



Geotechnical Engineers

April 23, 2009

MAG-910416

US Environmental Protection Agency
RGP - NOC Processing
Municipal Assistance Unit
One Congress Street, Suite 1100
Boston, MA 02114

Attention: Mr. Victor Alvarez

Boston Water and Sewer Commission
980 Harrison Avenue
Boston, MA 02119

Attention: Mr. Francis M. McLaughlin

Reference: Proposed Boston Renaissance Charter Public School
1415 Hyde Park Avenue; Hyde Park, Massachusetts
Temporary Construction Dewatering Discharge Permit Application
Under Massachusetts General Permit No. MAG910000

This letter report was prepared by McPhail Associates, Inc. on behalf of Boston Renaissance Charter Public School in support of an application for permission from the US Environmental Protection Agency (EPA) and the Boston Water and Sewer Commission (BWSC) for the temporary discharge of groundwater into storm drain lines which outfall into Mother Brook and ultimately into the Neponset River, for the purpose of construction dewatering at the above-referenced location. Refer to **Figure 1** for the general site locus.

These services were performed and this permit application was prepared in accordance with our proposal dated March 24, 2009 and the subsequent authorization of Boston Renaissance Charter Public School. These services are subject to the limitations contained in **Appendix A**.

The required US EPA Notice of Intent (NOI) and the BWSC Dewatering Discharge Permit Application are included in **Appendix B**.

APPLICANT

Boston Renaissance Charter Public School
250 Stuart Street
Boston, MA 02116

Contact: Mr. Kevin D. Cherry, Chief Financial Officer
Telephone: 617-357-0900 x1212

EXISTING SITE CONDITIONS

Fronting onto Hyde Park Avenue to the east, the subject site is bounded by railroad tracks to the west, the Mother Brook to the north, and Dacy Street to the south. The site is presently occupied by a three-story



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brick former mill structure which occupies an approximate 20,376 square-foot plan area, a one-story warehouse structure which occupies an approximate 21,371 square-foot plan area, and a shed occupying approximately 1,500 square-foot plan area.

Existing site conditions are shown in **Figure 2**. The ground surface across the site consists of bituminous concrete paved areas and gravel surfaces. Areas in the north and south portions of the property appear to be vegetated with brush or trees. In general, existing ground surface across the site slopes gradually downward from south to north from about Elevation +56 along the southern end of the site to about Elevation +49 along the northern end of the site. Elevations as indicated herein refer to the Boston City Base (BCB) datum which is 5.65 feet below the National Geodetic Vertical Datum (NGVD).

SITE ENVIRONMENTAL SETTING

The site is located in a mixed commercial and residential area along Hyde Park Avenue. A multi-unit residential building abuts the site to the northeast. Mother Brook, a Class B surface water, is located to the north of the site. Based on the DEP site scoring map, a 100-year flood plain and open water associated with Mother Brook are located to the north of the site. Protected open space and open water associated with the Neponset River, a Class B Surface Water, are located approximately 500 feet to the east of the site. No other sensitive environmental receptors have been identified on the site. Information contained in the current Massachusetts DEP Priority Resources Map for Boston indicates that the site is not located within a Zone II of a public water supply, an Interim Wellhead Protection Area, a Potentially Productive Aquifer or a Zone A of a Class A surface water supply reservoir.

The subject site and the surrounding area are serviced by public utilities including water, electricity, surface drainage and sanitary sewer.

Polynuclear aromatic hydrocarbons (PAHs), petroleum-related hydrocarbons, metals, and volatile organic compounds (VOCs) at concentrations that require notification of the DEP were detected in the site soil and groundwater during performance of several environmental investigations that were completed at the site. Response actions will be performed pursuant to relevant provisions contained in the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000. Further details regarding the results of soil and groundwater chemical analyses are presented below.

SITE HISTORY AND USAGE

The project area has a history of industrial manufacturing over the last century and was the location of machine shops, brass and iron foundries, and petroleum storage tanks. Our research into the site history of 1415 Hyde Park Avenue included a review of Sanborn Maps from 1917, 1930, 1950, and 1990.

It is understood that Boston Fire Prevention Bureau records contain permits for storage of both gasoline and fuel oil in three underground storage tanks, all of which have reportedly been removed. Based on our review of previous reports, a release of an unknown amount of No. 4 fuel oil was identified during a tank removal in 1987 and was assigned State Spill Site N87-0823.

Based on our review of DEP information available online and reports prepared by others, PAHs and metals (lead, arsenic, antimony, cadmium, copper, chromium, nickel) were found to exceed MCP reportable concentrations and were reported to DEP, who assigned Release Tracking Number (RTN) 3-



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27791 to the release in June 2008. Petroleum hydrocarbons and chlorinated volatile organics vinyl chloride (VC) and trichloroethene (TCE) in the central area of the site were found to exceed MCP reportable concentrations and were reported to DEP, who assigned RTN 3-28336 in March 2009.

Concentrations of chlorinated volatile organic compounds (VOCs) detected in soil and groundwater were reported on the northern portion of the site and reported to DEP, who assigned RTN 3-27790 in June 2008. A Class B-1 Response Action Outcome (RAO) statement was submitted in September 2008 which indicated that there was a condition of no significant risk related to the presence of VOCs in the northern portion of the site and that VOCs had not been cleaned up to background conditions.

In addition, PCBs were detected in Mother Brook sediments and bank soils to the north of the site by other parties performing remediation of Mother Brook. The finding of PCBs in the Mother Brook sediments and bank soils to the north of the site was deemed to be an Imminent Hazard as defined by the MCP and was reported to DEP and assigned RTN 3-27168 in October 2007. An Immediate Response Action is being performed by Thomas and Betts Corporation and by New Albertsons, Inc.

PROPOSED SCOPE OF NEW CONSTRUCTION

The proposed development is understood to consist of the renovation of the existing mill and warehouse structures, and the construction of three building additions. It is understood that the redeveloped buildings and grounds are to be used for a school.

In general, one addition will be located on the west side of the existing mill building and will abut the entire south side of the existing warehouse. The second addition will be located on the east side of the warehouse. The third addition consists of an entrance addition on the north side of the warehouse. It is understood that the lowest levels of the proposed additions will approximate the lowest floor level of the existing warehouse and will not contain any below grade space. The proposed renovation to the existing mill building is understood to include the construction of two stair structures and the lowering of the elevated wood floor located in the northeast wing down to the existing concrete floor level located at about Elevation +52.3.

The approximate locations of the proposed building additions, stair structures and the approximate location of existing elevated wood floor level are indicated on the enclosed **Figure 2**. Construction of below-grade space is not anticipated. Proposed foundation support for the additions and stair foundations consists of piers and grade beams. Support for pier footings will require over-excavation of the existing fill to the top of the alluvial or glacial outwash deposits located at depths of up to 10.5 feet below existing ground surface, and backfilling the excavation. Prior to placement of gravel fill for the support of slabs-on-grade, all soft and/or compressible areas detected by proof-rolling will be removed and replaced with suitable materials. In addition, below-grade remains of former structures may be removed if they interfere with new construction.

A playing field is proposed for a portion of the site, and play and parking areas are proposed around the existing and proposed structures.

Excavation requiring dewatering is expected to be incidental in nature and would be related to excavations for pier footing supports, to remove unsuitable soils or below grade remains, to construct elevator pits, stair structures within the building footprint and/or utility structures within the property.



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PREVIOUS SITE INVESTIGATIONS

A Preliminary Site Assessment was conducted and reported by IES, Inc. in 2001. IES reported that drums of cutting oil, lubricants, wastes generated by furniture restoration business, parts cleaner, and dichloromethane were observed. IES conducted a subsurface investigation including test borings, monitoring well installation, soil screening, and laboratory analysis of soil and groundwater samples. IES performed six soil borings and four monitoring well installations to the west, south, and north of the existing buildings. The results of sampling and analysis indicated that PAHs indicative of fill containing ash and cinders were detected in the soil samples. The results of groundwater analyses indicated that dissolved barium was detected at concentrations well below reportable concentrations and that EPH, VOCs, and the remaining RCRA metals were not detected. IES concluded that a reportable release had not occurred at the site.

GEC conducted a Phase I Environmental Site Assessment followed by two Phase II investigations in 2008. The investigations consisted of installation of borings, soil screening, sampling and analysis of soil samples in exterior areas of the site, monitoring well installation and groundwater sampling, as well as subslab soil vapor samples. GEC also conducted a soil precharacterization program in the area to the west of the mill building and south of the warehouse to assess soil characteristics for the purpose of off-site disposal. TPH, Metals, and VOCs were found to exceed MCP reportable concentrations.

In 2008, CDW conducted two limited subsurface investigations focused on the portion of the property between the warehouse and Mother Brook. Investigations consisted of borings, soil sampling and analysis, indoor air sampling and analysis, monitoring well installation, and groundwater sampling. VOCs were found to exceed MCP reportable concentrations.

In 2007 through 2009, Shaw Environmental Inc. conducted remediation of PCB-contaminated soil on the banks of Mother Brook to the north of the site. Based on our review of site maps provided to us, remediation on the south bank is located within the limits of the site property lines. Remediation is intended to remediate and stabilize the bank between the railroad bridge and Hyde Park Avenue bridge by excavating six feet into the north and south banks to remove PCB-contaminated soil, placement of a direct contact barrier on the north bank and stabilization of the south bank with a minimum of 1 foot clean soil topped by 8-inch riprap. This work is ongoing as of the date of this report.

SUBSURFACE INVESTIGATION PERFORMED BY MCPHAIL ASSOCIATES, INC.

Between October 7, 2008 and October 10, 2008, eleven (11) borings were conducted at the site by Carr-Dee Corp. The approximate exploration locations are indicated on the enclosed Subsurface Exploration Plan, **Figure 2**. Boring and soil sampling locations were selected based on the proposed concept plan of the intended renovations; historical evidence of foundries, machine shops, and petroleum storage; and chemical test results reported by other consultants performing evaluations at the site.

The borings were performed to depths of 10 to 18 feet below surface grade over most portions of the site, with five of the borings performed within the footprint of the proposed building additions and the existing warehouse to assess the chemical nature of subsurface soil at the site. Standard 2-inch O.D. split-spoon samples and standard penetration test results were obtained continuously from the surface to the depth of the boring. The borings were terminated in natural soil deposits at depths of approximately seven (7) feet



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below the observed groundwater table corresponding to approximately 11 to 18 below ground surface. Seven (7) of the borings were completed as 2-inch diameter monitoring wells. Boring logs and well details prepared by Carr-Dee Corp. are presented in **Appendix C** and approximate locations are shown in **Figure 2**.

Soil samples were screened for the presence of total VOCs (TVOCs) using a photoionization detector and visual and olfactory observation and a sample each was generally selected for analysis from the fill and the natural soils. Headspace screening results are provided in **Table 1**. The results of chemical testing of soil are provided in **Table 2**.

Groundwater samples were collected for chemical testing on October 29, 2008 from the recently installed monitoring wells MAI-1 OW, MAI-4 OW, MAI-5 OW, MAI-8 OW, MAI-9 OW, MAI-10 OW, and MAI-11 OW. In addition, groundwater samples were collected for chemical testing from monitoring wells GEC-1, GEC-2, GEC-3 installed by GEC and MW-2 installed by CDW (CDW-MW-2). Monitoring well MAI-5 OW was resampled on November 5, 2008. Monitoring wells MAI-1 OW and CDW-MW-2 were resampled on December 2, 2008. The results of chemical testing are summarized in **Table 3**.

On March 30, 2009, McPhail Associates obtained groundwater samples from monitoring wells MAI-1 and MAI-8. The approximate locations of the sampled wells are shown on the enclosed **Figure 2**. The results of the chemical testing are included in **Appendix E** and summarized in **Table 4**. The samples were tested for total suspended solids (TSS), pH, total cyanide, total residual chlorine (TRC), total phenolics, hexavalent chromium, total and dissolved Priority Pollutants (PP-13) metals (antimony, arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, silver and zinc), TPH, pesticides, VOCs, SVOCs, and polychlorinated biphenyls (PCBs).

SUBSURFACE CONDITIONS

A detailed description of the subsurface conditions encountered at the exploration locations are documented on the logs contained in **Appendix C**. The generalized subsurface conditions across the site were inferred primarily from these explorations, but also from our general knowledge of the local geology. The subsurface conditions encountered in the exploration are described below.

The results of our subsurface investigation indicates that the ground surface is underlain by a 4 to 10-foot thickness of fill material. In the area of the addition to be located to the south of the existing mill building the fill material was directly underlain by a compact to dense sand and gravel deposit. In the area of the two additions to be located to the north of the existing mill building and in the area of Mother Brook, the explorations indicate that the fill material was underlain by a 1.5 to 2-foot thickness of organics consisting of peat. The existing fill material and organics were underlain by a natural sand and gravel deposit the surface of which was present at depths ranging from 4 to 10.5 below existing ground surface.

South and west of the existing buildings, the existing fill material was encountered to depths of approximately 6.5 to 8 feet below ground surface. North of the existing buildings, the fill material was encountered to depths of approximately 10.5 feet diminishing to 3 feet below ground surface near Mother Brook. North of the existing buildings, fill material was underlain by up to a 3-foot thickness of organics consisting of peat in some borings.



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Wood, brick, coal, ash and cinder were noted by the field engineer in the fill deposit in borings across the property. Materials described as slag or metal shavings were described in the area between the existing buildings and Mother Brook.

Groundwater level information is provided in **Appendix D**. Groundwater was observed within the completed borings at a depths of between 4.5 to 9 feet below the existing ground surface, corresponding to Elevations +42.9 to +44. Based on the groundwater elevations noted, the groundwater gradient is likely relatively low. The apparent flow direction is to the northeast toward Mother Brook. Flow direction may also be influenced by local features such as underground utilities and foundations. It is anticipated that future groundwater levels across the site may vary from those reported herein due to factors such as normal seasonal changes, periods of heavy precipitation, and alterations of existing drainage patterns.

