December 9, 2011

Mr. Jaspal S. Walia
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203

Re: MW-09 Area Chemical Oxidation/Enhanced Bioremediation
Performance Monitoring Report (September 2011 and November 2011)
Former Buffalo Service Center Site, Buffalo, New York

Dear Jaspal:

On behalf of QLT Buffalo LLC, WSP Engineering of New York, P.C. (WSP Engineering) prepared this Groundwater Monitoring Report for the groundwater and microbial community samples collected from monitoring well MW-09. As recommended by WSP Engineering's October 8, 2010 performance monitoring report submitted to the New York State Department of Environmental Conservation (NYSDEC), this sampling event was voluntarily conducted to further evaluate the effectiveness of the injection of Klozur® CR at the MW-09 Area that was conducted in August 2009.

## Site History

Four quarters of groundwater monitoring were performed from November 2009 to August 2010 after the injection of the Klozur® CR product in accordance with the Pre-Design Investigation Report and Chemical Oxidation/Enhanced Bioremediation Injection Work Plan (dated July 31, 2009). The quarterly performance monitoring included collection of groundwater samples from monitoring well MW-09 and semi-annual monitoring of samples from monitoring wells MW-01 and MW-03 (Figure 1). In accordance with the Work Plan, all samples were submitted for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX). In addition to BTEX, acetone and 2-butanone were reported for samples from MW-09 in accordance with a request from the NYSDEC (NYSDEC, letter to Glen Rieger, dated February 9, 2010).

Selected samples collected from MW-09 were also submitted for additional geochemical (ferrous iron, nitrate, sulfate, and sulfide), molecular biological characterization, and compound specific isotope analysis (CSIA) for carbon comprising benzene. The results of the sampling events were used to provide data to track the remediation progress through each of the three Klozur® CR attenuation mechanisms (direct chemical oxidation, biologically mediated aerobic oxidation, and biologically mediated anaerobic oxidation).

As a result of the performance monitoring data, WSP Engineering concluded that the groundwater conditions present no potential risks to the Waterfront School from the MW-09 Area, that degradation of benzene was occurring, and that the goals of the NYSDEC-approved Work Plan were satisfied. To confirm the continued performance of the injection program, in its

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October 8, 2010 report, WSP Engineering recommended the voluntary collection of one or two additional quarters of data from MW-09 to confirm the continued performance of the injection program. In its supplemental letter of December 17, 2010, WSP Engineering also emphasized that groundwater contacting soil containing 1 mg/kg of benzene, which is an amount consistent with the SSAL's that the NYSDEC delineated for the site, could result in groundwater concentrations between 1,000 to 5,000 ug/l, with a typical concentration of 2,500 ug/l. Hence, WSP Engineering again recommended proceeding with the limited additional voluntary monitoring described in its October 8 report.

This letter report summarizes the findings of the second additional voluntary quarterly performance monitoring event. The sampling event was conducted on September 6, 2011 and November 6, 2011. A summary of the groundwater sampling activities and the rationale requiring a two phase effort and findings is presented below.

## Field Activities

This report provides findings and evaluation for groundwater samples collected on September 6, 2011 and November 6, 2011. During collection of groundwater samples field parameters are measured. Significant reduction of the well yield for MW-09 has been identified since the injection program was conducted in Summer 2009 (see water level drawdown during purging; Enclosure A). Based on this information and inconsistent results for sample/duplicate analysis for the September 2011 sampling event, WSP Engineering chose to develop MW-09 in an attempt to restore uniform flow from the surrounding water bearing zone and resample the well for BTEX parameters. The resampling event was conducted on November 6, 2011.

### September 2011

The Bio-Trap Sampler (the sample collection device used for collection of bacteria for molecular biological characterization) deployed in the previous quarter was removed from MW-09 before the depth to groundwater was recorded. In accordance with sampling protocols, the Bio-Trap Sampler was immediately placed in a cooler with ice. The Bio-Trap sampler was shipped to Microbial Insights of Rockford, Tennessee on September 6, 2011 for the molecular biological characterization testing.

After recording depth to groundwater, MW-09 was purged with a peristaltic pump in a manner consistent with WSP Engineering's Standard Operating Procedures and EPA Region 2's low-flow sampling protocol. The purge logs from this sampling event are included in Enclosure A; field measurements collected from the final purge volumes during each sampling event are presented in Table 1. Pre-injection field parameters for MW-09 from June 26, 2009 are also included on Table 1 as a baseline for comparison and evaluation of the effect of the treatment.

After purging, the analytical samples were collected and placed in coolers containing ice and delivered to TestAmerica Analytical, Inc. of Amherst, New York on September 6, 2011 and the Carbon stable Isotope Analysis (CSIA) samples were shipped to Microseeps, Inc. of Pittsburgh, Pennsylvania on September 6, 2011. Analysis for volatile organic compounds (VOCs; BTEX) and geochemical parameters (nitrate, sulfate, and sulfide) was performed by TestAmerica; Microseeps performed the analyses for CSIA.

November 2011

Due to inconsistencies in the September data set, on November 3, 2011, WSP Engineering developed MW-09 in an attempt to increase the well yield and evaluate water level recovery rate. The well development procedure used included; scrubbing the well screen inside the well with a wire brush assembly to remove any interior deposits that may have been reducing well yield and interfering with the flow from the groundwater system and purging the water from the well and sand pack using a centrifugal pump. Approximately three well volumes of groundwater were removed over a one hour period as the well continued to purge dry[1]. The recovery rate was very slow. The water level did not recover to original levels while taking measurements for more than one hour.

On November 6, 2011, WSP Engineering returned to the site for additional sampling. After recording depth to groundwater, MW-09 was purged with a peristaltic pump in a manner consistent with WSP Engineering's Standard Operating Procedures and EPA Region 2's low-flow sampling protocol. The purge logs from this sampling event are included in Enclosure A; field measurements collected from the final purge volumes during each sampling event are presented in Table 1. Again, even though purging rates were only 30 to 50 ml/minute, the water level in the well continuously dropped.

After purging, the analytical samples were collected and placed in coolers containing ice and delivered to TestAmerica Analytical, Inc. of Amherst, New York on November 7, 2011. Analysis for volatile organic compounds (VOCs; BTEX) was performed by TestAmerica.

## Field and Laboratory Analytical Results

The results for both the September and November 2011 samples are described below. It is important to understand that the integrity of the well has been compromised, so the data reported herein is not likely representative of the water bearing zone as previously recorded.

September 2011

Analyses for VOCs, nitrate, sulfate, and sulfide were performed using U.S. Environmental Protection Agency Methods 8260, 353.2, 375.4, and 376.1. CSIA was performed using methods AM24-AR_M, AM24-DL_M and 8260B. The microbes colonizing the Bio-Trap were extracted and subjected to phospholipids fatty acids (PLFA) and quantitative polymerase chain reaction (PCR) assessment procedures. The PCR assessment targeted gene sequences (or analogous ribonucleic acid [mRNA] segments) specific to known aerobic and anaerobic BTEX degrading enzymes.

The laboratory analytical data packages are included as Enclosure B. The geochemical parameters are presented on Table 1. Table 2 presents a summary of the VOC results for the September 2011 round and historical sampling results. The NYSDEC Ambient Water Quality Standards and Guidance Values (http://www.dec.ny.gov/chemical/23853.html; June 1998) are included on the tables for reference purposes. The microbial characterization results are presented on:

[1] Prior to November 2009, the well could not be bailed dry; the yield exceeded the rate of practical extraction.

- Table 3 - baseline results for a filtered groundwater sample collected in June 2009
- Table 4 - results of the molecular biological characterization, and
- Table 5 - CSIA results

Benzene was detected in the sample collected from MW-09 at a concentration of 1,400 micrograms per liter (µg/l); and in the duplicate at 970 µg/l. No other constituents were detected above the NYSDEC comparison values (Table 2 and Figure 1).

November 2011

Analyses for BTEX were performed using U.S. Environmental Protection Agency Method 8260B. The laboratory analytical data packages are included as Enclosure B. Table 2 presents a summary of the VOC results for the November 2011 round and historical sampling results.

Benzene was detected in the sample collected from MW-09 at a concentration of 2,100 µg/l (2,100 µg/l in the duplicate sample). No other constituents were detected above the NYSDEC comparison values (Table 2 and Figure 1).

## Evaluation

Concentrations of benzene in the MW-09 samples collected in September 2011 and November 2011 have increased since the August 2010 and June 2011 sampling events (see Table 2) but still remaining within the lower end of the range of concentrations observed during the 8 quarters of post-remediation groundwater monitoring conducted prior to injection of Klozur, and are approximately 18 percent of the pretreatment concentration. Historically, concentrations of benzene in groundwater samples collected from MW-09 fluctuated from 670 µg/l (December 2008) to 13,000 µg/l (February 2009).

Sample/duplicate analytical results were inconsistent for the September 2011 sampling event. Benzene was detected in the sample collected from MW-09 at a concentration of 1,400 µg/l but only 970 µg/l in the duplicate sample. For the November 2011 sampling event, the sample and sample duplicate results were identical; 2,100 µg/l. The inconsistent results of the September sample/duplicate may have been caused by the compromised conditions of the well.

The baseline census (qPCR) data (Table 3) quantified the biological population which contained the DNA to produce the enzymes required to digest petroleum constituents (i.e. benzene). The mRNA data presented in Table 4 quantifies the biological population that was actively producing these enzymes during each sampling event. Enzyme production measured in the September 2011 sample and the samples collected before August 2010 were below detection limits which was likely attributable to the isolation of the water in MW-09 since Klozur® CR application (see discussion below). The high production of the naphathalene dioxygenase enzyme detected in the August, 2010 and low to moderate production of toluene monooxygenase measured in the June, 2011 sample shows that microbes producing petroleum attenuating enzymes were active. The loss of flow capacity between the well and the surrounding environment, likely limited the availability of the proper nutrients for the biological community in the well.

The PLFA data, which quantifies the microbial population and population distribution based on cellular membrane composition indicates that the microbial biomass population in the well has decreased by an order of magnitude from the maximum populations measured in the August, 2010 and June 2011 samples. The data also showed a healthy population of Proteobacteria

(72 percent of the total microbial population). Proteobacteria is one of the largest groups of bacteria. It is fast growing, adaptive, it represents a wide variety of both aerobes and anaerobes and it includes most hydrocarbon utilizing bacteria.

The elevated pH (greater than 10 standard units [S.U.]) is caused by calcium peroxide included within the injectate. The calcium peroxide was included within the Klozur® CR formulation to both activate the persulfate radical and provide a long-term source of dissolved oxygen (calcium peroxide decomposes to release hydroxide ions and dissolved oxygen). It is possible that the calcium peroxide, a solid, accumulated within the sand pack or in the immediate area of MW-09 due to site heterogeneities. The pH values within the overall injection footprint are unknown. It is likely that the pH in the MW-09 area will become more neutral as the calcium peroxide elutes oxygen and is depleted as is evidenced by the reduction in pH from greater than13 S.U. in November, 2009 to a low of 10.1 S.U. in September 2011. The pH measured during the November sampling was 11.79 S.U.

Additional effects of the Klozur® CR are apparent in the site geochemistry measurements made during sampling. Specifically, the dissolved oxygen has increased from 0.28 milligrams per liter (mg/l) in the pre-injection sample to a maximum of 38 mg/l in the May 2010 sample and was 25 mg/l in the most recent sample collected in November 2011; (note that DO saturation values in equilibrium with the partial pressure of oxygen in the atmosphere are not applicable as the oxygen measured in MW-9 samples originates from calcium peroxide). As discussed above the increase in dissolved oxygen and pH are attributable to the presence of calcium peroxide.

CSIA is being used to track the relationship of two naturally occurring carbon isotopes $^{13}C$ and $^{12}C$ in the benzene present in groundwater to assess the effectiveness of chemical oxidation and bioremediation. The basis for this assessment is:

- although the majority of all carbon is present as the $^{12}C$ isotope, a small percentage of carbon is naturally present as the $^{13}C$ isotope (natural abundance approximately 1 percent of all carbon)
- chemical bonds involving the $^{13}C$ isotope are slightly stronger than those of the $^{12}C$ isotope and as a result react slower in bond breaking reactions including chemical oxidation and biodegradation
- the slower reaction rate leads to an increase in the ratio of the $^{13}C$ to $^{12}C$ isotopes in the residual benzene
- the change in the ratio of isotopes in the residual contaminant resulting from degradation is commonly referred to as fractionation. The physical mechanisms of natural attenuation (e.g., dilution and sorption) do not significantly affect the isotopic signature of residual contaminant as they can with simple compound concentration data.

During CSIA testing the isotopic signature is measured and reported as a part per thousand ratio of $^{13}C$ to $^{12}C$ relative to an international standard ratio, or $\delta^{13}C$ (‰). Therefore, with progressing treatment, an increasing ratio of $^{13}C$ to $^{12}C$ would be expected as the contaminant containing $^{12}C$ preferentially degrades. The increasing ratio will result in an increase (or less negative) $\delta^{13}C$ value.

Samples for CSIA were collected from MW-09 during the June 2009 baseline sampling event and during each post-injection performance monitoring event through September 2011 and

submitted to Microseeps, Inc. of Pittsburgh, Pennsylvania for analysis. The CSIA results are provided in Table 5 and laboratory reports are provided in Enclosure B.

The quality control samples associated with the baseline sample indicate that another compound co-eluted with benzene thereby affecting the results. The baseline CSIA data for benzene in the MW-09 sample is therefore unreliable and must be rejected for use. Quality control samples for the February 2010, May 2010, August 2010, June 2011 and September 2011, CSIA data did not indicate an analytical problem and the $\delta^{13}C$ results of -24.06 ‰, -25.41‰, -23.03 ‰, -24.54 ‰ and -25.20 ‰ are valid as reported. Immediately following the injections, the $\delta^{13}C$ values for February 2010, May 2010, and June 2011 were within the range of what could be expected of non-degraded benzene (the typical benzene range is -23.5 to -31.5). The August 2010 value of -23.03 ‰ indicates fractionation beyond the non-degraded benzene range thereby proving degradation has occurred. Since then, the $\delta^{13}C$ results have increased to -24.54 ‰ in the June 2011 sample and -25.20 ‰ in the September 2011 sample.

## Conclusions and Recommendations

WSP Engineering believes that the groundwater data continue to indicate no potential risks to the occupants of the Waterfront School from the MW-09 area. Based on the data collected since application of Klozur® CR, the following lines of evidence supporting the degradation of benzene have been identified:

- benzene concentrations have decreased
- the qPCR data demonstrate that microbes have produced enzymes known to catalyze the oxidation (biodegradation) of benzene
- the community structure of the biomass had become more diverse and the percent composition of the group of microbes known to include most petroleum degraders comprises the largest percentage of the population
- the CSIA data demonstrate that the changes in concentrations are due to degradation as compared to displacement or dilution of non-degraded benzene.

