-14	20-Jan-14	LR	1401254	X
<b>General Chemistry Parameters</b>													
16065-83-1	Trivalent Chromium	0.0145		mg/l	0.0100	0.0053	1	Calculation	17-Jan-14	20-Jan-14	TBC	1401253	
7782-50-5	Total Residual Chlorine	< 0.200	R01,CIHT	mg/l	0.200	0.056	1	SM4500-Cl-G	14-Jan-14 16:12	14-Jan-14 16:12	BD	1400962	
16887-00-6	Chloride	17.9		mg/l	1.00	0.124	1	EPA 300.0	14-Jan-14	14-Jan-14	EE	1400858	X
18540-29-9	Hexavalent Chromium	< 0.050	R01,LIV	mg/l	0.050	0.015	1	SW846 7196A/SM3500CrD	14-Jan-14 11:50	14-Jan-14 12:01	TD/CA	1400925	X
57-12-5	Cyanide (total)	< 0.00500		mg/l	0.00500	0.00360	1	EPA 335.4 / SW846 9012B	17-Jan-14	18-Jan-14	RLT	1401289	X
	Total Suspended Solids	161		mg/l	5.0	1.7	1	SM2540D	14-Jan-14	16-Jan-14	CMB	1400901	X

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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1401113 - VPH - EPA 5030C Water</b>										
<b>Blank (1401113-BLK1)</b>					Prepared: 16-Jan-14 Analyzed: 17-Jan-14					
Gasoline Range Organics (C5-C12)	< 0.4		mg/l	0.4						
Surrogate: 2,5-Dibromotoluene (PID)	42.1		mg/l		50.0		84	70-130		
Surrogate: 2,5-Dibromotoluene (FID)	45.8		mg/l		50.0		92	70-130		
<b>LCS (1401113-BS1)</b>					Prepared: 16-Jan-14 Analyzed: 17-Jan-14					
Gasoline Range Organics (C5-C12)	272		mg/l		280		97	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	46.2		mg/l		50.0		92	70-130		
Surrogate: 2,5-Dibromotoluene (FID)	50.7		mg/l		50.0		101	70-130		
<b>LCS Dup (1401113-BSD1)</b>					Prepared: 16-Jan-14 Analyzed: 17-Jan-14					
Gasoline Range Organics (C5-C12)	279		mg/l		280		100	70-130	3	25
Surrogate: 2,5-Dibromotoluene (PID)	46.1		mg/l		50.0		92	70-130		
Surrogate: 2,5-Dibromotoluene (FID)	50.4		mg/l		50.0		101	70-130		

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## Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1401106 - SW846 3510C</b>										
<b>Blank (1401106-BLK1)</b>					Prepared: 16-Jan-14 Analyzed: 17-Jan-14					
Aroclor-1016	< 0.200		µg/l	0.200						
Aroclor-1016 [2C]	< 0.200		µg/l	0.200						
Aroclor-1221	< 0.200		µg/l	0.200						
Aroclor-1221 [2C]	< 0.200		µg/l	0.200						
Aroclor-1232	< 0.200		µg/l	0.200						
Aroclor-1232 [2C]	< 0.200		µg/l	0.200						
Aroclor-1242	< 0.200		µg/l	0.200						
Aroclor-1242 [2C]	< 0.200		µg/l	0.200						
Aroclor-1248	< 0.200		µg/l	0.200						
Aroclor-1248 [2C]	< 0.200		µg/l	0.200						
Aroclor-1254	< 0.200		µg/l	0.200						
Aroclor-1254 [2C]	< 0.200		µg/l	0.200						
Aroclor-1260	< 0.200		µg/l	0.200						
Aroclor-1260 [2C]	< 0.200		µg/l	0.200						
Aroclor-1262	< 0.200		µg/l	0.200						
Aroclor-1262 [2C]	< 0.200		µg/l	0.200						
Aroclor-1268	< 0.200		µg/l	0.200						
Aroclor-1268 [2C]	< 0.200		µg/l	0.200						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.160		µg/l		0.200		80	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.170		µg/l		0.200		85	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.190		µg/l		0.200		95	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.180		µg/l		0.200		90	30-150		
<b>LCS (1401106-BS1)</b>					Prepared: 16-Jan-14 Analyzed: 17-Jan-14					
Aroclor-1016	2.00		µg/l	0.200	2.50		80	40-140		
Aroclor-1016 [2C]	2.07		µg/l	0.200	2.50		83	40-140		
Aroclor-1260	2.12		µg/l	0.200	2.50		85	40-140		
Aroclor-1260 [2C]	1.98		µg/l	0.200	2.50		79	40-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.160		µg/l		0.200		80	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.160		µg/l		0.200		80	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.190		µg/l		0.200		95	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.170		µg/l		0.200		85	30-150		
<b>LCS Dup (1401106-BSD1)</b>					Prepared: 16-Jan-14 Analyzed: 17-Jan-14					
Aroclor-1016	2.00		µg/l	0.200	2.50		80	40-140	0	20
Aroclor-1016 [2C]	2.14		µg/l	0.200	2.50		86	40-140	3	20
Aroclor-1260	2.12		µg/l	0.200	2.50		85	40-140	0	20
Aroclor-1260 [2C]	2.05		µg/l	0.200	2.50		82	40-140	3	20
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.160		µg/l		0.200		80	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.170		µg/l		0.200		85	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.190		µg/l		0.200		95	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.180		µg/l		0.200		90	30-150		

