ANNUAL GROUNDWATER TREATMENT PERFORMANCE MONITORING REPORT Q1 AND Q3 2009 MOSS-AMERICAN SITE MILWAUKEE, WISCONSIN

Prepared for

TRONOX, LLC

One Leadership Square, Suite 300 211 N. Robinson Avenue Oklahoma City, OK 73102

Prepared by

WESTON SOLUTIONS, INC.

Suite 500 750 East Bunker Court Vernon Hills, IL 60061

W. O. No. 13741.003.003.0010

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TRONOX, LLC One Leadership Square, Suite 300 211 N. Robinson Avenue Oklahoma City, OK 73102

allem Joseph A. Klemp

Project Geoscientist

Andris J. Slesers Hydrogeologist

Jennifer Troast Senior Project Manager

Prepared by

WESTON SOLUTIONS, INC. 750 E. Bunker Ct., Suite 500 Vernon Hills, Illinois 60061

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Appendix A – March and September 2009 Groundwater Sample Analytical Results

1. INTRODUCTION

In accordance with paragraph 4a of the Remedial Design/Remedial Action Statement of Work (RD/RA SOW), Tronox LLC (TRONOX), formerly known as Kerr-McGee Chemical, LLC, is required to implement a groundwater monitoring program capable of detecting changes in chemical concentrations in the groundwater. TRONOX has directed Weston Solutions, Inc. (WESTON_®) to perform this work. This report presents the findings for the sampling conducted in Q1 and Q3 of 2009.

The current monitoring network includes four shallow groundwater monitoring wells (MW-5S, MW-7S, MW-9S, and MW-27S), nine containment performance monitoring wells (MW-30S, MW-31S, MW-32S, MW-33S, MW-34S, MW-35S, MW-37S, MW-38S, and MW-39S), and nine piezometers (PZ-01 through PZ-07, PZ-09, and PZ-10). Each of the monitoring wells and piezometers is screened in the shallow groundwater-bearing zone underlying the site. These monitoring locations are indicated on Figure 1-1.

A treatment performance monitoring network has also been installed per the Quality Assurance Project Plan for Installation of Groundwater Remedial System (QAPP) (WESTON, October 1999). This network includes six groundwater treatment gates (TG1 through TG6) with three treatment performance monitoring wells located at each groundwater treatment gate. At each treatment gate, monitoring wells 1, 2, and 3 are located upgradient, within, and downgradient of the treatment gate (e.g., TG1-1, TG1-2, and TG1-3). The locations of the treatment performance monitoring wells are indicated on Figure 1-1.

In addition to the on-site groundwater monitoring wells, 11 shallow groundwater monitoring wells (MW-A through MW-K) monitor groundwater conditions between the old and new river channels in Reaches 1 through 3. The locations of the river reach wells are indicated in Figure 1-2 through 1-4.

A number of modifications have been made to the sampling program. A complete discussion of these modifications is presented in the Quarterly Groundwater Treatment Performance Monitoring Report, Q1 2007, (WESTON, May 2007). The current groundwater monitoring program is outlined in Table 1-1. In March and September of each year, four monitoring wells

(MW-7S, MW-34S, MW-38S, and MW-39S) are sampled to monitor plume conditions within the containment area. In September of each year, the shallow monitoring wells, performance monitoring wells, treatment performance monitoring wells, and river reach wells are sampled. Only the upgradient and downgradient treatment performance monitoring wells are sampled. A complete round of groundwater levels is also measured in September of each year.

In accordance with paragraph 4a (i) of the RD/RA SOW, the field measurement and analysis of groundwater samples collected from the shallow and containment performance groundwater monitoring wells include groundwater elevation, pH, temperature, turbidity, specific conductance, oxidation-reduction (redox) potential, and dissolved oxygen (DO). Required laboratory analyses include benzene, toluene, ethylbenzene, and xylene (BTEX collectively) and the following polynuclear aromatic hydrocarbon (PAH) compounds: acenaphthylene, acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluorene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene.

In accordance with Addendum No. 1 to the QAPP (WESTON, May 2001), the field measurements for samples collected from the treatment performance monitoring wells include groundwater elevation, pH, temperature, turbidity, specific conductance, redox potential, and DO. Laboratory analyses required for the treatment performance wells include microbial enumeration, nitrate-nitrogen (NO₃-N), nitrite-nitrogen (NO₂-N), total Kjeldahl nitrogen (TKN), ammonia-nitrogen (NH₃-N), total phosphate-phosphorous (PO₄-P), orthophosphate (ORP), biochemical oxygen demand (BOD), chemical oxygen demand (COD), total organic carbon (TOC), BTEX, and the PAHs indicated in the above paragraph.









2. ON-SITE GROUNDWATER MONITORING RESULTS

The Q1 2009 groundwater-monitoring event at the Moss-American site was completed on 25 March 2009. Tasks completed during the field effort for this event included the collection of groundwater elevation data and groundwater samples from the four shallow and containment performance monitoring wells located in the plume area (MW-7S, MW-34S, MW-38S, and MW-39S).

The Q3 2009 groundwater-monitoring event at the Moss-American site was completed between 15 and 19 September 2009. Tasks completed during the field effort for this event included the collection of groundwater elevation and DO data from the shallow groundwater monitoring, containment performance monitoring, and treatment performance monitoring wells referenced in Section 1. Groundwater elevation measurements were also collected from the 11 monitoring wells located along Reaches 1 through 3. Following groundwater elevation and DO measurements, groundwater samples were collected from the shallow, containment performance, treatment performance, and river reach groundwater monitoring wells. The results of the Q1 and Q3 2009 groundwater sampling event are described in the following subsections.

2.1 GROUNDWATER ELEVATION MEASUREMENTS

2.1.1 Q1 2009

Depths to water measurements in each of four shallow groundwater monitoring wells located in the plume area were made on 25 March 2009. The water level measurements for the shallow groundwater monitoring wells located in the plume area and groundwater elevations (as applicable) are presented in Table 2-1.

2.1.2 Q3 2009

Depth to water measurements in each of the shallow groundwater monitoring wells, containment performance monitoring wells, treatment performance monitoring wells, additional monitoring wells, and piezometers were made on 15 September 2009. These measurements were used to determine the elevation of the potentiometric surface within the shallow groundwater-bearing zone underlying the site. The water level measurements of the shallow groundwater monitoring and containment performance monitoring wells and calculated groundwater elevations are

presented in Table 2-2. The groundwater level measurements and corresponding groundwater elevations, calculated hydraulic gradients across the treatment gates, and estimated groundwater flow velocities through the treatment gates are presented in Table 2-3. The groundwater levels for the piezometers are presented in Table 2-4. Figure 2-1 presents a potentiometric surface map of the shallow groundwater-bearing zone, based on the September 2009 (Q3) data. An evaluation of the Q3 2009 potentiometric surface map is presented below.

As shown in Figure 2-1, the groundwater within the shallow groundwater-bearing zone generally flows northeastward toward the Little Menominee River (LMR). In the topographically higher (western) portion of the site, the horizontal hydraulic gradient is relatively steep, at approximately 0.032 feet per foot (ft/ft) to the northeast, as measured from the vicinity of PZ-07 to TG2-1. The topography of the site levels out near the river, as does the potentiometric surface with a northerly hydraulic gradient of approximately 0.013 ft/ft, as measured from the vicinity of PZ-05 to the vicinity of MW-9S. The estimated hydraulic gradients within the treatment gates ranged from 0.0007 to 0.0043 ft/ft (Table 2-3). The hydraulic gradient is relatively flat within the treatment gate area with an overall hydraulic gradient from TG1 to TG5 of approximately 0.0026 ft/ft in an easterly direction.

The average velocity of groundwater flow within the shallow water-bearing zone can be calculated using the following equation:

$$v = Ki/n$$

where:

v = groundwater velocity
K = hydraulic conductivity (also referred to as the coefficient of permeability)
i = hydraulic gradient
n = porosity

Based on slug tests performed on wells installed during the remedial investigation (RI), the hydraulic conductivity of the deposits located on the topographically higher, western portion of the site were in the range of 1×10^{-5} to 1×10^{-6} centimeters per second (cm/s) (0.03 to 0.003 feet per day [ft/day]). Based on laboratory-performed hydraulic conductivity analyses conducted on

material used to backfill areas of the site located along the LMR, the hydraulic conductivity of soils located in the topographically lower portion of the site within the funnel-and-gate remedial system is approximately 1×10^{-3} cm/s (3 ft/day). Using a hydraulic gradient of 0.032 ft/ft, an assumed effective porosity of 0.3, and a hydraulic conductivity of 0.03 ft/day, the groundwater flow velocity in the western portion of the site is calculated to be approximately 0.0032 ft/day. Near the river, using a hydraulic gradient of 0.013 ft/ft, a porosity of 0.3, and a hydraulic conductivity of 0.3, and a hydraulic gradient of 0.013 ft/ft, a porosity of 0.3, and a hydraulic conductivity of 3 ft/day, the velocity of groundwater flow is calculated to be approximately 0.13 ft/day. The groundwater flow velocities within the treatment gates are estimated to range from 0.0066 to 0.1049 ft/day. The groundwater flow velocity through each treatment gate is presented in Table 2-3.

2.2 GROUNDWATER SAMPLE ANALYTICAL RESULTS

Groundwater samples, in Q1 2009, were collected from four shallow and containment performance monitoring wells located in the plume area (MW-7S, MW-34S, MW-38S, and MW-39S). Groundwater samples, in Q3 2009, were collected from a total of 25 shallow monitoring wells screened within the shallow groundwater-bearing zone. The shallow wells sampled include four shallow groundwater monitoring wells (MW-5S, MW-7S, MW-9S, and MW-27S); nine containment performance monitoring wells (MW-30S, MW-31S, MW-32S, MW-33S, MW-34S, MW-35S, MW-37S, MW-38S, and MW-39S); and twelve treatment performance monitoring wells (TG1-1, TG1-3, TG2-1, TG2-3, TG3-1, TG3-3, TG4-1, TG4-3, TG5-1, TG5-3, TG6-1, and TG6-3).

In addition to the investigative samples collected in Q1 2009, one field duplicate and one matrix spike / matrix spike duplicate (MS/MSD) was collected for quality assurance/quality control (QA/QC) purposes. In addition to the investigative groundwater samples collected in Q3 2009, three field sample duplicate, two matrix spike/matrix spike duplicate (MS/MSD), and four field blank (identified by an FB prefix) samples were collected for QA/QC purposes. Trip blanks accompanied each cooler of sample containers from the laboratory to the site and were shipped back to the laboratory within each cooler containing volatile organic compound (VOC) samples.

All groundwater samples were field screened and laboratory analyzed for the parameters indicated in Section 1.

2.2.3 Field-Measured Parameters

The groundwater samples for both sampling events, Q1 and Q3 2009, were measured in the field for pH, specific conductance, temperature, and turbidity. The field parameters were collected using a YSI 556 portable water quality meter and a Hanna HI98703 turbidimeter. Also, in Q3 2009 downhole DO and redox potential readings were collected from monitoring wells after sampling at a given well was completed. The groundwater pH, redox potential, specific conductance, temperature, and turbidity were monitored during well purging prior to sampling. The final (stabilized) values for these measurements prior to sample collection are presented in Table 2-5. Water quality parameter measurements were not collected from wells MW-34S and TG1-1 due to the presence, or the historical presence, of sheen or product in the purge water during both Q1 and Q3 2009.

2.2.3.1 pH

The pH of the groundwater samples collected during Q1 2009 ranged from 7.05 to 7.13 pH standard units (S.U.). The pH of the groundwater samples collected during Q3 2009 ranged from 6.67 to 7.35 pH standard units (S.U.). pH is an important factor in determining the feasibility of bioremediation of contaminants in the site groundwater because biological systems typically function only in narrow pH ranges (typically 6.5 to 8.5 S.U.), and because microbial growth rates are pH dependent.

2.2.3.2 Redox Potential

No redox potential measurements were collected during Q1 2009. The redox potentials of the groundwater samples collected at the site during Q3 2009 ranged from -109.7 to 185.7 millivolts (mV). Redox potential indicates the capability of the groundwater to promote chemical oxidation-reduction processes that consume organic matter and ultimately oxidize organic compounds. Microorganisms typically act as catalysts in oxidation reactions, and as such, the redox potential indicates the potential for the groundwater to oxidize the contaminants present.

Since environmental systems are typically not in equilibrium, the redox potential is used as a gross indicator of the state of oxidation-reduction in the system. Oxidation-reduction rates in the system are greater as the redox potential increases in magnitude. A positive redox potential

typically indicates conditions where oxidized ionic species (i.e., NO_3^- , SO_4^{2-} , and Fe^{3+}) predominate in comparison to their reduced counterparts (NH_4^+ , S^{2-} , and Fe^{2+} , respectively). Once DO is removed from water (i.e., via biodegradation of organics), oxidized ionic species become electron acceptors in redox processes. As the processes continues under anaerobic conditions, the reduced ionic species concentration increases, resulting in an overall decrease of the water's oxidation potential.

2.2.3.3 Dissolved Oxygen

No DO level measurements were collected during Q1 2009. DO levels for the groundwater samples collected during Q3 2009 ranged from 0.40 to 4.15 milligrams per liter (mg/L). Overall, the DO readings indicate the presence of intermediate levels of oxygen in the water, and the system as a whole is considered to be generally under oxic conditions. DO promotes the growth of aerobic and facultative bacteria and the production of readily assimilated nutrients. All of these factors are required to facilitate the oxidation reaction responsible for removing the contaminants from the groundwater under aerobic conditions.

2.2.3.4 Specific Conductance

The specific conductance of the groundwater samples collected during Q1 2009 ranged from 1.194 to 1.437 millimhos per centimeter (mmho/cm). The specific conductance of the groundwater samples collected during Q3 2009 ranged from 0.911 to 1.658 mmho/cm. Conductivity of water is a measure of the ability of the solution to carry an electrical current that is transported by ions in the solution; therefore, conductivity is used as an indicator of the total dissolved solids (TDS) present in a water sample. As the dissolved solids content of a solution increases, the capacity for the water to transmit electrical current increases. Although conductivity is a measure of the aggregate dissolved solids in the water it may be correlated to the readily available nutrient levels in the water, since TDS includes nitrate, nitrite, ammonium, and phosphate ions.

2.2.3.5 Temperature

Groundwater temperatures ranged from 5.74 to 6.75 degrees Celsius (°C) during Q1 2009. Groundwater temperatures ranged from 13.40 to 17.83 °C during Q3 2009. Temperature is an extremely important factor in bioremediation because microbial growth rates are greatly dependent upon temperature.

2.2.3.6 Turbidity

Turbidity ranged from 8.02 to 31.3 nephelometric turbidity units (NTU) during Q1 2009. Turbidity ranged from 0.41 to 34 NTU during Q3 2009. Turbidity is a measure of the clarity of water and is used as an indicator of the solids present in a water sample and overall water quality.

2.2.4 Laboratory Analyses

The results of the laboratory analyses performed on the groundwater samples collected during March (Q1) and September (Q3) 2009 are provided in Appendix A. A discussion of the results of the laboratory analyses performed on the groundwater samples are presented in the following subsections.

2.2.4.1 Laboratory Analyses for BTEX and PAH

Each groundwater sample collected during the March (Q1) and September (Q3) 2009 sampling events were analyzed for BTEX and PAH compounds. The results of these analyses are presented and compared to WDNR Preventive Action Limits (PALs) and Enforcement Standards (ESs) in Table 2-6 for the Q1 2009 data and Table 2-7 for the Q3 2009 data. Tables 2-6 and 2-7 identify parameters detected at concentrations exceeding their respective PALs (shown as bolded values). Parameters with concentrations exceeding both PALs and ESs are presented as shaded and bolded values in Tables 2-6 and 2-7. Exceedances are summarized in the following paragraphs.

Groundwater Sample Results

As shown in tables 2-6 and 2-7, anthracene, benzene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, fluorene, naphthalene, and pyrene were detected at concentrations exceeding their respective PALs and/or ESs in the groundwater samples collected from the shallow monitoring well network. The results are as follows:

WDNR PAL Exceedances – Q1 2009

- Anthracene was detected at concentrations exceeding the PAL of 600 μg/L in the groundwater sample collected from well MW-34S.
- Benzene was detected at concentrations exceeding the PAL of 0.5 µg/L in the groundwater samples collected from wells MW-7S, MW-34S, and MW-38S.
- Benzo(a)pyrene was detected at concentrations exceeding the PAL of 0.02 µg/L in the groundwater samples collected from well MW-34S.
- Benzo(b)fluoranthene was detected at concentrations exceeding the PAL of 0.02 µg/L in the groundwater samples collected from well MW-34S.
- Chrysene was detected at concentrations exceeding the PAL of 0.02 µg/L in the groundwater samples collected from well MW-34S.
- Fluoranthene was detected at concentrations exceeding the PAL of 80 μg/L in the groundwater sample collected from well MW-34S.
- Fluorene was detected at concentrations exceeding the PAL of 80 μg/L in the groundwater samples collected from well MW-34S.
- Naphthalene was detected at concentrations exceeding the PAL of 8 µg/L in the groundwater samples from wells MW-7S, MW-34S and MW-38S.
- Pyrene was detected at concentrations exceeding the PAL of 50 μ g/L in the groundwater sample collected from well MW-34S.

WDNR ES Exceedances – Q1 2009

- Benzene was detected at a concentration exceeding the ES of 5 μ g/L in the groundwater sample collected from well MW-34S.
- Benzo(a)pyrene was detected at concentrations exceeding the ES of 0.2 µg/L in the groundwater sample collected from well MW-34S.
- Benzo(b)fluoranthene was detected at concentrations exceeding the ES of 0.2 µg/L in the groundwater sample collected from well MW-34S.
- Chrysene was detected at concentrations exceeding the ES of 0.2 μ g/L in the groundwater sample collected from well MW-34S.
- Fluoranthene was detected at concentrations exceeding the ES of 400 μg/L in the groundwater sample collected from well MW-34S.
- Fluorene was detected at concentrations exceeding the ES of 400 μ g/L in the groundwater samples collected from well MW-34S.

- Naphthalene was detected at concentrations exceeding the ES of 40 µg/L in the groundwater samples collected from wells MW-34S and MW-38S.
- Pyrene was detected at concentrations exceeding the ES of 250 μ g/L in the groundwater samples collected from well MW-34S.

WDNR PAL Exceedances – Q3 2009

- Anthracene was detected at concentrations exceeding the PAL of 600 μg/L in the groundwater samples collected from wells MW-34S and TG1-1.
- Benzene was detected at concentrations exceeding the PAL of 0.5 µg/L in the groundwater samples collected from wells MW-7S, MW-34S, and MW-38S.
- Benzo(a)pyrene was detected at concentrations exceeding the PAL of 0.02 µg/L in the groundwater samples collected from wells MW-34S, TG1-1, TG2-3 and TG4-1.
- Benzo(b)fluoranthene was detected at concentrations exceeding the PAL of 0.02 μg/L in the groundwater samples collected from wells MW-34S, TG1-1, TG2-3 and TG4-1.
- Chrysene was detected at concentrations exceeding the PAL of 0.02 µg/L in the groundwater samples collected from wells MW-34S, MW-35S, TG1-1, TG2-3 and TG4-1.
- Fluoranthene was detected at concentrations exceeding the PAL of 80 μg/L in the groundwater sample collected from wells MW-34S and TG1-1.
- Fluorene was detected at concentrations exceeding the PAL of 80 μg/L in the groundwater samples collected from wells MW-34S and TG1-1.
- Naphthalene was detected at concentrations exceeding the PAL of 8 μg/L in the groundwater samples from wells MW-33S, MW-34S, MW-38S, and TG1-1.
- Pyrene was detected at concentrations exceeding the PAL of 50 μg/L in the groundwater sample collected from wells MW-34S and TG1-1.

WDNR ES Exceedances – Q3 2009

- Benzene was detected at a concentration exceeding the ES of 5 μ g/L in the groundwater sample collected from well MW-34S.
- Benzo(a)pyrene was detected at concentrations exceeding the ES of 0.2 μg/L in the groundwater samples collected from wells MW-34S and TG1-1.
- Benzo(b)fluoranthene was detected at concentrations exceeding the ES of 0.2 µg/L in the groundwater samples collected from wells MW-34S and TG1-1.
- Chrysene was detected at concentrations exceeding the ES of 0.2 µg/L in the groundwater samples collected from wells MW-34S and TG1-1.

- Fluoranthene was detected at concentrations exceeding the ES of 400 μg/L in the groundwater samples collected from wells MW-34S and TG1-1.
- Fluorene was detected at concentrations exceeding the ES of 400 μg/L in the groundwater samples collected from wells MW-34S and TG1-1.
- Naphthalene was detected at concentrations exceeding the ES of 40 µg/L in the groundwater samples collected from wells MW-33S, MW-34S, MW-38S, and TG1-1.
- Pyrene was detected at concentrations exceeding the ES of 250 μ g/L in the groundwater samples collected from wells MW-34S and TG1-1.

The data from Q 1 2009 indicate that PAL and ES exceedences were detected in MW-7S, MW-34S, and MW-38S. Exceedences were not detected in MW-39S.

Based on the Q3 2009 data, the plume boundary is primarily in an area encompassing four shallow monitoring wells (MW-7S, MW-33S, MW-34S, and MW-38S). As shown on Figure 2-1, a plume boundary has also been included at containment well MW-35S and treatment gate wells TG1-1, TG2-3 and TG4-1, where minor PAL exceedences were found. No other wells during this sampling event had exceedances above WDNR PALs or WDNR ES.

The majority of PAL and ES exceedances, as well as detections of BTEX and PAH constituents below PAL and ES levels, are associated with wells MW-34S and TG1-1 in which free product has historically been observed. In general, PAH concentrations measured in groundwater samples collected from the rest of the site were at relatively low levels with only sporadic detections. Based on the detected concentrations, the contaminant plume generally demonstrates a northeasterly trend, as indicated in Figure 2-1, similar to the previous groundwater sampling events. Low to very low (estimated) concentrations of BTEX compounds, acenaphthene, anthracene, benzo(b)flouranthene, benzo(k)fluoranthene, fluoranthene, flourene, phenanthrene, and/or pyrene were detected during the Q3 2009 round in monitoring wells MW-31S, MW-37S, MW-39S and in treatment gate wells TG1-3, TG2-1, TG3-1, TG3-3, TG4-3, TG5-1, TG5-3, TG6-1, and TG6-3, where exceedances of PALs/ESs did not occur.

A summary of the concentration of contaminants at wells that have regularly exceeded PALs and/or ESs during the last 17 quarters (6 years) is presented in Table 2-8. Levels of benzene, naphthalene, fluorene, and benzo(a)pyrene fluctuate over wide ranges in some of these wells. However, several constituents have shown an overall decreasing trend in monitoring wells MW-

32S, MW-33S and MW-35S, as follows. Concentrations of benzene, naphthalene, and fluorene have not exceeded PALs and/or ESs in MW-32S and MW-35S over the past six or more years. Benzo(a)pyrene in MW-35S has been detected at estimated concentrations, but above the PAL sporadically over the past six years. Benzene and naphthalene concentrations in MW-33S have shown a decreasing trend; however, fluorene concentrations, below PALs, continue to fluctuate in MW-33S.

Benzene and benzo(a)pyrene concentrations have remained relatively constant in MW-7S; however, fluorene and naphthalene concentrations show an overall decreasing trend in MW-7S. Well MW-34S has shown overall fluctuating levels in naphthalene, fluorene, and benzo(a)pyrene; however, benzene concentrations have remained relatively consistent in MW-34S. During Q1 and Q3 2009 only a sheen was detected on the groundwater in well MW-34S. Varying levels of free product have been found in MW-34S in the recent past. This correlates with the elevated levels of constituents found in MW-34S. Well TG1-1 has shown fluctuating naphthalene, fluorene, and benzo(a)pyrene concentrations since it was first sampled in Q3 2000. These fluctuating concentrations could be due to the presence of free product which has historically been observed in well TG1-1. During Q3 2009, only a sheen was detected on the groundwater in well TG1-1.

2.2.4.2 Laboratory Analyses for Treatment Performance Monitoring

The groundwater samples collected from the treatment performance monitoring wells were analyzed for microbial enumeration, NO₃-N, NO₂-N, TKN, NH₃-N, PO₄-P, ORP, BOD, COD, TOC, BTEX, and PAHs. The analytical results for microbial enumeration, NO₃-N, NO₂-N, TKN, NH₃-N, PO₄-P, ORP, BOD, COD, and TOC are presented in Table 2-9. The analytical results for the treatment performance monitoring well groundwater samples are summarized below. The laboratory reports of nutrient and microbial analyses are also included in Appendix A.

Nitrogen and Phosphorous Compounds

Nitrite (NO₂-N) was detected in one of the treatment performance wells (TG3-3) at an estimated concentration of 0.017 mg/L. Nitrate (NO₃-N) was detected in one of the treatment performance wells (TG3-1) at an estimated concentration of 0.044 mg/L. Total Kjeldahl Nitrogen (TKN)

results include seven detections with concentrations ranging from 0.69 to 1.9 mg/L. Ammonia (NH_3-N) results include seven detections ranging from 0.24 to 0.65 mg/L. Overall, nitrogen compound concentrations are at relatively low levels; however, previous sample results have indicated that NH_3-N concentrations are typically an order of magnitude greater than NO_3-N concentrations and approximately two orders or magnitude greater than NO_2-N .

Total phosphorous (PO₄-P) was detected in treatment performance gates TG1-1, TG2-3, and TG6-1 at concentrations of 13.0, 0.27, and 0.30 mg/L, respectively. Orthophosphate (ORP) was not detected in any of the treatment performance monitoring wells.

BOD, COD, and TOC

BOD was detected in five of the twelve treatment wells sampled and ranged from 8.6 to 19.8 mg/L. COD concentrations for the samples collected throughout the treatment system ranged from 6.1 to 294 mg/L. TOC concentrations for the samples collected throughout the treatment system ranged from 2.2 to 11.2 mg/L. As expected, the treatment gate wells indicate less BOD compared to COD. COD indicates the presence of constituents that exert an oxygen demand, including carbon compounds such as the site contaminants in the groundwater, and other constituents such as ammonia, sulfurous compounds; and biological material such as humic acids and detritus. A significant portion of oxygen demand exerted by the constituents measured in the COD test may not be readily biodegradable and would typically exert the oxygen demand over an extended time period. The oxygen demand exerted by the constituents the COD analysis detected is catalyzed chemically and thermally. The low BOD indicates low concentrations of material that is readily biodegradable and/or quickly oxidized.

Microbial Enumeration

The total microbial populations for TG1 and TG2 included detections ranging from 3.1×10^2 to 5.7×10^4 colony forming units per milliliter (CFU/mL) during Q3 2009. The total microbial population for TG3 and TG4 ranged from non-detect to 1.89 x 10^4 CFU/mL during Q3 2009. The total microbial populations for TG5 and TG6 ranged from non-detect to 1.0×10^3 CFU/mL during Q3 2009.

The result of degrader microbial population analysis for TG1 and TG2 included three non-detect results and one detection of 7.4 x 10^3 CFU/mL, in TG1-1 during Q3 2009. The degrader

microbial populations for TG3 and TG4 included four non-detect results during Q3 2009. The degrader microbial populations for TG5 and TG6 included four non-detect results during Q3 2009.



Table 2-1Groundwater Elevation MeasurementsPiezometers and Staff GaugeMoss-American SiteMilwaukee, WisconsinFirst Quarter 2009

				Groundwater	
Well ID	Ground Elevation	TOC Elevation	Depth to Water	Elevation	Product Thickness
MW-7S	719.47	721.59	3.67	717.92	None Detected
MW-34S	718.97	721.52	4.34	717.18	Sheen on GW
MW-38S			3.27		None Detected
MW-39S			3.84		None Detected

Notes:

All values in feet.

All elevation measurements are with respect to Mean Sea Level (MSL).

TOC = Top of well casing.

GW = Groundwater.

Depth to groundwater was measured on 25 March 2009

Ground elevation and TOC elevations at MW-38S and MW-39S will be surveyed during future site work.

Table 2-2Groundwater Elevation MeasurementsShallow and Containment Performance Monitoring WellsMoss-American SiteMilwaukee, WisconsinThird Quarter 2009

				Groundwater	
Well ID	Ground Elevation	TOC Elevation	Depth to Water	Elevation	Product Thickness
MW-5S	723.41	724.63	6.44	718.19	None Detected
MW-7S	719.47	721.59	6.75	714.84	Sheen on GW
MW-9S	719.15	721.66	7.15	714.51	
MW-27S	720.57	723.10	6.77	716.33	
MW-30S	725.35	727.34	5.02	722.32	Nona Datacted
MW-31S	725.29	725.31	6.03	719.28	None Delected
MW-32S	719.68	722.79	7.85	714.94	
MW-33S	719.25	721.81	7.29	714.52	
MW-34S	718.97	721.52	6.74	714.78	Sheen on GW
MW-35S	718.14	721.75	6.91	714.84	
MW-37S	721.33	723.30	7.63	715.67	None Detected
MW-38S	NS	NS	6.51		None Detected
MW-39S	NS	NS	5.88		

Notes:

All values in feet.

All elevation measurements are with respect to Mean Sea Level (MSL).

TOC = Top of well casing.

GW = Groundwater.

NS = Not Surveyed.

Depth to groundwater was measured on 15 September 2009

Table 2-3Groundwater Elevation MeasurementsTreatment Performance Monitoring WellsMoss-American SiteMilwaukee, WisconsinThird Quarter 2009

	Ground	тос	Depth to	GW	Hydraulic Gradient	Groundwater	Product
Well ID	Elevation	Elevation	Water	Elevation	(ft/ft)	Velocity (ft/day)	Thickness
TG1-1	719.77	723.32	7.29	716.03			Sheen on GW
TG1-2	720.06	722.81	6.90	715.91	0.0007	0.0066	Nona Datactad
TG1-3	719.56	722.53	6.57	715.96			None Delected
TG2-1	720.67	723.80	7.37	716.43			Sheen on GW
TG2-2	720.62	723.05	7.10	715.95	0.0111	0.1049	
TG2-3	720.06	722.61	7.29	715.32			
TG3-1	719.14	721.05	6.26	714.79			
TG3-2	718.87	720.92	NM		0.0020	0.0189	
TG3-3	718.35	720.60	6.01	714.59			
TG4-1	718.06	721.14	6.52	714.62			
TG4-2	718.26	720.75	NM		-0.0043	-0.0406	None Detected
TG4-3	718.01	720.04	4.99	715.05			None Detected
TG5-1	717.60	721.12	6.33	714.79			
TG5-2	718.18	720.63	NM		0.0010	0.0094	
TG5-3	718.17	719.99	5.30	714.69			
TG6-1	719.47	721.96	6.58	715.38			
TG6-2	719.70	722.05	NM		0.0019	0.0180	
TG6-3	719.58	722.47	7.28	715.19			

Notes:

All values in feet.

All elevation measurements are with respect to Mean Sea Level (MSL).

Porosity of soil is assumed to be 0.3.

Hydraulic conductivity of treatment gate material is assumed to be 1E-3 cm/s = 3.0 ft/day.

TOC = Top of well casing.

GW = Groundwater.

ft/day = feet per day.

ft/ft = feet per foot.

NM = Not Measured.

A negative value in the groundwater velocity column indicates that the groundwater flow was opposite to the general direction of groundwater flow at the site.

Depth to groundwater was measured on 15 September 2009

Table 2-4Groundwater Elevation MeasurementsPiezometers and Staff GaugeMoss-American SiteMilwaukee, WisconsinThird Quarter 2009

				Groundwater	
Well ID	Ground Elevation	TOC Elevation	Depth to Water	Elevation	Product Thickness
		Gr	oundwater		
PZ-01	718.04	721.05	6.09	714.96	
PZ-02	718.89	721.84	7.78	714.06	
PZ-03	719.00	722.09	7.25	714.84	
PZ-04	717.30	720.22	6.75	713.47	
PZ-05	724.34	727.43	9.02	718.41	None Detecteed
PZ-06	724.62	727.79	7.54	720.25	
PZ-07	725.78	728.72	6.85	721.87	
PZ-09	721.12	724.08	6.53	717.55	
PZ-10	722.04	725.05	6.87	718.18	

Notes:

All values in feet.

All elevation measurements are with respect to Mean Sea Level (MSL).

TOC = Top of well casing.

GW = Groundwater.