RESULTS OF CHEMICAL TESTING BY MCPHAIL ASSOCIATES- SOIL SAMPLES

All samples of the fill material and natural soils were screened utilizing a Photoionization detector for the presence of volatile organic compounds (TVOCs). The results generally indicated no visual or olfactory evidence of a release in the majority of the samples screened. Six (6) of the 68 samples screened exhibited moderate PID readings (between 10 and 50 ppm) and one sample from boring MAI-10 (OW) had a reading of 99.9 ppm (2.5 to 4.5 feet below ground surface). Natural soils typically had very low headspace readings.

Soil samples were collected for chemical analysis from both fill materials and natural soils. Samples were typically grab samples collected from a single location. Samples were selected from surface fill materials and subsurface natural soils. Samples were analyzed for extractable petroleum hydrocarbons (EPH), polychlorinated biphenyls (PCBs), polynuclear aromatic hydrocarbons (PAHs), metals (antimony, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc), and/or volatile organic compounds (VOCs).

A summary of the results for soil is presented on the enclosed **Table 2**. In general, elevated chemical concentrations in soil were typically associated with fill materials and not with underlying natural soils.

Fill soils

Extractable petroleum hydrocarbons were detected in fill soils at concentrations consistent with previous investigations.

Concentrations of PAHs in fill materials typically were consistent with or less than published Background concentrations for fill soils and are consistent with previous investigations. Samples from MAI-2 (0.5 to 2.5 feet below ground) and MAI-10 (0.5 to 2.5 feet below ground) exceeded published Background concentrations for fill soils.

Concentrations of metals in fill materials typically exceeded published Background concentrations for fill soils, reflecting the potential disposal of foundry sand or other materials on site. Cadmium, total chromium, nickel, zinc, antimony and lead appeared to be elevated. One sample with elevated chromium concentrations was analyzed for hexavalent chromium, which was reported as non-detect. Metals concentrations were generally consistent with or less than those reported in previous investigations.

VOCs were detected at trace concentrations in three (3) samples in fill soils. VOCs detections



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corresponded to elevated headspace readings reported by the field engineer at two locations. Concentrations of VOCs are generally consistent with or less than those documented in previous reports by GEC and CDW.

Natural Soils

Concentrations of PAHs in natural soils were typically not detected at laboratory reporting limits or were consistent with published Background concentrations for natural soils.

Concentrations of metals in natural soils were typically consistent with published Background concentrations for natural soils with the exception of a sample collected from MAI-1 (OW) (3 to 6 feet below ground) where metals concentrations exceeded background concentrations for natural soil. It is possible that this sample contained some fill materials, resulting in this result.

PCBs were not detected on-site. Findings of PCBs as non-detect are generally consistent with those documented in previous reports by GEC and CDW, who reported infrequent detects of PCBs below the Risk-based criteria.

The concentration of naphthalene was found to exceed the published Background concentration for natural soils in one natural soil sample. VOCs were not detected in other natural soil samples.

Concentrations of VOCs are generally consistent with or less than those documented in previous reports by GEC and CDW. Concentrations of chlorinated VOCs in several samples collected by GEC and CDW and reported to exceed reportable concentration RCS-1 were not confirmed by these results.

RESULTS OF CHEMICAL TESTING BY MCPHAIL ASSOCIATES- 2008 GROUNDWATER SAMPLES

Groundwater samples were analyzed for extractable petroleum hydrocarbons (EPH), polynuclear aromatic hydrocarbons (PAHs), metals (antimony, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc), and/or volatile organic compounds (VOCs). Each analytical method was selected based on the locations of the monitoring wells relative to previously reported results by others and potential historical sources (machine shops, foundries), and the proposed future uses as either indoor space, parking/roadways, or outdoor play areas.

A summary of the results for samples collected in 2008 is presented on the enclosed **Table 3**. Concentrations reported by our laboratory for EPH and PAHs (not detected), metals, and VOCs are generally consistent with or less than those documented in previous reports by GEC and CDW and with those previously reported to DEP.

EPH. One (1) groundwater sample obtained from MAI-10 (OW) was analyzed for EPH. EPH concentrations in the sample were not detected. This finding is consistent with nondetected concentrations of EPH fractions in groundwater samples documented in previous reports by GEC and CDW.

PAHs. Four (4) groundwater samples were analyzed for PAHs. Concentrations of PAHs in groundwater samples were not detected. This finding is consistent with nondetected concentrations of PAHs in groundwater samples documented in previous reports by GEC and CDW.



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Metals. Three (3) groundwater samples were collected using low flow methods and analyzed for total metals. Two samples were also analyzed for dissolved copper and lead. Total arsenic, copper, lead, and zinc were detected in groundwater samples at concentrations exceeding RGP effluent limits. Dissolved lead was not detected, indicating that the detectable lead levels were likely due to the presence of suspended solids in the water. Dissolved copper concentrations were similar to or greater than total copper concentrations, indicating that copper was present in the dissolved form. Both samples with elevated copper concentrations are located in the north portion of the property.

The presence of detected metals are generally consistent with those documented in previous reports by CDW for monitoring wells MW-1 and MW-2. The concentrations of detected metals are somewhat higher than those documented in previous reports by CDW; this difference is attributed to the presence of turbidity in the unfiltered samples collected by McPhail.

VOCs. VOCs were detected at trace concentrations in six (6) samples, none of which exceeded RGP effluent limits. Previous investigations reported similar results as well as trace concentrations of Naphthalene and 1,1,1-trichloroethane (1,1,1-TCA).

RESULTS OF CHEMICAL TESTING BY MCPHAIL ASSOCIATES - 2009 GROUNDWATER SAMPLES

A summary of results for samples collected in 2009 specifically for this permit application is presented in **Table 4**. As shown in the enclosed **Table 4**, the results of the groundwater chemical analyses indicate that none of the tested samples exhibited the presence of detectable concentrations of total cyanide, TRC, total phenolics, TPH, pesticides, or PCBs.

Trace concentrations of VOCs were detected at levels below RGP effluent limits.

Total copper was detected at a maximum concentration of 104.6 milligrams per liter (mg/l) which is in excess of the RGP effluent limit of 5.2 mg/l (with no dilution). Hexavalent chromium was detected at a maximum concentration of 21 milligrams per liter (mg/l) which is in excess of the RGP effluent limit of 11.4 mg/l (with no dilution). Dissolved concentrations of copper as reported in the laboratory report indicate that elevated concentrations of copper are in the dissolved form. Total antimony, arsenic, chromium, iron, lead, nickel, selenium, and zinc were detected at concentrations well below the RGP effluent limits. None of the other PP-13 metals were detected at concentrations in excess of the MDLs which are well below the RGP effluent limits.

pH was measured at 11.8, which is in excess of the Class B surface water discharge limit of 8.3, therefore pH adjustment will be necessary during discharge.

In summary, the results of the chemical testing performed on samples of the groundwater at the site indicate exceedences of the RGP limits for copper, hexavalent chromium, and pH.

All other analytes that were tested for were not detected at levels that require implementation of special treatment of the effluent prior to discharge. Calculation of the mass of each of the detected chemicals is provided in **Table 5**.



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DILUTION FACTOR for METALS

A Dilution Factor (DF) was calculated in order to identify the RGP limits for total metals. The DF calculations were performed in accordance with the procedure contained in MAG910000, Appendix V "Calculation of Dilution Factor for Applications in Massachusetts". The purpose of the DF calculation is to establish Total Recoverable Limits for metals, taking into consideration the anticipated dilution of the detected analytes upon discharge of the effluent into the Mother Brook.

The calculated DF was then used to find the appropriate Dilution Range Concentrations (DRCs) contained in MAG910000, Appendix IV.

The DF that was utilized in finding the appropriate DRCs was calculated as follows:

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

Where: Q_d is the maximum discharge flow rate of 15 GPM = 0.03 cubic feet per second (cfs),
(1 GPM = 0.00223 cfs)

Q_s is the receiving water flow rate (minimum for 7 consecutive days with a recurrence interval of 10 years)

The value for Q_s used for identifying the DRCs contained in MAG 910000 Appendix IV is based on information provided by the US Geological Survey (USGS) at "Streamstats for Massachusetts" web application (<http://water.usgs.gov/osw/streamstats/massachusetts.html>). Since there was no streamflow gage in the vicinity of the anticipated discharge, the Q_s was estimated using the regression equations provided at the web application. The point of estimation used was at the approximate point of entry of the outfall to Mother Brook. A printout of the Streamflow parameters and statistics are provided in **Appendix F**. The Minimum Flow Rate estimated for 7 consecutive days with a recurrence interval of 10 years (7Q10 flow) is 0.15 cfs.

The resulting DF is 6.

Based on the DF value of 6, the applicable DRCs contained in MAG910000, Appendix IV, are equal to those shown for DF between 5 and 10 (provided in **Table 4**). The maximum value of hexavalent chromium detected on the site meets the DRC limit. The maximum value of total copper detected on the site does not meet the DRC limit. As noted above, the presence of copper is likely to be in the dissolved form, therefore additional treatment in addition to settling may be required. As a result of these exceeded levels, a system designed to treat copper contaminated water, which may include but is not limited to ion exchange, precipitation, coagulation, and flocculation, adsorption, and absorption will be implemented prior to discharge.

PROPOSED TEMPORARY DEWATERING DURING CONSTRUCTION

Based upon the configuration of the proposed construction and the conditions encountered in the subsurface explorations, excavation below the observed groundwater elevation will be required for the construction of foundation structures, elevator pit, and site utilities. Hence, construction dewatering is anticipated to be required within localized areas of the site.



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In general, it is anticipated that intermittent dewatering by means of strategically located sumps and trenches should suffice during construction operations. In addition, trapped surface water is anticipated to accumulate within localized depressions in the ground surface across the site after periods of heavy precipitation and will most likely necessitate localized pumping. It is estimated that the typical continuous groundwater discharge required during the proposed excavation will be on the order of 15 gallons per minute (GPM). The influent will be pumped from localized sumps that will be situated across the footprint of the area subject to excavation into a 10,000-gallon sedimentation tank in order to allow the settlement of particulate matter. Alternatively, the contractor may elect the utilization of two (2) sedimentation tanks, 5,000-gallons each installed in-line. pH adjustment would be performed by the contractor in the sediment tanks to achieve the required limits.

The approximate locations of proposed discharge points on-site are provided in **Figure 3**. A review of a 100-scale drawing provided to McPhail by Boston Water and Sewer Commission (BWSC) indicates the presence of a storm drain line beneath Hyde Park Avenue which discharges into Mother Brook at Outfall No. SDO244. The storm drain line expands from 15 inches at the south end of the site to 24 inches at the north end of the site. The approximate locations of the above referenced storm drain line and outfall are shown on the enclosed **Figure 4**.

Based on the results of the chemical analyses performed on groundwater samples obtained from the subject site, it is concluded that the effluent will require treatment for total copper prior to discharge into Mother Brook. A system designed to treat copper-contaminated water, which may include but is not limited to ion exchange, precipitation, coagulation and flocculation, adsorption, and absorption will be implemented prior to discharge. Finally, the effluent will pass through a bag-filter prior to discharge in order to further reduce the concentration of TSS. A schematic of the proposed discharge system is presented in **Figure 5**.

It is anticipated that the proposed dewatering will commence on May 1, 2009 and will be completed on or before September 1, 2010.

SUMMARY AND CONCLUSIONS

The proposed development includes renovation of the existing mill and warehouse structures, and the construction of three building additions. Excavation will be required for an elevator pit and to install utilities and foundation structures and will require the implementation of a temporary construction dewatering system and discharge of the effluent off-site.

Based on information provided to McPhail Associates by the BSWC, it is anticipated that the temporary discharge of the dewatering effluent from the subject construction site will utilize a storm drain line that is situated beneath Hyde Park Avenue that discharges into an outfall located on Mother Brook and ultimately into the Neponset River. It is anticipated that the discharge will be intermittent during the construction period with an average discharge rate of about 15 GPM.

Based on the groundwater chemical test results, it is concluded that treatment of the effluent would be required in order to meet the MAG910000 Discharge Limits. The effluent will be treated for copper. In addition, the influent will be pumped through a sedimentation tank and the effluent will be pumped through bag filters prior to discharge in order to meet the TSS Limits contained in MAG910000.



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Sampling and chemical testing of the influent and effluent will be performed in accordance with the requirements contained in the US EPA's Authorization to Discharge. Should the results of the initial monitoring indicate the presence of evidence of contamination in the effluent at levels that exceed the RGP limits, appropriate corrective measures will be implemented and additional confirmatory monitoring will be performed.

We trust that the above satisfies your present requirements. Please do not hesitate to contact us should you have any questions or require additional information.

Very truly yours,

McPHAIL ASSOCIATES, INC.

A handwritten signature in cursive script, appearing to read "Martha L. Zirbel".

Martha L. Zirbel, P.E., L.S.P.

A handwritten signature in cursive script, appearing to read "Ambrose J. Donovan".

Ambrose J. Donovan, P.E., L.S.P.

