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

**CERTIFIED MAIL RETURN RECEIPT REQUESTED**

AUG 08 2013

Brian V. Moran
License Site Professional
Norfolk Ram Group, LLC
One Robert Road
Plymouth, MA 02360

Re: Authorization to discharge under the Remediation General Permit (RGP) – MAG910000. Callahan Senior Center located at 535 Union Street, Framingham, MA 01702, Middlesex County; Authorization # MAG910594

Dear Mr. Moran:

Based on the review of a Notice of Intent (NOI) submitted by your company Norfolk Ram Group, LCC, on behalf of the Town of Framingham owner of the Callahan Senior Center Sump Water Treatment System (SWTS), site referenced above, the U.S. Environmental Protection Agency (EPA) hereby authorizes you, as the named Operator, to discharge in accordance with the provisions of the RGP at that site. Your authorization number is listed above.

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

Please note the enclosed checklist includes one chlorinated biphenyl parameter that exceeded Appendix III limits and three other parameters that did not exceed the Appendix III limits but because you have marked them "Believed Present" they were included for monitoring.

You may monitor the effluent for the next six months and if after six months of monitoring you find pollutants that did not exceed Appendix III limits you may request a

monitoring reduction (for the ones not present during the whole six months) by filing a Notice of Change (NOC) to the attention of contact person indicated below.

This general permit and authorization to discharge will expire on September 9, 2015. You have reported that the termination date of this project is unknown. If for any reason the discharge terminates at some point in the future you are required to submit a Notice of Termination (NOT) to the attention of the contact person indicated below within 30 days of project completion.

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

Sincerely,

Thelma Murphy

Thelma Murphy, Chief
Storm Water and Construction
Permits Section

Enclosure

cc: Robert Kubit, MassDEP
Peter Sellers, Town of Framingham, PWD
Richard B. Learned, Norfolk Ram Group, LLC

| | 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 100 ug/L |

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

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

Footnotes:

[1] Although the maximum values for TRC are 11ug/l and 7.5 ug/l for freshwater, and saltwater respectively, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., Method 330.5, 20 ug/l).
[2] Limits for cyanide are based on EPA's water quality criteria expressed as micrograms per liter. There is currently no EPA approved test method for free cyanide. Therefore, total cyanide must be reported.
[3] Although the maximum values for cyanide are 5.2 ug/l and 1.0 ug/l for freshwater and saltwater, respectively, the compliance limits are equal to the minimum level (ML) of the Method 335.4 as listed in Appendix VI (i.e., 10 ug/l).
[4] BTEX = sum of Benzene, Toluene, Ethylbenzene, and total Xylenes.
[5] Naphthalene can be reported as both a purgeable (VOC) and extractable (SVOC) organic compound. If both VOC and SVOC are analyzed, the highest value must be used unless the QC criteria for one of the analyses is not met. In such cases, the value from the analysis meeting the QC criteria must be used.
[6] The sum of individual phthalate compounds(not including the #34, Bis (2-Ethylhexyl) Phthalate . The compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.
*Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measurement of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.*
[7] Although the maximum value for the individual PAH compounds is 0.0038 ug/l, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.
[8] In the November 2002 WQC, EPA has revised the definition of Total PCBs for aquatic life as total PCBs is the sum of all homologue, all isomer, all congener, or all "Oroclor analyses."Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measure of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.
[9]Although the maximum value for total PCBs is 0.000064 ug/l, the compliance limit is equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., 0.5 ug/l for Method 608 or 0.00005 ug/l when Method 1668a is approved).
[10] Hardness. Cadmium, Chromium III, Copper, Lead, Nickel, Silver, and Zinc are Hardness Dependent.
[11] For a Dilution Factor (DF) from 1 to 5, metals limits are calculated using DF times the base limit for the metal. See Appendix IV. For example, iron limits are calculated using DF 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

NORFOLK·RAM
ENGINEERING SOLUTIONS
FOR THE ENVIRONMENT

July 29, 2013

***Via Electronic (puleo.shelly@epa.gov) & Overnight Mail***

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

**Re: Application for Coverage under the 2010 Remediation General Permit**
**Callahan Senior Center Sump Water Treatment System**
**535 Union Street**
**Framingham, Massachusetts**
**DEP RTN 3-0318**
**Norfolk Ref. No. 929**

To the Agency:

On behalf of The Town of Framingham, Massachusetts, Norfolk Ram Group, LLC (Norfolk) has prepared this *Notice of Intent (NOI) for Remediation General Permit (RGP)* for the Callahan Senior Center Sump Water Treatment System (SWTS). The NOI was prepared consistent with Appendix V of the U.S. Environmental Protection Agency's (EPA) *Remediation General Permit Under the National Pollutant Discharge Elimination System (NPDES) for Discharges in Massachusetts, Massachusetts General Permit, Permit No. MAG910000.* The Town of Framingham owns and operates the SWTS. The Town requests authorization for continued discharge under the provisions of the 2010 RGP. The NOI is included in Attachment A

Pursuant to Section B(1)(a) of Appendix V, since the SWTS is subject to 310 CMR 40.0000, the Massachusetts Contingency Plan (MCP), there is no requirement to submit state application form BWPWM12 to the Massachusetts Department of Environmental Protection (DEP). However, a copy of the NOI will be provided to the DEP.

If you have any questions or comments concerning this NOI, please contact Richard Learned or Charles Young at (508) 747-7900, extensions 151 and 126, respectively.

Very truly yours,
**Norfolk Ram Group, LLC**

Richard B. Learned, LSP
Project Manager

Charles P. Young
Associate

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Attachments

cc: Robert J. Halpin, Framingham Town Manager
Massachusetts Department of Environmental Protection (MADEP), Division of Watershed Management (627 Main Street, 2nd floor Worcester, MA 01608)
Brian V. Moran, P.E., LSP, Norfolk Ram Group, LLC

# APPENDIX A

## NOTICE OF INTENT FOR REMEDIATION GENERAL PERMIT

## 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**: CALLAHAN SENIOR CENTER | | **Facility/site** mailing address: | | | |
| Location of **facility/site**:<br>longitude: 71D25<br>latitude: 42D17 | Facility SIC code(s): 8399 | Street: 535 UNION STREET | | | |
| b) Name of **facility/site owner:** | | Town: FRAMINGHAM | | | |
| Email address of facility/site owner: health@framinghamma.gov | | State: MA | Zip: 01702 | County: MIDDLESEX | |
| Telephone no. of facility/site **owner**: 508-532-5470 | | | | | |
| Fax no. of facility/site **owner**: 508-620-4833 | | **Owner** is (check one): 1. Federal ○ 2. State/Tribal ○ 3. Private ○ 4. Other ◉ if so, describe: TOWN-OWNED | | | |
| Address of **owner** (if different from site): | | | | | |
| Street: 150 CONCORD STREET, BOARD OF HEALTH ROOM 221 | | | | | |
| Town: FRAMINGHAM | State: MA | Zip: 01702 | County: MIDDLESEX | | |
| c) Legal name of **operator**: NORFOLK RAM GROUP, LLC | **Operator** telephone no: 508 747-7900 | **Operator** fax no.: 508 747-3658 | **Operator** email: bmoran@norfolkram.com | | |
| **Operator** contact name and title: BRIAN V. MORAN, P.E., LSP | | | | | |
| Address of **operator** (if different from owner): | Street: ONE ROBERTS ROAD | | | | |
| Town: PLYMOUTH | State: MA | Zip: 02360 | County: PLYMOUTH | | |

d) Check Y for "yes" or N for "no" for the following:
1. Has a prior NPDES permit exclusion been granted for the discharge? Y ○ N ◉, if Y, number:
2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge?
Y ○ N ◉, if Y, date and tracking #:
3. Is the discharge a "new discharge" as defined by 40 CFR 122.2? Y ◉ N ○
4. For sites in Massachusetts, is the discharge covered under the Massachusetts Contingency Plan (MCP) and exempt from state permitting? Y ◉ N ○

e) Is site/facility subject to any State permitting, license, or other action which is causing the generation of discharge? Y ○ N ◉
If Y, please list:
1. site identification # assigned by the state of NH or MA:
2. permit or license # assigned:
3. state agency contact information: name, location, and telephone number:

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

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

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

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

| | |
|---|---|
| IV - Miscellaneous Related Discharges | A. Aquifer Pump Testing to Evaluate Formerly Contaminated Sites ☐<br>B. Well Development/Rehabilitation at Contaminated/Formerly Contaminated Sites ☐<br>C. Hydrostatic Testing of Pipelines and Tanks ☐<br>D. Long-Term Remediation of Contaminated Sumps and Dikes ☐<br>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:

The source of the discharge are two sumps located 35 feet apart in the basement that are used to dewater the area beneath the basement floor during periods of heavy precipitation / high groundwater. The sump pumps are manifolded together, and discharge into the municipal stormwater system.

b) Provide the following information about each discharge: SEE SUPPLEMENTAL INFORMATION.

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 0.06 Is maximum flow a **design value**? Y ◉ N ○
Average flow (include units) 0.009 cubic ft / s Is average flow a design value or estimate? estimate

3) Latitude and longitude of each discharge within 100 feet:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| pt.1: lat | 71D25 | long | 42D17 | pt.2: lat. | | long. | ; |
| pt.3: lat | | long | | pt.4: lat. | | long. | ; |
| pt.5: lat | | long | | pt.6: lat. | | long. | ; |
| pt.7: lat | | long | | pt.8: lat. | | long. | ; etc. |

4) If hydrostatic testing, total volume of the discharge (gals):

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

c) Expected dates of discharge (mm/dd/yy): start ongoing end unknown

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). LOCUS MAP SHOWING DISCHARGE POINT ATTACHED AS FIGURE 1. FLOW SCHEMATIC ATTACHED AS FIGURE 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) | | ☒ | ☐ | 1 | grab | SM2540D | 5000 | | | | |
| 2. Total Residual Chlorine (TRC) | | ☒ | ☐ | 1 | grab | SM4500- Cl-G | 20 | | | | |
| 3. Total Petroleum Hydrocarbons (TPH) | | ☒ | ☐ | 1 | grab | | | | | | |
| 4. Cyanide (CN) | 57125 | ☒ | ☐ | 1 | grab | EPA 335.4 | 5.00 | | | | |
| 5. Benzene (B) | 71432 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 6. Toluene (T) | 108883 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 7. Ethylbenzene (E) | 100414 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 8. (m,p,o) Xylenes (X) | 108883; 106423; 95476; 1330207 | ☒ | ☐ | 1 | grab | | | | | | |
| 9. Total BTEX [2] | n/a | ☒ | ☐ | 1 | grab | | | | | | |
| 10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) [3] | 106934 | ☒ | ☐ | 1 | grab | 8011 | 0.0100 | | | | |
| 11. Methyl-tert-Butyl Ether (MtBE) | 1634044 | ☐ | ☒ | 1 | grab | 8260C | 1.00 | 2.18 | | 2.18 | |
| 12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol) | 75650 | ☒ | ☐ | 1 | grab | 8260C | 10.00 | | | | |

* 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 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 14. Naphthalene | 91203 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 15. Carbon Tetrachloride | 56235 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 16. 1,2 Dichlorobenzene (o-DCB) | 95501 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 17. 1,3 Dichlorobenzene (m-DCB) | 541731 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 18. 1,4 Dichlorobenzene (p-DCB) | 106467 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 18a. Total dichlorobenzene | | ☒ | ☐ | 1 | grab | 8260C | | | | | |
| 19. 1,1 Dichloroethane (DCA) | 75343 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 20. 1,2 Dichloroethane (DCA) | 107062 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 21. 1,1 Dichloroethene (DCE) | 75354 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 22. cis-1,2 Dichloroethene (DCE) | 156592 | ☐ | ☒ | 1 | grab | 8260C | 1.00 | 1.46 | | 1.46 | |
| 23. Methylene Chloride | 75092 | ☒ | ☐ | 1 | grab | 8260C | 2.00 | | | | |
| 24. Tetrachloroethene (PCE) | 127184 | ☐ | ☒ | 1 | grab | 8260C | 1.00 | 21.8 | | 21.8 | |
| 25. 1,1,1 Trichloro-ethane (TCA) | 71556 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 26. 1,1,2 Trichloro-ethane (TCA) | 79005 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 27. Trichloroethene (TCE) | 79016 | ☐ | ☒ | 1 | grab | 8260C | 1.00 | 1.31 | | 1.31 | |

| 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 | ☒ | ☐ | 1 | grab | 8260C | 1.00 | | | | |
| 29. Acetone | 67641 | ☒ | ☐ | 1 | grab | 8260C | 10.0 | | | | |
| 30. 1,4 Dioxane | 123911 | ☒ | ☐ | 1 | grab | 8260C | 20.0 | | | | |
| 31. Total Phenols | 108952 | ☒ | ☐ | 1 | grab | | | | | | |
| 32. Pentachlorophenol (PCP) | 87865 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| 33. Total Phthalates (Phthalate esters) [4] | | ☒ | ☐ | 1 | grab | | | | | | |
| 34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate] | 117817 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| 35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH) | | ☒ | ☐ | 1 | grab | | | | | | |
| a. Benzo(a) Anthracene | 56553 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| b. Benzo(a) Pyrene | 50328 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| c. Benzo(b)Fluoranthene | 205992 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| d. Benzo(k)Fluoranthene | 207089 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| e. Chrysene | 21801 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| f. Dibenzo(a,h)anthracene | 53703 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| g. Indeno(1,2,3-cd) Pyrene | 193395 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| 36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH) | | ☒ | ☐ | 1 | grab | | | | | | |

[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 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| i. Acenaphthylene | 208968 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| j. Anthracene | 120127 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| k. Benzo(ghi) Perylene | 191242 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| l. Fluoranthene | 206440 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| m. Fluorene | 86737 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| n. Naphthalene | 91203 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| o. Phenanthrene | 85018 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| p. Pyrene | 129000 | ☒ | ☐ | 1 | grab | 8270D | 1.0 | | | | |
| 37. Total Polychlorinated Biphenyls (PCBs) | 85687; 84742; 117840; 84662; 131113; 117817. | ☒ | ☐ | 1 | grab | | | | | | |
| 38. Chloride | 16887006 | ☐ | ☒ | 1 | grab | EPA 300.0 | 10,000 | 578,000 | | 578,000 | |
| 39. Antimony | 7440360 | ☒ | ☐ | 1 | grab | EPA 200.7 | 6.0 | | | | |
| 40. Arsenic | 7440382 | ☒ | ☐ | 1 | grab | EPA 200.7 | 4.0 | | | | |
| 41. Cadmium | 7440439 | ☒ | ☐ | 1 | grab | EPA 200.7 | 2.5 | | | | |
| 42. Chromium III (trivalent) | 16065831 | ☒ | ☐ | 1 | grab | calculation | 10.0 | | | | |
| 43. Chromium VI (hexavalent) | 18540299 | ☒ | ☐ | 1 | grab | 7196A | 5 | | | | |
| 44. Copper | 7440508 | ☒ | ☐ | 1 | grab | EPA 200.7 | 5.0 | | | | |
| 45. Lead | 7439921 | ☒ | ☐ | 1 | grab | EPA 200.8 | 0.50 | | | | |
| 46. Mercury | 7439976 | ☒ | ☐ | 1 | grab | EPA 245.1 | 0.20 | | | | |
| 47. Nickel | 7440020 | ☒ | ☐ | 1 | grab | EPA 200.7 | 5.0 | | | | |
| 48. Selenium | 7782492 | ☒ | ☐ | 1 | grab | EPA 200.7 | 15.0 | | | | |
| 49. Silver | 7440224 | ☒ | ☐ | 1 | grab | EPA 200.7 | 5.0 | | | | |
| 50. Zinc | 7440666 | ☒ | ☐ | 1 | grab | EPA 200.7 | 30.0 | | | | |
| 51. Iron | 7439896 | ☒ | ☐ | 1 | grab | EPA 200.7 | 50.0 | | | | |
| Other (describe): | | ☐ | ☐ | 1 | grab | | | | | | |

| 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? |
| *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?<br>Metal: DF:<br>Metal: DF:<br>Metal: DF:<br>Metal: DF:<br>Etc. | 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)?<br>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:

DISCHARGE FROM THE TWO SUMPS IS DIRECTED THROUGH MEDIA FILTRATION CANNISTERS, THEN INTO A HOLDING TANK, THEN PUMPED THROUGH A SERIES OF CANNISTERS FILLED WITH GRANULAR ACTIVATED CARBON PRIOR TO DISPOSAL INTO THE MUNICIPAL STORMWATER SYSTEM (SEE FIGURE 2).

| | | | | | | |
|---|---|---|---|---|---|---|
| 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): | | | |

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 4 gpm Maximum flow rate of treatment system 15 gpm
Design flow rate of treatment system 12 gpm
SEE SUPPLEMENTAL INFORMATION.

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

NO CHEMICAL ADDITIVES ARE PLANNED. A MSDS SHEET (TYPICAL) FOR THE GRANULAR ACTIVATED CARBON IS ATTACHED.

**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:
SUMPS DISCHARGE (AFTER TREATMENT) INTO STORM DRAIN IN UNION STREET. STORM DRAIN DISCHARGES INTO THE SUDBURY RIVER APPROX 300 FEET SOUTH.

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

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

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water 4.28 cfs
Please attach any calculation sheets used to support stream flow and dilution calculations.

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

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

**6. ESA and NHPA Eligibility.**

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

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

A ○ B ○ C ○ D ◉ E ○ F ○

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

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

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

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

1 ◉ 2 ○ 3 ○

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

**7. Supplemental information.**

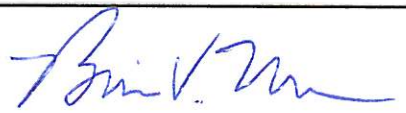
Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit.