Although the concentrations of benzene lie within the range expected based on the residual soil concentrations, based on the reduced well yield experienced with MW-09 post injection and data variability, WSP Engineering believes the well integrity is compromised and ability to collect representative samples of the groundwater throughout the vertical length of the well screen has been lost. In response, WSP Engineering recommends abandoning the existing monitoring well MW-09 by over drilling and replacing this well with a new monitoring well MW-09R. The over drilling of the existing MW-09 well will allow us to examine the well screen and portions of the sand pack to determine if there has been an accumulation of Klozur residuals in these materials. During abandonment, MW-09 will be removed and the well screen inspected for clogging features (e.g., biological growth or mineral deposits affecting well yield).

The proposed new well location is approximately 10 feet east of the existing well location. The new well will be installed to the top of bedrock consistent with the construction of the existing well. The well will be installed in accordance with the standard operating procedures used for the installation of the post-remediation monitoring wells. Two rounds of sampling will be conducted from the new replacement well MW-09R.

To conduct this additional work, a new or revised access agreement with the City of Buffalo and School District will be necessary.

Should you have any questions, please do not hesitate to contact me at (703) 709-6500.

Sincerely,

John P. Black
President

JB:GER:CEP:paw
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Enclosures

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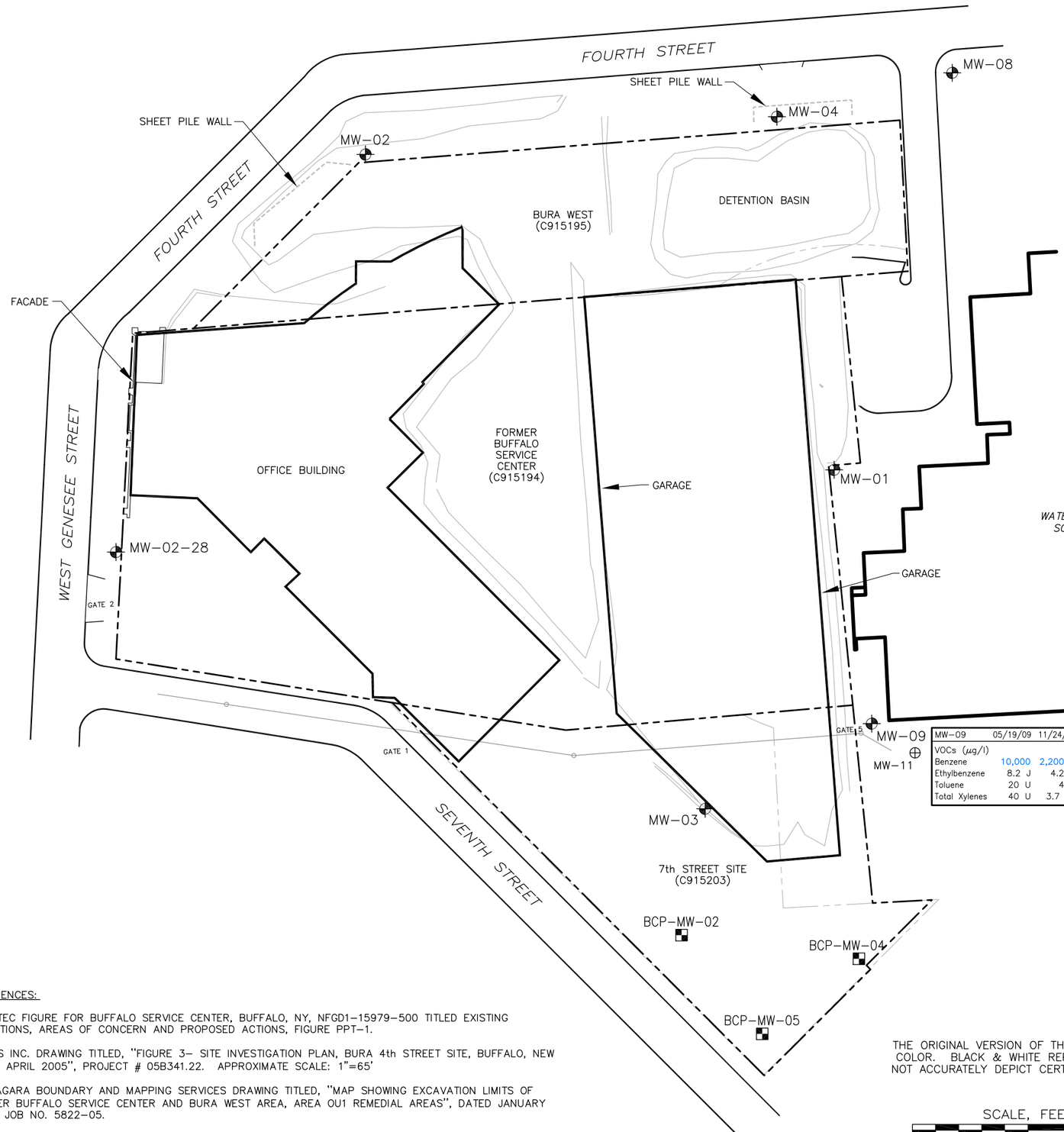
Figures




LEGEND

- MW-11 ⊕ EXISTING MONITORING WELL
- MW-4 ⊕ MONITORING WELL NETWORK
- BCP-MW-02 ◪ SEVENTH STREET MONITORING WELL (PART OF WELL NETWORK)
- PROPERTY LINE
- BUILDING/GARAGE FOOTPRINT

| MW-09 | 09/06/11 | 11/06/11 |
|---|---|---|
| VOCs (µg/l) | | |
| Benzene | 1,400 | 2,100 |
| Ethylbenzene | 1.4 | 2.1 |
| Toluene | 0.51 U | 0.51 U |
| Total Xylenes | 0.66 U | 0.88 J |

- SAMPLE DESIGNATION
- SAMPLE DATE
- SAMPLE RESULTS
  VALUES SHOWN IN BLUE EXCEED THE NEW YORK STATE AMBIENT WATER QUALITY VALUE
- CONSTITUENT

| MW-09 | 05/19/09 | 11/24/09 | 02/18/10 | 05/19/10 | 08/17/10 | 06/06/11 | 09/06/11 | 11/06/11 |
|---|---|---|---|---|---|---|---|---|
| VOCs (µg/l) | | | | | | | | |
| Benzene | 10,000 | 2,200 D | 1,500 | 2,400 D | 730 D | 420 | 1,400 | 2,100 |
| Ethylbenzene | 8.2 J | 4.2 D | 4 | 4.9 | 3.1 | 0.77 J | 1.4 | 2.1 |
| Toluene | 20 U | 4 U | 0.98 J | 0.6 J | 0.51 | 1 U | 0.51 U | 0.51 U |
| Total Xylenes | 40 U | 3.7 JD | 6.2 | 2.7 | 3 | 2 U | 0.66 U | 0.88 J |

REFERENCES:

1. RETEC FIGURE FOR BUFFALO SERVICE CENTER, BUFFALO, NY, NFGD1-15979-500 TITLED EXISTING CONDITIONS, AREAS OF CONCERN AND PROPOSED ACTIONS, FIGURE PPT-1.

2. LCS INC. DRAWING TITLED, "FIGURE 3- SITE INVESTIGATION PLAN, BURA 4th STREET SITE, BUFFALO, NEW YORK, APRIL 2005", PROJECT # 05B341.22. APPROXIMATE SCALE: 1"=65'

3. NIAGARA BOUNDARY AND MAPPING SERVICES DRAWING TITLED, "MAP SHOWING EXCAVATION LIMITS OF FORMER BUFFALO SERVICE CENTER AND BURA WEST AREA, AREA OU1 REMEDIAL AREAS", DATED JANUARY 2006, JOB NO. 5822-05.

4. NIAGARA BOUNDARY AND MAPPING SERVICES DRAWING TITLED, "MAP SHOWING BACKFILLED EXCAVATION AREA OF FORMER BUFFALO SERVICE CENTER AND BURA WEST AREA, OU1 REMEDIAL AREA", DATED FEBRUARY 2006, JOB NO. 5822-05.

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE REPRODUCTION MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

SCALE, FEET
0 100 200

NOTE:

THE WATERFRONT SCHOOL FOOTPRINT EXTENDS FURTHER TO THE SOUTH BUT IS NOT DEPICTED ON THIS FIGURE.

Drawn By: RAZ 12/5/2011
Checked: GER 12/5/2011
Approved: [illegible] 12/5/2011
DWG No: 00003313-B01

FORMER BUFFALO SERVICE CENTER SITE
BURA WEST SITE - BUFFALO, NEW YORK

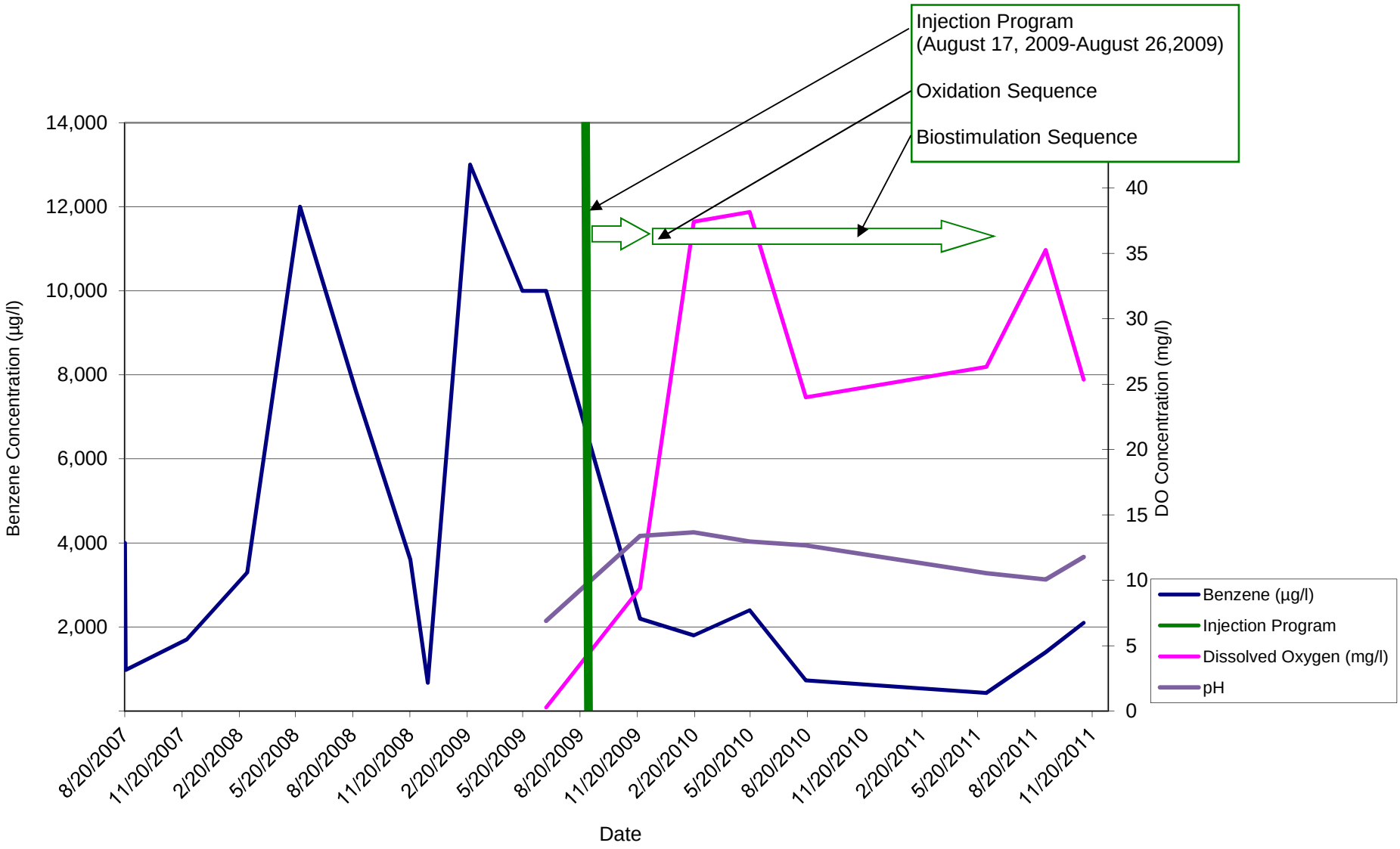
PREPARED FOR
QLT BUFFALO LLC
BUFFALO, NEW YORK

FIGURE 1

PERFORMANCE MONITORING RESULTS

WSP Engineering of New York, P.C.
750 Holliday Drive, Suite 410
Pittsburgh, PA 15220 412-604-1040

**Figure 2**
**MW-09 Trend Chart**




**WSP Engineering of New York, PC**

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Tables

**Table 1**

**Summary of General Chemistry and Field Parameters**
**QLT Buffalo**
**Buffalo, New York (a)**

| Well: | MW-01 | | MW-03 | | MW-09 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Baseline | Performance Monitoring | | | | | | |
| Parameters / Purge Date: | 11/24/09 | 05/19/10 | 11/24/09 | 05/19/10 | 06/26/09 | 11/24/09 | 02/18/10 | 05/19/10 | 08/17/10 | 06/03/11 | 09/06/11 | 11/06/11 |
| **General Chemistry (mg/l)** | | | | | | | | | | | | |
| Ferrous Iron | - | - | - | - | ND | - | 1 | <0.5 | 1 | 0.1 | ND | - |
| Nitrate | - | - | - | - | 0.05 U (b) | - | 0.05 U | 0.916 | 2.25 | 1.6 | 1.7 H | - |
| Sulfate | - | - | - | - | 55 | - | 2,100 D | 1,620 D08B | 1,520 D08 | 1,350 B | 1,280 | - |
| Sulfide | - | - | - | - | 0.1 U | - | 0.1 U | 0.1 | 0.1 | 1 U | 0.8 J | - |
| **Field Parameters** | | | | | | | | | | | | |
| Temperature ($^{o}$C) | 12.71 | 16.94 | 13.61 | 18.41 | 22.04 | 11.75 | 3.94 | 17.24 | 17.7 | 15.95 | 15.46 | 8.32 |
| Specific Conductance (mS/cm) | 2.17 | 1.92 | 3.61 | 2.32 | 1.74 | 11.7 | 9.31 | 5.64 | 5.98 | 4.63 | 4.38 | 4.35 |
| Dissolved Oxygen (mg/l) | 0.69 | 0 | 2.64 | 0 | 0.28 | 9.39 | 37.43 | 38.17 | 23.99 | 26.32 | 35.27 | 25.34 |
| pH (s.u.) | 7.22 | 6.79 | 6.90 | 7.22 | 6.89 | 13.40 | 13.67 | 12.96 | 12.67 | 10.54 | 10.06 | 11.79 |
| ORP (mV) | -23 | -122 | -21 | -134 | -96 | -25 | -24 | -58 | 30 | 64 | 32 | 103 |
| Turbidity (NTUs) | 5 | 14 | 5.9 | 5.21 | 9.6 | 69 (c) | 136 | 18.2 | 87.1 | 39.2 | 18.9 | 15.2 |
| Purge Volume (gal) | 2.5 | 0.7 | 2 | 0.6 | 2 | 1 | 1 | 0.8 | 1 | 0.6 | 0.2 | 0.1 |

a/ mg/l = milligrams per liter; "-" indicates constituent not analyzed; < = less than; $^{o}$C = degrees Celsius;
mS/cm = milliSiemens per centimeter; s.u. standard units; mV = milliVolts;
NTUs = nephelometric turbidity units; gal = gallon.

b/ Data Qualifiers:
U = result not detected
D, D08 = result from diluted aliquot
B = analyte was detected in associated method blank
H = Sample was prepped or analyzed beyond the specified holding time

c/ Turbidity was not measured the final recording; this measurement is from the previous recorded measurement.