NM= Not measured

Depth to groundwater was measured on 15 September 2009

Table 2-5Field-Measured ParametersShallow Groundwater and Containment Performance Monitoring WellsMoss-American SiteMilwaukee, WisconsinThird Quarter 2009

	Dissolved	Redox	pH	Specific		
	Oxygen	Potential	(Standard	Conductance	Temperature	Turbidity
Well ID	(mg/L)	(mV)	Units)	(mmho/cm)	(Deg C)	(NTU)
MW-7S	NM	NM	7.05	1.224	6.45	31.3
MW-34S	NM	NM	NM	NM	NM	NM
MW-38S	NM	NM	7.13	1.437	6.75	8.02
MW-39S	NM	NM	7.11	1.194	5.74	9.09
MW-5S	0.72	-1.3	7.09	1.658	13.40	3.19
MW-7S	2.71	-24.6	7.35	1.183	13.67	7.60
MW-9S	1.06	7.7	7.05	1.073	13.90	1.48
MW-27S	0.81	-51.3	7.20	1.608	15.30	3.27
MW-30S	0.87	150.4	6.97	1.382	14.46	0.85
MW-31S	4.15	58.3	6.94	1.030	14.18	1.15
MW-32S	2.80	-1.7	7.06	1.087	15.43	2.57
MW-33S	3.24	-7.6	7.26	1.046	14.27	2.52
MW-34S	NM	NM	NM	NM	NM	NM
MW-35S	0.58	140.8	6.75	1.525	16.33	8.30
MW-37S	0.40	-62.1	7.30	0.920	16.56	0.65
MW-38S	NM	NM	7.25	1.314	13.44	4.70
<u>MW</u> -39S	0.92	112.2	7.08	1.227	15.88	3.60

Notes:

S - Shallow well.

TG - Treatment gate performance monitoring well.

NM - Not measured due to presence of a sheen or free product in well.

uohm/cm - microhms per centimeter

Deg C - Degrees Celcius

mV - millivolt

mg/L - milligram per liter

NTU - Nephelometric Turbidity unit

Table 2-5 (Continued)Field-Measured ParametersShallow Groundwater and Containment Performance Monitoring WellsMoss-American SiteMilwaukee, WisconsinThird Quarter 2009

	Dissolved	Redox	pH	Specific		
	Oxygen	Potential	(Standard	Conductance	Temperature	Turbidity
Well ID	(mg/L)	(mV)	Units)	(mmho/cm)	(Deg C)	(NTU)
TG1-1	NM	NM	NM	NM	NM	NM
TG1-3	1.11	-109.7	7.17	1.007	16.23	3.20
TG2-1	2.62	29.1	6.67	0.925	15.51	1.90
TG2-3	1.51	-38.6	7.15	1.011	17.83	0.70
TG3-1	3.64	13.0	7.09	0.971	17.42	1.50
TG3-3	0.94	-33.0	7.01	0.975	16.46	15.0
TG4-1	1.17	-35.7	7.17	1.017	15.55	3.30
TG4-3	3.14	-37.5	7.29	0.998	15.77	1.10
TG5-1	3.40	113.9	7.04	0.911	15.64	1.80
TG5-3	0.89	185.7	7.33	0.925	14.54	34.0
TG6-1	0.46	-76.6	7.16	1.062	16.40	2.31
TG6-3	2.08	41.2	6.92	1.124	15.50	0.41

Notes:

S - Shallow well.

TG - Treatment gate performance monitoring well.

NM - Not measured due to presence of a sheen or free product in well.

uohm/cm - microhms per centimeter

Deg C - Degrees Celcius

mV - millivolt

mg/L - milligram per liter

NTU - Nephelometric Turbidity unit

Table 2-6 Groundwater Sample Analytical Results Moss-American Site Milwaukee, Wisconsin First Quarter 2009

Field Sample ID	MA1-MW7S-032509-01	MA1-MW34S-032509-02	MA1-MW38S-032509-04		
Location ID	MW-7S	MW-34S	MW-38S		
Sample Date	3/25/2009	3/25/2009	3/25/2009		
Unit	ug/l	ug/l	ug/l	WDNR PAL (UG/L)	WDNR ES (UG/L)
BTEX					
Benzene	0.9 J	7	1.8	0.5	5
Ethylbenzene	2.2	30	2	140	700
Toluene	0.2 U	1	0.2 U	68.6	343
Total Xylenes	2 J	69	1 J	124	650
PAHs					
Acenaphthene	5.6	2600	1.8 J	NA	NA
Acenaphthylene	6 U	320	6 U	NA	NA
Anthracene	0.023 U	840	0.021 U	600	3000
Benzo(a)anthracene	0.011 U	440	0.011 U	NA	NA
Benzo(a)pyrene	0.011 U	160	0.011 U	0.02	0.2
Benzo(b)fluoranthene	0.0091 U	150	0.0086 U	0.02	0.2
Benzo(g,h,i)perylene	0.068 U	55 U	0.064 U	NA	NA
Benzo(k)fluoranthene	0.0091 U	84	0.0086 U	NA	NA
Chrysene	0.05 U	480	0.043 U	0.02	0.2
Dibenz(a,h)anthracene	0.023 U	9 U	0.021 U	NA	NA
Fluoranthene	0.023 U	3000	0.021 U	80	400
Fluorene	0.9	2500	0.11 U	80	400
Indeno(1,2,3-cd)pyrene	0.045 U	83	0.043 U	NA	NA
Naphthalene	22	14000	94	8	40
Phenanthrene	0.045 U	6700	0.043 U	NA	NA
Pyrene	0.11 U	2400	0.11 U	50	250

U-Constituent not detected. Detection limit indicated.

J-Estimated concentration.

VOC-Volatile Organic Compound.

PAH-Polynuclear Aromatic Hydrocarbon.

PAL-Wisconsin Department of Natural Resources (WDNR) Preventative Action Limit.

ES-Enforcement Standard (WDNR).

NA-Not Applicable. PAL or ES not available for this parameter.

Bolded values indicate concentration exceeding PAL.

Table 2-6 (Continued) Groundwater Sample Analytical Results Moss-American Site Milwaukee, Wisconsin First Quarter 2009

Field Sample ID	MA1-MW38S-032509-04-D	MA1-MW39S-032509-03		
Location ID	MW-38S	MW-39S		
Sample Date	3/25/2009	3/25/2009		
Unit	ug/l	ug/I	WDNR PAL (UG/L)	WDNR ES (UG/L)
BTEX				
Benzene	1.9	0.2 U	0.5	5
Ethylbenzene	2.2	0.2 J	140	700
Toluene	0.2 U	0.2 U	68.6	343
Total Xylenes	1 J	0.6 U	124	650
PAHs				
Acenaphthene	2.7	1.9 J	NA	NA
Acenaphthylene	6 U	5.5 U	NA	NA
Anthracene	0.022 U	0.11	600	3000
Benzo(a)anthracene	0.011 U	0.011 U	NA	NA
Benzo(a)pyrene	0.011 U	0.011 U	0.02	0.2
Benzo(b)fluoranthene	0.0087 U	0.0085 U	0.02	0.2
Benzo(g,h,i)perylene	0.065 U	0.064 U	NA	NA
Benzo(k)fluoranthene	0.0087 U	0.0085 U	NA	NA
Chrysene	0.044 U	0.042 U	0.02	0.2
Dibenz(a,h)anthracene	0.022 U	0.021 U	NA	NA
Fluoranthene	0.022 U	0.1 J	80	400
Fluorene	0.11 U	0.82	80	400
Indeno(1,2,3-cd)pyrene	0.044 U	0.042 U	NA	NA
Naphthalene	140	1.1 U	8	40
Phenanthrene	0.044 U	0.049 J	NA	NA
Pyrene	0.11 U	0.14 J	50	250

U-Constituent not detected. Detection limit indicated.

J-Estimated concentration.

VOC-Volatile Organic Compound.

PAH-Polynuclear Aromatic Hydrocarbon.

PAL-Wisconsin Department of Natural Resources (WDNR) Preventative Action Limit.

ES-Enforcement Standard (WDNR).

NA-Not Applicable. PAL or ES not available for this parameter.

Bolded values indicate concentration exceeding PAL.

Table 2-7 Groundwater Sample Analytical Results Shallow Monitoring Well Samples Moss-American Site Milwaukee, Wisconsin Third Quarter 2009

Location ID	MW-5S	MW-7S	MW-78	MW-9S		
Field Sample ID	MA3-MW5S-091609-9	MA3-MW7S-091709-13	MA3-MW7S-091709-13-DP	MA3-MW9S-091809-8		
Sample Date	9/16/2009	9/17/2009	9/17/2009	9/18/2009	WDNR PAL	WDNR ES
Unit	ug/l	ug/l	ug/l	ug/l	(UG/L)	(UG/L)
BTEX						
Benzene	0.2 U	0.8 J	0.8 J	0.2 U	0.5	5
Ethylbenzene	0.2 U	0.9 J	1.3	0.2 U	140	700
Toluene	0.2 U	1.4	0.2 U	0.2 U	68.6	343
Total Xylenes	0.6 U	1.3 J	1.5 J	0.6 U	124	650
PAHs						
Acenaphthene	0.52 U	5.3	5.1	0.51 U	NA	NA
Acenaphthylene	1.0 U	3.9 U	3.5 U	1.0 U	NA	NA
Anthracene	0.021 U	0.021 U	0.021 U	0.020 U	600	3000
Benzo(a)anthracene	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA
Benzo(a)pyrene	0.010 U	0.010 U	0.010 U	0.010 U	0.02	0.2
Benzo(b)fluoranthene	0.0083 U	0.0082 U	0.0082 U	0.0082 U	0.02	0.2
Benzo(g,h,i)perylene	0.062 U	0.062 U	0.062 U	0.061 U	NA	NA
Benzo(k)fluoranthene	0.0083 U	0.0082 U	0.0082 U	0.0082 U	NA	NA
Chrysene	0.062 U	0.062 U	0.062 U	0.061 U	0.02	0.2
Dibenz(a,h)anthracene	0.021 U	0.021 U	0.021 U	0.020 U	NA	NA
Fluoranthene	0.021 U	0.021 U	0.021 U	0.020 U	80	400
Fluorene	0.10 U	0.99	0.96	0.10 U	80	400
Indeno(1,2,3-cd)pyrene	0.042 U	0.041 U	0.041 U	0.041 U	NA	NA
Naphthalene	1.0 U	4.2	3.8	1.0 U	8	40
Phenanthrene	0.042 U	0.075 J	0.065 J	0.041 U	NA	NA
Pyrene	0.10 U	0.10 U	0.10 U	0.10 U	50	250

U - Constituent not detected. Detection limit indicated.

J - Estimated concentration.

J- - Estimated concentration, biased low.

VOC-Volatile Organic Compound.

PAH-Polynuclear Aromatic Hydrocarbon.

PAL-Wisconsin Department of Natural Resources (WDNR) Preventative Action Limit.

ES-Enforcement Standard (WDNR).

NA-Not Applicable. PAL or ES not available for this parameter.

Bolded values indicate concentration exceeding PAL.

Table 2-7 (Continued) Groundwater Sample Analytical Results Containment Monitoring Well Samples Moss-American Site Milwaukee, Wisconsin Third Quarter 2009

Location ID	MW-27S	MW-30S	MW-318	MW-32S	MW-32S		
Field Sample ID	MA3-MW27S-091609-3	MA3-MW30S-091809-13	MA3-MW31S-091609-6	MA3-MW328-091609-1	MA3-MW328-091609-1-DP	WDNR	WDNR
Sample Date	9/16/2009	9/18/2009	9/16/2009	9/16/2009	9/16/2009	PAL	ES
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	(UG/L)	(UG/L)
BTEX							
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Ethylbenzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Toluene	0.2 U	1.5 U	0.2 U	0.2 U	0.2 U	68.6	343
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	650
PAHs							
Acenaphthene	0.53 U	0.52 U	0.53 U	0.52 U	0.53 U	NA	NA
Acenaphthylene	1.1 U	1.0 U	1.1 U	1.0 U	1.1 U	NA	NA
Anthracene	0.021 U	0.021 U	0.026 J	0.021 U	0.021 U	600	3000
Benzo(a)anthracene	0.011 U	0.010 U	0.011 U	0.010 U	0.011 U	NA	NA
Benzo(a)pyrene	0.011 U	0.010 U	0.011 U	0.010 U	0.011 U	0.02	0.2
Benzo(b)fluoranthene	0.0085 U	0.0083 U	0.0084 U	0.0084 U	0.0085 U	0.02	0.2
Benzo(g,h,i)perylene	0.064 U	0.062 U	0.063 U	0.063 U	0.063 U	NA	NA
Benzo(k)fluoranthene	0.0085 U	0.0083 U	0.0084 U	0.0084 U	0.0085 U	NA	NA
Chrysene	0.064 U	0.062 U	0.063 U	0.063 U	0.063 U	0.02	0.2
Dibenz(a,h)anthracene	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	NA	NA
Fluoranthene	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	80	400
Fluorene	0.11 U	0.10 U	0.11 U	0.10 U	0.11 U	80	400
Indeno(1,2,3-cd)pyrene	0.043 U	0.041 U	0.042 U	0.042 U	0.042 U	NA	NA
Naphthalene	1.1 U	1.0 U	1.1 U	1.0 U	1.1 U	8	40
Phenanthrene	0.043 U	0.041 U	0.042 U	0.042 U	0.042 U	NA	NA
Pyrene	0.11 U	0.10 U	0.11 U	0.10 U	0.11 U	50	250

U - Constituent not detected. Detection limit indicated.

J - Estimated concentration.

J- - Estimated concentration, biased low.

VOC-Volatile Organic Compound.

PAH-Polynuclear Aromatic Hydrocarbon.

PAL-Wisconsin Department of Natural Resources (WDNR) Preventative Action Limit.

ES-Enforcement Standard (WDNR).

NA-Not Applicable. PAL or ES not available for this parameter.

Bolded values indicate concentration exceeding PAL.

Table 2-7 (Continued) Groundwater Sample Analytical Results Containment Monitoring Well Samples Moss-American Site Milwaukee, Wisconsin Third Quarter 2009

Location ID	MW-338	MW-34S	MW-35S	MW-37S	MW-38S	MW-39S		
Field Sample ID	MA3-MW33S-091809-10	MA3-MW34S-091709-14	MA3-MW35S-091809-9	MA3-MW37S-091809-7	MA3-MW38S-091509-2	MA3-MW39S-091809-11	WDNR	WDNR
Sample Date	9/18/2009	9/17/2009	9/18/2009	9/18/2009	9/15/2009	9/18/2009	PAL	ES
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	(UG/L)	(UG/L)
BTEX								
Benzene	0.2 U	7.4	0.2 U	0.2 U	1.9	0.2 U	0.5	5
Ethylbenzene	0.5 J	29	0.2 U	0.2 U	1.4	0.2 U	140	700
Toluene	0.4 UJ	1.2	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Total Xylenes	4.1	58	0.6 U	0.6 U	0.8 J	0.6 U	124	650
PAHs								
Acenaphthene	150	3800	0.51 U	0.52 U	3.4	2.2	NA	NA
Acenaphthylene	12 U	310	1.0 U	1.0 U	4.6 U	4.3 U	NA	NA
Anthracene	1.3	1100	0.080 U	0.023 J	0.021 U	0.14	600	3000
Benzo(a)anthracene	0.010 U	660	0.019 J	0.010 U	0.010 U	0.010 U	NA	NA
Benzo(a)pyrene	0.010 U	240	0.010 U	0.010 U	0.010 U	0.010 U	0.02	0.2
Benzo(b)fluoranthene	0.0081 U	240	0.0081 U	0.0083 U	0.0084 U	0.0083 U	0.02	0.2
Benzo(g,h,i)perylene	0.061 U	140	0.061 U	0.062 U	0.063 U	0.062 U	NA	NA
Benzo(k)fluoranthene	0.0081 U	130	0.0081 U	0.0083 U	0.0084 U	0.0083 U	NA	NA
Chrysene	0.061 U	580	0.082 J	0.062 U	0.063 U	0.062 U	0.02	0.2
Dibenz(a,h)anthracene	0.020 U	25	0.020 U	0.021 U	0.021 U	0.021 U	NA	NA
Fluoranthene	0.051 J	4000	0.51	0.060 J	0.021 U	0.18	80	400
Fluorene	77	3600	0.10 U	0.10 U	0.10 U	0.86	80	400
Indeno(1,2,3-cd)pyrene	0.041 U	100	0.041 U	0.041 U	0.042 U	0.042 U	NA	NA
Naphthalene	76	18000	1.0 U	1.0 U	82	1.0 U	8	40
Phenanthrene	31	9700	0.051 J	0.19 J	0.042 U	0.042 U	NA	NA
Pyrene	0.10 U	3300	0.34 J	0.10 U	0.10 U	0.13 J	50	250

U - Constituent not detected. Detection limit indicated.

J - Estimated concentration.

J- - Estimated concentration, biased low.

VOC-Volatile Organic Compound.

PAH-Polynuclear Aromatic Hydrocarbon.

PAL-Wisconsin Department of Natural Resources (WDNR) Preventative Action Limit.

ES-Enforcement Standard (WDNR).

NA-Not Applicable. PAL or ES not available for this parameter.

Bolded values indicate concentration exceeding PAL.
Table 2-7 (Continued) Groundwater Sample Analytical Results Treatment Performance Monitoring Well Samples Moss-American Site Milwaukee, Wisconsin Third Quarter 2009

Location ID	TG1-1	TG1-3	TG2-1	TG2-3	TG3-1	TG3-3		
Field Sample ID	MA3-TG1-1-091709-8	MA3-TG1-3-091709-9	MA3-TG2-1-091709-15	MA3-TG2-3-091709-12	MA3-TG3-1-091709-10	MA3-TG3-3-091709-11	WDNR	WDNR
Sample Date	9/17/2009	9/17/2009	9/17/2009	9/17/2009	9/17/2009	9/17/2009	PAL	ES
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	(UG/L)	(UG/L)
BTEX								
Benzene	0.2 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Ethylbenzene	27	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Toluene	1.3	1.4	0.2 U	0.2 U	0.2 U	1 J	68.6	343
Total Xylenes	49	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	650
PAHs								
Acenaphthene	7700	2.9	0.51 U	0.51 U	0.51 U	0.53 U	NA	NA
Acenaphthylene	430	1.1 U	1.0 U	1.0 U	1.0 U	1.1 U	NA	NA
Anthracene	1800	0.16	0.029 J	0.020 U	0.020 U	0.031 J	600	3000
Benzo(a)anthracene	1200	0.011 U	0.010 U	0.024 J	0.010 U	0.011 U	NA	NA
Benzo(a)pyrene	450	0.011 U	0.010 U	0.041	0.010 U	0.011 U	0.02	0.2
Benzo(b)fluoranthene	440	0.0085 U	0.011 J	0.042	0.0081 U	0.0085 U	0.02	0.2
Benzo(g,h,i)perylene	280	0.064 U	0.061 U	0.070 J	0.061 U	0.063 U	NA	NA
Benzo(k)fluoranthene	240	0.0085 U	0.010 J	0.039	0.0081 U	0.0085 U	NA	NA
Chrysene	950	0.064 U	0.061 U	0.062 J	0.061 U	0.063 U	0.02	0.2
Dibenz(a,h)anthracene	45	0.021 U	0.020 U	0.048 J	0.020 U	0.021 U	NA	NA
Fluoranthene	6700	0.25	0.038 J	0.038 J	0.020 U	0.069 J	80	400
Fluorene	6400	1.6	0.13 J	0.10 U	0.10 U	0.13 J	80	400
Indeno(1,2,3-cd)pyrene	200	0.043 U	0.041 U	0.070 J	0.040 U	0.042 U	NA	NA
Naphthalene	13000	1.1 U	1.0 U	1.0 U	1.0 U	1.1 U	8	40
Phenanthrene	15000	0.59	0.21	0.041 U	0.054 J	0.077 J	NA	NA
Pyrene	5300	0.18 J	0.10 U	0.10 U	0.10 U	0.11 U	50	250

U - Constituent not detected. Detection limit indicated.

J - Estimated concentration.

J- - Estimated concentration, biased low.

VOC-Volatile Organic Compound.

PAH-Polynuclear Aromatic Hydrocarbon.

PAL-Wisconsin Department of Natural Resources (WDNR) Preventative Action Limit.

ES-Enforcement Standard (WDNR).

NA-Not Applicable. PAL or ES not available for this parameter.

Bolded values indicate concentration exceeding PAL.

Table 2-7 (Continued) Groundwater Sample Analytical Results Treatment Performance Monitoring Well Samples Moss-American Site Milwaukee, Wisconsin Third Quarter 2009

Location ID	TG4-1	TG4-3	TG5-1	TG5-3	TG6-1	TG6-3		
Field Sample ID	MA3-TG4-1-091709-6	MA3-TG4-3-091709-7	MA3-TG5-1-091709-3	MA3-TG5-3-091709-4	MA3-TG6-1-091709-5	MA3-TG6-3-091709-1	WDNR	WDNR
Sample Date	9/17/2009	9/17/2009	9/17/2009	9/17/2009	9/17/2009	9/17/2009	PAL	ES
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	(UG/L)	(UG/L)
BTEX								
Benzene	0.2 U	0.5	5					
Ethylbenzene	0.2 U	140	700					
Toluene	1.2	0.9 J	1.8	1.3	0.2 U	0.2 U	68.6	343
Total Xylenes	0.6 U	124	650					
PAHs								
Acenaphthene	0.51 U	0.53 U	0.52 U	0.54 U	0.51 U	0.51 U	NA	NA
Acenaphthylene	1.0 U	1.1 U	1.0 U	1.1 U	1.0 U	1.0 U	NA	NA
Anthracene	0.020 U	0.021 U	0.021 U	0.022 U	0.027 J	0.023 J	600	3000
Benzo(a)anthracene	0.034 J	0.011 U	0.010 U	0.011 U	0.010 U	0.010 U	NA	NA
Benzo(a)pyrene	0.049	0.011 U	0.010 U	0.011 U	0.010 U	0.010 U	0.02	0.2
Benzo(b)fluoranthene	0.057	0.0085 U	0.0084 U	0.0087 U	0.0090 J	0.0082 U	0.02	0.2
Benzo(g,h,i)perylene	0.061 U	0.064 U	0.063 U	0.065 U	0.062 U	0.061 U	NA	NA
Benzo(k)fluoranthene	0.050	0.0085 U	0.0084 U	0.0087 U	0.0082 U	0.0082 U	NA	NA
Chrysene	0.087 J	0.064 U	0.063 U	0.065 U	0.062 U	0.061 U	0.02	0.2
Dibenz(a,h)anthracene	0.042 J	0.021 U	0.021 U	0.022 U	0.021 U	0.020 U	NA	NA
Fluoranthene	0.020 U	0.021 U	0.021 U	0.059 J	0.038 J	0.070 J	80	400
Fluorene	0.10 U	0.11 U	0.10 U	0.11 U	0.13 J	0.10 U	80	400
Indeno(1,2,3-cd)pyrene	0.069 J	0.042 U	0.042 U	0.043 U	0.041 U	0.041 U	NA	NA
Naphthalene	1.0 U	1.1 U	1.0 U	1.1 U	1.0 U	1.0 U	8	40
Phenanthrene	0.041 U	0.042 U	0.042 U	0.043 U	0.041 U	0.041 U	NA	NA
Pyrene	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	50	250

U - Constituent not detected. Detection limit indicated.

J - Estimated concentration.

J- - Estimated concentration, biased low.

VOC-Volatile Organic Compound.

PAH-Polynuclear Aromatic Hydrocarbon.

PAL-Wisconsin Department of Natural Resources (WDNR) Preventative Action Limit.

ES-Enforcement Standard (WDNR).

NA-Not Applicable. PAL or ES not available for this parameter.

Bolded values indicate concentration exceeding PAL.

Table 2-7 (Continued) Groundwater Sample Analytical Results Field Blank and Trip Blank Samples Moss-American Site Milwaukee, Wisconsin Third Quarter 2009

Location ID	Field Blank	Field Blank	Field Blank	Trip Blank	Trip Blank	Trip Blank		
Field Sample ID	MA3-FB-091609-10	MA3-FB-091709-16	MA3-FB-091809-12	MA3-TB-091509-3	MA3-TB-091709-2	MA3-TB-091809-3		
Sample Date	9/16/2009	9/17/2009	9/18/2009	9/15/2009	9/17/2009	9/18/2009	WDNR PAL	WDNR ES
Unit	ug/l	ug/l		ug/l	ug/l		(UG/L)	(UG/L)
BTEX								
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Ethylbenzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Toluene	1.2	0.2 U	0.6 J	0.2 U	0.2 U	0.2 U	68.6	343
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	650
PAHs								
Acenaphthene	0.54 U	0.51 U	0.51 U				NA	NA
Acenaphthylene	1.1 U	1.0 U	1.0 U				NA	NA
Anthracene	0.022 U	0.020 U	0.020 U				600	3000
Benzo(a)anthracene	0.011 U	0.010 U	0.010 U				NA	NA
Benzo(a)pyrene	0.011 U	0.010 U	0.010 U				0.02	0.2
Benzo(b)fluoranthene	0.0087 U	0.0082 U	0.0082 U				0.02	0.2
Benzo(g,h,i)perylene	0.065 U	0.061 U	0.061 U				NA	NA
Benzo(k)fluoranthene	0.0087 U	0.0082 U	0.0082 U				NA	NA
Chrysene	0.065 U	0.061 U	0.061 U				0.02	0.2
Dibenz(a,h)anthracene	0.022 U	0.020 U	0.020 U				NA	NA
Fluoranthene	0.022 U	0.020 U	0.020 U				80	400
Fluorene	0.11 U	0.10 U	0.10 U				80	400
Indeno(1,2,3-cd)pyrene	0.043 U	0.041 U	0.041 U				NA	NA
Naphthalene	1.1 U	1.0 U	1.0 U				8	40
Phenanthrene	0.043 U	0.041 U	0.041 U				NA	NA
Pyrene	0.11 U	0.10 U	0.10 U				50	250

U - Constituent not detected. Detection limit indicated.

J - Estimated concentration.

J- - Estimated concentration, biased low.

VOC-Volatile Organic Compound.

PAH-Polynuclear Aromatic Hydrocarbon.

PAL-Wisconsin Department of Natural Resources (WDNR) Preventative Action Limit.

ES-Enforcement Standard (WDNR).

NA-Not Applicable. PAL or ES not available for this parameter.

Bolded values indicate concentration exceeding PAL.

Shaded and bolded values indicate concentration exceeding PAL and ES.

-- = Not analyzed

Table 2-8 Concentration Trends in Groundwater Monitoring Wells Fourth Quarter 2003 through Third Quarter 2008 Moss-American Site Milwaukee, Wisconsin

	MW-7S	MW-32S	MW-33S	MW-34S	MW-35S	TG1-1
Benzene (ug/L)						1
Fourth Quarter (December '03)	2.3 J	0.2 U	0.2 U	6.6	0.2 U	1 U
First Quarter (March '04)	4 U	0.2 U	4 J	5.7 J	0.2 U	1.5
Second Quarter (June '04)	2 U	0.2 U	1 U	7.8 J	0.2 U	1 U
Third Quarter (September '04)	2.2 J	0.2 U	1 U	7.1 J	0.2 U	2 U
Fourth Quarter (December '04)	8.6	0.2 U	0.2 U	7.2 J	0.2 U	0.5 J
First Quarter (March '05)	2.9 J	0.2 U	0.2 U	6.2 J	0.2 U	1 U
Second Quarter (June '05)	1.6 J	0.2 U	0.2 U	6 J	0.2 U	1 U
Third Quarter (September '05)	1.8	0.2 U	0.2 U	7.3	0.2 U	0.8 J
Fourth Quarter (December '05)	1.7 J	0.2 U	0.2 U	5.0 J	0.2 U	1.0 U
First Quarter (March '06)	2.0 U	0.2 U	0.2 U	7.4 J	0.2 U	0.6 J
Second Quarter (June '06)	0.2 U	0.2 U	0.2 U	6.9 J	0.2 U	1.0 U
Third Quarter (September '06)	1.5 J	0.2 U	0.2 U	6.6 J	0.2 U	0.3 J
First Quarter (March '07)	1.0 U			8.0 J		
Third Quarter (September '07)	1 J	0.2 U	0.2 U	5.6	1 U	5 U
First Quarter (March '08)	0.7 J			8.2		
Third Quarter (September '08)	0.6 J	0.2 U	0.2 U	5.8	0.2 U	0.2 U
First Quarter (March '09)	0.9			7		
Third Quarter (September '09)	1 J	0.2 U	0.2 U	5.6	1 U	5 U
Naphthalene (ug/L)						
Fourth Quarter (December '03)	3,000	1.4 U	58 J	6,500 J	1.3 U	1,500
First Quarter (March '04)	2,500	1.4 UJ	660 J	7,400	1.4 U	2,200
Second Quarter (June '04)	2,700	1.6 U	600	6,800	1.5 U	1,500
Third Quarter (September '04)	2,700	1.6 U	970	11,000 J	1.7 U	3,200
Fourth Quarter (December '04)	1,600	1.5 U	140	5,700	1.5 U	1,600
First Quarter (March '05)	1,600	1.6 U	170	6,000	1.6 U	5,400
Second Quarter (June '05)	1,700	1.7 U	240	7,600	1.6 U	1,500
Third Quarter (September '05)	1,900	1.7 U	290	6,900	1.7 U	4,000
Fourth Quarter (December '05)	1,000	1.8 U	27	4,400 J	1.7 U	4,300
First Quarter (March '06)	1,000	1.5 U	1.7 U	6,400	2.0 J	3,200
Second Quarter (June '06)	1.4 U	1.4 U	7.1 J	6,500	1.4 U	1,100
Third Quarter (September '06)	850	1.3 U	12 J	23,000	1.2 UJ	2,200
First Quarter (March '07)	510			10,000		
Third Quarter (September '07)	280	0.55 U	0.55 U	6,100	2.2 U	7,000
First Quarter (March '08)	1.1 U			4,600		
Third Quarter (September '08)	31	1.1 U	76	7,200	1.1 U	4,500
First Quarter (March '09)	22			14,000		
Third Quarter (September '09)	280	0.55 U	0.5 U	6,100	2.2 U	7,000

U - Constituent not detected; method detection limit (MDL) of the analysis reported.

J - Estimated concentration.

ug/L - Micrograms per liter.

--- Well not sampled during quarterly sampling event

Table 2-8 (Continued)Concentration Trends in Groundwater Monitoring WellsFourth Quarter 2003 through Third Quarter 2008Moss-American SiteMilwaukee, Wisconsin

	MW-7S	MW-32S	MW-33S	MW-34S	MW-35S	TG1-1
Fluorene (ug/L)						-
Fourth Quarter (December '03)	8	0.18 U	0.84 J	180 J	0.17 U	150
First Quarter (March '04)	7	0.18 UJ	13	470	0.21 J	160
Second Quarter (June '04)	6.9	0.17 U	19	280	0.19 J	150
Third Quarter (September '04)	7.8	0.18 U	59	2,100 J	1.3	800
Fourth Quarter (December '04)	7.5	0.17 U	6.9	99	0.39 J	420
First Quarter (March '05)	6.5	0.18	9.1	370	0.18 U	2500
Second Quarter (June '05)	6.3	0.52 U	48	640	0.5 U	320
Third Quarter (September '05)	5.8	0.53 U	56	440	0.53 U	1100
Fourth Quarter (December '05)	4.2	0.56 U	3.0	94 J	0.52 U	2100
First Quarter (March '06)	4.0	0.48 U	1.2	93	0.50 U	750
Second Quarter (June '06)	0.53 U	0.56 U	38	110	0.54 U	160 J
Third Quarter (September '06)	4.6	0.50 U	61	5100	0.48 UJ	740
First Quarter (March '07)	2.6			1700		
Third Quarter (September '07)	2	0.55 U	5.9	90	0.89 U	3600
First Quarter (March '08)	1.1			160		
Third Quarter (September '08)	1	0.11 U	72	240	0.12 J	1600
First Quarter (March '09)	0.9			2,500		
Third Quarter (September '09)	2	0.55 U	5.9	90	0.89	3,600
Benzo(a) pyrene (ug/L)						
Fourth Quarter (December '03)	0.019 U	0.02 U	0.02 U	5.9 J	0.028 J	6
First Quarter (March '04)	0.019 U	0.02 UJ	0.02 UJ	29	0.02 U	6
Second Quarter (June '04)	0.019 U	0.019 U	0.019 U	17	0.022 J	5
Third Quarter (September '04)	0.02 U	0.02 U	0.021 U	140 J	0.021 U	56
Fourth Quarter (December '04)	0.019 U	0.019 U	0.02 U	0.15	0.019 U	33
First Quarter (March '05)	0.02 U	0.02 U	0.019 U	21	0.02 U	200
Second Quarter (June '05)	0.024 J	0.021 U	0.021 U	42	0.02 U	21
Third Quarter (September '05)	0.021 U	0.021 U	0.021 U	23	0.021 U	91
Fourth Quarter (December '05)	0.021 U	0.022 U	0.024 U	0.55 J	0.021 U	180
First Quarter (March '06)	0.020 U	0.019 U	0.021 U	0.24	0.020 U	63
Second Quarter (June '06)	0.021 U	0.022 U	0.021 U	0.18	0.022 U	5.6 J
Third Quarter (September '06)	0.019 U	0.020 U	0.020 U	370	0.064 J-	51
First Quarter (March '07)	0.023 U			320		
Third Quarter (September '07)	0.022 U	0.022 U	0.022 U	0.12	0.11 U	270
First Quarter (March '08)	0.011 U			6		
Third Quarter (September '08)	0.011 U	0.011 U	0.010 U	8	0.011 U	110
First Quarter (March '09)	0.011 U			160		
Third Quarter (September '09)	0.022 U	0.022 U	0.022 U	0.12	0.11 U	2,700

U - Constituent not detected; method detection limit (MDL) of the analysis reported.

