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

CERTIFIED MAIL RETURN RECEIP REQUESTED

MAY 0 4 2011

Dale O'Connell
Contamination Program Manager
New Hampshire Department of Transportation
7 Hazen Drive, John O. Morton Building, P.O. Box 483
Concord, NH 03302-0483

Re: Authorization to discharge under the Remediation General Permit (RGP) – NHG910000. Road Reconstruction site at 293-401 North Main Street, Route 11/Farmington Road, Rochester, NH 03867; Authorization # NHG910052.

Dear Mr. O'Connell:

Based on the review of a the Notice of Intent (NOI), for the site referenced above, the U.S. Environmental Protection Agency (EPA) hereby authorizes you the Owner and Operator of the site to discharge in accordance with the provisions of the RGP at that site. Your authorization number is listed above.

The enclosed checklist designates the monitoring parameters applicable to your discharge. Please note that the checklist does not represent the complete requirements of the RGP. Operators must comply with all of the applicable requirements of this permit, including influent and effluent monitoring, narrative water quality standards, record keeping, and reporting requirements, found in Parts I and II, and Appendices I – VIII of the RGP. See EPA's website for the complete RGP and other information at: http://www.epa.gov/region1/npdes/mass.html#dgp .

Please note the enclosed checklist includes the parameters which you have marked "Believed Present". The checklist also includes parameters which your laboratory reports indicated there was insufficient sensitivity to detect this parameter at the minimum level established in Appendix VI of the RGP.

In addition please note that the metals included on the list are dilution dependent pollutants subject to limitations based on selected dilution ranges and technology-based ceiling limitations for facilities located in New Hampshire. For each parameter the dilution factor 56 for this site is within a dilution range greater than fifty to one hundred (>50 to 100), established in the RGP. (See the RGP Appendix IV for New Hampshire facilities). Therefore, the limits for arsenic of 500ug/L, cadmium of 16ug/L, copper of

142 ug/L, lead of 27ug/L, nickel of 807ug/L, zinc of 1480ug/L and iron of 5,000ug/L, are required to achieve permit compliance at your site.

Finally, please note the checklist of pollutants attached to this authorization is subject to a recertification if the operations at the site result in a discharge lasting longer than six months. A recertification can be submitted to EPA within six (6) to twelve (12) months of operations in accordance with the 2010 RGP regulations.

This general permit and authorization to discharge will expire on September 9, 2015. You have reported that this project will terminate on 12/31/11. If for any reason the discharge terminates sooner you are required to submit a Notice of Termination (NOT) to the attention of the contact person indicated below within 30 days of project completion

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

Sincerely,

David M. Webster, Chief
Industrial Permits Branch

Enclosure

cc: Jeffrey G. Andrews, NHDES
Theresa A. Miller, Golder Associates Inc.

2010 Remediation General Permit
Summary of Monitoring Parameters[1]

NPDES Authorization Number:	**NHG910052 - Reissuance**
Authorization Issued	April, 2011

2010 Remediation General Permit
Summary of Monitoring Parameters[1]

NPDES Authorization Number:	**NHG910052 - Reissuance**
Authorization Issued Month:	April, 2011
Facility/Site Name:	Rochester NHDOT Project # 10620L
Facility/Site Address:	Road Reconstruction site at 293-401 North Main Street, Route 11/Farmington Road, Rochester, NH 03867
	Email address of owner: do'connell@dot.state.nh.us
Legal Name of Operator:	New Hampshire Department of Transportation
Operator contact name, title, and Address:	Dale O'Connell Contamination Program Manager New Hampshire Department of Transportation 7 Hazen Drive, John O. Morton Building, P.O. Box 483 Concord, NH 03302-0483
	Email: Same as Owner
Estimated Date of Completion:	December 31, 2011
Category and Sub-Category:	Category III. Contaminated Construction dewatering. Subcategory A. and B. For General Urban Fill Sites and Known Contaminated Sites Respectively

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

	Parameter	**Effluent Limit/Method#/ML** (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/ML5ug/L
√	2. Total Residual Chlorine (TRC) [1]	Freshwater = 11 ug/L ** Saltwater = 7.5 ug/L **/ Me#330.5/ML 20ug/L
	3. Total Petroleum Hydrocarbons (TPH)	5.0 mg/L/ Me# 1664A/ML 5.0mg/L
√	4. Cyanide (CN) [2, 3]	Freshwater = 5.2 ug/l ** Saltwater = 1.0 ug/L **/ Me#335.4/ML 10ug/L
	5. Benzene (B)	5ug/L /50.0 ug/L for hydrostatic testing only/ Me#8260C/ML 2 ug/L
√	6. Toluene (T)	(limited as ug/L total BTEX)/ Me#8260C/ ML 2ug/L
	7. Ethylbenzene (E)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L
√	8. (m,p,o) Xylenes (X)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L

	Parameter	Effluent Limit/Method#/ML (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
√	9. Total Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX) [4]	100 ug/L/ Me#8260C/ ML 2ug/L
	10. Ethylene Dibromide (EDB) (1,2- Dibromoethane)	0.05 ug/l/ Me#8260C/ ML 10ug/L
√	11. Methyl-tert-Butyl Ether (MtBE)	70.0 ug/l/Me#8260C/ML 10ug/L
√	12.tert-Butyl Alcohol (TBA) (TertiaryButanol)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
	13. tert-Amyl Methyl Ether (TAME)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
√	14. Naphthalene [5]	20 ug/L /Me#8260C/ML 2ug/L
	15. Carbon Tetrachloride	4.4 ug/L /Me#8260C/ ML 5ug/L
√	16. 1,2 Dichlorobenzene (o-DCB)	600 ug/L /Me#8260C/ ML 5ug/L
	17. 1,3 Dichlorobenzene (m-DCB)	320 ug/L /Me#8260C/ ML 5ug/L
√	18. 1,4 Dichlorobenzene (p-DCB)	5.0 ug/L /Me#8260C/ ML 5ug/L
√	18a. Total dichlorobenzene	763 ug/L - NH only /Me#8260C/ ML 5ug/L
	19. 1,1 Dichloroethane (DCA)	70 ug/L /Me#8260C/ ML 5ug/L
√	20. 1,2 Dichloroethane (DCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
	21. 1,1 Dichloroethene (DCE)	3.2 ug/L/Me#8260C/ ML 5ug/L
	22. cis-1,2 Dichloroethene (DCE)	70 ug/L/Me#8260C/ ML 5ug/L
	23. Methylene Chloride	4.6 ug/L/Me#8260C/ ML 5ug/L
	24. Tetrachloroethene (PCE)	5.0 ug/L/Me#8260C/ ML 5ug/L
	25. 1,1,1 Trichloro-ethane (TCA)	200 ug/L/Me#8260C/ ML 5ug/L
	26. 1,1,2 Trichloro-ethane (TCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
	27. Trichloroethene (TCE)	5.0 ug/L /Me#8260C/ ML 5ug/L
	28. Vinyl Chloride (Chloroethene)	2.0 ug/L /Me#8260C/ ML 5ug/L
	29. Acetone	Monitor Only(ug/L)/Me#8260C/ML 50ug/L
	30. 1,4 Dioxane	Monitor Only /Me#1624C/ML 50ug/L
	31. Total Phenols	300 ug/L Me#420.1&420.2/ML 2 ug/L/ Me# 420.4 /ML 50ug/L
	32. Pentachlorophenol (PCP)	1.0 ug/L /Me#8270D/ML 5ug/L,Me#604 &625/ML 10ug/L
	33. Total Phthalates (Phthalate esters) [6]	3.0 ug/L ** /Me#8270D/ML 5ug/L, Me#606/ML 10ug/L& Me#625/ML 5ug/L
	34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]	6.0 ug/L /Me#8270D/ML 5ug/L,Me#606/ML 10ug/L & Me#625/ML 5ug/L

	Parameter	Effluent Limit/Method#/ML (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
√	35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	10.0 ug/L
√	a. Benzo(a) Anthracene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
√	b. Benzo(a) Pyrene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
√	c. Benzo(b)Fluoranthene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
√	d. Benzo(k)Fluoranthene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
√	e. Chrysene [7]	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
√	f. Dibenzo(a,h)anthracene [7]	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
√	g. Indeno(1,2,3-cd) Pyrene [7]	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML5ug/L
√	36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)	100 ug/L
√	h. Acenaphthene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	i. Acenaphthylene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	j. Anthracene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	k. Benzo(ghi) Perylene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	l. Fluoranthene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	m. Fluorene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	n. Naphthalene [5]	20 ug/l / Me#8270/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	o. Phenanthrene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	p. Pyrene	X/Me#8270D/ML5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
	37. Total Polychlorinated Biphenyls (PCBs) [8, 9]	0.000064 ug/L/Me# 608/ ML 0.5 ug/L
√	38. Chloride	Monitor only/Me# 300.0/ ML 0.1ug/L

	Metal parameter	Total Recoverable Metal Limit @ H [10]= 50 mg/l CaCO3 for discharges in New Hampshire (ug/l) [11/12]	Minimum level=ML

		Freshwater			
	39. Antimony	Monitor/ML 10			
√	40. Arsenic **	500/ML20			
√	41. Cadmium **	16/ML10			
	42. Chromium III (trivalent) **	1385/ML15			
	43. Chromium VI (hexavalent) **	570/ML10			
√	44. Copper **	142/ML15			
√	45. Lead **	27/ML20			
	46. Mercury **	2.3/ML0.2			
√	47. Nickel **	807/ML20			
	48. Selenium **	250/ML20			
	49. Silver	17/ML10			
√	50. Zinc **	1480/ML15			
√	51. Iron	5,000/ML 20			

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

Footnotes:

[1] Although the maximum values for TRC are 11ug/l and 7.5 ug/l for freshwater, and saltwater respectively, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., Method 330.5, 20 ug/l).
[2] Limits for cyanide are based on EPA's water quality criteria expressed as micrograms per liter. There is currently no EPA approved test method for free cyanide. Therefore, total cyanide must be reported.

[3] Although the maximum values for cyanide are 5.2 ug/l and 1.0 ug/l for freshwater and saltwater, respectively, the compliance limits are equal to the minimum level (ML) of the Method 335.4 as listed in Appendix VI (i.e., 10 ug/l).
[4] BTEX = sum of Benzene, Toluene, Ethylbenzene, and total Xylenes.
[5] Naphthalene can be reported as both a purgeable (VOC) and extractable (SVOC) organic compound. If both VOC and SVOC are analyzed, the highest value must be used unless the QC criteria for one of the analyses is not met. In such cases, the value from the analysis meeting the QC criteria must be used.
[6] The sum of individual phthalate compounds(not including the #34, Bis (2-Ethylhexyl) Phthalate . The compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.
Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measurement of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.
[7] Although the maximum value for the individual PAH compounds is 0.0038 ug/l, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.
[8] In the November 2002 WQC, EPA has revised the definition of Total PCBs for aquatic life as total PCBs is the sum of all homologue, all isomer, all congener, or all "Oroclor analyses."Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measure of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.
[9]Although the maximum value for total PCBs is 0.000064 ug/l, the compliance limit is equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., 0.5 ug/l for Method 608 or 0.00005 ug/l when Method 1668a is approved).
[10] Hardness. Cadmium, Chromium III, Copper, Lead, Nickel, Silver, and Zinc are Hardness Dependent.
[11] For a Dilution Factor (DF) from 1 to 5, metals limits are calculated using DF times the base limit for the metal. See Appendix IV. For example, iron limits are calculated using DF x 1,000ug/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 x 2 =2,000 ug/L., etc. not to exceed the DF=5.
[12] Minimum Level (ML) is the lowest level at which the analytical system gives a recognizable signal and acceptable calibration point for the analyte. The ML represents the lowest concentration at which an analyte can be measured with a known level of confidence. The ML is calculated by multiplying the laboratory-determined method detection limit by 3.18 (see 40 CFR Part 136, Appendix B).
[13] pH sampling for compliance with permit limits may be performed using field methods as provided for in EPA test Method 150.1.
[14] Temperature sampling per Method 170.1

April 8, 2011 Project No.: 093-87084-01

US Environmental Protection Agency
5 Post Office Square, Suite 100
Mail Code OEP06-4
Boston, MA 02109-3912

Attn: Remediation General Permit NOI Processing

RE: NOTICE OF INTENT FOR REMEDIATION GENERAL PERMIT
ROAD RECONSTRUCTION PROJECT
293-401 NORTH MAIN STREET/ROUTE 11/FARMINGTON ROAD
ROCHESTER, NEW HAMPSHIRE
NHDOT PROJECT #10620L

Dear Sir or Madam:

Golder Associates Inc. (Golder) is pleased to submit this Remediation General Permit (RGP) Notice of Intent (NOI) to the United States Environmental Protection Agency (USEPA) for the above-referenced project on behalf of the New Hampshire Department of Transportation (NHDOT). This letter summarizes NHDOT's NOI for the USEPA RGP and provides supplemental information required to complete the NOI application. The purpose of the NOI is to permit the discharge of treated groundwater produced during excavation dewatering to the main stem of the Cocheco River. A RGP was previously issued for this project on June 8, 2010 (RGP #NHG910052, see Appendix A); however, the construction schedule was delayed and the permit expired on December 8, 2010.

The scope of work for NHDOT's project includes dewatering of excavation areas within the NHDOT Right-of-Way for the purposes of road reconstruction, replacement of utility lines, and construction of stormwater drainage systems. The excavation areas are located along several state-listed sites and a former City of Rochester dump. Groundwater will be pumped from the excavation areas and discharged into fractionation (frac) tanks, then pumped through a treatment system as described below. The treated water will be pumped into another frac tank and tested prior to the proposed discharge to the Cocheco River.

Golder collected nine groundwater samples between July 2009 and March 2011 from the area of the proposed dewatering activities. The analytical results are summarized on Table 1. Based on the groundwater analytical results ("influent" results), reduction in the iron concentration will be required prior to discharge to a surface water body. To facilitate the removal of iron from the dewatering wastewater, the initial discharge into the frac tanks will be conducted by spraying the water into the frac tank thus aerating the water to promote iron precipitation. From the frac tanks, the water will be pumped through three sediment filters (coarse, then medium, then fine) in series to remove fines, and thereby reduce suspended solids and metals concentrations. Once the fines are removed, the water will be pumped through two granular-activated carbon (GAC) vessels in series to remove VOCs and semi-VOCs before discharging to a drainage line which discharges into the Cocheco River located east of the site (see attached Figures 1 and 2). The treatment system was designed and will be operated on behalf of NHDOT by EnPro Services Inc. of Pembroke, New Hampshire.

Golder Associates Inc.
670 N. Commercial Street, Suite 103
Manchester, NH 03101 USA
Tel: (603) 668-0880 Fax: (603) 668-1199 www.golder.com

Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

Golder, Golder Associates and the GA globe design are trademarks of Golder Associates Corporation

The attached RGP application includes additional information. Please contact Theresa Miller at (603) 668-0880, if you have any questions regarding this submittal.

Sincerely,

GOLDER ASSOCIATES INC.

Theresa A. Miller, P.G., LSP
Senior Hydrogeologist

Alistair P.T. Macdonald, P.G., LSP
Principal and Program Manager

LIST OF TABLES

Table 1 Summary of Information for State-Listed Sites
Table 2 Summary of Groundwater Analytical Results

LIST OF FIGURES

Figure 1 Site and Outfall Location Map
Figure 2 Proposed Treatment System Schematic

LIST OF APPENDICES

Appendix A Previous RGP Authorization #NHG910052
Appendix B Laboratory Analytical Data
Appendix C Dilution Factor and Discharge Flow Rate Calculation
Appendix D TMDL Information

cc: NHDES-Water Division
City of Rochester
Dale O'Connell - NHDOT-Bureau of Environment
Blair Moody - NHDOT-Bureau of Construction

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

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

a) Name of **facility/site**: Rochester NHDOT Proj. #10620L		**Facility/site** mailing address:			
Location of **facility/site**: longitude: -70.9942 latitude: 43.3123	Facility SIC code(s): N/A	Street: 293-401 North Main Street/Route 11/Farmington Road			
b) Name of **facility/site owner:** NH Dept of Transportation		Town: Rochester			
Email address of facility/site owner: do'connell@dot.state.nh.us		State: NH	Zip: 03867	County: Strafford	
Telephone no. of facility/site **owner**: (603) 271-3226					
Fax no. of facility/site **owner**: (603) 271-3914		**Owner** is (check one): 1. Federal ○ 2. State/Tribal ⊙ 3. Private ○ 4. Other ○ if so, describe:			
Address of **owner** (if different from site):					
Street: 7 Hazen Drive, John O. Morton Building, P.O. Box 483					
Town: Concord	State: NH	Zip: 03302-0483	County: Merrimack		
c) Legal name of **operator**: New Hampshire Department of Transportation	**Operator** telephone no: (603) 668-0880				
	Operator fax no.: (603) 271-3226	**Operator** email: do'connell@dot.state.nh.us			
Operator contact name and title: Dale O'Connell - Contamination Program Manager					
Address of **operator** (if different from owner):	Street: same as owner				
Town:	State:	Zip:	County:		

d) Check Y for "yes" or N for "no" for the following:
1. Has a prior NPDES permit exclusion been granted for the discharge? Y_○_ N_⊙_, if Y, number:
2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge?
Y_○_ N_⊙_, if Y, date and tracking #:
3. Is the discharge a "new discharge" as defined by 40 CFR 122.2? Y_⊙_ N_○_
4. For sites in Massachusetts, is the discharge covered under the Massachusetts Contingency Plan (MCP) and exempt from state permitting? Y_○_ N_⊙_ not applicable

e) Is site/facility subject to any State permitting, license, or other action which is causing the generation of discharge? Y_⊙_ N_○_ Groundwater Mgmt Permits
If Y, please list: (multiple permits - see Table 1)
1. site identification # assigned by the state of NH or MA: See attached Table 1
2. permit or license # assigned: See attached Table 1
3. state agency contact information: name, location, and telephone number:

NHDES
29 Hazen Drive, Concord, NH 03302 - (603) 271-3744

f) Is the site/facility covered by any other EPA permit, including:
1. Multi-Sector General Permit? Y_○_ N_⊙_,
if Y, number:
2. Final Dewatering General Permit? Y_○_ N_⊙_,
if Y, number:
3. EPA Construction General Permit? Y_⊙_ N_○_,
if Y, number: NHR10BW04
4. Individual NPDES permit? Y_○_ N_⊙_,
if Y, number:
5. any other water quality related individual or general permit? Y_○_ N_⊙_, if Y, number:

g) Is the site/facility located within or does it discharge to an Area of Critical Environmental Concern (ACEC)? Y_○_ N_⊙_

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

Activity Category	**Activity Sub-Category**
I - Petroleum Related Site Remediation	A. Gasoline Only Sites _☐_ B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) _☐_ C. Petroleum Sites with Additional Contamination _☐_
II - Non Petroleum Site Remediation	A. Volatile Organic Compound (VOC) Only Sites _☐_ B. VOC Sites with Additional Contamination _☐_ C. Primarily Heavy Metal Sites _☐_
III - Contaminated Construction Dewatering	A. General Urban Fill Sites _☒_ B. Known Contaminated Sites _☒_

IV - Miscellaneous Related Discharges	A. Aquifer Pump Testing to Evaluate Formerly Contaminated Sites ☐ B. Well Development/Rehabilitation at Contaminated/Formerly Contaminated Sites ☐ C. Hydrostatic Testing of Pipelines and Tanks ☐ D. Long-Term Remediation of Contaminated Sumps and Dikes ☐ E. Short-term Contaminated Dredging Drain Back Waters (if not covered by 401/404 permit) ☐

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:

Construction dewatering during roadway reconstruction project which includes several state-listed sites with current NHDES Groundwater Management Permits (GMPs). A listing of these sites and the known impacts at the sites are presented on Table 1.

b) Provide the following information about each discharge:

1) Number of discharge points: 1

2) What is the **maximum** and **average flow rate** of discharge (in cubic feet per second, ft^3/s)?
Max. flow 0.0655 (29 gpm) Is maximum flow a **design value**? Y ○ N ⊙
Average flow (include units) 0.0273 (12.3gpm) Is average flow a design value or estimate? Design

3) Latitude and longitude of each discharge within 100 feet: (See Calculation in Appendix B)

pt.1: lat	-70.9919	long	43.3137	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): N/A

5) Is the discharge intermittent ⊙ or seasonal ○ ?
Is discharge ongoing? Y ○ N ⊙

c) Expected dates of discharge (mm/dd/yy): start 4/11/11 end 12/31/11

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). See attached Figures 1 and 2

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.