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# Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1401054 - SW846 3510C</b>										
<b>Blank (1401054-BLK1)</b>					Prepared: 15-Jan-14 Analyzed: 16-Jan-14					
Fuel Oil #2	< 0.2		mg/l	0.2						
Fuel Oil #4	< 0.2		mg/l	0.2						
Fuel Oil #6	< 0.2		mg/l	0.2						
Motor Oil	< 0.2		mg/l	0.2						
Aviation Fuel	< 0.2		mg/l	0.2						
Unidentified	< 0.2		mg/l	0.2						
Other Oil	< 0.2		mg/l	0.2						
Diesel Range Organics (DRO) C10-C28	< 0.2		mg/l	0.2						
Surrogate: 1-Chlorooctadecane	0.0275		mg/l		0.0500		55	40-140		
<b>LCS (1401054-BS2)</b>					Prepared: 15-Jan-14 Analyzed: 16-Jan-14					
Fuel Oil #2	8.6		mg/l	0.2	10.0		86	40-140		
Surrogate: 1-Chlorooctadecane	0.0432		mg/l		0.0500		86	40-140		
<b>LCS Dup (1401054-BSD2)</b>					Prepared: 15-Jan-14 Analyzed: 16-Jan-14					
Fuel Oil #2	9.0		mg/l	0.2	10.0		90	40-140	5	200
Surrogate: 1-Chlorooctadecane	0.0473		mg/l		0.0500		95	40-140		

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# **Total Metals by EPA 6000/7000 Series Methods - Quality Control**

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1401253 - SW846 3005A</b>										
<b><u>Blank (1401253-BLK1)</u></b>					<u>Prepared &amp; Analyzed: 17-Jan-14</u>					
Iron	< 0.0150		mg/l	0.0150						
Antimony	< 0.0060		mg/l	0.0060						
Nickel	< 0.0050		mg/l	0.0050						
Zinc	< 0.0350		mg/l	0.0350						
Copper	< 0.0050		mg/l	0.0050						
Chromium	< 0.0050		mg/l	0.0050						
<b><u>LCS (1401253-BS1)</u></b>					<u>Prepared &amp; Analyzed: 17-Jan-14</u>					
Iron	<b>1.32</b>		mg/l	0.0150	1.25		106	85-115		
Copper	<b>1.40</b>		mg/l	0.0050	1.25		112	85-115		
Chromium	<b>1.33</b>		mg/l	0.0050	1.25		107	85-115		
Nickel	<b>1.36</b>		mg/l	0.0050	1.25		109	85-115		
Antimony	<b>1.32</b>		mg/l	0.0060	1.25		105	85-115		
Zinc	<b>1.26</b>		mg/l	0.0350	1.25		101	85-115		
<b><u>LCS Dup (1401253-BSD1)</u></b>					<u>Prepared &amp; Analyzed: 17-Jan-14</u>					
Iron	<b>1.34</b>		mg/l	0.0150	1.25		107	85-115	1	20
Zinc	<b>1.26</b>		mg/l	0.0350	1.25		101	85-115	0.5	20
Chromium	<b>1.30</b>		mg/l	0.0050	1.25		104	85-115	2	20
Copper	<b>1.36</b>		mg/l	0.0050	1.25		109	85-115	2	20
Antimony	<b>1.35</b>		mg/l	0.0060	1.25		108	85-115	2	20
Nickel	<b>1.35</b>		mg/l	0.0050	1.25		108	85-115	0.8	20
<b><u>Matrix Spike (1401253-MS1)</u></b>					<b><u>Source: SB83173-01</u></b>		<u>Prepared &amp; Analyzed: 17-Jan-14</u>			
Iron	<b>13.2</b>		mg/l	0.0150	1.25	12.2	77	75-125		
Chromium	<b>1.28</b>		mg/l	0.0050	1.25	0.0145	101	75-125		
Antimony	<b>1.24</b>		mg/l	0.0060	1.25	0.0019	99	75-125		
Nickel	<b>1.24</b>		mg/l	0.0050	1.25	0.0086	99	75-125		
Copper	<b>1.31</b>		mg/l	0.0050	1.25	0.0130	104	75-125		
Zinc	<b>1.24</b>		mg/l	0.0350	1.25	0.0335	97	75-125		
<b><u>Matrix Spike Dup (1401253-MSD1)</u></b>					<b><u>Source: SB83173-01</u></b>		<u>Prepared &amp; Analyzed: 17-Jan-14</u>			
Iron	<b>13.9</b>	QM4X	mg/l	0.0150	1.25	12.2	134	75-125	5	20
Chromium	<b>1.28</b>		mg/l	0.0050	1.25	0.0145	102	75-125	0.4	20
Copper	<b>1.32</b>		mg/l	0.0050	1.25	0.0130	105	75-125	1	20
Nickel	<b>1.26</b>		mg/l	0.0050	1.25	0.0086	100	75-125	2	20
Antimony	<b>1.26</b>		mg/l	0.0060	1.25	0.0019	100	75-125	1	20
Zinc	<b>1.26</b>		mg/l	0.0350	1.25	0.0335	98	75-125	1	20
<b><u>Post Spike (1401253-PS1)</u></b>					<b><u>Source: SB83173-01</u></b>		<u>Prepared &amp; Analyzed: 17-Jan-14</u>			
Iron	<b>12.3</b>	QM4X	mg/l	0.0150	1.25	12.2	10	80-120		
Copper	<b>1.47</b>		mg/l	0.0050	1.25	0.0130	116	80-120		
Zinc	<b>1.23</b>		mg/l	0.0350	1.25	0.0335	96	80-120		
Chromium	<b>1.28</b>		mg/l	0.0050	1.25	0.0145	101	80-120		
Nickel	<b>1.39</b>		mg/l	0.0050	1.25	0.0086	110	80-120		
Antimony	<b>1.36</b>		mg/l	0.0060	1.25	0.0019	109	80-120		