J - Estimated concentration.

ug/L - Micrograms per liter.

--- Well not sampled during quarterly sampling event

Table 2-9Groundwater Sample Analytical ResultsTreatment Performance Monitoring Wells- Nutrient and Biological ParametersMoss-American SiteMilwaukee, WisconsinThird Quarter 2009

	Sample Indentification						
Parameter (mg/L)	TG1-1	TG1-3	TG2-1	TG2-3	TG3-1	TG3-3	
Nitrogen (Kjeldahl)	1.4	1.9	0.50 U	0.69 J	0.87 J	1.7	
Nitrite Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.017 J	
Nitrate Nitrogen	4.0 U	0.20 U	0.040 U	0.040 U	0.044 J	0.20 U	
Ammonia Nitrogen	0.20 U	0.50 J	0.20 U	0.42 J	0.20 U	0.20 U	
Ortho-Phosphate as P	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	
Biochemical oxygen demand	15.5	13.3	3.2 U	8.6	3.1 U	19.8	
Chemical oxygen demand	294	28.0	6.1 J	22.7	25.8	25.4	
Total Organic Carbon	11.1	11.2	2.2	9.5	10.3	9.4	
Total Phosphorus as PO4	13.0	0.25 U	0.25 U	0.27 J	0.25 U	0.25 U	
Degrader Microbial Population (mean) (CFU/ml)	7400	<100	<100	<100	<100	<100	
Total Microbial Population (mean) (CFU/ml)	57000	15300	310	630	900	420	

		Sample Indentification						
Parameter (mg/L)	TG4-1	TG4-3	TG5-1	TG5-3	TG6-1	TG6-3		
Nitrogen (Kjeldahl)	0.50 U	0.80 J	0.50 U	0.50 U	1.8	0.50 U		
Nitrite Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U		
Nitrate Nitrogen	0.20 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U		
Ammonia Nitrogen	0.20 U	0.38 J	0.24 J	0.47 J	0.65	0.53 J		
Ortho-Phosphate as P	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U		
Biochemical oxygen demand	2.7 U	2.0 U	1.6 U	2.3 U	11.8	2.2 U		
Chemical oxygen demand	20.5	25.0	10.2	13.6	25.8	17.0		
Total Organic Carbon	8.1	9.3	3.8	4.9	10.3	6.9		
Total Phosphorus as PO4	0.25 U	0.25 U	0.25 U	0.25 U	0.30 J	0.25 U		
Degrader Microbial Population (mean) (CFU/ml)	<100	<100	<100	<100	<100	<100		
Total Microbial Population (mean) (CFU/ml)	18900	<100	210	1000	450	<100		

U Constituent not detected. Detection limit indicated.

J Estimated concentration.

3. EVALUATION OF PILOT SCALE OPERATIONS

Augmentation of the groundwater treatment system was initiated in October 2000 by injecting air at the treatment gates. In late June 2001, nutrient addition was initiated at TG1 using a solution containing potassium nitrate (KNO₃) and potassium phosphate (KHPO₄). System modifications were proposed in the Q2 2002 Quarterly Groundwater Treatment Performance Monitoring Report and are discussed in this section. Information regarding system performance is also presented.

3.1 DISSOLVED OXYGEN

During Q3 2009, the DO concentrations were found to range from 0.4 to 4.15 mg/L. The majority of the DO concentrations were found to be between 0 and 1 mg/L. DO measurements in the downgradient treatment gate wells ranged from 0.46 to 3.40 mg/L.

Well packers were installed in the TG5 injection wells in June 2000; however, no discernable change in the DO levels were observed in the TG5 wells until Q1 and Q2 2003. TRONOX/WESTON attempted to install inflatable bladder packers in the TG1 and TG2 injection wells in August 2001. However, the packers could not be properly installed due to the injection well configuration.

TRONOX/WESTON will continue to evaluate alternatives for air introduction into the treatment gates.

3.2 NUTRIENTS AND PH

Nutrient injection was discontinued at gate area TG1 as a part of the site modifications recommended in the Q2 2002 Monitoring Report. This took place at the end of October 2002, after the Agencies granted approval. However, nutrient and contaminant levels will continue to be monitored.

Recommended guidelines for bioremediation of contaminants in site groundwater include a pH range of 6.5 to 8.5 S.U. and a minimum carbon-nitrogen-phosphorous (C:N:P) ratio of 100:14:1. The range of pH values measured in the treatment performance monitoring wells (6.69 to 7.51 S.U.) is sufficient to facilitate biological activity.

Table 3-1 contains calculated C:N:P ratios for each of the treatment performance monitoring wells. During Q3 2009, treatment performance monitoring wells only well TG6-1 approximately exhibited the desired C:N:P ration of 100:14:1. However, the remaining treatment performance monitoring wells did not exhibit this desired ratio. Nitrogen and phosphorous appear to be the limiting nutrients at the site.

3.3 BACTERIAL POPULATIONS

Total bacterial counts were found, in general, to have decreased in TG2-3, TG4-3 and TG6-1 from Q3 2008. Total bacterial counts increased in TG1-1, TG1-3, TG2-1, TG3-1, TG4-1, TG5-1, TG5-3, and TG6-3 from Q3 2008 levels. There was no change in total bacterial counts for TG3-3 and TG6-3 from Q3 2008. Degrader bacterial counts in each of the treatment gate monitoring wells were found to generally decrease or remain steady from Q3 2008. However, the degrader bacterial count in TG1-1 significantly increased from Q3 2008.

Figure 3-1 compares the degrader populations in TG1 and TG2 since Q1 2001. As indicated in Figure 3-1, there was a trend of general decrease in the degrader bacterial population levels in TG1 and TG2 from Q1 2001 to Q2 2004. It is uncertain what the cause of this bacterial decrease at the site was. However, the degrader populations appear to be increasing over the recent sampling quarters.

3.4 HYDROGEOLOGY

TRONOX/WESTON identified a potential concern associated with the site hydrogeology in the Q2 2001 Monitoring Report. This concern is primarily based on the premise that low flow conditions may cause anoxic conditions and may inhibit TRONOX/WESTON's ability to introduce nutrients and other additives at an optimum level due to poor dispersion from the injection point. Low flow conditions are apparent based on the hydraulic gradient and flow velocities derived. A low flow velocity may be indirectly beneficial as a longer residence time in the treatment gate may allow for more effective biodegradation. No significant change was observed in relation to site hydrogeology during Q3 2009.

Figure 3-1

Comparison of Degrader Populations in Treament Gates 1 and 2 since Q1 2001 Moss-American Site Milwaukee, Wisconsin



Table 3-1Calculation of Carbon:Nitrogen:Phosphorous RatiosTreatment Performance Monitoring WellsMoss-American SiteMilwaukee, WisconsinThird Quarter 2009

		Total Nitrogen ² ,	Phosphorous ³ ,	(C-N-P Ratio	D
Well	Carbon ¹ , mg/L	mg/L	mg/L	(10	0-14-1 desiı	red)
TG1-1	11.1	ND	13	100	0.0	117.1
TG1-3	11.2	0.5	ND	100	4.5	0
TG2-1	2.2	ND	ND	100	0	0
TG2-3	9.5	0.42	0.27	100	4.4	2.8
TG3-1	10.3	ND	ND	100	0.0	0.0
TG3-3	9.4	0.017	ND	100	0.18	0.0
TG4-1	8.1	ND	ND	100	0	0.0
TG4-3	9.3	0.38	ND	100	4.1	0.0
TG5-1	3.8	0.24	ND	100	6.3	0.0
TG5-3	4.9	0.47	ND	100	10	0.0
TG6-1	10.3	0.65	0.3	100	6.3	2.9
TG6-3	6.9	ND	ND	100	0.0	0.0

1 - Carbon measured as Total Organic Carbon (non-purgable).

2 - Nitrogen measured as NH₃-N, NO₂-N, and NO₃-N.

3 - Phosphorous measured as phosphate (PO_4 -P).

ND - Constituent not detected.

4. REACH 1, 2 AND 3 GROUNDWATER MONITORING RESULTS

The September 2009 groundwater-monitoring event included the annual sampling event of the Reach 1, 2, and 3 monitoring well network at the Moss-American site. These monitoring wells include MW-A, through MW-K and are shown in Figures 1-2 through 1-4. Monitoring wells MW-A through MW-D were first sampled in September 2003 during the on-site Q3 2003 groundwater sampling event. The September 2005 Q3 sampling event was the first time monitoring wells MW-E through MW-K were sampled. Similar to the on-site wells, groundwater elevation measurements were collected from the Reach 1, 2, and 3 monitoring wells prior to sampling each monitoring well and groundwater elevations are presented on Table 4-1. DO measurements were also collected following the purging and sampling of each well.

The results of the annual Reach 1, 2, and 3 groundwater sampling event are described in the following subsections.

4.1 GROUNDWATER SAMPLE ANALYTICAL RESULTS

Groundwater samples were collected from a total of 11 Reach 1, 2, and 3 monitoring wells: MW-A through MW-K. One duplicate sample was collected from the Reach 1, 2, and 3 monitoring wells for quality control purposes. The QA/QC samples were collected in conjunction with the on-site groundwater monitoring network sampling effort.

4.1.5 Field-Measured Parameters

The groundwater samples were measured in the field for pH, specific conductance, temperature, redox potential, DO, and turbidity. The field parameters were collected using a YSI 556 portable water quality meter and a Hanna HI98703 turbidimeter. Downhole DO readings were collected from each monitoring well subsequent to purging and sampling the well. The groundwater pH, redox potential, specific conductance, temperature, and turbidity were monitored during well purging prior to sampling. The final (stabilized) values for these measurements prior to sample collection are presented in Table 4-2.

4.1.6 Laboratory Analyses

Each groundwater sample collected from the Reach 1, 2, and 3 monitoring well network during the September 2009 sampling event was analyzed for BTEX and PAH compounds. PAHs were detected in monitoring wells MW-I and MW-K. Benzo(b)fluoranthene and fluoranthene were detected at very low, estimated concentrations in MW-I. Benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, fluoranthene, indeno(1,2,3-cd)pyrene, and phenanthrene were detected at very low, estimated concentrations in MW-K. Of these detections, benzo(k)fluoranthene was detected at a concentration of 0.028 ug/L, slightly above the PAL level of 0.02 in MW-K. Only sporadic detections of BTEX and PAH constituents have been documented from the 2004 through the 2009 sampling events of the Reach 1, 2, and 3 monitoring wells. Based on the above observations, the Reach 1, 2, and 3 monitoring wells continue to demonstrate an overall effectiveness of the remedy. Future annual sampling event data will be evaluated to determine any changes or trends in the data. The results of the laboratory analyses performed on the Reach 1, 2, and 3 groundwater samples collected during September 2009 are provided in Appendix A.

Table 4-1 Groundwater Elevation Measurements Reach 1, 2, and 3 Monitoring Wells Moss-American Site Milwaukee, Wisconsin Third Quarter 2009

				Groundwater	
Well ID	Ground Elevation	TOC Elevation	Depth to Water	Elevation	Product Thickness
MW-A	716.73	716.15	3.9	712.25	
MW-B	714.92	714.49	2.21	712.28	
MW-C	714.18	713.82	3.71	710.11	
MW-D	716.21	715.85	2.59	713.26	
MW-E	713.26	712.83	1.97	710.86	Nono
MW-F	713.52	713.10	5.02	708.08	Detected
MW-G	713.21	712.75	5.57	707.18	Delected
MW-H	710.40	710.07	2.82	707.25	
MW-I	710.27	709.92	3.87	706.05	
MW-J	710.08	709.85	3.3	706.55	I
MW-K	707.13	706.70	1.8	704.90	

Notes:

All values in feet.

All elevation measurements are with respect to Mean Sea Level (MSL).

TOC = Top of well casing.

GW = Groundwater.

Depth to groundwater was measured on 15 through 18 September 2009

Table 4-2Field-Measured ParametersReaches 1, 2, and 3 Monitoring WellsMoss-American SiteMilwaukee, WisconsinThird Quarter 2009

	Dissolved	Redox Potential	pH (Standard	Specific Conductance	Temperatura	Turbidity
Well ID	(mg/L)	(mV)	(Standard Units)	(mmho/cm)	(Deg C)	(NTU)
MW-A	0.74	26.3	6.94	1.189	13.64	2.80
MW-B	0.60	-64.8	7.06	2.067	12.70	2.20
MW-C	1.55	-18.8	7.72	0.983	12.30	12.30
MW-D	0.96	63.5	6.80	2.974	12.77	9.90
MW-E	NA	NA	7.45	0.935	13.80	48.70
MW-F	1.17	23.3	7.10	1.828	12.18	12.00
MW-G	0.57	-32.2	7.29	1.634	13.77	4.30
MW-H	1.34	-62.2	7.28	1.489	12.25	4.70
MW-I	0.79	-67.8	7.24	1.413	14.84	5.40
MW-J	2.45	82.8	7.16	1.395	11.53	18.00
MW-K	1.43	-46.6	7.40	1.392	14.83	50.00

Notes:

S - Shallow well.

TG - Treatment gate performance monitoring well.

NM - Not measured due to presence of a sheen or free product in well.

uohm/cm - microhms per centimeter

Deg C - Degrees Celcius

mV - millivolt

mg/L - milligram per liter

NTU - Nephelometric Turbidity unit

NA - Not measured due to low water level in well.

Table 4-3 Groundwater Sample Analytical Results Reach 1, 2, and 3 Monitoring Wells Moss-American Site Milwaukee, Wisconsin Third Quarter 2009

Location ID	MW-A	MW-B	MW-C	MW-C		
Field Sample ID	MA3-MWA-091809-6	MA3-MWB-091809-2	MA3-MWC-091809-1	MA3-MWC-091809-1-DP	1	
Sample Date	9/18/2009	9/18/2009	9/18/2009	9/18/2009	WDNR PAL	WDNR ES
Unit	ug/l	ug/l	ug/l	ug/l	(UG/L)	(UG/L)
BTEX						
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Ethylbenzene	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Toluene	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	124	650
PAHs						
Acenaphthene	0.52 U	0.52 U	0.51 U	0.51 U	NA	NA
Acenaphthylene	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Anthracene	0.021 U	0.021 U	0.020 U	0.020 U	600	3000
Benzo(a)anthracene	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA
Benzo(a)pyrene	0.010 U	0.010 U	0.010 U	0.010 U	0.02	0.2
Benzo(b)fluoranthene	0.0083 U	0.0083 U	0.0082 U	0.0081 U	0.02	0.2
Benzo(g,h,i)perylene	0.062 U	0.062 U	0.061 U	0.061 U	NA	NA
Benzo(k)fluoranthene	0.0083 U	0.0083 U	0.0082 U	0.0081 U	NA	NA
Chrysene	0.062 U	0.062 U	0.061 U	0.061 U	0.02	0.2
Dibenz(a,h)anthracene	0.021 U	0.021 U	0.020 U	0.020 U	NA	NA
Fluoranthene	0.021 U	0.021 U	0.020 U	0.020 U	80	400
Fluorene	0.10 U	0.10 U	0.10 U	0.10 U	80	400
Indeno(1,2,3-cd)pyrene	0.041 U	0.041 U	0.041 U	0.041 U	NA	NA
Naphthalene	1.0 U	1.0 U	1.0 U	1.0 U	8	40
Phenanthrene	0.041 U	0.041 U	0.041 U	0.041 U	NA	NA
Pyrene	0.10 U	0.10 U	0.10 U	0.10 U	50	250

U - Constituent not detected. Detection limit indicated.

J - Estimated concentration.

J- - Estimated concentration, biased low.

VOC-Volatile Organic Compound.

PAH-Polynuclear Aromatic Hydrocarbon.

PAL-Wisconsin Department of Natural Resources (WDNR) Preventative Action Limit.

ES-Enforcement Standard (WDNR).

NA-Not Applicable. PAL or ES not available for this parameter.

Bolded values indicate concentration exceeding PAL.

Table 4-3 (Continued) Groundwater Sample Analytical Results Reach 1, 2, and 3 Monitoring Wells Moss-American Site Milwaukee, Wisconsin Third Quarter 2009

Location ID	MW-D	MW-E	MW-F	MW-F		
Field Sample ID	MA3-MWD-091809-4	MA3-MWE-091809-5	MA3-MWF-091609-8	MA3-MWF-091609-8-DP		
Sample Date	9/18/2009	9/18/2009	9/16/2009	9/16/2009	WDNR PAL	WDNR ES
Unit	ug/l	ug/l	ug/l	ug/l	(UG/L)	(UG/L)
BTEX						
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Ethylbenzene	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Toluene	0.2 U	0.2 U	1.6 U	1.5 U	68.6	343
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	124	650
PAHs						
Acenaphthene	0.52 U	0.53 U	0.53 U	0.53 U	NA	NA
Acenaphthylene	1.0 U	1.1 U	1.1 U	1.1 U	NA	NA
Anthracene	0.021 U	0.021 U	0.021 U	0.021 U	600	3000
Benzo(a)anthracene	0.010 U	0.011 U	0.011 U	0.011 U	NA	NA
Benzo(a)pyrene	0.010 U	0.011 U	0.011 U	0.011 U	0.02	0.2
Benzo(b)fluoranthene	0.0083 U	0.0084 U	0.0086 U	0.0085 U	0.02	0.2
Benzo(g,h,i)perylene	0.062 U	0.063 U	0.064 U	0.064 U	NA	NA
Benzo(k)fluoranthene	0.0083 U	0.0084 U	0.0086 U	0.0085 U	NA	NA
Chrysene	0.062 U	0.063 U	0.064 U	0.064 U	0.02	0.2
Dibenz(a,h)anthracene	0.021 U	0.021 U	0.021 U	0.021 U	NA	NA
Fluoranthene	0.021 U	0.021 U	0.021 U	0.021 U	80	400
Fluorene	0.10 U	0.11 U	0.11 U	0.11 U	80	400
Indeno(1,2,3-cd)pyrene	0.041 U	0.042 U	0.043 U	0.043 U	NA	NA
Naphthalene	1.0 U	1.1 U	1.1 U	1.1 U	8	40
Phenanthrene	0.041 U	0.042 U	0.043 U	0.043 U	NA	NA
Pyrene	0.10 U	0.11 U	0.11 U	0.11 U	50	250

U - Constituent not detected. Detection limit indicated.

J - Estimated concentration.

J- - Estimated concentration, biased low.

VOC-Volatile Organic Compound.

PAH-Polynuclear Aromatic Hydrocarbon.

PAL-Wisconsin Department of Natural Resources (WDNR) Preventative Action Limit.

ES-Enforcement Standard (WDNR).

NA-Not Applicable. PAL or ES not available for this parameter.

Bolded values indicate concentration exceeding PAL.

Table 4-3 (Continued) Groundwater Sample Analytical Results Reach 1, 2, and 3 Monitoring Wells Moss-American Site Milwaukee, Wisconsin Third Quarter 2009

Location ID	MW-G	MW-H	MW-I	MW-J	MW-K		
Field Sample ID	MA3-MWG-091609-7	MA3-MWH-091609-5	MA3-MWI-091609-4	MA3-MWJ-091609-2	MA3-MWK-091509-1		
Sample Date	9/16/2009	9/16/2009	9/16/2009	9/16/2009	9/15/2009	WDNR PAL	WDNR ES
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	(UG/L)	(UG/L)
BTEX							
Benzene	0.2 U	0.5	5				
Ethylbenzene	0.2 U	140	700				
Toluene	1.1 U	0.2 U	0.2 U	1.2 U	0.3 UJ	68.6	343
Total Xylenes	0.6 U	124	650				
PAHs							
Acenaphthene	0.53 U	0.53 U	0.53 U	0.56 U	0.54 U	NA	NA
Acenaphthylene	1.1 U	NA	NA				
Anthracene	0.021 U	0.021 U	0.021 U	0.022 U	0.022 U	600	3000
Benzo(a)anthracene	0.011 U	NA	NA				
Benzo(a)pyrene	0.011 U	0.011 U	0.011 U	0.011 U	0.017 J	0.02	0.2
Benzo(b)fluoranthene	0.0085 U	0.0085 U	0.015 J	0.0089 U	0.028 J	0.02	0.2
Benzo(g,h,i)perylene	0.064 U	0.063 U	0.063 U	0.067 U	0.069 J	NA	NA
Benzo(k)fluoranthene	0.0085 U	0.0085 U	0.0085 U	0.0089 U	0.011 J	NA	NA
Chrysene	0.064 U	0.063 U	0.063 U	0.067 U	0.065 U	0.02	0.2
Dibenz(a,h)anthracene	0.021 U	0.021 U	0.021 U	0.022 U	0.022 U	NA	NA
Fluoranthene	0.021 U	0.021 U	0.027 J	0.022 U	0.044 J	80	400
Fluorene	0.11 U	80	400				
Indeno(1,2,3-cd)pyrene	0.043 U	0.042 U	0.042 U	0.044 U	0.052 J	NA	NA
Naphthalene	1.1 U	8	40				
Phenanthrene	0.043 U	0.042 U	0.042 U	0.044 U	0.045 J	NA	NA
Pyrene	0.11 U	50	250				

U - Constituent not detected. Detection limit indicated.

J - Estimated concentration.

J- - Estimated concentration, biased low.

VOC-Volatile Organic Compound.

PAH-Polynuclear Aromatic Hydrocarbon.

PAL-Wisconsin Department of Natural Resources (WDNR) Preventative Action Limit.

ES-Enforcement Standard (WDNR).

NA-Not Applicable. PAL or ES not available for this parameter.

Bolded values indicate concentration exceeding PAL.

5. **REFERENCES**

- Weston Solutions, Inc. (WESTON). 1999. Quality Assurance Project Plan for Installation of Groundwater Remedial System. October 1999.
- WESTON. 2001. Quality Assurance Project Plan for Installation of Groundwater Remedial System Addendum No.1. May 2001.
- WESTON. 2007. Quarterly Groundwater Treatment Performance Monitoring Report, Q1 2007, Moss-American Site, Milwaukee, Wisconsin. May 2007.

APPENDIX A

March and September 2009 Groundwater Sample Analytical Results





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ANALYTICAL RESULTS

Prepared for:

Tronox LLC P.O. Box 268859 Oklahoma City OK 73126-8859

405-775-5429

Prepared by:

Lancaster Laboratories 2425 New Holland Pike Lancaster, PA 17605-2425

April 07, 2009

SAMPLE GROUP

The sample group for this submittal is 1137750. Samples arrived at the laboratory on Thursday, March 26, 2009. The PO# for this group is ZAKW1KEOK0A90089.

Client Description	Lancaster Labs Number
MA1-MW7S-032509-01BKG Groundwater	5632276
MA1-MW7S-032509-01MS Groundwater	5632277
MA1-MW7S-032509-01MSD Groundwater	5632278
MA1-MW34S-032509-02 Groundwater	5632279
MA1-MW39S-032509-03 Groundwater	5632280
MA1-MW38S-032509-04 Groundwater	5632281
MA1-TB-032509-05 Groundwater	5632282
MA1-MW38S-032509-04-DUP Groundwater	5632283

METHODOLOGY

The specific methodologies used in obtaining the enclosed analytical results are indicated on the laboratory chronicles.

ELECTRONIC COPY TO	Tronox LLC	Attn: Keith Watson
ELECTRONIC	Weston Solutions, Inc.	Attn: Tom Graan
ELECTRONIC COPY TO	Tronox LLC	Attn: Sherron Hendricks





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ELECTRONICTronox LLCCOPY TO11 COPY TOData Package Group

Attn: Roy Widmann

Questions? Contact your Client Services Representative Katherine A Klinefelter at (717) 656-2300

Respectfully Submitted,

Chad Moline

Chad A. Moline Group Leader



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Lancaster Laboratories Sample No. WW 5632276	Group No. 1137750 WI
MA1-MW7S-032509-01BKG Groundwater 0128730, 204110 02687.007.007.0001 Moss American	
Collected: 03/25/2009 12:04	Account Number: 11947
Submitted: 03/26/2009 09:50 Reported: 04/07/2009 at 11:57 Discard: 06/07/2009	Tronox LLC P.O. Box 268859 Oklahoma City OK 73126-8859

MOS7S SDG#: KMA97-01BKG

Analysis Name	CAS Number	As Received Result	Method Detection Limit	Dilution Factor
6 8310 GC/MS	Semivolatiles	ug/l	ug/l	
Acenaphthene	83-32-9	5.6	0.57	1
Acenaphthylene	208-96-8	N.D.	6.0	1
Anthracene	120-12-7	N.D.	0.023	1
Benzo(a)anthracene	56-55-3	N.D.	0.011	1
Benzo(a)pyrene	50-32-8	N.D.	0.011	1
Benzo(b)fluoranthene	205-99-2	N.D.	0.0091	1
Benzo(g,h,i)perylene	191-24-2	N.D.	0.068	1
Benzo(k)fluoranthene	207-08-9	N.D.	0.0091	1
Chrysene	218-01-9	N.D.	0.050	1
Dibenz(a,h)anthracene	53-70-3	N.D.	0.023	1
Fluoranthene	206-44-0	N.D.	0.023	1
Fluorene	86-73-7	0.90	0.11	1
Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.045	1
Naphthalene	91-20-3	22	1.1	1
Phenanthrene	85-01-8	N.D.	0.045	1
Pyrene	129-00-0	N.D.	0.11	1
to the nature of the sample ysis. The reporting limits to the presence of interfere orting limits were not attain orting limits for these compo	matrix, a reduced a were raised accordi nts near their rete ed for several targ punds were raised ac	liquot was used for ngly. ntion times, normal et compounds. The cordingly.		
6 8021B GC Vo	latiles	ug/l	ug/l	
Benzene	71-43-2	0.9 J	0.2	1
Ethylbenzene	100-41-4	2.2	0.2	1
Toluene	108-88-3	N.D.	0.2	1
Total Xylenes	1330-20-7	2.0 J	0.6	1
	Analysis Name 6 8310 GC/MS Acenaphthene Acenaphthylene Anthracene Benzo(a) anthracene Benzo (a) anthracene Benzo (a) pyrene Benzo (b) fluoranthene Benzo (c, h, i) perylene Benzo (c, h) anthracene Fluoranthene Chrysene Dibenz (a, h) anthracene Pluoranthene Fluorene Indeno (1, 2, 3 - cd) pyrene Naphthalene Phenanthrene Pyrene to the nature of the sample Expisis. The reporting limits to the presence of interferee for these compoints 6 8021B GC Vol Benzene Ethylbenzene Toluene Total Xylenes	Analysis NameCAS Number6 8310GC/MS SemivolatilesAcenaphthene83-32-9Acenaphthylene208-96-8Anthracene120-12-7Benzo(a) anthracene56-55-3Benzo(a) pyrene50-32-8Benzo(b) fluoranthene205-99-2Benzo(g,h,i) perylene191-24-2Benzo(k) fluoranthene207-08-9Chrysene218-01-9Dibenz (a,h) anthracene53-70-3Fluoranthene206-44-0Fluoranthene206-44-0Fluoranthene206-43-0Fluorene86-73-7Indeno (1, 2, 3-cd) pyrene193-39-5Naphthalene91-20-3Phenanthrene85-01-8Pyrene129-00-0to the nature of the sample matrix, a reduced atysis. The reporting limits were raised accordito the presence of interferents near their reterpring limits for these compounds were raised accordito the presence of interferents near their reterpring limits for these compounds were raised accordito the presence of interferents near their reterpring limits for these compounds were raised accordito the presence of interferents near their reterpring limits for these compounds were raised accordito the presence71-43-2Ethylbenzene100-41-4Toluene108-88-3Total Xylenes1330-20-7	Analysis NameCAS NumberAs Received Result6 8310GC/MS Semivolatilesug/lAcenaphthene83-32-95.6Acenaphthylene208-96-8N.D.Anthracene120-12-7N.D.Benzo(a) anthracene56-55-3N.D.Benzo(a) pyrene50-32-8N.D.Benzo(b) fluoranthene205-99-2N.D.Benzo(b) fluoranthene207-08-9N.D.Benzo(g,h,i) perylene191-24-2N.D.Benzo(k) fluoranthene206-44-0N.D.Chrysene218-01-9N.D.Dibenz(a,h) anthracene53-70-3N.D.Fluoranthene206-44-0N.D.Fluoranthene91-20-322Phenanthrene91-20-322Phenanthrene91-20-322Phenanthrene85-01-8N.D.Pyrene129-00-0N.D.to the nature of the sample matrix, a reduced aliquot was used for.ysis.The reporting limits were raised accordingly.to the presence of interferents near their retention times, normalporting limits for these compounds were raised accordingly.6 8021BGC Volatilesug/lBenzene71-43-20.9JEthylbenzene100-41-42.2Toluene108-88-3N.D.Toluene108-88-3N.D.	Analysis NameCAS NumberAs Received ResultMethod Detection Limit68310GC/MS Semivolatilesug/lug/lAcenaphthene83-32-95.60.57Acenaphthylene208-96-8N.D.0.023Benzo (a) anthracene56-55-3N.D.0.011Benzo (a) anthracene50-32-8N.D.0.011Benzo (a) pyrene50-32-8N.D.0.0091Benzo (b) fluoranthene205-99-2N.D.0.0091Benzo (b) fluoranthene207-08-9N.D.0.0091Chrysene218-01-9N.D.0.0023Fluoranthene206-44-0N.D.0.023Fluoranthene91-20-3221.1Indeno (1, 2, 3-cd) pyrene193-39-5N.D.0.045Naphthalene91-20-3221.1Pyrene129-00-0N.D.0.045Naphthalene91-20-3221.1Pyrene129-00-0N.D.0.011to the presence of interferents near their retention times, normal pring limits were not attained for several target compounds. The pring limits were not attained for several target compounds. The pring limits were not attained for several target compounds. The pring limits were not attained for several target compounds. The pring limits were not attained for several target compounds. The pring limits were not attained for several target compounds. The pring limits were not attained for several target compounds. The pring limits were not attained for several target compounds. The pring limits were not attained for several target compounds. The pring

General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09086WAA026	04/03/2009 11:48	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09086WAA026	03/27/2009 16:40) JoElla L Rice	1
08213	BTEX (8021)	SW-846 8021B	1	09086A94A	03/27/2009 17:42	Carrie E Youtzy	1
01146	GC VOA Water Prep	SW-846 5030B	1	09086A94A	03/27/2009 17:42	Carrie E Youtzy	1



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Lancaster Laboratories Sample No. WW 5632277	Group No. 1137750 WI
MA1-MW7S-032509-01MS Groundwater 0128730, 204110 02687.007.007.0001 Moss American	
Collected: 03/25/2009 12:04	Account Number: 11947
Submitted: 03/26/2009 09:50 Reported: 04/07/2009 at 11:57 Discard: 06/07/2009	Tronox LLC P.O. Box 268859 Oklahoma City OK 73126-8859

MOS7S SDG#: KMA97-01MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
SW-846	8310 GC/MS Se	mivolatiles	ug/l	ug/l	
00774	Acenaphthene	83-32-9	110	0.57	1
00774	Acenaphthylene	208-96-8	220	1.1	1
00774	Anthracene	120-12-7	3.2	0.023	1
00774	Benzo(a)anthracene	56-55-3	1.5	0.011	1
00774	Benzo(a)pyrene	50-32-8	1.6	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	1.2	0.0091	1
00774	Benzo(g,h,i)perylene	191-24-2	12	0.068	1
00774	Benzo(k)fluoranthene	207-08-9	1.3	0.0091	1
00774	Chrysene	218-01-9	6.2	0.045	1
00774	Dibenz(a,h)anthracene	53-70-3	3.1	0.023	1
00774	Fluoranthene	206-44-0	3.2	0.023	1
00774	Fluorene	86-73-7	24	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	6.8	0.045	1
00774	Naphthalene	91-20-3	230	1.1	1
00774	Phenanthrene	85-01-8	6.8	0.045	1
00774	Pyrene	129-00-0	22	0.11	1
Due t analy	o the nature of the sample mat sis. The reporting limits wer	rix, a reduced al e raised accordin	iquot was used for gly.		
SW-846	8021B GC Volat	iles	ug/l	ug/l	
08213	Benzene	71-43-2	22	0.2	1
08213	Ethylbenzene	100-41-4	25	0.2	1
08213	Toluene	108-88-3	23	0.2	1
08213	Total Xylenes	1330-20-7	71	0.6	1

General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09086WAA026	04/03/2009 12:26	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09086WAA026	03/27/2009 16:40	JoElla L Rice	1
08213	BTEX (8021)	SW-846 8021B	1	09086A94A	03/27/2009 18:09	Carrie E Youtzy	1
01146	GC VOA Water Prep	SW-846 5030B	1	09086A94A	03/27/2009 18:09	Carrie E Youtzy	1



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Lancaster Laboratories Sample No. WW 5632278	Group No. 1137750 WI
MA1-MW7S-032509-01MSD Groundwater 0128730, 204110 02687.007.007.0001 Moss American	
Collected: 03/25/2009 12:04	Account Number: 11947
Submitted: 03/26/2009 09:50 Reported: 04/07/2009 at 11:57 Discard: 06/07/2009	Tronox LLC P.O. Box 268859 Oklahoma City OK 73126-8859

MOS7S SDG#: KMA97-01MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
SW-846	8310 GC/MS	Semivolatiles	ug/l	ug/l	
00774	Acenaphthene	83-32-9	110	0.57	1
00774	Acenaphthylene	208-96-8	210	1.1	1
00774	Anthracene	120-12-7	3.2	0.023	1
00774	Benzo(a)anthracene	56-55-3	1.5	0.011	1
00774	Benzo(a)pyrene	50-32-8	1.6	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	1.2	0.0091	1
00774	Benzo(g,h,i)perylene	191-24-2	12	0.068	1
00774	Benzo(k)fluoranthene	207-08-9	1.3	0.0091	1
00774	Chrysene	218-01-9	6.2	0.045	1
00774	Dibenz(a,h)anthracene	53-70-3	3.1	0.023	1
00774	Fluoranthene	206-44-0	3.2	0.023	1
00774	Fluorene	86-73-7	24	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	6.8	0.045	1
00774	Naphthalene	91-20-3	220	1.1	1
00774	Phenanthrene	85-01-8	6.8	0.045	1
00774	Pyrene	129-00-0	22	0.11	1
Due t analy	o the nature of the sample m sis. The reporting limits w	natrix, a reduced al vere raised accordin	iquot was used for gly.		
SW-846	8021B GC Vol	atiles	ug/l	ug/l	
08213	Benzene	71-43-2	22	0.2	1
08213	Ethylbenzene	100-41-4	25	0.2	1
08213	Toluene	108-88-3	23	0.2	1
08213	Total Xylenes	1330-20-7	72	0.6	1

General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09086WAA026	04/03/2009 13:0	5 Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09086WAA026	03/27/2009 16:4	0 JoElla L Rice	1
08213	BTEX (8021)	SW-846 8021B	1	09086A94A	03/27/2009 18:3	6 Carrie E Youtzy	1
01146	GC VOA Water Prep	SW-846 5030B	1	09086A94A	03/27/2009 18:3	6 Carrie E Youtzy	1



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Lancaster Laboratories Sample No. WW 5632279 MA1-MW34S-032509-02 Groundwater 0128730 02687.007.007.0001 Moss American Collected: 03/25/2009 13:14 Submitted: 03/26/2009 09:50 Reported: 04/07/2009 at 11:57 Discard: 06/07/2009 Collected: 06/07/200

MO34S SDG#: KMA97-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
SW-846	6 8310 GC/MS	Semivolatiles	ug/l	ug/l	
00774	Acenaphthene	83-32-9	2,600	11	20
00774	Acenaphthylene	208-96-8	320	21	20
00774	Anthracene	120-12-7	840	8.5	400
00774	Benzo(a)anthracene	56-55-3	440	4.2	400
00774	Benzo(a)pyrene	50-32-8	160	4.2	400
00774	Benzo(b)fluoranthene	205-99-2	150	3.4	400
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	55	20
00774	Benzo(k)fluoranthene	207-08-9	84	3.4	400
00774	Chrysene	218-01-9	480	17	400
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	9.0	20
00774	Fluoranthene	206-44-0	3,000	8.5	400
00774	Fluorene	86-73-7	2,500	42	400
00774	Indeno(1,2,3-cd)pyrene	193-39-5	83	0.85	20
00774	Naphthalene	91-20-3	14,000	420	400
00774	Phenanthrene	85-01-8	6,700	42	1000
00774	Pyrene	129-00-0	2,400	42	400
The s	surrogate data is outside th	e OC limits due to	unresolvable matrix		

problems evident in the sample chromatogram.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Due to the presence of interferents near their retention times, normal reporting limits were not attained for several target compounds. The reporting limits for these compounds were raised accordingly.