**Table 2**

**Summary of Performance Monitoring Results**
**QLT Buffalo**
**Buffalo, New York (a)**

| Sample I.D.: | | MW-01 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Event: | | Quarterly Monitoring | | | | | | | | | Performance Monitoring (Post-Injection) | |
| Sample Date: | | 08/21/07 (b) | 08/21/07 (b) | 11/28/07 | 03/03/08 | 05/28/08 | 08/25/08 | 11/20/08 | 02/24/09 | 05/19/09 | 11/24/09 | 05/19/10 |
| **Parameters** | **NSYDEC Values (c)** | | | | | | | | | | | |
| **Volatile Organic Compounds (µg/l)** | | | | | | | | | | | | |
| Acetone | 50 | - | - | - | - | - | - | - | - | - | - | - |
| Benzene | 1 | 270 | 270 | 300 | 340 | 290 | 210 | 240 | 52 | 180 | 23 D | 68 |
| 2-Butanone | 50 | - | - | - | - | - | - | - | - | - | - | - |
| Ethylbenzene | 5 | 130 | 130 | 130 | 140 | 110 | 84 | 76 | 55 | 38 | 5 D | 11 |
| Toluene | 5 | 1.8 | 1.7 | 5 U | 5 U | 5 U | 5 U | 5 U | 0.98 J | 0.83 J | 4 U | 1 U |
| Total Xylenes | 5 | 17 | 16 | 7.6 J | 8.4 J | 6.1 J | 8.9 J | 15 U | 4.1 | 3.7 | 8 U | 2 U |

| Sample I.D.: | | MW-03 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Event: | | Quarterly Monitoring | | | | | | | | | | Supplemental Investigation | | Quarterly Monitoring | | Performance Monitoring (Post-Injection) | |
| Sample Date: | | 08/21/07 | 11/28/07 (b) | 11/28/07 (b) | 03/03/08 (b) | 03/03/08 (b) | 05/27/08 (b) | 05/27/08 (b) | 08/25/08 (b) | 08/25/08 (b) | 11/20/08 | 12/17/08 (b) | 12/17/08 (b) | 02/24/09 | 05/19/09 | 11/24/09 | 05/19/10 |
| **Parameters** | **NSYDEC Values** | | | | | | | | | | | | | | | | |
| **Volatile Organic Compounds (µg/l)** | | | | | | | | | | | | | | | | | |
| Acetone | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Benzene | 1 | 21 | 1,800 | 1,800 J | 520 | 490 | 48 | 42 | 1,600 | 1,800 | 1,500 | 610 | 600 | 420 | 220 | 1,300 D | 26 |
| 2-Butanone | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ethylbenzene | 5 | 13 | 960 | 980 J | 250 | 230 | 26 | 22 | 920 | 1,000 | 870 | 340 | 330 | 240 | 44 | 620 D | 1.2 |
| Toluene | 5 | 0.67 J | 100 | 110 | 20 | 19 J | 1 U | 1 U | 72 | 73 | 53 | 22 | 22 | 1.6 | 1.9 | 35 D | 1 U |
| Total Xylenes | 5 | 8.5 | 850 | 870 | 190 | 170 | 7.7 | 6.9 | 650 | 710 | 530 | 200 J | 190 | 17 | 5.5 | 370 D | 2 U |

| Sample I.D.: | | MW-09 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Event: | | Quarterly Monitoring | | | | | | Supplemental Investigation | Quarterly Monitoring | | Performance Monitoring (Post-Injection) | | | | | | | |
| Sample Date: | | 08/20/07 (e) | 08/21/07 | 11/27/07 | 03/03/08 | 05/27/08 | 08/25/08 | 11/20/08 | 12/18/08 | 02/24/09 | 05/19/09 | 11/24/09 (b) | 11/24/09 (b) | 02/18/10 (b) | 02/18/10 (b) | 05/19/10 (b) | 05/19/10 (b) | 08/17/10 (b) | 08/17/10 (b) |
| **Parameters** | **NSYDEC Values** | | | | | | | | | | | | | | | | | | |
| **Volatile Organic Compounds (µg/l)** | | | | | | | | | | | | | | | | | | | |
| Acetone | 50 | - | - | - | - | - | - | - | - | - | - | - | - | 63 | 62 | 35 | 35 | 31 | 33 |
| Benzene | 1 | 4,000 D | 980 | 1,700 | 3,300 | 12,000 | 7,600 | 3,600 | 670 | 13,000 | 10,000 | 2,200 D | 2,000 D | 1,500 | 1,800 | 2,400 D08 | 2,000 D08 | 730 D08 | 720 D08 |
| 2-Butanone | 50 | - | - | - | - | - | - | - | - | - | - | - | - | 7.8 | 7.6 | 5.4 | 5 | 5 J | 5.6 J |
| Ethylbenzene | 5 | 6 | 1.3 | 10 U | 20 U | 40 U | 100 U | 50 U | 0.73 J | 12 J | 8.2 J | 4.2 D | 3.9 JD | 3.8 | 4 | 4.9 | 3.6 | 3.1 | 2.7 |
| Toluene | 5 | 2 | 0.74 J | 10 U | 20 U | 40 U | 100 U | 50 U | 1 U | 4.7 J | 20 U | 4 U | 4 U | 0.92 J | 0.98 J | 0.6 J | 0.57 J | 0.51 | 0.51 |
| Total Xylenes | 5 | 120 U | 300 U | 150 U | 12 J | 40 U | 30 U | 60 U | 3 U | 120 U | 96 J | 3.7 JD | 3.2 JD | 6.1 | 6.2 | 2.7 | 1.4 J | 3 | 2.3 |

| Sample I.D.: | | MW-09 | | | | | |
|---|---|---|---|---|---|---|---|
| Event: | | Performance Monitoring (Post-Injection) | | | | | |
| Sample Date: | | 06/03/11 (b) | 06/03/11 (b) | 09/06/11 (b) | 09/06/11 (b) | 11/06/11 (b) | 11/06/11 (b) |
| **Parameters** | **NSYDEC Values** | | | | | | |
| **Volatile Organic Compounds (µg/l)** | | | | | | | |
| Acetone | 50 | 14 | 13 | 25 | 28 | - | - |
| Benzene | 1 | 420 | 430 | 1,400 | 970 | 2,100 | 2100 |
| 2-Butanone | 50 | 1.7 J | 1.7 J | 3.5 J | 3.9 J | - | - |
| Ethylbenzene | 5 | 0.77 J | 0.79 J | 1.4 | 1.4 | 2.1 | 2.2 |
| Toluene | 5 | 1 U | 1 U | 0.51 U | 0.51 U | 0.51 U | 0.51 U |
| Total Xylenes | 5 | 2 U | 2 U | 0.66 U | 0.66 U | 0.88 J | 0.95 J |

**Boxed value greater than the NYSDEC Ambient Water Quality value**

a/ I.D. = identification; NYSDEC = New York State Department of Environmental Conservation; µg/l = micrograms per liter; ND = not detected; '-' indicates standard not developed or constituent not analyzed.
b/ Sample and duplicate.
c/ NYSDEC Ambient Water Quality Standards and Guidance Values. Technical and Operational Guidance Series (1.1.1). June 1998 and as updated.
d/ Data Qualifiers:
U = constituent not detected at reported detection limit
J = estimated concentration
B = analyte detected in associated method blank
D, D08 = result from diluted aliquot
e/ Results from sample collected by the NYSDEC.

**Table 3**

**Summary of Molecular Biological Analysis Results**
**QLT Buffalo**
**Buffalo, New York (a)**

| | |
|---|---|
| **Sample Location:** | **MW-09** |
| **Sample Event:** | **Baseline** |
| **Sample Date:** | **06/26/09** |
| **Parameters** | |
| **CENSUS** | |
| **DNA Functional Genes (cells/ml)** | |
| Benzyl Succinate Synthase (bssA) | <1.00E+00 |
| Naphthalene Dioxygenase (NAH) | 1.37E+08 |
| Phenol Hydroxylase (PHE) | 4.06E+04 |
| Toluene Monooxygenase (RMO) | <1.00E+00 |
| Toluene Dioxygenase (TOD) | 1.01E+06 |
| Biphenyl Dioxygenase (PPH4) | 2.34E+04 |
| Xylene Monooxygenase (TOL) | 2.00E-01 J (b) |

a/ ml = milliliter; < = result not detected.
b/ Data Qualifiers:
J = estimated gene copies between PQL and LQL

**Table 4**

**Summary of Molecular Biological Analysis Results**
**QLT Buffalo**
**Buffalo, New York (a)**

| Sample Location: | MW-09 | | | | |
|---|---|---|---|---|---|
| Sample Event: | Performance Monitoring | | | | |
| Sample Date: | 02/18/10 | 05/19/10 | 08/17/10 | 06/06/11 | 09/06/11 |
| **Parameters** | | | | | |
| **CENSUS** | | | | | |
| **mRNA Functional Genes (gene copies/bead)** | | | | | |
| Benzyl Succinate Synthase (bssA) | <5.00E+01 | <5.00E+01 | <5.00E+01 | <5.00E+01 | <5.00E+01 |
| Naphthalene Dioxygenase (NAH) | <5.00E+01 | <5.00E+01 | 1.73E+10 | <5.00E+01 | <5.00E+01 |
| Phenol Hydroxylase (PHE) | 4.47E+01 J (b) | <5.00E+01 | <5.00E+01 | <5.00E+01 | <5.00E+01 |
| Toluene Monooxygenase (RMO) | - | <5.00E+01 | <5.00E+01 | 1.78E+03 | <5.00E+01 |
| Toluene Dioxygenase (TOD) | 3.50E+01 J | <5.00E+01 | <5.00E+01 | <5.00E+01 | <5.00E+01 |
| Biphenyl Dioxygenase (BPH4) | <5.00E+01 | <5.00E+01 | <5.00E+01 | <5.00E+01 | <5.00E+01 |
| Xylene Monooxygenase (TOL) | 3.14E+01 J | <5.00E+01 | <5.00E+01 | <5.00E+01 | <5.00E+01 |
| **PLFA** | | | | | |
| **Biomass Concentration** | | | | | |
| Total biomass(cells/bead) | 5.11E+04 | 2.46E+04 | 1.94E+05 | 1.04E+05 | 1.41E+04 |
| **Community Structure (% Total PLFA)** | | | | | |
| Firmicutes (TerBrSats) | 0.00 | 0.00 | 2.41 | 7.97 | 0.00 |
| Proteobacteria (Monos) | 33.69 | 100.00 | 75.47 | 56.71 | 71.64 |
| Anaerobic metal reducers (BrMonos) | 0.00 | 0.00 | 0.76 | 0.00 | 0.00 |
| SRB/Actinomycetes (MidBrSats) | 0.00 | 0.00 | 1.09 | 0.00 | 0.00 |
| General (Nsats) | 66.31 | 0.00 | 17.28 | 32.72 | 28.35 |
| Eukaryotes (polyenoics) | 0.00 | 0.00 | 2.99 | 2.60 | 0.00 |
| **Physiological Status (Proteobacteria Only)** | | | | | |
| Slowed Growth | 0.00 | 0.00 | 0.16 | 0.00 | 0.00 |
| Decreased Permeability | 1.93 | 0.00 | 0.51 | 0.00 | 0.00 |

a/ < = result not detected.
b/ Data Qualifiers:
J = estimated gene copies between PQL and LQL

**Table 5**

**Summary of CSIA Sample Results**
**QLT Buffalo**
**Buffalo, New York (a)**

| Sample Location: | MW-09 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Event: | Baseline | | Performance Monitoring | | | | | | | | | |
| Sample Date: | 06/26/09 | | 02/18/10 | | 05/19/10 | | 08/17/10 | | 06/03/11 | | 09/06/11 | |
| **Parameters** | | | | | | | | | | | | |
| | Conc (µg/l) | $\delta^{13}C$ (‰) | Conc (µg/l) | $\delta^{13}C$ (‰) | Conc (µg/l) | $\delta^{13}C$ (‰) | Conc (µg/l) | $\delta^{13}C$ (‰) | Conc (µg/l) | $\delta^{13}C$ (‰) | Conc (µg/l) | $\delta^{13}C$ (‰) |
| Benzene | 14,700 (b) | -21.13 R | 1,500 (b) | -24.06 | 1,500 (b) | -25.41 | 730 (b) | -23.03 | 420 (b) | -24.54 | 1400 (b) | -25.2 |

a/ CSIA = compound specific isotope analysis; conc = concentration; µg/l = micrograms per liter; R = data rejected.
b/ The reported concentration is from the sample submitted to TestAmerica. The result from the baseline study is an average concentration as MW-09 was sampled at four separate depth intervals. Refer to the MW-09 Area Pre-Design Investigation Report and Chemical Oxidation/Enhanced Bioremediation Inject Work Plan. WSP July 31, 2009 for the individual results.