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# Total Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1401254 - EPA200/SW7000 Series</b>										
<u>Blank (1401254-BLK1)</u>								Prepared: 17-Jan-14 Analyzed: 20-Jan-14		
Mercury	< 0.00030		mg/l	0.00030						
<u>LCS (1401254-BS1)</u>								Prepared: 17-Jan-14 Analyzed: 20-Jan-14		
Mercury	<b>0.00444</b>		mg/l	0.00030	0.00500		89	85-115		

# General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1400858 - General Preparation</b>										
<u>Blank (1400858-BLK1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Chloride	< 1.00		mg/l	1.00						
<u>LCS (1400858-BS1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Chloride	20.7		mg/l	1.00	20.0		103	90-110		
<u>Reference (1400858-SRM1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Chloride	25.5		mg/l	1.00	25.0		102	90-110		
<b>Batch 1400901 - General Preparation</b>										
<u>Blank (1400901-BLK1)</u>						<u>Prepared: 14-Jan-14 Analyzed: 16-Jan-14</u>				
Total Suspended Solids	< 5.0		mg/l	5.0						
<u>LCS (1400901-BS1)</u>						<u>Prepared: 14-Jan-14 Analyzed: 16-Jan-14</u>				
Total Suspended Solids	108		mg/l	10.0	100		108	90-110		
<b>Batch 1400925 - General Preparation</b>										
<u>Blank (1400925-BLK1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Hexavalent Chromium	< 0.005		mg/l	0.005						
<u>LCS (1400925-BS1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Hexavalent Chromium	0.052		mg/l	0.005	0.0500		104	80-120		
<u>Calibration Blank (1400925-CCB1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Hexavalent Chromium	-0.0002		mg/l							
<u>Calibration Blank (1400925-CCB2)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Hexavalent Chromium	0.0002		mg/l							
<u>Calibration Check (1400925-CCV1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Hexavalent Chromium	0.052		mg/l	0.005	0.0500		104	90-110		
<u>Calibration Check (1400925-CCV2)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Hexavalent Chromium	0.052		mg/l	0.005	0.0500		105	90-110		
<u>Duplicate (1400925-DUP1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Hexavalent Chromium	< 0.050		mg/l	0.050		BRL				20
<u>Matrix Spike (1400925-MS1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Hexavalent Chromium	0.463		mg/l	0.050	0.500	BRL	93	85-115		
<u>Matrix Spike Dup (1400925-MSD1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Hexavalent Chromium	0.467		mg/l	0.050	0.500	BRL	93	85-115	0.9	20
<u>Reference (1400925-SRM1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Hexavalent Chromium	0.025		mg/l	0.005	0.0250		102	85-115		
<b>Batch 1400962 - General Preparation</b>										
<u>Blank (1400962-BLK1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Total Residual Chlorine	< 0.020		mg/l	0.020						
<u>LCS (1400962-BS1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Total Residual Chlorine	0.048		mg/l	0.020	0.0500		96	90-110		
<u>Calibration Blank (1400962-CCB1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Total Residual Chlorine	0.001		mg/l							
<u>Calibration Blank (1400962-CCB2)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Total Residual Chlorine	0.002		mg/l							
<u>Calibration Check (1400962-CCV1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Total Residual Chlorine	0.050		mg/l	0.020	0.0500		100	90-110		
<u>Calibration Check (1400962-CCV2)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Total Residual Chlorine	0.049		mg/l	0.020	0.0500		98	90-110		
<u>Duplicate (1400962-DUP1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Total Residual Chlorine	0.210		mg/l	0.200		0.180			15	20
<u>Matrix Spike (1400962-MS1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				
Total Residual Chlorine	0.650		mg/l	0.200	0.500	0.180	94	80-120		
<u>Matrix Spike Dup (1400962-MSD1)</u>						<u>Prepared &amp; Analyzed: 14-Jan-14</u>				

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## General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1400962 - General Preparation</b>										
<u>Matrix Spike Dup (1400962-MSD1)</u>				<u>Source: SB83173-01</u>				<u>Prepared &amp; Analyzed: 14-Jan-14</u>		
Total Residual Chlorine	<b>0.660</b>		mg/l	0.200	0.500	0.180	96	80-120	2	200
<u>Reference (1400962-SRM1)</u>								<u>Prepared &amp; Analyzed: 14-Jan-14</u>		
Total Residual Chlorine	<b>0.106</b>		mg/l	0.020	0.114		93	85-115		
<b>Batch 1401289 - General Preparation</b>										
<u>Blank (1401289-BLK1)</u>								<u>Prepared: 17-Jan-14 Analyzed: 18-Jan-14</u>		
Cyanide (total)	< 0.00500		mg/l	0.00500						
<u>LCS (1401289-BST)</u>								<u>Prepared: 17-Jan-14 Analyzed: 18-Jan-14</u>		
Cyanide (total)	<b>0.272</b>		mg/l	0.00500	0.300		91	90-110		
<u>Reference (1401289-SRM1)</u>								<u>Prepared: 17-Jan-14 Analyzed: 18-Jan-14</u>		
Cyanide (total)	<b>0.151</b>		mg/l	0.00500	0.168		90	74.9-125		

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## Notes and Definitions

D	Data reported from a dilution
QM4X	The spike recovery was outside of QC acceptance limits for the MS, MSD and/or PS due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
R01	The Reporting Limit has been raised to account for matrix interference.
R06	IMRL raised to correlate to batch QC reporting limits.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
CIHT	The method for residual chlorine indicates that samples should be analyzed immediately. 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous residual chlorine samples not analyzed in the field are considered out of hold time at the time of sample receipt.
LIV	The initial volume for this sample has been reduced due to sample matrix and/or historical data therefore elevating the reporting limit.