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)
1. Total Suspended Solids (TSS)		☐	☒	4	GRAB	2540D	5 mg/l	34000		<5000	
2. Total Residual Chlorine (TRC)		☒	☐	2	GRAB	4500CIG	0.5mg/l				
3. Total Petroleum Hydrocarbons (TPH)		☐	☒	7	GRAB	8100M/1664	0.2mg/l	2700		<200	
4. Cyanide (CN)	57125	☐	☒	4	GRAB	4500CNE	10 ug/l	6		<5	
5. Benzene (B)	71432	☐	☒	7	GRAB	8260B	1 ug/l	2		<1	
6. Toluene (T)	108883	☐	☒	7	GRAB	8260B	1 ug/l	1		<1	
7. Ethylbenzene (E)	100414	☐	☒	7	GRAB	8260B	1 ug/l	1		<1	
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207	☐	☒	7	GRAB	8260B	1 ug/l	4		<1	
9. Total BTEX [2]	n/a	☐	☒	7	GRAB	8260B	1 ug/l	8		<5	
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) [3]	106934	☒	☐	7	GRAB	8011/504	2 ug/l				
11. Methyl-tert-Butyl Ether (MtBE)	1634044	☐	☒	7	GRAB	8260B	5 ug/l	5		<5	
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650	☒	☐	7	GRAB	8260B	30 ug/l				

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

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

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

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)
13. tert-Amyl Methyl Ether (TAME)	9940508	☒	☐	7	GRAB	8260B	5 ug/l				
14. Naphthalene	91203	☐	☒	7	GRAB	8260B	5 ug/l	160		<5	
15. Carbon Tetrachloride	56235	☒	☐	7	GRAB	8260B	2 ug/l				
16. 1,2 Dichlorobenzene (o-DCB)	95501	☒	☐	7	GRAB	8260B	1 ug/l				
17. 1,3 Dichlorobenzene (m-DCB)	541731	☒	☐	7	GRAB	8260B	1 ug/l				
18. 1,4 Dichlorobenzene (p-DCB)	106467	☐	☒	7	GRAB	8260B	1 ug/l	3		<1	
18a. Total dichlorobenzene		☐	☒	7	GRAB	8260B	1 ug/l	3		<1	
19. 1,1 Dichloroethane (DCA)	75343	☒	☐	7	GRAB	8260B	2 ug/l				
20. 1,2 Dichloroethane (DCA)	107062	☒	☐	7	GRAB	8260B	2 ug/l				
21. 1,1 Dichloroethene (DCE)	75354	☒	☐	7	GRAB	8260B	1 ug/l				
22. cis-1,2 Dichloroethene (DCE)	156592	☒	☐	7	GRAB	8260B	2 ug/l				
23. Methylene Chloride	75092	☒	☐	7	GRAB	8260B	5 ug/l				
24. Tetrachloroethene (PCE)	127184	☒	☐	7	GRAB	8260B	2 ug/l				
25. 1,1,1 Trichloro-ethane (TCA)	71556	☒	☐	7	GRAB	8260B	2 ug/l				
26. 1,1,2 Trichloro-ethane (TCA)	79005	☒	☐	7	GRAB	8260B	2 ug/l				
27. Trichloroethene (TCE)	79016	☒	☐	7	GRAB	8260B	2 ug/l				

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)
28. Vinyl Chloride (Chloroethene)	75014	☒	☐	7	GRAB	8260B	2 ug/l				
29. Acetone	67641	☒	☐	7	GRAB	8260B	10 ug/l				
30. 1,4 Dioxane	123911	☒	☐	2	GRAB	8260B	1 ug/l				
31. Total Phenols	108952	☒	☐	2	GRAB	8270D	0.05 ug/l				
32. Pentachlorophenol (PCP)	87865	☒	☐	2	GRAB	8270D	0.25 ug/l				
33. Total Phthalates (Phthalate esters) [4]		☒	☐	5	GRAB	8270D	5 ug/l				
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	117817	☒	☐	5	GRAB	8270D	5 ug/l				
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		☐	☒	5	GRAB	8270D	0.1 ug/l	55.2		<5	
a. Benzo(a) Anthracene	56553	☐	☒	5	GRAB	8270D	0.1 ug/l	9.8		<1	
b. Benzo(a) Pyrene	50328	☐	☒	5	GRAB	8270D	0.1 ug/l	9.7		<1	
c. Benzo(b)Fluoranthene	205992	☐	☒	5	GRAB	8270D	0.1 ug/l	13		<1	
d. Benzo(k)Fluoranthene	207089	☐	☒	5	GRAB	8270D	0.1 ug/l	3.5		<1	
e. Chrysene	21801	☐	☒	5	GRAB	8270D	0.1 ug/l	10		<1	
f. Dibenzo(a,h)anthracene	53703	☐	☒	5	GRAB	8270D	0.1 ug/l	1.4		<1	
g. Indeno(1,2,3-cd) Pyrene	193395	☐	☒	5	GRAB	8270D	0.1 ug/l	7.8		<1	
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		☐	☒	5	GRAB	8270D	0.1 ug/l	288.5		<50	

[4] The sum of individual phthalate compounds.

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)
h. Acenaphthene	83329	☐	☒	5	GRAB	8270D	0.1 ug/l	20		<1	
i. Acenaphthylene	208968	☐	☒	5	GRAB	8270D	0.1 ug/l	17		<1	
j. Anthracene	120127	☐	☒	5	GRAB	8270D	0.1 ug/l	10		<1	
k. Benzo(ghi) Perylene	191242	☐	☒	5	GRAB	8270D	0.1 ug/l	6.5		<1	
l. Fluoranthene	206440	☐	☒	5	GRAB	8270D	0.1 ug/l	29		<1	
m. Fluorene	86737	☐	☒	5	GRAB	8270D	0.1 ug/l	34		<1	
n. Naphthalene	91203	☐	☒	5	GRAB	8270D	0.1 ug/l	93		<1	
o. Phenanthrene	85018	☐	☒	5	GRAB	8270D	0.1 ug/l	55		<1	
p. Pyrene	129000	☐	☒	5	GRAB	8270D	0.1 ug/l	24		<1	
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.	☒	☐	5	GRAB	8082	0.5 ug/l				
38. Chloride	16887006	☐	☒	2	GRAB	4500CIE	1 mg/l	200		<100	
39. Antimony	7440360	☒	☐	4	GRAB	200.8	1 ug/l				
40. Arsenic	7440382	☐	☒	7	GRAB	200.8	1 ug/l	28		<10	
41. Cadmium	7440439	☐	☒	7	GRAB	200.8	0.1 ug/l	0.4		<0.8	
42. Chromium III (trivalent)	16065831	☒	☐	2	GRAB	200.8	10 ug/l				
43. Chromium VI (hexavalent)	18540299	☒	☐	2	GRAB	7196A	10 ug/l				
44. Copper	7440508	☐	☒	4	GRAB	200.8	1 ug/l	15		<2	
45. Lead	7439921	☐	☒	7	GRAB	200.8	0.5 ug/l	73		<0.5	
46. Mercury	7439976	☒	☐	7	GRAB	200.8	0.1 ug/l				
47. Nickel	7440020	☐	☒	4	GRAB	200.8	1 ug/l	7.6		<5	
48. Selenium	7782492	☒	☐	7	GRAB	200.8	1 ug/l				
49. Silver	7440224	☒	☐	7	GRAB	200.8	1 ug/l				
50. Zinc	7440666	☐	☒	4	GRAB	200.8	1 ug/l	200		<30	
51. Iron	7439896	☐	☒	4	GRAB	200.8	50 ug/l	60000		<2500	
Other (describe):		☐	☐								

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)
		☐	☐								
		☐	☐								

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

Step 1: Do any of the metals in the influent exceed the effluent limits in Appendix III (i.e., the limits set at zero dilution)? Y ◉ N ○	If yes, which metals? arsenic, copper, lead, zinc and iron
Step 2: For any metals which exceed the **Appendix III** limits, calculate the **dilution factor (DF)** using the formula in Part I.A.3.c (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metal: arsenic DF: 5 Metal: copper, zinc DF: 10 Metal: lead DF: 133 Metal: iron DF: 12 Etc. (See calculation in Appendix B)	Look up the limit calculated at the corresponding dilution factor in **Appendix IV.** Do any of the metals in the **influent** have the potential to exceed the corresponding **effluent** limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y ○ N ◉ If Y, list which metals:

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

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

Groundwater will be pumped from open excavations into fractionation tanks. The initial discharge into the frac tanks will be conducted by spraying the water into the frac tank thus aerating the water to promote iron precipitation. From the frac tanks, the water will be pumped through 3 sediment filters (coarse, then medium, then fine) in series to remove fines, thereby reducing suspended solids and metals concentrations. Once the fines are removed, the water will be pumped through two GAC vessels in series to remove VOCs and semi-VOCs before discharging to a drainage line which discharges into the Cocheco River located east of the site (see attached Figures 1 and 2). The treatment system was designed and will be operated by EnPro Services Inc. of Pembroke, NH.

b) Identify each applicable treatment unit (check all that apply):	Frac. tank ☒	Air stripper ☐	Oil/water separator ☐	Equalization tanks ☐	Bag filter ☒	GAC filter ☒
	Chlorination ☐	De-chlorination ☐	Other (please describe):	surface and splash aeration for iron precipitation		

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 15 gpm Maximum flow rate of treatment system 30 gpm
Design flow rate of treatment system 75 gpm

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

None

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

a) Identify the discharge pathway:	Direct to receiving water ☒	Within facility (sewer) ☐	Storm drain ☐	Wetlands ☐	Other (describe):

b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:

The treated water will be gravity-conveyed to the main stem of the Cocheco River located east of the Site. (See attached Figures 1 and 2)

c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water: See Figures 1 and 2
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 B

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water 4.0 cfs
Please attach any calculation sheets used to support stream flow and dilution calculations. see Attachment D in Appendix C

f) Is the receiving water a listed 303(d) water quality impaired or limited water? Y ◉ N ○ If yes, for which pollutant(s)?
2008 listing - arsenic, ammonia, chloride, dissolved oxygen, iron, pH, mercury, escheria coli
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___ not applicable

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___ not applicable

d) Attach documentation of ESA eligibility as described in the NOI instructions and required by Appendix VII, Part I.C, Step 4. not applicable

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.

NHDOT is conducting road reconstruction activities between 293 and 401 North Main Street in Rochester, New Hampshire. Sites along the road reconstruction project include leaking underground storage tank (LUST) sites associated with existing gasoline service stations; closed LUST sites associated with a transmission repair facility and a car dealership; metals impacted soil and groundwater associated with an arms manufacturer; and sites associated with a former City of Rochester landfill/dump. The dewatering wastewater handled for the road reconstruction project will be pumped from excavations along these sites and the former City dump. Table 1 summarizes these sites and the nature of the release at the sites.

The RGP NOI analytical data for the "untreated influent" are based on samples collected from monitoring wells installed along the east side of North Main Street between July 2009 and March 2011.

Laboratory analytical reports are included in Appendix B, dilution factor calculations are included in Appendix C, and TMDL correspondence are included in Appendix D.

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:	293-401 North Main Street/Route 11/Farmington Road - Rochester - NHDOT Project #10620L
Operator signature:	for DPO
Printed Name &Title:	for the Contamination Program Manager
Date:	4/8/11

TABLES

Table 1
Summary of Information for State-Listed Sites
293-401 North Main Street/Route 11/Farmington Road
Rochester, New Hampshire

Lot Number Station+Offset	Current Property Name	Previous Property Name	Address (google)	Address (DES)	NHDES Site No.	Current Groundwater Management Permit No.	Nature of Impacts	NHDES Project Manager and phone number
114 St. 303+50Rt to 305+75Rt	Cumberland Farms	none found	293 N Main St	293 N Main St	199401032	199401032-R-002	LUST-petroleum, MtBE, Benzene, TBA and others	Ken Richards - (603) 271-7372
116 St. 312+75Rt to 315+75Rt	Pizza Hut/Dunkin Donuts	Pierce/Granite Ford	303 N Main St	Farmington Rd	199611022	199611022-R-003	Vapor Intrusion Issues, GMP, methane, BTEX, MtBE, various VOCs below AGQSs, activity and use restriction	unassigned
117 St. 315+75Rt to 318+75Rt	"Vacant Lot"/Opportunity Realty of Rochester LLC	Off Price Outlet Store	305 N Main St	305 Farmington Rd	199705019	none	Potential vapor intrusion issues, methane, BTEX, MtBE, various VOCs below AGQSs, petroleum	Joe Donovan - (603) 271-6811
120 St. 318+75Rt to 325+25Rt	Dick Poulin Chevrolet/Welch Cheney Automotive Group LLC	Dick Poulin Chevy Olds	401 N Main St	401 N Main St	199108024	199108024-R-002	MtBE from LUST-petroleum	Jason Domke - (603) 271-7380
122 St. 314+75Lt to 329+50Lt	Thompson Center Arms/Fox Ridge Outfitters/O.L. Development Inc	Thompson K.W. Tool Co.	400 N Main St	400 N Main St	200703058	none	arsenic plume along road, soil impacts onsite	Molly Stark - (603) 271-2890
124 St. 311+50Lt to 312+75Lt	Tri-City Transmission	none found	300 N Main St	Rte 11 Farmington Rd	199403015	none	potential petroleum impacts	N/A-closed site
126 St. 307+25Lt to 309+75Lt	Getty Gas Station/Leemilt's Petroleum Inc.	GETTY #55249	3 Ten Rod Rd	3 Ten Rod Rd	199809066	199809066-R-002	LUST-petroleum	Ken Richards - (603) 271-7372
116 through 120 St. 312+50Rt to 319+50Rt	City of Rochester Landfill	none found	305 N Main St	305 N Main St	not found	none	unlined, uncapped municipal dump - methane, BTEX, MtBE, various VOCs below AGQSs	Doug Kemp - (603) 271-0674

Notes:
1) LUST - leaking underground storage tank
2) MtBE - methyl-tert-butyl-ether
3) TBA - tert-butyl alchohol
4) GMP - groundwater management permit
5) BTEX - benzene, toluene, ethylbenzene, xylenes
6) VOCs - volatile organic compounds
7) AGQSs - ambient groundwater quality standards

Prepared by: TAM
Checked by: BLJ

Table 2
Summary of Groundwater Analytical Results
293-401 North Main Street/Route 11/Farmington Road
Rochester, New Hampshire

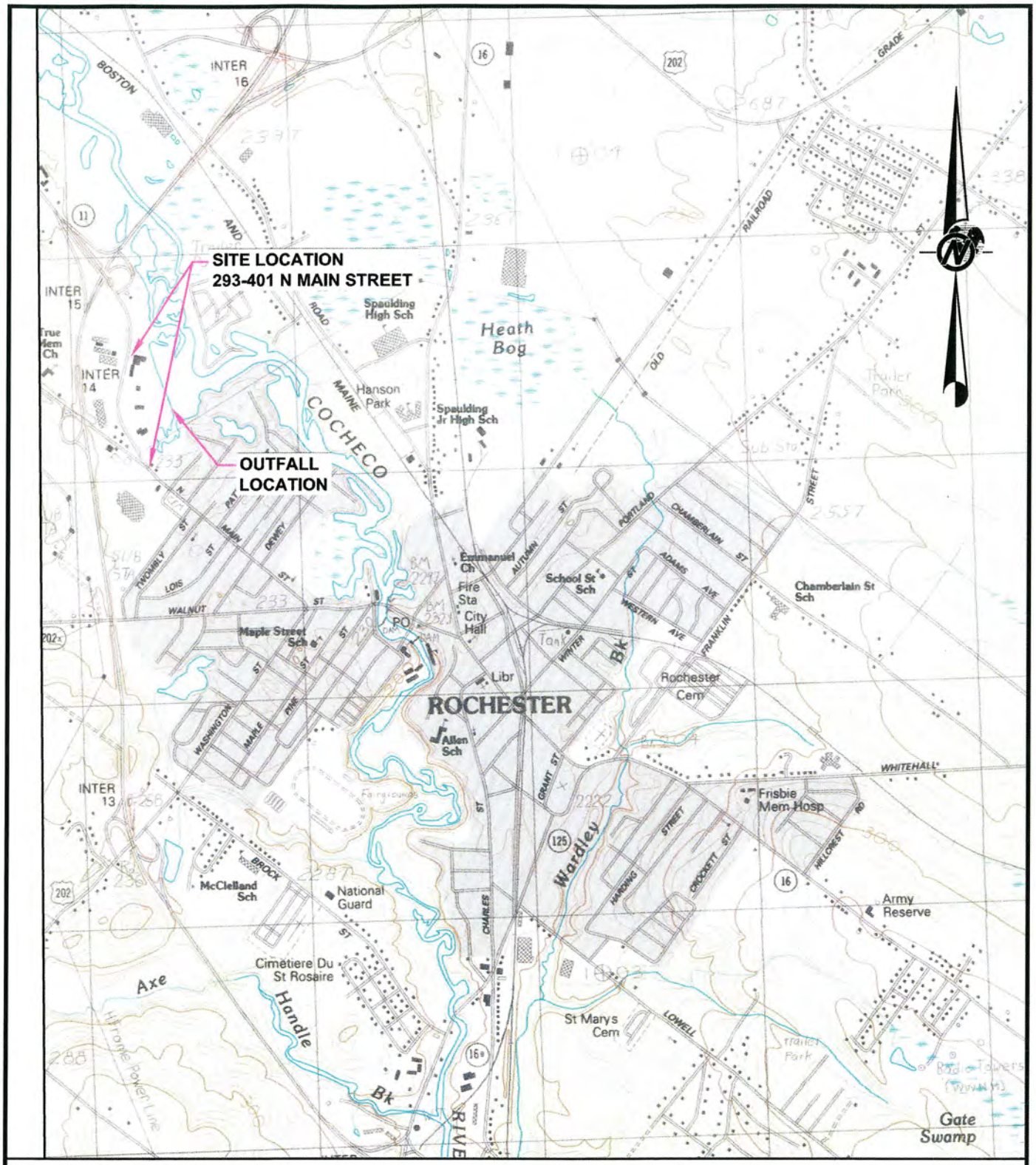
PARAMETERS / Sample Location	NHDES Ambient Groundwater Quality Standards (AGQS)	RGP Limits	RGP Limit Type Based On Monthly Sample	SB-201	SB-203	SB-203	SB-208	SB-208	SB-212	SB-212	SB-215	OP-GEO-2
Date				7/30/09	7/30/09	11/20/09	7/30/09	11/20/09	7/30/09	3/15/11	7/30/09	3/29/11
VOCs (ug/L) via Method 8260B												
Benzene	5	as total BTEX	-	ND(1)	ND(1)	NA	ND(1)	NA	ND(1)	ND(1)	ND(1)	2
mp-Xylene	10,000	as total BTEX	-	ND(1)	2	NA	ND(1)	NA	ND(1)	ND(1)	ND(1)	ND(1)
o-Xylene	10,000	as total BTEX	-	ND(1)	2	NA	ND(1)	NA	ND(1)	ND(1)	ND(1)	ND(1)
Toluene	1,000	as total BTEX	-	ND(1)	1	NA	ND(1)	NA	ND(1)	ND(1)	ND(1)	ND(1)
Total BTEX	NS	100[12]	daily maximum	ND	5	NA	ND	NA	ND	ND	ND	2
1,2,4-Trimethylbenzene	330	NS	-	ND(1)	2	NA	ND(1)	NA	5	1	ND(1)	ND(1)
Naphthalene	20	20	daily maximum	ND(5)	**160**	NA	ND(5)	NA	ND(5)	ND(5)	ND(5)	ND(5)
Chlorobenzene	100	NS	-	ND(2)	ND(2)	NA	ND(2)	NA	7	8	ND(2)	3
p-Isopropyltoluene	260	NS	-	ND(1)	ND(1)	NA	ND(1)	NA	2	ND(1)	ND(1)	ND(1)
1,4-Dichlorobenzene	75	5.0	daily maximum	ND(1)	ND(1)	NA	ND(1)	NA	3	3	ND(1)	ND(1)
1,4-Dioxane	3	monitor only	daily maximum	NA	NA	NA	NA	NA	NA	ND(1)	NA	ND(1)
VOCs (ug/L) via Method 8011/504												
1,2-Dibromoethane (EDB)	0.05	0.05	daily maximum	ND(2)	ND(2)	NA	ND(2)	NA	ND(2)	ND(0.02)	ND(2)	ND(0.02)
Dibromochloropropane (DBCP)	0.2	NS	-	NA	NA	NA	NA	NA	NA	ND(0.02)	NA	ND(0.02)
Semi-VOCs (ug/L) via Methods 8270D and 625 Modified												
1,4-Dichlorobenzene	75	5.0	daily maximum	NA	NA	NA	NA	NA	NA	1	NA	ND(1)
Pentachlorophenol	1	1.0	daily maximum	NA	NA	NA	NA	NA	NA	ND(0.25)	NA	ND(1)
Naphthalene	20	20	daily maximum	NA	**93**	NA	ND(0.1)	NA	2.6	ND(0.1)	NA	0.5
2-Methylnaphthalene	280	NS	-	NA	24	NA	ND(0.1)	NA	0.5	ND(0.1)	NA	0.4
Group I Polycyclic Aromatic Hydrocarbons (PAHs)												
Benzo[a]anthracene	0.1	0.0038	daily maximum	NA	**9.8**	NA	**0.1**	NA	ND(0.1)	ND(0.1)	NA	ND(0.1)
Benzo[a]pyrene	0.2	0.0038	daily maximum	NA	**9.7**	NA	ND(0.1)	NA	ND(0.1)	ND(0.1)	NA	ND(0.1)
Benzo[b]fluoranthene	0.1	0.0038	daily maximum	NA	**13**	NA	ND(0.1)	NA	ND(0.1)	ND(0.1)	NA	ND(0.1)
Benzo[k]fluoranthene	0.5	0.0038	daily maximum	NA	**3.5**	NA	ND(0.1)	NA	ND(0.1)	ND(0.1)	NA	ND(0.1)
Chrysene	5	0.0038	daily maximum	NA	**10**	NA	ND(0.1)	NA	ND(0.1)	ND(0.1)	NA	ND(0.1)
Dibenzo[a,h]anthracene	0.1	0.0038	daily maximum	NA	**1.4**	NA	ND(0.1)	NA	ND(0.1)	ND(0.1)	NA	ND(0.1)
Indeno[1,2,3-cd]pyrene	0.1	0.0038	daily maximum	NA	**7.8**	NA	ND(0.1)	NA	ND(0.1)	ND(0.1)	NA	ND(0.1)
Total Group I PAHs	NS	10.0	daily maximum	NA	**55.2**	NA	0.1	NA	ND	ND	NA	ND
Group II PAHs												
Acenaphthene	420	as total Group II PAHs	daily maximum	NA	20	NA	ND(0.1)	NA	0.2	ND(1)	NA	0.2
Acenaphthylene	420	as total Group II PAHs	daily maximum	NA	17	NA	ND(0.1)	NA	ND(0.1)	ND(1)	NA	ND(0.1)
Anthracene	2,100	as total Group II PAHs	daily maximum	NA	10	NA	ND(0.1)	NA	ND(0.1)	ND(0.1)	NA	ND(0.1)
Benzo[g,h,i]perylene	210	as total Group II PAHs	daily maximum	NA	6.5	NA	ND(0.1)	NA	ND(0.1)	ND(0.1)	NA	ND(0.1)
Fluoranthene	280	as total Group II PAHs	daily maximum	NA	29	NA	0.1	NA	ND(0.1)	ND(0.1)	NA	ND(0.1)
Fluorene	280	as total Group II PAHs	daily maximum	NA	34	NA	ND(0.1)	NA	0.1	ND(1)	NA	0.1
Phenanthrene	210	as total Group II PAHs	daily maximum	NA	55	NA	0.1	NA	0.1	ND(1)	NA	ND(0.1)
Pyrene	210	as total Group II PAHs	daily maximum	NA	24	NA	ND(0.1)	NA	ND(0.1)	ND(0.1)	NA	ND(0.1)
Total Group II PAHs	NS	100[13]	daily maximum	NA	**195.5**	NA	0.2	NA	0.4	ND	NA	0.3
Total Phenols (ug/L) via Method 8270D	4,000	300	daily maximum	NA	NA	NA	NA	NA	NA	ND(0.05)	NA	ND(0.05)
PCBs (ug/L) via Methods 8082 and 608												
various compounds	0.5	0.000064	daily maximum	NA	ND(0.5)	NA	ND(0.5)	NA	ND(0.5)	ND(0.3)	NA	ND(0.3)
Total Petroleum Hydrocarbons												
TPH (C9-C40) (mg/L) via Method 8100 Modified	NS	5.0	daily maximum	ND(0.2)	2.7	NA	ND(0.2)	NA	0.2	NA	ND(0.2)	NA
TPH (mg/L) via Method 1664A	NS	5.0	daily maximum	NA	NA	NA	NA	NA	NA	ND(5)	NA	ND(5)
Total Metals (mg/L) via Method 200.8												
Antimony	0.006	0.0056	daily maximum	NA	NA	ND(0.001)	NA	ND(0.001)	NA	ND(0.0005)	NA	ND(0.0005)
Arsenic	0.010	0.010	monthly average	0.001	**0.028**	NA	0.002	NA	0.007	0.0023	0.004	0.007
Barium	2.0	NS	monthly average	0.060	0.79	NA	0.013	NA	0.62	NA	0.38	NA
Cadmium	0.005	0.0008	monthly average	ND(0.001)	ND(0.001)	NA	ND(0.001)	NA	ND(0.001)	0.0004	ND(0.001)	ND(0.0001)
Chromium	0.10	NS	monthly average	ND(0.001)	0.008	NA	0.001	NA	0.004	0.0014	0.002	0.002
Chromium (III)	see total chromium	0.0277	monthly average	NA	NA	NA	NA	NA	NA	ND(0.01)	NA	ND(0.01)
Chromium (VI) via Method 7196A	see total chromium	0.0114	monthly average	NA	NA	NA	NA	NA	NA	ND(0.01)	NA	ND(0.01)
Copper	1.3	0.0029	monthly average	NA	NA	0.002	NA	**0.015**	NA	0.0025	NA	0.0009
Iron	NS	1.0	daily maximum	NA	NA	**1.3**	NA	0.74	NA	**17**	NA	**60**
Lead	0.015	0.0005	monthly average	ND(0.001)	**0.015**	NA	**0.016**	NA	**0.008**	0.0008	**0.073**	**0.0060**
Mercury	0.002	0.0009	monthly average	ND(0.0001)	ND(0.0001)	NA	ND(0.0001)	NA	ND(0.0001)	ND(0.0002)	ND(0.0001)	ND(0.0002)
Nickel	0.10	0.0161	monthly average	NA	NA	0.004	NA	0.002	NA	0.0076	NA	0.0068
Selenium	0.050	0.005	monthly average	ND(0.001)	ND(0.001)	NA	ND(0.001)	NA	ND(0.001)	ND(0.0005)	ND(0.001)	ND(0.001)
Silver	0.10	0.0004	daily maximum	ND(0.001)	ND(0.001)	NA	ND(0.001)	NA	ND(0.001)	ND(0.0005)	ND(0.001)	ND(0.0001)
Zinc	NS	0.037	monthly average	NA	NA	0.009	NA	0.024	NA	**0.20**	NA	0.031
Wet Chemistry Parameters												
Suspended Solids (mg/L) via Method 2540D	NS	30	monthly average	NA	NA	ND(5)	NA	13	NA	10	NA	**34**
TKN (mg/L) via Method 4500 Norg C	NS	NS	-	NA	NA	ND(0.5)	NA	ND(0.5)	NA	NA	NA	NA
Total Phosphorus - P (mg/L) via Method 365.3	NS	NS	-	NA	NA	ND(0.05)	NA	0.09	NA	NA	NA	NA
Chloride (mg/L) via Method 4500CIE	NS	monitor only	daily maximum	NA	NA	NA	NA	NA	NA	200	NA	76
Total Residual Chlorine (mg/L) via Method 4500CIG	NS	0.011	monthly average	NA	NA	NA	NA	NA	NA	ND(0.05)	NA	ND(0.05)
BOD (mg/L) via Method 5210B	NS	NS	-	NA	NA	ND(6)	NA	ND(6)	NA	NA	NA	NA
Total Cyanide (mg/L) via Method 4500 CNE	NS	0.0052	monthly average	NA	NA	ND(0.01)	NA	ND(0.01)	NA	**0.006**	NA	ND(0.005)