Enclosure A

**GROUND-WATER SAMPLING RECORD** Well ID: MW-09

Site Name: QLT Buffalo (080190) Date: 09/06/11 Sampled By: ESR

Well Diameter: 2 inch Casing Material: PVC

Water Level: 5.56 Water column: 12.99 Well Volume (gal): 2.1

Purge Method: Low Flow - Peristaltic Pump Probe: Horiba U-52

Weather Conditions: Cloudy chance of rain; 65 degrees Farenheit

| Time | Volume (gal) | Temp ($^{o}$ C) | SpC (mS/cm) | DO (mg/L) | pH (SU) | ORP (mV) | Turb. (NTU) | DTW (fT) |
|---|---|---|---|---|---|---|---|---|
| 15:45 | Start purge at 100 millilters per minute. | | | | | | | |
| 15:50 | 0.01 | 17.29 | 4.36 | 30.23 | 7.68 | 108 | 13.1 | 6.41 |
| 15:55 | No measurements taken | | | | | | | |
| 16:00 | 0.04 | 17.63 | 4.32 | 29.3 | 8.77 | 104 | 11.3 | 7.14 |
| 16:05 | 0.06 | 17.38 | 4.30 | 28.37 | 8.72 | 106 | 12 | 7.35 |
| 16:10 | 0.07 | 17.07 | 4.29 | 30.07 | 8.99 | 93 | 15.2 | 7.9 |
| 16:15 | 0.08 | 16.56 | 4.31 | 23.8 | 9.19 | 87 | 6.6 | 8.38 |
| 16:20 | 0.10 | 16.51 | 4.32 | 24.8 | 9.23 | 84 | 4.9 | 8.66 |
| 16:25 | 0.11 | 16.29 | 4.34 | 24.85 | 9.49 | 71 | 10.4 | 9.35 |
| 16:30 | 0.12 | 16.17 | 4.35 | 23.74 | 9.55 | 67 | 13.4 | 9.75 |
| 16:35 | 0.13 | 15.94 | 4.36 | 24.61 | 9.60 | 63 | 14.4 | 9.95 |
| 16:40 | 0.15 | 15.86 | 4.36 | 22.81 | 9.69 | 58 | 19.9 | 10.4 |
| 16:45 | 0.16 | 15.74 | 4.33 | 34.87 | 9.77 | 49 | 24.9 | 10.85 |
| 16:50 | 0.17 | 15.66 | 4.37 | 35.13 | 9.97 | 38 | 24 | 11.05 |
| 16:55 | 0.19 | 15.62 | 4.38 | 35.06 | 10.05 | 33 | 19.4 | 11.18 |
| 17:00 | 0.20 | 15.55 | 4.38 | 35.13 | 10.02 | 33 | 15.2 | 11.21 |
| 17:05 | 0.21 | 15.46 | 4.38 | 35.27 | 10.06 | 32 | 18.9 | 11.25 |
| | | | | | | | | |
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| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Sample Date & Time:** | **06/03/11** | **19:26** | | | | | | |

**GROUND-WATER SAMPLING RECORD** Well ID: MW-09

Site Name: QLT Buffalo (080190) Date: 11/06/11 Sampled By: ESR

Well Diameter: 2 inch Casing Material: PVC

Water Level: 5.58 Water column: 12.97 Well Volume (gal): 2.1

Purge Method: Low Flow - Peristaltic Pump Probe: Horiba U-52

Weather Conditions: clear and 40 degrees Farenheit

| Time | Volume (gal) | Temp ($^{o}$ C) | SpC (mS/cm) | DO (mg/L) | pH (SU) | ORP (mV) | Turb. (NTU) | DTW (fT) |
|---|---|---|---|---|---|---|---|---|
| 8:30 | Start purge; flow rate set at 50 ml/min, reduced to 30-40 ml/min; pump intake at 11 feet bgs. | | | | | | | |
| 8:50 | 0.026 | 10.07 | 4.29 | 21.07 | 11.79 | 147 | 0 | 6.12 |
| 8:55 | 0.032 | 10.08 | 4.27 | 15.95 | 11.80 | 135 | 11.9 | 6.2 |
| 9:00 | 0.036 | 10.02 | 4.27 | 16.71 | 11.83 | 124 | 12.2 | 6.22 |
| 9:05 | 0.040 | 9.74 | 4.25 | 17.74 | 11.87 | 116 | 11 | 6.27 |
| 9:10 | 0.044 | 9.35 | 4.23 | 16.9 | 11.92 | 108 | 8.24 | 6.31 |
| 9:15 | 0.048 | 8.88 | 4.27 | 20.53 | 11.88 | 105 | 9.36 | 6.33 |
| 9:20 | 0.053 | 8.58 | 4.31 | 24.32 | 11.82 | 104 | 14.4 | 6.42 |
| 9:25 | 0.058 | 8.32 | 4.35 | 25.34 | 11.79 | 103 | 15.2 | 6.53 |
| 9:30 | Collect sample for analysis of BTEX by EPA method 8260 | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |
| **Sample Date & Time:** | **11/06/11** | **9:30** | | | | | | |

Enclosure B

Laboratory Analytical Data Package: September 2011

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-9446-1
Client Project/Site: Buffalo Service Center

For:
WSP Environment & Energy
750 Holiday Drive
Suite 410
Pittsburgh, Pennsylvania 15220

Attn: Mr. Brett Marion

Candace L. Fox

*Authorized for release by:*
*09/30/2011 10:47:16 AM*

Candace Fox
Project Manager II
candace.fox@testamericainc.com

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# Sample Summary

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-9446-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 480-9446-1 | MW-09-0911 | Water | 09/06/11 00:00 | 09/08/11 09:30 |
| 480-9446-2 | TB090611 | Water | 09/06/11 00:00 | 09/08/11 09:30 |
| 480-9446-3 | MW-0911 | Water | 09/06/11 00:00 | 09/08/11 09:30 |

## Qualifiers

### GC/MS VOA

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

### General Chemistry

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |
| H | Sample was prepped or analyzed beyond the specified holding time |
| F | MS or MSD exceeds the control limits |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ☼ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| DL, RA, RE, IN | Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| EDL | Estimated Detection Limit (Dioxin) |
| EPA | United States Environmental Protection Agency |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| ND | Not detected at the reporting limit (or method detection limit if shown) |
| PQL | Practical Quantitation Limit |
| RL | Reporting Limit |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

## Job ID: 480-9446-1

### Laboratory: TestAmerica Buffalo

**Narrative**

**Job Narrative**
**480-9446-1**

**Comments**
No additional comments.

**Receipt**
The following sample was received outside of holding time for nitrate analysis: MW-09-0911 (480-9446-1).

All other samples were received in good condition within temperature requirements.

**GC/MS VOA**
Method(s)B: The following samples were diluted due to the abundance of target analytes: MW-09-0911 DL (480-9446-1 DL) and MW-0911 DL (480-9446-3 DL). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

**General Chemistry**
Method(s) D516-90, 02: The matrix spike (MS) recoveries for batch 32121 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria. (480-9446-1 MS)

Method(s) Nitrate by calc: The following sample(s) was received outside of holding time: MW-09-0911 (480-9446-1).

No other analytical or quality issues were noted.

# Detection Summary

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-9446-1

## Client Sample ID: MW-09-0911 — Lab Sample ID: 480-9446-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1400 | | 20 | 8.2 | ug/L | 20 | | 8260B | Total/NA |
| Ethylbenzene | 1.4 | | 1.0 | 0.74 | ug/L | 1 | | 8260B | Total/NA |
| Total BTEX | 1400 | | 40 | 20 | ug/L | 20 | | 8260B | Total/NA |
| Acetone | 25 | | 10 | 3.0 | ug/L | 1 | | 8260B | Total/NA |
| 2-Butanone (MEK) | 3.5 | J | 10 | 1.3 | ug/L | 1 | | 8260B | Total/NA |
| Nitrate as N | 1.7 | H | 0.050 | 0.011 | mg/L | 1 | | 353.2 | Total/NA |
| Sulfate | 1280 | | 375 | 113 | mg/L | 75 | | D516-90, 02 | Total/NA |
| Sulfide | 0.80 | J | 1.0 | 0.67 | mg/L | 1 | | SM 4500 S2 F | Total/NA |

## Client Sample ID: TB090611 — Lab Sample ID: 480-9446-2

No Detections

## Client Sample ID: MW-0911 — Lab Sample ID: 480-9446-3

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 970 | | 20 | 8.2 | ug/L | 20 | | 8260B | Total/NA |
| Ethylbenzene | 1.4 | | 1.0 | 0.74 | ug/L | 1 | | 8260B | Total/NA |
| Total BTEX | 970 | | 40 | 20 | ug/L | 20 | | 8260B | Total/NA |
| Acetone | 28 | | 10 | 3.0 | ug/L | 1 | | 8260B | Total/NA |
| 2-Butanone (MEK) | 3.9 | J | 10 | 1.3 | ug/L | 1 | | 8260B | Total/NA |

## Client Sample ID: MW-09-0911

**Date Collected: 09/06/11 00:00**
**Date Received: 09/08/11 09:30**

## Lab Sample ID: 480-9446-1

**Matrix: Water**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **1400** | | 20 | 8.2 | ug/L | | | 09/16/11 13:25 | 20 |
| Toluene | ND | | 1.0 | 0.51 | ug/L | | | 09/15/11 06:12 | 1 |
| **Ethylbenzene** | **1.4** | | 1.0 | 0.74 | ug/L | | | 09/15/11 06:12 | 1 |
| Xylenes, Total | ND | | 2.0 | 0.66 | ug/L | | | 09/15/11 06:12 | 1 |
| **Total BTEX** | **1400** | | 40 | 20 | ug/L | | | 09/16/11 13:25 | 20 |
| **Acetone** | **25** | | 10 | 3.0 | ug/L | | | 09/15/11 06:12 | 1 |
| **2-Butanone (MEK)** | **3.5** | **J** | 10 | 1.3 | ug/L | | | 09/15/11 06:12 | 1 |

| *Surrogate* | *% Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *89* | | *66 - 137* | | *09/15/11 06:12* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *100* | | *66 - 137* | | *09/16/11 13:25* | *20* |
| *Toluene-d8 (Surr)* | *88* | | *71 - 126* | | *09/15/11 06:12* | *1* |
| *Toluene-d8 (Surr)* | *88* | | *71 - 126* | | *09/16/11 13:25* | *20* |
| *4-Bromofluorobenzene (Surr)* | *78* | | *73 - 120* | | *09/15/11 06:12* | *1* |
| *4-Bromofluorobenzene (Surr)* | *83* | | *73 - 120* | | *09/16/11 13:25* | *20* |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Nitrate as N** | **1.7** | **H** | 0.050 | 0.011 | mg/L | | | 09/08/11 23:24 | 1 |
| **Sulfate** | **1280** | | 375 | 113 | mg/L | | | 09/20/11 16:49 | 75 |
| **Sulfide** | **0.80** | **J** | 1.0 | 0.67 | mg/L | | | 09/10/11 16:16 | 1 |

## Client Sample ID: TB090611

**Date Collected: 09/06/11 00:00**
**Date Received: 09/08/11 09:30**

## Lab Sample ID: 480-9446-2

**Matrix: Water**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 1.0 | 0.41 | ug/L | | | 09/15/11 14:22 | 1 |
| Toluene | ND | | 1.0 | 0.51 | ug/L | | | 09/15/11 14:22 | 1 |
| Ethylbenzene | ND | | 1.0 | 0.74 | ug/L | | | 09/15/11 14:22 | 1 |
| Xylenes, Total | ND | | 2.0 | 0.66 | ug/L | | | 09/15/11 14:22 | 1 |
| Total BTEX | ND | | 2.0 | 1.0 | ug/L | | | 09/15/11 14:22 | 1 |
| Acetone | ND | | 10 | 3.0 | ug/L | | | 09/15/11 14:22 | 1 |
| 2-Butanone (MEK) | ND | | 10 | 1.3 | ug/L | | | 09/15/11 14:22 | 1 |

| *Surrogate* | *% Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *100* | | *66 - 137* | | *09/15/11 14:22* | *1* |
| *Toluene-d8 (Surr)* | *88* | | *71 - 126* | | *09/15/11 14:22* | *1* |
| *4-Bromofluorobenzene (Surr)* | *78* | | *73 - 120* | | *09/15/11 14:22* | *1* |

## Client Sample ID: MW-0911

**Date Collected: 09/06/11 00:00**
**Date Received: 09/08/11 09:30**

## Lab Sample ID: 480-9446-3

**Matrix: Water**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **970** | | 20 | 8.2 | ug/L | | | 09/16/11 13:50 | 20 |
| Toluene | ND | | 1.0 | 0.51 | ug/L | | | 09/15/11 07:02 | 1 |

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-9446-1

**Client Sample ID: MW-0911**
**Date Collected: 09/06/11 00:00**
**Date Received: 09/08/11 09:30**

**Lab Sample ID: 480-9446-3**
**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | 1.4 | | 1.0 | 0.74 | ug/L | | | 09/15/11 07:02 | 1 |
| Xylenes, Total | ND | | 2.0 | 0.66 | ug/L | | | 09/15/11 07:02 | 1 |
| Total BTEX | 970 | | 40 | 20 | ug/L | | | 09/16/11 13:50 | 20 |
| Acetone | 28 | | 10 | 3.0 | ug/L | | | 09/15/11 07:02 | 1 |
| 2-Butanone (MEK) | 3.9 | J | 10 | 1.3 | ug/L | | | 09/15/11 07:02 | 1 |

| *Surrogate* | *% Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *92* | | *66 - 137* | | *09/15/11 07:02* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *97* | | *66 - 137* | | *09/16/11 13:50* | *20* |
| *Toluene-d8 (Surr)* | *92* | | *71 - 126* | | *09/15/11 07:02* | *1* |
| *Toluene-d8 (Surr)* | *89* | | *71 - 126* | | *09/16/11 13:50* | *20* |
| *4-Bromofluorobenzene (Surr)* | *82* | | *73 - 120* | | *09/15/11 07:02* | *1* |
| *4-Bromofluorobenzene (Surr)* | *80* | | *73 - 120* | | *09/16/11 13:50* | *20* |

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 480-31295/5**
**Matrix: Water**
**Analysis Batch: 31295**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 1.0 | 0.41 | ug/L | | | 09/15/11 00:31 | 1 |
| Toluene | ND | | 1.0 | 0.51 | ug/L | | | 09/15/11 00:31 | 1 |
| Ethylbenzene | ND | | 1.0 | 0.74 | ug/L | | | 09/15/11 00:31 | 1 |
| Xylenes, Total | ND | | 2.0 | 0.66 | ug/L | | | 09/15/11 00:31 | 1 |
| Total BTEX | ND | | 2.0 | 1.0 | ug/L | | | 09/15/11 00:31 | 1 |

| *Surrogate* | *MB % Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *96* | | *66 - 137* | | *09/15/11 00:31* | *1* |
| *Toluene-d8 (Surr)* | *88* | | *71 - 126* | | *09/15/11 00:31* | *1* |
| *4-Bromofluorobenzene (Surr)* | *79* | | *73 - 120* | | *09/15/11 00:31* | *1* |

**Lab Sample ID: LCS 480-31295/4**
**Matrix: Water**
**Analysis Batch: 31295**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | % Rec | % Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 25.0 | 26.2 | | ug/L | | 105 | 71 - 124 |
| Toluene | 25.0 | 24.3 | | ug/L | | 97 | 70 - 122 |
| Ethylbenzene | 25.0 | 23.9 | | ug/L | | 96 | 77 - 123 |
| m-Xylene & p-Xylene | 50.0 | 48.7 | | ug/L | | 97 | 76 - 122 |
| o-Xylene | 25.0 | 24.0 | | ug/L | | 96 | 76 - 122 |

| *Surrogate* | *LCS % Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *95* | | *66 - 137* |
| *Toluene-d8 (Surr)* | *93* | | *71 - 126* |
| *4-Bromofluorobenzene (Surr)* | *86* | | *73 - 120* |