### Interpretation of Total Petroleum Hydrocarbon Report

Petroleum identification is determined by comparing the GC fingerprint obtained from the sample with a library of GC fingerprints obtained from analyses of various petroleum products. Possible match categories are as follows:

- Gasoline - includes regular, unleaded, premium, etc.
- Fuel Oil #2 - includes home heating oil, #2 fuel oil, and diesel
- Fuel Oil #4 - includes #4 fuel oil
- Fuel Oil #6 - includes #6 fuel oil and bunker "C" oil
- Motor Oil - includes virgin and waste automobile oil
- Ligroin - includes mineral spirits, petroleum naphtha, vm&p naphtha
- Aviation Fuel - includes kerosene, Jet A and JP-4
- Other Oil - includes lubricating and cutting oil, and silicon oil

At times, the unidentified petroleum product is quantified using a calibration that most closely approximates the distribution of compounds in the sample. When this occurs, the result is qualified as Calculated as.



Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

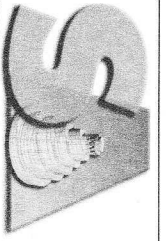
Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:  
June O'Connor  
Nicole Leja  
Rebecca Merz



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Featuring  
HAMBAL TECHNOLOGY

# CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

- ☒ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: 5 D by Rush
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: AFCOM

250 Airport Dr.

Lewiston, MA 01824

Invoice To: Cumberland Farms

Project No.: 60308487

Site Name: Farring, NH (Cag Carter Hwy)

Location: Farring State: NH

Telephone #: 978-905-2100

Project Mgr. Cheryl (comr) Dave Espey P.O. No.: RON:

Sampler(s): Adam Grossman

1=Na<sub>2</sub>SO<sub>3</sub> 2=HCl 3=H<sub>2</sub>SO<sub>4</sub> 4=HNO<sub>3</sub> 5=NaOH 6=Ascorbic Acid 7=CH<sub>3</sub>OH  
8=NaHSO<sub>4</sub> 9=Deionized Water 10=H<sub>3</sub>PO<sub>4</sub> 11=         12=        

DW=Drinking Water GW=Groundwater WW=Wastewater  
O=Oil SW=Surface Water SO=Soil SL=Sludge A=Air  
X1=         X2=         X3=        

G=Grab C=Composite

Containers:

Analyses:

List preservative code below:

5 2 2 4 4

QA/QC Reporting Notes:  
\* additional charges may apply

MA DEP MCP CAM Report: Yes ☐ No ☐  
CT DPH RCP Report: Yes ☐ No ☐

QA/QC Reporting Level

☐ Standard ☐ No QC ☐ DOA\*  
☐ NY ASP A\* ☐ NY ASP B\*  
☐ NJ Reduced\* ☐ NJ Full\*  
☐ TIER II\* ☐ TIER IV\*  
☐ Other         

State-specific reporting standards:

Matrix

# of VOA Vials  
# of Amber Glass  
# of Clear Glass  
# of Plastic

Total Suspended Solids, TSS  
Total Residual Chlorine  
Chloride Hexa  
Trivalent Cr  
Total Cyanide  
TPH 8015 GAO  
TPH 8015 DRO  
PCBs  
Total Metals: Sb, Cu, Hg, Ni, Zn, Fe

State-specific reporting standards:

Lab Id:          Sample Id:          Date:          Time:          Type:         

83173-01 mw-1 1/13/14 1625 G mw 3 3 3 2 ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓

Relinquished by:         

Received by:         

Date: 01-14-14

Time: 10:50

Temp°C:         

Cheryl (comr) Dave Espey

DMC

01-14-14

10:50

☐ EDD Format

E-mail to Cheryl.comr@AFCOM.com

DAVE ESPEY@AFCOM.COM

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken  
☒ Ambient ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

581-1431R03  
DMC 01-14-14

## Material Safety Data Sheet

### *HaloKlear: Gel-Floc*

#### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**Manufacturer's Name:** HaloSource, Inc.  
**Corporate Address:** 1631 220<sup>th</sup> St. SE, Suite 100, Bothell, WA 98021  
**Manufacturer's Telephone:** (425) 881-6464 (Monday-Friday, 8AM-5PM PDT)  
**Emergency Telephone (24 Hours):** 800-424-9300 CHEMTREC (Domestic, North America)  
703-527-3887 CHEMTREC (International, collect calls accepted)  
**Material/Trade/Product Name:** **HaloKlear: Gel-Floc MB**  
**Synonyms:** Chitosan Lactate  
**Chemical Name:** Chitosan, 2-hydroxypropanoate (salt)  
**Chemical Formula:** Not available  
**CAS No.:** 66267-50-3  
**Product Use:** Flocculates soil contamination in storm water.

#### SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

CAS NO.	HAZARDOUS INGREDIENT (S)	%	OSHA HAZARDOUS?
Trade Secret	Trade Secret	85 – 95	YES
Trade Secret	Trade Secret	15 – 5	YES

NOTE: See Section 8 for permissible exposure limits.