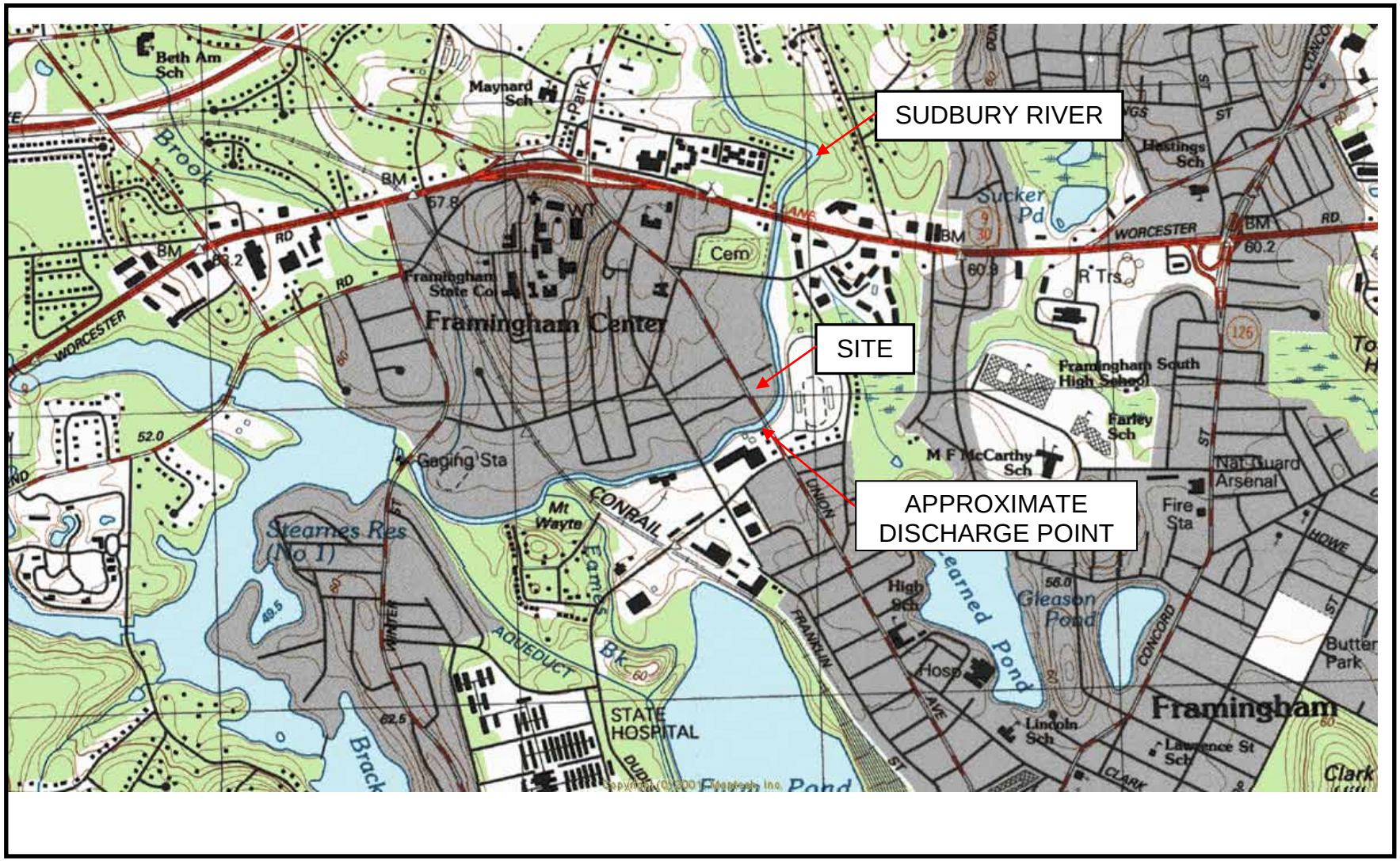
The sump pumps activate infrequently during periods of heavy precipitation / high groundwater. The necessary high groundwater is only expected to occur in the spring of any year. The sumps each hold approximately 10 gallons (1.34 cubic feet) of water before the pumps are activated. The pumps evacuate the sumps within approximately 10 seconds and then shut down until the sumps fill again. Based upon an assumed recharge rate for the sumps of 5 minutes, the average flow rate for the two sumps during the times when the treatment system will be operating is 4 gallons per minute [i.e., 20 gallons x 12 events/hour / 60 min) or 240 gallons per hour.

A flow meter will be installed in-line to document actual flow rates. If actual flow rates differ from the estimates discussed, the treatment system will be adjusted accordingly.

**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.*

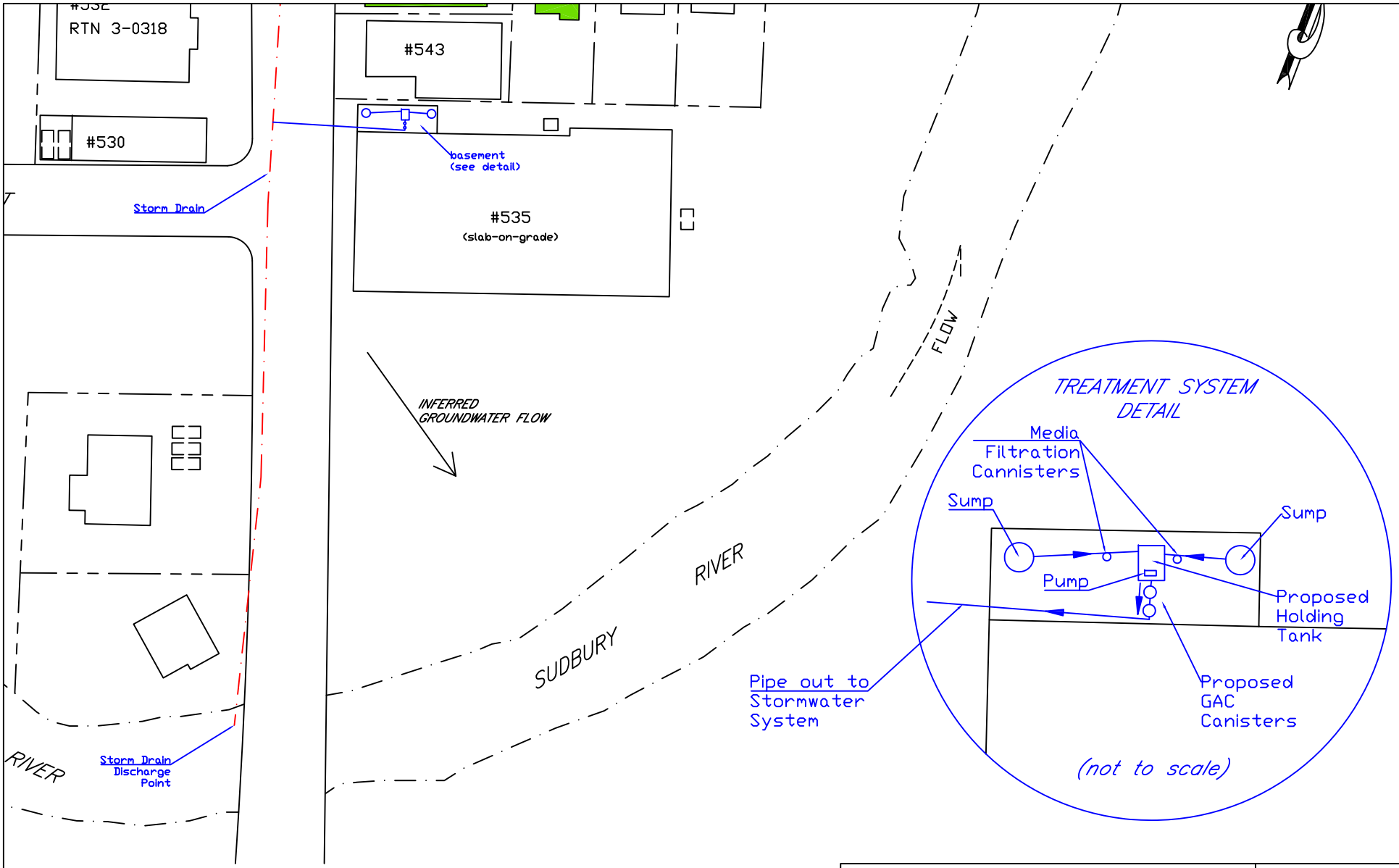
| | |
|---|---|
| Facility/Site Name: | CALLAHAN SENIOR CENTER |
| Operator signature: |  |
| Printed Name &Title: | BRIAN V. MORAN, P.E. FOR NORFOLK RAM GROUP, LLC |
| Date: | 7/29/13 |




NORFOLK•RAM
ENGINEERING SOLUTIONS
FOR THE ENVIRONMENT

N

Figure 1
Site Locus Map
535 Union Avenue
Framingham, Massachusetts
Source: USGS Topographic, Framingham Quad, 1987
Scale: 1 = 25,000  Contour Interval = 3 meters




NORFOLK RAM
ENGINEERING SOLUTIONS
FOR THE ENVIRONMENT
1 ROBERTS ROAD
PLYMOUTH, MA 02360
PHONE - (508) 747-7900
FAX - (508) 747-3658
WWW.NORFOLKRAM.COM

TITLE:
FIGURE 2
FLOW SCHEMATIC
535 UNION STREET
FRAMINGHAM, MASSACHUSETTS

PREPARED FOR:
TOWN OF FRAMINGHAM
150 CONCORD STREET
FRAMINGHAM, MASSACHUSETTS

SOURCE:
ASSESSOR'S MAP
NORFOLK OBSERVATIONS

| | |
|---|---|
| CHECKED BY: | BVM |
| EDITED BY: | RBL |
| DATE: | JUL 2013 |
| DWG SCALE: | not to scale |

NRG REF NUMBER:
929

SHEET NO: 1 OF 1

# APPENDIX B

## U.S. FISH AND WILDLFIE SERVICE LETTER

# United States Department of the Interior

FISH AND WILDLIFE SERVICE

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

June 4, 2013

Reference: Project: Groundwater treatment system discharge; Location: Framingham, MA

Mr. Richard B. Learned
Norfolk Ram
One Roberts Road
Plymouth, MA 02360

Dear Mr. Learned:

This responds to your recent correspondence requesting information on the presence of federally listed and/or proposed endangered or threatened species in relation to the proposed activity referenced above. These comments are provided in accordance with the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531, *et seq.*).

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

To obtain updated lists of federally listed or proposed threatened or endangered species and critical habitats, it is not necessary to contact this office. Instead, please visit the Endangered Species Consultation page on the New England Field Office's website:

*www.fws.gov/newengland/endangeredspec-consultation.htm* (accessed January 2013)

On the website, there is also a link to procedures that may allow you to conclude if habitat for a listed species is present in the project area. If no such habitat exists, then no federally listed species are present in the project area and there is no need to contact us for further consultation. If the above conclusion cannot be reached, further consultation with this office is advised. Information describing the nature and location of the proposed activity that should be provided to us for further informal consultation can be found at the above-referenced site.

Thank you for your coordination. Please contact Maria Tur of this office at 603-223-2541, extension 12, if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

# APPENDIX C

## MATERIAL SAFETY DATA SHEET (MSDS)FOR GRANULAR ACTIVATED CARBON (TYPICAL)

# Material Safety Data Sheet

## Section 1 - Product Identification and Use

Product Identifier: **GRANULAR ACTIVATED CARBON (GAC)**

Description: Black granule, pellet or powder, activated carbon

Product Use: Water filtration & treatment/air treatment


Manufacturer's Name:
PICA USA Inc.
432 McCormick Boulevard
Columbus, Ohio 43213-1585
Phone: [614] 864-8100
Emergency Phone: [800] 424-9300

Supplier's Name:
AWI (Anthratech Western Inc.)
4450 – 46 Avenue, SE
Calgary, Alberta T2B 3N7
Emergency Phone: [403] 255-7377


* Activated Carbon is manufactured by PICA USA Inc. and is distributed by AWI.

## Section 2 - Hazardous Ingredients

This material is composed of 100% activated carbon. Caution should be taken not to inhale dust.

| | | | | |
|---|---|---|---|---|
| CARBON: | LD50-Oral: | N/A | C.A.S. #: | 7440-44-0 |
| | LC50: | N/A | Range % (w/w): | 90-100 |
| | LD50-Dermal: | N/A | T.L.V.: | 3.5 mg/cu.m |

## Section 3 - Physical Data

| | | | |
|---|---|---|---|
| Boiling Point: | N/A | Incompatibility: | Avoid contact with strong oxidizers |
| Solubility in Water: | Not soluble | Flash Point: | N/A |
| Specific Gravity: | 0.30 - 0.50 @ 25 °C | Stability: | Stable |
| Melting Point: | 3500 °C | pH: | 8-10, 10% suspension in water |
| Appearance and Odour: | Odourless black solid, flake, granule or pellet, no odour | | |

## Section 4 - Fire and Explosion Data

| | | | |
|---|---|---|---|
| Flash Point: | N/A | Extinguishing Media: | Water, foam, $CO_2$ , or dry chemical |
| Upper Flammable Limit: | N/A | Lower Flammable Limit: | N/A |

General Fire Hazards: When exposed to air activated carbon can be a potential fire hazard because of its very high surface area and absorptive capacity. Accumulation of airborne dusts may present an explosion or fire hazard in the presence of an ignition source.

Hazardous Combustion Products: Upon combustion, this product may emit carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons. Other materials absorbed onto the carbon may also be released during combustion.

## Section 5 - Reactivity Data

| | |
|---|---|
| Stability: | Stable |
| Incompatibility: | Oxidizers, nitric acid, hydrogen, peroxide, metals, oxosalts, potassium, nitric acid, sodium sulphide, halogens, oxygen, ozone bromates, chlorates, iodates and nitrates. |
| Hazardous Polymerization: | Will not occur |
| Hazardous Decomposition: | Normal combustion |

## Section 6 - Toxicological Properties

Potential Health Effects:

| | |
|---|---|
| Eye Contact: | Contact may produce mechanical eye irritation. |
| Skin Contact: | Skin irritation would not be expected from single short term exposure to this product. Prolonged or repeated contact may produce some irritation. |
| Ingestion: | Ingestion of this product may cause gastrointestinal irritation, nausea, vomiting and constipation. Small amounts of this product in solution, if aspirated into lungs, may cause mild to severe pulmonary injury, possibly death. |
| Inhalation: | Chronic inhalation may produce carbon deposition in the lungs. Oral LD50 rats: >5g/kg. |

No carcinogenicity data available for this product.

## Section 7 - Preventative Measures

Spilled or released material may be swept up and discarded or repackaged

| | |
|---|---|
| Waste Disposal: | Non toxic. Dispose of in accordance with all federal, provincial and local regulations. |
| Handling/Storage: | Provide adequate ventilation. Store away from heat, ignition sources, combustible materials and incompatible materials. |

**CAUTION!** Wet activated carbon removes oxygen from the air causing a severe hazard to workers in confined spaces. Sampling and work procedures for low oxygen levels should be taken whenever workers may be entering carbon vessels, enclosed, or confined spaces. All federal, provincial, and local regulations should be observed.

| | |
|---|---|
| Respiratory: | Wear approved dust and mist respirator NIOSH/OHSA |
| Eyes: | Approved safety glasses with side shields must be worn at all times. |
| Gloves: | (protective) None required |
| Ventilation: | Local exhaust |
| Clothing: | Proper work clothing to be worn to prevent skin contact |
| Hygiene: | Maintain clean environment |

## Section 8 - First Aid Measures

| | |
|---|---|
| Eyes: | Immediately flush eyes with plenty of water for at least 15 minutes. Seek medical attention if irritation persists. |
| Skin: | Wash with soap and large amounts of water. If irritation persists, seek medical attention. |
| Ingestion: | If material is swallowed, get immediate medical attention or advice – DO NOT induce vomiting unless instructed to do so by medical personnel. |
| Inhalation: | Remove source of contamination or move victim to fresh air. Seek medical attention if irritation persists. |

## Section 9 - Preparation of Date of MSDS


| | |
|---|---|
| Prepared by: | Kellsie Donaldson (Safety Officer)<br>AWI, 4450 – 46 Ave SE; Calgary, AB T2B 3N7 |
| Telephone Number: | [403] 255- 7377 |
| Date Prepared: | January 13, 2010 |

# APPENDIX D

## LABORATORY REPORT

Report Date:
03-Apr-13 17:20

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

**SPECTRUM ANALYTICAL, INC.**
***Featuring***
**HANIBAL TECHNOLOGY**

# *Laboratory Report*

Norfolk RAM Group
One Roberts Road
Plymouth, MA 02360
Attn: Charles Young

Project: Casey-Framingham, MA
Project #: 929.1.1

| Laboratory ID | Client Sample ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| SB66714-01 | 535 Union Ave West Sump | Ground Water | 26-Mar-13 15:45 | 27-Mar-13 17:40 |
| SB66714-02 | Reagent Blank | Aqueous | 26-Mar-13 00:00 | 27-Mar-13 17:40 |
| SB66714-03 | Trip Blank | Aqueous | 26-Mar-13 00:00 | 27-Mar-13 17:40 |

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

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

Authorized by:

Nicole Leja
Laboratory Director

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 26 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

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

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

**CASE NARRATIVE:**

The samples were received 2.7 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

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

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

## EPA 200.7

**Samples:**

SB66714-01 *535 Union Ave West Sump*

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

Iron
Zinc

## EPA 200.8

**Duplicates:**

1307016-DUP1 *Source: SB66714-01*

Analyses are not controlled on RPD values from sample concentrations that are less than 5 times the reporting level. The batch is accepted based upon the difference between the sample and duplicate is less than or equal to the reporting limit.

Lead

## EPA 300.0

**Samples:**

SB66714-01 *535 Union Ave West Sump*

A High Calibration Verification standard was analyzed extending the concentration range for this analyte; therefore the data is not estimated. Sample results are valid due to acceptable recoveries.