**Lab Sample ID: MB 480-31382/2-A**
**Matrix: Water**
**Analysis Batch: 31372**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 31382**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 1.0 | 0.41 | ug/L | | 09/15/11 13:31 | 09/15/11 13:31 | 1 |
| Toluene | ND | | 1.0 | 0.51 | ug/L | | 09/15/11 13:31 | 09/15/11 13:31 | 1 |
| Ethylbenzene | ND | | 1.0 | 0.74 | ug/L | | 09/15/11 13:31 | 09/15/11 13:31 | 1 |
| Xylenes, Total | ND | | 2.0 | 0.66 | ug/L | | 09/15/11 13:31 | 09/15/11 13:31 | 1 |
| Total BTEX | ND | | 2.0 | 1.0 | ug/L | | 09/15/11 13:31 | 09/15/11 13:31 | 1 |
| Acetone | ND | | 10 | 3.0 | ug/L | | 09/15/11 13:31 | 09/15/11 13:31 | 1 |
| 2-Butanone (MEK) | ND | | 10 | 1.3 | ug/L | | 09/15/11 13:31 | 09/15/11 13:31 | 1 |

| *Surrogate* | *MB % Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *104* | | *66 - 137* | *09/15/11 13:31* | *09/15/11 13:31* | *1* |
| *Toluene-d8 (Surr)* | *98* | | *71 - 126* | *09/15/11 13:31* | *09/15/11 13:31* | *1* |
| *4-Bromofluorobenzene (Surr)* | *83* | | *73 - 120* | *09/15/11 13:31* | *09/15/11 13:31* | *1* |

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 480-31382/1-A**
**Matrix: Water**
**Analysis Batch: 31372**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 31382**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | % Rec | % Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 25.0 | 29.2 | | ug/L | | 117 | 71 - 124 |
| Toluene | 25.0 | 28.3 | | ug/L | | 113 | 70 - 122 |
| Ethylbenzene | 25.0 | 27.9 | | ug/L | | 112 | 77 - 123 |
| m-Xylene & p-Xylene | 50.0 | 59.0 | | ug/L | | 118 | 76 - 122 |
| o-Xylene | 25.0 | 28.3 | | ug/L | | 113 | 76 - 122 |

| *Surrogate* | *LCS % Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *107* | | *66 - 137* |
| *Toluene-d8 (Surr)* | *101* | | *71 - 126* |
| *4-Bromofluorobenzene (Surr)* | *91* | | *73 - 120* |

**Lab Sample ID: MB 480-31569/5**
**Matrix: Water**
**Analysis Batch: 31569**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 1.0 | 0.41 | ug/L | | | 09/16/11 12:46 | 1 |
| Toluene | ND | | 1.0 | 0.51 | ug/L | | | 09/16/11 12:46 | 1 |
| Ethylbenzene | ND | | 1.0 | 0.74 | ug/L | | | 09/16/11 12:46 | 1 |
| Xylenes, Total | ND | | 2.0 | 0.66 | ug/L | | | 09/16/11 12:46 | 1 |
| Total BTEX | ND | | 2.0 | 1.0 | ug/L | | | 09/16/11 12:46 | 1 |

| *Surrogate* | *MB % Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *99* | | *66 - 137* | | *09/16/11 12:46* | *1* |
| *Toluene-d8 (Surr)* | *87* | | *71 - 126* | | *09/16/11 12:46* | *1* |
| *4-Bromofluorobenzene (Surr)* | *78* | | *73 - 120* | | *09/16/11 12:46* | *1* |

**Lab Sample ID: LCS 480-31569/4**
**Matrix: Water**
**Analysis Batch: 31569**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | % Rec | % Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 25.0 | 26.3 | | ug/L | | 105 | 71 - 124 |
| Toluene | 25.0 | 24.5 | | ug/L | | 98 | 70 - 122 |
| Ethylbenzene | 25.0 | 23.7 | | ug/L | | 95 | 77 - 123 |
| m-Xylene & p-Xylene | 50.0 | 51.3 | | ug/L | | 103 | 76 - 122 |
| o-Xylene | 25.0 | 24.1 | | ug/L | | 96 | 76 - 122 |

| *Surrogate* | *LCS % Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *98* | | *66 - 137* |
| *Toluene-d8 (Surr)* | *91* | | *71 - 126* |
| *4-Bromofluorobenzene (Surr)* | *87* | | *73 - 120* |

## Method: D516-90, 02 - Sulfate

**Lab Sample ID: MB 480-32121/7**
**Matrix: Water**
**Analysis Batch: 32121**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | | 5.0 | 1.5 | mg/L | | | 09/20/11 16:19 | 1 |

**Lab Sample ID: LCS 480-32121/6**
**Matrix: Water**
**Analysis Batch: 32121**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | % Rec | % Rec. Limits |
|---|---|---|---|---|---|---|---|
| Sulfate | 30.0 | 31.14 | | mg/L | | 104 | 90 - 110 |

**Lab Sample ID: 480-9446-1 MS**
**Matrix: Water**
**Analysis Batch: 32121**

**Client Sample ID: MW-09-0911**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | % Rec | % Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 1280 | | 1500 | 1383 | F | mg/L | | 7 | 60 - 128 |

## Method: SM 4500 S2 F - Sulfide, Total

**Lab Sample ID: MB 480-30741/3**
**Matrix: Water**
**Analysis Batch: 30741**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Sulfide | ND | | 1.0 | 0.67 | mg/L | | | 09/10/11 16:06 | 1 |

**Lab Sample ID: LCS 480-30741/4**
**Matrix: Water**
**Analysis Batch: 30741**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | % Rec | % Rec. Limits |
|---|---|---|---|---|---|---|---|
| Sulfide | 10.0 | 10.80 | | mg/L | | 108 | 90 - 110 |

## GC/MS VOA

### Analysis Batch: 31295

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 480-9446-1 | MW-09-0911 | Total/NA | Water | 8260B | |
| 480-9446-3 | MW-0911 | Total/NA | Water | 8260B | |
| LCS 480-31295/4 | Lab Control Sample | Total/NA | Water | 8260B | |
| MB 480-31295/5 | Method Blank | Total/NA | Water | 8260B | |

### Analysis Batch: 31372

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 480-9446-2 | TB090611 | Total/NA | Water | 8260B | |
| LCS 480-31382/1-A | Lab Control Sample | Total/NA | Water | 8260B | 31382 |
| MB 480-31382/2-A | Method Blank | Total/NA | Water | 8260B | 31382 |

### Prep Batch: 31382

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| LCS 480-31382/1-A | Lab Control Sample | Total/NA | Water | 5030B | |
| MB 480-31382/2-A | Method Blank | Total/NA | Water | 5030B | |

### Analysis Batch: 31569

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 480-9446-1 | MW-09-0911 | Total/NA | Water | 8260B | |
| 480-9446-3 | MW-0911 | Total/NA | Water | 8260B | |
| LCS 480-31569/4 | Lab Control Sample | Total/NA | Water | 8260B | |
| MB 480-31569/5 | Method Blank | Total/NA | Water | 8260B | |

## General Chemistry

### Analysis Batch: 30741

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 480-9446-1 | MW-09-0911 | Total/NA | Water | SM 4500 S2 F | |
| LCS 480-30741/4 | Lab Control Sample | Total/NA | Water | SM 4500 S2 F | |
| MB 480-30741/3 | Method Blank | Total/NA | Water | SM 4500 S2 F | |

### Analysis Batch: 31046

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 480-9446-1 | MW-09-0911 | Total/NA | Water | 353.2 | |

### Analysis Batch: 32121

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 480-9446-1 | MW-09-0911 | Total/NA | Water | D516-90, 02 | |
| 480-9446-1 MS | MW-09-0911 | Total/NA | Water | D516-90, 02 | |
| LCS 480-32121/6 | Lab Control Sample | Total/NA | Water | D516-90, 02 | |
| MB 480-32121/7 | Method Blank | Total/NA | Water | D516-90, 02 | |

# Lab Chronicle

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-9446-1

## Client Sample ID: MW-09-0911

**Lab Sample ID: 480-9446-1**

**Date Collected: 09/06/11 00:00**

**Matrix: Water**

**Date Received: 09/08/11 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared Or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 31295 | 09/15/11 06:12 | LH | TAL BUF |
| Total/NA | Analysis | 8260B | | 20 | 31569 | 09/16/11 13:25 | JMB | TAL BUF |
| Total/NA | Analysis | SM 4500 S2 F | | 1 | 30741 | 09/10/11 16:16 | AP | TAL BUF |
| Total/NA | Analysis | 353.2 | | 1 | 31046 | 09/08/11 23:24 | RL | TAL BUF |
| Total/NA | Analysis | D516-90, 02 | | 75 | 32121 | 09/20/11 16:49 | PN | TAL BUF |

## Client Sample ID: TB090611

**Lab Sample ID: 480-9446-2**

**Date Collected: 09/06/11 00:00**

**Matrix: Water**

**Date Received: 09/08/11 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared Or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 31372 | 09/15/11 14:22 | LH | TAL BUF |

## Client Sample ID: MW-0911

**Lab Sample ID: 480-9446-3**

**Date Collected: 09/06/11 00:00**

**Matrix: Water**

**Date Received: 09/08/11 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared Or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 31295 | 09/15/11 07:02 | LH | TAL BUF |
| Total/NA | Analysis | 8260B | | 20 | 31569 | 09/16/11 13:50 | JMB | TAL BUF |

**Laboratory References:**

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Certification Summary

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-9446-1

| Laboratory | Authority | Program | EPA Region | Certification ID |
|---|---|---|---|---|
| TestAmerica Buffalo | Arkansas | State Program | 6 | 88-0686 |
| TestAmerica Buffalo | California | NELAC | 9 | 1169CA |
| TestAmerica Buffalo | Connecticut | State Program | 1 | PH-0568 |
| TestAmerica Buffalo | Florida | NELAC | 4 | E87672 |
| TestAmerica Buffalo | Georgia | Georgia EPD | 4 | N/A |
| TestAmerica Buffalo | Georgia | State Program | 4 | 956 |
| TestAmerica Buffalo | Illinois | NELAC | 5 | 100325 / 200003 |
| TestAmerica Buffalo | Iowa | State Program | 7 | 374 |
| TestAmerica Buffalo | Kansas | NELAC | 7 | E-10187 |
| TestAmerica Buffalo | Kentucky | Kentucky UST | 4 | 30 |
| TestAmerica Buffalo | Kentucky | State Program | 4 | 90029 |
| TestAmerica Buffalo | Louisiana | NELAC | 6 | 02031 |
| TestAmerica Buffalo | Maine | State Program | 1 | NY0044 |
| TestAmerica Buffalo | Maryland | State Program | 3 | 294 |
| TestAmerica Buffalo | Massachusetts | State Program | 1 | M-NY044 |
| TestAmerica Buffalo | Michigan | State Program | 5 | 9937 |
| TestAmerica Buffalo | Minnesota | NELAC | 5 | 036-999-337 |
| TestAmerica Buffalo | New Hampshire | NELAC | 1 | 68-00281 |
| TestAmerica Buffalo | New Hampshire | NELAC | 1 | 2337 |
| TestAmerica Buffalo | New Jersey | NELAC | 2 | NY455 |
| TestAmerica Buffalo | New York | NELAC | 2 | 10026 |
| TestAmerica Buffalo | North Dakota | State Program | 8 | R-176 |
| TestAmerica Buffalo | Oklahoma | State Program | 6 | 9421 |
| TestAmerica Buffalo | Oregon | NELAC | 10 | NY200003 |
| TestAmerica Buffalo | Pennsylvania | NELAC | 3 | 68-00281 |
| TestAmerica Buffalo | Tennessee | State Program | 4 | TN02970 |
| TestAmerica Buffalo | Texas | NELAC | 6 | T104704412-08-TX |
| TestAmerica Buffalo | USDA | USDA | | P330-08-00242 |
| TestAmerica Buffalo | Virginia | NELAC Secondary AB | 3 | 460185 |
| TestAmerica Buffalo | Virginia | State Program | 3 | 278 |
| TestAmerica Buffalo | Washington | State Program | 10 | C1677 |
| TestAmerica Buffalo | West Virginia | West Virginia DEP | 3 | 252 |
| TestAmerica Buffalo | Wisconsin | State Program | 5 | 998310390 |

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

# Method Summary

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-9446-1

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 8260B | Volatile Organic Compounds (GC/MS) | SW846 | TAL BUF |
| 353.2 | Nitrate | EPA | TAL BUF |
| D516-90, 02 | Sulfate | ASTM | TAL BUF |
| SM 4500 S2 F | Sulfide, Total | SM | TAL BUF |

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# CHAIN OF CUSTODY RECORD



N° 00964

| Project Number: | Site and Location: |
|---|---|
| 3313/11 | QLT-Buffalo |
| **Contact Name:** | **Contact Email:** |
| Chrissy Peterson | |
| **Sampler's Name:** | **Sampler's Signature:** |
| Erik Reinert | |

Matrices: S = Soil; Aq = Water; A = Air; Bu = Bulk; W = Wipe; Bi = Biota; OW = Oily Waste; O = Other

Requested Analyses: BTEX (8260); Nitrate; Sulfate; S.I.F. dx

| Sample Identification: | Depth | Date | Time | Matrix | Number of Containers | BTEX (8260) | Nitrate | Sulfate | S.I.F. dx | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| MW09-0911 | — | 9/6/11 | | Aq | 4 | X | X | X | X | |
| TB090611 | — | 9/6/11 | | Aq | 2 | X | | | | Trip Blank |
| MW-0911 | — | 9/6/11 | | Aq | 1 | X | | | | |

| | | | |
|---|---|---|---|
| Relinquished by (Signature): ER | 9/7/11 1200 (Date \| Time) | Received by (Signature): | Laboratory Name: Test America |
| Relinquished by (Signature): | 9/8/11 930 (Date \| Time) | Received by (Signature): | Laboratory Location: Buffalo, NY |
| | | | Custody Seal Numbers: ~~NA~~ 00271 |
| Turn-Around Time: Standard | | Tracking Number: 7911 8891 8626 | Method of Shipment: WSP delivery |