#### SECTION 3: HAZARDS IDENTIFICATION

##### EMERGENCY OVERVIEW

A fine, off-white powder with no odor.

This material/product may cause eye or skin irritation.

##### POTENTIAL HEALTH EFFECTS

**EYE:** May cause mechanical irritation. Will tend to form film on the surface of the eye causing blurred vision.

**SKIN:** Possible skin irritation or rash.

**INHALATION:** May aggravate pre-existing respiratory conditions or allergies. It may accumulate on linings of the nose and lungs resulting in dryness & coughing.

**INGESTION:** While it is not likely to be hazardous by ingestion, it may start dissolving and form a film on mucous membranes.

**CHRONIC EXPOSURE/CARCINOGENICITY:** Not known.

**SIGNS AND SYMPTOMS OF OVEREXPOSURE:** May cause mechanical irritation. Will tend to form film on the surface of the eye causing blurred vision. Skin irritation. It may accumulate on linings of the nose and lungs resulting in dryness & coughing. May start dissolving and form a film on mucous membranes.

**AGGRAVATION OF PRE-EXISTING CONDITIONS:** May aggravate pre-existing respiratory conditions or allergies.

**POTENTIAL ENVIRONMENTAL EFFECTS:** Avoid water if material is spilled; water will dissolve chitosan lactate forming a thick viscous solution or gelatinous mass.

## SECTION 4: FIRST AID MEASURES

### FIRST AID PROCEDURES

**EYE CONTACT:** Remove contact lenses (when applicable) and flush eyes with water for 15 minutes. Get medical attention if irritation persists.

**SKIN CONTACT:** Wash with soap and water. Get medical attention if irritation develops or persists.

**INHALATION:** If exposed to excessive levels of dust, remove to fresh air and get medical attention if cough or other symptoms develop.

**INGESTION:** Never give anything by mouth to an unconscious person. If swallowed, do not induce vomiting. Give large quantities of water. If available give several glasses of milk. Call a physician or poison control center immediately.

**NOTE TO PHYSICIANS:** None.

## SECTION 5: FIRE FIGHTING MEASURES

**FLASH POINT:** Not available

**UPPER FLAMMABLE LIMIT:** Not available

**FLAMMABILITY CLASS (OSHA):** Not applicable

**AUTOIGNITION TEMPERATURE:** Not available

**LOWER FLAMMABLE LIMIT:** Not available

**FLAME PROPAGATION/BURNING RATE:** Not available

**UNIQUE FIRE PROPERTIES:** Keep away from oxidizing agents and avoid open flames. Product may ignite at temperatures in excess of 400°F. Depending on moisture content and particle size, airborne dust of Chitosan lactate might explode in the presence of an ignition source. It is comparable to flour and wood dust.

**HAZARDOUS COMBUSTION PRODUCTS:** None known

**EXTINGUISHING MEDIA:** Water spray, CO<sub>2</sub> (carbon dioxide), foam or dry chemical.

**PROTECTION OF FIREFIGHTERS:** Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coat, gloves and rubber boots), including a positive pressure NIOSH approved self-contained breathing apparatus. Water may be used to keep fire-exposed containers cool until fire is out.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**PERSONAL PROTECTIVE EQUIPMENT:** See Section 8 (Personal Protective Equipment).



**ENVIRONMENTAL PRECAUTIONS:** AVOID WATER; water will dissolve chitosan lactate forming a thick viscous solution or gelatinous mass.

**METHODS FOR CLEANING UP:** The material may be vacuumed or collected for recovery or disposal.

## SECTION 7: HANDLING AND STORAGE

### SAFE HANDLING RECOMMENDATIONS

**VENTILATION:** Use with adequate ventilation.

**FIRE PREVENTION:** No special requirements.

**SPECIAL HANDLING REQUIREMENTS:** None.

### SAFE STORAGE RECOMMENDATIONS

**CONTAINMENT:** Keep container closed when not in use.

**STORAGE ROOM RECOMMENDATIONS:** Store in cool, dry areas and away from incompatible substances.

**INCOMPATIBLE MATERIALS:** Strong oxidizing agents.

**STORAGE CONDITIONS:** Store in cool, dry areas and away from incompatible substances.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**ENGINEERING CONTROLS:** No special ventilation is required. None required under normal conditions of use.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

**EYE/FACE PROTECTION:** For operations where eye contact can occur, wear safety glasses.

**SKIN PROTECTION:** For operations where skin contact can occur, wear impervious rubber or neoprene apron.

**HAND PROTECTION:** For operations where hand contact can occur, wear impervious rubber or neoprene gloves.

**RESPIRATORY PROTECTION:** If dust is generated, a dust mask may be needed. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

**GOOD HYGIENE/WORK PRACTICES:** Always follow good hygiene/work practices by avoiding vapors or mists and contact with eyes and skin. Thoroughly wash hands after handling and before eating or drinking. Always wear the appropriate PPE when repairing or performing maintenance on contaminated equipment.