Chloride

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

Chloride

## SM4500-Cl-G

**Spikes:**

1306944-MS1 *Source: SB66714-01*

The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

Total Residual Chlorine

1306944-MSD1 *Source: SB66714-01*

The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

Total Residual Chlorine

**Samples:**

SB66714-01 *535 Union Ave West Sump*

## SM4500-Cl-G

**Samples:**

SB66714-01 *535 Union Ave West Sump*

This sample was received outside the EPA recommended holding time for the analysis specified.

Total Residual Chlorine

## SW846 7196A/SM3500CrD

**Samples:**

SB66714-01 *535 Union Ave West Sump*

This sample was received outside the EPA recommended holding time for the analysis specified.

Hexavalent Chromium

## SW846 8260C

**Calibration:**

1303007

Analyte quantified by quadratic equation type calibration.

1,2-Dibromo-3-chloropropane
2,2-Dichloropropane
Naphthalene
trans-1,4-Dichloro-2-butene
Vinyl chloride

This affected the following samples:

1307022-BLK1
1307022-BS1
1307022-BSD1
535 Union Ave West Sump
S302424-ICV1
S303399-CCV1
Trip Blank

**Laboratory Control Samples:**

1307022 BS/BSD

1,1,1,2-Tetrachloroethane percent recoveries (132/130) are outside individual acceptance criteria (70-130), but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

535 Union Ave West Sump
Trip Blank

Tert-amyl methyl ether percent recoveries (68/63) are outside individual acceptance criteria (70-130), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

535 Union Ave West Sump
Trip Blank

**Samples:**

S303399-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

1,1,1,2-Tetrachloroethane (20.8%)
Dibromochloromethane (21.6%)
Tert-amyl methyl ether (-29.7%)

## SW846 8260C

**Samples:**

S303399-CCV1

This affected the following samples:

1307022-BLK1
1307022-BS1
1307022-BSD1
535 Union Ave West Sump
Trip Blank

## SW846 8270D SIM

**Laboratory Control Samples:**

71051 BS

Pentachlorophenol percent recovery 161 (10-150) is outside individual acceptance criteria, but within overall method allowances.
All reported results of the following samples are considered to have a potentially high bias:

535 Union Ave West Sump

LCS-71051

Matrix spike recovery falls outside of the control limit

Pentachlorophenol

LCSD-71051

Matrix spike recovery falls outside of the control limit

Pentachlorophenol

| Sample Identification | Client Project # | Matrix | Collection Date/Time | Received |
|---|---|---|---|---|
| **535 Union Ave West Sump** | 929.1.1 | Ground Water | 26-Mar-13 15:45 | 27-Mar-13 |
| SB66714-01 | | | | |

| CAS No. | Analyte(s) | Result | Flag | Units | *RDL | MDL | Dilution | Method Ref. | Prepared | Analyzed | Analyst | Batch | Cert. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compounds** | | | | | | | | | | | | | |
| Volatile Organic Compounds<br>Prepared by method SW846 5030 Water MS | | | | | | | | | | | | | |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethane (Freon 113) | < 1.00 | | µg/l | 1.00 | 0.65 | 1 | SW846 8260C | 29-Mar-13 | 29-Mar-13 | JEG | 1307022 | |
| 67-64-1 | Acetone | < 10.0 | | µg/l | 10.0 | 2.56 | 1 | " | " | " | " | " | |
| 107-13-1 | Acrylonitrile | < 0.50 | | µg/l | 0.50 | 0.46 | 1 | " | " | " | " | " | |
| 71-43-2 | Benzene | < 1.00 | | µg/l | 1.00 | 0.67 | 1 | " | " | " | " | " | |
| 108-86-1 | Bromobenzene | < 1.00 | | µg/l | 1.00 | 0.72 | 1 | " | " | " | " | " | |
| 74-97-5 | Bromochloromethane | < 1.00 | | µg/l | 1.00 | 0.71 | 1 | " | " | " | " | " | |
| 75-27-4 | Bromodichloromethane | < 0.50 | | µg/l | 0.50 | 0.48 | 1 | " | " | " | " | " | |
| 75-25-2 | Bromoform | < 1.00 | | µg/l | 1.00 | 0.60 | 1 | " | " | " | " | " | |
| 74-83-9 | Bromomethane | < 2.00 | | µg/l | 2.00 | 1.14 | 1 | " | " | " | " | " | |
| 78-93-3 | 2-Butanone (MEK) | < 10.0 | | µg/l | 10.0 | 1.73 | 1 | " | " | " | " | " | |
| 104-51-8 | n-Butylbenzene | < 1.00 | | µg/l | 1.00 | 0.56 | 1 | " | " | " | " | " | |
| 135-98-8 | sec-Butylbenzene | < 1.00 | | µg/l | 1.00 | 0.82 | 1 | " | " | " | " | " | |
| 98-06-6 | tert-Butylbenzene | < 1.00 | | µg/l | 1.00 | 0.74 | 1 | " | " | " | " | " | |
| 75-15-0 | Carbon disulfide | < 2.00 | | µg/l | 2.00 | 0.63 | 1 | " | " | " | " | " | |
| 56-23-5 | Carbon tetrachloride | < 1.00 | | µg/l | 1.00 | 0.55 | 1 | " | " | " | " | " | |
| 108-90-7 | Chlorobenzene | < 1.00 | | µg/l | 1.00 | 0.65 | 1 | " | " | " | " | " | |
| 75-00-3 | Chloroethane | < 2.00 | | µg/l | 2.00 | 1.03 | 1 | " | " | " | " | " | |
| 67-66-3 | Chloroform | < 1.00 | | µg/l | 1.00 | 0.69 | 1 | " | " | " | " | " | |
| 74-87-3 | Chloromethane | < 2.00 | | µg/l | 2.00 | 1.47 | 1 | " | " | " | " | " | |
| 95-49-8 | 2-Chlorotoluene | < 1.00 | | µg/l | 1.00 | 0.79 | 1 | " | " | " | " | " | |
| 106-43-4 | 4-Chlorotoluene | < 1.00 | | µg/l | 1.00 | 0.73 | 1 | " | " | " | " | " | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | < 2.00 | | µg/l | 2.00 | 0.93 | 1 | " | " | " | " | " | |
| 124-48-1 | Dibromochloromethane | < 0.50 | | µg/l | 0.50 | 0.29 | 1 | " | " | " | " | " | |
| 106-93-4 | 1,2-Dibromoethane (EDB) | < 0.50 | | µg/l | 0.50 | 0.33 | 1 | " | " | " | " | " | |
| 74-95-3 | Dibromomethane | < 1.00 | | µg/l | 1.00 | 0.67 | 1 | " | " | " | " | " | |
| 95-50-1 | 1,2-Dichlorobenzene | < 1.00 | | µg/l | 1.00 | 0.67 | 1 | " | " | " | " | " | |
| 541-73-1 | 1,3-Dichlorobenzene | < 1.00 | | µg/l | 1.00 | 0.71 | 1 | " | " | " | " | " | |
| 106-46-7 | 1,4-Dichlorobenzene | < 1.00 | | µg/l | 1.00 | 0.62 | 1 | " | " | " | " | " | |
| 75-71-8 | Dichlorodifluoromethane (Freon12) | < 2.00 | | µg/l | 2.00 | 0.45 | 1 | " | " | " | " | " | |
| 75-34-3 | 1,1-Dichloroethane | < 1.00 | | µg/l | 1.00 | 0.68 | 1 | " | " | " | " | " | |
| 107-06-2 | 1,2-Dichloroethane | < 1.00 | | µg/l | 1.00 | 0.78 | 1 | " | " | " | " | " | |
| 75-35-4 | 1,1-Dichloroethene | < 1.00 | | µg/l | 1.00 | 0.49 | 1 | " | " | " | " | " | |
| 156-59-2 | cis-1,2-Dichloroethene | **1.46** | | µg/l | 1.00 | 0.72 | 1 | " | " | " | " | " | |
| 156-60-5 | trans-1,2-Dichloroethene | < 1.00 | | µg/l | 1.00 | 0.68 | 1 | " | " | " | " | " | |
| 78-87-5 | 1,2-Dichloropropane | < 1.00 | | µg/l | 1.00 | 0.71 | 1 | " | " | " | " | " | |
| 142-28-9 | 1,3-Dichloropropane | < 1.00 | | µg/l | 1.00 | 0.81 | 1 | " | " | " | " | " | |
| 594-20-7 | 2,2-Dichloropropane | < 1.00 | | µg/l | 1.00 | 0.60 | 1 | " | " | " | " | " | |
| 563-58-6 | 1,1-Dichloropropene | < 1.00 | | µg/l | 1.00 | 0.64 | 1 | " | " | " | " | " | |
| 10061-01-5 | cis-1,3-Dichloropropene | < 0.50 | | µg/l | 0.50 | 0.25 | 1 | " | " | " | " | " | |
| 10061-02-6 | trans-1,3-Dichloropropene | < 0.50 | | µg/l | 0.50 | 0.50 | 1 | " | " | " | " | " | |
| 100-41-4 | Ethylbenzene | < 1.00 | | µg/l | 1.00 | 0.73 | 1 | " | " | " | " | " | |
| 87-68-3 | Hexachlorobutadiene | < 0.50 | | µg/l | 0.50 | 0.45 | 1 | " | " | " | " | " | |
| 591-78-6 | 2-Hexanone (MBK) | < 10.0 | | µg/l | 10.0 | 0.54 | 1 | " | " | " | " | " | |

| Sample Identification | Client Project # | Matrix | Collection Date/Time | Received |
|---|---|---|---|---|
| **535 Union Ave West Sump** | 929.1.1 | Ground Water | 26-Mar-13 15:45 | 27-Mar-13 |
| SB66714-01 | | | | |

| CAS No. | Analyte(s) | Result | Flag | Units | *RDL | MDL | Dilution | Method Ref. | Prepared | Analyzed | Analyst | Batch | Cert. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compounds** | | | | | | | | | | | | | |
| Volatile Organic Compounds<br>Prepared by method SW846 5030 Water MS | | | | | | | | | | | | | |
| 98-82-8 | Isopropylbenzene | < 1.00 | | µg/l | 1.00 | 0.62 | 1 | SW846 8260C | 29-Mar-13 | 29-Mar-13 | JEG | 1307022 | |
| 99-87-6 | 4-Isopropyltoluene | < 1.00 | | µg/l | 1.00 | 0.61 | 1 | " | " | " | " | " | |
| 1634-04-4 | Methyl tert-butyl ether | **2.18** | | µg/l | 1.00 | 0.65 | 1 | " | " | " | " | " | |
| 108-10-1 | 4-Methyl-2-pentanone (MIBK) | < 10.0 | | µg/l | 10.0 | 0.93 | 1 | " | " | " | " | " | |
| 75-09-2 | Methylene chloride | < 2.00 | | µg/l | 2.00 | 0.69 | 1 | " | " | " | " | " | |
| 91-20-3 | Naphthalene | < 1.00 | | µg/l | 1.00 | 0.33 | 1 | " | " | " | " | " | |
| 103-65-1 | n-Propylbenzene | < 1.00 | | µg/l | 1.00 | 0.76 | 1 | " | " | " | " | " | |
| 100-42-5 | Styrene | < 1.00 | | µg/l | 1.00 | 0.62 | 1 | " | " | " | " | " | |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | < 1.00 | | µg/l | 1.00 | 0.63 | 1 | " | " | " | " | " | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | < 0.50 | | µg/l | 0.50 | 0.35 | 1 | " | " | " | " | " | |
| 127-18-4 | Tetrachloroethene | **21.8** | | µg/l | 1.00 | 0.74 | 1 | " | " | " | " | " | |
| 108-88-3 | Toluene | < 1.00 | | µg/l | 1.00 | 0.81 | 1 | " | " | " | " | " | |
| 87-61-6 | 1,2,3-Trichlorobenzene | < 1.00 | | µg/l | 1.00 | 0.38 | 1 | " | " | " | " | " | |
| 120-82-1 | 1,2,4-Trichlorobenzene | < 1.00 | | µg/l | 1.00 | 0.36 | 1 | " | " | " | " | " | |
| 108-70-3 | 1,3,5-Trichlorobenzene | < 1.00 | | µg/l | 1.00 | 0.78 | 1 | " | " | " | " | " | |
| 71-55-6 | 1,1,1-Trichloroethane | < 1.00 | | µg/l | 1.00 | 0.58 | 1 | " | " | " | " | " | |
| 79-00-5 | 1,1,2-Trichloroethane | < 1.00 | | µg/l | 1.00 | 0.64 | 1 | " | " | " | " | " | |
| 79-01-6 | Trichloroethene | **1.31** | | µg/l | 1.00 | 0.76 | 1 | " | " | " | " | " | |
| 75-69-4 | Trichlorofluoromethane (Freon 11) | < 1.00 | | µg/l | 1.00 | 0.63 | 1 | " | " | " | " | " | |
| 96-18-4 | 1,2,3-Trichloropropane | < 1.00 | | µg/l | 1.00 | 0.74 | 1 | " | " | " | " | " | |
| 95-63-6 | 1,2,4-Trimethylbenzene | < 1.00 | | µg/l | 1.00 | 0.76 | 1 | " | " | " | " | " | |
| 108-67-8 | 1,3,5-Trimethylbenzene | < 1.00 | | µg/l | 1.00 | 0.74 | 1 | " | " | " | " | " | |
| 75-01-4 | Vinyl chloride | < 1.00 | | µg/l | 1.00 | 0.81 | 1 | " | " | " | " | " | |
| 179601-23-1 | m,p-Xylene | < 2.00 | | µg/l | 2.00 | 1.64 | 1 | " | " | " | " | " | |
| 95-47-6 | o-Xylene | < 1.00 | | µg/l | 1.00 | 0.88 | 1 | " | " | " | " | " | |
| 109-99-9 | Tetrahydrofuran | < 2.00 | | µg/l | 2.00 | 1.44 | 1 | " | " | " | " | " | |
| 60-29-7 | Ethyl ether | < 1.00 | | µg/l | 1.00 | 0.69 | 1 | " | " | " | " | " | |
| 994-05-8 | Tert-amyl methyl ether | < 1.00 | | µg/l | 1.00 | 0.72 | 1 | " | " | " | " | " | |
| 637-92-3 | Ethyl tert-butyl ether | < 1.00 | | µg/l | 1.00 | 0.78 | 1 | " | " | " | " | " | |
| 108-20-3 | Di-isopropyl ether | < 1.00 | | µg/l | 1.00 | 0.73 | 1 | " | " | " | " | " | |
| 75-65-0 | Tert-Butanol / butyl alcohol | < 10.0 | | µg/l | 10.0 | 8.64 | 1 | " | " | " | " | " | |
| 123-91-1 | 1,4-Dioxane | < 20.0 | | µg/l | 20.0 | 14.0 | 1 | " | " | " | " | " | |
| 110-57-6 | trans-1,4-Dichloro-2-buten e | < 5.00 | | µg/l | 5.00 | 0.77 | 1 | " | " | " | " | " | |
| 64-17-5 | Ethanol | < 400 | | µg/l | 400 | 35.7 | 1 | " | " | " | " | " | |
| *Surrogate recoveries:* | | | | | | | | | | | | | |
| *460-00-4* | *4-Bromofluorobenzene* | *95* | | | *70-130 %* | | | " | " | " | " | " | |
| *2037-26-5* | *Toluene-d8* | *97* | | | *70-130 %* | | | " | " | " | " | " | |
| *17060-07-0* | *1,2-Dichloroethane-d4* | *106* | | | *70-130 %* | | | " | " | " | " | " | |
| *1868-53-7* | *Dibromofluoromethane* | *102* | | | *70-130 %* | | | " | " | " | " | " | |
| **Microextractable Organic Compounds** | | | | | | | | | | | | | |
| 106-93-4 | 1,2-Dibromoethane (EDB) | < 0.0100 | | µg/l | 0.0100 | 0.00740 | 1 | SW846 8011 | 02-Apr-13 | 02-Apr-13 | DS | 1307196 | |
| **Semivolatile Organic Compounds by GC** | | | | | | | | | | | | | |

| Sample Identification | Client Project # | Matrix | Collection Date/Time | Received |
|---|---|---|---|---|
| **535 Union Ave West Sump**<br>SB66714-01 | 929.1.1 | Ground Water | 26-Mar-13 15:45 | 27-Mar-13 |