SW-846	8021B	GC Volatiles	ug/l	ug/l	
08213	Benzene	71-43-2	7.0	0.2	1
08213	Ethylbenzene	100-41-4	30	0.2	1
08213	Toluene	108-88-3	1.0	0.2	1
08213	Total Xylenes	1330-20-7	69	0.6	1

General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis	Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.						Date and Time	Э		Factor
00774	PAH's in	Water by HPLC	SW-846 8310	1	09086WAA026	04/06/2009 0	06:29	Mark A Clark	20
00774	PAH's in	Water by HPLC	SW-846 8310	1	09086WAA026	04/06/2009 0)7:15	Mark A Clark	400
00774	PAH's in	Water by HPLC	SW-846 8310	1	09086WAA026	04/06/2009 2	21:36	Mark A Clark	1000



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Lancaster Laboratories Sample No. WW 5632279

MA1-MW34S-032509-02 Groundwater 0128730 02687.007.007.0001 Moss American

Collected: 03/25/2009 13:14

Submitted: 03/26/2009 09:50 Reported: 04/07/2009 at 11:57 Discard: 06/07/2009 Group No. 1137750 WI

Account Number: 11947

Tronox LLC P.O. Box 268859 Oklahoma City OK 73126-8859

MO34S SDG#: KMA97-02

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Time	e		Factor
03337	PAH Water Extraction	SW-846 3510C	1	09086WAA026	03/27/2009 1	16:40	JoElla L Rice	1
08213	BTEX (8021)	SW-846 8021B	1	09086A94A	03/27/2009 2	21:44	Carrie E Youtzy	1
01146	GC VOA Water Prep	SW-846 5030B	1	09086A94A	03/27/2009 2	21:44	Carrie E Youtzy	1



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Lancaster Laboratories Sample No. WW 5632280 MA1-MW39S-032509-03 Groundwater 0128730 02687.007.007.0001 Moss American Collected: 03/25/2009 13:33 Submitted: 03/26/2009 09:50 Reported: 04/07/2009 at 11:57 Discard: 06/07/2009 Collected: 06/07/2009 Collected: 06/07/2009 Collected: 06/07/2009

MO39S SDG#: KMA97-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
SW-846	8310 GC/MS Sem:	ivolatiles	ug/l	ug/l	
00774	Acenaphthene	83-32-9	1.9 J	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	5.5	1
00774	Anthracene	120-12-7	0.11	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0085	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.064	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0085	1
00774	Chrysene	218-01-9	N.D.	0.042	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	0.10 J	0.021	1
00774	Fluorene	86-73-7	0.82	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.042	1
00774	Naphthalene	91-20-3	N.D.	1.1	1
00774	Phenanthrene	85-01-8	0.049 J	0.042	1
00774	Pyrene	129-00-0	0.14 J	0.11	1
Due t repor limit	to the presence of an interferent tring limit was not attained for t for this compound was raised ac	near its reten acenaphthylene. cordingly.	tion time, the normal The reporting		
SW-846	8021B GC Volati	Les	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	0.2 J	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09086WAA026	04/03/2009 13:44	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09086WAA026	03/27/2009 16:40	JoElla L Rice	1
08213	BTEX (8021)	SW-846 8021B	1	09086A94A	03/27/2009 20:23	Carrie E Youtzy	1
01146	GC VOA Water Prep	SW-846 5030B	1	09086A94A	03/27/2009 20:23	Carrie E Youtzy	1



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Lancaster Laboratories Sample No. WW 5632281	Group No. 1137750 WI
MA1-MW38S-032509-04 Groundwater 0128730, 204110 02687.007.007.0001 Moss American	
Collected: 03/25/2009 14:48	Account Number: 11947
Submitted: 03/26/2009 09:50 Reported: 04/07/2009 at 11:57 Discard: 06/07/2009	Tronox LLC P.O. Box 268859 Oklahoma City OK 73126-8859

MO38S SDG#: KMA97-04

08213 Total Xylenes

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
SW-84	6 8310 GC/MS	Semivolatiles	ug/l	ug/l	
00774	Acenaphthene	83-32-9	1.8 J	0.54	1
00774	Acenaphthylene	208-96-8	N.D.	6.0	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0086	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.064	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0086	1
00774	Chrysene	218-01-9	N.D.	0.043	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.043	1
00774	Naphthalene	91-20-3	94	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.043	1
00774	Pyrene	129-00-0	N.D.	0.11	1
Due anal Due repc limi	to the nature of the sample m ysis. The reporting limits w to the presence of an interfe rting limit was not attained t for this compound was raise	atrix, a reduced a ere raised accordin rent near its reten for acenaphthylene d accordingly.	liquot was used for ngly. ntion time, the normal . The reporting		
SW-84	6 8021B GC Vol	atiles	ug/l	ug/l	
08213	Benzene	71-43-2	1.8	0.2	1
08213	Ethylbenzene	100-41-4	2.0	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1

1

General Sample Comments

J

0.6

1

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

1330-20-7

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	me	Analyst	Dilution Factor
00774	PAH's in Water by	Y HPLC SW-846	8310 1	09086WAA026	04/03/2009	14:23	Mark A Clark	1
03337	PAH Water Extract	sion SW-846	3510C 1	09086WAA026	03/27/2009	16:40	JoElla L Rice	1
08213	BTEX (8021)	SW-846	8021B 1	09086A94A	03/27/2009	20:50	Carrie E Youtzy	1
01146	GC VOA Water Prep	SW-846	5030B 1	09086A94A	03/27/2009	20:50	Carrie E Youtzy	1



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Lancaster Laboratories Sample No. WW 5632282	Group No. 1137750 WI
MA1-TB-032509-05 Groundwater 0128730 02687.007.007.0001 Moss American	
Collected: 03/25/2009	Account Number: 11947
Submitted: 03/26/2009 09:50 Reported: 04/07/2009 at 11:57 Discard: 06/07/2009	Tronox LLC P.O. Box 268859 Oklahoma City OK 73126-8859

MOSTB SDG#: KMA97-05TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
SW-846	5 8021B	GC Volatiles	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis	Analyst	Dilution
No.					Date and Time		Factor
08213	BTEX (8021)	SW-846 8021B	1	09086A94A	03/27/2009 19:56	Carrie E Youtzy	1
01146	GC VOA Water Prep	SW-846 5030B	1	09086A94A	03/27/2009 19:56	Carrie E Youtzy	1



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Lancaster Laboratories Sample No. WW 5632283	Group No. 1137750 WI
MA1-MW38S-032509-04-DUP Groundwater 0128730, 204110 02687.007.007.0001 Moss American	
Collected: 03/25/2009 14:48	Account Number: 11947
Submitted: 03/26/2009 09:50 Reported: 04/07/2009 at 11:57 Discard: 06/07/2009	Tronox LLC P.O. Box 268859 Oklahoma City OK 73126-8859

MOSFD SDG#: KMA97-06FD*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
SW-84	6 8310 GC/M	S Semivolatiles	ug/l	ug/l	
00774	Acenaphthene	83-32-9	2.7	0.54	1
00774	Acenaphthylene	208-96-8	N.D.	6.0	1
00774	Anthracene	120-12-7	N.D.	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0087	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.065	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0087	1
00774	Chrysene	218-01-9	N.D.	0.044	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.022	1
00774	Fluoranthene	206-44-0	N.D.	0.022	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.044	1
00774	Naphthalene	91-20-3	140	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.044	1
00774	Pyrene	129-00-0	N.D.	0.11	1
Due anal Due repo limi	to the nature of the sample ysis. The reporting limit: to the presence of an inter rting limit was not attain t for this compound was ra	e matrix, a reduced a s were raised accordi: rferent near its rete ed for acenaphthylene ised accordingly.	liquot was used for ngly. ntion time, the norma: . The reporting	1	
SW-84	6 8021B GC V	olatiles	ug/l	ug/l	
08213	Benzene	71-43-2	1.9	0.2	1
08213	Ethylbenzene	100-41-4	2.2	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	1.0 J	0.6	1

General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPL	C SW-846 8310	1	09086WAA026	04/03/2009 15:02	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09086WAA026	03/27/2009 16:40	JoElla L Rice	1
08213	BTEX (8021)	SW-846 8021B	1	09086A94A	03/27/2009 21:17	Carrie E Youtzy	1
01146	GC VOA Water Prep	SW-846 5030B	1	09086A94A	03/27/2009 21:17	Carrie E Youtzy	1



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Quality Control Summary

Client Name: Tronox LLC Reported: 04/07/09 at 11:57 AM Group Number: 1137750

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank <u>Result</u>	Blank <u>MDL</u>	Report <u>Units</u>	LCS <u>%REC</u>	LCSD <u>%REC</u>	LCS/LCSD <u>Limits</u>	RPD	<u>RPD Max</u>
Batch number: 09086WAA026	Sample numb	per(s): 56	32276-563	2281,56322	283			
Acenaphthene	N.D.	0.50	ug/l	96		61-102		
Acenaphthylene	N.D.	1.0	ug/l	94		61-99		
Anthracene	N.D.	0.020	ug/l	94		69-103		
Benzo(a)anthracene	N.D.	0.010	ug/l	95		74-109		
Benzo(a)pyrene	N.D.	0.010	ug/l	97		67-107		
Benzo(b)fluoranthene	N.D.	0.0080	ug/l	97		76-110		
Benzo(g,h,i)perylene	N.D.	0.060	ug/l	99		62-117		
Benzo(k)fluoranthene	N.D.	0.0080	ug/l	99		77-109		
Chrysene	N.D.	0.040	ug/l	96		74-111		
Dibenz(a,h)anthracene	N.D.	0.020	ug/l	96		75-109		
Fluoranthene	N.D.	0.020	ug/l	98		68-103		
Fluorene	N.D.	0.10	ug/l	102		67-107		
Indeno(1,2,3-cd)pyrene	N.D.	0.040	ug/l	104		72-109		
Naphthalene	N.D.	1.0	ug/l	91		57-95		
Phenanthrene	N.D.	0.040	ug/l	103		71-108		
Pyrene	N.D.	0.10	ug/l	99		70-108		
Batch number: 09086A94A	Sample numb	per(s): 56	32276-563	2283				
Benzene	N.D.	0.2	ug/l	105	105	80-120	0	30
Ethylbenzene	N.D.	0.2	ug/l	110	105	80-120	5	30
Toluene	N.D.	0.2	ug/l	110	105	80-120	5	30
Total Xylenes	N.D.	0.6	ug/l	110	107	80-120	3	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

MS	MSD	MS/MSD		RPD	BKG	DUP	DUP	Dup RPD
<u>%REC</u>	<u>%REC</u>	<u>Limits</u>	<u>RPD</u>	MAX	Conc	Conc	<u>RPD</u>	<u>Max</u>
Sample n	umber(s):	5632276-	5632281	1,56322	83 UNSPK: 5	632276		
95	94	67-99	1	30				
96	94	54-117	1	30				
93	93	74-101	0	30				
90	90	78-106	0	30				
93	92	77-102	1	30				
91	91	79-108	0	30				
92	91	68-116	1	30				
94	92	81-105	1	30				
91	91	78-108	0	30				
90	90	75-104	1	30				
94	93	75-96	1	30				
	MS %REC Sample nr 95 96 93 90 93 91 92 94 91 90 94	MS MSD %REC %REC Sample number(s): 95 94 96 94 93 93 90 90 93 92 91 91 92 91 94 92 91 91 90 90 94 92 91 91 90 90 94 93	MS MSD %REC MS/MSD Limits Sample number(s): 5632276- 95 94 67-99 96 94 54-117 93 93 74-101 90 90 78-106 93 92 77-102 91 91 79-108 92 91 68-116 94 92 81-105 91 78-108 90 90 90 75-104 94 93 75-96	MS MSD MS/MSD %REC Limits RPD Sample number(s): 5632276-5632283 95 94 67-99 1 96 94 54-117 1 93 93 74-101 0 90 90 78-106 0 91 91 79-102 1 91 91 68-116 1 94 92 81-105 1 91 91 78-108 0 90 90 75-104 1	MS MSD MS/MSD RPD RPD %REC 1 1 30 Sample number(s): 5632276-5632281,56322 95 94 67-99 1 30 96 94 54-117 1 30 93 93 74-101 0 30 90 90 78-106 0 30 91 91 79-102 1 30 92 91-016 0 30 92 91 68-116 1 30 92 91 68-116 1 30 94 92 81-105 1 30 91 91 78-108 0 30 92 91 68-116 1 30 94 92 81-105 1 30 94 93 75-96 1 30	MS MSD MS/MSD RPD MAX Conc Sample number(s): 5632276-5632281,5632283 UNSPK: 5 95 94 67-99 1 30 96 94 54-117 1 30 93 93 74-101 0 30 93 92 77-102 1 30 91 91 79-108 0 30 92 91 68-116 1 30 94 92 81-105 1 30 94 92 81-105 1 30 91 91 78-108 0 30 92 91 68-116 1 30 91 91 78-108 30 93 90 75-104 1 30 94 93 75-96 1 30	MS MSD MS/MSD RPD RPD EKG DUP Sample number(s): 5632276-5632281,5632283 UNSPK: 5632276 95 94 67-99 1 30 96 94 54-117 1 30 93 93 74-101 0 30 90 90 78-106 0 30 91 91 79-102 1 30 92 91 68-116 1 30 94 92 81-105 1 30 91 91 78-108 0 30 91 91 78-104 30 91 91 91 78-104 30 91 91 91 75-104 30 91 94 93 75-96 1 30	MS MSD MS/MSD RPD RPD BKG DUP DUP Sample number(s): 5632276-5632281,5632283 UNSPK: 5632276 95 94 67-99 1 30 96 94 54-117 1 30 93 93 74-101 0 30 90 90 78-106 0 30 91 91 79-102 1 30 92 97-102 1 30

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.



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Page 2 of 3

Quality Control Summary

Client Name: Tronox LLC Reported: 04/07/09 at 11:57 AM Group Number: 1137750

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

	MS	MSD	MS/MSD		RPD	BKG	DUP	DUP	Dup RPD
Analysis Name	%REC	%REC	Limits	RPD	MAX	Conc	Conc	RPD	Max
Fluorene	100	100	73-103	0	30				
Indeno(1,2,3-cd)pyrene	99	99	78-106	0	30				
Naphthalene	90	87	61-94	3	30				
Phenanthrene	100	100	66-115	0	30				
Pyrene	96	96	73-105	0	30				
Batch number: 09086A94A	Sample n	umber(s):	: 5632276-	5632283	B UNSPK	: 5632276			
Benzene	105	105	70-152	0	30				
Ethylbenzene	114	114	75-133	0	30				
Toluene	115	115	78-129	0	30				
Total Xylenes	115	117	67-155	1	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX (8021) Batch number: 09086A94A Trifluorotoluene-P

5632276	97			
5632277	97			
5632278	97			
5632279	96			
5632280	98			
5632281	96			
5632282	97			
5632283	97			
Blank	98			
LCS	97			
LCSD	97			
MS	97			
MSD	97			

Limits: 69-129

Analysis Name: PAH's in Water by HPLC Batch number: 09086WAA026 Nitrobenzene

	Nitrobenzene	Triphenylene								
5632276	91	106								
5632277	96	107								
5632278	93	106								
5632279	96	4954*								
5632280	92	102								
5632281	68	74								
5632283	99	110								
Blank	93	104								
LCS	96	109								

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.





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59-127

Page 3 of 3

Quality Control Summary

Client Name: Tronox LLC Reported: 04/07/09 at 11:57 AM Group Number: 1137750

Surrogate Quality Control

96	107
93	106
	96 93

Limits: 67-111

*- Outside of specification

⁽¹⁾ The result for one or both determinations was less than five times the LOQ.

⁽²⁾ The unspiked result was more than four times the spike added.

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Lancaster Laboratories	Acct. #	<u>]]qr</u>	<u>47</u>	t Froup#		7750	borator	nple #	e only 563 d with cir		<u>6 - 8</u>	3	CC)C #	0128	373	0
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Client: WESTON SUUTIONS		:CI. #:			- 🕅	2	4	H	Ē					Preservatio	n Codes		
Project Name/#: <u>NOSS AMERIC</u>	AN 11947	NSID #:	<u> </u>		- 🖉	Office 1								H=HCI	T=Thiosulfa	ate	6
Project Manager: <u>TUM GRAA</u>	<u>)     </u> Р.	0.#:			-	5₹	2							N=HNO3	B=NaOH		
Sampler:	Qı	iote #:				NOS C								S=H ₂ SO ₄	U=Other		
Name of state where samples were colle	cted:	JI_		5	3	Rev D	f Con										ofsam
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ample Meetification	Colle	e sfed	Collected	<b>Sraf</b>		Nate	lota	1 M	A					Remarks			adua
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MA1-MW845-032509.	02 3 25	09	1314	Ľ		X	_5	X	$\mathbf{X}$								
MA1-MW3965-032509-	03 325	109	1333	X		X	5	$\succ$	$\times$								
MA1 - MW385-032509-	04 3/25	109	1448	Х		X	3	$\times$						-			
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Rush results requested by (please circle	e): Phone I #	-ax	E-mail	ľ					$ \land$	,		]	<b> </b>	/			
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ype I (validation/NJ Reg) TX TRRP-	13	Yes	No		Relina	ished h	V:	-		Date	Time	Rece	ived hv		†	Date	Time
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ype III (Reduced NJ) Site-specif	ic QC (MS/MSD/	Dup)? Y	'es No	l.	2 2 2 0 1 1 0 1 1 0 1 1 1 1 1 1 1 1 1 1	ishod M	[			Date	Time	Ref	led A.	DAT		Date	Tim
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		Please print. In	structi	ions o	n rev	erse si	de cor	respond	with c	circled n	umber	s.			For Lab Us	se Only		
1)	Acot #				M	atrix	Y		(5	Prese	rvatic	n Code	sted es	<u></u>	FSC: SCR#: 7	210		-
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MAT-MW75-032509-01 MAI MW285-032509-04 D	3125/09 + 3125/09	1204 1448	XX				64	X X										
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Rush results requested by (please circle):       P         Phone #:          E-mail address:	hone Fax	E-mail		Relin N Relin	quisi S quisi	hed by	1 1.1	fl	~	3	Date Date	Time 191 Time	Rece Rece	ived by	: '	, D	ate ate	Time Time
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Lancaster Laboratories	
Environmental Sa	mple Administration
Receipt Doc	umentation Log
Client/Project: Weston Solutions	5 Shipping Container Sealed: YES NO
Date of Receipt: <u>3-26-09</u>	Custody Seal Present * : TES NO
Time of Receipt: 0400	
Source Code: <u>50-1</u>	* Custody seal was intact unless otherwise noted in the discrepancy section
Unpacker Emp. No.: <u>2132</u>	Package: Chilled Not Chilled
T	
l emperature of S	hipping Containers
	Wet Ice (WI) or Ice Loose (L)

Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	0177	3.0°	TB	WI	Y	B	
2	1	2.0°	V		ĺ	d	
3							
4							: : : : : : : : : : : : : : : : : : : :
5				-			
6.							

Number of Trip Blanks received <u>NOT</u> listed on chain of custody: <u>O</u>

Paperwork Discrepancy/Unpacking Problems: RCVd 3 extra Vials of MAI-MW38S-032509-04

	Sample Administration Internal Chain of Custody								
	A Name	Date	Time	Reason for Transfer					
	Shuber Mayo	3-26-09	1328	Unpacking / COAD					
0	Mary Beth Reed	320109	1357	Place in Storage or Entry					
	11 augustantin and and and and and and and and and an			Entry					
	$\bigcirc$			Entry					
### Lancaster Laboratories Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	BMQL	Below Minimum Quantitation Level
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
С	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	I	liter(s)
mĪ	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml

 less than – The number following the sign is the <u>limit of quantitation</u>, the smallest amount of analyte which can be reliably determined using this specific test.

- > greater than
- ppm parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.
- ppb parts per billion

**Dry weight basis** Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

### **Organic Qualifiers**

- **A** TIC is a possible aldol-condensation product
- **B** Analyte was also detected in the blank
- C Pesticide result confirmed by GC/MS
- **D** Compound quatitated on a diluted sample
- E Concentration exceeds the calibration range of the instrument
- J Estimated value
- **N** Presumptive evidence of a compound (TICs only)
- **P** Concentration difference between primary and confirmation columns >25%
- **U** Compound was not detected
- **X,Y,Z** Defined in case narrative

### **Inorganic Qualifiers**

- B Value is <CRDL, but ≥IDL
- **E** Estimated due to interference
- **M** Duplicate injection precision not met
- **N** Spike amount not within control limits
- S Method of standard additions (MSA) used for calculation
- U Compound was not detected
- W Post digestion spike out of control limits
- * Duplicate analysis not within control limits
- + Correlation coefficient for MSA < 0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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### ANALYTICAL RESULTS

Prepared for:

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

405-775-5429

Prepared by:

Lancaster Laboratories 2425 New Holland Pike Lancaster, PA 17605-2425

September 29, 2009

### SAMPLE GROUP

The sample group for this submittal is 1162266. Samples arrived at the laboratory on Thursday, September 17, 2009. The PO# for this group is ZAKW1KEOK0A90089.

Client Description	Lancaster Labs Number
MA3-FB-091609-10 Groundwater	5778995
MA3-MW27S-091609-3 Groundwater	5778996
MA3-MW31S-091609-6 Groundwater	5778997
MA3-MW32S-091609-1 Groundwater	5778998
MA3-MW32S-091609-1-DP Groundwater	5778999
MA3-MW38S-091509-2 Groundwater	5779000
MA3-MW5S-091609-9 Groundwater	5779001
MA3-MWF-091609-8 Groundwater	5779002
MA3-MWF-091609-8-DP Groundwater	5779003
MA3-MWG-091609-7 Groundwater	5779004
MA3-MWH-091609-5 Groundwater	5779005
MA3-MWI-091609-4 Groundwater	5779006
MA3-MWJ-091609-2 Groundwater	5779007
MA3-MWJ-091609-2MS Groundwater	5779008
MA3-MWJ-091609-2MSD Groundwater	5779009
MA3-MWK-091509-1 Groundwater	5779010
MA3-TB-091509-3 Groundwater	5779011

### METHODOLOGY

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.





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ELECTRONIC	Tronox LLC
COPY TO	
ELECTRONIC	Weston Solutions, Inc.
COPY TO	
ELECTRONIC	Tronox LLC
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ELECTRONIC	Tronox LLC
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ELECTRONIC	Weston Solutions
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1 COPY TO	Data Package Group

Attn: Keith Watson Attn: Tom Graan Attn: Sherron Hendricks Attn: Roy Widmann Attn: Andris Slesers

Questions? Contact your Client Services Representative Katherine A Klinefelter at (717) 656-2300

Respectfully Submitted,

Martha L. Seidel Senior Chemist



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Page 1 of 1

Lancaster Laboratories Sample No. WW 5778995	Group No. 1162266 WI
MA3-FB-091609-10 Groundwater 091601-2,4 02687.007.007.0001 Moss American	
Collected: 09/16/2009 18:25	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

SDG#: KMA98-01FB MA310

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 833	10	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.54	1
00774	Acenaphthylene	208-96-8	N.D.	1.1	1
00774	Anthracene	120-12-7	N.D.	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0087	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.065	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0087	1
00774	Chrysene	218-01-9	N.D.	0.065	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.022	1
00774	Fluoranthene	206-44-0	N.D.	0.022	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.043	1
00774	Naphthalene	91-20-3	N.D.	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.043	1
00774	Pyrene	129-00-0	N.D.	0.11	1
Due t analy	to the nature of the sample matrix vsis. The reporting limits were t	x, a reduced al raised accordin	iquot was used for gly.		
GC Vol	atiles SW-846 802	21B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	1.2	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009 13:5	6 Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009 09:0	0 Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09264B94A	09/22/2009 15:5	52 Katrina T	1
						Longenecker	
01146	GC VOA Water Prep	SW-846 5030B	1	09264B94A	09/22/2009 15:5	52 Katrina T	1
						Longenecker	



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Page 1 of 1

Lancaster Laboratories Sample No. WW 5778996	Group No. 1162266 WI
MA3-MW27S-091609-3 Groundwater 091601-2,3 02687.007.007.0001 Moss American	
Collected: 09/16/2009 11:05	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

SDG#: KMA98-02 MA3-3

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 83	10	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	1.1	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0085	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.064	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0085	1
00774	Chrysene	218-01-9	N.D.	0.064	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.043	1
00774	Naphthalene	91-20-3	N.D.	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.043	1
00774	Pyrene	129-00-0	N.D.	0.11	1
Due t analy	to the nature of the sample matri vsis. The reporting limits were	x, a reduced al: raised according	iquot was used for gly.		
GC Vol	atiles SW-846 80	21B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	9	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009 1	4:34	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009 0	9:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09264B94A	09/22/2009 1	6:18	Katrina T	1
							Longenecker	
01146	GC VOA Water Prep	SW-846 5030B	1	09264B94A	09/22/2009 1	6:18	Katrina T	1
							Longenecker	



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Lancaster Laboratories Sample No. WW 5778997	Group No. 1162266 WI
MA3-MW31S-091609-6 Groundwater 091601-2,3 02687.007.007.0001 Moss American	
Collected: 09/16/2009 13:10	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MA3-6 SDG#: KMA98-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	1.1	1
00774	Anthracene	120-12-7	0.026 J	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0084	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.063	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0084	1
00774	Chrysene	218-01-9	N.D.	0.063	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.042	1
00774	Naphthalene	91-20-3	N.D.	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.042	1
00774	Pyrene	129-00-0	N.D.	0.11	1
GC Vol	Latiles SW-846	8021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	e	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009	15:13	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009 (	09:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09264B94A	09/22/2009	16:45	Katrina T Longenecker	1
01146	GC VOA Water Prep	SW-846 5030B	1	09264B94A	09/22/2009	16:45	Katrina T Longenecker	1



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Lancaster Laboratories Sample No. WW 5778998	Group No. 1162266 WI
MA3-MW32S-091609-1 Groundwater 091601-2,3 02687.007.007.0001 Moss American	
Collected: 09/16/2009 09:15	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MA3-1 SDG#: KMA98-04

Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Semivolatiles SW-846	8310	ug/l	ug/l	
Acenaphthene	83-32-9	N.D.	0.52	1
Acenaphthylene	208-96-8	N.D.	1.0	1
Anthracene	120-12-7	N.D.	0.021	1
Benzo(a)anthracene	56-55-3	N.D.	0.010	1
Benzo(a)pyrene	50-32-8	N.D.	0.010	1
Benzo(b)fluoranthene	205-99-2	N.D.	0.0084	1
Benzo(g,h,i)perylene	191-24-2	N.D.	0.063	1
Benzo(k)fluoranthene	207-08-9	N.D.	0.0084	1
Chrysene	218-01-9	N.D.	0.063	1
Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
Fluoranthene	206-44-0	N.D.	0.021	1
Fluorene	86-73-7	N.D.	0.10	1
Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.042	1
Naphthalene	91-20-3	N.D.	1.0	1
Phenanthrene	85-01-8	N.D.	0.042	1
Pyrene	129-00-0	N.D.	0.10	1
latiles SW-846	8021B	ug/l	ug/l	
Benzene	71-43-2	N.D.	0.2	1
Ethylbenzene	100-41-4	N.D.	0.2	1
Toluene	108-88-3	N.D.	0.2	1
Total Xylenes	1330-20-7	N.D.	0.6	1
-	Analysis NameSemivolatilesSW-846AcenaphtheneAcenaphthyleneAnthraceneBenzo (a) anthraceneBenzo (a) anthraceneBenzo (b) fluorantheneBenzo (c) fluorantheneBenzo (c) fluorantheneBenzo (c) fluorantheneBenzo (c) fluorantheneBenzo (c) fluorantheneChryseneDibenz (a, h) anthraceneFluoreneIndeno (1, 2, 3 - cd) pyreneNaphthalenePhenanthrenePyreneSW-846BenzeneEthylbenzeneTolueneTotal Xylenes	Analysis Name CAS Number   Semivolatiles SW-846 831.0   Acenaphthene 83-32-9   Acenaphthylene 208-96-8   Anthracene 120-12-7   Benzo (a) anthracene 56-55-3   Benzo (a) pyrene 50-32-8   Benzo (a) pyrene 50-32-8   Benzo (b) fluoranthene 205-99-2   Benzo (ch, i) perylene 191-24-2   Benzo (k) fluoranthene 207-08-9   Chrysene 218-01-9   Dibenz (a, h) anthracene 53-70-3   Fluoranthene 206-44-0   Fluorene 86-73-7   Indeno (1, 2, 3-cd) pyrene 193-39-5   Naphthalene 91-20-3   Phenanthrene 85-01-8   Pyrene 129-00-0   SW-846 8021B   Benzene 71-43-2   Ethylbenzene 100-41-4   Toluene 108-88-3   Total Xylenes 1330-20-7	Analysis Name CAS Number As Received Result   Semivolatiles SW-846 8310 ug/1   Acenaphthene 83-32-9 N.D.   Acenaphthylene 208-96-8 N.D.   Anthracene 120-12-7 N.D.   Benzo (a) anthracene 56-55-3 N.D.   Benzo (a) anthracene 205-99-2 N.D.   Benzo (b) fluoranthene 205-99-2 N.D.   Benzo (c), i) perylene 191-24-2 N.D.   Benzo (k) fluoranthene 206-49-0 N.D.   Chrysene 18-01-9 N.D.   Dibenz (a, h) anthracene 53-70-3 N.D.   Fluorene 86-73-7 N.D.   Fluorene 86-73-7 N.D.   Naphthalene 91-20-3 N.D.   Pyrene 193-39-5 N.D.   Naphthalene 91-20-3 N.D.   Pyrene 129-00-0 N.D.   Phenanthrene 50-01-8 N.D.   Pyrene 129-00-0 N.D.   Putiles SW-846 80215 ug/1   Benzo (A, U) Stati Stati Stati Stati Stati Stati Stati Stati Stati	Analysis Name   CAS Number   As Received Result   Method Detection Limit     Semivolatiles   SW-846 8310   ug/l   ug/l     Acenaphthene   83-32-9   N.D.   0.52     Acenaphthylene   208-96-8   N.D.   1.0     Anthracene   120-12-7   N.D.   0.021     Benzo(a) anthracene   56-55-3   N.D.   0.010     Benzo(a) pyrene   50-32-8   N.D.   0.0084     Benzo(b) fluoranthene   207-08-9   N.D.   0.0084     Benzo(k) fluoranthene   207-08-9   N.D.   0.0084     Benzo(k) fluoranthene   207-08-9   N.D.   0.0084     Chrysene   218-01-9   N.D.   0.021     Fluoranthene   206-44-0   N.D.   0.021     Fluorene   86-73-7   N.D.   0.042     Pluorene   86-73-7   N.D.   0.042     Naphthalene   91-20-3   N.D.   0.042     Naphthalene   91-20-3   N.D.   0.042     Pyrene   129-00-0 <td< td=""></td<>

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

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CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	e	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009	15:52	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009 (	09:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09264B94A	09/22/2009	17:11	Katrina T Longenecker	1
01146	GC VOA Water Prep	SW-846 5030B	1	09264B94A	09/22/2009	17:11	Katrina T Longenecker	1



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Lancaster Laboratories Sample No. WW 5778999	Group No. 1162266 WI
MA3-MW32S-091609-1-DP Groundwater 091601-2,3 02687.007.007.0001 Moss American	
Collected: 09/16/2009 09:15	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MA31D SDG#: KMA98-05FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	1.1	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0085	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.063	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0085	1
00774	Chrysene	218-01-9	N.D.	0.063	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.042	1
00774	Naphthalene	91-20-3	N.D.	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.042	1
00774	Pyrene	129-00-0	N.D.	0.11	1
GC Vo	latiles SW-846	8021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009 17:10	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009 09:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09264B94A	09/22/2009 17:37	Katrina T Longenecker	1
01146	GC VOA Water Prep	SW-846 5030B	1	09264B94A	09/22/2009 17:37	Katrina T Longenecker	1



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Lancaster Laboratories Sample No. WW 5779000	Group No. 1162266 WI
MA3-MW38S-091509-2 Groundwater 091601-2 02687.007.007.0001 Moss American	
Collected: 09/15/2009 19:25	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

SDG#: KMA98-06 MA3-2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 83	310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	3.4	0.52	1
00774	Acenaphthylene	208-96-8	N.D.	4.6	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0084	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.063	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0084	1
00774	Chrysene	218-01-9	N.D.	0.063	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.042	1
00774	Naphthalene	91-20-3	82	1.0	1
00774	Phenanthrene	85-01-8	N.D.	0.042	1
00774	Pyrene	129-00-0	N.D.	0.10	1
Due t repoi this	to the presence of an interferen sting limit was not attained for compound was raised accordingly	t near its reter acenaphthylene.	ntion time, the normal . The reporting limit for		
GC Vol	atiles SW-846 80	)21B	ug/l	ug/l	
08213	Benzene	71-43-2	1.9	0.2	1
08213	Ethylbenzene	100-41-4	1.4	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	0.8 J	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09265WAE026	09/24/2009 04:44	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	2	09265WAE026	09/22/2009 17:00	Timothy J Attenberger	1
08213	BTEX (8021)	SW-846 8021B	1	09264B94A	09/22/2009 18:04	Katrina T Longenecker	1
01146	GC VOA Water Prep	SW-846 5030B	1	09264B94A	09/22/2009 18:04	Katrina T Longenecker	1



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Lancaster Laboratories Sample No. WW 5779001	Group No. 1162266 WI
MA3-MW5S-091609-9 Groundwater 091601-2,4 02687.007.007.0001 Moss American	
Collected: 09/16/2009 17:09	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MA3-9 SDG#: KMA98-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 8	310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.52	1
00774	Acenaphthylene	208-96-8	N.D.	1.0	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0083	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.062	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0083	1
00774	Chrysene	218-01-9	N.D.	0.062	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.042	1
00774	Naphthalene	91-20-3	N.D.	1.0	1
00774	Phenanthrene	85-01-8	N.D.	0.042	1
00774	Pyrene	129-00-0	N.D.	0.10	1
GC Vol	atiles SW-846 8	021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009 18:28	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009 09:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09264B94A	09/22/2009 18:30	Katrina T Longenecker	1
01146	GC VOA Water Prep	SW-846 5030B	1	09264B94A	09/22/2009 18:30	Katrina T Longenecker	1



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Lancaster Laboratories Sample No. WW 5779002	Group No. 1162266 WI
MA3-MWF-091609-8 Groundwater 091601-2,4 02687.007.007.0001 Moss American	
Collected: 09/16/2009 17:43	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

SDG#: KMA98-08 MA3-8

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 83	10	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	1.1	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0086	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.064	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0086	1
00774	Chrysene	218-01-9	N.D.	0.064	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.043	1
00774	Naphthalene	91-20-3	N.D.	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.043	1
00774	Pyrene	129-00-0	N.D.	0.11	1
Due t analy	to the nature of the sample matri vsis. The reporting limits were	x, a reduced al raised accordin	iquot was used for gly.		
GC Vol	atiles SW-846 80	21B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	1.6	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	9	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009 1	9:06	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009 0	9:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09264B94A	09/22/2009 1	8:57	Katrina T	1
							Longenecker	
01146	GC VOA Water Prep	SW-846 5030B	1	09264B94A	09/22/2009 1	8:57	Katrina T	1
							Longenecker	



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Lancaster Laboratories Sample No. WW 5779003	Group No. 1162266 WI
MA3-MWF-091609-8-DP Groundwater 091601-2,4 02687.007.007.0001 Moss American	
Collected: 09/16/2009 17:43	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

SDG#: KMA98-09FD MA38D

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 83	10	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	1.1	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0085	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.064	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0085	1
00774	Chrysene	218-01-9	N.D.	0.064	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.043	1
00774	Naphthalene	91-20-3	N.D.	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.043	1
00774	Pyrene	129-00-0	N.D.	0.11	1
Due t analy	to the nature of the sample matrixis. The reporting limits were	x, a reduced al raised accordin	iquot was used for gly.		
GC Vol	atiles SW-846 80.	21B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	1.5	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009 19	9:45	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009 09	9:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09264B94A	09/22/2009 19	9:23	Katrina T	1
							Longenecker	
01146	GC VOA Water Prep	SW-846 5030B	1	09264B94A	09/22/2009 19	9:23	Katrina T	1
							Longenecker	



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Lancaster Laboratories Sample No. WW 5779004	Group No. 1162266 WI
MA3-MWG-091609-7 Groundwater 091601-2,3 02687.007.007.0001 Moss American	
Collected: 09/16/2009 15:35	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

SDG#: KMA98-10 MA3-7

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 833	10	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	1.1	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0085	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.064	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0085	1
00774	Chrysene	218-01-9	N.D.	0.064	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.043	1
00774	Naphthalene	91-20-3	N.D.	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.043	1
00774	Pyrene	129-00-0	N.D.	0.11	1
Due t analy	to the nature of the sample matrix vsis. The reporting limits were	x, a reduced al: raised according	iquot was used for gly.		
GC Vol	atiles SW-846 802	21B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	1.1	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	e	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009 2	20:24	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009 (	09:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09264B94A	09/22/2009	19:50	Katrina T	1
							Longenecker	
01146	GC VOA Water Prep	SW-846 5030B	1	09264B94A	09/22/2009	19:50	Katrina T	1
							Longenecker	



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Lancaster Laboratories Sample No. WW 5779005	Group No. 1162266 WI
MA3-MWH-091609-5 Groundwater 091601-1,2 02687.007.007.0001 Moss American	
Collected: 09/16/2009 12:23	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MA3-5 SDG#: KMA98-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	1.1	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0085	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.063	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0085	1
00774	Chrysene	218-01-9	N.D.	0.063	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.042	1
00774	Naphthalene	91-20-3	N.D.	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.042	1
00774	Pyrene	129-00-0	N.D.	0.11	1
GC Vo	latiles SW-846	8021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	ne	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009	21:03	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009	09:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09264B94A	09/22/2009	20:42	Katrina T Longenecker	1
01146	GC VOA Water Prep	SW-846 5030B	1	09264B94A	09/22/2009	20:42	Katrina T Longenecker	1



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Lancaster Laboratories Sample No. WW 5779006	Group No. 1162266 WI
MA3-MWI-091609-4 Groundwater 091601-1,2 02687.007.007.0001 Moss American	
Collected: 09/16/2009 10:58	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MA3-4 SDG#: KMA98-12

CAT No.	Analysis Name	CAS Number	As Received Result	AS Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	1.1	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	0.015 J	0.0085	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.063	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0085	1
00774	Chrysene	218-01-9	N.D.	0.063	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	0.027 J	0.021	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.042	1
00774	Naphthalene	91-20-3	N.D.	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.042	1
00774	Pyrene	129-00-0	N.D.	0.11	1
GC Vol	latiles SW-846	8021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	me	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009	21:42	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009	09:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09264B94A	09/22/2009	21:09	Katrina T Longenecker	1
01146	GC VOA Water Prep	SW-846 5030B	1	09264B94A	09/22/2009	21:09	Katrina T Longenecker	1



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Lancaster Laboratories Sample No. WW 5779007	Group No. 1162266 WI
MA3-MWJ-091609-2 Groundwater 091601-1,2 02687.007.007.0001 Moss American	
Collected: 09/16/2009 09:31	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MA32- SDG#: KMA98-13BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 831	LO	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.56	1
00774	Acenaphthylene	208-96-8	N.D.	1.1	1
00774	Anthracene	120-12-7	N.D.	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0089	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.067	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0089	1
00774	Chrysene	218-01-9	N.D.	0.067	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.022	1
00774	Fluoranthene	206-44-0	N.D.	0.022	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.044	1
00774	Naphthalene	91-20-3	N.D.	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.044	1
00774	Pyrene	129-00-0	N.D.	0.11	1
Due t analy	to the nature of the sample matrix vsis. The reporting limits were n	c, a reduced all raised according	iquot was used for gly.		
GC Vol	atiles SW-846 802	21B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	1.2	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009 11:59	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009 09:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/24/2009 03:43	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/24/2009 03:43	Marie D John	1



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Lancaster Laboratories Sample No. WW 5779008	Group No. 1162266 WI
MA3-MWJ-091609-2MS Groundwater 091601-1,2 02687.007.007.0001 Moss American	
Collected: 09/16/2009 09:31	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MA32- SDG#: KMA98-13MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 833	10	ug/l	ug/l	
00774	Acenaphthene	83-32-9	87	0.56	1
00774	Acenaphthylene	208-96-8	170	1.1	1
00774	Anthracene	120-12-7	2.9	0.022	1
00774	Benzo(a)anthracene	56-55-3	1.5	0.011	1
00774	Benzo(a)pyrene	50-32-8	1.6	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	1.3	0.0089	1
00774	Benzo(g,h,i)perylene	191-24-2	13	0.067	1
00774	Benzo(k)fluoranthene	207-08-9	1.3	0.0089	1
00774	Chrysene	218-01-9	6.3	0.067	1
00774	Dibenz(a,h)anthracene	53-70-3	3.2	0.022	1
00774	Fluoranthene	206-44-0	2.9	0.022	1
00774	Fluorene	86-73-7	20	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	7.2	0.044	1
00774	Naphthalene	91-20-3	160	1.1	1
00774	Phenanthrene	85-01-8	6.1	0.044	1
00774	Pyrene	129-00-0	21	0.11	1
Due t analy	to the nature of the sample matri rsis. The reporting limits were	x, a reduced al: raised according	iquot was used for gly.		
GC Vol	atiles SW-846 802	21B	ug/l	ug/l	
08213	Benzene	71-43-2	23	0.2	1
08213	Ethylbenzene	100-41-4	23	0.2	1
08213	Toluene	108-88-3	25	0.2	1
08213	Total Xylenes	1330-20-7	71	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009 12:38	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009 09:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/24/2009 04:09	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/24/2009 04:09	Marie D John	1



0.6

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Lancaster Laboratories Sample No. WW 5779009	Group No. 1162266 WI
MA3-MWJ-091609-2MSD Groundwater 091601-1,2 02687.007.007.0001 Moss American	
Collected: 09/16/2009 09:31	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MA32-SDG#: KMA98-13MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 8	3310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	95	0.56	1
00774	Acenaphthylene	208-96-8	190	1.1	1
00774	Anthracene	120-12-7	3.1	0.022	1
00774	Benzo(a)anthracene	56-55-3	1.6	0.011	1
00774	Benzo(a)pyrene	50-32-8	1.7	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	1.3	0.0089	1
00774	Benzo(g,h,i)perylene	191-24-2	14	0.067	1
00774	Benzo(k)fluoranthene	207-08-9	1.4	0.0089	1
00774	Chrysene	218-01-9	6.5	0.067	1
00774	Dibenz(a,h)anthracene	53-70-3	3.4	0.022	1
00774	Fluoranthene	206-44-0	3.1	0.022	1
00774	Fluorene	86-73-7	21	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	7.5	0.044	1
00774	Naphthalene	91-20-3	180	1.1	1
00774	Phenanthrene	85-01-8	6.6	0.044	1
00774	Pyrene	129-00-0	22	0.11	1
Due anal	to the nature of the sample mat ysis. The reporting limits wer	rix, a reduced a e raised accordi	liquot was used for ngly.		
The prob	surrogate data is outside the Q lems evident in the sample chro	C limits due to matogram.	unresolvable matrix		
GC Vo	Latiles SW-846 8	3021B	ug/l	ug/l	
08213	Benzene	71-43-2	23	0.2	1
08213	Ethylbenzene	100-41-4	23	0.2	1
08213	Toluene	108-88-3	24	0.2	1

#### General Sample Comments

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State of Wisconsin Lab Certification No. 998035060

08213 Total Xylenes

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

1330-20-7

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009 13:17	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009 09:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/24/2009 04:36	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/24/2009 04:36	Marie D John	1



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Lancaster Laboratories Sample No. WW 5779010	Group No. 1162266 WI
MA3-MWK-091509-1 Groundwater 091601-2,4 02687.007.007.0001 Moss American	
Collected: 09/15/2009 17:03	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

SDG#: KMA98-14 MA31-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 833	10	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.54	1
00774	Acenaphthylene	208-96-8	N.D.	1.1	1
00774	Anthracene	120-12-7	N.D.	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	0.017 J	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	0.028 J	0.0087	1
00774	Benzo(g,h,i)perylene	191-24-2	0.069 J	0.065	1
00774	Benzo(k)fluoranthene	207-08-9	0.011 J	0.0087	1
00774	Chrysene	218-01-9	N.D.	0.065	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.022	1
00774	Fluoranthene	206-44-0	0.044 J	0.022	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	0.052 J	0.043	1
00774	Naphthalene	91-20-3	N.D.	1.1	1
00774	Phenanthrene	85-01-8	0.045 J	0.043	1
00774	Pyrene	129-00-0	N.D.	0.11	1
Due t analy	to the nature of the sample matrix rsis. The reporting limits were t	x, a reduced al: raised according	iquot was used for gly.		
GC Vol	atiles SW-846 802	21B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	0.3 J	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09260WAM026	09/19/2009 22:20	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09260WAM026	09/18/2009 09:00	Denise L Trimby	1
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/23/2009 21:33	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/23/2009 21:33	Marie D John	1



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Page 1 of 1

Lancaster Laboratories Sample No. WW 5779011	Group No. 1162266 WI
MA3-TB-091509-3 Groundwater 091601-2 02687.007.007.0001 Moss American	
Collected: 09/15/2009 19:25	Account Number: 11947
Submitted: 09/17/2009 09:15 Reported: 09/29/2009 at 13:44 Discard: 11/29/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

SDG#: KMA98-15TB* MA3-T

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC Vol	latiles	SW-846	8021B	ug/l	ug/l	
08213	Benzene		71-43-2	N.D.	0.2	1
08213	Ethylbenzene		100-41-4	N.D.	0.2	1
08213	Toluene		108-88-3	N.D.	0.2	1
08213	Total Xylenes		1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/23/2009 19:47	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/23/2009 19:47	Marie D John	1



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### Quality Control Summary

Client Name: Tronox LLC Reported: 09/29/09 at 01:44 PM Group Number: 1162266

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	Blank <u>Result</u>	Blank <u>MDL</u>	Report <u>Units</u>	LCS <u>%REC</u>	LCSD <u>%REC</u>	LCS/LCSD <u>Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 09260WAM026	Sample nu	mber(s): 57	78995-577	8999,5779	001-577901	LO		
Acenaphthene	N.D.	0.50	ug/l	87	80	61-102	7	30
Acenaphthylene	N.D.	1.0	ug/l	84	78	61-99	6	30
Anthracene	N.D.	0.020	uq/l	90	87	69-103	4	30
Benzo(a)anthracene	N.D.	0.010	uq/l	94	91	74-109	3	30
Benzo(a)pyrene	N.D.	0.010	uq/l	103	95	67-107	8	30
Benzo(b) fluoranthene	N.D.	0.0080	uq/l	97	95	76-110	3	30
Benzo(q,h,i)pervlene	N.D.	0.060	uq/l	100	99	62-117	1	30
Benzo(k)fluoranthene	N.D.	0.0080	uq/l	98	97	77-109	2	30
Chrysene	N.D.	0.060	uq/1	95	92	74-111	3	30
Dibenz(a, h) anthracene	N.D.	0.020	ug/1	96	96	75-109	1	30
Fluoranthene	N.D.	0.020	ug/1	91	87	68-103	5	30
Fluorene	N D	0 10	ug/1	94	89	67-107	6	30
Indeno(1, 2, 3-cd) pyrene	ND.	0 040	ug/1	108	106	81-122	2	30
Naphthalene	ND.	1 0	ug/1	79	74	57-95	7	30
Dhenanthrene	N.D.	0.040	ug/1	96	92	71_108	5	30
Durene	N.D.	0.040	ug/1	96	92	71-108	1	30
ryrene	N.D.	0.10	ug/ i	20	52	70 100	т	50
Batch number: 09265WAE026	Sample nu	mber(s): 57	79000					
Acenaphthene	N.D.	0.50	ug/l	91	84	61-102	8	30
Acenaphthylene	N.D.	1.0	ug/l	87	82	61-99	6	30
Anthracene	N.D.	0.020	ug/l	91	87	69-103	4	30
Benzo(a) anthracene	N.D.	0.010	ug/l	95	92	74-109	4	30
Benzo(a)pyrene	N.D.	0.010	ug/l	97	94	67-107	3	30
Benzo(b)fluoranthene	N.D.	0.0080	ug/l	98	95	76-110	3	30
Benzo(g,h,i)perylene	N.D.	0.060	ug/l	99	99	62-117	0	30
Benzo(k)fluoranthene	N.D.	0.0080	ug/l	100	98	77-109	2	30
Chrysene	N.D.	0.060	uq/l	98	95	74-111	3	30
Dibenz (a, h) anthracene	N.D.	0.020	uq/l	97	96	75-109	0	30
Fluoranthene	N.D.	0.020	ug/l	94	89	68-103	6	30
Fluorene	N.D.	0.10	uq/l	98	92	67-107	6	30
Indeno(1,2,3-cd)pyrene	N.D.	0.040	uq/l	106	106	81-122	0	30
Naphthalene	N.D.	1.0	uq/l	83	78	57-95	7	30
Phenanthrene	N.D.	0.040	uq/1	101	95	71-108	6	30
Pyrene	N.D.	0.10	ug/l	100	96	70-108	4	30
- 1			57					
Batch number: 09264B94A	Sample nu	mber(s): 57	78995-577	9006				
Benzene	N.D.	0.2	ug/l	110	105	80-120	5	30
Ethylbenzene	N.D.	0.2	ug/l	110	105	80-120	5	30
Toluene	N.D.	0.2	ug/l	110	105	80-120	5	30
Total Xylenes	N.D.	0.6	ug/l	110	107	80-120	3	30
Batch number, 09265A94A	Sample nu	mber(s) · 57	79007-577	9011				
Benzene	N D	0 2	10g/1	95	100	80-120	5	30
Fthylbenzene	N D	0.2	$\frac{ug}{1}$	95	100	80-120	5	30
Toluene	N D	0.2	ug/1	95	100	80-120	5	30
Total Yulened	M D.	0.2	ug/1	99	103	80-120	5	30
TOCAT WATCHED	IN . D .	0.0	ug/ I	20	TUD	00-TZ0	5	50

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.





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### Quality Control Summary

Client Name: Tronox LLC Reported: 09/29/09 at 01:44 PM Group Number: 1162266

### Laboratory Compliance Quality Control

	Blank	Blank	Report	LCS	LCSD	LCS/LCSD		
<u>Analysis Name</u>	<u>Result</u>	MDL	Units	%REC	%REC	<u>Limits</u>	<u>RPD</u>	<u>RPD Max</u>

### Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	MS <u>%REC</u>	MSD <u>%REC</u>	MS/MSD <u>Limits</u>	<u>RPD</u>	RPD <u>MAX</u>	BKG <u>Conc</u>	DUP <u>Conc</u>	DUP <u>RPD</u>	Dup RPD <u>Max</u>
Batch number: 09260WAM026	Sample	number(s)	: 5778995	5-57789	99,5779	9001-577901	0 UNSPK:	5779007	
Acenaphthene	78	86	67-99	9	30				
Acenaphthylene	76	84	66-97	10	30				
Anthracene	88	93	74-101	6	30				
Benzo(a)anthracene	93	98	78-106	5	30				
Benzo(a)pyrene	98	101	77-102	4	30				
Benzo(b)fluoranthene	97	101	79-108	4	30				
Benzo(g,h,i)perylene	101	103	68-116	3	30				
Benzo(k)fluoranthene	99	103	81-105	4	30				
Chrysene	94	98	78-108	4	30				
Dibenz(a,h)anthracene	97	101	75-104	4	30				
Fluoranthene	87	93	75-96	7	30				
Fluorene	88	96	73-103	8	30				
Indeno(1,2,3-cd)pyrene	108*	112*	78-106	4	30				
Naphthalene	71	79	61-94	11	30				
Phenanthrene	92	99	66-115	7	30				
Pyrene	93	99	73-105	6	30				
Batch number: 09264B94A	Sample	number(s)	: 5778995	5-57790	06 UNSI	PK: 5778995			
Benzene	110		70-152						
Ethylbenzene	110		75-133						
Toluene	104		78-129						
Total Xylenes	112		67-155						
Batch number: 09265A94A	Sample	number(s)	: 5779007	7-57790	11 UNSE	PK: 5779007			
Benzene	115	115	70-152	0	30				
Ethylbenzene	115	115	75-133	0	30				
Toluene	119	114	78-129	4	30				
Total Xylenes	118	115	67-155	3	30				

### Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Nam Batch number	e: PAH's in Water by HPLC : 09260WAM026 Nitrobenzene	Triphenylene
5778995	112*	116
5778996	99	102

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.



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### Quality Control Summary

Client	Nan	ne:	Tronoz	c LI	C	
Reporte	ed:	09,	/29/09	at	01:44	ΡM

Group Number: 1162266

		Surrogate Quality Contro	1
5778997	93	103	
5778998	97	102	
5778999	102	108	
5779001	109	112	
5779002	97	104	
5779003	107	111	
5779004	107	111	
5779005	106	111	
5779006	102	107	
5779007	100	104	
5779008	105	108	
5779009	113*	113	
5779010	102	104	
Blank	96	107	
LCS	112*	111	
LCSD	106	105	
MS	105	108	
MSD	113*	113	
Limits:	67-111	77-122	

Limits: 67-111

Analysis Name: PAH's in Water by HPLC Batch number: 09265WAE026 Nitrobenzene

	Nitrobenzene	Triphenylene	
5779000	97	100	
Blank	103	104	
LCS	107	110	
LCSD	105	104	
Limits:	67-111	77-122	

Analysis Name: BTEX (8021) Batch number: 09264B94A Trifluorotoluene-P

5778995	97				
5778996	97				
5778997	96				
5778998	96				
5778999	97				
5779000	96				
5779001	96				
5779002	96				
5779003	97				
5779004	96				
5779005	96				
5779006	96				
Blank	96				
LCS	96				
LCSD	96				
MS	95				

Limits: 69-129

Analysis Name: BTEX (8021) Batch number: 09265A94A Trifluorotoluene-P

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.





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### Quality Control Summary

Client Name: Tronox LLC Reported: 09/29/09 at 01:44 PM Group Number: 1162266

Surrogate Quality Control

5779007 96	
5779010 96	
5779011 96	
Blank 96	
LCS 96	
LCSD 96	
MS 95	
MSD 96	
Limits: 69	9-129

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

	Cant# 119	747	(	Grou	D#1163	1266	2	Sa	mol	1#57	78995	-11	
COC ID: Client	091601-2 Kerr McGee			CI	hain of Custo	ody R	ecor	ď	,	WEST		Page 1 o	f1
Site Name	Moss American	Co	ntact Na	ime To	om Graan								
W. O.	02687.007.007.0001	Co	ntact Ph	one No 84	17-918-4142	8021	8021	831					
Tab		E.C. Kal	h Contro	• • •	SWEIGADT	B-B	B-B	0-P/					
TAT	CANONO I EN DADO	Lai Lai		, <u>v</u>		(TE)	CELL	SHI					
IAI		La	o Paone	Ĺ	17-030-2306 X 1327	^	^						
					Filtered	10ml_Gless Vie	ml.Glass Vi	mī ámher					
					Preservative	HCI	N/A	N/A					
Lab ID	Sample ID	Matrix	PID	MS/MSD	Date-Time Collected								
	MA3-FB-091609-10	w		N	9/16/2009 18:25	2							
	MA3-MW27S-091609-3	w	+	N	9/16/2009 11:05	2			+	·····			
· · · · · · · · · · · · · · · · · · ·	MA3-MW31S-091609-6	W		N N	9/16/2009 13:10	3							
	MA3-MW32S-091609-1	W		N	9/16/2009 09:15	3							un
10900000000000000000000000000000000000	MA3-MW32S-091609-1-DP	w		N	9/16/2009 09:15	3		····	•				*** <b>-</b>
	MA3-MW38S-091509-2	w	<u>+</u>	N	9/15/2009 19:25	3		2					· · · ·
	MA3-MW5S-091609-9	w		N	9/16/2009 17:09	3						-	
	MA3-MWF-091609-8	W		N	9/16/2009 17:43	3					· · · · · · · · · · · · · · · · · · ·	The second s	
	MA3-MWF-091609-8-DP	w		N	9/16/2009 17:43	3							
	MA3-MWG-091609-7	W		N	9/16/2009 15:35	3							
	MA3-MWH-091609-5	W		N	9/16/2009 12:23	3						· -···	
	MA3-MWI-091609-4	W		N	9/16/2009 10:58	3							
	MA3-MWJ-091609-2	W		Y	9/16/2009 09:31	9							
	MA3-MWK-091509-1	W		N	9/15/2009 17:03	3							
····	MA3-TB-091509-3	W		N	9/15/2009 19:25		2				····		Line - w., weight
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Dama L. /C													
Remarks/Co	mments		Lab U Temp of 1 2	se Only f Cooler whe 2 3	co n Received, C COC 4 5	C Tape was pre Tape was unbro COC Tape - COC Tape was	sent on outer ken on outer ws present o unbroken or	r package r package in sample N n sample Y	YN YN YN	Received in Labels indicate Pro Received within	good condition Y N perly Preserved Y N holding Time Y N		
Sampled	Bv		Relinqui	shed By UNG 6	Date / Time Received E	By D	late / Time		Refinquished By	Date / Time	Received By	Date / Time	
											ByAn	511105	915

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COC ID:	091601-3		CI	hain of Custo	dy Rec	ord		WIST		Dage 1 of 1
Client	Kerr McGee		-		-					rage 1 01 1
Site Name	Moss American	Contact N	ame <u>To</u>	om Graan	8					
W. O.	02687,007.007.0001	Contact P	hone No. <u>84</u>	04/5-918-4142	10-P	:				
Lab	LANCASTER LABS	Lab Conta	ict <u>C</u>	- SWEIGART	AHS					
IAT		Lab Phone	e <u>1</u>	Filtered						
				Container	0mL Amber G					
				Preservative	N/A					
ab ID	Sample ID	Matrix PID	MS/MSD	Date-Time Collected						
	MA3-MW27S-091609-3	W	N	9/16/2009 11:05	2					
	MA3-MW31S-091609-6	W	N	9/16/2009 13:10	2					
······	MA3-MW32S-091609-1	W		9/16/2009 09:15	2					
	MA3-MWG-091609-7	W	N	9/16/2009 15:35	2		_			
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Remarks/C	omments	Lab Temp	Use Only of Cooler wh 2 3	conten Received, C COC	OC Tape was present Tape was unbroken COC Tape ws p COC Tape was unb	on outer package on outer package resent on sample roken on sample	YN YN YN YN	Received ir Labels indicate Pro Received withi	a good condition Y N operly Preserved Y N n Holding Time Y N	
		Relin	anished By	Date / Time Received	By Date	Time	Relinquished By	Date / Time	Received By	Date / Time
	Kn. in	the law	luardo	1945 9/1409					<u>+</u>	
Sample	d By further	Vuo V.				$\rightarrow$				
-	<u>\</u> †					1			his	still) 105 GIS

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OC ID:	091609-1			Ch	ain of Cústo	idy R	ecort	1	1	WEI	n	Page 1 of 1
ient te Name 7. O. ab AT	Kerr McGee Moss American 02687.007.007.0001 LANCASTER LABS	Contac Contac Lab Co Lab Pi	et Name et Phone No ontact none	<u>Ton</u> 847 <u>C. S</u> 717	n Graan 7-918-4142 SWEIGART 7-656-2308 X1527	8310-PAHS						
		• • • •		· :	Filtered Container Preservative	10ml. Amber ( N/A	3			;		
ab ID	Sample ID	Matrix	PID MS/I	MSD	Date-Time Collected						-	
	MA3-MWH-091609-5	w		N	9/16/2009 12:23	2	<u> </u>			·······	· · · · · · · · · · · · · · · · · · ·	
	MA3-MWI-091609-4	<u>w</u> +		N	9/16/2009 10:58	2			+			
	MA3-MWJ-091609-2			Y	9/10/2009 09.51	· · ·	+					
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Remarks	s/Comments .	 	Lab Use O Temp of Cox 1 2	oler wh	c en Received, C COA 4 5	OC Tape was C Tape was un COC Ta COC Tape v	present on outer broken on outer p pe ws present on vas unbroken on	package package sample sample	YN YN YN YN YN	Received in Labels indicate Prop Received within	good condition Y N berly Preserved Y N Holding Time Y N	
		ŀ			Posts (Time Dessined	By	Date / Time		Religouished By	Date / Time	Received Bu	Date / Time
		-	Relinquished I	ыу	March Hime Received	yee,					Intrared by	Liang / Link
	K. ils	olds k	Milde	<u>ک</u>	1945 716/07	$\searrow$						
Sam	pled By UM W	nao f	*				<u> </u>					
		· · ·		-						$\searrow$	DJD-	9117109 915

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COC ID: Client	091609-4 Kerr McGee			CI	hain of Cust	ody Re	cord		W	<b>JON</b>		Page 1 o	f1
Site Name W. O. Lab TAT	<u>Moss American</u> 02687.007.007.0001 LANCASTER LABS	Co Co La La	ontact Name ontact Phon b Contact b Phone	e <u>Tr</u> e No. <u>84</u> <u>C.</u> 71	om Graan 17-918-4142 . <u>SWEIGART</u> 17-656-2308 X1527 Filtered Container	8310-PAHS OmLAmber G							
Lab ID	Sample ID	Matrix	PID N	AS/MSD	Date-Time Collected								
	MA3-FB-091609-10	w		N	9/16/2009 18:25	2							
······································	MA3-MW5S-091609-9	W		N	9/16/2009 17:09	2						++	
<u> </u>	MA3-MWF-091609-8	W	<u>+</u>	N	9/16/2009 17:43	2						+	
	MA3-MWF-091609-8-DP	W	<u>+</u> +	N	9/16/2009 17:43	2	<u>-</u>			····			
	MA3-MWK-091509-1	W		N	9/15/2009 17:03	2				·····			
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G11181 <b>KS</b> /€0	minicitus	· · ·	Lab Use Temp of Co 1 2	Only ooler when 3	cc n Received, C coc 4 5	C Tape was present Tape was unbroken COC Tape ws p COC Tape was unb:	on outer packa on outer packa resent on samp oken on sampl	ge Y N ge Y N le Y N e Y N	Rec Labels indi Receive	ceived in good condition cate Property Preserve ed within Holding Tim	on Y N ed Y N ee Y N		
			Relinquished LiWle W	iby 1 Udu 1	Date / Time Received F 945 9/16/09	By Date /	Time	Relinquished By	Date / T	ime Recei	ived By	Date / Time	
Sampled	Ву	$\vee$	1		/ /								

- N



## Environmental Sample Administration Receipt Documentation Log

Client/Project: Kerr Miller	_ Shipping Container Sealed: (ES)	NO
Date of Receipt:	- Custody Seal Present * : (YES)	NO
Time of Receipt: <u>915</u>		tod in the
Source Code: <u>50-</u>	discrepancy section	
Unpacker Emp. No.: 2316	Package: Chilled	Not Chilled

	Temperature of Shipping Containers								
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	lce Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments		
1	0427975	4,5°<	TB	ωī	4	B			
2		2.5%			(	1 .			
3		3,100							
4	4	4,000	4	+	ł	ł			
5									
6									

Number of Trip Blanks received NOT listed on chain of custody: _

Ó

Paperwork Discrepancy/Unpacking Problems:

Sample Administration Internal Chain of Custody								
Ņame	Date	Time	Reason for Transfer					
Hann Spelach	9117109	1140	Unpacking					
May Boon Reed	9/17/09	1316	Place in Storage or Epity					
			Entry					
			Entry					

### Lancaster Laboratories Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	BMQL	Below Minimum Quantitation Level
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
С	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	I	liter(s)
mĪ	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml

 less than – The number following the sign is the <u>limit of quantitation</u>, the smallest amount of analyte which can be reliably determined using this specific test.