Notes:
1. ug/L = micrograms per liter
2. mg/L = milligrams per liter
3. VOCs = volatile organic compounds
4. Semi-VOCs = semi-volatile organic compounds
5. PCBs = polychlorinated biphenyls
6. TPH = total petroleum hydrocarbons
7. ND ( ) = not detected above indicated laboratory reporting limit
8. TKN = Total Kjeldahl Nitrogen
9. BOD = Biological Oxygen Demand
10. NS = no standard established
11. NA = not analyzed
12. Effluent limit as total concentration of benzene, toluene, ethylbenzene, and xylenes (BTEX)
13. Effluent limit as total Group II PAHs

Bold indicates exceedance of AGQS and/or RGP Effluent Limitations

Prepared By: BLJ
Checked By: TAM

FIGURES



REFERENCE

1.) BASE MAPS TAKEN FROM USGS MAP TITLED, "ROCHESTER,NH". DATED 1983, CONTOUR INTERVAL: 10 FEET

2000 0 2000
SCALE FEET

Golder Associates
WESTBOROUGH, MA

SCALE	AS SHOWN
DATE	05/12/10
DESIGN	TAM
CADD	CDS
CHECK	
REVIEW	

TITLE

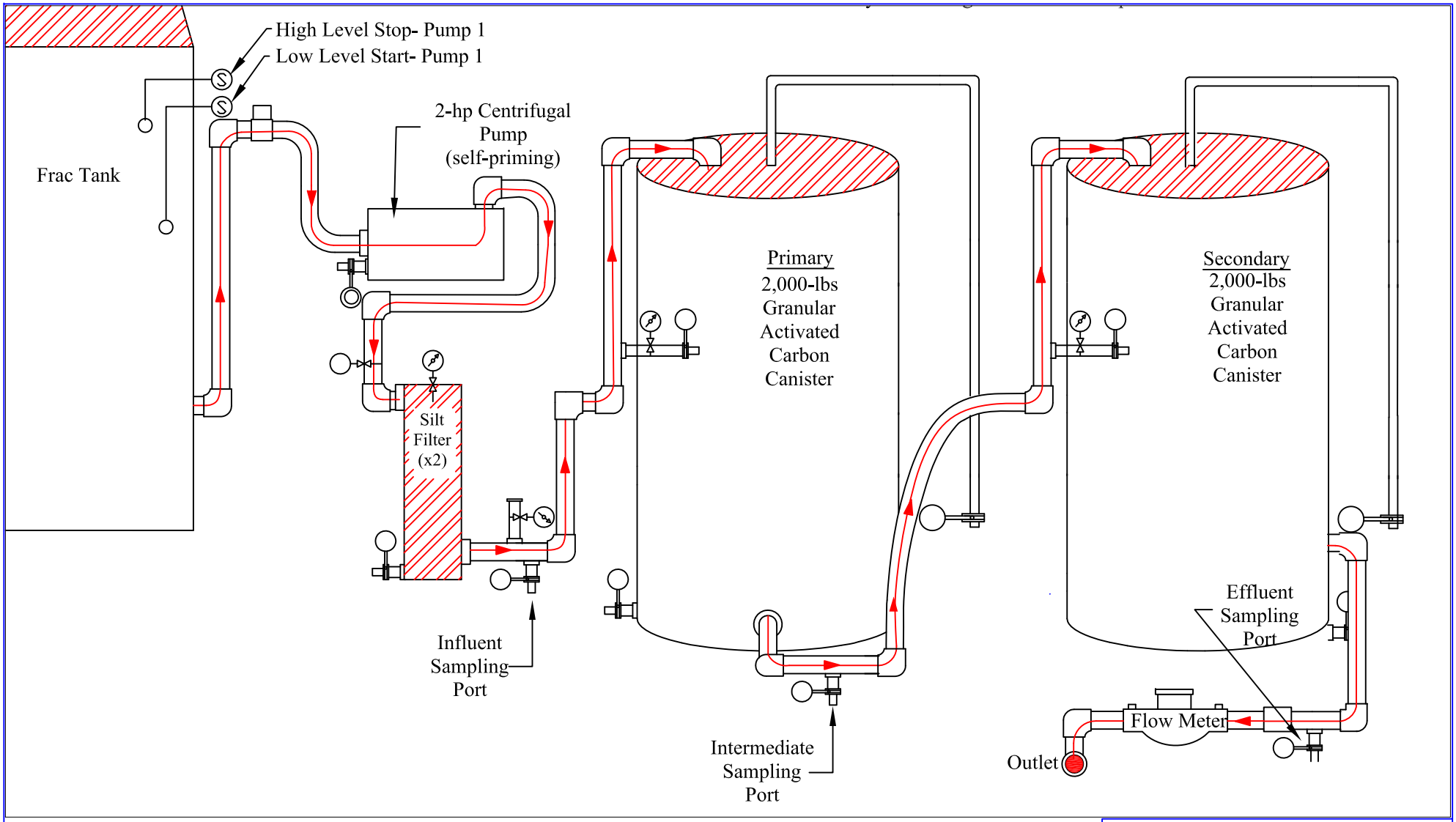
SITE AND OUTFALL LOCATION MAP

FILE No.	10387243A001		
PROJECT No.	103-87243	REV.	0

NHDOT, FARMINGTON ROAD, ROCHESTER, NH

FIGURE 1

Drawing file: 10387243A001.dwg Mar 22, 2011 - 11:18am



LEGENDS

Drain Valve

Valve

Red Indicates the Flow Through the Treatment System

Pressure Gauge

Float Switch

ENPRO Services, Inc.
12 Mulliken Way, Newburyport, MA
(978) 465-1595 Fax (978) 465-2050

TITLE

GROUNDWATER TREATMENT SYSTEM SCHEMATIC- 75 GPM

DATE	DRAWN BY
October 9, 2009	TPV

www.enpro.com

APPENDIX A

PREVIOUS RGP AUTHORIZATION #NHG910052

DPO ____

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

CERTIFIED MAIL RETURN RECEIP REQUESTED

June 8, 2010

Dale O'Connell
Contamination Program Manager
New Hampshire Department of Transportation
7 Hazen Drive, John O. Morton Building, P.O. Box 483
Concord, NH 03302-0483

Re: Authorization to discharge under the Remediation General Permit (RGP) – NHG910000. Road Reconstruction site at 293-401 North Main Street, Route 11, Farmington, NH 03867; Authorization # NHG910052.

Dear Mr. O'Connell:

Based on the review of you Notice of Intent (NOI), for the site referenced above, the U.S. Environmental Protection Agency (EPA) hereby authorizes you the Owner and Operator of the site to discharge in accordance with the provisions of the RGP at that site. Your authorization number is listed above.

Please note that enclosed checklist designates the monitoring parameters applicable to your discharge, and the discharge processing is subject to the NH Department of Environmental Services (NHDES) recommendations as follows:

1. Only one dewatering activity may occur at a time along the construction route;
2. Dewatering just during the 10-hour workday is limited to 29.4 gpm; and
3. If dewatering overnight is anticipated the flow must be reduced to 12.3 gpm or less.

Also, please note that the Lead limit is subject to RGP's Appendix IV limit for lead for dilution range 50 to 100 which is 27ug/l. You must comply with all of the requirements indicated above and all the other 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 . This general permit and authorization to discharge expire on September 9, 2010. Permittee's who need to continue discharging after the expiration date must reapply for a new RGP authorization under the new permit ninety (90) days after the effective date of the newly reissued permit. This project reportedly will terminate on 12/31/2010.

Dale O'Connell
Contamination Program Manager- 2nd Page.

EPA requests that a Notice of Termination (NOT) is submitted to the attention of the contact person indicated below within 30 days of project completion.

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

Sincerely,

David M. Webster, Chief
Industrial Permits Branch

Enclosure

cc: Jeffrey G. Andrews, NHDES
Theresa A. Miller, Golden Associates Inc.

RECEIVED
BUREAU OF ENVIRONMENT
JUN 14 2010
NH DEPARTMENT OF
TRANSPORTATION

SUMMARY OF MONITORING PARAMETERS[1] UNDER THE REMEDIATION GENERAL PERMIT (RGP)

Facility/Site Name: ROAD RECONSTRUCTION PROJECT
OPERATOR: Dale O'Connell/NHDOT; Telephone: 603- 2713226; email: do'connell@dot.state.nh.us
Facility/Site Address: 293-401 North Main Street / Route 11, Farmington Rd., Rochester, NH 03867
Sub-category - VOC, Petroleum, Urban & NH listed site - Estimated date of completion:12/31/2010
Permit # NHG910052 Permit Issued: June 2010.

Monitor checked parameters	Parameter to be monitored (see Parts I.C. and I.D. and Appendix III of the RGP for specific limits and requirements)	Monitor checked parameters	Parameter to be monitored (see Parts I.C. and I.D. and Appendix III of the RGP for specific limits and requirements)
✔	1. Total Suspended Solids (TSS)		27. Trichloroethylene (TCE)
✔	2. Total Residual Chlorine (TRC)		28. Vinyl Chloride (Chloroethene)
✔	3. Total Petroleum Hydrocarbons (TPH)		29. Acetone
✔	4. Cyanide (CN)[2]	✔	30. 1,4 Dioxane
✔	5. Benzene (B)	✔	31. Total Phenols
✔	6. Toluene (T)	✔	32. Pentachlorophenol (PCP)
✔	7. Ethylbenzene (E)	✔	33. Total Phthalates
✔	8. (m,p,o) Xylenes (X)	✔	34. Bis (2-Ethylhexyl) Phthalate
✔	9. Total BTEX[3]	✔	35. Total Group I Poly. Aromatic Hyd.
	10. Ethylene Dibromide (EDB)	✔	a. Benzo(a) Anthracene
✔	11. Methyl-tert-Butyl Ether (MtBE)	✔	b. Benzo(a) Pyrene
✔	12. tert-Butyl Alcohol (TBA)	✔	c. Benzo(b)Fluoranthene
	13. tert-Amyl Methyl Ether (TAME)	✔	d. Benzo(k)Fluoranthene
	14. Naphthalene	✔	e. Chrysene
	15. Carbon Tetrachloride	✔	f. Dibenzo(a,h)anthracene
✔	16. 1,4 Dichlorobenzene (p-DCB)	✔	g. Indeno(1,2,3-cd) Pyrene
	17. 1,2 Dichlorobenzene (o-DCB)	✔	36. Total Group II Polycyclic Aromatic Hydrocarbons
	18. 1,3 Dichlorobenzene (m-DCB)	✔	h. Acenaphthene
	18.a. Total dichlorobenzene	✔	i. Acenaphthylene
	19. 1,1 Dichloroethane (DCA)	✔	j. Anthracene
	20. 1,2 Dichloroethane (DCA)	✔	k. Benzo(ghi) Perylene
	21. 1,1 Dichloroethylene (DCE)	✔	l. Fluoranthene
	22. cis-1,2 Dichloro-ethylene (DCE)	✔	m. Fluorene
	23. Dichloromethane (Methylene Chloride)	✔	n. Naphthalene
	24. Tetrachloroethylene (PCE)	✔	o. Phenanthrene
	25. 1,1,1 Trichloro-ethane (TCA)	✔	p. Pyrene
	26. 1,1,2 Trichloro-ethane (TCA)		37. Total Polychlorinated Biphenyls (PCBs)

Monitor checked parameters	Parameter to be monitored (see Parts I.C. and I.D. and Appendix III of the RGP for specific limits and requirements)	Monitor checked parameters	Parameter to be monitored (see Parts I.C. and I.D. and Appendix III of the RGP for specific limits and requirements)
	38. Antimony	✔	52. Total Flow
✔	39. Arsenic		53. pH Range for Class A & Class B Waters in MA
	40. Cadmium		54. pH Range for Class SA & Class SB Waters in MA
✔	41. Chromium III (trivalent)	✔	55. pH Range for Class B Waters in NH
	42. Chromium VI (hexavalent)		56. Daily maximum temperature - Warm water fisheries
✔	43. Copper		57. Daily maximum temperature - Cold water fisheries
✔	44. Lead		58. Maximum Change in Temperature in MA - Any Class A water body
	45. Mercury		59. Maximum Change in Temperature in MA - Warm Water
✔	46. Nickel		60. Maximum Change in Temperature in MA - Cold Water and Lakes/Ponds
	47. Selenium		61. Maximum Change in Temperature in MA -Coastal
	48. Silver		62. Maximum Change in Temperature in MA - July to September
✔	49. Zinc		63. Maximum Change in Temperature in MA - October to June
✔	50. Iron		
✔	51. Instantaneous Flow		

Footnotes:

1. This checklist does not represent the complete requirements of the RGP. Operators must comply with all of the applicable requirements of the remediation general permit (RGP), including influent monitoring, narrative water quality standards, etc. Operators must follow the RGP, including Parts I, II, and Appendices I - VIII in order to comply with the specific applicable requirements.