Enclosures

cc: Boston Renaissance Charter Public School (Mr. Kevin Cherry)

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MLZ/ajd



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APPENDIX B

US EPA Notice of Intent
and
Boston Water and Sewer Commission Dewatering Permit Application

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

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

a) Name of facility/site: future site-Boston Renaissance Charter Public School		Facility/site address:	
Location of facility/site: longitude: 42.25 latitude: -71.13	Facility SIC code(s): N/A	Street: 1415 Hyde Park Avenue	
b) Name of facility/site owner: Boston Renaissance Charter Public School ✓		Town: , Hyde Park	
Email address of owner: Cherry, Kevin [KCherry@BostonRenaissance.org]		State:	Zip:
Telephone no. of facility/site owner: 617.357.0900x1212		MA	
Fax no. of facility/site owner: 617.357.0949		Owner is (check one): 1. Federal ___ 2. State/Tribal ___	
Address of owner (if different from site):		3. Private ✓ 4. other, if so, describe:	
Street: 250 Stuart Street			
Town: Boston,	State: MA	Zip: 02116	County:
c) Legal name of operator:	Operator telephone no:		
Same as owner	Operator fax no.:		Operator email:
Operator contact name and title: Kevin Cherry, Chief Financial Officer			
Address of operator (if different from owner):		Street:	
Town:	State:	Zip:	County:
d) Check "yes" or "no" for the following:			
1. Has a prior NPDES permit exclusion been granted for the discharge? Yes ___ No ✓, if "yes," number:			
2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge? Yes ___ No ✓, if "yes," date and tracking #:			
3. Is the discharge a "new discharge" as defined by 40 CFR 122.2? Yes ✓ No ___			
4. For sites in Massachusetts, is the discharge covered under the MA Contingency Plan (MCP) and exempt from state permitting? Yes ✓ No ___			

e) Is site/facility subject to any State permitting or other action which is causing the generation of discharge? Yes <u> </u> No <u>✓</u> If "yes," 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 storm water general permit? Y <u> </u> N <u>✓</u>, if Y, number: 2. phase I or II construction storm water general permit? Y <u> </u> N <u>✓</u>, if Y, number: 3. individual NPDES permit? Y <u> </u> N <u>✓</u>, if Y, number: 4. any other water quality related permit? Y <u> </u> N <u>✓</u>, if Y, number:
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2. Discharge information. Please provide information about the discharge, (attaching additional sheets as needed) including:

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

Temporary intermittent construction dewatering for excavation for pier footings support, elevator pit, utilities, and removal of unsuitable fill soils

b) Provide the following information about each discharge: 1) Number of discharge points: <u>2</u>	2) What is the maximum and average flow rate of discharge (in cubic feet per second, ft³/s)? Max. flow <u>.033</u> Average flow <u>.017</u> Is maximum flow a design value? Y <u>✓</u> N <u> </u> For average flow, include the units and appropriate notation if this value is a design value or estimate if not available.
--	--

3) Latitude and longitude of each discharge within 100 feet: pt.1: long. 42.25 lat. -71.13 ; pt.2: long. 42.25 lat. -71.13 ; pt.3: long. lat. ; pt.4: long. lat. ; pt.5: long. lat. ; pt.6: long. lat. ; pt.7: long. lat. ; pt.8: long. lat. ; etc.

4) If hydrostatic testing, total volume of the discharge (gals):	5) Is the discharge intermittent <u>✓</u> or seasonal <u> </u>? Is discharge ongoing Yes <u> </u> No <u>✓</u> ? <u> </u>
---	---

c) Expected dates of discharge (mm/dd/yy): start 05/01/09 end 08/30/10

d) Please attach a line drawing or flow schematic showing water flow through the facility including:

1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for all of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts' regulations 310 CMR 40.0000, the Massachusetts Contingency Plan ("Chapter 21E"); ii. New Hampshire's Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed.

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals	Urban Fill Sites	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		✓	2	grab	2540	5 mg/l	8500	.69	4250	.348
2. Total Residual Chlorine	✓		2	grab	4500CL-D	.02 mg/l	ND			
3. Total Petroleum Hydrocarbons		✓	2	grab	1664A	4 mg/l	ND			
4. Cyanide	✓		2	grab	4500CN-CE	.005 mg/l	ND			
5. Benzene		✓	2	grab	624	1	ND			
6. Toluene		✓	2	grab	624	1	ND			
7. Ethylbenzene		✓	2	grab	624	1	ND			
8. (m,p,o) Xylenes		✓	2	grab	624	2	ND			
9. Total BTEX ⁴										

⁴ BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide ⁵ (1,2-Dibromo-methane)	✓		2	grab	504.1	.020	ND			
11. Methyl-tert-Butyl Ether (MtBE)	✓		2	grab	624	20	ND			
12. tert-Butyl Alcohol (TBA)	✓		2	grab	624	100	ND			
13. tert-Amyl Methyl Ether (TAME)	✓		2	grab	624	20	ND			
14. Naphthalene		✓	2	grab	8270C	.19	ND			
15. Carbon Tetra-chloride	✓		2	grab	624	1	ND			
16. 1,4 Dichlorobenzene	✓		2	grab	624	5	ND			
17. 1,2 Dichlorobenzene	✓		2	grab	624	5	ND			
18. 1,3 Dichlorobenzene	✓		2	grab	624	5	ND			
19. 1,1 Dichloroethane	✓		2	grab	624	1.5	ND			
20. 1,2 Dichloroethane	✓		2	grab	624	1.5	ND			
21. 1,1 Dichloroethylene	✓		2	grab	624	1	ND			
22. cis-1,2 Dichloro-ethylene		✓	2	grab	624	1	3.7	.00030	1.85	.00015
23. Dichloromethane (Methylene Chloride)	✓		2	grab	624	5	ND			
24. Tetrachloroethylene		✓	2	grab	624	1.5	ND			

⁵ EDB is a groundwater contaminant at fuel spill and pesticide application sites in New England.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
25. 1,1,1 Trichloroethane		✓	2	grab	624	2	ND			
26. 1,1,2 Trichloroethane	✓		2	grab	624	1.5	ND			
27. Trichloroethylene		✓	2	grab	624	1	1.8	.00015	1.5	.00012
28. Vinyl Chloride		✓	2	grab	624	2	ND			
29. Acetone		✓	2	grab	624	10	33	.0027	16.5	.00013
30. 1,4 Dioxane	✓		2	grab	624	2000	ND			
31. Total Phenols	✓		2	grab	420.1	.03 mg/l	ND			
32. Pentachlorophenol	✓		2	grab	8270C	10	ND			
33. Total Phthalates ⁶ (Phthalate esters)	✓		2	grab	8270C	5 mg/l.	ND			
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	✓		2	grab	8270C	5	ND			
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		✓	2	grab	8270C					
a. Benzo(a) Anthracene		✓	2	grab	8270C	.19	ND			
b. Benzo(a) Pyrene		✓	2	grab	8270C	.19	ND			
c. Benzo(b) Fluoranthene		✓	2	grab	8270C	.19	ND			
d. Benzo(k) Fluoranthene		✓	2	grab	8270C	.19	ND			
e. Chrysene		✓	2	grab	8270C	.19	ND			

⁶ The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (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)
f. Dibenzo(a,h) anthracene		✓	2	grab	8270C	.19	ND			
g. Indeno(1,2,3-cd) Pyrene		✓	2	grab	8270C	.19	ND			
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)			2	grab			.21	.000017	.105	.0000086
h. Acenaphthene		✓	2	grab	8270C	.19	ND			
i. Acenaphthylene		✓	2	grab	8270C	.19	ND			
j. Anthracene		✓	2	grab	8270C	.19	ND			
k. Benzo(ghi) Perylene		✓	2	grab	8270C	.19	ND			
l. Fluoranthene		✓	2	grab	8270C	.19	ND			
m. Fluorene		✓	2	grab	8270C	.19	ND			
n. Naphthalene-		✓	2	grab	8270C	.19	ND			
o. Phenanthrene		✓	2	grab	8270C	.19	.21	.000017	.105	.0000086
p. Pyrene		✓	2	grab	8270C	.19	ND			
37. Total Polychlorinated Biphenyls (PCBs)		✓	2	grab	608 [±]	.258	ND			
38. Antimony		✓	2	grab	6020	5	0.9	.000074	0.45	.000037
39. Arsenic		✓	2	grab	6020	5	2.7	.00022	1.35	.00011
40. Cadmium		✓	2	grab	6020	2	ND			
41. Chromium III		✓	2	grab	6020	5	ND			
42. Chromium VI		✓	2	grab	3500CR-D	.010 mg/l	21	.0017	10.5	.00086

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper		✓	2	grab	6020	5	104.3	.0085	52.85	.00432
44. Lead		✓	2	grab	6020	5	1.1	.00009	0.55	.000045
45. Mercury		✓	2	grab	245.1	.2	ND			
46. Nickel		✓	2	grab	6020	5	14.5	.00119	8.75	.00072
47. Selenium		✓	2	grab	6020	1	3	.000245	2	.00016
48. Silver		✓	2	grab	6020	.4	ND			
49. Zinc		✓	2	grab	6020	5	20.2	.00165	10.1	.00083
50. Iron		✓	2	grab	200.7	50	110	.0090	55	.0045
Other (describe):										

c) For discharges where **metals** are believed present, please fill out the following:

<i>Step 1:</i> Do any of the metals in the influent have a reasonable potential to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y ☒ N ☐	If yes, which metals? Copper, Hexavalent Chrome
<i>Step 2:</i> For any metals which have reasonable potential to 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? Metals: Copper, Hexavalent Chrome DF: 5-10	Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y ☒ N ☐ If "Yes," list which metals: Copper

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: Sedimentation tank and bag filters-see text for details					
b) Identify each applicable treatment unit (check all that apply):	Frac. tank ☒	Air stripper	Oil/water separator	Equalization tanks	Bag filter ☒
	Chlorination	Dechlorination	Other (please describe): Metals removal, including but not limited to copper		
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 <u>7.5</u> Maximum flow rate of treatment system <u>30</u> Design flow rate of treatment system <u>NA</u>					
d) A description of chemical additives being used or planned to be used (attach MSDS sheets): None					

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

a) Identify the discharge pathway:	Direct ☐	Within facility ☐	Storm drain ☒	River/brook ☐	Wetlands ☐	Other (describe): ☐
b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters: Storm drain into Mother Brook. See Figure 4						
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 discharges, 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 <u>B</u> .						
e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water <u>0.15</u> 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? Yes ☒ No ☐ If yes, for which pollutant(s)? nutrients, low D.O., pathogens Is there a TMDL? Yes ☒ No ☐ If yes, for which pollutant(s)?						

6. Results of Consultation with Federal Services: Please provide the following information according to requirements of Part I.B.4 and Appendices II and VII.

a) Are any listed threatened or endangered species, or designated critical habitat, in proximity to the discharge? Yes ☐ No ☒
Has any consultation with the federal services been completed? Yes ☐ No ☒ or is consultation underway? Yes ☐ No ☐
What were the results of the consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service (check one):
a "no jeopardy" opinion? ☐ or written concurrence ☐ on a finding that the discharges are not likely to adversely affect any endangered species or critical habitat?
b) Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility or site or in proximity to the discharge?
Yes ☐ No ☒ Have any state or tribal historic preservation officer been consulted in this determination (Massachusetts only)? Yes ☐ No ☐

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.

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:

future site-Boston Renaissance Charter Public School

Operator signature:



Title:

CFO

Date:

4/23/09

Boston Water and Sewer Commission's Dewatering Discharge Permit Application

Facility/Business Name: Boston Renaissance Charter Public School

Mailing Address: 250 Stuart Street, Boston, MA 02116

Authorized Representative concerning information provided herein:

Name: Mr. Kevin Cherry Title: Chief Financial Officer

Phone #: 617-357-0900 x1212 Beeper #: Fax #: 617-357-0949

Owner of property being dewatered: Boston Renaissance Charter Public School

Location of Discharge:

Street Hyde Park Avenue Neighborhood Hyde Park Phone # N/A

Discharge is to a: Sanitary Sewer Combined Sewer Storm Drain (Circle One)

BWSC Outfall #: SDO244 Receiving Waters: Mother Brook

Temporary Discharges: 6/1/09 To 9/1/10 (Provide anticipated dates of discharge)

 Groundwater Remediation Tank Removal/Installation X Foundation Excavation

 Utility/Manhole Pumping Test Pit Trench Excavation

X Accum. Surface Water Hydrogeologic Testing Other

Permanent Discharges:

 Foundation Drainage Crawl Space/Footing Drain.

 Accumulated Surface Water Non-contact/Uncontaminated Cooling

 Non-contact/Uncontaminated Process Other

1. Attach a Site Plan showing the source of the discharge and the location of the point of discharge (i.e. the sewer pipe or catch basin). Include meter type, meter number, size, make and start reading. All discharges are assessed current sewer charges.
2. If discharging to a sanitary or combined sewer, attach a copy of MWRA's Sewer Use Discharge permit or application.
3. If discharging to a separate storm drain attached a copy of EPA's NPDES Permit or NOI application, or NPDES Permit exclusion letter for the discharge, as well as other relevant information.



Geotechnical Engineers

APPENDIX E

Groundwater Chemical Test Results

ALPHA ANALYTICAL

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220 www.alphalab.com
MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: McPhail Associates Laboratory Job Number: L0903860
Address: 2269 Massachusetts Avenue Date Received: 30-MAR-2009
Cambridge, MA 02140 Date Reported: 06-APR-2009
Attn: Mr. Ambrose Donovan Delivery Method: Alpha
Project Number: 4860.9.01 Site: BOSTON RENAISSANCE CHARTER

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0903860-01	MAI-1	A-15 HYDE PARK AVE.
L0903860-02	MAI-8	A-15 HYDE PARK AVE.
L0903860-03	TRIP BLANK	A-15 HYDE PARK AVE.

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

Authorized by: Elizabeth H. Simmons
Technical Representative

ALPHA ANALYTICAL
NARRATIVE REPORT

Laboratory Job Number: L0903860

The samples were received in accordance with the chain of custody and no significant deviations were encountered during preparation or analysis unless otherwise noted below.

Volatile Organics

The WG357153-4 LCS recovery associated with L0903860-01 and -02 was above the acceptance criteria for Carbon tetrachloride (152%); however, the associated samples were non-detect for this target compound. The results of the original analysis are reported.