- > greater than
- ppm parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.
- ppb parts per billion

**Dry weight basis** Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

### **Organic Qualifiers**

- **A** TIC is a possible aldol-condensation product
- **B** Analyte was also detected in the blank
- C Pesticide result confirmed by GC/MS
- **D** Compound quatitated on a diluted sample
- E Concentration exceeds the calibration range of the instrument
- J Estimated value
- **N** Presumptive evidence of a compound (TICs only)
- **P** Concentration difference between primary and confirmation columns >25%
- **U** Compound was not detected
- **X,Y,Z** Defined in case narrative

### **Inorganic Qualifiers**

- B Value is <CRDL, but ≥IDL
- **E** Estimated due to interference
- **M** Duplicate injection precision not met
- **N** Spike amount not within control limits
- S Method of standard additions (MSA) used for calculation
- U Compound was not detected
- W Post digestion spike out of control limits
- * Duplicate analysis not within control limits
- + Correlation coefficient for MSA < 0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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### ANALYTICAL RESULTS

Prepared for:

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

405-775-5429

Prepared by:

Lancaster Laboratories 2425 New Holland Pike Lancaster, PA 17605-2425

September 26, 2009

### SAMPLE GROUP

The sample group for this submittal is 1162417. Samples arrived at the laboratory on Friday, September 18, 2009. The PO# for this group is ZAKW1KEOK0A90089.

Client Description	Lancaster Labs Number
MA3-FB-091709-16 Groundwater	5780039
MA3-MW34S-091709-14 Groundwater	5780040
MA3-MW7S-091709-13 Groundwater	5780041
MA3-MW7S-091709-13-DP Groundwater	5780042
MA3-TB-091709-2 Groundwater	5780043
MA3-TG1-1-091709-8 Groundwater	5780044
MA3-TG1-3-091709-9 Groundwater	5780045
MA3-TG2-1-091709-15 Groundwater	5780046
MA3-TG2-3-091709-12 Groundwater	5780047
MA3-TG3-1-091709-10 Groundwater	5780048
MA3-TG3-3-091709-11 Groundwater	5780049
MA3-TG4-1-091709-6 Groundwater	5780050
MA3-TG4-3-091709-7 Groundwater	5780051
MA3-TG5-1-091709-3 Groundwater	5780052
MA3-TG5-3-091709-4 Groundwater	5780053
MA3-TG6-1-091709-5 Groundwater	5780054
MA3-TG6-3-091709-1 Groundwater	5780055

### **METHODOLOGY**

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.





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Tronox LLC
Weston Solutions, Inc.
Tronox LLC
Tronox LLC
Weston Solutions
Data Package Group

Attn: Keith Watson Attn: Tom Graan Attn: Sherron Hendricks Attn: Roy Widmann Attn: Andris Slesers

Questions? Contact your Client Services Representative Katherine A Klinefelter at (717) 656-2300

Respectfully Submitted,

Chad Moline

Chad A. Moline Group Leader



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Lancaster Laboratories Sample No. WW 5780039	Group No. 1162417 WI
MA3-FB-091709-16 Groundwater 091709-7,8 02687.007.007.0001 Moss American	
Collected: 09/17/2009 17:30	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MA3F- SDG#: KMA99-01FB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.51	1
00774	Acenaphthylene	208-96-8	N.D.	1.0	1
00774	Anthracene	120-12-7	N.D.	0.020	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0082	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.061	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0082	1
00774	Chrysene	218-01-9	N.D.	0.061	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.020	1
00774	Fluoranthene	206-44-0	N.D.	0.020	1
00774	Fluorene	86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	N.D.	1.0	1
00774	Phenanthrene	85-01-8	N.D.	0.041	1
00774	Pyrene	129-00-0	N.D.	0.10	1
GC Vo	latiles SW-846	8021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/23/2009 12:	19 Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009 07:	45 Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/23/2009 20:	13 Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/23/2009 20:	13 Marie D John	1



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Lancaster Laboratories Sample No. WW 5780040	Group No. 1162417 WI
MA3-MW34S-091709-14 Groundwater 091709-7,8 02687.007.007.0001 Moss American	
Collected: 09/17/2009 15:58	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MA334 SDG#: KMA99-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	3,800	10	20
00774	Acenaphthylene	208-96-8	310	21	20
00774	Anthracene	120-12-7	1,100	8.3	400
00774	Benzo(a)anthracene	56-55-3	660	4.1	400
00774	Benzo(a)pyrene	50-32-8	240	4.1	400
00774	Benzo(b)fluoranthene	205-99-2	240	3.3	400
00774	Benzo(g,h,i)perylene	191-24-2	140	1.2	20
00774	Benzo(k)fluoranthene	207-08-9	130	3.3	400
00774	Chrysene	218-01-9	580	25	400
00774	Dibenz(a,h)anthracene	53-70-3	25	0.41	20
00774	Fluoranthene	206-44-0	4,000	21	1000
00774	Fluorene	86-73-7	3,600	41	400
00774	Indeno(1,2,3-cd)pyrene	193-39-5	100	0.83	20
00774	Naphthalene	91-20-3	18,000	410	400
00774	Phenanthrene	85-01-8	9,700	41	1000
00774	Pyrene	129-00-0	3,300	41	400
The	surrogate data is outside the	QC limits due to	unresolvable matrix		

problems evident in the sample chromatogram.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

GC Vo	latiles	SW-846 8021B	ug/l	ug/l	
08213	Benzene	71-43-2	7.4	0.2	1
08213	Ethylbenzene	100-41-4	29	0.2	1
08213	Toluene	108-88-3	1.2	0.2	1
08213	Total Xylenes	1330-20-7	58	0.6	1

### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis 1	Name	Method	Т	rial#	Batch#	Analysis Date and Ti	me	Analyst	Dilution Factor
00774	PAH's in	Water by HPLC	SW-846 8	3310	1	09261WAE026	09/23/2009	22:47	Mark A Clark	20
00774	PAH's in	Water by HPLC	SW-846 8	3310	1	09261WAE026	09/24/2009	23:37	Mark A Clark	400
00774	PAH's in	Water by HPLC	SW-846 8	3310	1	09261WAE026	09/25/2009	01:54	Mark A Clark	1000
03337	PAH Water	Extraction	SW-846 3	3510C	1	09261WAE026	09/19/2009	07:45	Cynthia J Salvatori	1
08213 01146	BTEX (802 GC VOA Wa	1) ter Prep	SW-846 8 SW-846 5	3021B 5030B	1 1	09265A94A 09265A94A	09/23/2009 09/23/2009	21:59 21:59	Marie D John Marie D John	1 1



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Lancaster Laboratories Sample No. WW 5780041	Group No. 1162417 WI
MA3-MW7S-091709-13 Groundwater 091709-7,8 02687.007.007.0001 Moss American	
Collected: 09/17/2009 15:52	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MA37S SDG#: KMA99-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	5.3	0.51	1
00774	Acenaphthylene	208-96-8	N.D.	3.9	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0082	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.062	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0082	1
00774	Chrysene	218-01-9	N.D.	0.062	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	0.99	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	4.2	1.0	1
00774	Phenanthrene	85-01-8	0.075 J	0.041	1
00774	Pyrene	129-00-0	N.D.	0.10	1
Due repo limi	to the presence of an interfe rting limit was not attained t for this compound was raise	rent near its rete for acenaphthylene d accordingly.	ntion time, the normal . The reporting		
GC Vo	latiles SW-846	8021B	ug/l	ug/l	
08213	Benzene	71-43-2	0.8 J	0.2	1
08213	Ethylbenzene	100-41-4	0.9 J	0.2	1
08213	Toluene	108-88-3	1.4	0.2	1
08213	Total Xylenes	1330-20-7	1.3 J	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/23/2009 12	:58 Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009 07	':45 Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/23/2009 22	2:25 Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/23/2009 22	2:25 Marie D John	1



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Lancaster Laboratories Sample No. WW 5780042	Group No. 1162417 WI
MA3-MW7S-091709-13-DP Groundwater 091709-7,8 02687.007.007.0001 Moss American	
Collected: 09/17/2009 15:52	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MA7SD SDG#: KMA99-04FD

CAT No.	Analysis Name	CAS Number	As Received Result	AS Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 8	310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	5.1	0.51	1
00774	Acenaphthylene	208-96-8	N.D.	3.5	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0082	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.062	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0082	1
00774	Chrysene	218-01-9	N.D.	0.062	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	0.96	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	3.8	1.0	1
00774	Phenanthrene	85-01-8	0.065 J	0.041	1
00774	Pyrene	129-00-0	N.D.	0.10	1
Due repo limi	to the presence of an interferer rting limit was not attained for t for this compound was raised a	nt near its rete acenaphthylene accordingly.	ntion time, the normal . The reporting		
GC Vo	latiles SW-846 8	021B	ug/l	ug/l	
08213	Benzene	71-43-2	0.8 J	0.2	1
08213	Ethylbenzene	100-41-4	1.3	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	1.5 J	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	e	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/23/2009	13:37	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009	07:45	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/23/2009	22:52	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/23/2009	22:52	Marie D John	1


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Lancaster Laboratories Sample No. WW 5780043	Group No. 1162417 WI
MA3-TB-091709-2 Groundwater 091709-7 02687.007.007.0001 Moss American	
Collected: 09/17/2009 09:05	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

SDG#: KMA99-05TB MA3T-

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC Vol	latiles	SW-846 80	21B	ug/l	ug/l	
08213	Benzene		71-43-2	N.D.	0.2	1
08213	Ethylbenzene		100-41-4	N.D.	0.2	1
08213	Toluene		108-88-3	N.D.	0.2	1
08213	Total Xylenes		1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/23/2009 20:40	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/23/2009 20:40	Marie D John	1



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Lancaster Laboratories Sample No. WW 5780044	Group No. 1162417 WI
MA3-TG1-1-091709-8 Groundwater 091709-7,5 02687.007.007.0001 Moss American	
Collected: 09/17/2009 12:02	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

SDG#: KMA99-06 MAG11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	7,700	210	400
00774	Acenaphthylene	208-96-8	430	21	20
00774	Anthracene	120-12-7	1,800	8.3	400
00774	Benzo(a)anthracene	56-55-3	1,200	4.1	400
00774	Benzo(a)pyrene	50-32-8	450	4.1	400
00774	Benzo(b)fluoranthene	205-99-2	440	3.3	400
00774	Benzo(g,h,i)perylene	191-24-2	280	1.2	20
00774	Benzo(k)fluoranthene	207-08-9	240	3.3	400
00774	Chrysene	218-01-9	950	25	400
00774	Dibenz(a,h)anthracene	53-70-3	45	0.41	20
00774	Fluoranthene	206-44-0	6,700	41	2000
00774	Fluorene	86-73-7	6,400	41	400
00774	Indeno(1,2,3-cd)pyrene	193-39-5	200	0.83	20
00774	Naphthalene	91-20-3	13,000	410	400
00774	Phenanthrene	85-01-8	15,000	83	2000
00774	Pyrene	129-00-0	5,300	41	400
The	surrogate data is outside the	OC limits due to	unresolvable matrix		

problems evident in the sample chromatogram.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

GC Vol	atiles	SW-846	8021B	ug/l	ug/l	
08213 08213	Benzene Ethylbenzene		71-43-2 100-41-4	0.2 J 27	0.2 0.2	1 1
08213	Toluene		108-88-3	1.3	0.2	1
08213	Total Xylenes		1330-20-7	49	0.6	1
Wet Ch	emistry	EPA 351	2	mg/l	mg/l	
00217	Kjeldahl Nitrogen		n.a.	1.4	0.50	1
		EPA 353	.2	mg/l	mg/l	
00220	Nitrate Nitrogen		14797-55-8	N.D.	4.0	100
	The reporting limit interference.	(s) for th	ne analyte(s) above	was raised due to matrix		
00219	Nitrite Nitrogen		14797-65-0	N.D.	0.015	1
		EPA 365	.1	mg/l	mg/l	
00345	Total Phosphorus as	PO4 wate	er 14265-44-2	13.0	1.2	5
		EPA 415	.1	mg/l	mg/l	
00273	Total Organic Carbo	n	n.a.	11.1	0.50	1
		EPA 350	. 2	mg/l	mg/l	
00221	Ammonia Nitrogen	••••	7664-41-7	N.D.	0.20	1



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Lancaster Laboratories Sample No. WW 5780044	Group No. 1162417 WI
MA3-TG1-1-091709-8 Groundwater 091709-7,5 02687.007.007.0001 Moss American	
Collected: 09/17/2009 12:02	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG11 SDG#: KMA99-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet Ch	emistry EPA 365.3		mg/l	mg/l	
00226	Ortho-Phosphate as P	7723-14-0	N.D.	0.010	1
	EPA 405.1		mg/l	mg/l	
00235	Biochemical Oxygen Demand	n.a.	15.5	0.80	1
	EPA 410.2		mg/l	mg/l	
01553	Chemical Oxygen Demand	n.a.	294	13.0	5

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

~~ ~	And Incode Mana	<b>M</b> - + h - A	m	D-+	••••••••		3	Dilustra.
No.	Analysis Name	Method	Trial#	Batcn#	Date and Ti	me	Analyst	Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/24/2009	00:12	Mark A Clark	20
00774	PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/25/2009	00:23	Mark A Clark	400
00774	PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/25/2009	03:19	Mark A Clark	2000
03337	PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009	07:45	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/23/2009	23:18	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/23/2009	23:18	Marie D John	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	09266108101A	09/25/2009	09:35	K. Robert Caulfeild-James	1
00220	Nitrate Nitrogen	EPA 353.2	1	09264106101B	09/21/2009	11:14	K. Robert Caulfeild-James	100
00219	Nitrite Nitrogen	EPA 353.2	1	09261105102A	09/18/2009	16:21	Venia B McFadden	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	09267110101A	09/24/2009	20:00	Joseph E McKenzie	5
00273	Total Organic Carbon	EPA 415.1	1	09265049501A	09/22/2009	01:16	James S Mathiot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	09266108101A	09/23/2009	10:50	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	09267110101A	09/24/2009	10:10	Nancy J Shoop	1
00221	Ammonia Nitrogen	EPA 350.2	1	09267022101A	09/24/2009	18:00	Luz M Groff	1
00226	Ortho-Phosphate as P	EPA 365.3	1	09262022601A	09/19/2009	08:30	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	09261023502A	09/18/2009	13:09	Hannah M Royer	1
01553	Chemical Oxygen Demand	EPA 410.2	2	09265155301A	09/22/2009	07:50	Susan A Engle	5



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Lancaster Laboratories Sample No. WW 5780045	Group No. 1162417 WI
MA3-TG1-3-091709-9 Groundwater 091709-7,5 02687.007.007.0001 Moss American	
Collected: 09/17/2009 12:09	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG13 SDG#: KMA99-07

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846	8310	ug/l	ug/l	
00774	Acenaphthene		83-32-9	2.9	0.53	1
00774	Acenaphthylene		208-96-8	N.D.	1.1	1
00774	Anthracene		120-12-7	0.16	0.021	1
00774	Benzo(a)anthracene		56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene		50-32-8	N.D.	0.011	1
00774	Benzo(b) fluoranthen	Э	205-99-2	N.D.	0.0085	1
00774	Benzo(q,h,i)perylen	Э	191-24-2	N.D.	0.064	1
00774	Benzo(k) fluoranthen	Э	207-08-9	N.D.	0.0085	1
00774	Chrysene		218-01-9	N.D.	0.064	1
00774	Dibenz(a,h)anthrace	ne	53-70-3	N.D.	0.021	1
00774	Fluoranthene		206-44-0	0.25	0.021	1
00774	Fluorene		86-73-7	1.6	0.11	1
00774	Indeno(1,2,3-cd)pyre	ene	193-39-5	N.D.	0.043	1
00774	Naphthalene		91-20-3	N.D.	1.1	1
00774	Phenanthrene		85-01-8	0.59	0.043	1
00774	Pvrene		129-00-0	0.18 J	0.11	1
Due d analy	to the nature of the ysis. The reporting	sample ma limits we	atrix, a reduced a ere raised accordi	liquot was used for ngly.		
GC Vol	latiles	SW-846	8021B	ug/l	ug/l	
08213	Benzene		71-43-2	N.D.	0.2	1
08213	Ethylbenzene		100-41-4	N.D.	0.2	1
08213	Toluene		108-88-3	1.4	0.2	1
08213	Total Xylenes		1330-20-7	N.D.	0.6	1
Wet Ch	nemistry	EPA 353	L.2	mg/l	mg/l	
00217	Kjeldahl Nitrogen		n.a.	1.9	0.50	1
		EPA 353	3.2	mg/l	mg/l	
00220	Nitrate Nitrogen		14797-55-8	ND	0.20	5
00220	The reporting limit	(s) for t	he analyte(s) abov	ve was raised due to	matrix	5
00219	Nitrite Nitrogen		14797-65-0	N.D.	0.015	1
		EPA 365	5.1	mg/l	mg/l	
00345	Total Phosphorus as	PO4 wat	er 14265-44-2	N.D.	0.25	1
		EPA 415	5.1	mg/l	mg/l	
00273	Total Organic Carbo	n	n.a.	11.2	0.50	1
		EPA 350	0.2	mg/l	mg/l	
00221	Ammonia Nitrogen		7664-41-7	0.50 J	0.20	1
		EPA 365	5.3	mg/l	mg/l	
00226	Ortho-Phosphate as	P	7723-14-0	N.D.	0.010	1



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Lancaster Laboratories Sample No. WW 5780045	Group No. 1162417 WI
MA3-TG1-3-091709-9 Groundwater 091709-7,5 02687.007.007.0001 Moss American	
Collected: 09/17/2009 12:09	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG13 SDG#: KMA99-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet C 00235	hemistry EPA 405.1 Biochemical Oxygen Demand	n.a.	<b>mg/l</b> 13.3	<b>mg/1</b> 0.80	1
01553	EPA 410.2 Chemical Oxygen Demand	n.a.	<b>mg/l</b> 28.0	<b>mg/1</b> 2.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	ne	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/23/2009	14:16	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009	07:45	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/23/2009	23:45	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/23/2009	23:45	Marie D John	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	09266108101A	09/25/2009	09:36	K. Robert Caulfeild-James	1
00220	Nitrate Nitrogen	EPA 353.2	1	09264106101B	09/21/2009	11:15	K. Robert Caulfeild-James	5
00219	Nitrite Nitrogen	EPA 353.2	1	09261105102A	09/18/2009	16:22	Venia B McFadden	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	09267110101A	09/24/2009	20:01	Joseph E McKenzie	1
00273	Total Organic Carbon	EPA 415.1	1	09265049501A	09/22/2009	01:37	James S Mathiot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	09266108101A	09/23/2009	10:50	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	09267110101A	09/24/2009	10:10	Nancy J Shoop	1
00221	Ammonia Nitrogen	EPA 350.2	1	09267022101A	09/24/2009	18:00	Luz M Groff	1
00226	Ortho-Phosphate as P	EPA 365.3	1	09262022601A	09/19/2009	08:30	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	09261023502A	09/18/2009	13:09	Hannah M Royer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	09265155301A	09/22/2009	07:50	Susan A Engle	1



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### Lancaster Laboratories Sample No. WW 5780046 MA3-TG2-1-091709-15 Groundwater 091709-7,6 02687.007.007.0001 Moss American Collected: 09/17/2009 16:55 Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009 Oklahoma City OK 73126-8859

MAG21 SDG#: KMA99-08

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846	8310	ug/l	ug/l	
00774	Acenaphthene		83-32-9	N.D.	0.51	1
00774	Acenaphthylene		208-96-8	N.D.	1.0	1
00774	Anthracene		120-12-7	0.029 J	0.020	1
00774	Benzo(a)anthracene		56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene		50-32-8	N.D.	0.010	1
00774	Benzo(b) fluoranthen	e	205-99-2	0.011 J	0.0081	1
00774	Benzo(q,h,i)perylen	e	191-24-2	N.D.	0.061	1
00774	Benzo(k) fluoranthen	e	207-08-9	0.010 J	0.0081	1
00774	Chrysene		218-01-9	N.D.	0.061	1
00774	Dibenz(a,h)anthrace	ne	53-70-3	N.D.	0.020	1
00774	Fluoranthene		206-44-0	0.038 J	0.020	1
00774	Fluorene		86-73-7	0.13 J	0.10	1
00774	Indeno(1,2,3-cd)pyre	ene	193-39-5	N.D.	0.041	1
00774	Naphthalene		91-20-3	N.D.	1.0	1
00774	Phenanthrene		85-01-8	0.21	0.041	1
00774	Pvrene		129-00-0	N.D.	0.10	1
						_
GC Vol	latiles	SW-846	8021B	ug/l	ug/l	
08213	Benzene		71-43-2	N.D.	0.2	1
08213	Ethylbenzene		100-41-4	N.D.	0.2	1
08213	Toluene		108-88-3	N.D.	0.2	1
08213	Total Xylenes		1330-20-7	N.D.	0.6	1
					(1	
Wet Cr	nemistry	EPA 351	1.2	mg/1	mg/1	
00217	Kjeldani Nitrogen		n.a.	N.D.	0.50	Ţ
		EPA 353	3.2	mg/l	mg/l	
00220	Nitrate Nitrogen		14797-55-8	ND	0 040	1
00220	Nitrite Nitrogen		14797-65-0	N D	0.015	1
00219	Nicilice Niciogen		14/5/ 05 0	N.D.	0.015	±
		EPA 365	5.1	mg/l	mg/l	
00345	Total Phosphorus as	PO4 wat	er 14265-44-2	N.D.	0.25	1
				-	/-	
		EPA 415	5.1	mg/l	mg/l	
00273	Total Organic Carbo	n	n.a.	2.2	0.50	1
		<b>EDX 35</b> (	1 2	mg/1	mg/1	
00001		EFA 550				-
00221	Ammonia Nitrogen		7664-41-7	N.D.	0.20	Ţ
		EPA 365	5.3	mg/l	mg/l	
00226	Ortho-Phosphate as	P 2 4	7723-14-0	N.D.	0.010	1
						-
		EPA 405	5.1	mg/l	mg/l	
00235	Biochemical Oxygen	Demand	n.a.	N.D.	3.2	1
	10					



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Lancaster Laboratories Sample No. N	WW 5780046	Group No. 1162417 WI
MA3-TG2-1-091709-15 Groundwater 091709-7,6 02687.007.007.0001 Moss American		
Collected: 09/17/2009 16:55		Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009		Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG21 SDG#: KMA99-08

CAT No.	Analysis Name			CAS Number	As Rec Result	eived	As Received Method Detection Limit	Dilution Factor
Wet	Chemistry	<b>EPA</b>	410.2	<b>n</b> 2	mg/l	т	mg/l	1
0155.	s chemical oxygen	Demanu		11.a.	0.1	0	2.0	T

### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Ti	me		Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/23/2009	14:54	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009	07:45	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/24/2009	00:37	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/24/2009	00:37	Marie D John	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	09266108101A	09/25/2009	09:37	K. Robert Caulfeild-James	1
00220	Nitrate Nitrogen	EPA 353.2	1	09264106101B	09/21/2009	11:16	K. Robert Caulfeild-James	1
00219	Nitrite Nitrogen	EPA 353.2	1	09261105102B	09/18/2009	16:27	Venia B McFadden	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	09267110101A	09/24/2009	20:02	Joseph E McKenzie	1
00273	Total Organic Carbon	EPA 415.1	1	09265049501A	09/22/2009	01:45	James S Mathiot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	09266108101A	09/23/2009	10:50	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	09267110101A	09/24/2009	10:10	Nancy J Shoop	1
00221	Ammonia Nitrogen	EPA 350.2	1	09267022101A	09/24/2009	18:00	Luz M Groff	1
00226	Ortho-Phosphate as P	EPA 365.3	1	09262022601A	09/19/2009	08:30	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	09261023502A	09/18/2009	13:09	Hannah M Royer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	09265155301A	09/22/2009	07:50	Susan A Engle	1



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### Lancaster Laboratories Sample No. WW 5780047 MA3-TG2-3-091709-12 Groundwater

### 091709-7,6 02687.007.007.0001 Moss American

Collected: 09/17/2009 15:07

Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009 Group No. 1162417 WI

Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG23 SDG#: KMA99-09

CAT No.	Analysis Name		CAS Number	As Receiv Result	As Received red Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846	8310	ug/l	ug/l	
00774	Acenaphthene		83-32-9	N.D.	0.51	1
00774	Acenaphthylene		208-96-8	N.D.	1.0	1
00774	Anthracene		120-12-7	N.D.	0.020	1
00774	Benzo(a)anthracene		56-55-3	0.024 J	0.010	1
00774	Benzo(a)pyrene		50-32-8	0.041	0.010	1
00774	Benzo(b)fluoranther	ie	205-99-2	0.042	0.0082	1
00774	Benzo(q,h,i)peryler	ne	191-24-2	0.070 J	0.061	1
00774	Benzo(k)fluoranther	ne	207-08-9	0.039	0.0082	1
00774	Chrysene		218-01-9	0.062 J	0.061	1
00774	Dibenz(a,h)anthrace	ene	53-70-3	0.048 J	0.020	1
00774	Fluoranthene		206-44-0	0.038 J	0.020	1
00774	Fluorene		86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyr	rene	193-39-5	0.070 J	0.041	1
00774	Naphthalene		91-20-3	N.D.	1.0	1
00774	Phenanthrene		85-01-8	N.D.	0.041	1
00774	Pyrene		129-00-0	N.D.	0.10	1
GC Vol	latiles	SW-846	8021B	ug/l	ug/l	
08213	Benzene		71-43-2	ND	0 2	1
08213	Fthylbenzene		100-41-4	N.D.	0.2	1
08213	Toluene		108-88-3	N.D.	0.2	1
08213	Total Xylenes		1330-20-7	N.D.	0.6	1
Wet Cl	nemistry	EPA 35	1.2	mg/l	mg/l	
00217	Kjeldahl Nitrogen	00	n.a.	0.69 J	0.50	1
		EDA 35	3 2	mg/l	mg/l	
00220	Nitrate Nitrogen	BI II 55	1/707-55-9	N D	0.040	1
00220	Nitrite Nitrogen		14797-55-8	N.D.	0.040	1
00219	Nitille Nitiogen		14/9/-03-0	N.D.	0.015	I
		EPA 36	5.1	mg/l	mg/l	
00345	Total Phosphorus as	PO4 wat	er 14265-44-2	0.27 J	0.25	1
		EPA 41	5.1	mg/l	mg/l	
00273	Total Organic Carbo	on	n.a.	9.5	0.50	1
		EPA 35	0.2	mg/l	mg/l	
00221	Ammonia Nitrogen		7664-41-7	0.42 J	0.20	1
	5				-	
		EPA 36	5.3	mg/l	mg/l	
00226	Ortho-Phosphate as	Р	7723-14-0	N.D.	0.010	1
		EPA 40	5.1	mg/l	mg/l	
00235	Biochemical Oxygen	Demand	n.a.	8.6	0.80	1



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Lancaster Laboratories Sample No. 1	WW 5780047	Group No. 1162417 WI
MA3-TG2-3-091709-12 Groundwater 091709-7,6 02687.007.007.0001 Moss American		
Collected: 09/17/2009 15:07		Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009		Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG23 SDG#: KMA99-09

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet C 01553	Chemistry EP Chemical Oxygen Demand	A 410.2	n.a.	<b>mg/l</b> 22.7	<b>mg/1</b> 2.6	1

### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Analysis Name	Method	Trial#	Batch#	Analysis Date and Ti	me	Analyst	Dilution Factor
PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/23/2009	16:12	Mark A Clark	1
PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009	07:45	Cynthia J Salvatori	1
BTEX (8021)	SW-846 8021B	1	09265A94A	09/24/2009	01:04	Marie D John	1
GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/24/2009	01:04	Marie D John	1
Kjeldahl Nitrogen	EPA 351.2	1	09266108101A	09/25/2009	09:41	K. Robert Caulfeild-James	1
Nitrate Nitrogen	EPA 353.2	1	09264106101B	09/21/2009	11:17	K. Robert Caulfeild-James	1
Nitrite Nitrogen	EPA 353.2	1	09261105102B	09/18/2009	16:31	Venia B McFadden	1
Total Phosphorus as PO4 water	EPA 365.1	1	09267110101A	09/24/2009	20:08	Joseph E McKenzie	1
Total Organic Carbon	EPA 415.1	1	09265049501A	09/22/2009	01:52	James S Mathiot	1
Total Kjeldahl Nitrogen Digest	EPA 351.2	1	09266108101A	09/23/2009	10:50	Nancy J Shoop	1
Total Phos as PO4 Prep (water)	EPA 365.1	1	09267110101A	09/24/2009	10:10	Nancy J Shoop	1
Ammonia Nitrogen	EPA 350.2	1	09267022101A	09/24/2009	18:00	Luz M Groff	1
Ortho-Phosphate as P	EPA 365.3	1	09262022601A	09/19/2009	08:30	Daniel S Smith	1
Biochemical Oxygen Demand	EPA 405.1	1	09261023502A	09/18/2009	13:09	Hannah M Royer	1
Chemical Oxygen Demand	EPA 410.2	1	09265155301A	09/22/2009	07:50	Susan A Engle	1
	Analysis Name PAH's in Water by HPLC PAH Water Extraction BTEX (8021) GC VOA Water Prep Kjeldahl Nitrogen Nitrate Nitrogen Nitrite Nitrogen Total Phosphorus as PO4 water Total Organic Carbon Total Kjeldahl Nitrogen Digest Total Phos as PO4 Prep (water) Ammonia Nitrogen Ortho-Phosphate as P Biochemical Oxygen Demand Chemical Oxygen Demand	Analysis NameMethodPAH's in Water by HPLC PAH Water ExtractionSW-846 8310 SW-846 3510CBTEX (8021) GC VOA Water Prep Kjeldahl NitrogenSW-846 8021B SW-846 5030B EPA 351.2Nitrate NitrogenEPA 351.2Nitrite NitrogenEPA 353.2Total Phosphorus as PO4 waterEPA 365.1 SI.2Total Organic Carbon Total Kjeldahl NitrogenEPA 365.1 EPA 351.2Total Phosphorus as PO4 waterEPA 365.1 EPA 365.1 EPA 365.1Jigest (water)EPA 365.1 EPA 365.1 EPA 365.3Ammonia Nitrogen Ortho-Phosphate as P Biochemical Oxygen DemandEPA 405.1 EPA 410.2	Analysis NameMethodTrial#PAH's in Water by HPLC PAH Water ExtractionSW-846 8310 SW-846 3510C1DETEX (8021) GC VOA Water Prep Kjeldahl NitrogenSW-846 8021B SW-846 5030B EPA 351.21Nitrate NitrogenEPA 351.21Nitrite NitrogenEPA 353.21Total Phosphorus as PO4 WaterEPA 365.11Total Organic Carbon DigestEPA 365.11Total Phos as PO4 Prep (water)EPA 365.11Ortho-Phosphate as P Biochemical Oxygen DemandEPA 365.31EPA 365.111Chemical Oxygen DemandEPA 410.21	Analysis NameMethodTrial#Batch#PAH's in Water by HPLC PAH Water ExtractionSW-846 8310 SW-846 3510C109261WAE026 09261WAE026BTEX (8021) GC VOA Water Prep Kjeldahl NitrogenSW-846 8021B SW-846 5030B109265A94A 1Nitrate NitrogenEPA 351.2109266108101ANitrite NitrogenEPA 353.2109261105102B 1Total Phosphorus as PO4 WaterEPA 365.110926510410101A 1Nitrite Nitrogen Total Kjeldahl Nitrogen EPA 351.210926108101A 109267110101A 1Amenonia Nitrogen (water)EPA 365.1109267022101A 109267022101A 1Ammonia Nitrogen Crohenical Oxygen DemandEPA 350.2109267022101A 109267022101A 1Ammonia Oxygen Demand EPA 415.1109267022101A 109261023502A 109261023502A 1	Analysis NameMethodTrial#Batch#Analysis Date and Tis O9/23/2009 O9/19/2009PAH's in Water by HPLC PAH Water ExtractionSW-846 8310 SW-846 3510C109261WAE02609/23/2009 O9/19/2009BTEX (8021) GC VOA Water Prep Kjeldahl NitrogenSW-846 8021B SW-846 5030B EPA 351.2109265A94A O9266108101A09/24/2009 O9/25/2009Nitrate NitrogenEPA 353.2109264106101B09/21/2009 O9/24/2009Nitrite Nitrogen Total Phosphorus as PO4 waterEPA 353.2109261105102B O9/24/200909/24/2009 O9/24/2009Nitrite Nitrogen Total Kjeldahl Nitrogen Cotal Phosphorus as PO4 Proton NitrogenEPA 351.210926105102B O9/24/200909/24/2009 O9/24/2009Nitrite Nitrogen Total Kjeldahl Nitrogen Cotal Phosphate as P Biochemical Oxygen DemandEPA 350.2109267110101A O9/24/200909/24/2009 O9/24/2009Ammonia Nitrogen Chemical Oxygen DemandEPA 365.3 EPA 405.1109267022101A O9/24/200909/24/2009 O9/24/2009Ammonia Oxygen Demand EPA 410.2109267110101A O9267022101A O9/24/200909/24/2009 O9/24/2009	Analysis Name         Method         Trial#         Batch#         Analysis Date and Time 09/23/2009         16:12 09/23/2009         16:12 09/23/2009         16:12 09/23/2009         16:12 09/23/2009         16:12 09/23/2009         16:12 09/23/2009         16:12 09/23/2009         16:12 09/23/2009         16:12 09/23/2009         16:12 09/24/2009         16:12 09/24/2009         16:12 09/24/2009         16:12 09/24/2009         16:12 09/24/2009         16:12 09/24/2009         16:13 09/24/2009         16:13 09/24/2009         16:31 09/24/2009         16:31 09/24/2009 <th< td=""><td>Analysis NameMethodTrial#Batch#Analysis Date and TimeAnalysis Date and TimePAH s in Water by HPLC PAH Water ExtractionSW-846 8310C109261WAE02609/23/200916:12Mark A Clark Cynthia J SalvatoriBTEX (8021) GC VOA Water Prep Kjeldahl NitrogenSW-846 8021B109265A94A09/24/200901:04Marie D John Marie D JohnNitrate NitrogenEPA 351.210926108101A09/25/200901:04Marie D John Marie D JohnNitrite NitrogenEPA 353.210926108101A09/21/200901:04K. Robert Caulfeild-JamesNitrite NitrogenEPA 355.11092610101B09/21/200916:31Venia B McFadden Venia B McFadden Dyledidal B McFaddenTotal Organic CarbonEPA 415.1109265049501A09/22/200901:52James S Mathiot Nancy J ShoopTotal Kjeldahl NitrogenEPA 351.2109267110101A09/22/200916:51James S Mathiot Nancy J ShoopNotar S Mothio SolutionEPA 351.2109267110101A09/22/200910:55James S Mathiot Nancy J ShoopNotar S Mathio SolutionEPA 351.2109267110101A09/24/200910:55James S Mathiot Nancy J ShoopNotar S Mathio SolutionEPA 351.2109267110101A09/24/200910:55James S Mathiot Nancy J ShoopNotar S Mathio SolutionEPA 355.110926702201A09/24/200910:55James S Mathiot Nancy J ShoopNotar S Mathio S</td></th<>	Analysis NameMethodTrial#Batch#Analysis Date and TimeAnalysis Date and TimePAH s in Water by HPLC PAH Water ExtractionSW-846 8310C109261WAE02609/23/200916:12Mark A Clark Cynthia J SalvatoriBTEX (8021) GC VOA Water Prep Kjeldahl NitrogenSW-846 8021B109265A94A09/24/200901:04Marie D John Marie D JohnNitrate NitrogenEPA 351.210926108101A09/25/200901:04Marie D John Marie D JohnNitrite NitrogenEPA 353.210926108101A09/21/200901:04K. Robert Caulfeild-JamesNitrite NitrogenEPA 355.11092610101B09/21/200916:31Venia B McFadden Venia B McFadden Dyledidal B McFaddenTotal Organic CarbonEPA 415.1109265049501A09/22/200901:52James S Mathiot Nancy J ShoopTotal Kjeldahl NitrogenEPA 351.2109267110101A09/22/200916:51James S Mathiot Nancy J ShoopNotar S Mothio SolutionEPA 351.2109267110101A09/22/200910:55James S Mathiot Nancy J ShoopNotar S Mathio SolutionEPA 351.2109267110101A09/24/200910:55James S Mathiot Nancy J ShoopNotar S Mathio SolutionEPA 351.2109267110101A09/24/200910:55James S Mathiot Nancy J ShoopNotar S Mathio SolutionEPA 355.110926702201A09/24/200910:55James S Mathiot Nancy J ShoopNotar S Mathio S



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### Lancaster Laboratories Sample No. WW 5780048 MA3-TG3-1-091709-10 Groundwater 091709-7,4 02687.007.007.0001 Moss American Collected: 09/17/2009 14:28 Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009 Oklahoma City OK 73126-8859

MAG31 SDG#: KMA99-10

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846	8310	ug/l	ug/l	
00774	Acenaphthene		83-32-9	N.D.	0.51	1
00774	Acenaphthylene		208-96-8	N.D.	1.0	1
00774	Anthracene		120-12-7	N.D.	0.020	1
00774	Benzo(a)anthracene		56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene		50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthen	e	205-99-2	N.D.	0.0081	1
00774	Benzo(q,h,i)perylen	e	191-24-2	N.D.	0.061	1
00774	Benzo(k) fluoranthen	e	207-08-9	N.D.	0.0081	1
00774	Chrysene		218-01-9	N.D.	0.061	1
00774	Dibenz(a,h)anthrace	ne	53-70-3	N.D.	0.020	1
00774	Fluoranthene		206-44-0	N.D.	0.020	1
00774	Fluorene		86-73-7	N.D.	0.10	1
00774	Indeno (1,2,3-cd) pyr	ene	193-39-5	N.D.	0.040	1
00774	Naphthalene		91-20-3	N.D.	1.0	1
00774	Phenanthrene		85-01-8	0.054 J	0.040	1
00774	Pyrene		129-00-0	N.D.	0.10	1
00772	1120110		129 00 0		0.120	-
GC Vol	latiles	SW-846	8021B	ug/l	ug/l	
08213	Benzene		71-43-2	N.D.	0.2	1
08213	Ethylbenzene		100-41-4	N.D.	0.2	1
08213	Toluene		108-88-3	N.D.	0.2	1
08213	Total Xylenes		1330-20-7	N.D.	0.6	1
Wet Ch	omistry	FDA 351	1.2	mg/l	mg/l	
00217	Kieldahl Nitrogen	DEA 221	n 2	<b>-</b>	0.50	1
00217	Kjeidani Nielogen		11.a.	0.07 0	0.50	1
		EPA 353	3.2	mg/l	mg/l	
00220	Nitrate Nitrogen		14797-55-8	0.044 J	0.040	1
00219	Nitrite Nitrogen		14797-65-0	N.D.	0.015	1
				mg / 1	mg (1	
		EPA 365	<b>.</b> ⊥	ilig/ i	mg/ i	
00345	Total Phosphorus as	PO4 wate	er 14265-44-2	N.D.	0.25	1
		EPA 415	5.1	mg/l	mg/l	
00273	Total Organic Carbo	n	n.a.	10.3	0.50	1
		EPA 350	0.2	mg/l	mg/l	
00221	Ammonia Nitrogen		7664-41-7	N.D.	0.20	1
		<b>ED</b> 364	5 3	mg/l	mg/l	
00226	Ortho-Phosphate as		7722-14-0	5 N D		1
00220	oreno-rnosphace as	r	//25-14-0	ш. Ц.	0.010	Ť
		EPA 405	5.1	mg/l	mg/l	
00235	Biochemical Oxvgen	Demand	n.a.	N.D.	3.1	1
	15					



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Lancaster Laboratories Sample No. W	W 5780048	Group No. 1162417 WI
MA3-TG3-1-091709-10 Groundwater 091709-7,4 02687.007.007.0001 Moss American		
Collected: 09/17/2009 14:28		Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009		Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG31 SDG#: KMA99-10

CAT No.	Analysis Name			CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet C 01553	Chemistry Chemical Oxygen	<b>EPA</b> Demand	410.2	n.a.	<b>mg/l</b> 25.8	<b>mg/l</b> 2.6	1

### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis Date and Ti	me	Analyst	Dilution
00774	PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/23/2009	16.51	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009	07:45	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/24/2009	01:30	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/24/2009	01:30	Marie D John	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	09266108101A	09/25/2009	09:42	K. Robert Caulfeild-James	1
00220	Nitrate Nitrogen	EPA 353.2	1	09264106101B	09/21/2009	11:21	K. Robert Caulfeild-James	1
00219	Nitrite Nitrogen	EPA 353.2	1	09261105102B	09/18/2009	16:32	Venia B McFadden	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	09267110101A	09/24/2009	20:09	Joseph E McKenzie	1
00273	Total Organic Carbon	EPA 415.1	1	09265049501A	09/22/2009	01:59	James S Mathiot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	09266108101A	09/23/2009	10:50	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	09267110101A	09/24/2009	10:10	Nancy J Shoop	1
00221	Ammonia Nitrogen	EPA 350.2	1	09267022101A	09/24/2009	18:00	Luz M Groff	1
00226	Ortho-Phosphate as P	EPA 365.3	1	09262022601A	09/19/2009	08:30	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	09261023502A	09/18/2009	13:09	Hannah M Royer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	09265155301A	09/22/2009	07:50	Susan A Engle	1



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Lancaster Laboratories Sample No. WW 5780049	Group No. 1162417 WI
MA3-TG3-3-091709-11 Groundwater 091709-7,4 02687.007.007.0001 Moss American	
Collected: 09/17/2009 14:30	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG33 SDG#: KMA99-11

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846	5 8310	ug/l	ug/l	
00774	Acenaphthene		83-32-9	N.D.	0.53	1
00774	Acenaphthylene		208-96-8	N.D.	1.1	1
00774	Anthracene		120-12-7	0.031 J	0.021	1
00774	Benzo(a)anthracene		56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene		50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene		205-99-2	N.D.	0.0085	1
00774	Benzo(q,h,i)perylene		191-24-2	N.D.	0.063	1
00774	Benzo(k)fluoranthene		207-08-9	N.D.	0.0085	1
00774	Chrysene		218-01-9	N.D.	0.063	1
00774	Dibenz(a,h)anthracen	le	53-70-3	N.D.	0.021	1
00774	Fluoranthene		206-44-0	0.069 J	0.021	1
00774	Fluorene		86-73-7	0.13 J	0.11	1
00774	Indeno(1,2,3-cd)pyre	ene	193-39-5	N.D.	0.042	1
00774	Naphthalene		91-20-3	N.D.	1.1	1
00774	Phenanthrene		85-01-8	0.077 J	0.042	1
00774	Pyrene		129-00-0	N.D.	0.11	1
GC Vol	latiles	SW-846	5 8021B	ug/l	ug/l	
08213	Benzene		71-43-2	N.D.	0.2	1
08213	Ethylbenzene		100-41-4	N.D.	0.2	- 1
08213	Toluene		108-88-3	1 J	0.2	1
08213	Total Xylenes		1330-20-7	N.D.	0.6	1
Wet Ch	nemistrv	EPA 35	51.2	mg/l	mg/l	
00217	Kjeldahl Nitrogen		n.a.	1.7	0.50	1
		EPA 39	53.2	mg/l	mg/l	
00220	Nitrate Nitrogen	<b>HIII 9</b>	14797-55-9	N D	0.30	5
00220	The reporting limit( interference.	s) for	the analyte(s) abo	ove was raised due	e to matrix	5
00219	Nitrite Nitrogen		14797-65-0	0.017 J	0.015	1
		EPA 36	55.1	mg/l	mg/l	
00345	Total Phosphorus as	PO4 wa	ter 14265-44-2	N.D.	0.25	1
		EPA 41	15.1	mg/l	mg/l	
00273	Total Organic Carbon	L	n.a.	9.4	0.50	1
		EPA 35	50.2	mg/l	mg/l	
00221	Ammonia Nitrogen		7664-41-7	N.D.	0.20	1
		EPA 36	55.3	mg/l	mg/l	
00226	Ortho-Phosphate as F	, ,	7723-14-0	N.D.	0.010	1
		EDA 40	15 1	mg/l	mg/l	
00235	Biochemical Oxygen F	enand	<b>n</b> a	19.8	<u>_</u> , 0 80	1
00200	Discussion oxygen L	cinana		±2.0	0.00	+



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Lancaster Laboratories Sample No.	WW 5780049	Group No. 1162417 WI
MA3-TG3-3-091709-11 Groundwater 091709-7,4 02687.007.007.0001 Moss American		
Collected: 09/17/2009 14:30		Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009		Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG33 SDG#: KMA99-11

CAT No.	Analysis Name			CAS Number	As Received Result	As Received Method Detection Lin	Dilution mit Factor	
Wet (	Chemistry	EPA	410.2		mg/l	mg/l		
01553	Chemical Oxygen	Demand		n.a.	25.4	2.6	1	

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
				Date and II	me		Factor
PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/23/2009	17:30	Mark A Clark	1
PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009	07:45	Cynthia J Salvatori	1
BTEX (8021)	SW-846 8021B	1	09265A94A	09/24/2009	01:57	Marie D John	1
GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/24/2009	01:57	Marie D John	1
Kjeldahl Nitrogen	EPA 351.2	1	09266108101A	09/25/2009	09:42	K. Robert Caulfeild-James	1
Nitrate Nitrogen	EPA 353.2	1	09264106101B	09/21/2009	11:22	K. Robert Caulfeild-James	5
Nitrite Nitrogen	EPA 353.2	1	09261105102B	09/18/2009	16:36	Venia B McFadden	1
Total Phosphorus as PO4 water	EPA 365.1	1	09267110101A	09/24/2009	20:11	Joseph E McKenzie	1
Total Organic Carbon	EPA 415.1	1	09265049501A	09/22/2009	02:07	James S Mathiot	1
Total Kjeldahl Nitrogen Digest	EPA 351.2	1	09266108101A	09/23/2009	10:50	Nancy J Shoop	1
Total Phos as PO4 Prep (water)	EPA 365.1	1	09267110101A	09/24/2009	10:10	Nancy J Shoop	1
Ammonia Nitrogen	EPA 350.2	1	09267022101A	09/24/2009	18:00	Luz M Groff	1
Ortho-Phosphate as P	EPA 365.3	1	09262022601A	09/19/2009	08:30	Daniel S Smith	1
Biochemical Oxygen Demand	EPA 405.1	1	09261023502A	09/18/2009	13.09	Hannah M Rover	1
Chemical Oxygen Demand	EPA 410.2	1	09265155301A	09/22/2009	07:50	Susan A Engle	1
	Analysis Name PAH's in Water by HPLC PAH Water Extraction BTEX (8021) GC VOA Water Prep Kjeldahl Nitrogen Nitrate Nitrogen Nitrite Nitrogen Total Phosphorus as PO4 water Total Organic Carbon Total Kjeldahl Nitrogen Digest Total Phos as PO4 Prep (water) Ammonia Nitrogen Ortho-Phosphate as P Biochemical Oxygen Demand Chemical Oxygen Demand	Analysis NameMethodPAH's in Water by HPLC PAH Water ExtractionSW-846 8310 SW-846 3510CBTEX (8021) GC VOA Water Prep Kjeldahl NitrogenSW-846 8021B SW-846 5030B EPA 351.2Nitrate NitrogenEPA 353.2Nitrite NitrogenEPA 353.2Total Phosphorus as PO4 water Total Organic Carbon Total Kjeldahl NitrogenEPA 365.1 EPA 351.2Digest (water)EPA 365.1 EPA 365.1 EPA 365.1 EPA 365.1 EPA 365.1 EPA 365.1Ammonia Nitrogen Ortho-Phosphate as P Biochemical Oxygen DemandEPA 405.1 	Analysis NameMethodTrial#PAH's in Water by HPLC PAH Water ExtractionSW-846 8310 SW-846 3510C1BTEX (8021) GC VOA Water Prep Kjeldahl NitrogenSW-846 8021B SW-846 5030B EPA 351.21Nitrate NitrogenEPA 353.21Nitrite NitrogenEPA 353.21Total Phosphorus as PO4 waterEPA 365.11Total Organic Carbon DigestEPA 351.21Total Phos as PO4 Prep (water)EPA 365.11Ortho-Phosphate as P Biochemical Oxygen DemandEPA 365.31Biochemical Oxygen DemandEPA 410.21	Analysis NameMethodTrial# Batch#PAH's in Water by HPLC PAH Water ExtractionSW-846 8310 SW-846 3510C109261WAE026 09261WAE026BTEX (8021) GC VOA Water Prep Kjeldahl NitrogenSW-846 8021B SW-846 5030B109265A94A 09265A94A 109265A94A 09266108101ANitrate NitrogenEPA 351.2109264106101BNitrite NitrogenEPA 355.2109267110101A 09267110101ATotal Phosphorus as PO4 water Total Organic Carbon Total Kjeldahl NitrogenEPA 365.1109265049501A 09267110101ADigest (water) Ammonia Nitrogen Ortho-Phosphate as P Biochemical Oxygen DemandEPA 350.2 EPA 365.3 EPA 365.1109267022101A 092671201A	Analysis NameMethodTrial#Batch#Analysis Date and Ti 09/23/2009 09/19/2009PAH's in Water by HPLC PAH Water ExtractionSW-846 8310 SW-846 3510C109261WAE026 09/261WAE02609/23/2009 09/19/2009BTEX (8021) GC VOA Water Prep Kjeldahl NitrogenSW-846 8021B EPA 351.2109265A94A 09/24/2009 09/25/200909/24/2009 09/25/2009Nitrate NitrogenEPA 353.210926106101B09/21/2009 09/24/2009Nitrite Nitrogen Total Phosphorus as PO4 waterEPA 353.2109261105102B 09/24/2009 09/24/200909/24/2009 09/24/2009Nitrite Nitrogen Total Virogen EPA 351.2EPA 365.1109265108101A 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009 09/24/2009	Analysis Name         Method         Trial#         Batch#         Analysis Date and Time 09/23/2009         Op/23/2009         17:30 07:45           PAH's in Water by HPLC PAH Water Extraction         SW-846 8310 SW-846 3510C         1         09261WAE026         09/23/2009         17:30 09/19/2009         07:45           BTEX (8021) GC VOA Water Prep Kjeldahl Nitrogen         SW-846 8021B SW-846 5030B EPA 351.2         1         09265A94A 09264106101B         09/24/2009         01:57 09/25/2009         09:42           Nitrate Nitrogen         EPA 353.2         1         09264106101B         09/21/2009         11:22           Nitrite Nitrogen         EPA 353.2         1         09261105102B 09/24/2009         09/24/2009         20:11           Total Phosphorus as P04 water         EPA 351.2         1         0926108101A 09/24/2009         09/22/2009         02:07           Total Kjeldahl Nitrogen         EPA 351.2         1         0926108101A 09/23/2009         09/23/2009         10:10           Digest Total Phos as P04 Prep (water)         EPA 350.2         1         09267110101A 09/24/2009         09/24/2009         10:10           Mater Strongen (water)         EPA 350.2         1         0926702210A 09/18/2009         09/24/2009         10:10           Digest Chemical Oxygen Demand         EPA 450.1 EPA 410.2	Analysis NameMethodTrial#Batch#Analysis Date and TimeAnalysis Date and TimePAH's in Water by HPLC PAH' Water ExtractionSW-846 8310109261WAE02609/23/200917:36Mark A Clark Op/19/2009BTEX (8021) GC VOA Water Prep Kjeldahl NitrogenSW-846 8021B SW-846 5030B109265A94A09/24/200901:57Marie D John Marie D JohnNitrate NitrogenEPA 351.210926108101A09/25/200901:42K. Robert Caulfeild-JamesNitrite NitrogenEPA 353.21092610101B09/21/200916:36Venia B McFadden Caulfeild-JamesNitrite NitrogenEPA 355.21092610101A09/22/200910:57James S Mathiot Noncy J ShoopTotal Organic CarbonEPA 415.110926108101A09/22/200910:50James S Mathiot Nancy J ShoopTotal Arbons ArbotEPA 351.210926108101A09/22/200910:50James S Mathiot Nancy J ShoopTotal Organic CarbonEPA 415.110926108101A09/22/200910:50James S Mathiot Nancy J ShoopDigestTotal Kjeldahl NitrogenEPA 351.2109267110101A09/24/200910:10Nancy J ShoopNumonia NitrogenEPA 351.210926702101A09/24/200910:50James S Mathiot Nancy J ShoopDigestI0926702101A09/24/200910:50Nancy J ShoopMenonia NitrogenEPA 365.3109267022020A09/24/200918:00Lur M G



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Lancaster Laboratories Sample No. WW 5780050	Group No. 1162417 WI
MA3-TG4-1-091709-6 Groundwater 091709-7,3 02687.007.007.0001 Moss American	
Collected: 09/17/2009 10:49	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG41 SDG#: KMA99-12

CAT No.	Analysis Name			CAS Number	As Rec Result	ceived C	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-8	46 831	.0	ug/l		ug/l	
00774	Acenaphthene			83-32-9	N.D.		0.51	1
00774	Acenaphthylene			208-96-8	N.D.		1.0	1
00774	Anthracene			120-12-7	N.D.		0.020	1
00774	Benzo(a)anthracene			56-55-3	0.034	J	0.010	1
00774	Benzo(a)pyrene			50-32-8	0.049		0.010	1
00774	Benzo(b)fluoranthen	е		205-99-2	0.057		0.0082	1
00774	Benzo(g,h,i)pervlen	e		191-24-2	N.D.		0.061	1
00774	Benzo(k) fluoranthen	e		207-08-9	0.050		0.0082	1
00774	Chrysene	-		218-01-9	0.087	J	0.061	1
00774	Dibenz (a, h) anthrace	ne		53-70-3	0.042	J	0.020	-
00774	Fluoranthene			206-44-0	ND	5	0.020	1
00774	Fluorene			86-73-7	N D		0 10	1
00774	Indeno (1 2 3-cd) pyra	ano		193-39-5	0 069	.т	0.041	1
00774	Naphthalene			91-20-2	0.00J	5	1 0	1
00774	Dhenanthrene			91-20-3	N.D.		0.041	1
00774	Durono			120 00 0	N.D.		0.10	1
00774	Fyrene			129-00-0	N.D.		0.10	T
GC Vol	latiles	SW-8	46 802	21B	ug/l		ug/l	
08213	Benzene			71-43-2	N.D.		0.2	1
08213	Ethylbenzene			100-41-4	N.D.		0.2	1
08213	Toluene			108-88-3	1.2		0.2	-
08213	Total Xylenes			1330-20-7	N.D.		0.6	1
			251 0		ma / 1		mg / 1	
wet Cr	hemistry	EPA	351.2		mg/ r		mg/1	
00217	Kjeldahl Nitrogen			n.a.	N.D.		0.50	1
		EPA	353.2		mg/l		mg/l	
00220	Nitrate Nitrogen			14797-55-8	ND		0.20	5
00220	The reporting limit	(s) fo	or the a	nalyte(s) abov	e was ra	aised due to matrix	0.20	5
00219	Nitrite Nitrogen			14797-65-0	N.D.		0.015	1
			ACE 1					
		EPA	365.I		mg/1		mg/1	
00345	Total Phosphorus as	PO4	water	14265-44-2	N.D.		0.25	1
		EPA	415.1		mg/l		mg/l	
00273	Total Organic Carbo	n — — — —		na	8 1		0.50	1
00275	iocai organic carbo			m.a.	0.1		0.50	±
		EPA	350.2		mg/l		mg/l	
00221	Ammonia Nitrogen			7664-41-7	N.D.		0.20	1
		EPA	365.3		mg/l		mg/l	
00226	Ortho-Phosphate as	 P		7723-14-0	N.D.		0.010	1
								_
		EPA	405.1		mg/l		mg/l	
00235	Biochemical Oxygen	Demand	l	n.a.	N.D.		2.7	1



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Lancaster Laboratories Sample No. WW	5780050 C	Group No. 1162417 NI
MA3-TG4-1-091709-6 Groundwater 091709-7,3 02687.007.007.0001 Moss American		
Collected: 09/17/2009 10:49	2	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	) F	Fronox LLC PO Box 268859 Dklahoma City OK 73126-8859

MAG41 SDG#: KMA99-12

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor	
Wet (	Chemistry EPA	410.2	na	<b>mg/l</b>	mg/1	1	
01000	enemicar oxygen Demana		11.a.	20.5	2.0	±	

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
NO.		<b>GVI 046 0010</b>	_	000000000000				Factor
00774	PAH'S IN WATER DY HPLC	SW-846 8310	1	09261WAE026	09/23/2009	18:09	Mark A Clark	T
03337	PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009	07:45	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/24/2009	02:23	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/24/2009	02:23	Marie D John	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	09266108101A	09/25/2009	09:43	K. Robert Caulfeild-James	1
00220	Nitrate Nitrogen	EPA 353.2	1	09264106101B	09/21/2009	11:24	K. Robert Caulfeild-James	5
00219	Nitrite Nitrogen	EPA 353.2	1	09261105102B	09/18/2009	16:37	Venia B McFadden	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	09267110101A	09/24/2009	20:12	Joseph E McKenzie	1
00273	Total Organic Carbon	EPA 415.1	1	09265049501A	09/22/2009	02:28	James S Mathiot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	09266108101A	09/23/2009	10:50	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	09267110101A	09/24/2009	10:10	Nancy J Shoop	1
00221	Ammonia Nitrogen	EPA 350.2	1	09267022101A	09/24/2009	18:00	Luz M Groff	1
00226	Ortho-Phosphate as P	EPA 365.3	1	09262022601A	09/19/2009	08:30	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	09261023502A	09/18/2009	13.09	Hannah M Rover	1
01553	Chemical Oxygen Demand	EPA 410.2	1	09265155301A	09/22/2009	07:50	Susan A Engle	1



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### Lancaster Laboratories Sample No. WW 5780051

#### MA3-TG4-3-091709-7 Groundwater 091709-7,3 02687.007.007.0001 Moss American

Collected: 09/17/2009 10:55

Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009 Group No. 1162417 WI

Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG43 SDG#: KMA99-13

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846	8310	ug/l	ug/l	
00774	Acenaphthene		83-32-9	N.D.	0.53	1
00774	Acenaphthylene		208-96-8	N.D.	1.1	1
00774	Anthracene		120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene		56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene		50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthen	ie	205-99-2	N.D.	0.0085	1
00774	Benzo(q,h,i)pervlen	ie	191-24-2	N.D.	0.064	1
00774	Benzo(k)fluoranthen	ie	207-08-9	N.D.	0.0085	1
00774	Chrysene		218-01-9	N.D.	0.064	1
00774	Dibenz(a,h)anthrace	ene	53-70-3	N.D.	0.021	1
00774	Fluoranthene		206-44-0	N.D.	0.021	1
00774	Fluorene		86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyr	rene	193-39-5	N.D.	0.042	1
00774	Naphthalene		91-20-3	N.D.	1.1	1
00774	Phenanthrene		85-01-8	N.D.	0.042	1
00774	Pyrene		129-00-0	N.D.	0.11	1
	1					
GC Vol	latiles	SW-846	8021B	ug/l	ug/l	
08213	Benzene		71-43-2	N.D.	0.2	1
08213	Ethylbenzene		100-41-4	N.D.	0.2	1
08213	Toluene		108-88-3	0.9 J	0.2	1
08213	Total Xylenes		1330-20-7	N.D.	0.6	1
Wat ak		<b>DN 251</b>	1.2	mg / 1	mg/1	
wet Cr	lemistry	EPA 351	L.2			
00217	Kjeldani Nitrogen		n.a.	0.80 J	0.50	Ţ
		EPA 353	3.2	mg/l	mg/l	
00220	Nitrate Nitrogen		14797-55-8	ND	0 040	1
00220	Nitrite Nitrogen		14797-65-0	N D	0.015	1
00219	Mitilite Mitilogen		14/5/ 05 0	N.D.	0.013	Ŧ
		EPA 365	5.1	mg/l	mg/l	
00345	Total Phosphorus as	PO4 wate	er 14265-44-2	N.D.	0.25	1
				<i>'-</i>	<i>/-</i>	
		EPA 415	5.1	mg/1	mg/1	
00273	Total Organic Carbo	n	n.a.	9.3	0.50	1
		<b>EDA 25</b> (	<b>)</b> )	mg / 1	mg/1	
00001		EPA 350				-
00221	Ammonia Nitrogen		7664-41-7	0.38 J	0.20	1
		EPA 365	5.3	mg/l	mg/l	
00226	Ortho-Phosphate as	P	7723-14-0	N.D.	0.010	1
00220	oreno ritospitace as	-	1123 14.0		0.010	±
		EPA 405	5.1	mg/l	mg/l	
00235	Biochemical Oxygen	Demand	n.a.	N.D.	2.0	1



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Lancaster Laboratories Sample No. WW 5780051	Group No. 1162417 WI
MA3-TG4-3-091709-7 Groundwater 091709-7,3 02687.007.007.0001 Moss American	
Collected: 09/17/2009 10:55	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG43 SDG#: KMA99-13

CAT No.	Analysis Name	Cž	AS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet	Chemistry EPA	410.2		mg/l	mg/l	
01553	Chemical Oxygen Demand	n	.a.	25.0	2.6	1

### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
NO.					Date and Ti	me		Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/23/2009	18:47	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009	07:45	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/24/2009	02:50	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/24/2009	02:50	Marie D John	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	09266108101A	09/25/2009	09:44	K. Robert Caulfeild-James	1
00220	Nitrate Nitrogen	EPA 353.2	1	09264106101B	09/21/2009	11:25	K. Robert Caulfeild-James	1
00219	Nitrite Nitrogen	EPA 353.2	1	09261105102B	09/18/2009	16:39	Venia B McFadden	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	09267110101B	09/24/2009	20:13	Joseph E McKenzie	1
00273	Total Organic Carbon	EPA 415.1	1	09265049501A	09/22/2009	02:35	James S Mathiot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	09266108101A	09/23/2009	10:50	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	09267110101B	09/24/2009	10:10	Nancy J Shoop	1
00221	Ammonia Nitrogen	EPA 350.2	1	09267022101A	09/24/2009	18:00	Luz M Groff	1
00226	Ortho-Phosphate as P	EPA 365.3	1	09262022601A	09/19/2009	08:30	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	09261023502A	09/18/2009	13:09	Hannah M Rover	1
01553	Chemical Oxygen Demand	EPA 410.2	1	09265155301A	09/22/2009	07:50	Susan A Engle	1