### EXPOSURE GUIDELINES

PERMISSIBLE EXPOSURE LIMITS						
INGREDIENT CAS NO.	OSHA		WISHA		ACGIH (TLV)	
	TWA	STEL	TWA	STEL	TWA	STEL

Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
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**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES****COLOR:** Off-white.**PHYSICAL FORM:** Fine powder.**pH:** Not available**VAPOR DENSITY:** Not available**MELTING POINT:** Not available**SOLUBILITY IN WATER:** Soluble**SHAPE:** Fine powder.**ODOR:** None**VAPOR PRESSURE:** Not available**BOILING POINT:** Not available**FREEZING POINT:** Not available**SPECIFIC GRAVITY OR DENSITY:** Not available

*NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Values should not be construed as a guaranteed analysis of any specific lot or as specifications.*

**SECTION 10: STABILITY AND REACTIVITY****CHEMICAL STABILITY:** Stable.**CONDITIONS TO AVOID:** None known.**MATERIALS TO AVOID (INCOMPATIBILITY):** Strong oxidizing agents.**HAZARDOUS DECOMPOSITION PRODUCTS:** None known.**HAZARDOUS POLYMERIZATION:** Not known.**SECTION 11: TOXICOLOGICAL INFORMATION****ORAL LD<sub>50</sub> (mice):** >10g/kg**DERMAL LD<sub>50</sub> (rabbit):** Not available.**SKIN IRRITATION:** Not available.**EYE IRRITATION:** Not available.**SKIN SENSITIZATION:** Not available.**ADDITIONAL INFORMATION:** Not available.**SECTION 12: ECOLOGICAL INFORMATION****ECOTOXICITY (in water):**Acute Toxicity

- Daphnia: LC50 – 135 mg/L
- Daphnia: LC25 – Not Calculable
- Fathead Minnows: LC50 – 22.8 mg/L
- Fathead Minnows: LC25 – 16.9 mg/L

- Rainbow Trout: LC50 – 6.4 mg/L
- Rainbow Trout: LC25 – 4.4 mg/L

Chronic Toxicity

- Rainbow Trout: LC50 (survival) – 5.3 mg/L, 7 days
- Rainbow Trout: LC25 (survival) – 4.8 mg/L, 7 days
- Rainbow Trout: EC25 (biomass) – 3.5 mg/L, 7 days
- Fathead Minnows: LC50 (survival) – 25.4 mg/L, 7 days
- Fathead Minnows: LC25 (survival) – Not Calculable
- Fathead Minnows: EC25 (biomass) – 13.9 mg/L, 7 days

**MOBILITY:** Not available.

**PERSISTENCE AND DEGRADABILITY:** Not available.

**BIOACCUMULATIVE POTENTIAL:** Not available.

**ADDITIONAL INFORMATION:** Not available.

**SECTION 13: DISPOSAL CONSIDERATIONS**

If this product as supplied becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

*NOTE: Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate.*

**SECTION 14: TRANSPORT INFORMATION****U.S. DEPARTMENT OF TRANSPORTATION (DOT):**

<b>Proper Shipping Name:</b>	Not Regulated
<b>Hazard Class:</b>	Not Regulated
<b>Identification Number (UN Number):</b>	Not Regulated
<b>Packing Group (PG):</b>	Not Regulated

**SECTION 15: REGULATORY INFORMATION**

**TSCA STATUS:** Listed

**CERCLA REPORTABLE QUANTITY (RQ):**

CHEMICAL NAME	RQ
Not applicable	Not applicable

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (EHS):**

CHEMICAL NAME	TPQ	RQ
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Not applicable	Not applicable	Not applicable
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**SARA TITLE III SECTION 311/312 HAZARD CATEGORIES:** Does this product/material meet the definition of the following hazard classes according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of SARA Title III?

ACUTE HEALTH HAZARD	CHRONIC HEALTH HAZARD	FIRE HAZARD	REACTIVE HAZARD	SUDDEN RELEASE OF PRESSURE
YES	NO	NO	NO	NO

**SARA TITLE III SECTION 313 TOXIC CHEMICALS INFORMATION:**

CHEMICAL NAME	CAS NO.	CONCENTRATION (%)
Not applicable	Not applicable	Not applicable

**CALIFORNIA PROPOSITION 65:** The following chemical(s) is/are known to the state of California to cause cancer or reproductive toxicity:

CHEMICAL NAME	CAS NO.	CONCENTRATION (%)
Not applicable	Not applicable	Not applicable

## SECTION 16: OTHER INFORMATION

**REVISION INFORMATION:**

MSDS sections(s) changed since last revision of document:

- None, this is a new MSDS.

**DISCLAIMER:**

\*\*\*\*\*  
The above information is based upon information HaloSource, Inc. believes to be reliable and is supplied for informational purposes only. HaloSource, Inc. disclaims any liability for damage which results from the use of the above information and nothing contained therein shall constitute a guarantee, warranty (including fitness for a particular purpose) or representation with respect to the accuracy or completeness of the data, the product described or their use for any specific purpose even if that purpose is known to HaloSource, Inc. The final determination of the suitability of the information, the manner of use of the information or product and potential infringement is the sole responsibility of the user.  
\*\*\*\*\*

**MSDS PREPARED BY:** Jeremy Heath, EH&S Manager





Date: 7/24/2012  
Revision: 00

## Material Safety Data Sheet

### HaloKlear: DBP-2100

#### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**Manufacturer's Name:** HaloSource, Inc.  
**Corporate Address:** 1631 220<sup>th</sup> St. SE, Suite 100, Bothell, WA 98021  
**Manufacturer's Telephone:** (425) 881-6464 (Monday-Friday, 8AM-5PM PDT)  
**Emergency Telephone (24 Hours):** 800-424-9300 CHEMTREC (Domestic, North America)  
703-527-3887 CHEMTREC (International, collect calls accepted)  
**Material/Trade/Product Name:** **HaloKlear: DBP-2100**  
**Synonyms:** Poly X Socks  
**Chemical Name:** Proprietary  
**Chemical Formula:** Proprietary  
**CAS No.:** Proprietary  
**EPA Registration #:** Not applicable  
**Product Use:** Flocculant

#### SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

CAS NO.	COMPONENT	%	OSHA HAZARDOUS?
Trade Secret	Trade Secret	Trade Secret	YES

NOTE: See Section 8 for permissible exposure limits.