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0903860-01

Date Collected: 30-MAR-2009 11:00

MAI-1

Date Received : 30-MAR-2009

Sample Matrix: WATER

Date Reported : 06-APR-2009

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 7-Amber,5-Plastic,4-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
General Chemistry - Westborough Lab							
Solids, Total Suspended	8.5	mg/l	5.0	30 2540D		0402 10:40	DW
Cyanide, Total	ND	mg/l	0.005	30 4500CN-CE	0403 11:00	0403 16:51	DD
Chlorine, Total Residual	ND	mg/l	0.02	30 4500CL-D		0330 20:00	JO
TPH	ND	mg/l	4.00	74 1664A	0401 18:00	0402 00:30	JO
Phenolics, Total	ND	mg/l	0.03	4 420.1		0402 16:08	TH
Chromium, Hexavalent	0.021	mg/l	0.010	30 3500CR-D	0331 01:30	0331 01:30	JT
Total Metals - Westborough Lab							
Antimony, Total	0.0009	mg/l	0.0005	1 6020	0401 11:20	0402 16:18	BM
Arsenic, Total	0.0027	mg/l	0.0005	1 6020	0401 11:20	0402 16:18	BM
Cadmium, Total	ND	mg/l	0.0002	1 6020	0401 11:20	0402 16:18	BM
Chromium, Total	0.0120	mg/l	0.0005	1 6020	0401 11:20	0402 16:18	BM
Copper, Total	0.1043	mg/l	0.0005	1 6020	0401 11:20	0402 16:18	BM
Iron, Total	0.11	mg/l	0.05	19 200.7	0401 11:20	0402 13:35	MG
Lead, Total	0.0011	mg/l	0.0005	1 6020	0401 11:20	0402 16:18	BM
Mercury, Total	ND	mg/l	0.0002	3 245.1	0331 12:30	0401 10:33	EZ
Nickel, Total	0.0145	mg/l	0.0005	1 6020	0401 11:20	0402 16:18	BM
Selenium, Total	0.003	mg/l	0.001	1 6020	0401 11:20	0402 16:18	BM
Silver, Total	ND	mg/l	0.0004	1 6020	0401 11:20	0402 16:18	BM
Zinc, Total	ND	mg/l	0.0050	1 6020	0401 11:20	0402 16:18	BM
Dissolved Metals - Westborough Lab							
Antimony, Dissolved	0.0011	mg/l	0.0005	1 6020	0401 11:20	0402 18:41	BM
Arsenic, Dissolved	0.0025	mg/l	0.0005	1 6020	0401 11:20	0402 18:41	BM
Cadmium, Dissolved	ND	mg/l	0.0002	1 6020	0401 11:20	0402 18:41	BM
Chromium, Dissolved	0.0114	mg/l	0.0005	1 6020	0401 11:20	0402 18:41	BM
Copper, Dissolved	0.0983	mg/l	0.0005	1 6020	0401 11:20	0402 18:41	BM
Iron, Dissolved	ND	mg/l	0.05	1 6010B	0403 11:20	0406 10:04	MG
Lead, Dissolved	ND	mg/l	0.0005	1 6020	0401 11:20	0402 18:41	BM
Mercury, Dissolved	ND	mg/l	0.0002	1 7470A	0331 12:30	0401 11:42	EZ
Nickel, Dissolved	0.0138	mg/l	0.0005	1 6020	0401 11:20	0402 18:41	BM
Selenium, Dissolved	0.002	mg/l	0.001	1 6020	0401 11:20	0402 18:41	BM
Silver, Dissolved	ND	mg/l	0.0004	1 6020	0401 11:20	0402 18:41	BM
Zinc, Dissolved	ND	mg/l	0.0050	1 6020	0401 11:20	0402 18:41	BM

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0903860-01

MAI-1

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Pesticides by GC - Westborough Lab				14 504.1	0406 09:30	0406 13:03	JB
1,2-Dibromoethane	ND	ug/l	0.020				
Volatile Organics by GC/MS - Westborough Lab				5 624		0331 10:20	TT
Methylene chloride	ND	ug/l	5.0				
1,1-Dichloroethane	ND	ug/l	1.5				
Chloroform	ND	ug/l	1.5				
Carbon tetrachloride	ND	ug/l	1.0				
1,2-Dichloropropane	ND	ug/l	3.5				
Dibromochloromethane	ND	ug/l	1.0				
1,1,2-Trichloroethane	ND	ug/l	1.5				
2-Chloroethylvinyl ether	ND	ug/l	10.				
Tetrachloroethene	ND	ug/l	1.5				
Chlorobenzene	ND	ug/l	3.5				
Trichlorofluoromethane	ND	ug/l	5.0				
1,2-Dichloroethane	ND	ug/l	1.5				
1,1,1-Trichloroethane	ND	ug/l	2.0				
Bromodichloromethane	ND	ug/l	1.0				
trans-1,3-Dichloropropene	ND	ug/l	1.5				
cis-1,3-Dichloropropene	ND	ug/l	1.5				
Bromoform	ND	ug/l	1.0				
1,1,2,2-Tetrachloroethane	ND	ug/l	1.0				
Benzene	ND	ug/l	1.0				
Toluene	ND	ug/l	1.0				
Ethylbenzene	ND	ug/l	1.0				
Chloromethane	ND	ug/l	10.				
Bromomethane	ND	ug/l	5.0				
Vinyl chloride	ND	ug/l	2.0				
Chloroethane	ND	ug/l	2.0				
1,1-Dichloroethene	ND	ug/l	1.0				
trans-1,2-Dichloroethene	ND	ug/l	1.5				
cis-1,2-Dichloroethene	3.7	ug/l	1.0				
Trichloroethene	1.8	ug/l	1.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
p/m-Xylene	ND	ug/l	2.0				
o-xylene	ND	ug/l	1.0				
Xylene (Total)	ND	ug/l	2.0				
Styrene	ND	ug/l	1.0				
Acetone	33	ug/l	10				
Carbon disulfide	ND	ug/l	5.0				
2-Butanone	ND	ug/l	10.				
Vinyl acetate	ND	ug/l	20.				
4-Methyl-2-pentanone	ND	ug/l	10.				
2-Hexanone	ND	ug/l	10.				
Acrolein	ND	ug/l	8.0				
Acrylonitrile	ND	ug/l	10.				
Methyl tert butyl ether	ND	ug/l	20.				
1,4-Dioxane	ND	ug/l	2000				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0903860-01
MAI-1

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Volatile Organics by GC/MS - Westborough Lab cont'd						
				5 624		0331 10:20 TT
Tert-Butyl Alcohol	ND	ug/l	100			
Tertiary-Amyl Methyl Ether	ND	ug/l	20.			
Surrogate(s)	Recovery		QC Criteria			
Pentafluorobenzene	83.0	%	80-120			
Fluorobenzene	88.0	%	80-120			
4-Bromofluorobenzene	109	%	80-120			
PAHs by GC/MS-SIM - Westborough Lab						
				1 8270C	0403 01:39 0405 08:42 HL	
Acenaphthene	ND	ug/l	0.19			
2-Chloronaphthalene	ND	ug/l	0.19			
Fluoranthene	ND	ug/l	0.19			
Naphthalene	ND	ug/l	0.19			
Benzo(a)anthracene	ND	ug/l	0.19			
Benzo(a)pyrene	ND	ug/l	0.19			
Benzo(b)fluoranthene	ND	ug/l	0.19			
Benzo(k)fluoranthene	ND	ug/l	0.19			
Chrysene	ND	ug/l	0.19			
Acenaphthylene	ND	ug/l	0.19			
Anthracene	ND	ug/l	0.19			
Benzo(ghi)perylene	ND	ug/l	0.19			
Fluorene	ND	ug/l	0.19			
Phenanthrene	0.21	ug/l	0.19			
Dibenzo(a,h)anthracene	ND	ug/l	0.19			
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.19			
Pyrene	ND	ug/l	0.19			
1-Methylnaphthalene	0.21	ug/l	0.19			
2-Methylnaphthalene	ND	ug/l	0.19			
Surrogate(s)	Recovery		QC Criteria			
Nitrobenzene-d5	56.0	%	23-120			
2-Fluorobiphenyl	49.0	%	43-120			
4-Terphenyl-d14	60.0	%	33-120			
Polychlorinated Biphenyls by GC - Westborough Lab						
				5 608	0402 03:03 0403 15:54 JB	
Aroclor 1016	ND	ug/l	0.258			
Aroclor 1221	ND	ug/l	0.258			
Aroclor 1232	ND	ug/l	0.258			
Aroclor 1242	ND	ug/l	0.258			
Aroclor 1248	ND	ug/l	0.258			
Aroclor 1254	ND	ug/l	0.258			
Aroclor 1260	ND	ug/l	0.258			
Surrogate(s)	Recovery		QC Criteria			
2,4,5,6-Tetrachloro-m-xylene	84.0	%	30-150			
Decachlorobiphenyl	114	%	30-150			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0903860-02

MAI-8

Sample Matrix: WATER

Date Collected: 30-MAR-2009 13:00

Date Received : 30-MAR-2009

Date Reported : 06-APR-2009

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 7-Amber,5-Plastic,4-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
General Chemistry - Westborough Lab							
Solids, Total Suspended	ND	mg/l	5.0	30 2540D		0402 10:40	DW
Cyanide, Total	ND	mg/l	0.005	30 4500CN-CE	0403 11:00	0403 16:53	DD
Chlorine, Total Residual	ND	mg/l	0.02	30 4500CL-D		0330 20:00	JO
TPH	ND	mg/l	4.00	74 1664A	0401 18:00	0402 00:30	JO
Phenolics, Total	ND	mg/l	0.03	4 420.1		0402 16:09	TH
Chromium, Hexavalent	ND	mg/l	0.010	30 3500CR-D	0331 01:30	0331 01:30	JT
Total Metals - Westborough Lab							
Antimony, Total	ND	mg/l	0.0005	1 6020	0401 11:20	0402 16:26	BM
Arsenic, Total	ND	mg/l	0.0005	1 6020	0401 11:20	0402 16:26	BM
Cadmium, Total	ND	mg/l	0.0002	1 6020	0401 11:20	0402 16:26	BM
Chromium, Total	ND	mg/l	0.0005	1 6020	0401 11:20	0402 16:26	BM
Copper, Total	0.0014	mg/l	0.0005	1 6020	0401 11:20	0402 16:26	BM
Iron, Total	ND	mg/l	0.05	19 200.7	0401 11:20	0402 13:38	MG
Lead, Total	ND	mg/l	0.0005	1 6020	0401 11:20	0402 16:26	BM
Mercury, Total	ND	mg/l	0.0002	3 245.1	0331 12:30	0401 10:35	EZ
Nickel, Total	0.0030	mg/l	0.0005	1 6020	0401 11:20	0402 16:26	BM
Selenium, Total	0.001	mg/l	0.001	1 6020	0401 11:20	0402 16:26	BM
Silver, Total	ND	mg/l	0.0004	1 6020	0401 11:20	0402 16:26	BM
Zinc, Total	0.0202	mg/l	0.0050	1 6020	0401 11:20	0402 16:26	BM
Dissolved Metals - Westborough Lab							
Antimony, Dissolved	ND	mg/l	0.0005	1 6020	0401 11:20	0402 18:47	BM
Arsenic, Dissolved	ND	mg/l	0.0005	1 6020	0401 11:20	0402 18:47	BM
Cadmium, Dissolved	ND	mg/l	0.0002	1 6020	0401 11:20	0402 18:47	BM
Chromium, Dissolved	ND	mg/l	0.0005	1 6020	0401 11:20	0402 18:47	BM
Copper, Dissolved	0.0013	mg/l	0.0005	1 6020	0401 11:20	0402 18:47	BM
Iron, Dissolved	ND	mg/l	0.05	1 6010B	0403 11:20	0406 10:07	MG
Lead, Dissolved	ND	mg/l	0.0005	1 6020	0401 11:20	0402 18:47	BM
Mercury, Dissolved	ND	mg/l	0.0002	1 7470A	0331 12:30	0401 11:44	EZ
Nickel, Dissolved	0.0028	mg/l	0.0005	1 6020	0401 11:20	0402 18:47	BM
Selenium, Dissolved	ND	mg/l	0.001	1 6020	0401 11:20	0402 18:47	BM
Silver, Dissolved	ND	mg/l	0.0004	1 6020	0401 11:20	0402 18:47	BM
Zinc, Dissolved	0.0193	mg/l	0.0050	1 6020	0401 11:20	0402 18:47	BM

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0903860-02
MAI-8

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Pesticides by GC - Westborough Lab				14 504.1	0406 09:30	0406 13:16	JB
1,2-Dibromoethane	ND	ug/l	0.020				
Volatile Organics by GC/MS - Westborough Lab				5 624		0331 10:54	TT
Methylene chloride	ND	ug/l	5.0				
1,1-Dichloroethane	ND	ug/l	1.5				
Chloroform	ND	ug/l	1.5				
Carbon tetrachloride	ND	ug/l	1.0				
1,2-Dichloropropane	ND	ug/l	3.5				
Dibromochloromethane	ND	ug/l	1.0				
1,1,2-Trichloroethane	ND	ug/l	1.5				
2-Chloroethylvinyl ether	ND	ug/l	10.				
Tetrachloroethene	ND	ug/l	1.5				
Chlorobenzene	ND	ug/l	3.5				
Trichlorofluoromethane	ND	ug/l	5.0				
1,2-Dichloroethane	ND	ug/l	1.5				
1,1,1-Trichloroethane	ND	ug/l	2.0				
Bromodichloromethane	ND	ug/l	1.0				
trans-1,3-Dichloropropene	ND	ug/l	1.5				
cis-1,3-Dichloropropene	ND	ug/l	1.5				
Bromoform	ND	ug/l	1.0				
1,1,2,2-Tetrachloroethane	ND	ug/l	1.0				
Benzene	ND	ug/l	1.0				
Toluene	ND	ug/l	1.0				
Ethylbenzene	ND	ug/l	1.0				
Chloromethane	ND	ug/l	10.				
Bromomethane	ND	ug/l	5.0				
Vinyl chloride	ND	ug/l	2.0				
Chloroethane	ND	ug/l	2.0				
1,1-Dichloroethene	ND	ug/l	1.0				
trans-1,2-Dichloroethene	ND	ug/l	1.5				
cis-1,2-Dichloroethene	ND	ug/l	1.0				
Trichloroethene	1.2	ug/l	1.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
p/m-Xylene	ND	ug/l	2.0				
o-xylene	ND	ug/l	1.0				
Xylene (Total)	ND	ug/l	2.0				
Styrene	ND	ug/l	1.0				
Acetone	ND	ug/l	10.				
Carbon disulfide	ND	ug/l	5.0				
2-Butanone	ND	ug/l	10.				
Vinyl acetate	ND	ug/l	20.				
4-Methyl-2-pentanone	ND	ug/l	10.				
2-Hexanone	ND	ug/l	10.				
Acrolein	ND	ug/l	8.0				
Acrylonitrile	ND	ug/l	10.				
Methyl tert butyl ether	ND	ug/l	20.				
1,4-Dioxane	ND	ug/l	2000				

Comments: Complete list of References and Glossary of Terms found in Addendum I.