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

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

APPENDIX B

LABORATORY ANALYTICAL DATA

eastern analytical

professional laboratory services

Theresa A. Miller
Golder Associates, Inc.
670 N. Commercial St., Suite 103
Manchester , NH 03101

ACCREDITED IN ACCORDANCE WITH nelac

Subject: Laboratory Report

Eastern Analytical, Inc. ID: 81418
Client Identification: NHDOT - Rochester | 093-87094
Date Received: 7/31/2009

Dear Ms. Miller :

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

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

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

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

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

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

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

Sincerely,

Lorraine Olashaw, Lab Director | 8.10.09 Date | # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

Eastern Analytical, Inc. ID#: 81418

Client: **Golder Associates, Inc.** Client Designation: **NHDOT - Rochester | 093-87094**

Temperature upon receipt (°C): 5 **Received on ice or cold packs (Yes/No): Y**

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
81418.01	SB-215	7/31/09	7/30/09	aqueous		Adheres to Sample Acceptance Policy
81418.02	SB-208	7/31/09	7/30/09	aqueous		Adheres to Sample Acceptance Policy
81418.03	SB-212	7/31/09	7/30/09	aqueous		Adheres to Sample Acceptance Policy
81418.04	SB-201	7/31/09	7/30/09	aqueous		Adheres to Sample Acceptance Policy
81418.05	SB-203	7/31/09	7/30/09	aqueous		Adheres to Sample Acceptance Policy
81418.06	Trip Blank	7/31/09	7/20/09	aqueous		Adheres to Sample Acceptance Policy

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

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

References include:

1) EPA 600/4-79-020, 1983
2) Standard Methods for Examination of Water and Wastewater : Inorganics, 19th Edition, 1995; Microbiology, 20th Edition, 1998
3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
4) Hach Water Analysis Handbook, 2nd edition, 1992

LABORATORY REPORT

Eastern Analytical, Inc. ID#: 81418

Client: **Golder Associates, Inc.** Client Designation: **NHDOT - Rochester | 093-87094**

Sample ID:	SB-215	SB-208	SB-212	SB-201	SB-203	Trip Blank
Lab Sample ID:	81418.01	81418.02	81418.03	81418.04	81418.05	81418.06
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	7/30/09	7/30/09	7/30/09	7/30/09	7/30/09	7/20/09
Date Received:	7/31/09	7/31/09	7/31/09	7/31/09	7/31/09	7/31/09
Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Date of Analysis:	8/4/09	8/4/09	8/4/09	8/4/09	8/4/09	8/4/09
Analyst:	VG	VG	VG	VG	VG	VG
Method:	8260B	8260B	8260B	8260B	8260B	8260B
Dilution Factor:	1	1	1	1	1	1
Dichlorodifluoromethane	< 5	< 5	< 5	< 5	< 5	< 5
Chloromethane	< 2	< 2	< 2	< 2	< 2	< 2
Vinyl chloride	< 2	< 2	< 2	< 2	< 2	< 2
Bromomethane	< 2	< 2	< 2	< 2	< 2	< 2
Chloroethane	< 5	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	< 5	< 5	< 5	< 5	< 5	< 5
Diethyl Ether	< 5	< 5	< 5	< 5	< 5	< 5
Acetone	< 10	< 10	< 10	< 10	< 10	< 10
1,1-Dichloroethene	< 1	< 1	< 1	< 1	< 1	< 1
tert-Butyl Alcohol (TBA)	< 30	< 30	< 30	< 30	< 30	< 30
Methylene chloride	< 5	< 5	< 5	< 5	< 5	< 5
Carbon disulfide	< 5	< 5	< 5	< 5	< 5	< 5
Methyl-t-butyl ether(MTBE)	< 5	< 5	< 5	< 5	< 5	< 5
Ethyl-t-butyl ether(ETBE)	< 5	< 5	< 5	< 5	< 5	< 5
Isopropyl ether(DIPE)	< 5	< 5	< 5	< 5	< 5	< 5
tert-amyl methyl ether(TAME)	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	< 2	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethane	< 2	< 2	< 2	< 2	< 2	< 2
2,2-Dichloropropane	< 2	< 2	< 2	< 2	< 2	< 2
cis-1,2-Dichloroethene	< 2	< 2	< 2	< 2	< 2	< 2
2-Butanone(MEK)	< 10	< 10	< 10	< 10	< 10	< 10
Bromochloromethane	< 2	< 2	< 2	< 2	< 2	< 2
Tetrahydrofuran(THF)	< 10	< 10	< 10	< 10	< 10	< 10
Chloroform	< 2	< 2	< 2	< 2	< 2	< 2
1,1,1-Trichloroethane	< 2	< 2	< 2	< 2	< 2	< 2
Carbon tetrachloride	< 2	< 2	< 2	< 2	< 2	< 2
1,1-Dichloropropene	< 2	< 2	< 2	< 2	< 2	< 2
Benzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	< 2	< 2	< 2	< 2	< 2	< 2
Trichloroethene	< 2	< 2	< 2	< 2	< 2	< 2
1,2-Dichloropropane	< 2	< 2	< 2	< 2	< 2	< 2
Dibromomethane	< 2	< 2	< 2	< 2	< 2	< 2
Bromodichloromethane	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
4-Methyl-2-pentanone(MIBK)	< 10	< 10	< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	< 1	< 1	< 1	< 1	**1**	< 1
trans-1,3-Dichloropropene	< 2	< 2	< 2	< 2	< 2	< 2
1,1,2-Trichloroethane	< 2	< 2	< 2	< 2	< 2	< 2
2-Hexanone	< 10	< 10	< 10	< 10	< 10	< 10
Tetrachloroethene	< 2	< 2	< 2	< 2	< 2	< 2
1,3-Dichloropropane	< 2	< 2	< 2	< 2	< 2	< 2
Dibromochloromethane	< 2	< 2	< 2	< 2	< 2	< 2
1,2-Dibromoethane(EDB)	< 2	< 2	< 2	< 2	< 2	< 2
Chlorobenzene	< 2	< 2	**7**	< 2	< 2	< 2
1,1,1,2-Tetrachloroethane	< 2	< 2	< 2	< 2	< 2	< 2
Ethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1

LABORATORY REPORT

Eastern Analytical, Inc. ID#: 81418

Client: **Golder Associates, Inc.** Client Designation: **NHDOT - Rochester | 093-87094**

Sample ID:	SB-215	SB-208	SB-212	SB-201	SB-203	Trip Blank
Lab Sample ID:	81418.01	81418.02	81418.03	81418.04	81418.05	81418.06
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	7/30/09	7/30/09	7/30/09	7/30/09	7/30/09	7/20/09
Date Received:	7/31/09	7/31/09	7/31/09	7/31/09	7/31/09	7/31/09
Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Date of Analysis:	8/4/09	8/4/09	8/4/09	8/4/09	8/4/09	8/4/09
Analyst:	VG	VG	VG	VG	VG	VG
Method:	8260B	8260B	8260B	8260B	8260B	8260B
Dilution Factor:	1	1	1	1	1	1
mp-Xylene	< 1	< 1	< 1	< 1	**2**	< 1
o-Xylene	< 1	< 1	< 1	< 1	**2**	< 1
Styrene	< 1	< 1	< 1	< 1	< 1	< 1
Bromoform	< 2	< 2	< 2	< 2	< 2	< 2
IsoPropylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
Bromobenzene	< 2	< 2	< 2	< 2	< 2	< 2
1,1,2,2-Tetrachloroethane	< 2	< 2	< 2	< 2	< 2	< 2
1,2,3-Trichloropropane	< 2	< 2	< 2	< 2	< 2	< 2
n-Propylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
2-Chlorotoluene	< 2	< 2	< 2	< 2	< 2	< 2
4-Chlorotoluene	< 2	< 2	< 2	< 2	< 2	< 2
1,3,5-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
tert-Butylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1	**5**	< 1	**2**	< 1
sec-Butylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
p-Isopropyltoluene	< 1	< 1	**2**	< 1	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1	**3**	< 1	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
n-Butylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2	< 2	< 2	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	< 5	< 5	< 5	< 5	**160**	< 5
1,2,3-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
4-Bromofluorobenzene (surr)	**94 %R**	**94 %R**	**96 %R**	**93 %R**	**101 %R**	**94 %R**
1,2-Dichlorobenzene-d4 (surr)	**107 %R**	**106 %R**	**107 %R**	**110 %R**	**103 %R**	**103 %R**
Toluene-d8 (surr)	**102 %R**	**98 %R**	**98 %R**	**97 %R**	**100 %R**	**98 %R**

LABORATORY REPORT

Eastern Analytical, Inc. ID#: 81418

Client: **Golder Associates, Inc.** Client Designation: **NHDOT - Rochester | 093-87094**

Sample ID:	SB-208	SB-212	SB-203
Lab Sample ID:	81418.02	81418.03	81418.05
Matrix:	aqueous	aqueous	aqueous
Date Sampled:	7/30/09	7/30/09	7/30/09
Date Received:	7/31/09	7/31/09	7/31/09
Units:	ug/l	ug/l	ug/l
Date of Extraction/Prep:	8/3/09	8/3/09	8/3/09
Date of Analysis:	8/4/09	8/4/09	8/4/09
Analyst:	JMR	JMR	JMR
Method:	8270D	8270D	8270D
Dilution Factor:	1	1	1
Naphthalene	< 0.1	**2.6**	**93**
2-Methylnaphthalene	< 0.1	**0.5**	**24**
Acenaphthylene	< 0.1	< 0.1	**17**
Acenaphthene	< 0.1	**0.2**	**20**
Fluorene	< 0.1	**0.1**	**34**
Phenanthrene	**0.1**	**0.1**	**55**
Anthracene	< 0.1	< 0.1	**10**
Fluoranthene	**0.1**	< 0.1	**29**
Pyrene	< 0.1	< 0.1	**24**
Benzo[a]anthracene	**0.1**	< 0.1	**9.8**
Chrysene	< 0.1	< 0.1	**10**
Benzo[b]fluoranthene	< 0.1	< 0.1	**13**
Benzo[k]fluoranthene	< 0.1	< 0.1	**3.5**
Benzo[a]pyrene	< 0.1	< 0.1	**9.7**
Indeno[1,2,3-cd]pyrene	< 0.1	< 0.1	**7.8**
Dibenz[a,h]anthracene	< 0.1	< 0.1	**1.4**
Benzo[g,h,i]perylene	< 0.1	< 0.1	**6.5**
p-Terphenyl-D14 (surr)	**78 %R**	**82 %R**	**76 %R**

LABORATORY REPORT

Eastern Analytical, Inc. ID#: 81418

Client: **Golder Associates, Inc.** Client Designation: **NHDOT - Rochester | 093-87094**

Sample ID:	SB-215	SB-208	SB-212	SB-201	SB-203
Lab Sample ID:	81418.01	81418.02	81418.03	81418.04	81418.05
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	7/30/09	7/30/09	7/30/09	7/30/09	7/30/09
Date Received:	7/31/09	7/31/09	7/31/09	7/31/09	7/31/09
Units:	mg/L	mg/L	mg/L	mg/L	mg/L
Date of Extraction/Prep:	8/3/09	8/3/09	8/3/09	8/3/09	8/3/09
Date of Analysis:	8/3/09	8/3/09	8/3/09	8/3/09	8/3/09
Analyst:	JMR	JMR	JMR	JMR	JMR
Method:	8100mod	8100mod	8100mod	8100mod	8100mod
Dilution Factor:	1	1	1	1	1
TPH (C9-C40)	< 0.2	< 0.2	**0.2**	< 0.2	**2.7**
p-Terphenyl-D14 (TPH surr)	**69 %R**	**76 %R**	**85 %R**	**83 %R**	**99 %R**

LABORATORY REPORT

Eastern Analytical, Inc. ID#: 81418

Client: **Golder Associates, Inc.** Client Designation: **NHDOT - Rochester | 093-87094**

Sample ID:	SB-208	SB-212	SB-203
Lab Sample ID:	81418.02	81418.03	81418.05
Matrix:	aqueous	aqueous	aqueous
Date Sampled:	7/30/09	7/30/09	7/30/09
Date Received:	7/31/09	7/31/09	7/31/09
% Solid:			
Units:	ug/l	ug/l	ug/l
Date of Extraction/Prep:	8/3/09	8/3/09	8/3/09
Date of Analysis:	8/4/09	8/4/09	8/5/09
Analyst:	JW	JW	JW
Extraction Method:	608/3510C	608/3510C	608/3510C
Analysis Method:	8082	8082	8082
Dilution Factor:	1	1	1
PCB-1016	< 0.5	< 0.5	< 0.5
PCB-1221	< 0.5	< 0.5	< 0.5
PCB-1232	< 0.5	< 0.5	< 0.5
PCB-1242	< 0.5	< 0.5	< 0.5
PCB-1248	< 0.5	< 0.5	< 0.5
PCB-1254	< 0.5	< 0.5	< 0.5
PCB-1260	< 0.5	< 0.5	< 0.5
TMX (surr)	**74 %R**	**81 %R**	**72 %R**
DCB (surr)	**94 %R**	**53 %R**	**65 %R**

LABORATORY REPORT

Eastern Analytical, Inc. ID#: 81418

Client: **Golder Associates, Inc.** Client Designation: **NHDOT - Rochester | 093-87094**

Sample ID:	SB-215	SB-208	SB-212	SB-201					
Lab Sample ID:	81418.01	81418.02	81418.03	81418.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	7/30/09	7/30/09	7/30/09	7/30/09	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	7/31/09	7/31/09	7/31/09	7/31/09					
Arsenic	**0.004**	**0.002**	**0.007**	**0.001**	AqTot	mg/L	8/4/09	200.8	DS
Barium	**0.38**	**0.013**	**0.62**	**0.060**	AqTot	mg/L	8/4/09	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	8/4/09	200.8	DS
Chromium	**0.002**	**0.001**	**0.004**	< 0.001	AqTot	mg/L	8/4/09	200.8	DS
Lead	**0.073**	**0.016**	**0.008**	< 0.001	AqTot	mg/L	8/4/09	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	< 0.0001	AqTot	mg/L	8/4/09	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	8/4/09	200.8	DS
Silver	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	8/4/09	200.8	DS

Sample ID:	SB-203					
Lab Sample ID:	81418.05					
Matrix:	aqueous					
Date Sampled:	7/30/09	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	7/31/09					
Arsenic	**0.028**	AqTot	mg/L	8/4/09	200.8	DS
Barium	**0.79**	AqTot	mg/L	8/4/09	200.8	DS
Cadmium	< 0.001	AqTot	mg/L	8/4/09	200.8	DS
Chromium	**0.008**	AqTot	mg/L	8/4/09	200.8	DS
Lead	**0.015**	AqTot	mg/L	8/4/09	200.8	DS
Mercury	< 0.0001	AqTot	mg/L	8/4/09	200.8	DS
Selenium	< 0.001	AqTot	mg/L	8/4/09	200.8	DS
Silver	< 0.001	AqTot	mg/L	8/4/09	200.8	DS

Page 1 of 1

CHAIN-OF-CUSTODY RECORD

For Lab Use Only

81418

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

Sample I.D.	Sampling Date/Time *If Composite, Indicate Both Start & Finish Date/Time	Matrix (see below)	Grab/*Composite	VOC: 524.2 / 524.2 BTEX / 524.2 MTBE only	VOC: 8260B / 624 VTICs / 1,4 Dioxane / EDB / DBCP	VOC: 8021B BTEX HALOS	VOC: 8015B GRO MEGRO MAVPH	SVOC: 8270C / 625 SVTICs / ABN / A / BN / PAH	SVOC: TPH8100 / L1 / L2	SVOC: 8015B DRO MEDRO MAEPH	SVOC: 608 PEST/PCB / PEST 8081A / PCB 8082	SVOC: Oil & Grease 1664 TPH 1664	TCLP: TCLP 1311 ABN Metals / VOC Pest Herb	Metals: Dissolved Metals (List Below)	Metals: Total Metals (List Below)	Inorganics: TS TSS TDS Spec. Con.	Inorganics: Br Cl F SO_4 / NO_2 NO_3 NO_2/NO_3	Inorganics: BOD CBOD T. Alk.	Inorganics: TKN NH_3 T. Phos.	Inorganics: pH T. Res. Chlorine	Inorganics: COD Phenols TOC	Inorganics: Total Cyanide Total Sulfide	Inorganics: Reactive Cyanide Reactive Sulfide / Flashpoint Ignitability	Micro: T. Coliform E. Coli / F. Coliform	Micro: Enterococci / Heterotrophic Plate Count	Other	Other	Other	# of Containers	Notes MeOH Vial #
SB-215	7/30/09 / 0900	GW	G		X				X						X														8	4
SB-208	7/30/09 / 1100	GW	G		X			X	X		X				X														5	
SB-212	7/30/09 / 1300	GW	G		X			X	X		X				X														5	
SB-201	7/30/09 / 1430	GW	G		X				X						X														4	
SB-203	7/30/09 / 1600	GW	G		X			X	X		X				X														5	
Trip Blank	7/20/09 EAI prep AD 8/7/09				X																								2	

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

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

PROJECT MANAGER: Theresa Miller

COMPANY: Golder Associates

ADDRESS: 670 N. Commercial St. Suite 103

CITY: Manchester STATE: NH ZIP: 03101

PHONE: 603-668-0880 EXT.:

FAX: 603-668-1199

E-MAIL: tmiller@golder.com

SITE NAME: NHDOT - Rochester

PROJECT #: 093-87094

STATE: NH MA ME VT OTHER:

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

QUOTE #: 1007156 PO #: 093-87094

DATE NEEDED: STD - 5day

QA/QC REPORTING LEVEL

A B C

OR

MA MCP

PRESUMPTIVE CERTAINTY

REPORTING OPTIONS

PRELIMS YES OR NO

IF YES: FAX OR PDF

ELECTRONIC OPTIONS

NO FAX E-MAIL PDF EQUIS

TEMP. 5 °C

ICE? YES NO

SAMPLER(S): Jess Alexander 0800

Jess Alexander ~~7/30/09~~ 7/31/09 10:15 [signature]

RELINQUISHED BY: DATE: TIME: RECEIVED BY:

[signature] 7-31-09 13:12 [signature]

RELINQUISHED BY: DATE: TIME: RECEIVED BY:

RELINQUISHED BY: DATE: TIME: RECEIVED BY:

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

OTHER METALS:

DISSOLVED METALS FIELD FILTERED? YES NO

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

SITE HISTORY:

SUSPECTED CONTAMINATION:

FIELD READINGS:

eastern analytical, inc. professional laboratory services 25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | FAX: 603.228.4591 | E-MAIL: CUSTOMER_SERVICE@EAILABS.COM | WWW.EAILABS.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)

eastern analytical

professional laboratory services

Theresa A. Miller
Golder Associates, Inc.
670 N. Commercial St., Suite 103
Manchester , NH 03101

ACCREDITED IN ACCORDANCE WITH nelac

Subject: Laboratory Report

Eastern Analytical, Inc. ID: 84696
Client Identification: NH DOT Rochester / 093-87084
Date Received: 11/20/2009

Dear Ms. Miller:

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

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

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

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

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

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

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

Sincerely,

Lorraine Olashaw, Lab Director | 12.4.09 Date | 6 # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

Eastern Analytical, Inc. ID#: 84696

Client: **Golder Associates, Inc.** Client Designation: **NH DOT Rochester / 093-87084**

Temperature upon receipt (°C): 2 **Received on ice or cold packs (Yes/No): Y**

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
84696.01	SB-208	11/20/09	11/20/09	aqueous		Adheres to Sample Acceptance Policy
84696.02	SB-203	11/20/09	11/20/09	aqueous		Adheres to Sample Acceptance Policy

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

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

References include:
1) EPA 600/4-79-020, 1983
2) Standard Methods for Examination of Water and Wastewater : Inorganics, 19th Edition, 1995; Microbiology, 20th Edition, 1998
3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
4) Hach Water Analysis Handbook, 2nd edition, 1992

LABORATORY REPORT

Eastern Analytical, Inc. ID#: 84696

Client: **Golder Associates, Inc.** Client Designation: **NH DOT Rochester / 093-87084**

Sample ID:	SB-208	SB-203
Lab Sample ID:	84696.01	84696.02
Matrix:	aqueous	aqueous
Date Sampled:	11/20/09	11/20/09
Date Received:	11/20/09	11/20/09

			Analysis				
			Units	**Date**	**Time**	**Method**	**Analyst**
Solids Suspended	**13**	< 5	mg/L	11/25/09	15:00	2540D	SFW
TKN	< 0.5	< 0.5	mg/L	11/25/09	15:30	4500NorgC	SEL
Total Phosphorus-P	**0.09**	< 0.05	mg/L	11/30/09	6:00	365.3	JCC
BOD	< 6	< 6	mg/L	11/20/09	18:00	5210B	AAM
Cyanide Total	< 0.01	< 0.01	mg/L	11/30/09	13:00	4500CNE	JCC

LABORATORY REPORT

Eastern Analytical, Inc. ID#: 84696

Client: **Golder Associates, Inc.** Client Designation: **NH DOT Rochester / 093-87084**

Sample ID:	SB-208	SB-203					
Lab Sample ID:	84696.01	84696.02					
Matrix:	aqueous	aqueous					
Date Sampled:	11/20/09	11/20/09	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	11/20/09	11/20/09					
Antimony	< 0.001	< 0.001	AqTot	mg/L	11/24/09	200.8	DS
Copper	**0.015**	**0.002**	AqTot	mg/L	11/24/09	200.8	DS
Iron	**0.74**	**1.3**	AqTot	mg/L	11/24/09	200.8	DS
Nickel	**0.002**	**0.004**	AqTot	mg/L	11/24/09	200.8	DS
Zinc	**0.024**	**0.009**	AqTot	mg/L	11/24/09	200.8	DS