WSP Environment & Energy

- ☐ Reston Office: 11190 Sunrise Valley Dr., #300, Reston, VA 20191 / Tel: 703-709-6500
- ☒ Pittsburgh Office: 750 Holiday Dr., #410, Pittsburgh, PA 15220 / Tel: 412-604-1040
- ☐ San Jose Office: 2025 Gateway Place, #435, San Jose, CA 95110 / Tel: 408-453-6100
- ☐ New Jersey Office: 334 Elizabeth Ave., Somerset, NJ 08873 / Tel: 732-564-0888
- ☐ Denver Office: 4600 South Ulster, #930, Denver, CO 80237 / Tel: 303-850-9200
- ☐ Minneapolis Office: 123 North 3rd St., #808, Minneapolis, MN 55401 / Tel: 612-343-0510
- ☐ Boxborough Office: 1740 Massachusetts Ave., Boxborough, MA 01719 / Tel: 978-635 9600
- ☐ Cazenovia Office: 5 Sullivan St., Cazenovia, NY 13035 / Tel: 315-655-3900

# Login Sample Receipt Checklist

Client: WSP Environment & Energy

Job Number: 480-9446-1

**Login Number: 9446**

**List Source: TestAmerica Buffalo**

**List Number: 1**

**Creator: Wienke, Robert**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity either was not measured or, if measured, is at or below background | True | |
| The cooler's custody seal, if present, is intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the sample IDs on the containers and the COC. | True | |
| Samples are received within Holding Time. | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter. | True | |
| If necessary, staff have been informed of any short hold time or quick TAT needs | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Sampling Company provided. | True | WSP |
| Samples received within 48 hours of sampling. | True | |
| Samples requiring field filtration have been filtered in the field. | N/A | |
| Chlorine Residual checked. | N/A | |

# FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Ridgeview RDF

Site No.: 400 Sample Point: GW501 (Sample ID)

**This Waste Management Field Information Form is Required**
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

## PURGE INFO

| PURGE DATE (MM DD YY) | PURGE TIME (2400 Hr Clock) | ELAPSED HRS (hrs:min) | WATER VOL IN CASING (Gallons) | ACTUAL VOL PURGED (Gallons) | WELL VOLs PURGED |
|---|---|---|---|---|---|
| | | | | | |

*Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.*

## PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment Dedicated: (Y) or N

Purging Device: D

Sampling Device: D

A- Submersible Pump; B-Peristaltic Pump; C-QED Bladder Pump; D-Bailer; E-Piston Pump; F-Dipper/Bottle

X-Other:

Filter Device: Y or N; 0.45 µ or ____ µ (circle or fill in)

Filter Type: B

A-In-line Disposable; B-Pressure; C-Vacuum; X-Other ____

Sample Tube Type: C

A-Teflon; B-Stainless Steel; C-PVC; D-Polypropylene; X-Other: ____

## WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) ____ (ft)

Groundwater Elevation (site datum, from TOC) ____ (ft/msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

*Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.*

## STABILIZATION DATA (Optional)

| Sample Time (2400 Hr Clock) | Rate/Unit | pH (std) | Conductance (SC/EC) (µmhos/cm @ 25 °C) | Temp. (°C) | Turbidity (ntu) | D.O. (mg/L - ppm) | eH/ORP (mV) | DTW (ft) |
|---|---|---|---|---|---|---|---|---|
| | | 1st | 1st | | | | | |
| | | 2nd | 2nd | | | | | |
| | | 3rd | 3rd | | | | | |
| | | 4th | 4th | | | | | |
| Suggested range for 3 consec. readings or note Permit/State requirements: | | +/- 0.2 | +/- 3% | -- | -- | +/- 10% | +/- 25 mV | Stabilize |

**Stabilization Data Fields are Optional** *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

## FIELD DATA

| SAMPLE DATE (MM DD YY) | pH (std) | CONDUCTANCE (µmhos/cm @ 25°C) | TEMP. (°C) | TURBIDITY (ntu) | DO (mg/L-ppm) | eH/ORP (mV) | Other: ____ Units ____ |
|---|---|---|---|---|---|---|---|
| 09 07 11 | 7.38 | | | | | | |

**Final Field Readings are required** *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

## FIELD COMMENTS

**Sample Appearance:** ____ Odor: ____ Color: ____ Other: ____

**Weather Conditions** (required daily, or as conditions change): Direction/Speed: ____ Outlook: ____ Precipitation: Y or N

**Specific Comments (including purge/well volume calculations if required):**

* September Monthly WWTP Sample

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

| Date | Name | Signature | Company |
|---|---|---|---|
| 9.7.11 | Keith Feind | | WMI |
| __/__/__ | | | |

**DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy**

2340 Stock Creek Blvd.
Rockford TN 37853-3044
Phone: (865) 573-8188
Fax: (865) 573-8133
Email: info@microbe.com

**Client:** Matt Burns
WSP Environment & Energy
1740 Massachusetts Ave
Boxborough, MA 01719

**Phone:** (978) 635-9600

**Fax:** (978) 264-0537

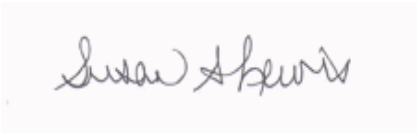
**Identifier:** 014II **Date Rec:** 09/07/2011 **Report Date:** 09/21/2011

**Client Project #:** 080190/11 **Client Project Name:** QLT Buffalo

**Purchase Order #:**

**Analysis Requested:** mRNA, PLFA, Standard Bio-Trap

**Reviewed By:**



**MICROBIAL INSIGHTS, INC.**

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel. (865) 573-8188 Fax. (865) 573-8133

**mRNA**

**Client:** **WSP Environment & Energy**
Project: QLT Buffalo

**MI Project Number:** **014II**
Date Received: 09/07/2011

**Sample Information**

| | |
|---|---|
| **Client Sample ID:** | **MW-9-0911** |
| Sample Date: | 09/06/2011 |
| Units: | gene copies/bead |
| Analyst: | CT |

**Functional Genes**

| | | |
|---|---|---|
| Benzyl Succinate Synthase | bssA | <5.00E+01 |
| Naphthalene Dioxygenase | NAH | <5.00E+01 |
| Phenol Hydroxylase | PHE | <5.00E+01 |
| Toluene Monooxygenase | RMO | <5.00E+01 |
| Toluene Dioxygenase | TOD | <5.00E+01 |
| Biphenyl Dioxygenase | BPH4 | <5.00E+01 |
| Xylene Monooxygenase | TOL | <5.00E+01 |

**Legend:**
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

2340 Stock Creek Blvd.
Rockford TN 37853-3044
Phone: (865) 573-8188
Fax: (865) 573-8133
Email: info@microbe.com

**Identifier:** 014II **Date Rec:** 09/07/2011 **Report Date:** 09/21/2011

**Client Project #:** 080190/11 **Client Project Name:** QLT Buffalo

**Purchase Order #:**

**Comments:** The total PLFA biomass was below the laboratory LQL.

**MICROBIAL INSIGHTS, INC.**

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel. (865) 573-8188 Fax. (865) 573-8133

# PLFA

**Client:** **WSP Environment & Energy**
Project: QLT Buffalo

**MI Project Number:** **014II**
Date Received: 09/07/2011

## Sample Information

| | |
|---|---|
| **Sample Name:** | **MW-9-0911** |
| Sample Date: | 09/06/2011 |
| Sample Matrix: | Std. Bio-Trap |
| Analyst: | BJ |

## Biomass Concentrations

| | |
|---|---|
| Total Biomass (cells/bead) | **1.41E+04** |

## Community Structure (% total PLFA)

| | |
|---|---|
| Firmicutes (TerBrSats) | **0.00** |
| Proteobacteria (Monos) | **71.64** |
| Anaerobic metal reducers (BrMonos) | **0.00** |
| SRB/Actinomycetes (MidBrSats) | **0.00** |
| General (Nsats) | **28.35** |
| Eukaryotes (polyenoics) | **0.00** |

## Physiological Status (Proteobacteria only)

| | |
|---|---|
| Slowed Growth | **0.00** |
| Decreased Permeability | **0.00** |

**Legend:**
NA = Not Analyzed NS = Not Sampled

**MICROBIAL INSIGHTS, INC.**

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel. (865) 573-8188 Fax. (865) 573-8133

**PLFA**

**Client:** **WSP Environment & Energy**
Project: QLT Buffalo

**MI Project Number:** **014II**
Date Received: 09/07/2011

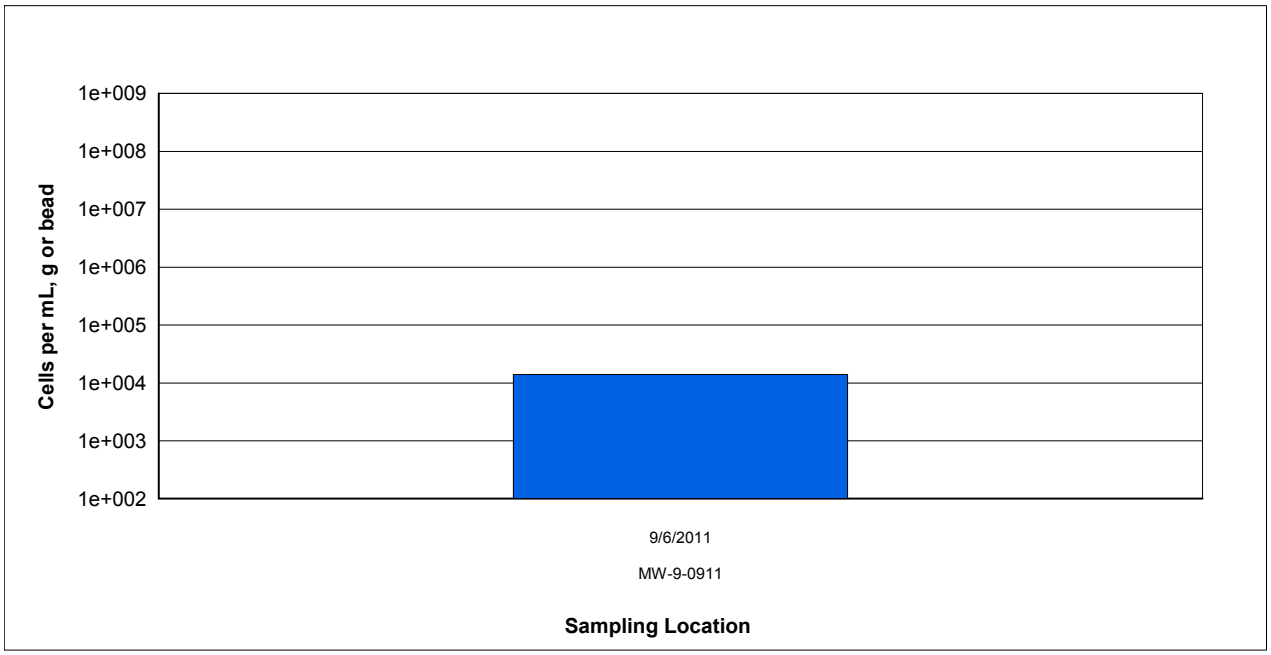



**Figure 1.** Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass

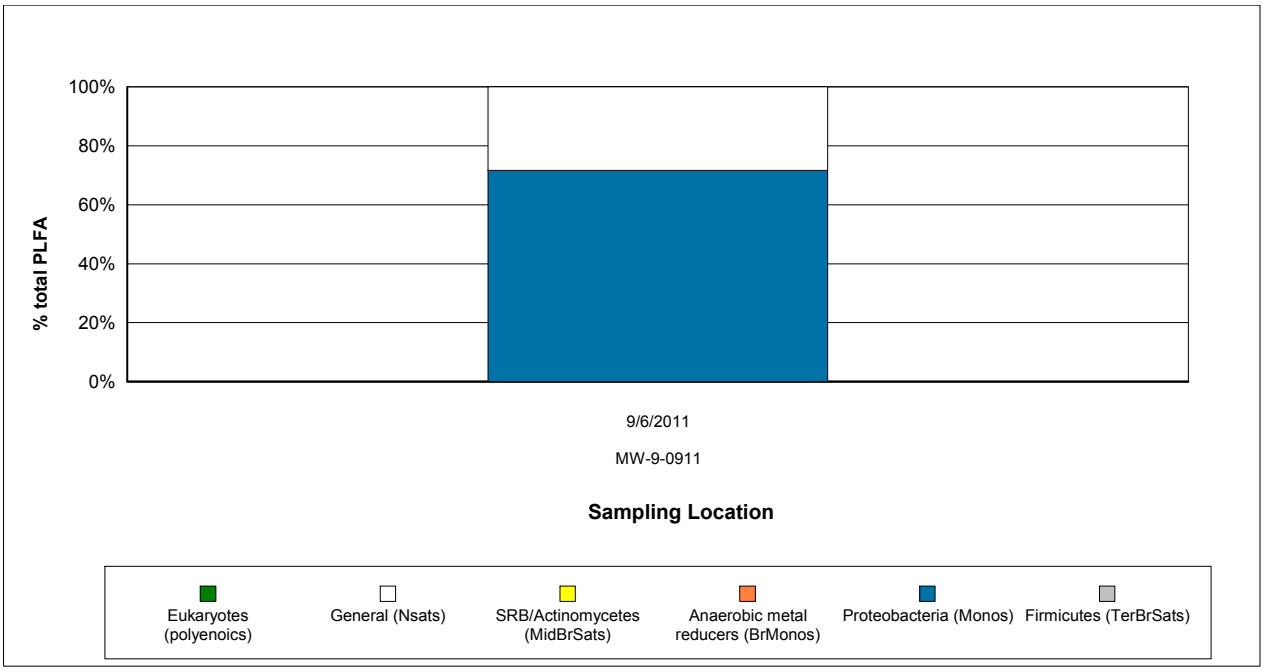



**Figure 2.** Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

2340 Stock Creek Blvd.
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**Client:** Matt Burns
WSP Environment & Energy
1740 Massachusetts Ave
Boxborough, MA 01719

**Phone:** (978) 635-9600

**Fax:** (978) 264-0537

**Identifier:** 014II **Date Rec:** 09/07/2011 **Report Date:** 09/14/2011

**Client Project #:** 080190/11 **Client Project Name:** QLT Buffalo

**Purchase Order #:**

**Analysis Requested:** mRNA, PLFA, Standard Bio-Trap

**Reviewed By:**

**MICROBIAL INSIGHTS, INC.**

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel. (865) 573-8188 Fax. (865) 573-8133

**mRNA**

**Client:** **WSP Environment & Energy**
Project: QLT Buffalo

**MI Project Number:** **014II**
Date Received: 09/07/2011

**Sample Information**

| | |
|---|---|
| **Client Sample ID:** | **MW-9-0911** |
| Sample Date: | 09/06/2011 |
| Units: | gene copies/bead |
| Analyst: | CT |

**Functional Genes**

| | | |
|---|---|---|
| Benzyl Succinate Synthase | bssA | <5.00E+01 |
| Naphthalene Dioxygenase | NAH | <5.00E+01 |
| Phenol Hydroxylase | PHE | <5.00E+01 |
| Toluene Monooxygenase | RMO | <5.00E+01 |
| Toluene Dioxygenase | TOD | <5.00E+01 |
| Biphenyl Dioxygenase | BPH4 | <5.00E+01 |
| Xylene Monooxygenase | TOL | <5.00E+01 |

**Legend:**
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Client Name: WSP Environment & Energy
Contact: Brett Marion
Address: 750 Holiday Drive
Suite 410
Pittsburgh, PA 15220


Lab Proj #: P1109014
Report Date: 11/21/11
Client Proj Name: Buffalo Service Center
Client Proj #: 3313-11

## Laboratory Results

Total pages in data package: 12

| Lab Sample # | Client Sample ID |
|---|---|
| P1109014-01 | MW-09-0911 |

Microseeps test results meet all the requirements of the NELAC standards or provide reasons and/or justification if they do not.