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0903860-02
MAI-8

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by GC/MS - Westborough Lab cont'd				5	624		0331 10:54 TT
Tert-Butyl Alcohol	ND	ug/l	100				
Tertiary-Amyl Methyl Ether	ND	ug/l	20.				
Surrogate(s)	Recovery		QC Criteria				
Pentafluorobenzene	81.0	%	80-120				
Fluorobenzene	88.0	%	80-120				
4-Bromofluorobenzene	113	%	80-120				
PAHs by GC/MS-SIM - Westborough Lab				1	8270C	0403 01:39 0405 09:11	HL
Acenaphthene	ND	ug/l	0.19				
2-Chloronaphthalene	ND	ug/l	0.19				
Fluoranthene	ND	ug/l	0.19				
Naphthalene	ND	ug/l	0.19				
Benzo(a)anthracene	ND	ug/l	0.19				
Benzo(a)pyrene	ND	ug/l	0.19				
Benzo(b)fluoranthene	ND	ug/l	0.19				
Benzo(k)fluoranthene	ND	ug/l	0.19				
Chrysene	ND	ug/l	0.19				
Acenaphthylene	ND	ug/l	0.19				
Anthracene	ND	ug/l	0.19				
Benzo(ghi)perylene	ND	ug/l	0.19				
Fluorene	ND	ug/l	0.19				
Phenanthrene	ND	ug/l	0.19				
Dibenzo(a,h)anthracene	ND	ug/l	0.19				
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.19				
Pyrene	ND	ug/l	0.19				
1-Methylnaphthalene	ND	ug/l	0.19				
2-Methylnaphthalene	ND	ug/l	0.19				
Surrogate(s)	Recovery		QC Criteria				
Nitrobenzene-d5	55.0	%	23-120				
2-Fluorobiphenyl	43.0	%	43-120				
4-Terphenyl-d14	66.0	%	33-120				
Polychlorinated Biphenyls by GC - Westborough Lab				5	608	0402 03:03 0403 15:41	JB
Aroclor 1016	ND	ug/l	0.258				
Aroclor 1221	ND	ug/l	0.258				
Aroclor 1232	ND	ug/l	0.258				
Aroclor 1242	ND	ug/l	0.258				
Aroclor 1248	ND	ug/l	0.258				
Aroclor 1254	ND	ug/l	0.258				
Aroclor 1260	ND	ug/l	0.258				
Surrogate(s)	Recovery		QC Criteria				
2,4,5,6-Tetrachloro-m-xylene	75.0	%	30-150				
Decachlorobiphenyl	119	%	30-150				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0903860-03

Date Collected: 30-MAR-2009 00:00

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Date Received : 30-MAR-2009

Sample Matrix:

WATER

Date Reported : 06-APR-2009

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 3-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	

***** THIS SAMPLE IS ON HOLD *****

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0903860

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
General Chemistry - Westborough Lab for sample(s) 01-02 (L0903928-01, WG357511-2)					
Solids, Total Suspended	41	44	mg/l	7	32
General Chemistry - Westborough Lab for sample(s) 01-02 (L0903860-01, WG357788-4)					
Cyanide, Total	ND	ND	mg/l	NC	30
General Chemistry - Westborough Lab for sample(s) 01-02 (L0903860-02, WG357226-3)					
Chlorine, Total Residual	ND	ND	mg/l	NC	
General Chemistry - Westborough Lab for sample(s) 01-02 (L0903860-01, WG357485-4)					
TPH	ND	ND	mg/l	NC	34
General Chemistry - Westborough Lab for sample(s) 01-02 (L0903857-01, WG357624-4)					
Phenolics, Total	ND	ND	mg/l	NC	12
General Chemistry - Westborough Lab for sample(s) 01-02 (L0903860-01, WG357230-3)					
Chromium, Hexavalent	0.021	0.021	mg/l	0	20
Total Metals - Westborough Lab for sample(s) 01-02 (L0903857-01, WG357535-3)					
Antimony, Total	ND	ND	mg/l	NC	20
Arsenic, Total	0.0118	0.0112	mg/l	5	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	0.0007	0.0007	mg/l	4	20
Copper, Total	0.0042	0.0044	mg/l	6	20
Lead, Total	ND	ND	mg/l	NC	20
Nickel, Total	0.0053	0.0054	mg/l	2	20
Selenium, Total	0.026	0.028	mg/l	6	20
Silver, Total	ND	ND	mg/l	NC	20
Zinc, Total	0.0219	0.0217	mg/l	1	20
Total Metals - Westborough Lab for sample(s) 01-02 (L0903857-01, WG357534-3)					
Iron, Total	21	23	mg/l	9	20
Total Metals - Westborough Lab for sample(s) 01-02 (L0903857-01, WG357308-3)					
Mercury, Total	ND	ND	mg/l	NC	
Dissolved Metals - Westborough Lab for sample(s) 01-02 (L0903887-06, WG357536-3)					
Cadmium, Dissolved	ND	ND	mg/l	NC	20
Lead, Dissolved	ND	ND	mg/l	NC	20
Dissolved Metals - Westborough Lab for sample(s) 01-02 (L0903860-02, WG357758-3)					
Iron, Dissolved	ND	ND	mg/l	NC	20
Dissolved Metals - Westborough Lab for sample(s) 01-02 (L0903887-01, WG357310-3)					
Mercury, Dissolved	ND	ND	mg/l	NC	20

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0903860

Continued

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Volatile Organics by GC/MS - Westborough Lab for sample(s) 01-02 (L0903860-01, WG357153-6)					
Methylene chloride	ND	ND	ug/l	NC	30
1,1-Dichloroethane	ND	ND	ug/l	NC	30
Chloroform	ND	ND	ug/l	NC	30
Carbon tetrachloride	ND	ND	ug/l	NC	30
1,2-Dichloropropane	ND	ND	ug/l	NC	30
Dibromochloromethane	ND	ND	ug/l	NC	30
1,1,2-Trichloroethane	ND	ND	ug/l	NC	30
2-Chloroethylvinyl ether	ND	ND	ug/l	NC	30
Tetrachloroethene	ND	ND	ug/l	NC	30
Chlorobenzene	ND	ND	ug/l	NC	30
Trichlorofluoromethane	ND	ND	ug/l	NC	30
1,2-Dichloroethane	ND	ND	ug/l	NC	30
1,1,1-Trichloroethane	ND	ND	ug/l	NC	30
Bromodichloromethane	ND	ND	ug/l	NC	30
trans-1,3-Dichloropropene	ND	ND	ug/l	NC	30
cis-1,3-Dichloropropene	ND	ND	ug/l	NC	30
Bromoform	ND	ND	ug/l	NC	30
1,1,2,2-Tetrachloroethane	ND	ND	ug/l	NC	30
Benzene	ND	ND	ug/l	NC	30
Toluene	ND	ND	ug/l	NC	30
Ethylbenzene	ND	ND	ug/l	NC	30
Chloromethane	ND	ND	ug/l	NC	30
Bromomethane	ND	ND	ug/l	NC	30
Vinyl chloride	ND	ND	ug/l	NC	30
Chloroethane	ND	ND	ug/l	NC	30
1,1-Dichloroethene	ND	ND	ug/l	NC	30
trans-1,2-Dichloroethene	ND	ND	ug/l	NC	30
cis-1,2-Dichloroethene	3.7	3.2	ug/l	14	30
Trichloroethene	1.8	1.9	ug/l	5	30
1,2-Dichlorobenzene	ND	ND	ug/l	NC	30
1,3-Dichlorobenzene	ND	ND	ug/l	NC	30
1,4-Dichlorobenzene	ND	ND	ug/l	NC	30
p/m-Xylene	ND	ND	ug/l	NC	30
o-xylene	ND	ND	ug/l	NC	30
Xylene (Total)	ND	ND	ug/l	NC	30
Styrene	ND	ND	ug/l	NC	30
Acetone	33	32	ug/l	3	30
Carbon disulfide	ND	ND	ug/l	NC	30
2-Butanone	ND	ND	ug/l	NC	30
Vinyl acetate	ND	ND	ug/l	NC	30
4-Methyl-2-pentanone	ND	ND	ug/l	NC	30
2-Hexanone	ND	ND	ug/l	NC	30
Acrolein	ND	ND	ug/l	NC	30
Acrylonitrile	ND	ND	ug/l	NC	30
Methyl tert butyl ether	ND	ND	ug/l	NC	30
1,4-Dioxane	ND	ND	ug/l	NC	30
Tert-Butyl Alcohol	ND	ND	ug/l	NC	30
Tertiary-Amyl Methyl Ether	ND	ND	ug/l	NC	30

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0903860

Continued

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Volatile Organics by GC/MS - Westborough Lab for sample(s) 01-02 (L0903860-01, WG357153-6)					
Surrogate(s)	Recovery				QC Criteria
Pentafluorobenzene	83.0	80.0	%		80-120
Fluorobenzene	88.0	85.0	%		80-120
4-Bromofluorobenzene	109	109	%		80-120
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s) 01-02 (L0903857-01, WG357506-4)					
Aroclor 1016	ND	ND	ug/l	NC	30
Aroclor 1221	ND	ND	ug/l	NC	30
Aroclor 1232	ND	ND	ug/l	NC	30
Aroclor 1242	ND	ND	ug/l	NC	30
Aroclor 1248	ND	ND	ug/l	NC	30
Aroclor 1254	ND	ND	ug/l	NC	30
Aroclor 1260	ND	ND	ug/l	NC	30
Surrogate(s)	Recovery				QC Criteria
2,4,5,6-Tetrachloro-m-xylene	58.0	82.0	%		30-150
Decachlorobiphenyl	84.0	84.0	%		30-150

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0903860

Parameter	% Recovery	QC Criteria
General Chemistry - Westborough Lab LCS for sample(s) 01-02 (WG357788-1)		
Cyanide, Total	103	80-120
General Chemistry - Westborough Lab LCS for sample(s) 01-02 (WG357226-1)		
Chlorine, Total Residual	101	
General Chemistry - Westborough Lab LCS for sample(s) 01-02 (WG357485-1)		
TPH	80	64-132
General Chemistry - Westborough Lab LCS for sample(s) 01-02 (WG357624-2)		
Phenolics, Total	94	82-111
General Chemistry - Westborough Lab LCS for sample(s) 01-02 (WG357230-2)		
Chromium, Hexavalent	98	85-115
Total Metals - Westborough Lab LCS for sample(s) 01-02 (WG357535-2)		
Antimony, Total	96	80-120
Arsenic, Total	97	80-120
Cadmium, Total	102	80-120
Chromium, Total	102	80-120
Copper, Total	101	80-120
Lead, Total	101	80-120
Nickel, Total	100	80-120
Selenium, Total	98	80-120
Silver, Total	104	80-120
Zinc, Total	106	80-120
Total Metals - Westborough Lab LCS for sample(s) 01-02 (WG357534-2)		
Iron, Total	98	85-115
Total Metals - Westborough Lab LCS for sample(s) 01-02 (WG357308-2)		
Mercury, Total	103	
Dissolved Metals - Westborough Lab LCS for sample(s) 01-02 (WG357536-2)		
Antimony, Dissolved	108	80-120
Arsenic, Dissolved	107	80-120
Cadmium, Dissolved	119	80-120
Chromium, Dissolved	118	80-120
Copper, Dissolved	116	80-120
Lead, Dissolved	115	80-120
Nickel, Dissolved	115	80-120
Selenium, Dissolved	109	80-120
Silver, Dissolved	114	80-120
Zinc, Dissolved	117	80-120
Dissolved Metals - Westborough Lab LCS for sample(s) 01-02 (WG357758-2)		
Iron, Dissolved	96	80-120

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0903860

Continued

Parameter	% Recovery	QC Criteria
Dissolved Metals - Westborough Lab LCS for sample(s) 01-02 (WG357310-2)		
Mercury, Dissolved	111	70-130
Pesticides by GC - Westborough Lab LCS for sample(s) 01-02 (WG357920-2)		
1,2-Dibromoethane	86	70-130
1,2-Dibromo-3-chloropropane	100	70-130
Volatile Organics by GC/MS - Westborough Lab LCS for sample(s) 01-02 (WG357153-4)		
Methylene chloride	119	1-221
1,1-Dichloroethane	128	59-155
Chloroform	125	51-138
Carbon tetrachloride	152	70-140
1,2-Dichloropropane	124	1-210
Dibromochloromethane	141	53-149
1,1,2-Trichloroethane	121	52-150
2-Chloroethylvinyl ether	79	1-305
Tetrachloroethene	113	64-148
Chlorobenzene	99	37-160
Trichlorofluoromethane	131	17-181
1,2-Dichloroethane	154	49-155
1,1,1-Trichloroethane	157	52-162
Bromodichloromethane	152	35-155
trans-1,3-Dichloropropene	124	17-183
cis-1,3-Dichloropropene	118	1-227
Bromoform	145	45-169
1,1,2,2-Tetrachloroethane	108	46-157
Benzene	121	37-151
Toluene	114	47-150
Ethylbenzene	112	37-162
Chloromethane	132	1-273
Bromomethane	81	1-242
Vinyl chloride	121	1-251
Chloroethane	108	14-230
1,1-Dichloroethene	117	1-234
trans-1,2-Dichloroethene	113	54-156
cis-1,2-Dichloroethene	97	60-140
Trichloroethene	106	71-157
1,2-Dichlorobenzene	109	18-190
1,3-Dichlorobenzene	102	59-156
1,4-Dichlorobenzene	113	18-190
p/m-Xylene	116	40-160
o-Xylene	114	40-160
XYLENE (TOTAL)	116	40-160
Styrene	105	40-160
Acetone	145	40-160
Carbon disulfide	97	40-160
2-Butanone	105	40-160
Vinyl acetate	97	40-160
4-Methyl-2-pentanone	113	40-160