CHAIN-OF-CUSTODY RECORD

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

84696

Sample I.D.	Sampling Date/Time *If Composite, Indicate Both Start & Finish Date/Time	Matrix (see below)	Grab/*Composite	VOC: 524.2 BTEX; 524.2 MTBE only	VOC: 8260B 624 VOCs; 1, 4 Dioxane EDB DBCP	VOC: 8021B BTEX HALOS	VOC: 8015B GRO MEGRO MAVPH	SVOC: 8270C 625 SVOCs; ABN A BN PAH	SVOC: TPH8100 L1 L2	SVOC: 8015B DRO MEDRO MAEPH	SVOC: 608 PEST/PCB; PEST 8081A PCB 8082	SVOC: Oil & Grease 1664 TPH 1664	TCLP: TCLP 1311 ABN Metals; VOC Pest Herb	Dissolved Metals (list below)	Total Metals (list below)	Inorganics: TS TDS Spec. Con.	Inorganics: Br Cl F SO_4; NO_2 NO_3 NO_2/NO_3	Inorganics: BOD CBOD T. Alk.	Inorganics: TKN NH_3 T. Phos.	Inorganics: pH T. Res. Chlorine	Inorganics: COD Phenols TOC	Inorganics: Total Cyanide Total Sulfide	Inorganics: Reactive Cyanide Reactive Sulfide Flashpoint Ignitability	Micro: T. Coliform E. Coli; E. Coliform	Micro: Enterococci Heterotrophic Plate Count	Other	Other	Other	# of Containers	Notes MeOH Vial #
SB-208	11/20/09/0930	GW	G												X	X		X	X	X		X								
SB-203	11/20/09/1030	GW	G												X	X		X	X	X		X								
																				SA										

Matrix: A-Air; S-Soil; GW-Ground Water; SW-Surface Water; DW-Drinking Water; WW-Waste water

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

Project Manager: Theresa Miller

Company: Golder Associates

Address: 670 N. Commercial St. Suite 103

City: Manchester State: NH Zip: 03101

Phone: 603-668-0880 Ext.:

Fax: 603-668-1199

E-Mail: Tmiller@golder.com

Site Name: NHDOT-Rochester

Project #: 093-87084

State: NH MA ME VT Other:

Regulatory Program: NPDES: RGP POTW Stormwater or GWP, Oil Fund, Brownfield or Other:

Quote #: PO #: 093-87084

Date Needed: Std 5 day

QA/QC Reporting Level: A B C OR MA MCP Presumptive Certainty

Reporting Options: Prelims: Yes or No; If Yes: Fax or PDF

Electronic Options: No Fax E-Mail PDF Equis

Temp. 2 °C; Ice? Yes No

Sampler(s): Jess Alexander

Relinquished By:	Date:	Time:	Received By:
Jess Alexander	11/20/09	1145	R. Blood
R. Blood	2009.11.20	1350	[illegible]

Metals: 8 RCRA 13 PP Fe, Mn Pb, Cu

Other Metals: Cu, Fe, Ni, Zn, Antimony

Dissolved Metals Field Filtered? Yes No

Notes: (ie: Special Detection Limits, Billing Info, If Different)

- Total Cyanide method 335.2
- TSS Method 160.2
- RGP permit (NH) application detection limits required

Site History:

Suspected Contamination:

Field Readings:

eastern analytical, inc. 25 Chenell Drive | Concord, NH 03301 | Tel: 603.228.0525 | 1.800.287.0525 | Fax: 603.228.4591 | E-Mail: customer_service@eailabs.com | www.eailabs.com
professional laboratory services

(WHITE: Original GREEN: Project Manager)

eastern analytical, inc.
professional laboratory services

Theresa A. Miller
Golder Associates, Inc.
670 N. Commercial St., Suite 103
Manchester , NH 03101

ACCREDITED IN ACCORDANCE WITH nelac

Subject: Laboratory Report

Eastern Analytical, Inc. ID: 97519
Client Identification: NHDOT Rochester | 093-87084-01
Date Received: 3/15/2011

Dear Ms. Miller :

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

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

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

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

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

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

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

Sincerely,

Lorraine Olashaw, Lab Director

3.31.11
Date

40
# of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: 97519

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester | 093-87084-01**

Temperature upon receipt (°C): 2.4 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
97519.01	SB-212	3/15/11	3/15/11	aqueous		Adheres to Sample Acceptance Policy
97519.02	Trip Blank	3/15/11	3/7/11	aqueous		Adheres to Sample Acceptance Policy

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

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

References include:

1) EPA 600/4-79-020, 1983
2) Standard Methods for Examination of Water and Wastewater : Inorganics, 19th Edition, 1995; Microbiology, 20th Edition, 1998
3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
4) Hach Water Analysis Handbook, 2nd edition, 1992

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester | 093-87084-01**

Sample ID:	SB-212	Trip Blank
Lab Sample ID:	97519.01	97519.02
Matrix:	aqueous	aqueous
Date Sampled:	3/15/11	3/7/11
Date Received:	3/15/11	3/15/11
Units:	ug/l	ug/l
Date of Analysis:	3/15/11	3/15/11
Analyst:	KJP	KJP
Method:	8260B	8260B
Dilution Factor:	1	1
Dichlorodifluoromethane	< 5	< 5
Chloromethane	< 2	< 2
Vinyl chloride	< 2	< 2
Bromomethane	< 2	< 2
Chloroethane	< 5	< 5
Trichlorofluoromethane	< 5	< 5
Diethyl Ether	< 5	< 5
Acetone	< 10	< 10
1,1-Dichloroethene	< 1	< 1
tert-Butyl Alcohol (TBA)	< 30	< 30
Methylene chloride	< 5	< 5
Carbon disulfide	< 5	< 5
Methyl-t-butyl ether(MTBE)	< 5	< 5
Ethyl-t-butyl ether(ETBE)	< 5	< 5
Isopropyl ether(DIPE)	< 5	< 5
tert-amyl methyl ether(TAME)	< 5	< 5
trans-1,2-Dichloroethene	< 2	< 2
1,1-Dichloroethane	< 2	< 2
2,2-Dichloropropane	< 2	< 2
cis-1,2-Dichloroethene	< 2	< 2
2-Butanone(MEK)	< 10	< 10
Bromochloromethane	< 2	< 2
Tetrahydrofuran(THF)	< 10	< 10
Chloroform	< 2	< 2
1,1,1-Trichloroethane	< 2	< 2
Carbon tetrachloride	< 2	< 2
1,1-Dichloropropene	< 2	< 2
Benzene	< 1	< 1
1,2-Dichloroethane	< 2	< 2
Trichloroethene	< 2	< 2
1,2-Dichloropropane	< 2	< 2
Dibromomethane	< 2	< 2
Bromodichloromethane	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10
cis-1,3-Dichloropropene	< 2	< 2
Toluene	< 1	< 1
trans-1,3-Dichloropropene	< 2	< 2
1,1,2-Trichloroethane	< 2	< 2
2-Hexanone	< 10	< 10
Tetrachloroethene	< 2	< 2
1,3-Dichloropropane	< 2	< 2
Dibromochloromethane	< 2	< 2
1,2-Dibromoethane(EDB)	< 2	< 2
Chlorobenzene	**8**	< 2
1,1,1,2-Tetrachloroethane	< 2	< 2

LABORATORY REPORT

EAI ID#: 97519

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester | 093-87084-01**

Sample ID:	SB-212	Trip Blank
Lab Sample ID:	97519.01	97519.02
Matrix:	aqueous	aqueous
Date Sampled:	3/15/11	3/7/11
Date Received:	3/15/11	3/15/11
Units:	ug/l	ug/l
Date of Analysis:	3/15/11	3/15/11
Analyst:	KJP	KJP
Method:	8260B	8260B
Dilution Factor:	1	1
Ethylbenzene	< 1	< 1
mp-Xylene	< 1	< 1
o-Xylene	< 1	< 1
Styrene	< 1	< 1
Bromoform	< 2	< 2
IsoPropylbenzene	< 1	< 1
Bromobenzene	< 2	< 2
1,1,2,2-Tetrachloroethane	< 2	< 2
1,2,3-Trichloropropane	< 2	< 2
n-Propylbenzene	< 1	< 1
2-Chlorotoluene	< 2	< 2
4-Chlorotoluene	< 2	< 2
1,3,5-Trimethylbenzene	< 1	< 1
tert-Butylbenzene	< 1	< 1
1,2,4-Trimethylbenzene	**1**	< 1
sec-Butylbenzene	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1
p-Isopropyltoluene	< 1	< 1
1,4-Dichlorobenzene	**3**	< 1
1,2-Dichlorobenzene	< 1	< 1
n-Butylbenzene	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5
Naphthalene	< 5	< 5
1,2,3-Trichlorobenzene	< 1	< 1
4-Bromofluorobenzene (surr)	**92 %R**	**91 %R**
1,2-Dichlorobenzene-d4 (surr)	**109 %R**	**107 %R**
Toluene-d8 (surr)	**97 %R**	**97 %R**

LABORATORY REPORT

EAI ID#: 97519

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester | 093-87084-01**

Sample ID:	SB-212
Lab Sample ID:	97519.01
Matrix:	aqueous
Date Sampled:	3/15/11
Date Received:	3/15/11
Units:	ug/l
Date of Analysis:	3/15/11
Analyst:	VG
Method:	8260B SIM
Dilution Factor:	1
1,4-Dioxane	< 1
4-Bromofluorobenzene (surr)	**99 %R**
Toluene-d8 (surr)	**100 %R**

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester | 093-87084-01**

Sample ID:	SB-212
Lab Sample ID:	97519.01
Matrix:	aqueous
Date Sampled:	3/15/11
Date Received:	3/15/11
Units:	ug/l
Date of Extraction/Preparation	3/18/11
Date of Analysis:	3/18/11
Analyst:	JMR
Method:	8270D
Dilution Factor:	1
Phenol	< 1
2-Chlorophenol	< 1
2,4-Dichlorophenol	< 1
2,4,5-Trichlorophenol	< 1
2,4,6-Trichlorophenol	< 1
Pentachlorophenol	< 5
2-Nitrophenol	< 1
4-Nitrophenol	< 5
2,4-Dinitrophenol	< 5
2-Methylphenol	< 1
3/4-Methylphenol	< 1
2,4-Dimethylphenol	< 1
4-Chloro-3-methylphenol	< 1
4,6-Dinitro-2-methylphenol	< 5
Benzoic Acid	< 50
N-Nitrosodimethylamine	< 1
n-Nitroso-di-n-propylamine	< 1
n-Nitrosodiphenylamine	< 1
bis(2-Chloroethyl)ether	< 1
bis(2-chloroisopropyl)ether	< 1
bis(2-Chloroethoxy)methane	< 1
1,3-Dichlorobenzene	< 1
1,4-Dichlorobenzene	**1**
1,2-Dichlorobenzene	< 1
1,2,4-Trichlorobenzene	< 1
2-Chloronaphthalene	< 1
4-Chlorophenyl-phenylether	< 1
4-Bromophenyl-phenylether	< 1
Hexachloroethane	< 1
Hexachlorobutadiene	< 1
Hexachlorocyclopentadiene	< 5
Hexachlorobenzene	< 1
4-Chloroaniline	< 1
2-Nitroaniline	< 5
3-Nitroaniline	< 1
4-Nitroaniline	< 1
Benzyl alcohol	< 5
Nitrobenzene	< 1
Isophorone	< 1
2,4-Dinitrotoluene	< 1
2,6-Dinitrotoluene	< 1
Benzidine (estimated)	< 5
3,3'-Dichlorobenzidine	< 1
Pyridine	< 5
Azobenzene	< 1

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester | 093-87084-01**

Sample ID:	SB-212
Lab Sample ID:	97519.01
Matrix:	aqueous
Date Sampled:	3/15/11
Date Received:	3/15/11
Units:	ug/l
Date of Extraction/Preparation	3/18/11
Date of Analysis:	3/18/11
Analyst:	JMR
Method:	8270D
Dilution Factor:	1
Carbazole	< 1
Dimethylphthalate	< 1
Diethylphthalate	< 1
Di-n-butylphthalate	< 5
Butylbenzylphthalate	< 1
bis(2-Ethylhexyl)phthalate	< 5
Di-n-octylphthalate	< 1
Dibenzofuran	< 1
Naphthalene	< 0.1
2-Methylnaphthalene	< 0.1
Acenaphthylene	< 0.1
Acenaphthene	< 0.1
Fluorene	< 0.1
Phenanthrene	< 0.1
Anthracene	< 0.1
Fluoranthene	< 0.1
Pyrene	< 0.1
Benzo[a]anthracene	< 0.1
Chrysene	< 0.1
Benzo[b]fluoranthene	< 0.1
Benzo[k]fluoranthene	< 0.1
Benzo[a]pyrene	< 0.1
Indeno[1,2,3-cd]pyrene	< 0.1
Dibenz[a,h]anthracene	< 0.1
Benzo[g,h,i]perylene	< 0.1
2-Fluorophenol (surr)	**37 %R**
Phenol-d6 (surr)	**27 %R**
2,4,6-Tribromophenol (surr)	**93 %R**
Nitrobenzene-D5 (surr)	**66 %R**
2-Fluorobiphenyl (surr)	**65 %R**
p-Terphenyl-D14 (surr)	**72 %R**

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester | 093-87084-01**

Sample ID:	SB-212
Lab Sample ID:	97519.01
Matrix:	aqueous
Date Sampled:	3/15/11
Date Received:	3/15/11
Units:	mg/L
Date of Extraction/Prep:	3/16/11
Date of Analysis:	3/16/11
Analyst:	LAS
Method:	1664A
Dilution Factor:	1
TPH(SGTHEM)	< 5

LABORATORY REPORT

EAI ID#: 97519

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester | 093-87084-01**

Sample ID:	SB-212
Lab Sample ID:	97519.01
Matrix:	aqueous
Date Sampled:	3/15/11
Date Received:	3/15/11
Units:	ug/l
Date of Extraction/Prep:	3/21/11
Date of Analysis:	3/21/11
Analyst:	JW
Method:	8011/504
Dilution Factor:	1

1,2-Dibromoethane(EDB)	< 0.02
Dibromochloropropane (DBCP)	< 0.02
1,1,1,2-Tetrachloroethane (surr)	**84 %R**

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester | 093-87084-01**

Sample ID:	SB-212
Lab Sample ID:	97519.01
Matrix:	aqueous
Date Sampled:	3/15/11
Date Received:	3/15/11
Units:	ug/l
Date of Extraction/Prep:	3/17/11
Date of Analysis:	3/17/11
Analyst:	JW
Method:	608
Dilution Factor:	1
PCB-1016	< 0.3
PCB-1221	< 0.3
PCB-1232	< 0.3
PCB-1242	< 0.3
PCB-1248	< 0.3
PCB-1254	< 0.3
PCB-1260	< 0.3
TMX (surr)	**91 %R**
DCB (surr)	**71 %R**

LABORATORY REPORT

EAI ID#: 97519

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester | 093-87084-01**

Sample ID: SB-212

Lab Sample ID: 97519.01

Matrix: aqueous

Date Sampled: 3/15/11

Date Received: 3/15/11

			Analysis			
		Units	Date	Time	Method	Analyst
Solids Suspended	**10**	mg/L	3/16/11	10:30	2540D	KJR
Chloride	**200**	mg/L	3/20/11	16:21	4500CIE	KL
Cyanide Total	**0.006**	mg/L	3/17/11	12:00	4500CNE	KJR
Total Residual Chlorine	< 0.05	mg/L	3/15/11	12:30	4500CIG	JL
Total Phenols	< 0.05	mg/L	3/21/11	8:30	420.1	SEL

LABORATORY REPORT

EAI ID#: 97519

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester | 093-87084-01**

Sample ID: SB-212

Lab Sample ID: 97519.01

Matrix: aqueous

Date Sampled: 3/15/11

Date Received: 3/15/11

		Analytical Matrix	Units	Date of Analysis	Method	Analyst
Antimony	< 0.0005	AqTot	mg/L	3/16/11	200.8	DS
Arsenic	**0.0023**	AqTot	mg/L	3/16/11	200.8	DS
Cadmium	**0.0004**	AqTot	mg/L	3/16/11	200.8	DS
Chromium	**0.0014**	AqTot	mg/L	3/16/11	200.8	DS
Copper	**0.0025**	AqTot	mg/L	3/16/11	200.8	DS
Iron	**17**	AqTot	mg/L	3/16/11	200.8	DS
Lead	**0.0008**	AqTot	mg/L	3/16/11	200.8	DS
Nickel	**0.0076**	AqTot	mg/L	3/16/11	200.8	DS
Selenium	< 0.0005	AqTot	mg/L	3/16/11	200.8	DS
Silver	< 0.0005	AqTot	mg/L	3/16/11	200.8	DS
Zinc	**0.20**	AqTot	mg/L	3/16/11	200.8	DS
Chromium (III)	< 0.01	AqTot	mg/L	3/16/11	200.8	DS
Chromium (VI)	< 0.01	AqTot	mg/L	3/15/11	7196A	DS

317 Elm Street
Milford, NH 03055
(603) 673-5440
Fax (603) 673-0366
Sales@chemservelab.com

Monday, March 28, 2011

EAI Front Office
Eastern Analytical Inc.
25 Chenell Dr.
Concord NH 03301

Project Name: Mercury
Project #: N/A
Project Location: N/A
Control #: 11030196

Lab ID: 11030196
Date Received: 3/16/2011

Dear EAI Front Office

Enclosed please find the laboratory results for the above referenced samples that were received by the ChemServe sample custodian on the above referenced date. Any abnormalities to the samples upon receipt would be noted on the enclosed chain of custody document. This report is not valid without a completed chain of custody with the corresponding control number, attached.

All samples analyzed by ChemServe are subject to quality standards. These standards are as stringent or more stringent than those established under NELAC, 40 CFR Part 136, state certification programs, and corresponding methodologies. ChemServe has a written QA/QC Procedures Manual that outlines these standards, and is available for your reference, upon request. Unless otherwise stated on the Chain of Custody or within the report, all holding times, preservation techniques, container types, and analytical methods are analogous with those outlined by NELAC. All units are based on "as received" weight unless denoted "dry".

I certify that I have reviewed the above referenced analytical data and state forms, and I have found this report within compliance with the procedures outlined within NELAC. ChemServe's certified parameter list can be found at http://www.chemservelab.com/Laboratory-Information-and-Documentation.aspx

Heather Beaudoin - QA/QC Manager

Jay Chrystal - President/Laboratory Director

Certificate Number 1008

ChemServe ENVIRONMENTAL ANALYSTS

317 Elm Street
Milford, NH 03055
(603) 673-5440
Sales@chemservelab.com

Eastern Analytical Inc.
EAI Front Office
25 Chenell Dr.
Concord NH 03301

Control #: 11030196
Project Number: N/A
Project Name: Mercury
Project Location: N/A

Lab ID: 11030196
Date: 3/28/2011

Lab ID: 11030196

Sample Receiving and Comment Summary

Were Samples Submitted with a chain of custody?	Yes
Do all samples received match the chain of custody?	Yes
Were all samples received within holding times?	Yes
Were all containers intact when received?	Yes
Was there evidence of cooling?	Yes
Were samples for Volatile organic analysis free of headspace (per method)?	N/A
Was the cooler temperature recorded?	Yes
If the sample pH was not correct was it adjusted where applicable?	Yes
If samples for dissolved metals were not filtered were they filtered in the lab?	N/A

Sample	Method	Client Identity	Matrix	Analyst
11030196-001	EPA 245.1	SB-212	Wastewater	HeatherM

Comment: no comment

** Blank comment sections denote "No Comment"*

317 Elm Street
Milford, NH 03055
(603) 673-5440
Sales@chemservelab.com

Eastern Analytical Inc.
EAI Front Office
25 Chenell Dr.
Concord NH 03301

Control #: 11030196
Project Number: N/A
Project Name: Mercury
Project Location: N/A

Analytical Results

Lab ID: 11030196
Date: 3/28/2011

Sample	Method	Client Sample Identity	Units	Matrix	Analyst
11030196-001	EPA 245.1	SB-212	mg/L	Wastewater	HeatherM

Start Date/Time Sampled: 3/15/2011 9:00:00 AM **Composite End Date/Time:**

Parameter	CAS Number	Result	Qualifier	Date/Time Analyzed	Dilution Factor	RDL
Mercury	7439-97-6	< 0.0002 mg/L		3/24/2011	1	0.0002

Qualifier:	Description:
B-	Method blank contaminated with target analyte.
B1-	BOD had total oxygen loss. Result reported as ">"the highest dilution.
B2-	BOD had no oxygen loss. Result reported as "<" the lowest dilution.
G-	Reporting limit elevated due to matrix interference.
H-	Method prescribed holding time exceeded.
J-	Indicates an estimated value. Value is less than the quantitation limit.
LH-	Laboratory control spike(s) was high. Results may be biased high.
LL-	Laboratory control spike(s) was low. Results may be biased low.
MH-	Matrix spike recovery high due to matrix. Results may be biased high.
ML-	Matrix spike recovery low due to matrix. Results may be biased low.
NC-	Spike recovery was not calculated due to the concentration of the analyte being >4 times the concentration of the spike added.
R-	RPD outside acceptable recovery limits.
RO-	Sample received out of holding time.
SH-	Surrogate recovery high due to matrix
SL-	Surrogate recovery low due to matrix
TNTC-	Too numerous to count.
U-	BOD/CBOD blank had an oxygen depletion greater than the suggested amount of 0.200.