| CAS No. | Analyte(s) | Result | Flag | Units | *RDL | MDL | Dilution | Method Ref. | Prepared | Analyzed | Analyst | Batch | Cert. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semivolatile Organic Compounds by GC** | | | | | | | | | | | | | |
| Polychlorinated Biphenyls<br>Prepared by method SW846 3510C | | | | | | | | | | | | | |
| 12674-11-2 | Aroclor-1016 | < 0.213 | | µg/l | 0.213 | 0.00915 | 1 | EPA 608 | 02-Apr-13 | 02-Apr-13 | IMR | 1307194 | X |
| 11104-28-2 | Aroclor-1221 | < 0.213 | | µg/l | 0.213 | 0.0152 | 1 | " | " | " | " | " | X |
| 11141-16-5 | Aroclor-1232 | < 0.213 | | µg/l | 0.213 | 0.0143 | 1 | " | " | " | " | " | X |
| 53469-21-9 | Aroclor-1242 | < 0.213 | | µg/l | 0.213 | 0.00777 | 1 | " | " | " | " | " | X |
| 12672-29-6 | Aroclor-1248 | < 0.213 | | µg/l | 0.213 | 0.0120 | 1 | " | " | " | " | " | X |
| 11097-69-1 | Aroclor-1254 | < 0.213 | | µg/l | 0.213 | 0.0105 | 1 | " | " | " | " | " | X |
| 11096-82-5 | Aroclor-1260 | < 0.213 | | µg/l | 0.213 | 0.00617 | 1 | " | " | " | " | " | X |
| 37324-23-5 | Aroclor-1262 | < 0.213 | | µg/l | 0.213 | 0.00926 | 1 | " | " | " | " | " | |
| 11100-14-4 | Aroclor-1268 | < 0.213 | | µg/l | 0.213 | 0.0101 | 1 | " | " | " | " | " | |
| *Surrogate recoveries:* | | | | | | | | | | | | | |
| *10386-84-2* | *4,4-DB-Octafluorobiphenyl (Sr)* | *75* | | | *30-150 %* | | | " | " | " | " | " | |
| *10386-84-2* | *4,4-DB-Octafluorobiphenyl (Sr) [2C]* | *85* | | | *30-150 %* | | | " | " | " | " | " | |
| *2051-24-3* | *Decachlorobiphenyl (Sr)* | *90* | | | *30-150 %* | | | " | " | " | " | " | |
| *2051-24-3* | *Decachlorobiphenyl (Sr) [2C]* | *105* | | | *30-150 %* | | | " | " | " | " | " | |
| **Extractable Petroleum Hydrocarbons** | | | | | | | | | | | | | |
| | Non-polar material (SGT-HEM) | < 1.0 | | mg/l | 1.0 | 0.6 | 1 | EPA 1664 Rev. A | 01-Apr-13 | 02-Apr-13 | JK | 1307084 | |
| **Total Metals by EPA 200/6000 Series Methods** | | | | | | | | | | | | | |
| | Preservation | **Field Preserved** | | N/A | | | 1 | EPA 200/6000 methods | | | JS | 1306941 | |
| **Total Metals by EPA 200 Series Methods** | | | | | | | | | | | | | |
| 7440-22-4 | Silver | < 0.0050 | | mg/l | 0.0050 | 0.0020 | 1 | EPA 200.7 | 01-Apr-13 | 01-Apr-13 | edt | 1307011 | X |
| 7440-38-2 | Arsenic | < 0.0040 | | mg/l | 0.0040 | 0.0037 | 1 | " | " | " | " | " | X |
| 7440-43-9 | Cadmium | < 0.0025 | | mg/l | 0.0025 | 0.0006 | 1 | " | " | " | " | " | X |
| 7440-47-3 | Chromium | < 0.0050 | | mg/l | 0.0050 | 0.0018 | 1 | " | " | " | " | " | X |
| 7440-50-8 | Copper | < 0.0050 | | mg/l | 0.0050 | 0.0016 | 1 | " | " | " | " | " | X |
| 7439-89-6 | Iron | < 0.0500 | R01 | mg/l | 0.0500 | 0.0115 | 1 | " | " | 02-Apr-13 | " | " | X |
| 7439-97-6 | Mercury | < 0.00020 | | mg/l | 0.00020 | 0.00008 | 1 | EPA 245.1/7470A | " | 02-Apr-13 | JLM | 1307014 | X |
| 7440-02-0 | Nickel | < 0.0050 | | mg/l | 0.0050 | 0.0011 | 1 | EPA 200.7 | " | 01-Apr-13 | edt | 1307011 | X |
| 7439-92-1 | Lead | < 0.00050 | | mg/l | 0.00050 | 0.00003 | 1 | EPA 200.8 | " | 02-Apr-13 | TBC | 1307016 | X |
| 7440-36-0 | Antimony | < 0.0060 | | mg/l | 0.0060 | 0.0040 | 1 | EPA 200.7 | " | 02-Apr-13 | EDT | 1307011 | X |
| 7782-49-2 | Selenium | < 0.0150 | | mg/l | 0.0150 | 0.0104 | 1 | " | " | 01-Apr-13 | " | " | X |
| 7440-66-6 | Zinc | < 0.0300 | R01 | mg/l | 0.0300 | 0.0026 | 1 | " | " | " | " | " | X |
| **General Chemistry Parameters** | | | | | | | | | | | | | |
| 16065-83-1 | Trivalent Chromium | < 0.0100 | | mg/l | 0.0100 | 0.0053 | 1 | Calculation | 01-Apr-13 | 01-Apr-13 | edt | 1307011 | |
| 7782-50-5 | Total Residual Chlorine | < 0.020 | HT2,ClHT | mg/l | 0.020 | 0.006 | 1 | SM4500-Cl-G | 28-Mar-13 14:01 | 28-Mar-13 14:01 | CAA | 1306944 | X |
| 16887-00-6 | Chloride | **578** | GS1, LinR, D | mg/l | 10.0 | 1.96 | 10 | EPA 300.0 | 02-Apr-13 | 02-Apr-13 | KK | 1307271 | X |
| 18540-29-9 | Hexavalent Chromium | < 0.005 | HT2 | mg/l | 0.005 | 0.003 | 1 | SW846 7196A/SM3500CrD | 28-Mar-13 13:32 | 28-Mar-13 13:41 | TDD/C | 1306940 | |
| 57-12-5 | Cyanide (total) | < 0.00500 | | mg/l | 0.00500 | 0.00460 | 1 | EPA 335.4 / SW846 9012B | 02-Apr-13 | 02-Apr-13 | RLT | 1307248 | X |
| | Total Suspended Solids | < 5 | | mg/l | 5 | 2 | 1 | SM2540D | 29-Mar-13 | 01-Apr-13 | BD | 1307004 | X |

| Sample Identification | Client Project # | Matrix | Collection Date/Time | Received |
|---|---|---|---|---|
| **535 Union Ave West Sump** | 929.1.1 | Ground Water | 26-Mar-13 15:45 | 27-Mar-13 |
| SB66714-01 | | | | |

| *CAS No.* | *Analyte(s)* | *Result* | *Flag* | *Units* | **RDL* | *MDL* | *Dilution* | *Method Ref.* | *Prepared* | *Analyzed* | *Analyst* | *Batch* | *Cert.* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Subcontracted Analyses** | | | | | | | | | | | | | |
| Subcontracted Analyses<br>Prepared by method SW3510 | | | | | | | | | | | | | |
| *Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI* | | | | | | | | | | | | | |
| 91-20-3 | Naphthalene | < 1.0 | | ug/L | 1.0 | 0.050 | 1 | SW846 8270D SIM | 01-Apr-13 | 01-Apr-13 | M-RI9 | 71051 | |
| 91-57-6 | 2-Methylnaphthalene | < 1.0 | | ug/L | 1.0 | 0.018 | 1 | " | " | " | " | " | |
| 131-11-3 | Dimethylphthalate | < 1.0 | | ug/L | 1.0 | 0.10 | 1 | " | " | " | " | " | |
| 208-96-8 | Acenaphthylene | < 1.0 | | ug/L | 1.0 | 0.017 | 1 | " | " | " | " | " | |
| 83-32-9 | Acenaphthene | < 1.0 | | ug/L | 1.0 | 0.019 | 1 | " | " | " | " | " | |
| 84-66-2 | Diethylphthalate | < 1.0 | | ug/L | 1.0 | 0.10 | 1 | " | " | " | " | " | |
| 86-73-7 | Fluorene | < 1.0 | | ug/L | 1.0 | 0.017 | 1 | " | " | " | " | " | |
| 87-86-5 | Pentachlorophenol | < 1.0 | | ug/L | 1.0 | 0.055 | 1 | " | " | " | " | " | |
| 85-01-8 | Phenanthrene | < 1.0 | | ug/L | 1.0 | 0.019 | 1 | " | " | " | " | " | |
| 120-12-7 | Anthracene | < 1.0 | | ug/L | 1.0 | 0.017 | 1 | " | " | " | " | " | |
| 84-74-2 | Di-n-butylphthalate | < 1.0 | | ug/L | 1.0 | 0.10 | 1 | " | " | " | " | " | |
| 206-44-0 | Fluoranthene | < 1.0 | | ug/L | 1.0 | 0.019 | 1 | " | " | " | " | " | |
| 129-00-0 | Pyrene | < 1.0 | | ug/L | 1.0 | 0.016 | 1 | " | " | " | " | " | |
| 85-68-7 | Butylbenzylphthalate | < 1.0 | | ug/L | 1.0 | 0.10 | 1 | " | " | " | " | " | |
| 56-55-3 | Benzo(a)anthracene | < 1.0 | | ug/L | 1.0 | 0.042 | 1 | " | " | " | " | " | |
| 218-01-9 | Chrysene | < 1.0 | | ug/L | 1.0 | 0.073 | 1 | " | " | " | " | " | |
| 117-81-7 | Bis(2-ethylhexyl)phthalate | < 1.0 | | ug/L | 1.0 | 0.072 | 1 | " | " | " | " | " | |
| 117-84-0 | Di-n-octylphthalate | < 1.0 | | ug/L | 1.0 | 0.10 | 1 | " | " | " | " | " | |
| 205-99-2 | Benzo(b)fluoranthene | < 1.0 | | ug/L | 1.0 | 0.056 | 1 | " | " | " | " | " | |
| 207-08-9 | Benzo(k)fluoranthene | < 1.0 | | ug/L | 1.0 | 0.020 | 1 | " | " | " | " | " | |
| 50-32-8 | Benzo(a)pyrene | < 1.0 | | ug/L | 1.0 | 0.017 | 1 | " | " | " | " | " | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | < 1.0 | | ug/L | 1.0 | 0.019 | 1 | " | " | " | " | " | |
| 53-70-3 | Dibenzo(a,h)anthracene | < 1.0 | | ug/L | 1.0 | 0.018 | 1 | " | " | " | " | " | |
| 191-24-2 | Benzo(g,h,i)perylene | < 1.0 | | ug/L | 1.0 | 0.021 | 1 | " | " | " | " | " | |
| *Surrogate recoveries:* | | | | | | | | | | | | | |
| *205440-82-0* | *Benzo(e)pyrene-d12* | *86.9* | | | *48-162 %* | | | " | " | " | " | " | |

| Sample Identification | Client Project # | Matrix | Collection Date/Time | Received |
|---|---|---|---|---|
| **Reagent Blank**<br>SB66714-02 | 929.1.1 | Aqueous | 26-Mar-13 00:00 | 27-Mar-13 |

| *CAS No.* | *Analyte(s)* | *Result* | *Flag* | *Units* | **RDL* | *MDL* | *Dilution* | *Method Ref.* | *Prepared* | *Analyzed* | *Analyst* | *Batch* | *Cert.* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Microextractable Organic Compounds** | | | | | | | | | | | | | |
| 106-93-4 | 1,2-Dibromoethane (EDB) | < 0.0100 | | µg/l | 0.0100 | 0.00740 | 1 | SW846 8011 | 02-Apr-13 | 02-Apr-13 | DS | 1307196 | |

| Sample Identification | Client Project # | Matrix | Collection Date/Time | Received |
|---|---|---|---|---|
| **Trip Blank** | 929.1.1 | Aqueous | 26-Mar-13 00:00 | 27-Mar-13 |
| SB66714-03 | | | | |

| CAS No. | Analyte(s) | Result | Flag | Units | *RDL | MDL | Dilution | Method Ref. | Prepared | Analyzed | Analyst | Batch | Cert. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compounds** | | | | | | | | | | | | | |
| Volatile Organic Compounds<br>Prepared by method SW846 5030 Water MS | | | | | | | | | | | | | |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethane (Freon 113) | < 1.00 | | µg/l | 1.00 | 0.65 | 1 | SW846 8260C | 29-Mar-13 | 29-Mar-13 | JEG | 1307022 | |
| 67-64-1 | Acetone | < 10.0 | | µg/l | 10.0 | 2.56 | 1 | " | " | " | " | " | |
| 107-13-1 | Acrylonitrile | < 0.50 | | µg/l | 0.50 | 0.46 | 1 | " | " | " | " | " | |
| 71-43-2 | Benzene | < 1.00 | | µg/l | 1.00 | 0.67 | 1 | " | " | " | " | " | |
| 108-86-1 | Bromobenzene | < 1.00 | | µg/l | 1.00 | 0.72 | 1 | " | " | " | " | " | |
| 74-97-5 | Bromochloromethane | < 1.00 | | µg/l | 1.00 | 0.71 | 1 | " | " | " | " | " | |
| 75-27-4 | Bromodichloromethane | < 0.50 | | µg/l | 0.50 | 0.48 | 1 | " | " | " | " | " | |
| 75-25-2 | Bromoform | < 1.00 | | µg/l | 1.00 | 0.60 | 1 | " | " | " | " | " | |
| 74-83-9 | Bromomethane | < 2.00 | | µg/l | 2.00 | 1.14 | 1 | " | " | " | " | " | |
| 78-93-3 | 2-Butanone (MEK) | < 10.0 | | µg/l | 10.0 | 1.73 | 1 | " | " | " | " | " | |
| 104-51-8 | n-Butylbenzene | < 1.00 | | µg/l | 1.00 | 0.56 | 1 | " | " | " | " | " | |
| 135-98-8 | sec-Butylbenzene | < 1.00 | | µg/l | 1.00 | 0.82 | 1 | " | " | " | " | " | |
| 98-06-6 | tert-Butylbenzene | < 1.00 | | µg/l | 1.00 | 0.74 | 1 | " | " | " | " | " | |
| 75-15-0 | Carbon disulfide | < 2.00 | | µg/l | 2.00 | 0.63 | 1 | " | " | " | " | " | |
| 56-23-5 | Carbon tetrachloride | < 1.00 | | µg/l | 1.00 | 0.55 | 1 | " | " | " | " | " | |
| 108-90-7 | Chlorobenzene | < 1.00 | | µg/l | 1.00 | 0.65 | 1 | " | " | " | " | " | |
| 75-00-3 | Chloroethane | < 2.00 | | µg/l | 2.00 | 1.03 | 1 | " | " | " | " | " | |
| 67-66-3 | Chloroform | < 1.00 | | µg/l | 1.00 | 0.69 | 1 | " | " | " | " | " | |
| 74-87-3 | Chloromethane | < 2.00 | | µg/l | 2.00 | 1.47 | 1 | " | " | " | " | " | |
| 95-49-8 | 2-Chlorotoluene | < 1.00 | | µg/l | 1.00 | 0.79 | 1 | " | " | " | " | " | |
| 106-43-4 | 4-Chlorotoluene | < 1.00 | | µg/l | 1.00 | 0.73 | 1 | " | " | " | " | " | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | < 2.00 | | µg/l | 2.00 | 0.93 | 1 | " | " | " | " | " | |
| 124-48-1 | Dibromochloromethane | < 0.50 | | µg/l | 0.50 | 0.29 | 1 | " | " | " | " | " | |
| 106-93-4 | 1,2-Dibromoethane (EDB) | < 0.50 | | µg/l | 0.50 | 0.33 | 1 | " | " | " | " | " | |
| 74-95-3 | Dibromomethane | < 1.00 | | µg/l | 1.00 | 0.67 | 1 | " | " | " | " | " | |
| 95-50-1 | 1,2-Dichlorobenzene | < 1.00 | | µg/l | 1.00 | 0.67 | 1 | " | " | " | " | " | |
| 541-73-1 | 1,3-Dichlorobenzene | < 1.00 | | µg/l | 1.00 | 0.71 | 1 | " | " | " | " | " | |
| 106-46-7 | 1,4-Dichlorobenzene | < 1.00 | | µg/l | 1.00 | 0.62 | 1 | " | " | " | " | " | |
| 75-71-8 | Dichlorodifluoromethane (Freon12) | < 2.00 | | µg/l | 2.00 | 0.45 | 1 | " | " | " | " | " | |
| 75-34-3 | 1,1-Dichloroethane | < 1.00 | | µg/l | 1.00 | 0.68 | 1 | " | " | " | " | " | |
| 107-06-2 | 1,2-Dichloroethane | < 1.00 | | µg/l | 1.00 | 0.78 | 1 | " | " | " | " | " | |
| 75-35-4 | 1,1-Dichloroethene | < 1.00 | | µg/l | 1.00 | 0.49 | 1 | " | " | " | " | " | |
| 156-59-2 | cis-1,2-Dichloroethene | < 1.00 | | µg/l | 1.00 | 0.72 | 1 | " | " | " | " | " | |
| 156-60-5 | trans-1,2-Dichloroethene | < 1.00 | | µg/l | 1.00 | 0.68 | 1 | " | " | " | " | " | |
| 78-87-5 | 1,2-Dichloropropane | < 1.00 | | µg/l | 1.00 | 0.71 | 1 | " | " | " | " | " | |
| 142-28-9 | 1,3-Dichloropropane | < 1.00 | | µg/l | 1.00 | 0.81 | 1 | " | " | " | " | " | |
| 594-20-7 | 2,2-Dichloropropane | < 1.00 | | µg/l | 1.00 | 0.60 | 1 | " | " | " | " | " | |
| 563-58-6 | 1,1-Dichloropropene | < 1.00 | | µg/l | 1.00 | 0.64 | 1 | " | " | " | " | " | |
| 10061-01-5 | cis-1,3-Dichloropropene | < 0.50 | | µg/l | 0.50 | 0.25 | 1 | " | " | " | " | " | |
| 10061-02-6 | trans-1,3-Dichloropropene | < 0.50 | | µg/l | 0.50 | 0.50 | 1 | " | " | " | " | " | |
| 100-41-4 | Ethylbenzene | < 1.00 | | µg/l | 1.00 | 0.73 | 1 | " | " | " | " | " | |
| 87-68-3 | Hexachlorobutadiene | < 0.50 | | µg/l | 0.50 | 0.45 | 1 | " | " | " | " | " | |
| 591-78-6 | 2-Hexanone (MBK) | < 10.0 | | µg/l | 10.0 | 0.54 | 1 | " | " | " | " | " | |

| Sample Identification | Client Project # | Matrix | Collection Date/Time | Received |
|---|---|---|---|---|
| **Trip Blank** | 929.1.1 | Aqueous | 26-Mar-13 00:00 | 27-Mar-13 |
| SB66714-03 | | | | |