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0903860

Continued

Parameter	% Recovery	QC Criteria
Volatile Organics by GC/MS - Westborough Lab LCS for sample(s) 01-02 (WG357153-4)		
2-Hexanone	134	40-160
Acrolein	72	40-160
Acrylonitrile	106	40-160
Surrogate(s)		
Pentafluorobenzene	94	80-120
Fluorobenzene	96	80-120
4-Bromofluorobenzene	102	80-120
Polychlorinated Biphenyls by GC - Westborough Lab LCS for sample(s) 01-02 (WG357506-2)		
Aroclor 1016	79	40-126
Aroclor 1260	89	40-127
Surrogate(s)		
2,4,5,6-Tetrachloro-m-xylene	61	30-150
Decachlorobiphenyl	110	30-150
General Chemistry - Westborough Lab SPIKE for sample(s) 01-02 (L0903860-01, WG357788-3)		
Cyanide, Total	106	80-120
General Chemistry - Westborough Lab SPIKE for sample(s) 01-02 (L0903860-02, WG357485-3)		
TPH	83	64-132
General Chemistry - Westborough Lab SPIKE for sample(s) 01-02 (L0903857-01, WG357624-3)		
Phenolics, Total	96	77-124
General Chemistry - Westborough Lab SPIKE for sample(s) 01-02 (L0903860-02, WG357230-4)		
Chromium, Hexavalent	100	85-115
Total Metals - Westborough Lab SPIKE for sample(s) 01-02 (L0903857-01, WG357535-4)		
Antimony, Total	108	80-120
Arsenic, Total	115	80-120
Cadmium, Total	118	80-120
Chromium, Total	107	80-120
Lead, Total	112	80-120
Nickel, Total	100	80-120
Selenium, Total	106	80-120
Silver, Total	104	80-120
Zinc, Total	103	80-120
Total Metals - Westborough Lab SPIKE for sample(s) 01-02 (L0903857-01, WG357534-4)		
Iron, Total	200	75-125
Total Metals - Westborough Lab SPIKE for sample(s) 01-02 (L0903857-01, WG357308-4)		
Mercury, Total	92	

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0903860

Continued

Parameter	% Recovery	QC Criteria
Dissolved Metals - Westborough Lab SPIKE for sample(s) 01-02 (L0903887-06, WG357536-4)		
Antimony, Dissolved	99	80-120
Arsenic, Dissolved	104	80-120
Cadmium, Dissolved	111	80-120
Chromium, Dissolved	105	80-120
Copper, Dissolved	105	80-120
Lead, Dissolved	104	80-120
Nickel, Dissolved	103	80-120
Selenium, Dissolved	104	80-120
Silver, Dissolved	104	80-120
Zinc, Dissolved	110	80-120
Dissolved Metals - Westborough Lab SPIKE for sample(s) 01-02 (L0903860-02, WG357758-4)		
Iron, Dissolved	94	75-125
Dissolved Metals - Westborough Lab SPIKE for sample(s) 01-02 (L0903887-01, WG357310-4)		
Mercury, Dissolved	124	70-130
Pesticides by GC - Westborough Lab SPIKE for sample(s) 01-02 (L0903857-01, WG357920-3)		
1,2-Dibromoethane	87	70-130
1,2-Dibromo-3-chloropropane	96	70-130
Volatile Organics by GC/MS - Westborough Lab SPIKE for sample(s) 01-02 (L0903755-01, WG357153)		
Methylene chloride	111	1-221
1,1-Dichloroethane	118	59-155
Chloroform	121	51-138
Carbon tetrachloride	152	70-140
1,2-Dichloropropane	117	1-210
Dibromochloromethane	134	53-149
1,1,2-Trichloroethane	119	52-150
2-Chloroethylvinyl ether	78	1-305
Tetrachloroethene	126	64-148
Chlorobenzene	99	37-160
Trichlorofluoromethane	147	17-181
1,2-Dichloroethane	151	49-155
1,1,1-Trichloroethane	160	52-162
Bromodichloromethane	147	35-155
trans-1,3-Dichloropropene	128	17-183
cis-1,3-Dichloropropene	114	1-227
Bromoform	142	45-169
1,1,2,2-Tetrachloroethane	104	46-157
Benzene	120	35-151
Toluene	113	47-150
Ethylbenzene	113	37-162
Chloromethane	127	1-273
Bromomethane	76	1-242
Vinyl chloride	121	1-251
Chloroethane	100	14-230
1,1-Dichloroethene	123	1-234

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0903860

Continued

Parameter	% Recovery	QC Criteria
Volatile Organics by GC/MS - Westborough Lab SPIKE for sample(s) 01-02 (L0903755-01, WG357153-)		
trans-1,2-Dichloroethene	119	54-156
cis-1,2-Dichloroethene	104	60-140
Trichloroethene	121	71-157
1,2-Dichlorobenzene	116	18-190
1,3-Dichlorobenzene	109	59-156
1,4-Dichlorobenzene	118	18-190
p/m-Xylene	116	40-160
o-Xylene	109	40-160
XYLENE (TOTAL)	114	40-160
Styrene	106	40-160
Acetone	142	40-160
Carbon disulfide	110	40-160
2-Butanone	96	40-160
Vinyl acetate	97	40-160
4-Methyl-2-pentanone	102	40-160
2-Hexanone	123	40-160
Acrolein	59	40-160
Acrylonitrile	101	40-160
Surrogate(s)		
Pentafluorobenzene	94	80-120
Fluorobenzene	95	80-120
4-Bromofluorobenzene	98	80-120
Polychlorinated Biphenyls by GC - Westborough Lab SPIKE for sample(s) 01-02 (L0903857-01, WG35)		
Aroclor 1016	76	40-126
Aroclor 1260	88	40-127
Surrogate(s)		
2,4,5,6-Tetrachloro-m-xylene	62	30-150
Decachlorobiphenyl	66	30-150

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0903860

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
PAHs by GC/MS-SIM - Westborough Lab for sample(s) 01-02 (WG357679-2, WG357679-3)					
Acenaphthene	74	71	4	40	40-140
2-Chloronaphthalene	68	73	7	40	40-140
Fluoranthene	89	80	11	40	40-140
Anthracene	62	58	7	40	40-140
Pyrene	92	82	11	40	40-140
Surrogate(s)					
Nitrobenzene-d5	78	73	7		23-120
2-Fluorobiphenyl	59	56	5		43-120
4-Terphenyl-d14	81	68	17		33-120

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0903860

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01-02 (WG357511-1)							
General Chemistry - Westborough Lab							
Solids, Total Suspended	ND	mg/l	5.0	30 2540D		0402 10:40	DW
Blank Analysis for sample(s) 01-02 (WG357788-2)							
General Chemistry - Westborough Lab							
Cyanide, Total	ND	mg/l	0.005	30 4500CN-CE	0403 11:00	0403 16:41	DD
Blank Analysis for sample(s) 01-02 (WG357226-2)							
General Chemistry - Westborough Lab							
Chlorine, Total Residual	ND	mg/l	0.02	30 4500CL-D		0330 20:00	JO
Blank Analysis for sample(s) 01-02 (WG357485-2)							
General Chemistry - Westborough Lab							
TPH	ND	mg/l	4.00	74 1664A	0401 18:00	0402 00:30	JO
Blank Analysis for sample(s) 01-02 (WG357624-1)							
General Chemistry - Westborough Lab							
Phenolics, Total	ND	mg/l	0.03	4 420.1		0402 16:04	TH
Blank Analysis for sample(s) 01-02 (WG357230-1)							
General Chemistry - Westborough Lab							
Chromium, Hexavalent	ND	mg/l	0.010	30 3500CR-D	0331 01:30	0331 01:30	JT
Blank Analysis for sample(s) 01-02 (WG357535-1)							
Total Metals - Westborough Lab							
Antimony, Total	ND	mg/l	0.0005	1 6020	0401 11:20	0402 15:48	BM
Arsenic, Total	ND	mg/l	0.0005	1 6020	0401 11:20	0402 15:48	BM
Cadmium, Total	ND	mg/l	0.0002	1 6020	0401 11:20	0402 15:48	BM
Chromium, Total	ND	mg/l	0.0005	1 6020	0401 11:20	0402 15:48	BM
Copper, Total	ND	mg/l	0.0005	1 6020	0401 11:20	0402 15:48	BM
Lead, Total	ND	mg/l	0.0005	1 6020	0401 11:20	0402 15:48	BM
Nickel, Total	ND	mg/l	0.0005	1 6020	0401 11:20	0402 15:48	BM
Selenium, Total	ND	mg/l	0.001	1 6020	0401 11:20	0402 15:48	BM
Silver, Total	ND	mg/l	0.0004	1 6020	0401 11:20	0402 15:48	BM
Zinc, Total	ND	mg/l	0.0050	1 6020	0401 11:20	0402 15:48	BM

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0903860

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01-02 (WG357534-1)							
Total Metals - Westborough Lab				19	200.7		
Iron, Total	ND	mg/l	0.05	19	200.7	0401 11:20 0402 13:18	MG
Blank Analysis for sample(s) 01-02 (WG357308-1)							
Total Metals - Westborough Lab							
Mercury, Total	ND	mg/l	0.0002	3	245.1	0331 12:30 0401 10:21	EZ
Blank Analysis for sample(s) 01-02 (WG357536-1)							
Dissolved Metals - Westborough Lab							
Antimony, Dissolved	ND	mg/l	0.0005	1	6020	0401 11:20 0402 18:30	BM
Arsenic, Dissolved	ND	mg/l	0.0005	1	6020	0401 11:20 0402 18:30	BM
Cadmium, Dissolved	ND	mg/l	0.0002	1	6020	0401 11:20 0402 18:30	BM
Chromium, Dissolved	ND	mg/l	0.0005	1	6020	0401 11:20 0402 18:30	BM
Copper, Dissolved	ND	mg/l	0.0005	1	6020	0401 11:20 0402 18:30	BM
Lead, Dissolved	ND	mg/l	0.0005	1	6020	0401 11:20 0402 18:30	BM
Nickel, Dissolved	ND	mg/l	0.0005	1	6020	0401 11:20 0402 18:30	BM
Selenium, Dissolved	ND	mg/l	0.001	1	6020	0401 11:20 0402 18:30	BM
Silver, Dissolved	ND	mg/l	0.0004	1	6020	0401 11:20 0402 18:30	BM
Zinc, Dissolved	ND	mg/l	0.0050	1	6020	0401 11:20 0402 18:30	BM
Blank Analysis for sample(s) 01-02 (WG357758-1)							
Dissolved Metals - Westborough Lab							
Iron, Dissolved	ND	mg/l	0.05	1	6010B	0403 11:20 0406 09:58	MG
Blank Analysis for sample(s) 01-02 (WG357310-1)							
Dissolved Metals - Westborough Lab							
Mercury, Dissolved	ND	mg/l	0.0002	1	7470A	0331 12:30 0401 11:31	EZ
Blank Analysis for sample(s) 01-02 (WG357920-1)							
Pesticides by GC - Westborough Lab				14	504.1	0406 09:30 0406 12:12	JB
1,2-Dibromoethane	ND	ug/l	0.020				
1,2-Dibromo-3-chloropropane	ND	ug/l	0.020				
Blank Analysis for sample(s) 01-02 (WG357153-5)							
Volatile Organics by GC/MS - Westborough Lab				5	624	0331 08:14	TT
Methylene chloride	ND	ug/l	5.0				
1,1-Dichloroethane	ND	ug/l	1.5				
Chloroform	ND	ug/l	1.5				
Carbon tetrachloride	ND	ug/l	1.0				
1,2-Dichloropropane	ND	ug/l	3.5				
Dibromochloromethane	ND	ug/l	1.0				
1,1,2-Trichloroethane	ND	ug/l	1.5				

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0903860

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01-02 (WG357153-5)							
Volatile Organics by GC/MS - Westborough Lab cont'd				5 624	0331 08:14 TT		
2-Chloroethylvinyl ether	ND	ug/l	10.				
Tetrachloroethene	ND	ug/l	1.5				
Chlorobenzene	ND	ug/l	3.5				
Trichlorofluoromethane	ND	ug/l	5.0				
1,2-Dichloroethane	ND	ug/l	1.5				
1,1,1-Trichloroethane	ND	ug/l	2.0				
Bromodichloromethane	ND	ug/l	1.0				
trans-1,3-Dichloropropene	ND	ug/l	1.5				
cis-1,3-Dichloropropene	ND	ug/l	1.5				
Bromoform	ND	ug/l	1.0				
1,1,2,2-Tetrachloroethane	ND	ug/l	1.0				
Benzene	ND	ug/l	1.0				
Toluene	ND	ug/l	1.0				
Ethylbenzene	ND	ug/l	1.0				
Chloromethane	ND	ug/l	10.				
Bromomethane	ND	ug/l	5.0				
Vinyl chloride	ND	ug/l	2.0				
Chloroethane	ND	ug/l	2.0				
1,1-Dichloroethene	ND	ug/l	1.0				
trans-1,2-Dichloroethene	ND	ug/l	1.5				
cis-1,2-Dichloroethene	ND	ug/l	1.0				
Trichloroethene	ND	ug/l	1.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
p/m-Xylene	ND	ug/l	2.0				
o-xylene	ND	ug/l	1.0				
Xylene (Total)	ND	ug/l	2.0				
Styrene	ND	ug/l	1.0				
Acetone	ND	ug/l	10.				
Carbon disulfide	ND	ug/l	5.0				
2-Butanone	ND	ug/l	10.				
Vinyl acetate	ND	ug/l	20.				
4-Methyl-2-pentanone	ND	ug/l	10.				
2-Hexanone	ND	ug/l	10.				
Acrolein	ND	ug/l	8.0				
Acrylonitrile	ND	ug/l	10.				
Methyl tert butyl ether	ND	ug/l	20.				
1,4-Dioxane	ND	ug/l	2000				
Tert-Butyl Alcohol	ND	ug/l	100				
Tertiary-Amyl Methyl Ether	ND	ug/l	20.				
Surrogate(s)	Recovery		QC Criteria				
Pentafluorobenzene	89.0	%	80-120				
Fluorobenzene	89.0	%	80-120				
4-Bromofluorobenzene	107	%	80-120				

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0903860

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	ID ANAL
Blank Analysis for sample(s) 01-02 (WG357679-1)						
PAHs by GC/MS-SIM - Westborough Lab				1 8270C	0403 01:39	0405 07:14 HL
Acenaphthene	ND	ug/l	0.20			
2-Chloronaphthalene	ND	ug/l	0.20			
Fluoranthene	ND	ug/l	0.20			
Naphthalene	ND	ug/l	0.20			
Benzo(a)anthracene	ND	ug/l	0.20			
Benzo(a)pyrene	ND	ug/l	0.20			
Benzo(b)fluoranthene	ND	ug/l	0.20			
Benzo(k)fluoranthene	ND	ug/l	0.20			
Chrysene	ND	ug/l	0.20			
Acenaphthylene	ND	ug/l	0.20			
Anthracene	ND	ug/l	0.20			
Benzo(ghi)perylene	ND	ug/l	0.20			
Fluorene	ND	ug/l	0.20			
Phenanthrene	ND	ug/l	0.20			
Dibenzo(a,h)anthracene	ND	ug/l	0.20			
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.20			
Pyrene	ND	ug/l	0.20			
1-Methylnaphthalene	ND	ug/l	0.20			
2-Methylnaphthalene	ND	ug/l	0.20			
Surrogate(s)	Recovery		QC Criteria			
Nitrobenzene-d5	82.0	%	23-120			
2-Fluorobiphenyl	62.0	%	43-120			
4-Terphenyl-d14	73.0	%	33-120			
Blank Analysis for sample(s) 01-02 (WG357506-1)						
Polychlorinated Biphenyls by GC - Westborough Lab				5 608	0402 03:03	0403 14:36 JB
Aroclor 1016	ND	ug/l	0.250			
Aroclor 1221	ND	ug/l	0.250			
Aroclor 1232	ND	ug/l	0.250			
Aroclor 1242	ND	ug/l	0.250			
Aroclor 1248	ND	ug/l	0.250			
Aroclor 1254	ND	ug/l	0.250			
Aroclor 1260	ND	ug/l	0.250			
Surrogate(s)	Recovery		QC Criteria			
2,4,5,6-Tetrachloro-m-xylene	65.0	%	30-150			
Decachlorobiphenyl	102	%	30-150			

ALPHA ANALYTICAL
ADDENDUM I

REFERENCES

1. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.
3. Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.
4. Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.
5. Methods for the Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A, Part 136, 40 CFR (Code of Federal Regulations).
14. Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.
19. Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.
30. Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.
74. Method 1664, Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.