CHAIN-OF-CUSTODY RECORD

eastern analytical
professional laboratory services

EAI SRB# 97519

25

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
SB-212	3/15/2011 09:00	aqueous	Mercury Cold Vapor (Chemserve)	

EAI SRB# 97519 **Project State: NH**

Project ID: 3198

Company ChemServe
Address 317 Elm St
Address Milford, NH 03055
Account #
Phone # 673-5440
Fax Number 673-0366

Results Needed by: Preferred date ASAP without surcharge

QC Deliverables

☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ PC

Notes about project:

Email pdf of results and invoice to customerservice@eailabs.com.

11030196 3/30

Eastern Analytical Inc. PO Number: 26574

Please call prior to analyzing, if RUSH surcharges will be applied.

Samples Collected by:

Relinquished by	Date/Time	Received by
	3/16/2011 7:45	
	3/16/2011 10:00	

Relinquished by **Date/Time** **Received by**

3.4°C

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Phone: (603)228-0525 1-800-287-0525 Fax: (603)228-4591

analytics environmental laboratory LLC

195 Commerce Way Suite E
Portsmouth, New Hampshire 03801
603-436-5111 Fax 603-430-2151
800-929-9906
www.analyticslab.com

March 30, 2011

Ms. Pam Gagnon
Eastern Analytical, Inc.
25 Chenell drive
Concord, NH 03301

RE: Analytical Results Case Narrative
Project #97519
Analytics # 69265

Dear Ms. Gagnon

Enclosed please find the analytical results for samples collected from the above-mentioned project. The attached Cover Page lists the sample IDs, Lab tracking numbers and collection dates for the samples included in this deliverable.

Samples were analyzed for Pentachlorophenol using EPA Method 8151A.

Unless otherwise noted in the Non-conformance Summary listed below, all of the quality control (QC) criteria including initial calibration, calibration verification, surrogate recovery, holding time and method accuracy/precision for these analyses were within acceptable limits.

This Level II package has been assembled in the following order:

Case Narrative/Non-Conformance Summary
Sample Log Sheet - Cover Page
HERB Form 1 Sample Data Results for Samples and Method Blanks
HERB Form 3 MS/MSD and LCS/LCSD Results
Chain of Custody (COC) Forms

QC NON-CONFORMANCE SUMMARY

Sample Receipt:
No exceptions.

Chlorinated Herbicides by 8151A:
This narrative is specific to target analytes reported on the Form 1 data pages. Non-target (NT) analyte deviations were not addressed.

Surrogate DichloroAcetic Acid had low recovery in the continuing calibration standards on column#2. Column#1 was in control. Results were reported off of column#1 without qualification.

If you have any questions or I can be of further assistance please do not hesitate to contact me.

Sincerely,
ANALYTICS Environmental Laboratory, LLC

Stephen Knollmeyer
Laboratory Director

analytics environmental laboratory LLC

195 Commerce Way Suite E
Portsmouth, New Hampshire 03801
603-436-5111 Fax 603-430-2151
800-929-9906
www.analyticslab.com

Ms. Pam Gagnon
Eastern Analytical, Inc.
25 Chenell Drive
Concord, NH 03301

Report Number: 69265

Revision: Rev. 0

Re: 3198 (Project No: 97519)

Enclosed are the results of the analyses on your sample(s). Samples were received on 16 March 2011 and analyzed for the tests listed. Samples were received in acceptable condition, with the exceptions noted below or on the chain of custody. These results pertain to samples as received by the laboratory and for the analytical tests requested on the chain of custody. The results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report. Please see individual reports for specific methodologies and references.

Lab Number	Sample Date	Station Location	Analysis	Comments
69265-1	03/15/11	SB-212	EPA 8151 Chlorinated Herbicides	

Sample Receipt Exceptions: None

Analytics Environmental Laboratory is certified by the states of New Hampshire, Maine, Massachusetts, Connecticut, Rhode Island, Virginia, Maryland, and is accredited by the Deparment of Defense (DOD) ELAP program. A list of actual certified parameters is available upon request.

If you have any questions on these results, please do not hesitate to contact us.

Authorized signature _____
Stephen L. Knollmeyer Lab. Director

Date 03/30/11

This report shall not be reproduced, except in full, without the written consent of Analytics Environmental Laboratory, LLC.

analytics environmental laboratory LLC

195 Commerce Way
Portsmouth, New Hampshire 03801
603-436-5111 Fax 603-430-2151
800-929-9906

Ms. Pam Gagnon
Eastern Analytical, Inc.
25 Chenell Drive
Concord, NH 03301

March 30, 2011

SAMPLE DATA

Lab Sample ID:	69265-1
Matrix:	Aqueous
Percent Solid:	N/A
Dilution Factor:	1
Collection Date:	03/15/11
Lab Receipt Date:	03/16/11
Extraction Date:	03/22/11
Analysis Date:	03/23/11

CLIENT SAMPLE ID

Project Name:	3198
Project Number:	97519
Client Sample ID:	SB-212

ANALYTICAL RESULTS CHLORINATED HERBICIDES

COMPOUND	Quantitation Limit µg/L	Results µg/L
Pentachlorophenol	0.25	U

Surrogate Standard Recovery

2,4-Dichlorophenylacetic acid 97 %

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank

METHODOLOGY: Samples were analyzed according to Test Methods for Evaluating Solid Waste, SW-846 Method 8151.

COMMENTS:

Authorized signature

CHAIN-OF-CUSTODY RECORD

eastern analytical
professional laboratory services

EAI SRB# **97519**

38

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
SB-212	3/15/2011 09:00	aqueous	Pentachlorophenol Water 8151A Subcontract – 0.28 ug/L limit needed!	#69265-1

SAMPLE WAS (-) FOR CL WHEN MEASURED WITH KI PAPER
JG 3/16/11

REC'D @ 2.1°C

EAI SRB# **97519** **Project State:** NH

Project ID: 3198

Company Analytics Environmental Labs
Address 195 Commerce Way
Address Portsmouth, NH 03801
Account #
Phone # 436-5111
Fax Number 430-2151

Results Needed by: Preferred date ASAP without surcharge

QC Deliverables

☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ PC

Notes about project:

Email pdf of results and invoice to customerservice@eailabs.com.

Eastern Analytical Inc. PO Number: 26572

Please call prior to analyzing, if RUSH surcharges will be applied.

Samples Collected by:

Relinquished by	Date/Time	Received by
[illegible]	3/16/2011 0715	R. Blood
R. Blood	2011.03.16 1020	[illegible]

Relinquished by Date/Time Received by

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Phone: (603)228-0525 1-800-287-0525 Fax: (603)228-4591

ANALYTICS SAMPLE RECEIPT CHECKLIST

analytics environmental laboratory LLC

AEL LAB#: 69265 COOLER NUMBER: CLIENT

CLIENT: EAI NUMBER OF COOLERS: 1

PROJECT: 3198 DATE RECEIVED: 3·16·11

A: PRELIMINARY EXAMINATION: DATE COOLER OPENED: 3·16·11

1. Cooler received by(initials): JG Date Received: 3·16·11

2. Circle one: Hand delivered (If so, skip 3) Shipped

3. Did cooler come with a shipping slip? Y (N)

3a. Enter carrier name and airbill number here: —

4. Were custody seals on the outside of cooler? Y (N)
How many & where: — Seal Date: — Seal Name: —

5. Did the custody seals arrive unbroken and intact upon arrival? Y (N/A)

6. COC#: —

7. Were Custody papers filled out properly (ink.signed, etc)? (Y) N

8. Were custody papers sealed in a plastic bag? Y (N)

9. Did you sign the COC in the appropriate place? (Y) N

10. Was the project identifiable from the COC papers? (Y) N

11. Was enough ice used to chill the cooler? (Y) N Temp. of cooler: 2.1°

B. Log-In: Date samples were logged in: 3·16·11 By: JG

12. Type of packing in cooler(bubble wrap, popcorn) Y (N)

13. Were all bottles sealed in separate plastic bags? Y (N)

14. Did all bottles arrive unbroken and were labels in good condition? (Y) N

15. Were all bottle labels complete(ID.Date.time.etc.) (Y) N

16. Did all bottle labels agree with custody papers? (Y) N

17. Were the correct containers used for the tests indicated: (Y) N

18. Were samples received at the correct pH? (Y) N

19. Was sufficient amount of sample sent for the tests indicated? (Y) N

20. Were all samples submitted within holding time? (Y) N

21. Were bubbles absent in VOA samples? Y (N/A)

If NO, List Sample ID's and Lab #s: _____

22. Laboratory labeling verified by (initials): BB Date: 3/16/11

C:ANLYTICS LLC\AEL DOCUMENTS\FORMS\SMPL CHKLST\Edit 4908 Rev. 3, 01/20/11

Page 1 of 1

CHAIN-OF-CUSTODY RECORD

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

FOR

97519

40

SAMPLE I.D.	SAMPLING DATE/TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE/TIME	MATRIX (SEE BELOW)	GRAB/*COMPOSITE	VOC: 524.2 8260 SIM; 524.2 BTEX; 524.2 MTBE ONLY	VOC: (8260B) 624 VTICs; 1,4 DIOXANE (EDB) (DBCP)	VOC: 8021B BTEX HALOS	VOC: 8015B GRO MEGRO MAVPH	SVOC: 8270D 625 SVTICs; (ABN) A BN PAH	SVOC: TPH8100 L1 L2	SVOC: 8015B DRO MEDRO MAEPH	SVOC: PEST 608 (PCB 608); PEST 8081A PCB 8082	SVOC: OIL & GREASE 1664 (TPH 1664)	TCLP: TCLP 1311 ABN METALS; VOC PEST HERB	METALS: DISSOLVED METALS (LIST BELOW)	METALS: TOTAL METALS (LIST BELOW)	INORGANICS: TS (TSS) TDS SPEC. CON.	INORGANICS: BR (CL) F SO_4; NO_2 NO_3 NO_3NO_2	INORGANICS: BOD CBOD T. ALK.	INORGANICS: TKN NH_3 T. PHOS. O. PHOS.	INORGANICS: PH (T. RES. CHLORINE)	INORGANICS: COD (PHENOLS) TOC DOC	INORGANICS: (TOTAL CYANIDE) TOTAL SULFIDE	INORGANICS: REACTIVE CYANIDE REACTIVE SULFIDE; FLASHPOINT IGNITABILITY	MICRO: TOTAL COLIFORM E. COLI; FECAL COLIFORM	MICRO: ENTEROCOCCI; HETEROTROPHIC PLATE COUNT	OTHER: Mercury Cold Vapor	OTHER: Chromium(III)(IV)	OTHER: Pentachlorophenol	# OF CONTAINERS	NOTES MEOH VIAL #
SB-212	3/15/11 0900	GW	G	✓	✓			✓			✓	✓			✓	✓				✓	✓	✓				✓	✓	✓	20	
Trip Blank (EAI PREPPED)	3/7/11 07:05				✓																								2	
MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH				Un	H			Un			Un	S			N		Un			Un		Na				N	Un	Un		

PROJECT MANAGER: Theresa Miller

COMPANY: Golder Associates

ADDRESS: 670 N. Commercial St. Suite 103

CITY: Manchester STATE: NH ZIP: 03101

PHONE: 603-668-0880 EXT.:

FAX: 603-668-1199

E-MAIL: tmiller@golder.com

SITE NAME: NH DOT Rochester

PROJECT #: 093-87084-01

STATE: (NH) MA ME VT OTHER:

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

QUOTE #: 1008866 PO #: 093-87084-01

DATE NEEDED: 3/20/2011 5 day

QA/QC REPORTING LEVEL
A B C
OR
PRESUMPTIVE CERTAINTY

REPORTING OPTIONS
PRELIMS: YES OR NO
IF YES: FAX OR PDF

ELECTRONIC OPTIONS
NO FAX (E-MAIL) (PDF) EQUIS

TEMP. 2.4 °C
ICE? (YES) NO

SAMPLER(S): Jess Alexander

RELINQUISHED BY: Jess Alexander DATE: 3/15/11 TIME: 1030 RECEIVED BY: [signature]

RELINQUISHED BY: DATE: TIME: RECEIVED BY:

RELINQUISHED BY: DATE: TIME: RECEIVED BY:

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

OTHER METALS: Metals by ICP

DISSOLVED METALS FIELD FILTERED? YES NO

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

SITE HISTORY:

SUSPECTED CONTAMINATION:

FIELD READINGS:

eastern analytical, inc. *professional laboratory services* 25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | FAX: 603.228.4591 | E-MAIL: CUSTOMER_SERVICE@EAILABS.COM | WWW.EAILABS.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)

Theresa A. Miller
Golder Associates, Inc.
670 N. Commercial St., Suite 103
Manchester , NH 03101

ACCREDITED IN ACCORDANCE WITH nelac

Subject: Laboratory Report

Eastern Analytical, Inc. ID: 97837
Client Identification: NHDOT Rochester
Date Received: 3/29/2011

Dear Ms. Miller :

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

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

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

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

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

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

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

Sincerely,

Lorraine Olashaw, Lab Director

4.4.11
Date

27
# of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: 97837

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester**

Temperature upon receipt (°C): 5 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
97837.01	OP-GEO-2	3/29/11	3/29/11	aqueous		Adheres to Sample Acceptance Policy
97837.02	Trip Blank - 8260	3/29/11	3/14/11	aqueous		Adheres to Sample Acceptance Policy Bubble in both vials
97837.03	Trip Blank - 1,4 Dioxane	3/29/11	3/10/11	aqueous		Adheres to Sample Acceptance Policy

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

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

References include:

1) EPA 600/4-79-020, 1983
2) Standard Methods for Examination of Water and Wastewater : Inorganics, 19th Edition, 1995; Microbiology, 20th Edition, 1998
3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
4) Hach Water Analysis Handbook, 2nd edition, 1992

LABORATORY REPORT

EAI ID#: 97837

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester**

Sample ID:	OP-GEO-2	Trip Blank - 8260
Lab Sample ID:	97837.01	97837.02
Matrix:	aqueous	aqueous
Date Sampled:	3/29/11	3/14/11
Date Received:	3/29/11	3/29/11
Units:	ug/l	ug/l
Date of Analysis:	3/29/11	3/29/11
Analyst:	BML	BML
Method:	8260B	8260B
Dilution Factor:	1	1
Dichlorodifluoromethane	< 5	< 5
Chloromethane	< 2	< 2
Vinyl chloride	< 2	< 2
Bromomethane	< 2	< 2
Chloroethane	< 5	< 5
Trichlorofluoromethane	< 5	< 5
Diethyl Ether	< 5	< 5
Acetone	< 10	< 10
1,1-Dichloroethene	< 1	< 1
tert-Butyl Alcohol (TBA)	< 30	< 30
Methylene chloride	< 5	< 5
Carbon disulfide	< 5	< 5
Methyl-t-butyl ether(MTBE)	< 5	< 5
Ethyl-t-butyl ether(ETBE)	< 5	< 5
Isopropyl ether(DIPE)	< 5	< 5
tert-amyl methyl ether(TAME)	< 5	< 5
trans-1,2-Dichloroethene	< 2	< 2
1,1-Dichloroethane	< 2	< 2
2,2-Dichloropropane	< 2	< 2
cis-1,2-Dichloroethene	< 2	< 2
2-Butanone(MEK)	< 10	< 10
Bromochloromethane	< 2	< 2
Tetrahydrofuran(THF)	< 10	< 10
Chloroform	< 2	< 2
1,1,1-Trichloroethane	< 2	< 2
Carbon tetrachloride	< 2	< 2
1,1-Dichloropropene	< 2	< 2
Benzene	**2**	< 1
1,2-Dichloroethane	< 2	< 2
Trichloroethene	< 2	< 2
1,2-Dichloropropane	< 2	< 2
Dibromomethane	< 2	< 2
Bromodichloromethane	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10
cis-1,3-Dichloropropene	< 2	< 2
Toluene	< 1	< 1
trans-1,3-Dichloropropene	< 2	< 2
1,1,2-Trichloroethane	< 2	< 2
2-Hexanone	< 10	< 10
Tetrachloroethene	< 2	< 2
1,3-Dichloropropane	< 2	< 2
Dibromochloromethane	< 2	< 2
1,2-Dibromoethane(EDB)	< 2	< 2
Chlorobenzene	**3**	< 2
1,1,1,2-Tetrachloroethane	< 2	< 2

LABORATORY REPORT

EAI ID#: 97837

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester**

Sample ID:	OP-GEO-2	Trip Blank - 8260
Lab Sample ID:	97837.01	97837.02
Matrix:	aqueous	aqueous
Date Sampled:	3/29/11	3/14/11
Date Received:	3/29/11	3/29/11
Units:	ug/l	ug/l
Date of Analysis:	3/29/11	3/29/11
Analyst:	BML	BML
Method:	8260B	8260B
Dilution Factor:	1	1
Ethylbenzene	< 1	< 1
mp-Xylene	< 1	< 1
o-Xylene	< 1	< 1
Styrene	< 1	< 1
Bromoform	< 2	< 2
IsoPropylbenzene	< 1	< 1
Bromobenzene	< 2	< 2
1,1,2,2-Tetrachloroethane	< 2	< 2
1,2,3-Trichloropropane	< 2	< 2
n-Propylbenzene	< 1	< 1
2-Chlorotoluene	< 2	< 2
4-Chlorotoluene	< 2	< 2
1,3,5-Trimethylbenzene	< 1	< 1
tert-Butylbenzene	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1
sec-Butylbenzene	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1
p-Isopropyltoluene	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1
n-Butylbenzene	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5
Naphthalene	< 5	< 5
1,2,3-Trichlorobenzene	< 1	< 1
4-Bromofluorobenzene (surr)	**89 %R**	**89 %R**
1,2-Dichlorobenzene-d4 (surr)	**95 %R**	**97 %R**
Toluene-d8 (surr)	**100 %R**	**103 %R**

LABORATORY REPORT

EAI ID#: 97837

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester**

Sample ID:	OP-GEO-2	Trip Blank - 1,4 Dioxane
Lab Sample ID:	97837.01	97837.03
Matrix:	aqueous	aqueous
Date Sampled:	3/29/11	3/10/11
Date Received:	3/29/11	3/29/11
Units:	ug/l	ug/l
Date of Analysis:	3/29/11	3/29/11
Analyst:	VG	VG
Method:	8260B SIM	8260B SIM
Dilution Factor:	1	1
1,4-Dioxane	< 1	< 1
4-Bromofluorobenzene (surr)	**125 %R**	**126 %R**
Toluene-d8 (surr)	**110 %R**	**110 %R**

Client: **Golder Associates, Inc.**
Client Designation: **NHDOT Rochester**

Sample ID: OP-GEO-2

Lab Sample ID:	97837.01
Matrix:	aqueous
Date Sampled:	3/29/11
Date Received:	3/29/11
Units:	ug/l
Date of Extraction/Preparation	3/29/11
Date of Analysis:	3/31/11
Analyst:	JMR
Method:	8270D
Dilution Factor:	1
Phenol	< 1
2-Chlorophenol	< 1
2,4-Dichlorophenol	< 1
2,4,5-Trichlorophenol	< 1
2,4,6-Trichlorophenol	< 1
Pentachlorophenol	< 5
2-Nitrophenol	< 1
4-Nitrophenol	< 5
2,4-Dinitrophenol	< 5
2-Methylphenol	< 1
3/4-Methylphenol	< 1
2,4-Dimethylphenol	< 1
4-Chloro-3-methylphenol	< 1
4,6-Dinitro-2-methylphenol	< 5
Benzoic Acid	< 50
N-Nitrosodimethylamine	< 1
n-Nitroso-di-n-propylamine	< 1
n-Nitrosodiphenylamine	< 1
bis(2-Chloroethyl)ether	< 1
bis(2-chloroisopropyl)ether	< 1
bis(2-Chloroethoxy)methane	< 1
1,3-Dichlorobenzene	< 1
1,4-Dichlorobenzene	< 1
1,2-Dichlorobenzene	< 1
1,2,4-Trichlorobenzene	< 1
2-Chloronaphthalene	< 1
4-Chlorophenyl-phenylether	< 1
4-Bromophenyl-phenylether	< 1
Hexachloroethane	< 1
Hexachlorobutadiene	< 1
Hexachlorocyclopentadiene	< 5
Hexachlorobenzene	< 1
4-Chloroaniline	< 1
2-Nitroaniline	< 5
3-Nitroaniline	< 1
4-Nitroaniline	< 1
Benzyl alcohol	< 5
Nitrobenzene	< 1
Isophorone	< 1
2,4-Dinitrotoluene	< 1
2,6-Dinitrotoluene	< 1
Benzidine (estimated)	< 5
3,3'-Dichlorobenzidine	< 1
Pyridine	< 5
Azobenzene	< 1