| CAS No. | Analyte(s) | Result | Flag | Units | *RDL | MDL | Dilution | Method Ref. | Prepared | Analyzed | Analyst | Batch | Cert. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compounds** | | | | | | | | | | | | | |
| Volatile Organic Compounds<br>Prepared by method SW846 5030 Water MS | | | | | | | | | | | | | |
| 98-82-8 | Isopropylbenzene | < 1.00 | | µg/l | 1.00 | 0.62 | 1 | SW846 8260C | 29-Mar-13 | 29-Mar-13 | JEG | 1307022 | |
| 99-87-6 | 4-Isopropyltoluene | < 1.00 | | µg/l | 1.00 | 0.61 | 1 | " | " | " | " | " | |
| 1634-04-4 | Methyl tert-butyl ether | < 1.00 | | µg/l | 1.00 | 0.65 | 1 | " | " | " | " | " | |
| 108-10-1 | 4-Methyl-2-pentanone (MIBK) | < 10.0 | | µg/l | 10.0 | 0.93 | 1 | " | " | " | " | " | |
| 75-09-2 | Methylene chloride | < 2.00 | | µg/l | 2.00 | 0.69 | 1 | " | " | " | " | " | |
| 91-20-3 | Naphthalene | < 1.00 | | µg/l | 1.00 | 0.33 | 1 | " | " | " | " | " | |
| 103-65-1 | n-Propylbenzene | < 1.00 | | µg/l | 1.00 | 0.76 | 1 | " | " | " | " | " | |
| 100-42-5 | Styrene | < 1.00 | | µg/l | 1.00 | 0.62 | 1 | " | " | " | " | " | |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | < 1.00 | | µg/l | 1.00 | 0.63 | 1 | " | " | " | " | " | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | < 0.50 | | µg/l | 0.50 | 0.35 | 1 | " | " | " | " | " | |
| 127-18-4 | Tetrachloroethene | < 1.00 | | µg/l | 1.00 | 0.74 | 1 | " | " | " | " | " | |
| 108-88-3 | Toluene | < 1.00 | | µg/l | 1.00 | 0.81 | 1 | " | " | " | " | " | |
| 87-61-6 | 1,2,3-Trichlorobenzene | < 1.00 | | µg/l | 1.00 | 0.38 | 1 | " | " | " | " | " | |
| 120-82-1 | 1,2,4-Trichlorobenzene | < 1.00 | | µg/l | 1.00 | 0.36 | 1 | " | " | " | " | " | |
| 108-70-3 | 1,3,5-Trichlorobenzene | < 1.00 | | µg/l | 1.00 | 0.78 | 1 | " | " | " | " | " | |
| 71-55-6 | 1,1,1-Trichloroethane | < 1.00 | | µg/l | 1.00 | 0.58 | 1 | " | " | " | " | " | |
| 79-00-5 | 1,1,2-Trichloroethane | < 1.00 | | µg/l | 1.00 | 0.64 | 1 | " | " | " | " | " | |
| 79-01-6 | Trichloroethene | < 1.00 | | µg/l | 1.00 | 0.76 | 1 | " | " | " | " | " | |
| 75-69-4 | Trichlorofluoromethane (Freon 11) | < 1.00 | | µg/l | 1.00 | 0.63 | 1 | " | " | " | " | " | |
| 96-18-4 | 1,2,3-Trichloropropane | < 1.00 | | µg/l | 1.00 | 0.74 | 1 | " | " | " | " | " | |
| 95-63-6 | 1,2,4-Trimethylbenzene | < 1.00 | | µg/l | 1.00 | 0.76 | 1 | " | " | " | " | " | |
| 108-67-8 | 1,3,5-Trimethylbenzene | < 1.00 | | µg/l | 1.00 | 0.74 | 1 | " | " | " | " | " | |
| 75-01-4 | Vinyl chloride | < 1.00 | | µg/l | 1.00 | 0.81 | 1 | " | " | " | " | " | |
| 179601-23-1 | m,p-Xylene | < 2.00 | | µg/l | 2.00 | 1.64 | 1 | " | " | " | " | " | |
| 95-47-6 | o-Xylene | < 1.00 | | µg/l | 1.00 | 0.88 | 1 | " | " | " | " | " | |
| 109-99-9 | Tetrahydrofuran | < 2.00 | | µg/l | 2.00 | 1.44 | 1 | " | " | " | " | " | |
| 60-29-7 | Ethyl ether | < 1.00 | | µg/l | 1.00 | 0.69 | 1 | " | " | " | " | " | |
| 994-05-8 | Tert-amyl methyl ether | < 1.00 | | µg/l | 1.00 | 0.72 | 1 | " | " | " | " | " | |
| 637-92-3 | Ethyl tert-butyl ether | < 1.00 | | µg/l | 1.00 | 0.78 | 1 | " | " | " | " | " | |
| 108-20-3 | Di-isopropyl ether | < 1.00 | | µg/l | 1.00 | 0.73 | 1 | " | " | " | " | " | |
| 75-65-0 | Tert-Butanol / butyl alcohol | < 10.0 | | µg/l | 10.0 | 8.64 | 1 | " | " | " | " | " | |
| 123-91-1 | 1,4-Dioxane | < 20.0 | | µg/l | 20.0 | 14.0 | 1 | " | " | " | " | " | |
| 110-57-6 | trans-1,4-Dichloro-2-buten e | < 5.00 | | µg/l | 5.00 | 0.77 | 1 | " | " | " | " | " | |
| 64-17-5 | Ethanol | < 400 | | µg/l | 400 | 35.7 | 1 | " | " | " | " | " | |
| *Surrogate recoveries:* | | | | | | | | | | | | | |
| *460-00-4* | *4-Bromofluorobenzene* | *97* | | | *70-130 %* | | | " | " | " | " | " | |
| *2037-26-5* | *Toluene-d8* | *96* | | | *70-130 %* | | | " | " | " | " | " | |
| *17060-07-0* | *1,2-Dichloroethane-d4* | *106* | | | *70-130 %* | | | " | " | " | " | " | |
| *1868-53-7* | *Dibromofluoromethane* | *103* | | | *70-130 %* | | | " | " | " | " | " | |

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1307022 - SW846 5030 Water MS** | | | | | | | | | | |
| **Blank (1307022-BLK1)** | | | | | Prepared & Analyzed: 29-Mar-13 | | | | | |
| 1,1,2-Trichlorotrifluoroethane (Freon 113) | < 1.00 | | µg/l | 1.00 | | | | | | |
| Acetone | < 10.0 | | µg/l | 10.0 | | | | | | |
| Acrylonitrile | < 0.50 | | µg/l | 0.50 | | | | | | |
| Benzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| Bromobenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| Bromochloromethane | < 1.00 | | µg/l | 1.00 | | | | | | |
| Bromodichloromethane | < 0.50 | | µg/l | 0.50 | | | | | | |
| Bromoform | < 1.00 | | µg/l | 1.00 | | | | | | |
| Bromomethane | < 2.00 | | µg/l | 2.00 | | | | | | |
| 2-Butanone (MEK) | < 10.0 | | µg/l | 10.0 | | | | | | |
| n-Butylbenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| sec-Butylbenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| tert-Butylbenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| Carbon disulfide | < 2.00 | | µg/l | 2.00 | | | | | | |
| Carbon tetrachloride | < 1.00 | | µg/l | 1.00 | | | | | | |
| Chlorobenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| Chloroethane | < 2.00 | | µg/l | 2.00 | | | | | | |
| Chloroform | < 1.00 | | µg/l | 1.00 | | | | | | |
| Chloromethane | < 2.00 | | µg/l | 2.00 | | | | | | |
| 2-Chlorotoluene | < 1.00 | | µg/l | 1.00 | | | | | | |
| 4-Chlorotoluene | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,2-Dibromo-3-chloropropane | < 2.00 | | µg/l | 2.00 | | | | | | |
| Dibromochloromethane | < 0.50 | | µg/l | 0.50 | | | | | | |
| 1,2-Dibromoethane (EDB) | < 0.50 | | µg/l | 0.50 | | | | | | |
| Dibromomethane | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,2-Dichlorobenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,3-Dichlorobenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,4-Dichlorobenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| Dichlorodifluoromethane (Freon12) | < 2.00 | | µg/l | 2.00 | | | | | | |
| 1,1-Dichloroethane | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,2-Dichloroethane | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,1-Dichloroethene | < 1.00 | | µg/l | 1.00 | | | | | | |
| cis-1,2-Dichloroethene | < 1.00 | | µg/l | 1.00 | | | | | | |
| trans-1,2-Dichloroethene | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,2-Dichloropropane | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,3-Dichloropropane | < 1.00 | | µg/l | 1.00 | | | | | | |
| 2,2-Dichloropropane | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,1-Dichloropropene | < 1.00 | | µg/l | 1.00 | | | | | | |
| cis-1,3-Dichloropropene | < 0.50 | | µg/l | 0.50 | | | | | | |
| trans-1,3-Dichloropropene | < 0.50 | | µg/l | 0.50 | | | | | | |
| Ethylbenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| Hexachlorobutadiene | < 0.50 | | µg/l | 0.50 | | | | | | |
| 2-Hexanone (MBK) | < 10.0 | | µg/l | 10.0 | | | | | | |
| Isopropylbenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| 4-Isopropyltoluene | < 1.00 | | µg/l | 1.00 | | | | | | |
| Methyl tert-butyl ether | < 1.00 | | µg/l | 1.00 | | | | | | |
| 4-Methyl-2-pentanone (MIBK) | < 10.0 | | µg/l | 10.0 | | | | | | |
| Methylene chloride | < 2.00 | | µg/l | 2.00 | | | | | | |
| Naphthalene | < 1.00 | | µg/l | 1.00 | | | | | | |
| n-Propylbenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| Styrene | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,1,1,2-Tetrachloroethane | < 1.00 | | µg/l | 1.00 | | | | | | |

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1307022 - SW846 5030 Water MS** | | | | | | | | | | |
| **Blank (1307022-BLK1)** | | | | | Prepared & Analyzed: 29-Mar-13 | | | | | |
| 1,1,2,2-Tetrachloroethane | < 0.50 | | µg/l | 0.50 | | | | | | |
| Tetrachloroethene | < 1.00 | | µg/l | 1.00 | | | | | | |
| Toluene | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,2,3-Trichlorobenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,2,4-Trichlorobenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,3,5-Trichlorobenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,1,1-Trichloroethane | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,1,2-Trichloroethane | < 1.00 | | µg/l | 1.00 | | | | | | |
| Trichloroethene | < 1.00 | | µg/l | 1.00 | | | | | | |
| Trichlorofluoromethane (Freon 11) | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,2,3-Trichloropropane | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,2,4-Trimethylbenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| 1,3,5-Trimethylbenzene | < 1.00 | | µg/l | 1.00 | | | | | | |
| Vinyl chloride | < 1.00 | | µg/l | 1.00 | | | | | | |
| m,p-Xylene | < 2.00 | | µg/l | 2.00 | | | | | | |
| o-Xylene | < 1.00 | | µg/l | 1.00 | | | | | | |
| Tetrahydrofuran | < 2.00 | | µg/l | 2.00 | | | | | | |
| Ethyl ether | < 1.00 | | µg/l | 1.00 | | | | | | |
| Tert-amyl methyl ether | < 1.00 | | µg/l | 1.00 | | | | | | |
| Ethyl tert-butyl ether | < 1.00 | | µg/l | 1.00 | | | | | | |
| Di-isopropyl ether | < 1.00 | | µg/l | 1.00 | | | | | | |
| Tert-Butanol / butyl alcohol | < 10.0 | | µg/l | 10.0 | | | | | | |
| 1,4-Dioxane | < 20.0 | | µg/l | 20.0 | | | | | | |
| trans-1,4-Dichloro-2-butene | < 5.00 | | µg/l | 5.00 | | | | | | |
| Ethanol | < 400 | | µg/l | 400 | | | | | | |
| *Surrogate: 4-Bromofluorobenzene* | *48.4* | | µg/l | | *50.0* | | *97* | *70-130* | | |
| *Surrogate: Toluene-d8* | *48.1* | | µg/l | | *50.0* | | *96* | *70-130* | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *53.5* | | µg/l | | *50.0* | | *107* | *70-130* | | |
| *Surrogate: Dibromofluoromethane* | *51.8* | | µg/l | | *50.0* | | *104* | *70-130* | | |
| **LCS (1307022-BS1)** | | | | | Prepared & Analyzed: 29-Mar-13 | | | | | |
| 1,1,2-Trichlorotrifluoroethane (Freon 113) | **20.9** | | µg/l | | 20.0 | | 105 | 70-130 | | |
| Acetone | **19.4** | | µg/l | | 20.0 | | 97 | 70-130 | | |
| Acrylonitrile | **20.2** | | µg/l | | 20.0 | | 101 | 70-130 | | |
| Benzene | **20.4** | | µg/l | | 20.0 | | 102 | 70-130 | | |
| Bromobenzene | **20.5** | | µg/l | | 20.0 | | 102 | 70-130 | | |
| Bromochloromethane | **21.0** | | µg/l | | 20.0 | | 105 | 70-130 | | |
| Bromodichloromethane | **23.1** | | µg/l | | 20.0 | | 115 | 70-130 | | |
| Bromoform | **23.3** | | µg/l | | 20.0 | | 117 | 70-130 | | |
| Bromomethane | **20.5** | | µg/l | | 20.0 | | 102 | 70-130 | | |
| 2-Butanone (MEK) | **20.1** | | µg/l | | 20.0 | | 101 | 70-130 | | |
| n-Butylbenzene | **21.8** | | µg/l | | 20.0 | | 109 | 70-130 | | |
| sec-Butylbenzene | **23.2** | | µg/l | | 20.0 | | 116 | 70-130 | | |
| tert-Butylbenzene | **22.5** | | µg/l | | 20.0 | | 113 | 70-130 | | |
| Carbon disulfide | **19.3** | | µg/l | | 20.0 | | 97 | 70-130 | | |
| Carbon tetrachloride | **22.9** | | µg/l | | 20.0 | | 115 | 70-130 | | |
| Chlorobenzene | **20.3** | | µg/l | | 20.0 | | 101 | 70-130 | | |
| Chloroethane | **18.8** | | µg/l | | 20.0 | | 94 | 70-130 | | |
| Chloroform | **20.3** | | µg/l | | 20.0 | | 101 | 70-130 | | |
| Chloromethane | **17.5** | | µg/l | | 20.0 | | 88 | 70-130 | | |
| 2-Chlorotoluene | **20.8** | | µg/l | | 20.0 | | 104 | 70-130 | | |
| 4-Chlorotoluene | **22.1** | | µg/l | | 20.0 | | 111 | 70-130 | | |

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1307022 - SW846 5030 Water MS** | | | | | | | | | | |
| **LCS (1307022-BS1)** | | | | | Prepared & Analyzed: 29-Mar-13 | | | | | |
| 1,2-Dibromo-3-chloropropane | **24.5** | | µg/l | | 20.0 | | 122 | 70-130 | | |
| Dibromochloromethane | **25.5** | | µg/l | | 20.0 | | 127 | 70-130 | | |
| 1,2-Dibromoethane (EDB) | **20.9** | | µg/l | | 20.0 | | 104 | 70-130 | | |
| Dibromomethane | **19.6** | | µg/l | | 20.0 | | 98 | 70-130 | | |
| 1,2-Dichlorobenzene | **21.0** | | µg/l | | 20.0 | | 105 | 70-130 | | |
| 1,3-Dichlorobenzene | **21.1** | | µg/l | | 20.0 | | 105 | 70-130 | | |
| 1,4-Dichlorobenzene | **19.4** | | µg/l | | 20.0 | | 97 | 70-130 | | |
| Dichlorodifluoromethane (Freon12) | **19.5** | | µg/l | | 20.0 | | 97 | 70-130 | | |
| 1,1-Dichloroethane | **16.9** | | µg/l | | 20.0 | | 84 | 70-130 | | |
| 1,2-Dichloroethane | **20.4** | | µg/l | | 20.0 | | 102 | 70-130 | | |
| 1,1-Dichloroethene | **20.4** | | µg/l | | 20.0 | | 102 | 70-130 | | |
| cis-1,2-Dichloroethene | **20.8** | | µg/l | | 20.0 | | 104 | 70-130 | | |
| trans-1,2-Dichloroethene | **18.6** | | µg/l | | 20.0 | | 93 | 70-130 | | |
| 1,2-Dichloropropane | **19.6** | | µg/l | | 20.0 | | 98 | 70-130 | | |
| 1,3-Dichloropropane | **19.2** | | µg/l | | 20.0 | | 96 | 70-130 | | |
| 2,2-Dichloropropane | **22.4** | | µg/l | | 20.0 | | 112 | 70-130 | | |
| 1,1-Dichloropropene | **22.4** | | µg/l | | 20.0 | | 112 | 70-130 | | |
| cis-1,3-Dichloropropene | **21.8** | | µg/l | | 20.0 | | 109 | 70-130 | | |
| trans-1,3-Dichloropropene | **22.1** | | µg/l | | 20.0 | | 110 | 70-130 | | |
| Ethylbenzene | **21.3** | | µg/l | | 20.0 | | 107 | 70-130 | | |
| Hexachlorobutadiene | **24.1** | | µg/l | | 20.0 | | 120 | 70-130 | | |
| 2-Hexanone (MBK) | **17.8** | | µg/l | | 20.0 | | 89 | 70-130 | | |
| Isopropylbenzene | **20.6** | | µg/l | | 20.0 | | 103 | 70-130 | | |
| 4-Isopropyltoluene | **22.4** | | µg/l | | 20.0 | | 112 | 70-130 | | |
| Methyl tert-butyl ether | **17.4** | | µg/l | | 20.0 | | 87 | 70-130 | | |
| 4-Methyl-2-pentanone (MIBK) | **19.2** | | µg/l | | 20.0 | | 96 | 70-130 | | |
| Methylene chloride | **18.1** | | µg/l | | 20.0 | | 91 | 70-130 | | |
| Naphthalene | **25.5** | | µg/l | | 20.0 | | 128 | 70-130 | | |
| n-Propylbenzene | **22.2** | | µg/l | | 20.0 | | 111 | 70-130 | | |
| Styrene | **20.4** | | µg/l | | 20.0 | | 102 | 70-130 | | |
| 1,1,1,2-Tetrachloroethane | **26.3** | QM9 | µg/l | | 20.0 | | 132 | 70-130 | | |
| 1,1,2,2-Tetrachloroethane | **20.6** | | µg/l | | 20.0 | | 103 | 70-130 | | |
| Tetrachloroethene | **22.4** | | µg/l | | 20.0 | | 112 | 70-130 | | |
| Toluene | **20.6** | | µg/l | | 20.0 | | 103 | 70-130 | | |
| 1,2,3-Trichlorobenzene | **23.6** | | µg/l | | 20.0 | | 118 | 70-130 | | |
| 1,2,4-Trichlorobenzene | **22.3** | | µg/l | | 20.0 | | 111 | 70-130 | | |
| 1,3,5-Trichlorobenzene | **23.5** | | µg/l | | 20.0 | | 117 | 70-130 | | |
| 1,1,1-Trichloroethane | **24.2** | | µg/l | | 20.0 | | 121 | 70-130 | | |
| 1,1,2-Trichloroethane | **20.5** | | µg/l | | 20.0 | | 102 | 70-130 | | |
| Trichloroethene | **19.2** | | µg/l | | 20.0 | | 96 | 70-130 | | |
| Trichlorofluoromethane (Freon 11) | **21.8** | | µg/l | | 20.0 | | 109 | 70-130 | | |
| 1,2,3-Trichloropropane | **20.3** | | µg/l | | 20.0 | | 101 | 70-130 | | |
| 1,2,4-Trimethylbenzene | **22.4** | | µg/l | | 20.0 | | 112 | 70-130 | | |
| 1,3,5-Trimethylbenzene | **22.2** | | µg/l | | 20.0 | | 111 | 70-130 | | |
| Vinyl chloride | **17.9** | | µg/l | | 20.0 | | 89 | 70-130 | | |
| m,p-Xylene | **42.5** | | µg/l | | 40.0 | | 106 | 70-130 | | |
| o-Xylene | **20.5** | | µg/l | | 20.0 | | 102 | 70-130 | | |
| Tetrahydrofuran | **20.9** | | µg/l | | 20.0 | | 104 | 70-130 | | |
| Ethyl ether | **19.6** | | µg/l | | 20.0 | | 98 | 70-130 | | |
| Tert-amyl methyl ether | **13.7** | QC2 | µg/l | | 20.0 | | 68 | 70-130 | | |
| Ethyl tert-butyl ether | **16.6** | | µg/l | | 20.0 | | 83 | 70-130 | | |
| Di-isopropyl ether | **20.0** | | µg/l | | 20.0 | | 100 | 70-130 | | |