ALPHA ANALYTICAL
ADDENDUM I

REFERENCES

GLOSSARY OF TERMS AND SYMBOLS

REF Reference number in which test method may be found.
METHOD Method number by which analysis was performed.
ID Initials of the analyst.
ND Not detected in comparison to the reported detection limit.
NI Not Ignitable.
ug/cart Micrograms per Cartridge.
H The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

LIMITATION OF LIABILITIES

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

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

Certificate/Approval Program Summary

Last revised February 18, 2009 - Westboro Facility

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

Connecticut Department of Public Health Certificate/Lab ID: PH-0574.

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Haloacetic Acids, Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB).)

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Calcium Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

Solid Waste/Soil (Inorganic Parameters: Lead in Paint, pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), Reactivity. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3,3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: MA0086.

Drinking Water (Inorganic Parameters: SM9215B, 9221E, 9222B, 9222D, 9223B, EPA 150.1, 180.1, 300.0, 353.2, SM2130B, 2320B, 4500CI-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1. Organic Parameters: 504.1, 524.2, SM 6251B.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, Lachat 10-107-06-1-B, SM2320B, 2340B, 2510B, 2540C, 2540D, 426C, 4500CI-D, 4500CI-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B.5, 4500P-E, 5210B, 5220D, 5310C, EPA 200.7, 200.8, 245.1. Organic Parameters: 608, 624.)

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

Drinking Water

Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl)

(EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Nitrite-N, Fluoride, Sulfate) 353.2 for: Nitrate-N, Nitrite-N; SM4500NO3-F, 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, 2320B, SM2540C, EPA 150.1, SM4500H-B.

Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics) (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), SM6251B, 314.0.

Non-Potable Water

Inorganic Parameters: (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn)

(EPA 200.7 for: Al,Sb,As,Be,Cd,Cr,Co,Cu,Fe,Pb,Mn,Mo,Ni,Se,Ag,Sr,Tl,Ti,V,Zn,Ca,Mg,Na,K)

245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2540B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Nitrate-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-B,C-Titr, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CN-CE, 2540D, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics)

(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCB-Water) 600/4-81-045-PCB-Oil

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

Drinking Water

Microbiology Parameters: SM9215B; MF-SM9222B; ENZ. SUB. SM9223; EC-SM9221E; MF-SM9222D; ENZ. SUB. SM9223;

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

Drinking Water (Inorganic Parameters: SM6215B, 9222B, 9223B Colilert, EPA 200.7, 200.8, 245.2, 110.2, 120.1, 150.1, 300.0, 325.2, 314.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 331.0. Organic Parameters: 504.1, 524.2, SM6251B.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 150.1, 300.0, 305.1, 310.1, 325.2, 340.2, 350.1, 350.2, 351.1, 353.2, 354.1, 365.2, 375.4, 376.2, 405.1, 415.1, 420.1, 425.1, 1664A, SW-846 9010, 9030, 9040B, EPA 160.1, 160.2, 160.3, SM426C, SM2310B, 2540B, 2540D, 4500H+B, 4500NH3-H, 4500NH3-E, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 2320B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-117-07-1-B, LACHAT 10-107-06-1-B, LACHAT 10-107-04-1-C, LACHAT 10-107-04-1-J, LACHAT 10-117-07-1-A, SM4500CL-E, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3005A, 3015A, 3510C, 5030B, 8021B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 7.3.3.2, 7.3.4.2, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040, 9045C, 9050C, 1311, 3005A, 3050B, 3051A. Organic Parameters: SW-846 3540C, 3545, 3580A, 5030B, 5035, 8021B, 8260B, 8270C, 8330, 8151A, 8082, 8081A.)

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

Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 2540C, 2320B, 314.0, 331.0, 110.2, SM2120B, 2510B, 5310C, EPA 150.1, SM4500H-B, EPA 200.8, 245.2. Organic Parameters: 504.1, SM6251B, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.1, SM5220D, 4500CI-D, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, SM9221CE, 9222D, 9221B, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, EPA 350.2/1, SM5210B, SW-846 3015, 6020, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, EPA 245.1, 245.2, SW-846 9040B, 3005A, EPA 6010B, 7196A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 3510C, EPA 608, 624, 625, SW-846 5030B, 8021B, 8081A, 8082, 8151A, 8330.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 9040B, 3005A, 6010B, 7196A, 5030B, 9010B, 9030B, 1030, 1311, 3050B, 3051, 7471A, 9014, 9012A, 9045C, 9050A, 9065. Organic Parameters: SW-846 8021B, 8081A, 8082, 8151A, 8330, 8260B, 8270C, 1311, 3540C, 3545, 3550B, 3580A, 5035L, 5035H.)

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

Drinking Water (Inorganic Parameters: SM9223B, 9222B, 8215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 314.0, 331.0, SM2320B, EPA 300.0, 325.2, 110.2, SM2120B, 4500CN-E, 4500F-C, EPA 150.1, SM4500H-B, 4500NO3-F, 2540C, EPA 120.1, SM 2510B. Organic Parameters: EPA 524.2, 504.1, SM6251B.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, EPA 405.1, SM5210B, EPA 410.4, SM5220D, EPA 305.1, SM2310B-4a, EPA 310.1, SM2320B, EPA 200.7, 300.0, 325.2, LACHAT 10-117-07-1A or B, SM4500CI-E, EPA 340.2, SM4500F-C, EPA 375.4, SM15 426C, EPA 350.1, 350.2, LACHAT 10-107-06-1-B, SM4500NH3-H, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-041-C, SM4500-NO30F, EPA 354.1, SM4500-NO2-B, EPA 365.2, SM4500P-E, EPA 160.3, SM2540B, EPA 160.1, SM2540C, EPA 160.2, SM2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, 110.2, SM2120B, 335.2, LACHAT 10-204-00-1-A, EPA 150.1, 9040B, SM4500-HB, EPA 1664A, EPA 415.1, SM5310C, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, EPA 376.2, SM4500S-D, EPA 425.1, SM5540C, EPA 3005A, 3015. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, 8021B, EPA 3510C, 5030B, 9010B, 9030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 9040B, 9045C, 1010, 1030, SW-846 Ch 7 Sec 7.3, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 3005A, 3050B, 3051, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8081A, 8151A, 8330, 8082, 8021B, 3540C, 3545, 3580, 5030B, 5035.)

Analytical Services Protocol: CLP Volatile Organics, CLP Inorganics, CLP PCB/Pesticides.

Rhode Island Department of Health Certificate/Lab ID: LAO00065.

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

Refer to NY-DOH Certificate for Potable and Non-Potable Water.

Pennsylvania Department of Environmental Protection Certificate/Lab ID: 68-03671. Registered Laboratory.



CHAIN OF CUSTODY

PAGE OF

Westborough, MA Mansfield, MA
TEL: 508-898-9220 TEL: 508-822-9300
FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: McPhail Associates
Address: 2269 Massachusetts Avenue
Cambridge, MA 02140
Phone: 617-868-1420
Fax: 617-868-1423

Email: cwinship@mcphailgeo.com MLZ@mcphailgeo.com adonovan@mcphailgeo.com MLZ@mcphailgeo.com 4/6/09

☐ These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Please notify client services when you are collecting samples with short hold times. See back of COC for listing of parameters with short hold times.

Project Information

Project Name: Boston Renaissance Charter
Project Location: A-15 Hycle Park Ave
Project #: 4860, 9, 01
Project Manager: M Zinke
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Date Rec'd in Lab: 3/30/09

Report Information Data Deliverables

☐ FAX ☐ EMAIL
☒ ADEx ☐ Add'l Deliverables

Regulatory Requirements/Report Limits

State/Fed Program

EPA

MCP PRESUMPTIVE CERTAINTY-CT REASON

☐ Yes ☐ No Are MCP Analytical Meth
☐ Yes ☐ No Are CT RCP (Reasonab

ANALYSIS

SD4 1024 Total Metals Dissolved Metals - filter PCBS TSS 8270 PAH-Low TPH-110604

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials										
		Date	Time												
03060 -01	MAI-1	3/30	1100	BW	ALD	/	/	/	/	/	/	/	/	/	/
-02	MAI-8	3/30	1100	BW	ALD	/	/	/	/	/	/	/	/	/	/

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT
MA MCP or CT RCP?

FORM NO. 01-01 (1)
(rev. 30-JUL-07)

Container Type

Preservative

Relinquished By:

Date/Time

Received By:

John D. Dineen 3/30/09 10:45 John D. Dineen

ALPHA ANALYTICAL

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220 www.alphalab.com
MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: McPhail Associates Laboratory Job Number: L0904364
Address: 2269 Massachusetts Avenue Date Received: 09-APR-2009
Cambridge, MA 02140 Date Reported: 14-APR-2009
Attn: Mr. Ambrose Donovan Delivery Method: Alpha
Project Number: 4860.9.01 Site: BOSTON RENN CHARTER

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0904364-01	MAI-1 (OW)	A-15 HYDE PARK AVE.
L0904364-02	MAI-8 (OW)	A-15 HYDE PARK AVE.

ALPHA ANALYTICAL
NARRATIVE REPORT

Laboratory Job Number: L0904364

The samples were received in accordance with the chain of custody and no significant deviations were encountered during preparation or analysis unless otherwise noted below.

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0904364-01
MAI-1 (OW)
Sample Matrix: WATER

Date Collected: 09-APR-2009 09:00
Date Received : 09-APR-2009
Date Reported : 14-APR-2009

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2-Amber,1-Plastic

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
General Chemistry - Westborough Lab							
pH (H)	11.8	SU	-	30 4500H+-B		0409 23:00	JO
Semivolatile Organics by GC/MS - Westborough Lab				1 8270C		0410 11:25 0411 14:26	ND
Bis(2-Ethylhexyl)phthalate	ND	ug/l	4.8				
Butyl benzyl phthalate	ND	ug/l	4.8				
Di-n-butylphthalate	ND	ug/l	4.8				
Di-n-octylphthalate	ND	ug/l	4.8				
Diethyl phthalate	ND	ug/l	4.8				
Dimethyl phthalate	ND	ug/l	4.8				
Pentachlorophenol	ND	ug/l	9.7				
Surrogate(s)	Recovery			QC Criteria			
2-Fluorophenol	37.0	%		21-120			
Phenol-d6	26.0	%		10-120			
Nitrobenzene-d5	61.0	%		23-120			
2-Fluorobiphenyl	62.0	%		43-120			
2,4,6-Tribromophenol	82.0	%		10-120			
4-Terphenyl-d14	75.0	%		33-120			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0904364-02

MAI-8 (OW)

Sample Matrix: WATER

Date Collected: 09-APR-2009 09:30

Date Received : 09-APR-2009

Date Reported : 14-APR-2009

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2-Amber,1-Plastic

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
-----------	--------	-------	-----	------------	-------------------	----

General Chemistry - Westborough Lab

pH (H)	6.5	SU	-	30 4500H+-B	0409 23:00	JO
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Semivolatile Organics by GC/MS - Westborough Lab

1 8270C	0410 11:25	0411 15:59	ND
---------	------------	------------	----

Bis(2-Ethylhexyl)phthalate	ND	ug/l	5.0
Butyl benzyl phthalate	ND	ug/l	5.0
Di-n-butylphthalate	ND	ug/l	5.0
Di-n-octylphthalate	ND	ug/l	5.0
Diethyl phthalate	ND	ug/l	5.0
Dimethyl phthalate	ND	ug/l	5.0
Pentachlorophenol	ND	ug/l	10.