***Approved By:*** Robbin Robl (HH) ***Date:*** 11/22/11

***Project Manager:*** Robbin Robl

The analytical results reported here are reliable and usable to the precision expressed in this report. As required by some regulating authorities, a full discussion of the uncertainty in our analytical results can be obtained at our web site or through customer service. Unless otherwise specified, all results are reported on a wet weight basis.

*As a valued client we would appreciate your comments on our service.*
*Please call customer service at (412)826-5245 or email customerservice@microseeps.com.*

***Case Narrative:*** See attached report.

Client Name: WSP Environment & Energy
Contact: Brett Marion
Address: 750 Holiday Drive
Suite 410
Pittsburgh, PA 15220


Lab Proj #: P1109014
Report Date: 11/21/11
Client Proj Name: Buffalo Service Center
Client Proj #: 3313-11

| Sample Description | Matrix | Lab Sample # | Sampled Date/Time | Received |
|---|---|---|---|---|
| MW-09-0911 | Water | P1109014-01 | 06 Sep. 11 17:15 | 08 Sep. 11 9:02 |

| Analyte(s) | Flag | Result | PQL | Units | Method # | Analysis Date | By |
|---|---|---|---|---|---|---|---|
| **Volatiles** | | | | | | | |
| N Benzene | | 1100.0 | 50.0 | ug/L | 8260B | 9/15/11 | cs |
| **CSIA** | | | | | | | |
| Benzene-area | | 90 | 1.0 | Vs | AM24-AR_M | 10/3/11 | hg |
| Benzene-carbon | | -25.20 | -500.0 | ‰ | AM24-DL_M | 10/3/11 | hg |
| Benzene-Co-elution | | No | 0.0 | NA | 8260B | 10/3/11 | hg |
| Surrogate-area | | 5.3 | 1.0 | Vs | AM24-AR_M | 10/3/11 | hg |
| Surrogate-carbon | | -37.81 | -500.0 | ‰ | AM24-DL_M | 10/3/11 | hg |
| Surrogate-Co-elution | | No | 0.0 | NA | 8260B | 10/3/11 | hg |



Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: WSP Environment & Energy
Contact: Brett Marion
Address: 750 Holiday Drive
Suite 410
Pittsburgh, PA 15220


Lab Proj #: P1109014
Report Date: 11/21/11
Client Proj Name: Buffalo Service Center
Client Proj #: 3313-11

**Prep Method:** Purge and trap for aqueous samples

**Analysis Method:** Volatile Organic Compounds by GC/MS

**M110916003-MB**

| | Result | | TrueSpikeConc. | RDL | %Recovery | Ctl Limits |
|---|---|---|---|---|---|---|
| Benzene | < 5.0 | ug/L | | 5.0 | | - NA |

**M110916003-LCS**

| | Result | | TrueSpikeConc. | %Recovery | Ctl Limits |
|---|---|---|---|---|---|
| Benzene | 44.0 | ug/L | 50.00 | 88.00 | 79 - 118 |

**M110916003-LCSD**

| | Result | | TrueSpikeConc. | %Recovery | Ctl Limits | RPD | RPD Ctl Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 43.0 | ug/L | 50.00 | 86.00 | 79 - 118 | 2.30 | 0 - 19 |

[ ] Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

nelac
PA02-00538

Client Name: WSP Environment & Energy
Contact: Brett Marion
Address: 750 Holiday Drive
Suite 410
Pittsburgh, PA 15220


Lab Proj #: P1109014
Report Date: 11/21/11
Client Proj Name: Buffalo Service Center
Client Proj #: 3313-11

**Prep Method:** 8260m-CoCr Benzene

**Analysis Method:** 8260m-CoCr Benzene

There are no QC Samples in this Batch

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

PA02-00538

Client Name: WSP Environment & Energy
Contact: Brett Marion
Address: 750 Holiday Drive
Suite 410
Pittsburgh, PA 15220


Lab Proj #: P1109014
Report Date: 11/21/11
Client Proj Name: Buffalo Service Center
Client Proj #: 3313-11

**Prep Method:** AM24-AR_M

**Analysis Method:** AM24-AR_M

There are no QC Samples in this Batch

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

PA02-00538

Client Name: WSP Environment & Energy
Contact: Brett Marion
Address: 750 Holiday Drive
Suite 410
Pittsburgh, PA 15220


Lab Proj #: P1109014
Report Date: 11/21/11
Client Proj Name: Buffalo Service Center
Client Proj #: 3313-11

**Prep Method:** AM24-DL_M

**Analysis Method:** AM24-DL_M

There are no QC Samples in this Batch

Outlined Results indicate results outside of Control limits

PA02-00538

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Microseeps, Inc.
220 William Pitt Way
Pittsburgh, PA 15238

# CSIA Report

4-Oct-11
P1109014
WSP Environment and Energy
Client Project Name: Buffalo Service Center
Client Project #: 3313-11

| Benzene | | Concentration (ug/l) | | | CSIA (Carbon) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Area | | Co-elution | Analysis | Date | Del (‰) |
| Lab ID | Client ID | Sample | PQL | Date | Sample | PQL | | | | |
| P1109014-01 | MW09-09-11 | 1100 | 50 | 9/15/11 | 89.90 | 5 | No | 335 | 10/3/11 | -25.20 |
| Duplicate | MW09-09-11 | - | - | - | 88.68 | 5 | No | 336 | 10/3/11 | -25.05 |
| Blank | - | 0 | - | - | <5 (U) | 5 | No | 330 | 10/3/11 | - |
| LCS_Lo | - | 25 | - | - | 38.71 | 5 | No | 332 | 10/3/11 | -30.48 |
| LCS_Hi | - | 125 | - | - | 154.15 | 5 | No | 334 | 10/3/11 | -28.38 |
| LCS acceptance range | | | | | | | | -25.64 | <=> | -26.64 |

| Method | 8260B | AM-24-AR_C | AM-24-DL_C |
|---|---|---|---|
| Units | ug/l | Vs | ‰ |
| Analyst | CS | HG | HG |

Microseeps, Inc.
220 William Pitt Way
Pittsburgh, PA 15238

# CSIA Report

4-Oct-11
P1109014
WSP Environment and Energy
Client Project Name: Buffalo Service Center
Client Project #: 3313-11

| 1CP (Surrogate) | | Sample Collection | CSIA (Carbon) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lab ID | Client ID | | Area | Dilution | PQL | Co-elution | Analysis | Date | Del (‰) |
| P1109014-01 | MW09-09-11 | 09/06/11 | 5.34 | 20 | 1 | No | 335 | 10/03/11 | -37.81 |
| Duplicate | MW09-09-11 | 09/06/11 | 5.15 | 20 | 1 | No | 336 | 10/03/11 | -37.80 |
| Blank | - | - | 7.17 | 1 | 1 | No | 330 | 10/03/11 | -37.88 |
| LCS_Lo | - | - | 10.69 | 1 | 1 | No | 332 | 10/03/11 | -39.92 |
| LCS_Hi | - | - | 10.74 | 1 | 1 | No | 334 | 10/03/11 | -37.79 |
| Surrogate acceptance range | | | | | | | -37.37 | <=> | -38.37 |

| Method | | AM-24-AR_C | AM-24-DL_C |
|---|---|---|---|
| Units | | Vs | ‰ |
| Analyst | | HG | HG |

**Case Narrative:** The blank, LCS's, duplicate and surrogates were all close to or within the acceptance range and the data is reported as valid and representative of the samples as received.

P1109014

# CHAIN OF CUSTODY RECORD



| Project Number: | Site and Location: QLT - Buffalo |
|---|---|
| Contact Name: Chrissy Peterson | Contact Email: |
| Sampler's Name: Erik Reinert | Sampler's Signature: |

Matrices:
S = Soil:
Aq = Water
A = Air: Bu = Bulk
W = Wipe
Bi = Biota:
OW = Oily Waste:
O = Other

Nº 00963

| Sample Identification: | Depth | Date | Time | Matrix | Number of Containers | Requested Analyses: CSIA-Benzene | Remarks |
|---|---|---|---|---|---|---|---|
| MW-09-0911 | NA | 9/6/11 | 1715 | ~~BG~~ | 9 | x | |

| Relinquished by (Signature): | 9/6/11 1800 Date \| Time | Received by (Signature): HLawton | Laboratory Name: Microseeps |
|---|---|---|---|
| Relinquished by (Signature): | Date \| Time | Received by (Signature): | Laboratory Location: Pittsburgh, PA |
| Turn-Around Time: Standard | | Tracking Number: 8729 2519 5907 | Custody Seal Numbers: 984663 |
| | | | Method of Shipment: Fedex |

WSP Environment & Energy

- ☐ Reston Office: 11190 Sunrise Valley Dr., #300, Reston, VA 20191 / Tel: 703-709-6500
- ☒ Pittsburgh Office: 750 Holiday Dr., #410, Pittsburgh, PA 15220 / Tel: 412-604-1040
- ☐ San Jose Office: 2025 Gateway Place, #435, San Jose, CA 95110 / Tel: 408-453-6100
- ☐ New Jersey Office: 334 Elizabeth Ave., Somerset, NJ 08873 / Tel: 732-564-0888
- ☐ Denver Office: 4600 South Ulster, #930, Denver, CO 80237 / Tel: 303-850-9200
- ☐ Minneapolis Office: 123 North 3rd St., #808, Minneapolis, MN 55401 / Tel: 612-343-0510
- ☐ Boxborough Office: 1740 Massachusetts Ave., Boxborough, MA 01719 / Tel: 978-635-9600
- ☐ Cazenovia Office: 5 Sullivan St., Cazenovia, NY 13035 / Tel: 315-655-3900

EC

**Laura Pirkle**

**From:** Robert J. Pirkle
**Sent:** Monday, November 14, 2011 3:05 PM
**To:** Burns, Matt
**Cc:** Patrick McLoughlin; Laura Pirkle
**Subject:** Re: QLT Buffalo

P110 9014

5-26 Pirkle Created To Brett M Major P&I

Matt,

I will look into this.....however I am in CA for an Adv Tools Wkshp, so give me a couple of days. I apologize for at least the confusion.....probably more later!!!

BobP

Sent from my iPad

On Nov 14, 2011, at 11:06 AM, "Burns, Matt" <Matt.Burns@WSPGroup.com> wrote:

> Bob and Pat,
>
> Please see below. I don't know where the dilutions/payment stipulation is coming from; I did not make it. I trust Pat's CSIA A-chem decisions completely. Absent negligence, which I don't think is in Pat's makeup, I will approve an invoice for any WSP-requested and Microseeps-provided services.
>
> In addition to the dilutions/payment stipulation the email is disturbing in both that a perceived instruction was not followed and that the data has been available "for a while now". I was not even aware that the data was being held for ransom.
>
> Matt

---

**From:** Robbin Robl [mailto:rrobl@microseeps.com]
**Sent:** Monday, November 14, 2011 12:15 PM

**To:** Burns, Matt
**Subject:** RE: QLT Buffalo

Matt,

I heard back from him. The project has been done for a while now, however, dilutions were made on the project at the CSIA Manager's discretion.

I see a note on the project profile that states the project will not be paid for if dilutions are made with prior notification to WSP. I am not aware of anyone being contacted prior to this being done.

I would appreciate it if you can please advise if payment will be made for this project.

Thank you!

Robbin

---

**From:** Burns, Matt [mailto:Matt.Burns@WSPGroup.com]
**Sent:** Monday, November 14, 2011 10:03 AM
**To:** Debbie Hallo
**Subject:** QLT Buffalo

Debbie,

We sent a sample for CSIA analysis (C - benzene) on or about 9/6 (QLT Buffalo project). Do you know when the results will be in?

Thanks,

Matt

**We are located in a pre-certified LEED Gold level building.**

**Visit www.tradecenter128.com for more information about the**

**Cummings Properties owned and managed building.**

**Follow my publications and upcoming speaking events on**

***in situ* remediation and advanced site diagnostics on Linkedin:**

http://www.linkedin.com/in/mattburnswsp

---

Matthew Burns, Senior Project Director

WSP Environment & Energy

300 Trade Center

Suite 4690

Woburn, MA 01801

Telephone: (781) 933-7340

Facsimile: (781) 933-7369

matt.burns@wspgroup.com

www.wspenvironmental.com/usa

Laboratory Analytical Data Package: November 2011

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-12398-1
Client Project/Site: Buffalo Service Center

For:
WSP Environment & Energy
750 Holiday Drive
Suite 410
Pittsburgh, Pennsylvania 15220

Attn: Mr. Brett Marion

Candace L. Fox

*Authorized for release by:*
*11/20/2011 10:54:20 PM*

Candace Fox
Project Manager II
candace.fox@testamericainc.com

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# Sample Summary

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-12398-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 480-12398-1 | MW-09 | Water | 11/06/11 09:30 | 11/07/11 09:50 |
| 480-12398-2 | MW-99 | Water | 11/06/11 09:35 | 11/07/11 09:50 |
| 480-12398-3 | TRIP BLANK | Water | 11/06/11 00:00 | 11/07/11 09:50 |

# Definitions/Glossary

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-12398-1

## Qualifiers

### GC/MS VOA

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ☼ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CNF | Contains no Free Liquid |
| DL, RA, RE, IN | Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| EDL | Estimated Detection Limit |
| EPA | United States Environmental Protection Agency |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| RL | Reporting Limit |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

# Detection Summary

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-12398-1

## Client Sample ID: MW-09 — Lab Sample ID: 480-12398-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | 2.1 | | 1.0 | 0.74 | ug/L | 1 | | 8260B | Total/NA |
| Xylenes, Total | 0.88 | J | 2.0 | 0.66 | ug/L | 1 | | 8260B | Total/NA |
| Benzene - DL | 2100 | | 25 | 10 | ug/L | 25 | | 8260B | Total/NA |

## Client Sample ID: MW-99 — Lab Sample ID: 480-12398-2

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | 2.2 | | 1.0 | 0.74 | ug/L | 1 | | 8260B | Total/NA |
| Xylenes, Total | 0.95 | J | 2.0 | 0.66 | ug/L | 1 | | 8260B | Total/NA |
| Benzene - DL | 2100 | | 25 | 10 | ug/L | 25 | | 8260B | Total/NA |