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1307022 - SW846 5030 Water MS** | | | | | | | | | | |
| **LCS (1307022-BS1)** | | | | | Prepared & Analyzed: 29-Mar-13 | | | | | |
| Tert-Butanol / butyl alcohol | **232** | | µg/l | | 200 | | 116 | 70-130 | | |
| 1,4-Dioxane | **198** | | µg/l | | 200 | | 99 | 70-130 | | |
| trans-1,4-Dichloro-2-butene | **20.8** | | µg/l | | 20.0 | | 104 | 70-130 | | |
| Ethanol | **458** | | µg/l | | 400 | | 115 | 70-130 | | |
| *Surrogate: 4-Bromofluorobenzene* | *49.6* | | µg/l | | *50.0* | | *99* | *70-130* | | |
| *Surrogate: Toluene-d8* | *50.0* | | µg/l | | *50.0* | | *100* | *70-130* | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *50.7* | | µg/l | | *50.0* | | *101* | *70-130* | | |
| *Surrogate: Dibromofluoromethane* | *50.1* | | µg/l | | *50.0* | | *100* | *70-130* | | |
| **LCS Dup (1307022-BSD1)** | | | | | Prepared & Analyzed: 29-Mar-13 | | | | | |
| 1,1,2-Trichlorotrifluoroethane (Freon 113) | **19.8** | | µg/l | | 20.0 | | 99 | 70-130 | 6 | 20 |
| Acetone | **18.2** | | µg/l | | 20.0 | | 91 | 70-130 | 6 | 20 |
| Acrylonitrile | **19.6** | | µg/l | | 20.0 | | 98 | 70-130 | 3 | 20 |
| Benzene | **19.1** | | µg/l | | 20.0 | | 96 | 70-130 | 7 | 20 |
| Bromobenzene | **20.5** | | µg/l | | 20.0 | | 103 | 70-130 | 0.1 | 20 |
| Bromochloromethane | **20.2** | | µg/l | | 20.0 | | 101 | 70-130 | 4 | 20 |
| Bromodichloromethane | **21.7** | | µg/l | | 20.0 | | 108 | 70-130 | 6 | 20 |
| Bromoform | **23.4** | | µg/l | | 20.0 | | 117 | 70-130 | 0.09 | 20 |
| Bromomethane | **19.0** | | µg/l | | 20.0 | | 95 | 70-130 | 7 | 20 |
| 2-Butanone (MEK) | **21.0** | | µg/l | | 20.0 | | 105 | 70-130 | 4 | 20 |
| n-Butylbenzene | **19.7** | | µg/l | | 20.0 | | 99 | 70-130 | 10 | 20 |
| sec-Butylbenzene | **22.2** | | µg/l | | 20.0 | | 111 | 70-130 | 4 | 20 |
| tert-Butylbenzene | **22.0** | | µg/l | | 20.0 | | 110 | 70-130 | 2 | 20 |
| Carbon disulfide | **18.0** | | µg/l | | 20.0 | | 90 | 70-130 | 7 | 20 |
| Carbon tetrachloride | **22.0** | | µg/l | | 20.0 | | 110 | 70-130 | 4 | 20 |
| Chlorobenzene | **19.9** | | µg/l | | 20.0 | | 100 | 70-130 | 2 | 20 |
| Chloroethane | **17.1** | | µg/l | | 20.0 | | 86 | 70-130 | 9 | 20 |
| Chloroform | **19.1** | | µg/l | | 20.0 | | 95 | 70-130 | 6 | 20 |
| Chloromethane | **16.2** | | µg/l | | 20.0 | | 81 | 70-130 | 8 | 20 |
| 2-Chlorotoluene | **19.7** | | µg/l | | 20.0 | | 98 | 70-130 | 5 | 20 |
| 4-Chlorotoluene | **20.9** | | µg/l | | 20.0 | | 105 | 70-130 | 6 | 20 |
| 1,2-Dibromo-3-chloropropane | **22.8** | | µg/l | | 20.0 | | 114 | 70-130 | 7 | 20 |
| Dibromochloromethane | **24.9** | | µg/l | | 20.0 | | 124 | 70-130 | 2 | 20 |
| 1,2-Dibromoethane (EDB) | **20.5** | | µg/l | | 20.0 | | 102 | 70-130 | 2 | 20 |
| Dibromomethane | **18.6** | | µg/l | | 20.0 | | 93 | 70-130 | 5 | 20 |
| 1,2-Dichlorobenzene | **20.3** | | µg/l | | 20.0 | | 102 | 70-130 | 3 | 20 |
| 1,3-Dichlorobenzene | **21.2** | | µg/l | | 20.0 | | 106 | 70-130 | 0.4 | 20 |
| 1,4-Dichlorobenzene | **18.6** | | µg/l | | 20.0 | | 93 | 70-130 | 4 | 20 |
| Dichlorodifluoromethane (Freon12) | **17.6** | | µg/l | | 20.0 | | 88 | 70-130 | 10 | 20 |
| 1,1-Dichloroethane | **17.7** | | µg/l | | 20.0 | | 89 | 70-130 | 5 | 20 |
| 1,2-Dichloroethane | **19.0** | | µg/l | | 20.0 | | 95 | 70-130 | 7 | 20 |
| 1,1-Dichloroethene | **19.1** | | µg/l | | 20.0 | | 96 | 70-130 | 7 | 20 |
| cis-1,2-Dichloroethene | **19.2** | | µg/l | | 20.0 | | 96 | 70-130 | 8 | 20 |
| trans-1,2-Dichloroethene | **18.8** | | µg/l | | 20.0 | | 94 | 70-130 | 1 | 20 |
| 1,2-Dichloropropane | **18.2** | | µg/l | | 20.0 | | 91 | 70-130 | 7 | 20 |
| 1,3-Dichloropropane | **18.1** | | µg/l | | 20.0 | | 90 | 70-130 | 6 | 20 |
| 2,2-Dichloropropane | **20.9** | | µg/l | | 20.0 | | 104 | 70-130 | 7 | 20 |
| 1,1-Dichloropropene | **20.8** | | µg/l | | 20.0 | | 104 | 70-130 | 7 | 20 |
| cis-1,3-Dichloropropene | **20.6** | | µg/l | | 20.0 | | 103 | 70-130 | 6 | 20 |
| trans-1,3-Dichloropropene | **21.0** | | µg/l | | 20.0 | | 105 | 70-130 | 5 | 20 |
| Ethylbenzene | **20.0** | | µg/l | | 20.0 | | 100 | 70-130 | 6 | 20 |
| Hexachlorobutadiene | **24.2** | | µg/l | | 20.0 | | 121 | 70-130 | 0.5 | 20 |

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1307022 - SW846 5030 Water MS** | | | | | | | | | | |
| **LCS Dup (1307022-BSD1)** | | | | | Prepared & Analyzed: 29-Mar-13 | | | | | |
| 2-Hexanone (MBK) | **16.7** | | µg/l | | 20.0 | | 84 | 70-130 | 6 | 20 |
| Isopropylbenzene | **19.8** | | µg/l | | 20.0 | | 99 | 70-130 | 4 | 20 |
| 4-Isopropyltoluene | **21.0** | | µg/l | | 20.0 | | 105 | 70-130 | 6 | 20 |
| Methyl tert-butyl ether | **18.0** | | µg/l | | 20.0 | | 90 | 70-130 | 4 | 20 |
| 4-Methyl-2-pentanone (MIBK) | **17.6** | | µg/l | | 20.0 | | 88 | 70-130 | 9 | 20 |
| Methylene chloride | **17.5** | | µg/l | | 20.0 | | 88 | 70-130 | 4 | 20 |
| Naphthalene | **24.3** | | µg/l | | 20.0 | | 121 | 70-130 | 5 | 20 |
| n-Propylbenzene | **20.7** | | µg/l | | 20.0 | | 104 | 70-130 | 7 | 20 |
| Styrene | **19.5** | | µg/l | | 20.0 | | 98 | 70-130 | 4 | 20 |
| 1,1,1,2-Tetrachloroethane | **26.1** | | µg/l | | 20.0 | | 130 | 70-130 | 0.9 | 20 |
| 1,1,2,2-Tetrachloroethane | **19.4** | | µg/l | | 20.0 | | 97 | 70-130 | 6 | 20 |
| Tetrachloroethene | **22.5** | | µg/l | | 20.0 | | 113 | 70-130 | 0.4 | 20 |
| Toluene | **19.6** | | µg/l | | 20.0 | | 98 | 70-130 | 5 | 20 |
| 1,2,3-Trichlorobenzene | **23.6** | | µg/l | | 20.0 | | 118 | 70-130 | 0.2 | 20 |
| 1,2,4-Trichlorobenzene | **22.3** | | µg/l | | 20.0 | | 112 | 70-130 | 0.2 | 20 |
| 1,3,5-Trichlorobenzene | **23.0** | | µg/l | | 20.0 | | 115 | 70-130 | 2 | 20 |
| 1,1,1-Trichloroethane | **23.3** | | µg/l | | 20.0 | | 116 | 70-130 | 4 | 20 |
| 1,1,2-Trichloroethane | **19.6** | | µg/l | | 20.0 | | 98 | 70-130 | 4 | 20 |
| Trichloroethene | **18.0** | | µg/l | | 20.0 | | 90 | 70-130 | 6 | 20 |
| Trichlorofluoromethane (Freon 11) | **20.6** | | µg/l | | 20.0 | | 103 | 70-130 | 6 | 20 |
| 1,2,3-Trichloropropane | **19.3** | | µg/l | | 20.0 | | 97 | 70-130 | 5 | 20 |
| 1,2,4-Trimethylbenzene | **21.6** | | µg/l | | 20.0 | | 108 | 70-130 | 4 | 20 |
| 1,3,5-Trimethylbenzene | **21.4** | | µg/l | | 20.0 | | 107 | 70-130 | 4 | 20 |
| Vinyl chloride | **15.8** | | µg/l | | 20.0 | | 79 | 70-130 | 12 | 20 |
| m,p-Xylene | **41.3** | | µg/l | | 40.0 | | 103 | 70-130 | 3 | 20 |
| o-Xylene | **20.1** | | µg/l | | 20.0 | | 101 | 70-130 | 2 | 20 |
| Tetrahydrofuran | **19.9** | | µg/l | | 20.0 | | 99 | 70-130 | 5 | 20 |
| Ethyl ether | **18.9** | | µg/l | | 20.0 | | 94 | 70-130 | 4 | 20 |
| Tert-amyl methyl ether | **12.7** | QC2 | µg/l | | 20.0 | | 63 | 70-130 | 8 | 20 |
| Ethyl tert-butyl ether | **15.6** | | µg/l | | 20.0 | | 78 | 70-130 | 7 | 20 |
| Di-isopropyl ether | **17.9** | | µg/l | | 20.0 | | 90 | 70-130 | 11 | 20 |
| Tert-Butanol / butyl alcohol | **220** | | µg/l | | 200 | | 110 | 70-130 | 5 | 20 |
| 1,4-Dioxane | **200** | | µg/l | | 200 | | 100 | 70-130 | 0.9 | 20 |
| trans-1,4-Dichloro-2-butene | **21.0** | | µg/l | | 20.0 | | 105 | 70-130 | 0.9 | 20 |
| Ethanol | **413** | | µg/l | | 400 | | 103 | 70-130 | 10 | 20 |
| *Surrogate: 4-Bromofluorobenzene* | *48.8* | | µg/l | | *50.0* | | *98* | *70-130* | | |
| *Surrogate: Toluene-d8* | *50.1* | | µg/l | | *50.0* | | *100* | *70-130* | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *49.5* | | µg/l | | *50.0* | | *99* | *70-130* | | |
| *Surrogate: Dibromofluoromethane* | *50.1* | | µg/l | | *50.0* | | *100* | *70-130* | | |

## Microextractable Organic Compounds - Quality Control

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1307196 - General Preparation SVOC** | | | | | | | | | | |
| **Blank (1307196-BLK1)** | | | | | | Prepared & Analyzed: 02-Apr-13 | | | | |
| 1,2-Dibromoethane (EDB) | < 0.0100 | | µg/l | 0.0100 | | | | | | |
| **LCS (1307196-BS1)** | | | | | | Prepared & Analyzed: 02-Apr-13 | | | | |
| 1,2-Dibromoethane (EDB) | **0.205** | | µg/l | 0.0100 | 0.200 | | 102 | 50-150 | | |
| **LCS Dup (1307196-BSD1)** | | | | | | Prepared & Analyzed: 02-Apr-13 | | | | |
| 1,2-Dibromoethane (EDB) | **0.196** | | µg/l | 0.0100 | 0.200 | | 98 | 50-150 | 4 | 50 |
| **Duplicate (1307196-DUP1)** | | | **Source: SB66714-01** | | | Prepared & Analyzed: 02-Apr-13 | | | | |
| 1,2-Dibromoethane (EDB) | < 0.0100 | | µg/l | 0.0100 | | BRL | | | | 30 |

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1307194 - SW846 3510C** | | | | | | | | | | |
| **Blank (1307194-BLK1)** | | | | | Prepared & Analyzed: 02-Apr-13 | | | | | |
| Aroclor-1016 | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1016 [2C] | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1221 | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1221 [2C] | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1232 | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1232 [2C] | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1242 | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1242 [2C] | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1248 | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1248 [2C] | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1254 | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1254 [2C] | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1260 | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1260 [2C] | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1262 | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1262 [2C] | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1268 | < 0.200 | | µg/l | 0.200 | | | | | | |
| Aroclor-1268 [2C] | < 0.200 | | µg/l | 0.200 | | | | | | |
| *Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)* | *0.170* | | µg/l | | *0.200* | | *85* | *30-150* | | |
| *Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]* | *0.200* | | µg/l | | *0.200* | | *100* | *30-150* | | |
| *Surrogate: Decachlorobiphenyl (Sr)* | *0.190* | | µg/l | | *0.200* | | *95* | *30-150* | | |
| *Surrogate: Decachlorobiphenyl (Sr) [2C]* | *0.210* | | µg/l | | *0.200* | | *105* | *30-150* | | |
| **LCS (1307194-BS1)** | | | | | Prepared & Analyzed: 02-Apr-13 | | | | | |
| Aroclor-1016 | **2.11** | | µg/l | 0.200 | 2.50 | | 84 | 50-114 | | |
| Aroclor-1016 [2C] | **2.00** | | µg/l | 0.200 | 2.50 | | 80 | 50-114 | | |
| Aroclor-1260 | **1.92** | | µg/l | 0.200 | 2.50 | | 77 | 40-127 | | |
| Aroclor-1260 [2C] | **1.94** | | µg/l | 0.200 | 2.50 | | 78 | 40-127 | | |
| *Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)* | *0.150* | | µg/l | | *0.200* | | *75* | *30-150* | | |
| *Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]* | *0.160* | | µg/l | | *0.200* | | *80* | *30-150* | | |
| *Surrogate: Decachlorobiphenyl (Sr)* | *0.180* | | µg/l | | *0.200* | | *90* | *30-150* | | |
| *Surrogate: Decachlorobiphenyl (Sr) [2C]* | *0.190* | | µg/l | | *0.200* | | *95* | *30-150* | | |
| **LCS Dup (1307194-BSD1)** | | | | | Prepared & Analyzed: 02-Apr-13 | | | | | |
| Aroclor-1016 | **2.15** | | µg/l | 0.200 | 2.50 | | 86 | 50-114 | 2 | 20 |
| Aroclor-1016 [2C] | **2.03** | | µg/l | 0.200 | 2.50 | | 81 | 50-114 | 1 | 20 |
| Aroclor-1260 | **1.90** | | µg/l | 0.200 | 2.50 | | 76 | 40-127 | 1 | 20 |
| Aroclor-1260 [2C] | **1.97** | | µg/l | 0.200 | 2.50 | | 79 | 40-127 | 2 | 20 |
| *Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)* | *0.150* | | µg/l | | *0.200* | | *75* | *30-150* | | |
| *Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]* | *0.160* | | µg/l | | *0.200* | | *80* | *30-150* | | |
| *Surrogate: Decachlorobiphenyl (Sr)* | *0.180* | | µg/l | | *0.200* | | *90* | *30-150* | | |
| *Surrogate: Decachlorobiphenyl (Sr) [2C]* | *0.190* | | µg/l | | *0.200* | | *95* | *30-150* | | |