Client: **Golder Associates, Inc.**
Client Designation: **NHDOT Rochester**

Sample ID:	OP-GEO-2
Lab Sample ID:	97837.01
Matrix:	aqueous
Date Sampled:	3/29/11
Date Received:	3/29/11
Units:	ug/l
Date of Extraction/Preparation	3/29/11
Date of Analysis:	3/31/11
Analyst:	JMR
Method:	8270D
Dilution Factor:	1
Carbazole	< 1
Dimethylphthalate	< 1
Diethylphthalate	< 1
Di-n-butylphthalate	< 5
Butylbenzylphthalate	< 1
bis(2-Ethylhexyl)phthalate	< 5
Di-n-octylphthalate	< 1
Dibenzofuran	< 1
Naphthalene	**0.5**
2-Methylnaphthalene	**0.4**
Acenaphthylene	< 0.1
Acenaphthene	**0.2**
Fluorene	**0.1**
Phenanthrene	< 0.1
Anthracene	< 0.1
Fluoranthene	< 0.1
Pyrene	< 0.1
Benzo[a]anthracene	< 0.1
Chrysene	< 0.1
Benzo[b]fluoranthene	< 0.1
Benzo[k]fluoranthene	< 0.1
Benzo[a]pyrene	< 0.1
Indeno[1,2,3-cd]pyrene	< 0.1
Dibenz[a,h]anthracene	< 0.1
Benzo[g,h,i]perylene	< 0.1
2-Fluorophenol (surr)	**39 %R**
Phenol-d6 (surr)	**28 %R**
2,4,6-Tribromophenol (surr)	**95 %R**
Nitrobenzene-D5 (surr)	**74 %R**
2-Fluorobiphenyl (surr)	**74 %R**
p-Terphenyl-D14 (surr)	**68 %R**

LABORATORY REPORT

EAI ID#: 97837

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester**

Sample ID: OP-GEO-2

Lab Sample ID:	97837.01
Matrix:	aqueous
Date Sampled:	3/29/11
Date Received:	3/29/11
Units:	mg/L
Date of Extraction/Prep:	3/29/11
Date of Analysis:	3/29/11
Analyst:	LAS
Method:	1664A
Dilution Factor:	1

TPH(SGTHEM)	< 5

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester**

Sample ID:	OP-GEO-2
Lab Sample ID:	97837.01
Matrix:	aqueous
Date Sampled:	3/29/11
Date Received:	3/29/11
Units:	ug/l
Date of Extraction/Prep:	3/30/11
Date of Analysis:	3/30/11
Analyst:	JW
Method:	608
Dilution Factor:	1
PCB-1016	< 0.3
PCB-1221	< 0.3
PCB-1232	< 0.3
PCB-1242	< 0.3
PCB-1248	< 0.3
PCB-1254	< 0.3
PCB-1260	< 0.3
TMX (surr)	**67 %R**
DCB (surr)	**74 %R**

LABORATORY REPORT

EAI ID#: 97837

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester**

Sample ID:	OP-GEO-2
Lab Sample ID:	97837.01
Matrix:	aqueous
Date Sampled:	3/29/11
Date Received:	3/29/11
Units:	ug/l
Date of Extraction/Prep:	3/30/11
Date of Analysis:	3/30/11
Analyst:	JW
Method:	8011/504
Dilution Factor:	1

1,2-Dibromoethane(EDB)	< 0.02
Dibromochloropropane (DBCP)	< 0.02
1,1,1,2-Tetrachloroethane (surr)	**71 %R**

LABORATORY REPORT

EAI ID#: 97837

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester**

Sample ID: OP-GEO-2

Lab Sample ID: 97837.01

Matrix: aqueous

Date Sampled: 3/29/11

Date Received: 3/29/11

			Analysis			
		Units	Date	Time	Method	Analyst
Solids Suspended	**34**	mg/L	3/30/11	9:30	2540D	KJR
Chloride	**76**	mg/L	3/29/11	18:05	4500CIE	KL
Cyanide Total	< 0.005	mg/L	3/30/11	9:00	4500CNE	KJR
Total Residual Chlorine	< 0.05	mg/L	3/29/11	13:43	4500CIG	CJJ
Total Phenols	< 0.05	mg/L	3/30/11	12:00	420.1	JCC

LABORATORY REPORT

EAI ID#: 97837

Client: **Golder Associates, Inc.**

Client Designation: **NHDOT Rochester**

Sample ID: OP-GEO-2

Lab Sample ID: 97837.01
Matrix: aqueous
Date Sampled: 3/29/11
Date Received: 3/29/11

		Analytical Matrix	Units	Date of Analysis	Method	Analyst
Antimony	< 0.0005	AqTot	mg/L	3/30/11	200.8	DS
Arsenic	**0.007**	AqTot	mg/L	3/30/11	200.8	DS
Cadmium	< 0.0001	AqTot	mg/L	3/30/11	200.8	DS
Chromium	**0.002**	AqTot	mg/L	3/30/11	200.8	DS
Copper	**0.0009**	AqTot	mg/L	3/30/11	200.8	DS
Iron	**60**	AqTot	mg/L	3/30/11	200.8	DS
Lead	**0.0060**	AqTot	mg/L	3/30/11	200.8	DS
Nickel	**0.0068**	AqTot	mg/L	3/30/11	200.8	DS
Selenium	< 0.001	AqTot	mg/L	3/30/11	200.8	DS
Silver	< 0.0001	AqTot	mg/L	3/30/11	200.8	DS
Zinc	**0.031**	AqTot	mg/L	3/30/11	200.8	DS
Chromium (III)	< 0.01	AqTot	mg/L	3/30/11	200.8	DS
Chromium (VI)	< 0.01	AqTot	mg/L	3/29/11	7196A	DS

PHOENIX
Environmental Laboratories, Inc.

Friday, April 01, 2011

Attn: Front Office
Eastern Analytical
25 Chenell Drive
Concord, NH 03301

Project ID: 97837 3198
Sample ID#s: BA14969

This laboratory is in compliance with the QA/QC procedures outlined in EPA 600/4-79-019, Handbook for Analytical Quality in Water and Waste Water, March 1979, SW846 QA/QC and NELAC requirements of procedures used.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #MA-CT-007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Telephone (860) 645-1102 Fax (860) 645-0823

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac
NY # 11301

Analysis Report

April 01, 2011

FOR: Attn: Front Office
Eastern Analytical
25 Chenell Drive
Concord, NH 03301

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		03/29/11	7:00
Location Code:	EASTANAL	Received by:	LDF	03/30/11	9:49
Rush Request:	RUSH#	Analyzed by:	see "By" below		
P.O.#:	26634				

Laboratory Data

SDG ID: GBA14969
Phoenix ID: BA14969

Project ID: 97837 3198

Client ID: OP-GEO-2

Parameter	Result	RL	Units	Date	Time	By	Reference
Mercury	< 0.0002	0.0002	mg/L	03/31/11		RS	7470/E245.1
Mercury Digestion	Completed			03/31/11		X	7471/245.1
Semi-Volatile Extraction	Completed			03/30/11		F/R	SW3510/3520
Pentachlorophenol	ND	1.0	ug/L	04/01/11		KCA	SW8270

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

ND=Not detected BDL=Below Detection Level RL=Reporting Level

This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director
April 04, 2011

CHAIN-OF-CUSTODY RECORD

eastern analytical
professional laboratory services

2° wic

EAI SRB# **97837**

26

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
OP-GEO-2	3/29/2011 7:00	aqueous	Pentachlorophenol Low Level 1 ug/L (groundwater) 14969	
OP-GEO-2	3/29/2011 7:00	aqueous	Mercury Cold Vapor (Phoenix)	

EAI SRB# **97837** **Project State: NH**

Project ID: 3198

Company Phoenix Environmental Labs
Address 587 East Middle Turnpike
Address Manchester , CT 06040
Account #
Phone # (860) 645-1102
Fax Number 860 645-0823

Results Needed by: Preferred date

QC Deliverables

☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ PC

Notes about project:

Email pdf of results and invoice to customerservice@eailabs.com.

Results due by 4/1/2011

Eastern Analytical Inc. PO Number: 26634

Please call prior to analyzing, if RUSH surcharges will be applied.

Samples Collected by:

Relinquished by	Date/Time	Received by
Chris Johnson	3/29/11 1530	UPS
UPS	3/30 9:49	Lisa Farr

Relinquished by **Date/Time** **Received by**

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Phone: (603)228-0525 1-800-287-0525 Fax: (603)228-4591

Page 1 of 1

CHAIN-OF-CUSTODY RECORD

97837

27

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

SAMPLE I.D.	SAMPLING DATE/TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE/TIME	MATRIX (SEE BELOW)	GRAB/*COMPOSITE	VOC: 524.2 524.2 BTEX 524.2 MTBE ONLY	VOC: 8260B 624 VTICs 1,4 DIOXANE EDB DBCP	VOC: 8021B BTEX HALOS	VOC: 8015B GRO MEGRO MAVPH	SVOC: 8270D 625 SVTICs ABN A BN PAH	SVOC: TPH8100 L1 L2	SVOC: 8015B DRO MEDRO MAEPH	SVOC: PEST 608 PCB 608 PEST 8081A PCB 8082	SVOC: OIL & GREASE 1664 TPH 1664	TCLP: TCLP 1311 ABN METALS VOC PEST HERB	METALS: DISSOLVED METALS (LIST BELOW)	METALS: TOTAL METALS (LIST BELOW)	INORGANICS: TS TSS TDS SPEC. CON.	INORGANICS: BR CL F SO4 NO2 NO3 NO3NO2	INORGANICS: BOD CBOD T. ALK.	INORGANICS: TKN NH3 T. PHOS. O. PHOS.	INORGANICS: pH T. RES. CHLORINE	INORGANICS: COD T. PHENOLS TOC DOC	INORGANICS: TOTAL CYANIDE TOTAL SULFIDE	INORGANICS: REACTIVE CYANIDE REACTIVE SULFIDE FLASHPOINT IGNITABILITY	MICRO: TOTAL COLIFORM E. COLI FECAL COLIFORM	MICRO: ENTEROCOCCI HETEROTROPHIC PLATE COUNT	OTHER: Cold Vapor Mercury	OTHER: Chromium (III)(VI)	OTHER: Pentachlorophenol	# OF CONTAINERS	NOTES MEOH VIAL #
OP-GEO-02 JEA	3/29/11/0700		✓		✓			✓			✓	✓			✓	✓	✓			✓	✓	✓				✓	✓	✓	19	
Trip Blank 8260B	3/14/11 07:15																												2	
Trip Blank 1,4 D	3/10/11 10:30																												2	
	EAI PREPPED																													

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

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

PR 4/4/11

PROJECT MANAGER: Theresa Miller

COMPANY: Golder Associates

ADDRESS: 670 N. Commercial St. Suite 103

CITY: Manchester STATE: NH ZIP: 03101

PHONE: 603-668-0880 EXT.:

FAX: 603-668-1199

E-MAIL: Tmiller@golder.com/jalexander@golder.com

SITE NAME: NHDOT Rochester

PROJECT #:

STATE: NH MA ME VT OTHER:

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

QUOTE #: 108866 PO #:

DATE NEEDED: 3day TAT 4/1/11

QA/QC REPORTING LEVEL

A B C

OR

PRESUMPTIVE CERTAINTY

REPORTING OPTIONS

PRELIMS: YES OR NO

IF YES: FAX OR PDF

ELECTRONIC OPTIONS

NO FAX E-MAIL PDF EQUIS

TEMP. 5 °C

ICE? YES NO

SAMPLER(S): Jess Alexander

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
Jess Alexander	3/29/11	845	[signature]

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

OTHER METALS:

DISSOLVED METALS FIELD FILTERED? YES NO

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

~~Run TCLP if there are any detections of concern, 1:20 rule - contact Theres. Miller if 1:20 rule is exceeded.~~ JEA

SITE HISTORY:

SUSPECTED CONTAMINATION:

FIELD READINGS:

eastern analytical, inc. professional laboratory services 25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | FAX: 603.228.4591 | E-MAIL: CUSTOMER_SERVICE@EAILABS.COM | WWW.EAILABS.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)

APPENDIX C

DILUTION FACTOR AND DISCHARGE FLOW RATE CALCULATION

Golder Associates, Manchester, New Hampshire	SUBJECT: Rochester-North Main Street Discharge Flow Rate Calculation		
	Job No. 093-87084-01	Made By:	Date: 4/8/11
		Checked: RWB	
	Ref.	Reviewed:	Sheet 1 of 2

OBJECTIVE

The objective of this calculation is to establish the required dilution factor to achieve the effluent limitations and the allowable discharge flow rate for the New Hampshire Department of Transportation (NHDOT) construction dewatering project located along North Main Street/Route 11/Farmington Road in Rochester, NH (the Site).

METHOD

1. Obtain current receiving water flow rates from NHDES.
2. Look up New Hampshire Total Recoverable Metals Limitations in remediation general permit (RGP) guidance.
3. Compare analytical results from the Site for metals to the corresponding effluent metals limits for New Hampshire.
4. Calculate the dilution factor (DF) needed to achieve the effluent limitations.
5. Calculate the discharge flow rate that would result in the necessary a dilution factor (DF), based on dilution factor needed to reduce the concentration of metals to near or below effluent metals limits established for New Hampshire.

ASSUMPTIONS

1. Metals results from monitoring wells are representative of groundwater that will be encountered during excavation dewatering activities.
2. The proposed treatment system for construction dewatering activities consists of a three sediment filters in series and two granular activated carbon vessels in series. This calculation assumes that the treatment system will provide sediment removal which will reduce the concentrations of metals, VOCs and semi-VOCs to below the New Hampshire RGP effluent limitations.

REFERENCES

1. Golder Associates Inc (Golder), email correspondence to/from NHDES regarding receiving water flow rate (7Q10) dated May 6 through 10, 2010.
2. United States Environmental Protection Agency (USEPA), Final Remediation General Permit Under the National Pollutant Discharge Elimination System (NPDES) for Discharges in New Hampshire, 2010.
3. Eastern Analytical Inc. Laboratory Reports, Eastern Analytical Inc. IDs: 81418, 84696, 97519, and 97837, Client Identification: NH DOT Rochester|093-87084 for samples received July 31, 2009, November 20, 2009, March 15, 2011, and March 29, 2011, respectively.

CALCULATIONS

1. Obtain current receiving water flow rates. According to NHDES, the 7Q10 (i.e., the annual minimum flow for 7 consecutive days with a recurrence interval of 10 years) flow rate for the receiving water (main stem of the Cocheco River) is 4.0 cubic feet per second (cfs) (Attachment A).
2. Look up NH Total Recoverable Metals Limitations. (Attachment B)
3. Compare analytical results from the Site for metals to the corresponding effluent metals limitations for New Hampshire. See attached Table 1 – Evaluation of Dilution Factor and Effluent Limitations.
4. Comparison of the iron concentration to effluent limitations indicates a reduction to below the ceiling value of 5 mg/l is required prior to discharge to the Cocheco River.
5. Calculate the dilution factor required for untreated discharge. See attached Table 1.
   Required Maximum DF = maximum analytical result/(effluent limitation concentration * effluent limitation DF basis)

DF for untreated discharge =	132.7	(see attached Table 1)

6. For the calculated dilution factor and stream flow rate, calculate the discharge flow rate that would result in the necessary DF.

   From Appendix V in Reference 3 (Attachment C), the Dilution Factor (DF) is determined from the following equation:

$$DF = \left(\frac{Qd + Qs}{Qd}\right) \times 0.9 \text{ or } Qd = \left(\frac{Qs}{DF/0.9 - 1}\right)$$

Where:

DF = Dilution factor
Qd = Discharge flow rate
Qs = Receiving (stream) water flow rate
gpm = gallons per minute
cfs = cubic feet per second

Example calculation for DF = 100

$$Qd = \left(\frac{4.0cfs}{100/0.9 - 1}\right) x \frac{448.8gpm}{cfs} = 16.3gpm$$

DF for untreated discharge =	132.7		(see attached Table 1)
Allowable Discharge Flow Rate (Qd24) =	12.3		gpm (24 hours per day)
Gallons per day (24 hours) =	17,649	gallons	$= 12.3\ gpm \times \frac{60\ min}{hr} \times 24\ hr$
Discharge flow rate (10- hr shift) (Qd10) =	29.4	gpm	$= 17{,}649 \frac{gallons}{24\ hr} \times \frac{24\ hr}{day} \times \frac{day}{10 - hr - shift} \times \frac{hr}{60\ min}$
Discharge flow rate (10- hr shift) (Qd10) =	0.0655	cfs	$= 29.4 \frac{gallons}{min} \times \frac{cfs}{448.8\ gpm}$

FINDINGS AND CONCLUSIONS

Arsenic, copper, lead, zinc and iron concentrations as detected in groundwater exceed the EPA established effluent limitation standards for discharge to surface water using dilution factor of 0 to 5 (Table 1). Therefore, concentrations for these metals were compared to Appendix V-Total Recoverable Metals Limitations at Selected Dilution Ranges (Attachment B) to determine which metal would require the highest dilution factor. Golder determined that lead (maximum detected concentration of 73 micrograms per liter, mg/l) would require the highest dilution factor (greater than 100) to allow discharge to surface water. Golder calculated the necessary DF to be 132.7.

Golder also concluded that the iron concentration would require reduction to below the ceiling value of 5 mg/l prior to discharge to the Cocheco River. Based on the wastewater handling and treatment system designed by Enpro for the treatment of the dewatering wastewater, the iron concentration will be decreased to less than 5 mg/l prior to discharge.

Based on the 7Q10 for the main stem of the Cocheco River in Rochester and the metal analytical results, Golder calculated an allowable discharge flow rate over a 24-hour period of 12.3 gallons per minute. This flow rate is approximately 17,650 gallons of discharge per day. To discharge the same volume in a 10-hour shift and achieve the 132.7 dilution factor averaged over a 24-hour period, a maximum discharge flow rate of 29 gallons per minute during the 10-hour discharge period is recommended.

TABLE 1
Evaluation of Dilution Factor and Effluent Limitations
Notice of Intent for Remediation General Permit

			Dilution Range Concentration					Ceiling Value		
			DF 0 - 5	DF 5 - 10	DF 10 - 50	DF 50 - 100	DF > 100			
	Maximum Analytical Result (ug/l)	AGQS (for potential GW discharge)	RGP Effluent Limitation [1]	Effluent Limitation	Effluent Limitation	Effluent Limitation	Effluent Limitation	Effluent Limitation	DF required [2]	Effluent Limitation Basis
Antimony	<0.5	6	5.6	30	60	141	141	141	NC	DF 0 - 5
Arsenic	28	**10**	**10**	50	100	500	540	540	5	DF 5 - 10
Cadmium	0.4	5	0.8	4.0	8.0	16.0	32.0	260	1	DF 0 - 5
Chromium III (trivalent)*	<10	100	27.7	138	277	1,385	1,710	1,710	NC	DF 0 - 5
Chromium VI (hexavalent)*	<10	100	11.4	57	114	570	1,140	1,710	NC	DF 0 - 5
Copper	15	1,300	**2.9**	**14.5**	29	142	285	2,070	10	DF 10 - 50
Lead	73	**15**	**0.5**	**2.5**	**5**	**27**	**55**	430	132.7	DF > 100
Mercury	<0.1	2	0.9	2.3	2.3	2.3	2.3	2.3	NC	DF 0 -5
Nickel	7.6	100	16.1	80.5	161	807	1,614	2,380	1	DF 0 - 5
Selenium	<1	50	5.0	25	50	250	408	408	NC	DF 0 - 5
Silver	<1	100	0.4	2	4	17	35	240	NC	DF 0 - 5
Zinc	200	NS	**37**	**185**	370	1,480	1,480	1,480	10	DF 10 - 50
Iron	60,000	NS	**1,000**	**5,000**	**5,000**	**5,000**	**5,000**	**5,000**	NA-exceeds ceiling	
								Maximum DF Required=	**132.7**	

Notes:

1. Effluent Limitations from Total Recoverable Metal Limit @ H = 25 mg/l CaCO3 for Discharges in New Hampshire (ug/l)
2. For lead, the required Maximum DF = maximum analytical result/(effluent limitation concentration * effluent limitation DF basis)
3. ug/L = micrograms per liter
4. * indicates analytical result for total chromium
5. Bold values indicate analyzed results exceed the effluent limitation for DF category or the detection limit of the analytical result is above the limitation

For a given dilution factor (DF) and stream flow rate (Qs), calculate a discharge flow rate (Qd)

$$DF = \left(\frac{Qd + Qs}{Qd}\right) \times 0.9$$

or

$$Qd = \left(\frac{1}{DF/0.9Qs + 1/Qs}\right) \times 0.9$$

Qs = Stream 7Q10 (cubic feet per second (CFS))	4	CFS (from NHDES correspondence)
Qs = Stream 7Q10 (gallons per minute (gpm))	1795	gpm
For untreated discharge, DF required =	132.7	
Allowable Discharge Flow Rate (Qd24) =	12.3	gpm (24 hours per day)
(Daily average flow (24 hr average))		
Allowable Discharge Flow Rate (Qd24) =	0.0273	CFS (24 hours per day)

Prepared by: TAM 4/6/11
Checked by: RWB 4/8/11

Calculation of Flow Rate for 10 hour shift:

For DF = >100 over 24 hours, but only discharging for 10 hours per day

Daily average flow (24 hr average) (Qd24) =	12.3	gpm (24 hours per day)
Gallons per day (24 hours) =	17,649	gallons per day
Discharge Flow Rate for 10-hour shift (Qd10) =	**29.4**	**gpm (for a 10-hour shift/discharge period)**
Discharge Flow Rate for 10-hour shift (Qd10) =	**0.0655**	**CFS (for a 10-hour shift/discharge period)**

$$= 17{,}649 \frac{gallons}{24hr} x \frac{24hr}{day} x \frac{day}{10 - hr - shift} x \frac{hr}{60\ \min}$$

ATTACHMENT A

Miller, Theresa

From: Andrews, Jeff [Jeffrey.Andrews@des.nh.gov]
Sent: Monday, May 10, 2010 8:33 AM
To: Miller, Theresa
Subject: RE: 7Q10 information request

Hi Theresa, either of those locations on the non-flowing embayment in the Cocheco River would have zero for the 7Q10. If the discharge location could be moved to the main stem of the of the river then the 7Q10 would be approximately 4.0 cfs .