## Client Sample ID: TRIP BLANK — Lab Sample ID: 480-12398-3

No Detections

## Client Sample ID: MW-09

**Date Collected: 11/06/11 09:30**
**Date Received: 11/07/11 09:50**

**Lab Sample ID: 480-12398-1**
**Matrix: Water**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Toluene | ND | | 1.0 | 0.51 | ug/L | | | 11/17/11 00:16 | 1 |
| **Ethylbenzene** | **2.1** | | 1.0 | 0.74 | ug/L | | | 11/17/11 00:16 | 1 |
| **Xylenes, Total** | **0.88** | **J** | 2.0 | 0.66 | ug/L | | | 11/17/11 00:16 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *85* | | *66 - 137* | | *11/17/11 00:16* | *1* |
| *Toluene-d8 (Surr)* | *102* | | *71 - 126* | | *11/17/11 00:16* | *1* |
| *4-Bromofluorobenzene (Surr)* | *109* | | *73 - 120* | | *11/17/11 00:16* | *1* |

### Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **2100** | | 25 | 10 | ug/L | | | 11/17/11 13:23 | 25 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *84* | | *66 - 137* | | *11/17/11 13:23* | *25* |
| *Toluene-d8 (Surr)* | *97* | | *71 - 126* | | *11/17/11 13:23* | *25* |
| *4-Bromofluorobenzene (Surr)* | *107* | | *73 - 120* | | *11/17/11 13:23* | *25* |

## Client Sample ID: MW-99

**Date Collected: 11/06/11 09:35**
**Date Received: 11/07/11 09:50**

**Lab Sample ID: 480-12398-2**
**Matrix: Water**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Toluene | ND | | 1.0 | 0.51 | ug/L | | | 11/17/11 00:41 | 1 |
| **Ethylbenzene** | **2.2** | | 1.0 | 0.74 | ug/L | | | 11/17/11 00:41 | 1 |
| **Xylenes, Total** | **0.95** | **J** | 2.0 | 0.66 | ug/L | | | 11/17/11 00:41 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *86* | | *66 - 137* | | *11/17/11 00:41* | *1* |
| *Toluene-d8 (Surr)* | *102* | | *71 - 126* | | *11/17/11 00:41* | *1* |
| *4-Bromofluorobenzene (Surr)* | *110* | | *73 - 120* | | *11/17/11 00:41* | *1* |

### Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **2100** | | 25 | 10 | ug/L | | | 11/17/11 13:48 | 25 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *82* | | *66 - 137* | | *11/17/11 13:48* | *25* |
| *Toluene-d8 (Surr)* | *96* | | *71 - 126* | | *11/17/11 13:48* | *25* |
| *4-Bromofluorobenzene (Surr)* | *105* | | *73 - 120* | | *11/17/11 13:48* | *25* |

## Client Sample ID: TRIP BLANK

**Date Collected: 11/06/11 00:00**
**Date Received: 11/07/11 09:50**

**Lab Sample ID: 480-12398-3**
**Matrix: Water**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 1.0 | 0.41 | ug/L | | | 11/17/11 14:13 | 1 |
| Toluene | ND | | 1.0 | 0.51 | ug/L | | | 11/17/11 14:13 | 1 |

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-12398-1

**Client Sample ID: TRIP BLANK**
**Date Collected: 11/06/11 00:00**
**Date Received: 11/07/11 09:50**

**Lab Sample ID: 480-12398-3**
**Matrix: Water**

**Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | ND | | 1.0 | 0.74 | ug/L | | | 11/17/11 14:13 | 1 |
| Xylenes, Total | ND | | 2.0 | 0.66 | ug/L | | | 11/17/11 14:13 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *86* | | *66 - 137* | | *11/17/11 14:13* | *1* |
| *Toluene-d8 (Surr)* | *101* | | *71 - 126* | | *11/17/11 14:13* | *1* |
| *4-Bromofluorobenzene (Surr)* | *110* | | *73 - 120* | | *11/17/11 14:13* | *1* |

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 480-40802/5**
**Matrix: Water**
**Analysis Batch: 40802**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 1.0 | 0.41 | ug/L | | | 11/16/11 23:41 | 1 |
| Toluene | ND | | 1.0 | 0.51 | ug/L | | | 11/16/11 23:41 | 1 |
| Ethylbenzene | ND | | 1.0 | 0.74 | ug/L | | | 11/16/11 23:41 | 1 |
| Xylenes, Total | ND | | 2.0 | 0.66 | ug/L | | | 11/16/11 23:41 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *90* | | *66 - 137* | | *11/16/11 23:41* | *1* |
| *Toluene-d8 (Surr)* | *103* | | *71 - 126* | | *11/16/11 23:41* | *1* |
| *4-Bromofluorobenzene (Surr)* | *109* | | *73 - 120* | | *11/16/11 23:41* | *1* |

**Lab Sample ID: LCS 480-40802/4**
**Matrix: Water**
**Analysis Batch: 40802**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 25.0 | 26.2 | | ug/L | | 105 | 71 - 124 |
| Toluene | 25.0 | 27.3 | | ug/L | | 109 | 70 - 122 |
| Ethylbenzene | 25.0 | 26.5 | | ug/L | | 106 | 77 - 123 |
| m-Xylene & p-Xylene | 50.0 | 56.6 | | ug/L | | 113 | 76 - 122 |
| o-Xylene | 25.0 | 26.9 | | ug/L | | 108 | 76 - 122 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *88* | | *66 - 137* |
| *Toluene-d8 (Surr)* | *103* | | *71 - 126* |
| *4-Bromofluorobenzene (Surr)* | *111* | | *73 - 120* |

**Lab Sample ID: MB 480-40867/5**
**Matrix: Water**
**Analysis Batch: 40867**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 1.0 | 0.41 | ug/L | | | 11/17/11 11:34 | 1 |
| Toluene | ND | | 1.0 | 0.51 | ug/L | | | 11/17/11 11:34 | 1 |
| Ethylbenzene | ND | | 1.0 | 0.74 | ug/L | | | 11/17/11 11:34 | 1 |
| Xylenes, Total | ND | | 2.0 | 0.66 | ug/L | | | 11/17/11 11:34 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *92* | | *66 - 137* | | *11/17/11 11:34* | *1* |
| *Toluene-d8 (Surr)* | *101* | | *71 - 126* | | *11/17/11 11:34* | *1* |
| *4-Bromofluorobenzene (Surr)* | *106* | | *73 - 120* | | *11/17/11 11:34* | *1* |

**Lab Sample ID: LCS 480-40867/4**
**Matrix: Water**
**Analysis Batch: 40867**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 25.0 | 24.9 | | ug/L | | 100 | 71 - 124 |
| Toluene | 25.0 | 24.9 | | ug/L | | 100 | 70 - 122 |
| Ethylbenzene | 25.0 | 24.4 | | ug/L | | 98 | 77 - 123 |

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 480-40867/4**
**Matrix: Water**
**Analysis Batch: 40867**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| m-Xylene & p-Xylene | | | 50.0 | 51.8 | | ug/L | | 104 | 76 - 122 | | |
| o-Xylene | | | 25.0 | 24.3 | | ug/L | | 97 | 76 - 122 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *89* | | *66 - 137* |
| *Toluene-d8 (Surr)* | *100* | | *71 - 126* |
| *4-Bromofluorobenzene (Surr)* | *109* | | *73 - 120* |

# QC Association Summary

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-12398-1

## GC/MS VOA

### Analysis Batch: 40802

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 480-12398-1 | MW-09 | Total/NA | Water | 8260B | |
| 480-12398-2 | MW-99 | Total/NA | Water | 8260B | |
| LCS 480-40802/4 | Lab Control Sample | Total/NA | Water | 8260B | |
| MB 480-40802/5 | Method Blank | Total/NA | Water | 8260B | |

### Analysis Batch: 40867

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 480-12398-1 - DL | MW-09 | Total/NA | Water | 8260B | |
| 480-12398-2 - DL | MW-99 | Total/NA | Water | 8260B | |
| 480-12398-3 | TRIP BLANK | Total/NA | Water | 8260B | |
| LCS 480-40867/4 | Lab Control Sample | Total/NA | Water | 8260B | |
| MB 480-40867/5 | Method Blank | Total/NA | Water | 8260B | |

# Lab Chronicle

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-12398-1

## Client Sample ID: MW-09

**Lab Sample ID: 480-12398-1**

**Date Collected: 11/06/11 09:30**

**Matrix: Water**

**Date Received: 11/07/11 09:50**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 40802 | 11/17/11 00:16 | LH | TAL BUF |
| Total/NA | Analysis | 8260B | DL | 25 | 40867 | 11/17/11 13:23 | LH | TAL BUF |

## Client Sample ID: MW-99

**Lab Sample ID: 480-12398-2**

**Date Collected: 11/06/11 09:35**

**Matrix: Water**

**Date Received: 11/07/11 09:50**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 40802 | 11/17/11 00:41 | LH | TAL BUF |
| Total/NA | Analysis | 8260B | DL | 25 | 40867 | 11/17/11 13:48 | LH | TAL BUF |

## Client Sample ID: TRIP BLANK

**Lab Sample ID: 480-12398-3**

**Date Collected: 11/06/11 00:00**

**Matrix: Water**

**Date Received: 11/07/11 09:50**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 40867 | 11/17/11 14:13 | LH | TAL BUF |

**Laboratory References:**

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Certification Summary

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-12398-1

| Laboratory | Authority | Program | EPA Region | Certification ID |
|---|---|---|---|---|
| TestAmerica Buffalo | Arkansas | State Program | 6 | 88-0686 |
| TestAmerica Buffalo | California | NELAC | 9 | 1169CA |
| TestAmerica Buffalo | Connecticut | State Program | 1 | PH-0568 |
| TestAmerica Buffalo | Florida | NELAC | 4 | E87672 |
| TestAmerica Buffalo | Georgia | Georgia EPD | 4 | N/A |
| TestAmerica Buffalo | Georgia | State Program | 4 | 956 |
| TestAmerica Buffalo | Illinois | NELAC | 5 | 100325 / 200003 |
| TestAmerica Buffalo | Iowa | State Program | 7 | 374 |
| TestAmerica Buffalo | Kansas | NELAC | 7 | E-10187 |
| TestAmerica Buffalo | Kentucky | Kentucky UST | 4 | 30 |
| TestAmerica Buffalo | Kentucky | State Program | 4 | 90029 |
| TestAmerica Buffalo | Louisiana | NELAC | 6 | 02031 |
| TestAmerica Buffalo | Maine | State Program | 1 | NY0044 |
| TestAmerica Buffalo | Maryland | State Program | 3 | 294 |
| TestAmerica Buffalo | Massachusetts | State Program | 1 | M-NY044 |
| TestAmerica Buffalo | Michigan | State Program | 5 | 9937 |
| TestAmerica Buffalo | Minnesota | NELAC | 5 | 036-999-337 |
| TestAmerica Buffalo | New Hampshire | NELAC | 1 | 2337 |
| TestAmerica Buffalo | New Jersey | NELAC | 2 | NY455 |
| TestAmerica Buffalo | New York | NELAC | 2 | 10026 |
| TestAmerica Buffalo | North Dakota | State Program | 8 | R-176 |
| TestAmerica Buffalo | Oklahoma | State Program | 6 | 9421 |
| TestAmerica Buffalo | Oregon | NELAC | 10 | NY200003 |
| TestAmerica Buffalo | Pennsylvania | NELAC | 3 | 68-00281 |
| TestAmerica Buffalo | Tennessee | State Program | 4 | TN02970 |
| TestAmerica Buffalo | Texas | NELAC | 6 | T104704412-08-TX |
| TestAmerica Buffalo | USDA | USDA | | P330-08-00242 |
| TestAmerica Buffalo | Virginia | NELAC Secondary AB | 3 | 460185 |
| TestAmerica Buffalo | Virginia | State Program | 3 | 278 |
| TestAmerica Buffalo | Washington | State Program | 10 | C1677 |
| TestAmerica Buffalo | Wisconsin | State Program | 5 | 998310390 |

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

# Method Summary

Client: WSP Environment & Energy
Project/Site: Buffalo Service Center

TestAmerica Job ID: 480-12398-1

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 8260B | Volatile Organic Compounds (GC/MS) | SW846 | TAL BUF |

**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

**TestAmerica Buffalo**
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

# Chain of Custody Record

TestAmerica

| Client Information | Sampler: Erik Reinert | Lab PM: Fox, Candace | Carrier Tracking No(s): NA | COC No: 480-18875-4648.1 |
|---|---|---|---|---|
| Client Contact: Mr. Brett Marion | Phone: 315-379-1773 | E-Mail: candace.fox@testamericainc.com | | Page: Page 1 of 1 |
| Company: WSP Environment & Energy | | | | Job #: |
| Address: 750 Holiday Drive Suite 410 | Due Date Requested: | Analysis Requested | | Preservation Codes: |
| City: Pittsburgh | TAT Requested (days): Standard | | | A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify) |
| State, Zip: PA, 15220 | | | | |
| Phone: | PO #: 3313-11 | | | Other: |
| Email: Brett.Marion@WSPGroup.com | WO #: | | | |
| Project Name: Buffalo Service Center | Project #: 48004242 | | | |
| Site: QLT Buffalo | SSOW#: | | | |

| Sample Identification | Sample Date | Sample Time | Sample Type (C=Comp, G=grab) | Matrix (Water, Solid, Oil, Tissue, Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 8260B - BTEX - 8260 | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | A | | |
| MW-09 | 11/6/11 | 0930 | G | Water | | X | X | | |
| MW-99 | 11/6/11 | 0935 | G | Water | | | X | | |
| Trip Blank | 11/6/11 | — | G | Water | | | X | | |

**Possible Hazard Identification**
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

**Sample Disposal** ( A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|
| Relinquished by: | Date/Time: 11/7/2011 0950 | Company: WSP | Received by: | Date/Time: 11/7/11 950 | Company: TA |
| Relinquished by | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by | Date/Time: | Company | Received by: | Date/Time | Company |

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.8°

# Login Sample Receipt Checklist

Client: WSP Environment & Energy

Job Number: 480-12398-1

**Login Number: 12398**

**List Source: TestAmerica Buffalo**

**List Number: 1**

**Creator: Janish, Carl**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity either was not measured or, if measured, is at or below background | True | |
| The cooler's custody seal, if present, is intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the sample IDs on the containers and the COC. | True | |
| Samples are received within Holding Time. | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter. | True | |
| If necessary, staff have been informed of any short hold time or quick TAT needs | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Sampling Company provided. | True | WSP |
| Samples received within 48 hours of sampling. | True | |
| Samples requiring field filtration have been filtered in the field. | N/A | |
| Chlorine Residual checked. | N/A | |