## Extractable Petroleum Hydrocarbons - Quality Control

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1307084 - SW846 3510C** | | | | | | | | | | |
| **Blank (1307084-BLK1)** | | | | | | Prepared: 01-Apr-13 Analyzed: 02-Apr-13 | | | | |
| Non-polar material (SGT-HEM) | < 1.0 | | mg/l | 1.0 | | | | | | |
| **LCS (1307084-BS1)** | | | | | | Prepared: 01-Apr-13 Analyzed: 02-Apr-13 | | | | |
| Non-polar material (SGT-HEM) | **21.5** | | mg/l | | 25.4 | | 85 | 83-101 | | |

## Total Metals by EPA 200 Series Methods - Quality Control

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1307011 - EPA 200 Series** | | | | | | | | | | |
| **Blank (1307011-BLK1)** | | | | | | Prepared & Analyzed: 01-Apr-13 | | | | |
| Zinc | < 0.0300 | | mg/l | 0.0300 | | | | | | |
| Iron | < 0.0500 | | mg/l | 0.0500 | | | | | | |
| Antimony | < 0.0060 | | mg/l | 0.0060 | | | | | | |
| Nickel | < 0.0050 | | mg/l | 0.0050 | | | | | | |
| Selenium | < 0.0150 | | mg/l | 0.0150 | | | | | | |
| Silver | < 0.0050 | | mg/l | 0.0050 | | | | | | |
| Copper | < 0.0050 | | mg/l | 0.0050 | | | | | | |
| Chromium | < 0.0050 | | mg/l | 0.0050 | | | | | | |
| Arsenic | < 0.0040 | | mg/l | 0.0040 | | | | | | |
| Cadmium | < 0.0025 | | mg/l | 0.0025 | | | | | | |
| **LCS (1307011-BS1)** | | | | | | Prepared & Analyzed: 01-Apr-13 | | | | |
| Nickel | **1.26** | | mg/l | 0.0050 | 1.25 | | 101 | 85-115 | | |
| Selenium | **1.33** | | mg/l | 0.0150 | 1.25 | | 106 | 85-115 | | |
| Zinc | **1.30** | | mg/l | 0.0300 | 1.25 | | 104 | 85-115 | | |
| Iron | **1.35** | | mg/l | 0.0500 | 1.25 | | 108 | 85-115 | | |
| Antimony | **1.32** | | mg/l | 0.0060 | 1.25 | | 106 | 85-115 | | |
| Silver | **1.26** | | mg/l | 0.0050 | 1.25 | | 101 | 85-115 | | |
| Arsenic | **1.38** | | mg/l | 0.0040 | 1.25 | | 110 | 85-115 | | |
| Cadmium | **1.36** | | mg/l | 0.0025 | 1.25 | | 108 | 85-115 | | |
| Chromium | **1.22** | | mg/l | 0.0050 | 1.25 | | 97 | 85-115 | | |
| Copper | **1.29** | | mg/l | 0.0050 | 1.25 | | 103 | 85-115 | | |
| **Batch 1307014 - EPA200/SW7000 Series** | | | | | | | | | | |
| **Blank (1307014-BLK1)** | | | | | | Prepared: 01-Apr-13 Analyzed: 02-Apr-13 | | | | |
| Mercury | < 0.00020 | | mg/l | 0.00020 | | | | | | |
| **LCS (1307014-BS1)** | | | | | | Prepared: 01-Apr-13 Analyzed: 02-Apr-13 | | | | |
| Mercury | **0.00462** | | mg/l | 0.00020 | 0.00500 | | 92 | 85-115 | | |
| **Duplicate (1307014-DUP1)** | | | **Source: SB66714-01** | | | Prepared: 01-Apr-13 Analyzed: 02-Apr-13 | | | | |
| Mercury | < 0.00020 | | mg/l | 0.00020 | | BRL | | | | 20 |
| **Matrix Spike (1307014-MS1)** | | | **Source: SB66714-01** | | | Prepared: 01-Apr-13 Analyzed: 02-Apr-13 | | | | |
| Mercury | **0.00461** | | mg/l | 0.00020 | 0.00500 | BRL | 92 | 80-120 | | |
| **Post Spike (1307014-PS1)** | | | **Source: SB66714-01** | | | Prepared: 01-Apr-13 Analyzed: 02-Apr-13 | | | | |
| Mercury | **0.00443** | | mg/l | 0.00020 | 0.00500 | BRL | 89 | 85-115 | | |
| **Batch 1307016 - EPA 200 Series** | | | | | | | | | | |
| **Blank (1307016-BLK1)** | | | | | | Prepared: 01-Apr-13 Analyzed: 02-Apr-13 | | | | |
| Lead | < 0.00050 | | mg/l | 0.00050 | | | | | | |
| **LCS (1307016-BS1)** | | | | | | Prepared: 01-Apr-13 Analyzed: 02-Apr-13 | | | | |
| Lead | **0.0995** | D | mg/l | 0.00500 | 0.100 | | 99 | 85-115 | | |
| **Duplicate (1307016-DUP1)** | | | **Source: SB66714-01** | | | Prepared: 01-Apr-13 Analyzed: 02-Apr-13 | | | | |
| Lead | **0.00004** | J,QR8 | mg/l | 0.00050 | | 0.00006 | | | 34 | 20 |
| **Matrix Spike (1307016-MS1)** | | | **Source: SB66714-01** | | | Prepared: 01-Apr-13 Analyzed: 02-Apr-13 | | | | |
| Lead | **0.0953** | D | mg/l | 0.00500 | 0.100 | 0.00006 | 95 | 70-130 | | |
| **Post Spike (1307016-PS1)** | | | **Source: SB66714-01** | | | Prepared: 01-Apr-13 Analyzed: 02-Apr-13 | | | | |
| Lead | **0.106** | D | mg/l | 0.00500 | 0.100 | 0.00006 | 106 | 85-115 | | |

## General Chemistry Parameters - Quality Control

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1306940 - General Preparation** | | | | | | | | | | |
| **Blank (1306940-BLK1)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Hexavalent Chromium | < 0.005 | | mg/l | 0.005 | | | | | | |
| **LCS (1306940-BS1)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Hexavalent Chromium | **0.055** | | mg/l | 0.005 | 0.0500 | | 110 | 80-120 | | |
| **Calibration Blank (1306940-CCB1)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Hexavalent Chromium | **0.002** | | mg/l | | | | | | | |
| **Calibration Blank (1306940-CCB2)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Hexavalent Chromium | **0.00** | | mg/l | | | | | | | |
| **Calibration Check (1306940-CCV1)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Hexavalent Chromium | **0.054** | | mg/l | 0.005 | 0.0500 | | 108 | 85-115 | | |
| **Calibration Check (1306940-CCV2)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Hexavalent Chromium | **0.047** | | mg/l | 0.005 | 0.0500 | | 94 | 85-115 | | |
| **Duplicate (1306940-DUP1)** | | | **Source: SB66714-01** | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Hexavalent Chromium | < 0.005 | | mg/l | 0.005 | | BRL | | | | 20 |
| **Matrix Spike (1306940-MS1)** | | | **Source: SB66714-01** | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Hexavalent Chromium | **0.046** | | mg/l | 0.005 | 0.0500 | BRL | 92 | 85-115 | | |
| **Matrix Spike Dup (1306940-MSD1)** | | | **Source: SB66714-01** | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Hexavalent Chromium | **0.046** | | mg/l | 0.005 | 0.0500 | BRL | 92 | 85-115 | 0 | 20 |
| **Reference (1306940-SRM1)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Hexavalent Chromium | **0.024** | | mg/l | 0.005 | 0.0250 | | 96 | 85-115 | | |
| **Batch 1306944 - General Preparation** | | | | | | | | | | |
| **Blank (1306944-BLK1)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Total Residual Chlorine | < 0.020 | | mg/l | 0.020 | | | | | | |
| **LCS (1306944-BS1)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Total Residual Chlorine | **0.054** | | mg/l | 0.020 | 0.0500 | | 108 | 90-110 | | |
| **Calibration Blank (1306944-CCB1)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Total Residual Chlorine | **0.003** | | mg/l | | | | | | | |
| **Calibration Blank (1306944-CCB2)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Total Residual Chlorine | **0.003** | | mg/l | | | | | | | |
| **Calibration Check (1306944-CCV1)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Total Residual Chlorine | **0.054** | | mg/l | 0.020 | 0.0500 | | 108 | 90-110 | | |
| **Calibration Check (1306944-CCV2)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Total Residual Chlorine | **0.054** | | mg/l | 0.020 | 0.0500 | | 108 | 90-110 | | |
| **Duplicate (1306944-DUP1)** | | | **Source: SB66714-01** | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Total Residual Chlorine | < 0.020 | | mg/l | 0.020 | | BRL | | | | 20 |
| **Matrix Spike (1306944-MS1)** | | | **Source: SB66714-01** | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Total Residual Chlorine | < 0.020 | QM7 | mg/l | 0.020 | 0.0500 | BRL | | 80-120 | | |
| **Matrix Spike Dup (1306944-MSD1)** | | | **Source: SB66714-01** | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Total Residual Chlorine | < 0.020 | QM7 | mg/l | 0.020 | 0.0500 | BRL | | 80-120 | | 200 |
| **Reference (1306944-SRM1)** | | | | | | Prepared & Analyzed: 28-Mar-13 | | | | |
| Total Residual Chlorine | **0.113** | | mg/l | 0.020 | 0.110 | | 102 | 85-115 | | |
| **Batch 1307004 - General Preparation** | | | | | | | | | | |
| **Blank (1307004-BLK1)** | | | | | | Prepared: 29-Mar-13 Analyzed: 01-Apr-13 | | | | |
| Total Suspended Solids | < 5 | | mg/l | 5 | | | | | | |
| **LCS (1307004-BS1)** | | | | | | Prepared: 29-Mar-13 Analyzed: 01-Apr-13 | | | | |
| Total Suspended Solids | **96** | | mg/l | 10 | 100 | | 96 | 90-110 | | |
| **Batch 1307248 - General Preparation** | | | | | | | | | | |
| **Blank (1307248-BLK1)** | | | | | | Prepared & Analyzed: 02-Apr-13 | | | | |
| Cyanide (total) | < 0.00500 | | mg/l | 0.00500 | | | | | | |
| **LCS (1307248-BS1)** | | | | | | Prepared & Analyzed: 02-Apr-13 | | | | |

## General Chemistry Parameters - Quality Control

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1307248 - General Preparation** | | | | | | | | | | |
| **LCS (1307248-BS1)** | | | | | | Prepared & Analyzed: 02-Apr-13 | | | | |
| Cyanide (total) | **0.303** | | mg/l | 0.00500 | 0.300 | | 101 | 90-110 | | |
| **Duplicate (1307248-DUP1)** | | | **Source: SB66714-01** | | | Prepared & Analyzed: 02-Apr-13 | | | | |
| Cyanide (total) | < 0.00500 | | mg/l | 0.00500 | | BRL | | | | 20 |
| **Matrix Spike (1307248-MS1)** | | | **Source: SB66714-01** | | | Prepared & Analyzed: 02-Apr-13 | | | | |
| Cyanide (total) | **0.321** | | mg/l | 0.00500 | 0.300 | BRL | 107 | 90-110 | | |
| **Matrix Spike Dup (1307248-MSD1)** | | | **Source: SB66714-01** | | | Prepared & Analyzed: 02-Apr-13 | | | | |
| Cyanide (total) | **0.290** | | mg/l | 0.00500 | 0.300 | BRL | 97 | 90-110 | 10 | 20 |
| **Reference (1307248-SRM1)** | | | | | | Prepared & Analyzed: 02-Apr-13 | | | | |
| Cyanide (total) | **0.143** | | mg/l | 0.00500 | 0.167 | | 86 | 64-136 | | |
| **Batch 1307271 - General Preparation** | | | | | | | | | | |
| **Blank (1307271-BLK1)** | | | | | | Prepared & Analyzed: 02-Apr-13 | | | | |
| Chloride | < 1.00 | | mg/l | 1.00 | | | | | | |
| **LCS (1307271-BS1)** | | | | | | Prepared & Analyzed: 02-Apr-13 | | | | |
| Chloride | **21.5** | | mg/l | 1.00 | 20.0 | | 108 | 90-110 | | |
| **Reference (1307271-SRM1)** | | | | | | Prepared & Analyzed: 02-Apr-13 | | | | |
| Chloride | **25.7** | | mg/l | 1.00 | 25.0 | | 103 | 90-110 | | |

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 71051 - SW3510** | | | | | | | | | | |
| **LCS (LCS-71051)** | | | | | Prepared & Analyzed: 01-Apr-13 | | | | | |
| Naphthalene | **2.013** | | ug/L | 0.10 | 2.500 | | 80.5 | 47-105 | | |
| 2-Methylnaphthalene | **1.905** | | ug/L | 0.10 | 2.500 | | 76.2 | 43-115 | | |
| Dimethylphthalate | **1.989** | | ug/L | 1.0 | 2.500 | | 79.6 | 45-135 | | |
| Acenaphthylene | **2.067** | | ug/L | 0.10 | 2.500 | | 82.7 | 51-106 | | |
| Acenaphthene | **2.290** | | ug/L | 0.10 | 2.500 | | 91.6 | 53-108 | | |
| Diethylphthalate | **2.119** | | ug/L | 1.0 | 2.500 | | 84.8 | 45-135 | | |
| Fluorene | **2.063** | | ug/L | 0.10 | 2.500 | | 82.5 | 56-109 | | |
| Pentachlorophenol | **4.017** | S | ug/L | 1.0 | 2.500 | | 161 | 10-150 | | |
| Phenanthrene | **2.104** | | ug/L | 0.10 | 2.500 | | 84.2 | 56-108 | | |
| Anthracene | **1.997** | | ug/L | 0.10 | 2.500 | | 79.9 | 58-103 | | |
| Di-n-butylphthalate | **2.215** | | ug/L | 1.0 | 2.500 | | 88.6 | 45-135 | | |
| Fluoranthene | **2.251** | | ug/L | 0.10 | 2.500 | | 90.0 | 60-117 | | |
| Pyrene | **2.288** | | ug/L | 0.10 | 2.500 | | 91.5 | 59-115 | | |
| Butylbenzylphthalate | **2.563** | | ug/L | 1.0 | 2.500 | | 103 | 45-135 | | |
| Benzo(a)anthracene | **2.200** | | ug/L | 0.10 | 2.500 | | 88.0 | 58-112 | | |
| Chrysene | **2.171** | | ug/L | 0.10 | 2.500 | | 86.8 | 64-110 | | |
| Bis(2-ethylhexyl)phthalate | **2.829** | | ug/L | 1.0 | 2.500 | | 113 | 45-135 | | |
| Di-n-octylphthalate | **3.221** | | ug/L | 1.0 | 2.500 | | 129 | 45-135 | | |
| Benzo(b)fluoranthene | **2.336** | | ug/L | 0.10 | 2.500 | | 93.4 | 61-130 | | |
| Benzo(k)fluoranthene | **2.077** | | ug/L | 0.10 | 2.500 | | 83.1 | 62-131 | | |
| Benzo(a)pyrene | **2.369** | | ug/L | 0.10 | 2.500 | | 94.7 | 66-114 | | |
| Indeno(1,2,3-cd)pyrene | **2.169** | | ug/L | 0.10 | 2.500 | | 86.7 | 52-142 | | |
| Dibenzo(a,h)anthracene | **2.216** | | ug/L | 0.10 | 2.500 | | 88.6 | 49-143 | | |
| Benzo(g,h,i)perylene | **2.030** | | ug/L | 0.10 | 2.500 | | 81.2 | 52-135 | | |
| *Surrogate: Benzo(e)pyrene-d12* | *2.287* | | ug/L | | *2.500* | | *91.5* | *48-162* | | |
| **LCS Dup (LCSD-71051)** | | | | | Prepared & Analyzed: 01-Apr-13 | | | | | |
| Naphthalene | **2.171** | | ug/L | 0.10 | 2.500 | | 86.8 | 47-105 | 7.56 | 40.0 |
| 2-Methylnaphthalene | **2.037** | | ug/L | 0.10 | 2.500 | | 81.5 | 43-115 | 6.70 | 40.0 |
| Dimethylphthalate | **2.142** | | ug/L | 1.0 | 2.500 | | 85.7 | 45-135 | 7.40 | 40.0 |
| Acenaphthylene | **2.109** | | ug/L | 0.10 | 2.500 | | 84.4 | 51-106 | 2.01 | 40.0 |
| Acenaphthene | **2.394** | | ug/L | 0.10 | 2.500 | | 95.8 | 53-108 | 4.48 | 40.0 |
| Diethylphthalate | **2.191** | | ug/L | 1.0 | 2.500 | | 87.6 | 45-135 | 3.34 | 40.0 |
| Fluorene | **2.159** | | ug/L | 0.10 | 2.500 | | 86.4 | 56-109 | 4.55 | 40.0 |
| Pentachlorophenol | **3.973** | S | ug/L | 1.0 | 2.500 | | 159 | 10-150 | 1.09 | 40.0 |
| Phenanthrene | **2.236** | | ug/L | 0.10 | 2.500 | | 89.5 | 56-108 | 6.09 | 40.0 |
| Anthracene | **2.097** | | ug/L | 0.10 | 2.500 | | 83.9 | 58-103 | 4.88 | 40.0 |
| Di-n-butylphthalate | **2.313** | | ug/L | 1.0 | 2.500 | | 92.5 | 45-135 | 4.31 | 40.0 |
| Fluoranthene | **2.403** | | ug/L | 0.10 | 2.500 | | 96.1 | 60-117 | 6.52 | 40.0 |
| Pyrene | **2.451** | | ug/L | 0.10 | 2.500 | | 98.0 | 59-115 | 6.86 | 40.0 |
| Butylbenzylphthalate | **2.705** | | ug/L | 1.0 | 2.500 | | 108 | 45-135 | 5.40 | 40.0 |
| Benzo(a)anthracene | **2.329** | | ug/L | 0.10 | 2.500 | | 93.2 | 58-112 | 5.68 | 40.0 |
| Chrysene | **2.198** | | ug/L | 0.10 | 2.500 | | 87.9 | 64-110 | 1.24 | 40.0 |
| Bis(2-ethylhexyl)phthalate | **2.929** | | ug/L | 1.0 | 2.500 | | 117 | 45-135 | 3.45 | 40.0 |
| Di-n-octylphthalate | **3.090** | | ug/L | 1.0 | 2.500 | | 124 | 45-135 | 4.14 | 40.0 |
| Benzo(b)fluoranthene | **2.486** | | ug/L | 0.10 | 2.500 | | 99.5 | 61-130 | 6.24 | 40.0 |
| Benzo(k)fluoranthene | **2.269** | | ug/L | 0.10 | 2.500 | | 90.8 | 62-131 | 8.81 | 40.0 |
| Benzo(a)pyrene | **2.518** | | ug/L | 0.10 | 2.500 | | 101 | 66-114 | 6.10 | 40.0 |
| Indeno(1,2,3-cd)pyrene | **2.343** | | ug/L | 0.10 | 2.500 | | 93.7 | 52-142 | 7.72 | 40.0 |
| Dibenzo(a,h)anthracene | **2.367** | | ug/L | 0.10 | 2.500 | | 94.7 | 49-143 | 6.58 | 40.0 |
| Benzo(g,h,i)perylene | **2.142** | | ug/L | 0.10 | 2.500 | | 85.7 | 52-135 | 5.38 | 40.0 |
| *Surrogate: Benzo(e)pyrene-d12* | *2.422* | | ug/L | | *2.500* | | *96.9* | *48-162* | | |