#### SECTION 3: HAZARDS IDENTIFICATION

##### EMERGENCY OVERVIEW

Off-white to tan, odorless powder.

May cause irritation to eyes and respiratory tract. May cause drying or chapping or skin.

WARNING! Can contain sufficient fines to cause a combustible dust explosion. Product will burn when in contact with a flame. See Section 5 Fire Fighting Measures for more information.

##### POTENTIAL HEALTH EFFECTS

**EYE:** Dry powder may cause foreign body irritation in some individuals.

**SKIN:** Prolonged contact with the dry powder may cause drying or chapping.

**INHALATION:** Hygroscopic properties of the product can form a paste or gel in the airway. Inhalation of dust may cause respiratory tract irritation. Excessive inhalation of dust may cause coughing and sneezing.

**INGESTION:** Not toxic if swallowed (less than a mouthful) based on available information.

**CHRONIC EXPOSURE/CARCINOGENICITY:** None of the components present in this material at concentrations of equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

**AGGRAVATION OF PRE-EXISTING CONDITIONS:** None known.

**POTENTIAL ENVIRONMENTAL EFFECTS:** Contains no substances known to be hazardous to the environment.

## **SECTION 4: FIRST AID MEASURES**

### **FIRST AID PROCEDURES**

**EYE CONTACT:** Remove contact lenses (if applicable), flush with water for 15 minutes. Call a physician.

**SKIN CONTACT:** Cleansing the skin after exposure is advisable.

**INHALATION:** If large amounts are inhaled, remove to fresh air and consult a physician.

**INGESTION:** Consult a physician if necessary.

**NOTE TO PHYSICIANS:** None.

## **SECTION 5: FIRE FIGHTING MEASURES**

**FLASH POINT:** Not applicable

**UPPER FLAMMABLE LIMIT:** Not available

**FLAMMABILITY CLASS (OSHA):** Not applicable

**AUTOIGNITION TEMPERATURE:** Not available

**LOWER FLAMMABLE LIMIT:** Not available

**FLAME PROPAGATION/BURNING RATE:** Not available

**UNIQUE FIRE PROPERTIES:** Combustible dust which can contain sufficient fines to cause a combustible dust explosion.

**HAZARDOUS COMBUSTION PRODUCTS:** Carbon dioxide, carbon monoxide.

**EXTINGUISHING MEDIA:** Water, dry chemical, carbon dioxide.

**PROTECTION OF FIREFIGHTERS:** Treat as a "Class A" fire. Product will burn when in contact with a flame. Self extinguishers when ignition source is removed. Tends to smolder. As in any fire, wear self-contained breathing apparatus pressure-demand, and full protective gear.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

**PERSONAL PROTECTIVE EQUIPMENT:** See Section 8 (Personal Protective Equipment).

**ENVIRONMENTAL PRECAUTIONS:** None known.

**METHODS FOR CLEANING UP:** Wet material on walking surfaces will be extremely slipper. Avoid dust formation. Use equipment designed specifically for combustible dust. Take precautionary measures against static discharges.

## SECTION 7: HANDLING AND STORAGE

### SAFE HANDLING RECOMMENDATIONS

**VENTILATION:** Avoid dust formation. Provide appropriate exhaust ventilation in places where dust is formed.

**FIRE PREVENTION:** Product may form combustible dust-air mixtures. Keep away from heat, flames, sparks, and other ignition sources. Avoid emptying package in or near flammable vapors. Static charges may cause flash fire.

**SPECIAL HANDLING REQUIREMENTS:** Remove material from eyes, skin and clothing.

### SAFE STORAGE RECOMMENDATIONS

**CONTAINMENT:** No special containment needed.

**STORAGE ROOM RECOMMENDATIONS:** Store in a cool, dry, well-ventilated area away from direct heat.

**INCOMPATIBLE MATERIALS:** Strong oxidizing agents.

**STORAGE CONDITIONS:** Store in cool, dry place. Keep container closed when not in use; keep out of the reach of children.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**ENGINEERING CONTROLS:** Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits in this section.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

**EYE/FACE PROTECTION:** This product does not cause significant eye irritation or eye toxicity requiring special protection. Where there is significant potential for eye contact, wear chemical goggles and have eye flushing equipment available.

**SKIN PROTECTION:** Although this product does not present a significant skin concern, minimizes skin contamination by following good industrial practice.

**HAND PROTECTION:** Chemical resistant gloves are recommended to minimize potential irritation from handling.

**RESPIRATORY PROTECTION:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. Respirator use is not required for this product.

**GOOD HYGIENE/WORK PRACTICES:** Always follow good hygiene/work practices by avoiding vapors or mists and contact with eyes and skin. Thoroughly wash hands after handling and before eating or drinking. Always wear the appropriate PPE when repairing or performing maintenance on contaminated equipment.