Please call me if you have any questions on this.

Thanks, Jeff

Jeffrey G. Andrews, P.E.
Sanitary Engineer
Wastewater Engineering Bureau
NH Department of Environmental Services
Tel: (603) 271-2984
Fax: (603) 271-4128
E-mail: Jeff.Andrews@des.nh.gov

-----Original Message-----
From: Miller, Theresa [mailto:theresa_miller@golder.com]
Sent: Friday, May 07, 2010 1:05 PM
To: Andrews, Jeff
Subject: 7Q10 information request

Hi Jeff,

I have attached two figures illustrating two potential discharge locations for an RGP NOI that I am preparing. The locations are on the Cocheco River in Rochester between 303 and 305 North Main Street. Can you provide me with 7Q10 data for these locations? Please call or email me with any questions.

Thanks, Theresa

Theresa Miller, P.G., LSP | Senior Hydrogeologist | **Golder Associates Inc.**
670 North Commercial Street, Suite 103, Manchester, New Hampshire, USA 03101
T: +1 (603) 668-0880 | **D:** +1 (603) 668-0880 | **F:** +1 (603) 668-1199 | **C:** +1 | **E:** theresa_miller@golder.com | **www.golder.com**

Work Safe, Home Safe

This email transmission is confidential and may contain proprietary information for the exclusive use of the intended recipient. Any use, distribution or copying of this transmission, other than by the intended recipient, is strictly prohibited. If you are not the intended recipient, please notify the sender and delete all copies. Electronic media is susceptible to unauthorized modification, deterioration, and incompatibility. Accordingly, the electronic media version of any work product may not be relied upon.

Please consider the environment before printing this email.

ATTACHMENT B

For Facilities Located in New Hampshire (for discharges to freshwater at Hardness = 25 mg/L CaCO3)[1]

Parameter	Chloride & Total Recoverable Metal Limitations (ug/l) by Dilution Factor Range					
	1 – 5 [6]	**>5 - 10**	**>10 - 50**	**>50 - 100**	**>100**	**Ceiling Value [2]**
38. Chloride [7]	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
39. Antimony	5.6	30	60	141	141	141 [3]
40. Arsenic	10	50	100	500	540	540 [4]
41. Cadmium	0.8	4	8	16	32	260
42. ChromiumIII (Trivalent)	27.7	138	277	1,385	1,710	1,710
43. ChromiumVI (Hexavalent)	11.4	57	114	570	1,140	1,710 [5]
44. Copper	2.9	14.5	29	142	285	2,070
45. Lead	0.5	2.5	5	27	55	430
46. Mercury	0.9	2.3	2.3	2.3	2.3	2.3 [3]
47. Nickel	16.1	80.5	161	807	1,614	2,380
48. Selenium	5.0	25	50	250	408	408 [3]
49. Silver	0.4	2	4	17	35	240
50. Zinc	37	185	370	1,480	1,480	1,480
51. Iron	1,000	5,000	5,000	5,000	5,000	5,000

Footnotes for New Hampshire:

1. Based on 7Q10 Flow.
2. The Ceiling Value for Cadmium, Chromium, Copper, Lead, Nickel, Silver, and Zinc is a Technology Based Value and represents the "Best Available Control Technology" (BAT) for the Metal Finishing Industry, 40 CFR Section 433.14 (monthly average concentration).
3. Based on 40 CFR 437.42, "The Centralized Waste Treatment Point Source Category - Subpart D - Multiple Wastestreams Best Practicable Control Technology" (BPT) daily maximum.
4. Based on 40 CFR 445.11, "RCRA Subtitle C Landfill Best Practicable Control Technology" (BPT) for Arsenic.
5. Assumes Hexavalent Chromium reduced to Tri-valent Chromium in treatment.
6. For a Dilution Factor Range from 1 to 5, metals limits are calculated using DF times the base limit for the metal. For example, iron limits for 1-5 DF are equal to the base limit of 1,000 ug/L times the DF. For example, if DF is 1.5, the iron limit will be 1,500 ug/L; DF 2, then iron limit = 1,000 x 2 = 2,000 ug/L., etc. not to exceed the DF = 5.
7. Subject additional water quality certification requirements by the State of New Hampshire Department of Environmental Services (NHDES).

ATTACHMENT C

i. If potential discharges (untreated influent) with metals contain concentrations above the concentration limits listed in Appendix III, applicant must proceed to step 2.
ii. If potential discharges (untreated influent) with metals contain concentrations below the concentrations listed in Appendix III, the applicant may skip step 2 and those metals will **not** be subject to permit limitations or monitoring requirements.

Step 2: Calculation of Dilution Factor

1) **For applicants in NH**: If a metal concentration in a potential discharge (untreated influent) to **freshwater** exceeds the limits in Appendix III with zero dilution, the applicant shall evaluate the potential concentration considering a dilution factor (DF) using the formula below. **For sites in New Hampshire, the applicant must contact NH DES to determine the 7Q10 and dilution factor.**

DF = [(Qd + Qs)/Qd] x 0.9

Where:	**DF**	**= Dilution Factor**
	Qd	**= Maximum flow rate of the discharge in cubic feet per second (cfs) (1.0 gpm = .00223 cfs)**
	Qs	**= Receiving water 7Q10 flow, in cfs, where 7Q10 is the annual minimum flow for 7 consecutive days with a recurrence interval of 10 years**
	0.9	= **Allowance for reserving 10% of the assets in the receiving stream as per Chapter ENV-Wq 1700, Surface Water Quality Regulations**

i. Using the DF calculated from the formula above, the applicant must refer to the corresponding dilution range column in Appendix IV. The applicant then compares the maximum concentration of the metal entered on the NOI to the corresponding total recoverable metals limits listed in Appendix IV. Please note that for this reissuance the applicant will be permitted to determine a limit using any fraction within the 1-5 dilution factor range times the metal limit (for all regulated metals). For example: if the DF is 1.5, the Iron limit is 1,500 ug/L; if the DF is 1.5, the antimony limit is 8.4, etc. All limits above a dilution factor of 5 are maintained.

1. If a metal concentration in the potential discharge (untreated influent) is less than the corresponding limit in Appendix IV, the metal will **not** be subject to permit limitations or monitoring requirements.
2. If a metal concentration in the potential discharge (untreated influent) is equal to or exceeds the corresponding limit in Appendix IV, the applicant must reduce it in the effluent to a concentration below the applicable total recoverable metals limit in Appendix IV prior to discharge.

APPENDIX D

TMDL INFORMATION

Publications

Public Comment Form

All documents have been saved in Adobe Acrobat Reader format.

TMDL Project Summary Table

Statewide Bacteria TMDL Report

EPA's Approval Letter for the NH Statewide Bacteria TMDL
EPA's Review of the NH Statewide Bacteria TMDL Report
Final NH Statewide Bacteria TMDL Report
Appendix A Lower Androscoggin River Watershed
Appendix B Saco River Watershed
Appendix C Salmon Falls and Piscataqua Rivers Watershed
Appendix D Pemigewasset River Watershed
Appendix E Winnipesaukee River Watershed
Appendix F Contoocook River Watershed
Appendix G Nashua River Watershed
Appendix H Merrimack River Watershed
Appendix I Upper Connecticut Watershed
Appendix J Connecticut River John River to Waits River Watershed
Appendix K Connecticut River Waits River to White River Watershed
Appendix L Connecticut River White River to Bellows Falls Watershed
Appendix M Connecticut River Bellows Falls to Vernon Dam Watershed
Appendix N Connecticut River Vernon Dam to Millers River Watershed
Appendix O Ocean Impaired Waters
Appendix P TMDLs Expressed as Daily Load
Appendix Q Furnace Brook Watershed Based Restoration Plan
Appendix R Greenville Illicit Discharge Detection and Elimination (IDDE) Investigation
Appendix S Response to Public Comment

Lake Nutrient TMDL Draft Reports

Pollutant of Concern: Phosphorous

Project Reports and Documents:

Baboosic Lake Draft Report
Baboosic Lake Public Notice
Back Lake Draft Report [3MB]
Back Lake Public Notice
Country Pond Draft Report
Country Pond Public Notice
Dorrs Pond Draft Report
Dorrs Pond Public Notice
Flints Pond Draft Report
Flints Pond Public Notice
Forest Lake Draft Report
Forest Lake Public Notice
French Pond Final Draft Report
French Pond Public Notice
Governor's Lake Final Draft Report
Governor's Lake Public Notice
Greenwood Pond TMDL Final Draft Report
Greenwood Pond Public Notice
Halfmoon Pond Final Draft Report
Halfmoon Pond Public Notice
Harvey Lake TMDL Final Draft Report
Harvey Lake Public Notice
Hoods Pond Draft Report
Hoods Pond Public Notice
Horseshoe Pond Final Draft Report
Horseshoe Pond Public Notice
Hunkins Pond Draft Report

Hunkins Pond Public Notice
Long Pond Draft Report
Long Pond Public Notice
Nutt Pond Draft Report
Nutt Pond Public Notice
Pawtuckaway Lake Draft Report
Pawtuckaway Lake Public notice
Pine Island Pond Draft Report
Pine Island Pond Public Notice
Robinson Pond Draft Report
Robinson Pond Public Notice
Sandy Pond Draft Report
Sandy Pond Public Notice
Sebbins Pond Draft Report
Sebbins Pond Public Notice
Showell Pond Draft Report
Showell Pond Public Notice
Sondogardy Pond Draft Report
Sondogardy Pond Public Notice
Stevens Pond Draft Report
Stevens Pond Public Notice
Tom Pond Draft Report
Tom Pond Public Notice
Turtle Pond Draft Report
Turtle Pond Public Notice
Webster Lake Draft Report
Webster Lake Public Notice

Policy-Porcupine Brook View Map

Pollutant of Concern:	Chloride
Study Area:	Salem and Windham
Pollutants Allocated or Likely to be Allocated to the TMDL:	Road Salt
Project Reports and Documents:	Public Comment Notice Data Quality Audit Data Report Data Report Appendices Final Chloride TMDL for Policy-Porcupine Brook EPA's Review and Approval of Chloride TMDL for Policy-Porcupine Brook
Date:	
Number of approved TMDL's	

North Tributary to Canobie Lake View Map

Pollutant of Concern:	Chloride
Study Area:	Windham
Pollutants Allocated or Likely to be Allocated to the TMDL:	Road Salt
Project Reports and Documents:	Public Comment Notice Data Quality Audit Data Report Data Report Appendices Final Chloride TMDL for North Tributary to Canobie Lake EPA's Review and Approval of Chloride TMDL for North Tributary to Canobie Lake
Date:	
Number of approved TMDL's	

Dinsmore Brook View Map

Pollutant of Concern:	Chloride
Study Area:	Windham
Pollutants Allocated or Likely to be Allocated to the TMDL:	Road Salt

Project Reports and Documents:	Public Comment Notice Data Quality Audit Data Report Data Report Appendices Final Chloride TMDL for Dinsmore Brook EPA's Review and Approval of Chloride TMDL for Dinsmore Brook
Date:	Comments accepted through 2/7/08
Number of approved TMDL's	

Beaver Brook View Map

Pollutant of Concern:	Chloride
Study Area:	Derry and Londonderry
Pollutants Allocated or Likely to be Allocated to the TMDL:	Road Salt
Project Reports and Documents:	Public Comment Notice Data Quality Audit Data Report Data Report Appendices Final Chloride TMDL for Beaver Brook EPA's Review and Approval of Chloride TMDL for Beaver Brook
Date:	Comments accepted through 2/7/08
Number of approved TMDL's	

Acid Impaired Lakes

Water Quality Standard of Concern:	pH
Study Area:	Statewide
Pollutants Allocated or Likely to be Allocated to the TMDL:	Atmospheric deposition of NOx and SOx
Project Reports and Documents:	EPA's Review and Approval for 9 Acid Beach TMDLs EPA's Review and Approval for 158 Acid Lake TMDLs EPA's Review and Approval of 114 Acid Beach TMDLs Final TMDL Report for 158 Acid Impaired Ponds Appendices to the Final TMDL Report for 158 Acid Impaired Ponds Final TMDL Report for 65 Acid Impaired Ponds Final TMDL Report Approved by EPA - Appendix A EPA's Review and Approval for 45 Acid Lake TMDL's EPA's Review and Approval for 20 Acid Lake TMDL's
Date:	09/20/07 11/21/07 10/4/04
Number of approved TMDL's	158 Lakes 114 Beaches 65 Lakes 21 Beaches

Ashuelot River View Map

Water Quality Standard of Concern:	Dissolved Oxygen
Study Area:	Keene to West Swanzey
Pollutants Allocated or Likely to be Allocated to the TMDL:	CBOD, Ammonia, Phosphorous
Project Reports and Documents:	Under Development
Date:	
Number of approved TMDL's	

South Branch Ashuelot River View Map

Water Quality Standard of Concern:	Dissolved Oxygen
Study Area:	Troy to Swanzey
Pollutants Allocated or Likely to be Allocated to the TMDL:	CBOD
Project Reports and Documents:	Under Development
Date:	
Number of approved TMDL's	

Beach Bacteria TMDLs

Water Quality Standard of Concern:	Bacteria
Study Area:	Washington, Troy, Nottingham
Pollutants Allocated or Likely to be Allocated to the TMDL:	Bacteria
Project Reports and Documents:	Mill Pond Town Beach Final TMDL Approved by EPA EPA's Review and Approval of the Mill Pond Town Beach Bacteria TMDL Sand Dam Village Pond Final TMDL Approved by EPA EPA's Review and Approval of the Sand Dam Village Pond Beach Bacteria TMDL
Date:	12/13/2006 11/08/2006
Number of approved TMDL's	1 1

Cocheco River View Map

Water Quality Standard of Concern:	Dissolved Oxygen
Study Area:	Farmington to Rochester
Pollutants Allocated or Likely to be Allocated to the TMDL:	CBOD
Project Reports and Documents:	Under Development
Date:	
Number of approved TMDL's	

Contoocook River View Map

Water Quality Standard of Concern:	Dissolved Oxygen
Study Area:	Jaffrey to Peterborough
Pollutants Allocated or Likely to be Allocated to the TMDL:	CBOD
Project Reports and Documents:	Draft TMDL Report with appendices
Date:	Comments accepted through 7/28/2006
Number of approved TMDL's	

Contoocook River

Water Quality Standard of Concern:	Dissolved Oxygen
Study Area:	Peterborough to Antrim
Pollutants Allocated or Likely to be Allocated to the TMDL:	CBOD
Project Reports and Documents:	Under Development
Date:	
Number of approved TMDL's	

Hampton Harbor View Maps

Water Quality Standard of Concern:	Bacteria
Study Area:	Hampton and Seabrook
Pollutants Allocated or Likely to be Allocated to the TMDL:	Bacteria
Project Reports and Documents:	Final TMDL Approved by EPA EPA's Review and Comments of the Hampton Harbor TMDL Report EPA's Approval of 2 TMDL's EPA's Second Approval of 8 Additional TMDL's
Date:	9/29/03
Number of approved TMDL's	10

Lamprey River View Map

Water Quality Standard of Concern:	Dissolved Oxygen and Phosphorous
Study Area:	Epping
Pollutants Allocated or Likely to be Allocated to the TMDL:	CBOD, Ammonia, Phosphorous
Project Reports and Documents:	Final TMDL Approved by EPA
Date:	2/17/00
Number of approved TMDL's	3

Little Harbor View Map

Water Quality Standard of Concern:	Bacteria
Study Area:	Newcastle & others
Pollutants Allocated or Likely to be Allocated to the TMDL:	Bacteria
Project Reports and Documents:	Final TMDL Approved by EPA EPA’s Review and Approval of the Little Harbor TMDL Report
Date:	8/25/06
Number of approved TMDL's	2

Lower Sugar River View Map

Water Quality Standard of Concern:	Dissolved Oxygen
Study Area:	Lower portion, Claremont
Pollutants Allocated or Likely to be Allocated to the TMDL:	CBOD, Ammonia, Phosphorous
Project Reports and Documents:	Final TMDL Report Approved by EPA EPA's Review and Comments on the Lower Sugar River TMDL EPA's Approval Letter to NHDES for the Lower Sugar River TMDL
Date:	9/29/00
Number of approved TMDL's	2

Regional Mercury Loading

Water Quality Standard of Concern:	Mercury in Fish Tissue
Study Area:	Regional TMDL
Pollutants Allocated or Likely to be Allocated to the TMDL:	Mercury
Project Reports and Documents:	EPA's Review and Approval of the Northeast Regional Mercury TMDL FINAL Northeast Regional Mercury TMDL Report Fact Sheet for the Draft Northeast Regional Mercury TMDL
Date:	12/21/07
Number of approved TMDL's	5,124

Salmon Falls River View Map

Water Quality Standard of Concern:	Dissolved Oxygen and Phosphorous
Study Area:	Downstream of Somersworth
Pollutants Allocated or Likely to be Allocated to the TMDL:	CBOD, Ammonia, Phosphorous
Project Reports and Documents:	EPA's Review and Comments of the Salmon Falls River TMDL Final Salmon Falls River TMDL Report Final TMDL Approved by EPA
Date:	11/22/99
Number of approved TMDL's	1

Williams Brook View Maps

Water Quality Standard of Concern:	Iron
Study Area:	Northfield
Pollutants Allocated or Likely to be Allocated to the TMDL:	Iron
Project Reports and Documents:	Final TMDL Approved by EPA
Date:	9/24/02
Number of approved TMDL's	1

Adobe Acrobat Reader format. Download a free reader from Adobe.

Select Language

Powered by Google Translate

NH Department of Environmental Services | 29 Hazen Drive | PO Box 95 | Concord, NH 03302-0095
(603) 271-3503 | TDD Access: Relay NH 1-800-735-2964 | Hours: M-F, 8am-4pm

NH.gov | privacy policy | accessibility policy
copyright 2008. State of New Hampshire

TMDL Project Summary Table

Waterbody Name	Study Area	Pollutant of Concern	Pollutant(s) Allocated or Likely to be Allocated to the TMDL	EPA Approval Date	Number of Approved TMDL's
Policy-Porcupine Brook more…	Salem and Windham	Chloride	Chloride (Road Salt)	1/22/2009	1
North Tributary to Canobie Lake more…	Windham	Chloride	Chloride (Road Salt)	1/22/2009	1
Dinsmore Brook more…	Windham	Chloride	Chloride (Road Salt)	1/22/2009	1
Beaver Brook more…	Derry and Londonderry	Chloride	Chloride (Road Salt)	1/22/2009	1
Acid Impaired Lakes and Beaches more…	Statewide	pH	Atmospheric Deposition of NOx and SOx	9/20/2007 11/21/2007 10/4/2004 10/4/2004 10/26/2009	158 Lakes 114 Beaches 65 Lakes 21 Beaches 9 Beaches
Beach Bacteria TMDLs more…	Washington, Troy,	Bacteria	Bacteria	12/13/2006 11/08/2006	1 1
Hampton Harbor more…	Hampton and Seabrook	Bacteria	Bacteria	9/29/2003	10
Lamprey River more…	Epping	Dissolved Oxygen and Phosphorous	CBOD, Ammonia, Phosphorous	2/17/2000	3
Little Harbor more…	Newcastle & others	Bacteria	Bacteria	8/25/2006	2
Lower Sugar River more…	Claremont to CT River	Dissolved Oxygen	CBOD, Ammonia, Phosphorous	9/29/2000	2
Regional Mercury Loading more…	Regional TMDL	Mercury in Fish Tissue	Mercury	12/21/2007	5,124
Salmon Falls River and the Piscataqua River Estuary more…	Downstream of Somersworth	Dissolved Oxygen and Phosphorous	CBOD, Ammonia, Phosphorous	11/22/1999	6
Williams Brook more…	Northfield	Iron	Iron	9/24/2002	1