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 71051 - SW3510** | | | | | | | | | | |
| **Blank (MB-71051)** | | | | | | Prepared & Analyzed: 01-Apr-13 | | | | |
| Naphthalene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| 2-Methylnaphthalene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Dimethylphthalate | < 1.0 | U | ug/L | 1.0 | | | | - | | |
| Acenaphthylene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Acenaphthene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Diethylphthalate | < 1.0 | U | ug/L | 1.0 | | | | - | | |
| Fluorene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Pentachlorophenol | < 1.0 | U | ug/L | 1.0 | | | | - | | |
| Phenanthrene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Anthracene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Di-n-butylphthalate | < 1.0 | U | ug/L | 1.0 | | | | - | | |
| Fluoranthene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Pyrene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Butylbenzylphthalate | < 1.0 | U | ug/L | 1.0 | | | | - | | |
| Benzo(a)anthracene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Chrysene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Bis(2-ethylhexyl)phthalate | < 1.0 | U | ug/L | 1.0 | | | | - | | |
| Di-n-octylphthalate | < 1.0 | U | ug/L | 1.0 | | | | - | | |
| Benzo(b)fluoranthene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Benzo(k)fluoranthene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Benzo(a)pyrene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Indeno(1,2,3-cd)pyrene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Dibenzo(a,h)anthracene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| Benzo(g,h,i)perylene | < 0.10 | U | ug/L | 0.10 | | | | - | | |
| *Surrogate: Benzo(e)pyrene-d12* | *2.380* | | ug/L | | *2.500* | | *95.2* | *48-162* | | |

## Notes and Definitions

| | |
|---|---|
| D | Data reported from a dilution |
| GS1 | Sample dilution required for high concentration of target analytes to be within the instrument calibration range. |
| HT2 | This sample was received outside the EPA recommended holding time for the analysis specified. |
| LinR | A High Calibration Verification standard was analyzed extending the concentration range for this analyte; therefore the data is not estimated. Sample results are valid due to acceptable recoveries. |
| QC2 | Analyte out of acceptance range in QC spike but no reportable concentration present in sample. |
| QM7 | The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery. |
| QM9 | The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits. |
| QR8 | Analyses are not controlled on RPD values from sample concentrations that are less than 5 times the reporting level. The batch is accepted based upon the difference between the sample and duplicate is less than or equal to the reporting limit. |
| R01 | The Reporting Limit has been raised to account for matrix interference. |
| S | Matrix spike recovery falls outside of the control limit |
| U | Compound not detected below method detection limit at or above the MRL. |
| dry | Sample results reported on a dry weight basis |
| NR | Not Reported |
| RPD | Relative Percent Difference |
| J | Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag). |
| ClHT | The method for residual chlorine indicates that samples should be analyzed immediately. 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous residual chlorine samples not analyzed in the field are considered out of hold time at the time of sample receipt. |

Interpretation of Total Petroleum Hydrocarbon Report

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

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

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

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

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

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

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

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

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

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

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

Validated by:
June O'Connor
Kimberly Wisk

SB66714 GW 1

SPECTRUM ANALYTICAL, INC.
*Featuring*
HANIBAL TECHNOLOGY

# CHAIN OF CUSTODY RECORD

Page 1 of 1

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

Report To:
Norfolk Ram Group
1 Roberts Rd.
Plymouth, MA 02360
Telephone #: 508 747 7900
Project Mgr. Charles Young

Invoice To:
Same

P.O. No.: _____ RQN: Special

Project No.: 929.1.1
Site Name: Casey
Location: 535 Union Ave., Framingham State: MA
Sampler(s): AJE

1=$Na_2S_2O_3$ 2=HCl 3=$H_2SO_4$ 4=$HNO_3$ 5=NaOH 6=Ascorbic Acid 7=$CH_3OH$
8=$NaHSO_4$ 9= Deionized Water 10= $H_3PO_4$ 11= _____ 12= _____

List preservative code below:

QA/QC Reporting Notes:
* additional charges may apply

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

G=Grab C=Composite

| Lab Id: | Sample Id: | Date: | Time: | Type | Matrix | Containers: # of VOA Vials | # of Amber Glass | # of Clear Glass | # of Plastic | See Attached Sheet for list of analysis | Analyses: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 66714-01 | 535 Union Ave. West Sump | 3-26-13 | 15:45 | G | GW | 5 | 4 | | 3 | X | |
| ↓ 02 | Reagent Blank | | | | | 2 | | | | | |
| ↓ 03 | Trip Blank | | | | | 2 | | | | | |

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

**QA/QC Reporting Level**
☑ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER IV*
☒ Other _____

State-specific reporting standards:
Please See Reporting limits on the attached analysis sheet. Please meet the "Effluent Limits" associated with each analysis

| Relinquished by: | Received by: | Date: | Time: | Temp°C |
|---|---|---|---|---|
| | | 3-27-13 | 2:10 | |
| | | 3-27-13 | 12:40 | 2.7 |

☒ EDD Format PDF
☒ E-mail to cyoung@norfolkram.com

Condition upon receipt:
☐ Ambient ☐ Iced ☒ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

SB66714



| Category I - Petroleum Related Site Remediation | | | | |
|---|---|---|---|---|
| Sub-category C - Petroleum Sites with Additional Contamination | | | | |
| **Category II - Non Petroleum Site Remediation** | | | | |
| Sub-category B - VOC Sites with Additional Contamination | | | | |
| **Category III - Contaminated Construction Dewatering** | | | | |
| Sub-category A - General Urban Fill Sites | | | | |
| Sub-category B - Known Contaminated Sites | | | | |
| **Category IV - Miscellaneous Related Discharges** | | | | |
| Sub-category A - Aquifer Pump Testing to Evaluate Formerly Contaminated Sites | | | | |
| Sub-category B - Well Development/Rehabilitation at Contaminated/Formerly Contaminated Sites | | | | |
| Sub-category D - Long-Term Remediation of Contaminated Non-residential Sumps and Dikes | | | | |
| Sub-category E - Short-term Contaminated Dredging Drain Back Waters (if not covered by 401/404 permit) | | | | |
| **Parameter** | **CAS Number(s)** | **Effluent Limit** | **Limit type based on monthly sample** | **Sample Type** |
| 1. Total Suspended Solids (TSS) | | 30 milligrams/liter (mg/l), 50 mg/l for hydrostatic testing | monthly average | grab |
| 2. Total Residual Chlorine (TRC) [1] | | Freshwater = 11 ug/l Saltwater = 7.5 ug/l | monthly average | grab |
| 3. Total Petroleum Hydrocarbons (TPH) | | 5.0 mg/l | daily maximum | grab |
| 4. Cyanide (CN) [2,3] | 57125 | Freshwater = 5.2 ug/l Saltwater = 1.0 ug/l | monthly average | grab |
| 5. Benzene (B) | 71432 | 50.0 ug/l for hydrostatic testing only | daily maximum | grab |
| 6. Toluene (T) | 108883 | (limited as ug/L total BTEX) | daily maximum | grab |
| 7. Ethylbenzene (E) | 100-41-4 | (limited as ug/L total BTEX) | daily maximum | grab |
| 8. (m,p,o) Xylenes (X) | 108-88-3; 106-42-3; 95-47-6; 1330-20-7 | (limited as ug/L total BTEX) | daily maximum | grab |
| 9. Total Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX) [4] | | 100 ug/l | daily maximum | grab |
| 10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) | 106-93-4 | 0.05 ug/l | daily maximum | grab |
| 11. Methyl-tert-Butyl Ether (MtBE) | 1634-04-4 | 70.0 ug/l | daily maximum | grab |

| Parameter | CAS Number(s) | Effluent Limit | Limit type based on monthly sample | Sample Type |
|---|---|---|---|---|
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| 12.tert-Butyl Alcohol (TBA) (TertiaryButanol) | 75-65-0 | Monitor Only (ug/L) | daily maximum | grab |
| 13. tert-Amyl Methyl Ether (TAME) | 994-05-08 | Monitor Only (ug/L) | daily maximum | grab |
| 14. Naphthalene [5] | 91-20-3 | 20 ug/l | daily maximum | grab |
| 15. Carbon Tetrachloride | 56-23-5 | 4.4 ug/l | daily maximum | grab |
| 16. 1,2 Dichlorobenzene (o-DCB) | 95-50-1 | 600 ug/l | daily maximum | grab |
| 17. 1,3 Dichlorobenzene (m-DCB) | 541-73-1 | 320 ug/l | daily maximum | grab |
| 18. 1,4 Dichlorobenzene (p-DCB) | 106-46-7 | 5.0 ug/l | daily maximum | grab |
| 18a. Total dichlorobenzene | | 763 ug/l - NH only | daily maximum | grab |
| 19. 1,1 Dichloroethane (DCA) | 75-34-3 | 70 ug/l | daily maximum | grab |
| 20. 1,2 Dichloroethane (DCA) | 107-06-2 | 5.0 ug/l | daily maximum | grab |
| 21. 1,1 Dichloroethene (DCE) | 75-35-4 | 3.2 ug/l | daily maximum | grab |
| 22. cis-1,2 Dichloroethene (DCE) | 156-59-2 | 70 ug/l | daily maximum | grab |
| 23. Methylene Chloride | 75-09-2 | 4.6 ug/l | daily maximum | grab |
| 24. Tetrachloroethene (PCE) | 127-18-4 | 5.0 ug/l | daily maximum | grab |
| 25. 1,1,1 Trichloro-ethane (TCA) | 71-55-6 | 200 ug/l | daily maximum | grab |
| 26. 1,1,2 Trichloro-ethane (TCA) | 79-00-5 | 5.0 ug/l | daily maximum | grab |
| 27. Trichloroethene (TCE) | 79-01-6 | 5.0 ug/l | daily maximum | grab |

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| **Parameter** | **CAS Number(s)** | **Effluent Limit** | **Limit type based on monthly sample** | **Sample Type** |
| 28. Vinyl Chloride (Chloroethene) | 75-01-4 | 2.0 ug/l | daily maximum | grab |
| 29. Acetone | 67-64-1- | Monitor Only (ug/L) | daily maximum | grab |
| 30. 1,4 Dioxane | 123-91-1 | Monitor Only (ug/L) | daily maximum | grab |
| 31. Total Phenols | 108-95-2 | 300 ug/l | daily maximum | grab |
| 32. Pentachlorophenol (PCP) | 87-86-5 | 1.0 ug/l | daily maximum | grab |
| 33. Total Phthalates (Phthalate esters) [6] | | 3.0 ug/L | monthly average | grab |
| 34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate] | 117-81-7 | 6.0 ug/l | daily maximum | grab |
| 35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH) | | 10.0 ug/l | daily maximum | grab |
| a. Benzo(a) Anthracene [7] | 56-55-3 | 0.0038 ug/l | daily maximum | grab |
| b. Benzo(a) Pyrene [7] | 50-32-8 | 0.0038 ug/l | daily maximum | grab |
| c. Benzo(b)Fluoranthene [7] | 205-99-2 | 0.0038 ug/l | daily maximum | grab |
| d. Benzo(k)Fluoranthene [7] | 207-08-9 | 0.0038 ug/l | daily maximum | grab |
| e. Chrysene [7] | 218-01 | 0.0038 ug/l | daily maximum | grab |
| f. Dibenzo(a,h)anthracene [7] | 53-70-3 | 0.0038 ug/l | daily maximum | grab |
| g. Indeno(1,2,3-cd) Pyrene [7] | 193-39-5 | 0.0038 ug/l | daily maximum | grab |

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| **Parameter** | **CAS Number(s)** | **Effluent Limit** | **Limit type based on monthly sample** | **Sample Type** |
| 36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH) | | 100 ug/l | daily maximum | grab |
| h. Acenaphthene | 83-32-9 | (limited as total ug/L Group II PAHs) | daily maximum | grab |
| i. Acenaphthylene | 208-96-8 | (limited as total ug/L Group II PAHs) | daily maximum | grab |
| j. Anthracene | 120-12-7 | (limited as total ug/L Group II PAHs) | daily maximum | grab |
| k. Benzo(ghi) Perylene | 191-24-2 | (limited as total ug/L Group II PAHs) | daily maximum | grab |
| l. Fluoranthene | 206-44-0 | (limited as total ug/L Group II PAHs) | daily maximum | grab |
| m. Fluorene | 86-73-7 | (limited as total ug/L Group II PAHs) | daily maximum | grab |
| n. Naphthalene [5] | 91-20-3 | 20 ug/l | daily maximum | grab |
| o. Phenanthrene | 85-01-8 | (limited as ug/L total Group II PAHs) | daily maximum | grab |
| p. Pyrene | 129-00-0 | (limited as ug/L total Group II PAHs) | daily maximum | grab |
| 37. Total Polychlorinated Biphenyls (PCBs) [8, 9] | 85-68-7; 84-74-2; 117-84-0; 84-66-2; 131-11-3; 117-81-7. | 0.000064 ug/L | daily maximum | grab |
| 38. Chloride | 16887006 | Monitor only | daily maximum | grab |

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| Metal parameters | CAS Number(s) | Total Recoverable Metal Limit @ H [10]= 50 mg/l CaCO3 for discharges in Massachusetts (ug/l) [11] | | Total Recoverable Metal Limit @ H [10] = 25 mg/l CaCO3 for Discharges in New Hampshire (ug/l) [11] | | Limit type based on monthly sample | Sample Type |
|---|---|---|---|---|---|---|---|
| | | Freshwater | Saltwater | Freshwater | Saltwater | | |
| 39. Antimony | 7440360 | 5.6 | | 5.6 | | daily maximum | grab |
| 40. Arsenic | 7440382 | 10 | 36 | 10 | 36 | monthly average | grab |
| 41. Cadmium | 7440439 | 0.2 | 8.9 | 0.8 | 9.3 | monthly average | grab |
| 42. Chromium III (trivalent) | 16065831 | 48.8 | 100 | 27.7 | 100 | monthly average | grab |
| 43. Chromium VI (hexavalent) | 18540299 | 11.4 | 50.3 | 11.4 | 50.3 | monthly average | grab |
| 44. Copper | 7440508 | 5.2 | 3.7 | 2.9 | 3.7 | monthly average | grab |
| 45. Lead | 7439921 | 1.3 | 8.5 | 0.5 | 8.5 | monthly average | grab |
| 46. Mercury | 7439976 | 0.9 | 1.1 | 0.9 | 1.1 | monthly average | grab |
| 47. Nickel | 7440020 | 29 | 8.2 | 16.1 | 8.2 | monthly average | grab |
| 48. Selenium | 7782492 | 5 | 71 | 5 | 71 | monthly average | grab |
| 49. Silver | 7440224 | 1.2 | 2.2 | 0.4 | 2.2 | daily maximum | grab |
| 50. Zinc | 7440666 | 66.6 | 85.6 | 37 | 85.6 | monthly average | grab |
| 51. Iron | 7439896 | 1,000 | | 1,000 | | daily maximum | grab |