### EXPOSURE GUIDELINES

PERMISSIBLE EXPOSURE LIMITS			
INGREDIENT	OSHA	WISHA	ACGIH (TLV)

CAS NO.	TWA	STEL	TWA	STEL	TWA	STEL
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**COLOR:** Off white to tan

**PHYSICAL FORM:** Solid, powder

**pH:** Approximately neutral (1% solution)

**VAPOR DENSITY:** Not known

**MELTING POINT:** Not known

**SOLUBILITY IN WATER:** Fully soluble

**SHAPE:** Powder

**ODOR:** Odorless

**VAPOR PRESSURE:** Not known

**BOILING POINT:** Not known

**FREEZING POINT:** Not known

**SPECIFIC GRAVITY OR DENSITY:** Not known

*NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Values should not be construed as a guaranteed analysis of any specific lot or as specifications.*

## SECTION 10: STABILITY AND REACTIVITY

**CHEMICAL STABILITY:** Stable under recommended storage conditions

**CONDITIONS TO AVOID:** Avoid dust formation

**MATERIALS TO AVOID (INCOMPATIBILITY):** Strong oxidizing agents

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon monoxide, carbon dioxide

**HAZARDOUS POLYMERIZATION:** Will not occur

## SECTION 11: TOXICOLOGICAL INFORMATION

**ORAL LD<sub>50</sub> (rat):** >5,000 mg/kg

**DERMAL LD<sub>50</sub> (rabbit):** Not available

**DERMAL LD<sub>50</sub> (rat):** Not available

**SKIN IRRITATION:** Non-irritating (rabbit)

**EYE IRRITATION:** Non-irritating (rabbit)

**SKIN SENSITIZATION:** No skin allergy observed in guinea pig following repeated skin exposure

**ADDITIONAL INFORMATION:** The dry powder may cause foreign body irritation in some individuals. Prolonged contact with the dry powder may cause drying or chapping of the skin. Excessive inhalation of dust may be annoying and can mechanically impede respiration. Due to the hygroscopic properties, they can form a paste or gel in the airway.

## SECTION 12: ECOLOGICAL INFORMATION



**ECOTOXICITY:** Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**MOBILITY:** Not available

**PERSISTENCE AND DEGRADABILITY:** This product is biodegradable.

**BIOACCUMULATIVE POTENTIAL:** Inherently biodegradable.

**ADDITIONAL INFORMATION:**

- 96 Hour Acute Survival
  - Rainbow Trout: LC<sub>50</sub> 491 mg/L, LC<sub>25</sub> 347 mg/L
  - Fathead Minnow: LC<sub>50</sub> 1110 mg/L, LC<sub>25</sub> 678 mg/L
- 7-Day Chronic Survival and Growth
  - Rainbow Trout: LC<sub>50</sub> 510 mg/L, LC<sub>25</sub> 390 mg/L
  - Fathead Minnow: LC<sub>50</sub> 605 mg/L, LC<sub>25</sub> 443 mg/L
  - Ceriodaphnia Dubia: LC<sub>50</sub> 352 mg/L, LC<sub>25</sub> 289 mg/L
- Rainbow Trout (Biomass): LC<sub>50</sub> 386 mg/L, LC<sub>25</sub> 262 mg/L
- Fathead Minnow (Biomass): LC<sub>50</sub> 505 mg/L, LC<sub>25</sub> 256 mg/L

### SECTION 13: DISPOSAL CONSIDERATIONS

If this product as supplied becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

*NOTE: Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate.*

### SECTION 14: TRANSPORT INFORMATION

**U.S. DEPARTMENT OF TRANSPORTATION (DOT):**

Proper Shipping Name:	Not Regulated
Hazard Class:	Not Regulated
Identification Number (UN Number):	Not Regulated
Packing Group (PG):	Not Regulated

### SECTION 15: REGULATORY INFORMATION

**TSCA STATUS:** Component(s) listed

**CERCLA REPORTABLE QUANTITY (RQ):**

CHEMICAL NAME	RQ
Not applicable	Not applicable

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (EHS):**

CHEMICAL NAME	TPQ	RQ
Not applicable	Not applicable	Not applicable

**SARA TITLE III SECTION 311/312 HAZARD CATEGORIES:** Does this product/material meet the definition of the following hazard classes according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of SARA Title III?

ACUTE HEALTH HAZARD	CHRONIC HEALTH HAZARD	FIRE HAZARD	REACTIVE HAZARD	SUDDEN RELEASE OF PRESSURE
YES	NO	YES	NO	NO

**SARA TITLE III SECTION 313 TOXIC CHEMICALS INFORMATION:**

CHEMICAL NAME	CAS NO.	CONCENTRATION (%)
Not applicable	Not applicable	Not applicable

**CALIFORNIA PROPOSITION 65:** The following chemical(s) is/are known to the state of California to cause cancer or reproductive toxicity:

CHEMICAL NAME	CAS NO.	CONCENTRATION (%)
Not applicable	Not applicable	Not applicable

## SECTION 16: OTHER INFORMATION

**REVISION INFORMATION:**

MSDS sections(s) changed since last revision of document:

- None, this is a new MSDS.

**DISCLAIMER:**

\*\*\*\*\*  
The above information is based upon information HaloSource, Inc. believes to be reliable and is supplied for informational purposes only. HaloSource, Inc. disclaims any liability for damage which results from the use of the above information and nothing contained therein shall constitute a guarantee, warranty (including fitness for a particular purpose) or representation with respect to the accuracy or completeness of the data, the product described or their use for any specific purpose even if that purpose is known to HaloSource, Inc. The final determination of the suitability of the information, the manner of use of the information or product and potential infringement is the sole responsibility of the user.  
\*\*\*\*\*

**MSDS PREPARED BY:** Jeremy Heath, EH&S Manager