Surrogate(s)	Recovery	QC Criteria
2-Fluorophenol	37.0 %	21-120
Phenol-d6	25.0 %	10-120
Nitrobenzene-d5	61.0 %	23-120
2-Fluorobiphenyl	60.0 %	43-120
2,4,6-Tribromophenol	74.0 %	10-120
4-Terphenyl-d14	77.0 %	33-120

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0904364

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
General Chemistry - Westborough Lab for sample(s) 01-02 (L0904359-05, WG358417-2)					
pH (H)	7.1	7.2	SU	1	5

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0904364

Parameter	% Recovery	QC Criteria
General Chemistry - Westborough Lab LCS for sample(s) 01-02 (WG358417-1)		
pH	100	99-101

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0904364

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Semivolatile Organics by GC/MS - Westborough Lab for sample(s) 01-02 (WG358473-2, WG358473-3)					
Acenaphthene	79	72	9	30	46-118
1,2,4-Trichlorobenzene	73	64	13	30	39-98
2-Chloronaphthalene	80	73	9	30	40-140
1,2-Dichlorobenzene	68	61	11	30	40-140
1,4-Dichlorobenzene	65	60	8	30	36-97
2,4-Dinitrotoluene	94	77	20	30	24-96
2,6-Dinitrotoluene	81	79	3	30	40-140
Fluoranthene	99	92	7	30	40-140
4-Chlorophenyl phenyl ether	86	79	8	30	40-140
n-Nitrosodi-n-propylamine	79	71	11	30	41-116
Butyl benzyl phthalate	99	89	11	30	40-140
Anthracene	95	88	8	30	40-140
Pyrene	95	86	10	30	26-127
P-Chloro-M-Cresol	78	72	8	30	23-97
2-Chlorophenol	67	63	6	30	27-123
2-Nitrophenol	71	62	14	30	30-130
4-Nitrophenol	44	40	10	30	10-80
2,4-Dinitrophenol	50	46	8	30	30-130
Pentachlorophenol	78	68	14	30	9-103
Phenol	33	31	6	30	12-110
Surrogate(s)					
2-Fluorophenol	45	42	7		21-120
Phenol-d6	31	28	10		10-120
Nitrobenzene-d5	69	64	8		23-120
2-Fluorobiphenyl	73	69	6		43-120
2,4,6-Tribromophenol	88	85	3		10-120
4-Terphenyl-d14	88	82	7		33-120

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0904364

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01-02 (WG358473-1)							
Semivolatile Organics by GC/MS - Westborough Lab				1 8270C	0410 11:25	0411 14:49	ND
Acenaphthene	ND	ug/l	5.0				
Benzidine	ND	ug/l	50.				
1,2,4-Trichlorobenzene	ND	ug/l	5.0				
Hexachlorobenzene	ND	ug/l	5.0				
Bis(2-chloroethyl) ether	ND	ug/l	5.0				
2-Chloronaphthalene	ND	ug/l	6.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
3,3'-Dichlorobenzidine	ND	ug/l	50.				
2,4-Dinitrotoluene	ND	ug/l	6.0				
2,6-Dinitrotoluene	ND	ug/l	5.0				
Azobenzene	ND	ug/l	5.0				
Fluoranthene	ND	ug/l	5.0				
4-Chlorophenyl phenyl ether	ND	ug/l	5.0				
4-Bromophenyl phenyl ether	ND	ug/l	5.0				
Bis(2-chloroisopropyl) ether	ND	ug/l	5.0				
Bis(2-chloroethoxy) methane	ND	ug/l	5.0				
Hexachlorobutadiene	ND	ug/l	10.				
Hexachlorocyclopentadiene	ND	ug/l	30.				
Hexachloroethane	ND	ug/l	5.0				
Isophorone	ND	ug/l	5.0				
Naphthalene	ND	ug/l	5.0				
Nitrobenzene	ND	ug/l	5.0				
NitrosoDiPhenylAmine (NDPA) /DPA	ND	ug/l	15.				
Bis(2-Ethylhexyl) phthalate	ND	ug/l	5.0				
Butyl benzyl phthalate	ND	ug/l	5.0				
Di-n-butylphthalate	ND	ug/l	5.0				
Di-n-octylphthalate	ND	ug/l	5.0				
Diethyl phthalate	ND	ug/l	5.0				
Dimethyl phthalate	ND	ug/l	5.0				
Benzo(a) anthracene	ND	ug/l	5.0				
Benzo(a) pyrene	ND	ug/l	5.0				
Benzo(b) fluoranthene	ND	ug/l	5.0				
Benzo(k) fluoranthene	ND	ug/l	5.0				
Chrysene	ND	ug/l	5.0				
Acenaphthylene	ND	ug/l	5.0				
Anthracene	ND	ug/l	5.0				
Benzo(ghi) perylene	ND	ug/l	5.0				
Fluorene	ND	ug/l	5.0				
Phenanthrene	ND	ug/l	5.0				
Dibenzo(a,h) anthracene	ND	ug/l	5.0				
Indeno(1,2,3-cd) Pyrene	ND	ug/l	7.0				
Pyrene	ND	ug/l	5.0				
Aniline	ND	ug/l	20.				
4-Chloroaniline	ND	ug/l	5.0				

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0904364

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01-02 (WG358473-1)							
Semivolatile Organics by GC/MS - Westborough Lab cont'd				1 8270C	0410 11:25	0411 14:49	ND
1-Methylnaphthalene	ND	ug/l	5.0				
2-Nitroaniline	ND	ug/l	5.0				
3-Nitroaniline	ND	ug/l	5.0				
4-Nitroaniline	ND	ug/l	7.0				
Dibenzofuran	ND	ug/l	5.0				
2-Methylnaphthalene	ND	ug/l	5.0				
n-Nitrosodimethylamine	ND	ug/l	50.				
2,4,6-Trichlorophenol	ND	ug/l	5.0				
P-Chloro-M-Cresol	ND	ug/l	5.0				
2-Chlorophenol	ND	ug/l	6.0				
2,4-Dichlorophenol	ND	ug/l	10.				
2,4-Dimethylphenol	ND	ug/l	10.				
2-Nitrophenol	ND	ug/l	20.				
4-Nitrophenol	ND	ug/l	10.				
2,4-Dinitrophenol	ND	ug/l	30.				
4,6-Dinitro-o-cresol	ND	ug/l	20.				
Pentachlorophenol	ND	ug/l	10.				
Phenol	ND	ug/l	7.0				
2-Methylphenol	ND	ug/l	6.0				
3-Methylphenol/4-Methylphenol	ND	ug/l	6.0				
2,4,5-Trichlorophenol	ND	ug/l	5.0				
Benzoic Acid	ND	ug/l	50.				
Benzyl Alcohol	ND	ug/l	10.				
Carbazole	ND	ug/l	5.0				
Pyridine	ND	ug/l	50.				
Surrogate(s)	Recovery			QC Criteria			
2-Fluorophenol	33.0	%		21-120			
Phenol-d6	22.0	%		10-120			
Nitrobenzene-d5	52.0	%		23-120			
2-Fluorobiphenyl	53.0	%		43-120			
2,4,6-Tribromophenol	60.0	%		10-120			
4-Terphenyl-d14	66.0	%		33-120			

**ALPHA ANALYTICAL
ADDENDUM I**

REFERENCES

1. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.
30. Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

GLOSSARY OF TERMS AND SYMBOLS

REF	Reference number in which test method may be found.
METHOD	Method number by which analysis was performed.
ID	Initials of the analyst.
ND	Not detected in comparison to the reported detection limit.
NI	Not Ignitable.
ug/cart	Micrograms per Cartridge.
H	The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

LIMITATION OF LIABILITIES

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

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

Certificate/Approval Program Summary

Last revised February 18, 2009 - Westboro Facility

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

Connecticut Department of Public Health Certificate/Lab ID: PH-0574.

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Haloacetic Acids, Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB).)

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Calcium Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

Solid Waste/Soil (Inorganic Parameters: Lead in Paint, pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), Reactivity. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3,3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: MA0086.

Drinking Water (Inorganic Parameters: SM9215B, 9221E, 9222B, 9222D, 9223B, EPA 150.1, 180.1, 300.0, 353.2, SM2130B, 2320B, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1. Organic Parameters: 504.1, 524.2, SM 6251B.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, Lachat 10-107-06-1-B, SM2320B, 2340B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B.5, 4500P-E, 5210B, 5220D, 5310C, EPA 200.7, 200.8, 245.1. Organic Parameters: 608, 624.)

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

Drinking Water

Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Ti)

(EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Nitrite-N, Fluoride, Sulfate)

353.2 for: Nitrate-N, Nitrite-N; SM4500NO3-F, 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, EPA 150.1, SM4500H-B.

Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics)

(504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), SM6251B, 314.0.

Non-Potable Water

Inorganic Parameters: (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Ti,Zn)

(EPA 200.7 for: Al,Sb,As,Be,Cd,Cr,Co,Cu,Fe,Pb,Mn,Mo,Ni,Se,Ag,Sr,Ti,Ti,V,Zn,Ca,Mg,Na,K)

245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2540B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-

BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Nitrate-N, SM4500NO3-F, 353.2 for Nitrate-N,

SM4500NH3-B,C-Titr, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM

5210B, 5310C, 4500CN-CE, 2540D, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics)

(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCB-Water)

600/4-81-045-PCB-Oil

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

Drinking Water

Microbiology Parameters: SM9215B; MF-SM9222B; ENZ. SUB. SM9223; EC-SM9221E; MF-SM9222D; ENZ. SUB. SM9223;

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

Drinking Water (Inorganic Parameters: SM6215B, 9222B, 9223B Colilert, EPA 200.7, 200.8, 245.2, 110.2, 120.1, 150.1, 300.0, 325.2, 314.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 331.0. Organic Parameters: 504.1, 524.2, SM6251B.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 150.1, 300.0, 305.1, 310.1, 325.2, 340.2, 350.1, 350.2, 351.1, 353.2, 354.1, 365.2, 375.4, 376.2, 405.1, 415.1, 420.1, 425.1, 1664A, SW-846 9010, 9030, 9040B, EPA 160.1, 160.2, 160.3, SM426C, SM2310B, 2540B, 2540D, 4500H+B, 4500NH3-H, 4500NH3-E, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 2320B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-117-07-1-B, LACHAT 10-107-06-1-B, LACHAT 10-107-04-1-C, LACHAT 10-107-04-1-J, LACHAT 10-117-07-1-A, SM4500CL-E, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3005A, 3015A, 3510C, 5030B, 8021B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 7.3.3.2, 7.3.4.2, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040, 9045C, 9050C, 1311, 3005A, 3050B, 3051A. Organic Parameters: SW-846 3540C, 3545, 3580A, 5030B, 5035, 8021B, 8260B, 8270C, 8330, 8151A, 8082, 8081A.)

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

Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 2540C, 2320B, 314.0, 331.0, 110.2, SM2120B, 2510B, 5310C, EPA 150.1, SM4500H-B, EPA 200.8, 245.2. Organic Parameters: 504.1, SM6251B, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.1, SM5220D, 4500CI-D, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, SM9221CE, 9222D, 9221B, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, EPA 350.2/1, SM5210B, SW-846 3015, 6020, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, EPA 245.1, 245.2, SW-846 9040B, 3005A, EPA 6010B, 7196A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 3510C, EPA 608, 624, 625, SW-846 5030B, 8021B, 8081A, 8082, 8151A, 8330.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 9040B, 3005A, 6010B, 7196A, 5030B, 9010B, 9030B, 1030, 1311, 3050B, 3051, 7471A, 9014, 9012A, 9045C, 9050A, 9065. Organic Parameters: SW-846 8021B, 8081A, 8082, 8151A, 8330, 8260B, 8270C, 1311, 3540C, 3545, 3550B, 3580A, 5035L, 5035H.)

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

Drinking Water (Inorganic Parameters: SM9223B, 9222B, 8215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 314.0, 331.0, SM2320B, EPA 300.0, 325.2, 110.2, SM2120B, 4500CN-E, 4500F-C, EPA 150.1, SM4500H-B, 4500NO3-F, 2540C, EPA 120.1, SM 2510B. Organic Parameters: EPA 524.2, 504.1, SM6251B.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, EPA 405.1, SM5210B, EPA 410.4, SM5220D, EPA 305.1, SM2310B-4a, EPA 310.1, SM2320B, EPA 200.7, 300.0, 325.2, LACHAT 10-117-07-1A or B, SM4500CI-E, EPA 340.2, SM4500F-C, EPA 375.4, SM15 426C, EPA 350.1, 350.2, LACHAT 10-107-06-1-B, SM4500NH3-H, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-041-C, SM4500-NO30F, EPA 354.1, SM4500-NO2-B, EPA 365.2, SM4500P-E, EPA 160.3, SM2540B, EPA 160.1, SM2540C, EPA 160.2, SM2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, 110.2, SM2120B, 335.2, LACHAT 10-204-00-1-A, EPA 150.1, 9040B, SM4500-HB, EPA 1664A, EPA 415.1, SM5310C, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, EPA 376.2, SM4500S-D, EPA 425.1, SM5540C, EPA 3005A, 3015. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, 8021B, EPA 3510C, 5030B, 9010B, 9030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 9040B, 9045C, 1010, 1030, SW-846 Ch 7 Sec 7.3, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 3005A, 3050B, 3051, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8081A, 8151A, 8330, 8082, 8021B, 3540C, 3545, 3580, 5030B, 5035.)

Analytical Services Protocol: CLP Volatile Organics, CLP Inorganics, CLP PCB/Pesticides.

Rhode Island Department of Health Certificate/Lab ID: LAO00065.

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

Refer to NY-DOH Certificate for Potable and Non-Potable Water.

Pennsylvania Department of Environmental Protection Certificate/Lab ID: 68-03671. Registered Laboratory.



WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 4/9/09

ALPHA

Client Information

Client: McPhail Assoc
Address: 226 Main Ave
Cambridge MA 02140
Phone: 617-868-1420
Fax: 617-349-7312
Email: mlz@mcphailgeo.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Boston Renn Charter
Project Location: 1415 Hyde Park Ave
Project #: 4860, 9, 01
Project Manager: M Zimbel
ALPHA Quote #:

Turn-Around Time

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

Date Due: 4/16 Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☒ ADEX ☐ Add'l Deliverables

Billing Information

☐ Same as

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

EPA

RGP

MA MCP PRESUMPTIVE CERTAINTY --- CT REASON

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Pro

Other Project Specific Requirements/Comments/Detection Limits:

RGP Permit A, p

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS 8270 ABU * PH													
		Date	Time																
4364.1	MAF-1 (ow)	4/9/09	900	GW	AD	21													
2	MAF-8 (ow)	4/9/09	130	GW	AD	21													
* only need Pentachlorophenol, Total phthalates, Bis(2-ethylhexyl)																			
reported out.																			

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT
MA MCP or CT RCP?

FORM NO: 01-01 (rev. 14-OCT-07)

Container Type A P
Preservative A A

Relinquished By:

Date/Time

Received By:

Date/Time

Relinquished By: [Signature] Date/Time: 4/9/09
Received By: [Signature] Date/Time: 4/9/09