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#### Lancaster Laboratories Sample No. WW 5780052

Group No. 1162417 WI

MA3-TG5-1-091709-3 Groundwater 091709-7,2 02687.007.007.0001 Moss American

Collected: 09/17/2009 09:05

Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG51 SDG#: KMA99-14

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846	8310	ug/l	ug/l	
00774	Acenaphthene		83-32-9	N.D.	0.52	1
00774	Acenaphthylene		208-96-8	N.D.	1.0	1
00774	Anthracene		120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene		56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene		50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranther	ne	205-99-2	N.D.	0.0084	1
00774	Benzo(g,h,i)peryler	ie	191-24-2	N.D.	0.063	1
00774	Benzo(k)fluoranther	ie	207-08-9	N.D.	0.0084	1
00774	Chrysene		218-01-9	N.D.	0.063	1
00774	Dibenz(a,h)anthrace	ene	53-70-3	N.D.	0.021	1
00774	Fluoranthene		206-44-0	N.D.	0.021	1
00774	Fluorene		86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyr	rene	193-39-5	N.D.	0.042	1
00774	Naphthalene		91-20-3	N.D.	1.0	1
00774	Phenanthrene		85-01-8	N.D.	0.042	1
00774	Pyrene		129-00-0	N.D.	0.10	1
GC Vol	latiles	SW-846	8021B	ug/l	ug/l	
08213	Benzene		71-43-2	N.D.	0.2	1
08213	Ethylbenzene		100-41-4	N.D.	0.2	1
08213	Toluene		108-88-3	1.8	0.2	1
08213	Total Xylenes		1330-20-7	N.D.	0.6	1
Wet Cl	nemistrv	EPA 351	2	mg/l	mg/l	
00217	Kjeldahl Nitrogen		n.a.	N.D.	0.50	1
		EPA 353	3.2	mg/l	mg/l	
00220	Nitrate Nitrogen		14797-55-8	N.D.	0.040	1
00219	Nitrite Nitrogen		14797-65-0	N.D.	0.015	1
		EDA 365	5 1	mg/l	mg/l	
00345	Total Phosphorus as	PO4 wate	r 14265-44-2	ND	0.25	1
00515	iocui inosphorus us	, ioi wat	11205 11 2	N.D.	0.25	-
		EPA 415	5.1	mg/l	mg/l	
00273	Total Organic Carbo	on	n.a.	3.8	0.50	1
		EPA 350	).2	mg/l	mg/l	
00221	Ammonia Nitrogen		7664-41-7	0.24 J	0.20	1
		EPA 365	5.3	mg/l	mg/l	
00226	Ortho-Phosphate as	Р	7723-14-0	N.D.	0.010	1
		EPA 405	5.1	mg/l	mg/l	
00235	Biochemical Oxygen	Demand	n.a.	N.D.	1.6	1
	15					



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Lancaster Laboratories Sample No. WW 5780052	Group No. 1162417 WI
MA3-TG5-1-091709-3 Groundwater 091709-7,2 02687.007.007.0001 Moss American	
Collected: 09/17/2009 09:05	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG51 SDG#: KMA99-14

CAT No.	Analysis Name			CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet C	<b>hemistry</b> Chemical Oxygen	<b>EPA</b> Demand	410.2	n.a.	<b>mg/l</b> 10.2	<b>mg/l</b> 2.6	1

### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis	me	Analyst	Dilution
00774	PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/23/2009	19.26	Mark A Clark	1
02227	DAW Water Extraction	SW-846 3510C	1	09261WAE026	09/23/2009	07.45	Cumthia I	1
05557	FAIL WALEL EXCLACTION	SW-040 3310C	T	09201WAE020	09/19/2009	07:45	Salvatori	T
08213	BTEX (8021)	SW-846 8021B	1	09265A94A	09/24/2009	03:17	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A94A	09/24/2009	03:17	Marie D John	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	09266108101A	09/25/2009	09:45	K. Robert Caulfeild-James	1
00220	Nitrate Nitrogen	EPA 353.2	1	09264106101A	09/21/2009	11:26	K. Robert Caulfeild-James	1
00219	Nitrite Nitrogen	EPA 353.2	1	09261105102B	09/18/2009	16:40	Venia B McFadden	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	09267110101B	09/24/2009	20:14	Joseph E McKenzie	1
00273	Total Organic Carbon	EPA 415.1	1	09265049501A	09/22/2009	02.43	James S Mathiot	1
01460	Total Kieldahl Nitrogen	EPA 351 2	1	092661081012	09/23/2009	10.50	Nancy J Shoop	1
01100	Digest	2111 00112	-	092002002020	09/23/2009	10.50	handy o bhoop	-
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	09267110101B	09/24/2009	10:10	Nancy J Shoop	1
00221	Ammonia Nitrogen	EPA 350.2	1	09267022101A	09/24/2009	18:00	Luz M Groff	1
00226	Ortho-Phosphate as P	EPA 365.3	1	09262022601A	09/19/2009	08:30	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	09261023502A	09/18/2009	13:09	Hannah M Rover	1
01553	Chemical Oxygen Demand	EPA 410.2	1	09265155301A	09/22/2009	07:50	Susan A Engle	1
	10		-		, ,=		J -	



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Lancaster Laboratories Sample No. WW 5780053	Group No. 1162417 WI
MA3-TG5-3-091709-4 Groundwater 091709-7,2 02687.007.007.0001 Moss American	
Collected: 09/17/2009 09:22	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG53 SDG#: KMA99-15

CAT No.	Analysis Name			CAS Number	As Rece Result	ived	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-8	346 831	L0	ug/l		ug/l	
00774	Acenaphthene			83-32-9	N.D.		0.54	1
00774	Acenaphthylene			208-96-8	N.D.		1.1	1
00774	Anthracene			120-12-7	N.D.		0.022	1
00774	Benzo(a)anthracene			56-55-3	N.D.		0.011	1
00774	Benzo(a)pyrene			50-32-8	N.D.		0.011	1
00774	Benzo(b)fluoranthene	Э		205-99-2	N.D.		0.0087	1
00774	Benzo(g,h,i)perylene	Э		191-24-2	N.D.		0.065	1
00774	Benzo(k)fluoranthene	e		207-08-9	N.D.		0.0087	1
00774	Chrysene			218-01-9	N.D.		0.065	1
00774	Dibenz(a,h)anthrace	ne		53-70-3	N.D.		0.022	1
00774	Fluoranthene			206-44-0	0.059	J	0.022	1
00774	Fluorene			86-73-7	N.D.		0.11	1
00774	Indeno(1,2,3-cd)pyre	ene		193-39-5	N.D.		0.043	1
00774	Naphthalene			91-20-3	N.D.		1.1	1
00774	Phenanthrene			85-01-8	N.D.		0.043	1
00774	Pyrene			129-00-0	N.D.		0.11	1
Due t analy	to the nature of the ysis. The reporting	sampl limit	e matrix s were 1	<pre>&lt;, a reduced a caised accordi</pre>	liquot wa ngly.	s used for		
GC Vol	latiles	SW-8	346 802	21B	ug/l		ug/l	
08213	Benzene			71-43-2	N.D.		0.2	1
08213	Ethylbenzene			100-41-4	N.D.		0.2	1
08213	Toluene			108-88-3	1.3		0.2	1
08213	Total Xylenes			1330-20-7	N.D.		0.6	1
Wet Ch	nemistry	EPA	351.2		mg/l		mg/l	
00217	Kjeldahl Nitrogen			n.a.	N.D.		0.50	1
		EPA	353.2		mg/l		mg/l	
00220	Nitrate Nitrogen			14797-55-8	N.D.		0.040	1
00219	Nitrite Nitrogen			14797-65-0	N.D.		0.015	1
		EPA	365.1		mg/l		mg/l	
00345	Total Phosphorus as	PO4	water	14265-44-2	N.D.		0.25	1
		EPA	415.1		mg/l		mg/l	
00273	Total Organic Carbo			na	4 9		0.50	1
00275	iotar organic carbo	.1		in.a.	1.9		0.50	Ŧ
		EPA	350.2		mg/l		mg/l	
00221	Ammonia Nitrogen			7664-41-7	0.47	J	0.20	1
		EPA	365.3		mg/l		mg/l	
00226	Ortho-Phosphate as 1	P		7723-14-0	N.D.		0.010	1
		EPA	405.1		mg/l		mg/l	
00235	Biochemical Oxygen 1	Demano	1	n.a.	N.D.		2.3	1



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Lancaster Laboratories Sample No. WW 5780053	Group No. 1162417 WI
MA3-TG5-3-091709-4 Groundwater 091709-7,2 02687.007.007.0001 Moss American	
Collected: 09/17/2009 09:22	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG53 SDG#: KMA99-15

CAT No.	Analysis Name			CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet	Chemistry	EPA	410.2		mg/l	mg/l	
01553	3 Chemical Oxygen	Demand		n.a.	13.6	2.6	1

### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis	<b>m</b> o	Analyst	Dilution
00774	DAULA in Water by HDLC	CW 946 9310	1	00061WAE006		20.05	Mark A Clark	Tactor
00774	PAH'S IN Water by HPLC	SW-846 8310	1	U926IWAEU26	09/23/2009	20:05	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009	07:45	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09265A53A	09/24/2009	01:07	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	09265A53A	09/24/2009	01:07	Martha L Seidel	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	09266108101B	09/25/2009	09:46	K. Robert Caulfeild-James	1
00220	Nitrate Nitrogen	EPA 353.2	1	09264106101A	09/21/2009	11:27	K. Robert Caulfeild-James	1
00219	Nitrite Nitrogen	EPA 353.2	1	09261105102B	09/18/2009	16:41	Venia B McFadden	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	09267110101B	09/24/2009	20:15	Joseph E McKenzie	1
00273	Total Organic Carbon	EPA 415.1	1	09265049501A	09/22/2009	02:50	James S Mathiot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	09266108101B	09/23/2009	10:50	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	09267110101B	09/24/2009	10:10	Nancy J Shoop	1
00221	Ammonia Nitrogen	EPA 350.2	1	09267022101A	09/24/2009	18:00	Luz M Groff	1
00226	Ortho-Phosphate as P	EPA 365.3	1	09262022601A	09/19/2009	08.30	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405 1	1	092610235024	09/18/2009	13.09	Hannah M Rover	1
01553	Chemical Oxygen Demand	EPA 410.2	1	09265155301A	09/22/2009	07.50	Susan A Engle	1
	Join Domana		-		05,22,2005	0.00		-



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#### Group No. 1162417 Lancaster Laboratories Sample No. WW 5780054 WI MA3-TG6-1-091709-5 Groundwater

### 091709-7,1 02687.007.007.0001 Moss American

Collected: 09/17/2009 11:30

Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009

Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

SDG#: KMA99-16 MAG61

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846	8310	ug/l	ug/l	
00774	Acenaphthene		83-32-9	N.D.	0.51	1
00774	Acenaphthylene		208-96-8	N.D.	1.0	1
00774	Anthracene		120-12-7	0.027 J	0.021	1
00774	Benzo(a)anthracene		56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene		50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranther	ne	205-99-2	0.0090 J	0.0082	1
00774	Benzo(g,h,i)peryler	ie	191-24-2	N.D.	0.062	1
00774	Benzo(k)fluoranther	ie	207-08-9	N.D.	0.0082	1
00774	Chrysene		218-01-9	N.D.	0.062	1
00774	Dibenz(a,h)anthrace	ene	53-70-3	N.D.	0.021	1
00774	Fluoranthene		206-44-0	0.038 J	0.021	1
00774	Fluorene		86-73-7	0.13 J	0.10	1
00774	Indeno(1,2,3-cd)py1	rene	193-39-5	N.D.	0.041	1
00774	Naphthalene		91-20-3	N.D.	1.0	1
00774	Phenanthrene		85-01-8	N.D.	0.041	1
00774	Pyrene		129-00-0	N.D.	0.10	1
GC Vol	latiles	SW-846	8021B	ug/l	ug/l	
08213	Benzene		71-43-2	N.D.	0.2	1
08213	Ethylbenzene		100-41-4	N.D.	0.2	1
08213	Toluene		108-88-3	N.D.	0.2	1
08213	Total Xylenes		1330-20-7	N.D.	0.6	1
Wet Ch	nemistrv	EPA 351	.2	mg/l	mg/l	
00217	Kjeldahl Nitrogen		n.a.	1.8	0.50	1
		EPA 353	3.2	mg/l	mg/l	
00220	Nitrate Nitrogen		14797-55-8	N.D.	0.040	1
00219	Nitrite Nitrogen		14797-65-0	N.D.	0.015	1
		EPA 365	5.1	mg/l	mg/l	
00345	Total Phosphorus as	PO4 wate	er 14265-44-2	0.30 J	0.25	1
		EPA 415	5.1	mg/l	mg/l	
00273	Total Organic Carbo	on	n.a.	10.3	0.50	1
		FDA 350	1 2	mg/1	mg/1	
00221	Ammonia Nitrogon	BIA 550	7664 41 7	;		1
00221	Ammonia Niciogen		/004-41-/	0.65	0.20	T
		EPA 365	5.3	mg/l	mg/l	
00226	Ortho-Phosphate as	P	7723-14-0	N.D.	0.010	1
		EPA 405	5.1	mg/l	mg/l	
00235	Biochemical Oxygen	Demand	n.a.	11.8	0.80	1



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Lancaster Laboratories Sample No. WW 5780054	Group No. 1162417 WI
MA3-TG6-1-091709-5 Groundwater 091709-7,1 02687.007.007.0001 Moss American	
Collected: 09/17/2009 11:30	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG61 SDG#: KMA99-16

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet	Chemistry EPA	410.2		mg/l	mg/l	
01553	3 Chemical Oxygen Demand		n.a.	25.8	2.6	1

### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.	-				Date and Tim	me	-	Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/23/2009	20:44	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009	07:45	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09266A94A	09/24/2009	16:25	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09266A94A	09/24/2009	16:25	Marie D John	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	09266108101B	09/25/2009	09:47	K. Robert Caulfeild-James	1
00220	Nitrate Nitrogen	EPA 353.2	1	09264106102A	09/21/2009	12:24	K. Robert Caulfeild-James	1
00219	Nitrite Nitrogen	EPA 353.2	1	09261105102B	09/18/2009	16:42	Venia B McFadden	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	09267110101B	09/24/2009	20:16	Joseph E McKenzie	1
00273	Total Organic Carbon	EPA 415.1	1	09265049501B	09/22/2009	02:57	James S Mathiot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	09266108101B	09/23/2009	10:50	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	09267110101B	09/24/2009	10:10	Nancy J Shoop	1
00221	Ammonia Nitrogen	EPA 350.2	1	09267022101A	09/24/2009	18:00	Luz M Groff	1
00226	Ortho-Phosphate as P	EPA 365.3	1	09262022601A	09/19/2009	08:30	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	09261023502A	09/18/2009	13:09	Hannah M Royer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	09265155301A	09/22/2009	07:50	Susan A Engle	1



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#### Group No. 1162417 Lancaster Laboratories Sample No. WW 5780055 WI MA3-TG6-3-091709-1 Groundwater 091709-7,1 02687.007.007.0001 Moss American Collected: 09/17/2009 09:15

Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009

Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

SDG#: KMA99-17* MAG63

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846	8310	ug/l	ug/l	
00774	Acenaphthene		83-32-9	N.D.	0.51	1
00774	Acenaphthylene		208-96-8	N.D.	1.0	1
00774	Anthracene		120-12-7	0.023 J	0.020	1
00774	Benzo(a)anthracene		56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene		50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthen	e	205-99-2	N.D.	0.0082	1
00774	Benzo(g,h,i)perylen	e	191-24-2	N.D.	0.061	1
00774	Benzo(k)fluoranthen	e	207-08-9	N.D.	0.0082	1
00774	Chrysene		218-01-9	N.D.	0.061	1
00774	Dibenz(a,h)anthrace	ne	53-70-3	N.D.	0.020	1
00774	Fluoranthene		206-44-0	0.070 J	0.020	1
00774	Fluorene		86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyr	ene	193-39-5	N.D.	0.041	1
00774	Naphthalene		91-20-3	N.D.	1.0	1
00774	Phenanthrene		85-01-8	N.D.	0.041	1
00774	Pyrene		129-00-0	N.D.	0.10	1
GC Vol	latiles	SW-846	8021B	ug/l	ug/l	
08213	Benzene		71-43-2	N.D.	0.2	1
08213	Ethvlbenzene		100-41-4	N.D.	0.2	1
08213	Toluene		108-88-3	N.D.	0.2	1
08213	Total Xylenes		1330-20-7	N.D.	0.6	1
Wet Ch	nemistrv	EPA 351	2	mg/l	mg/l	
00217	Kjeldahl Nitrogen		n.a.	N.D.	0.50	1
		EPA 353	.2	mg/l	mg/l	
00220	Nitrate Nitrogen		14797-55-8	N.D.	0.040	1
00219	Nitrite Nitrogen		14797-65-0	N.D.	0.015	1
		EDA 365	5 1	mg/l	mg/l	
00345	Total Phosphorus as	PO4 wate	14265-44-2	ND	0.25	1
00345	iocai inosphorus as	IO4 Watt	21 11203 11 2	N.D.	0.25	±
		EPA 415	5.1	mg/l	mg/l	
00273	Total Organic Carbo	n	n.a.	6.9	0.50	1
		EPA 350	.2	mg/l	mg/l	
00221	Ammonia Nitrogen		7664-41-7	0.53 J	0.20	1
		EPA 365	5.3	mg/l	mg/l	
00226	Ortho-Phosphate as	P	7723-14-0	N.D.	0.010	1
		EPA 405	5.1	mg/l	mg/l	
00235	Biochemical Oxygen	Demand	n.a.	N.D.	2.2	1



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Lancaster Laboratories Sample No. WW 5780055	Group No. 1162417 WI
MA3-TG6-3-091709-1 Groundwater 091709-7,1 02687.007.007.0001 Moss American	
Collected: 09/17/2009 09:15	Account Number: 11947
Submitted: 09/18/2009 09:30 Reported: 09/26/2009 at 15:13 Discard: 11/26/2009	Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

MAG63 SDG#: KMA99-17*

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet	Chemistry EPA	410.2		mg/l	mg/l	-
0155.	B Chemical Oxygen Demand		n.a.	17.0	2.6	1

### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
NO.					Date and Th	me		Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09261WAE026	09/23/2009	21:23	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09261WAE026	09/19/2009	07:45	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09266A94A	09/24/2009	20:23	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09266A94A	09/24/2009	20:23	Marie D John	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	09266108101B	09/25/2009	09:47	K. Robert Caulfeild-James	1
00220	Nitrate Nitrogen	EPA 353.2	1	09264106102A	09/21/2009	12:25	K. Robert Caulfeild-James	1
00219	Nitrite Nitrogen	EPA 353.2	1	09261105102B	09/18/2009	16:44	Venia B McFadden	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	09267110101B	09/24/2009	20:20	Joseph E McKenzie	1
00273	Total Organic Carbon	EPA 415.1	1	09265049501B	09/22/2009	03:19	James S Mathiot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	09266108101B	09/23/2009	10:50	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	09267110101B	09/24/2009	10:10	Nancy J Shoop	1
00221	Ammonia Nitrogen	EPA 350.2	1	09267022101A	09/24/2009	18:00	Luz M Groff	1
00226	Ortho-Phosphate as P	EPA 365.3	1	09262022601A	09/19/2009	08:30	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	09261023502A	09/18/2009	13:09	Hannah M Rover	1
01553	Chemical Oxygen Demand	EPA 410.2	1	09265155301A	09/22/2009	07:50	Susan A Engle	1



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### Quality Control Summary

Client Name: Tronox LLC Reported: 09/26/09 at 03:13 PM Group Number: 1162417

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	Blank <u>Result</u>	Blank <u>MDL</u>	Report <u>Units</u>	LCS <u>%REC</u>	LCSD <u>%REC</u>	LCS/LCSD <u>Limits</u>	RPD	<u>RPD Max</u>
Batch number: 09261WAE026	Sample nu	mber(s): 57	80039-578	0042,5780	044-57800	55		
Acenaphthene	N.D.	0.50	ua/l	75	78	61-102	5	30
Acenaphthylene	N.D.	1.0	uq/l	74	78	61-99	5	30
Anthracene	N.D.	0.020	ug/1	83	89	69-103	6	30
Benzo(a) anthracene	N.D.	0.010	ug/1	87	93	74-109	6	30
Benzo (a) pyrene	N D	0 010	$\frac{ug}{1}$	92	97	67-107	6	30
Benzo(b) fluoranthene	N D	0 0080	ug/1	91	97	76-110	6	30
Benzo (g, h, j) pervlene	N.D.	0.0000	ug/1	91	97	62-117	3	30
Benzo(k) fluoranthene	N.D.	0.000	ug/1	93	98	77-109	6	30
Chrygono	N.D.	0.0000	ug/1	25	96	77 111	7	30
Dibong (a, b) anthragona	N.D.	0.000	ug/1	01	90	74-111	7	30
Flueranthana	N.D.	0.020	ug/1	91	94	75-109	3	30
	N.D.	0.020	ug/1	0.3	69	66-103		30
Fluorene	N.D.	0.10	ug/1	84	89	6/-10/	6	30
Indeno(1,2,3-cd)pyrene	N.D.	0.040	ug/1	100	104	81-122	4	30
Naphthalene	N.D.	1.0	ug/1	69	73	57-95	5	30
Phenanthrene	N.D.	0.040	ug/l	88	94	71-108	6	30
Pyrene	N.D.	0.10	ug/l	89	95	70-108	6	30
Batch number: 09265A53A	Sample nu	mber(s): 57	80053					
Benzene	N.D.	0.2	ug/l	115	115	80-120	0	30
Ethylbenzene	N.D.	0.2	ug/l	115	115	80-120	0	30
Toluene	N.D.	0.2	ug/l	115	115	80-120	0	30
Total Xylenes	N.D.	0.6	ug/l	117	115	80-120	1	30
Batch number: 09265A94A	Sample nu	mber(s): 57	80039-578	0052				
Benzene	N.D.	0.2	ua/l	95	100	80-120	5	30
Ethvlbenzene	N.D.	0.2	uq/l	95	100	80-120	5	30
Toluene	N.D.	0.2	ug/1	95	100	80-120	5	30
Total Xylenes	N.D.	0.6	ug/l	98	103	80-120	5	30
Batch number, 09266A94A	Sample nu	mber(s) · 57	80054-578	0055				
Benzene	N D	0 2	ua/1	110	105	80-120	5	3.0
Fthylbenzene	N.D.	0.2	$\frac{ug}{1}$	110	105	80-120	5	30
Toluene	N.D.	0.2	ug/1	110	105	80-120	5	30
Total Xylenes	N.D.	0.6	ug/1	110	107	80-120	3	30
Patch number, 002611051020	Sample nu	mbor(a), F7	00011 570	0045				
Nitrite Nitrogen		0 015	mg/1	90		90-110		
Nicilice Niciogen	N.D.	0.015	IIIG/I	99		90-110		
Batch number: 09261105102B	Sample nu	mber(s): 57	80046-578	0055				
Nitrite Nitrogen	N.D.	0.015	mg/l	99		90-110		
Batch number: 09264106101A	Sample nu	mber(s): 57	80052-578	0053				
Nitrate Nitrogen	N.D.	0.040	mg/l	107		90-110		
Batch number: 09264106101B	Sample nu	mber(s): 57	80044-578	0051				
Nitrate Nitrogen	N.D.	0.040	mg/l	107		90-110		

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.



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### Quality Control Summary

Client Name: Tronox LLC Reported: 09/26/09 at 03:13 PM Group Number: 1162417

#### Laboratory Compliance Quality Control

Analysis Name	Blank <u>Result</u>	Blank <u>MDL</u>	Report <u>Units</u>	LCS <u>%REC</u>	LCSD <u>%REC</u>	LCS/LCSD <u>Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 09264106102A Nitrate Nitrogen	Sample numbe N.D.	r(s): 5780 0.040	054-57800 mg/l	)55 107		90-110		
Batch number: 09265049501A Total Organic Carbon	Sample numbe N.D.	r(s): 5780 0.50	044-57800 mg/l	100		91-113		
Batch number: 09265049501B Total Organic Carbon	Sample numbe N.D.	r(s): 5780 0.50	054-57800 mg/l	100		91-113		
Batch number: 09266108101A Kjeldahl Nitrogen	Sample numbe N.D.	r(s): 5780 0.50	044-57800 mg/l	97		90-110		
Batch number: 09266108101B Kjeldahl Nitrogen	Sample numbe N.D.	r(s): 5780 0.50	053-57800 mg/l	)55 97		90-110		
Batch number: 09267110101A Total Phosphorus as PO4 water	Sample numbe N.D.	r(s): 5780 0.25	044-57800 mg/l	96		89-110		
Batch number: 09267110101B Total Phosphorus as PO4 water	Sample numbe N.D.	r(s): 5780 0.25	051-57800 mg/l	96		89-110		
Batch number: 09261023502A Biochemical Oxygen Demand	Sample numbe	r(s): 5780	044-57800	104	102	85-115	2	8
Batch number: 09262022601A Ortho-Phosphate as P	Sample numbe N.D.	r(s): 5780 0.010	044-57800 mg/l	)55 99		95-105		
Batch number: 09265155301A Chemical Oxygen Demand	Sample numbe	r(s): 5780	044-57800	98		86-107		
Batch number: 09267022101A Ammonia Nitrogen	Sample numbe N.D.	r(s): 5780 0.20	044-57800 mg/l	93	92	85-105	1	5

Sample Matrix Quality Control Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>		MS <u>%REC</u>	MSD <u>%REC</u>	MS/MSD <u>Limits</u>	<u>RPD</u>	RPD <u>MAX</u>	BKG <u>Conc</u>	DUP <u>Conc</u>	DUP <u>RPD</u>	Dup RPD <u>Max</u>
Batch number: Benzene Ethylbenzene	09265A53A	Sample 120 125	number(s	): 5780053 70-152 75-133	UNSPK:	57800	53			
Toluene Total Xylenes		119 130		78-129 67-155						
Batch number:	09265A94A	Sample	number(s	): 5780039	-578005	2 UNSP	K: P779007			
Benzene Ethylbenzene Toluene Total Xylenes		115 115 119 118	115 115 114 115	70-152 75-133 78-129 67-155	0 0 4 3	30 30 30 30				

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.



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### Quality Control Summary

Client Name: Tronox LLC Reported: 09/26/09 at 03:13 PM Group Number: 1162417

#### Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS <u>%REC</u>	MSD <u>%REC</u>	MS/MSD <u>Limits</u>	I <u>RPD</u> I	RPD MAX	BKG <u>Conc</u>	DUP <u>Conc</u>	DUP <u>RPD</u>	Dup RPI <u>Max</u>
Batch number: 09266A94A Benzene Ethylbenzene Toluene Total Xylenes	Sample 115 115 115 115 115	number(s)	: 5780054- 70-152 75-133 78-129 67-155	-5780055	UNSPK	: 5780054			
Batch number: 09261105102A Nitrite Nitrogen	Sample 93	number(s)	: 5780044- 90-110	-5780045	UNSPK	: 5780045 N.D.	BKG: 5780045 N.D.	0 (1)	20
Batch number: 09261105102B Nitrite Nitrogen	Sample 100	number(s)	: 5780046- 90-110	-5780055	UNSPK	: 5780046 N.D.	BKG: 5780046 N.D.	0 (1)	20
Batch number: 09264106101A Nitrate Nitrogen	Sample 102	number(s)	: 5780052- 90-110	-5780053	UNSPK	: P779621 0.12	BKG: P779621 0.12	1 (1)	2
Batch number: 09264106101B Nitrate Nitrogen	Sample 91	number(s)	: 5780044- 90-110	-5780051	UNSPK	: P779851 2.2	BKG: P779851 2.2	1	2
Batch number: 09264106102A Nitrate Nitrogen	Sample 94	number(s)	: 5780054- 90-110	-5780055	UNSPK	: 5780055 N.D.	BKG: 5780055 N.D.	0 (1)	2
Batch number: 09265049501A Total Organic Carbon	Sample 102	number(s)	: 5780044- 64-141	-5780053	UNSPK	: 5780044 11.1	BKG: 5780044 11.0	1	4
Batch number: 09265049501B Total Organic Carbon	Sample 100	number(s)	: 5780054- 64-141	-5780055	UNSPK	: 5780054 10.3	BKG: 5780054 10.3	0	4
Batch number: 09266108101A Kjeldahl Nitrogen	Sample 91	number(s)	: 5780044- 90-110	-5780052	UNSPK	: 5780046 N.D.	BKG: 5780046 N.D.	0 (1)	20
Batch number: 09266108101B Kjeldahl Nitrogen	Sample 95	number(s)	: 5780053- 90-110	-5780055	UNSPK	: P780749 N.D.	BKG: P780749 N.D.	0 (1)	20
Batch number: 09267110101A Total Phosphorus as PO4 water	Sample 98	number(s)	: 5780044- 90-110	-5780050	UNSPK	: 5780046 N.D.	BKG: 5780046 N.D.	0 (1)	3
Batch number: 09267110101B Total Phosphorus as PO4 water	Sample 101	number(s)	: 5780051- 90-110	-5780055	UNSPK	: P784520 N.D.	BKG: P784520 N.D.	0 (1)	3
Batch number: 09261023502A Biochemical Oxygen Demand	Sample 102	number(s) 105	: 5780044- 76-134	-5780055 3 8	UNSPK 3	: 5780046 19.8	BKG: 5780049 19.2	3	15
Batch number: 09262022601A Ortho-Phosphate as P	Sample 96	number(s) 101	: 5780044- 80-120	-5780055 4 5	UNSPK 5	: 5780055 N.D.	BKG: 5780055 N.D.	0 (1)	6
Batch number: 09265155301A Chemical Oxygen Demand	Sample 91	number(s) 87	: 5780044- 70-130	-5780055 2 9	UNSPK 9	: 5780051 25.0	BKG: 5780051 24.2	3 (1)	8
Batch number: 09267022101A Ammonia Nitrogen	Sample	number(s)	: 5780044-	-5780055	BKG:	P783095 0.34 J	0.42 J	22* (1)	2

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.



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### Quality Control Summary

Client Name: Tronox LLC Reported: 09/26/09 at 03:13 PM Group Number: 1162417

#### Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Nam Batch number	me: PAH's in Water by HPI r: 09261WAE026	LC
	Nitrobenzene	Triphenylene
5780039	94	104
5780040	138*	7961*
5780041	94	101
5780042	89	100
5780044	109	14169*
5780045	90	98
5780046	91	97
5780047	95	100
5780048	96	101
5780049	99	106
5780050	95	103
5780051	95	103
5780052	97	103
5780053	97	102
5780054	85	93
5780055	106	107
Blank	84	98
LCS	100	102
LCSD	104	106
Limits:	67-111	77-122
Analysis Na	me: BTEX (8021)	
Batch numbe:	r: 09265A53A	
	Trifluorotoluene-P	
5780053	97	
Blank	96	
LCS	97	
LCSD	97	
MS	95	
Limits:	69-129	
Analysis Na	me: BTEX (8021)	
Batch numbe:	r: 09265A94A	
	Trifluorotoluene-P	
5780039	96	
5780040	96	
5780041	96	
5780042	96	
5780043	96	
5780044	95	
5780045	96	
5780046	95	

*- Outside of specification

96

96

96

5780047

5780048

5780049

(1) The result for one or both determinations was less than five times the LOQ.



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### Quality Control Summary

Client	Nam	е:	Tronox	LL z	C	
Reporte	ed:	09/	26/09	at	03:13	ΡM

Group Number: 1162417

Surrogate Quality Control

Limits: 69-129

Analysis Name: BTEX (8021) Batch number: 09266A94A Trifluorotoluene-P

5780054	97			
5780055	96			
Blank	96			
LCS	96			
LCSD	95			
MS	95			
Limits:	69-129	 	 	 

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

A119	47/110	02417	157	80030	7-55	- >
		01	6			

### Ohoin of Quotody Booond

COC ID:	091709-7		/	ſ	hain of Cust	ndv R	acar	d		WILT			
Client	Kerr McGee			U	num vi vuvt	nel s	UUUI	u				Page 1	əf 1
Site Name	Moss American	Co	ontact Na	me ]	Fom Graan		[	~				,	
W. O.	02687.007.007.0001	Co	ontact Ph	one No. 💈	347-918-4142	353.	353	30211	3021				1
Lab	LANCASTER LABS	La	b Contac	t (	C. SWEIGART	2-2	2-N	8-83	8-8-			1	
TAT		La	b Phone	7	717-656-2308 X1527	02	2	TEX	ΓEX				1
				-	Filtered								
					Container	Ioml-Glass Vis	Qml-Glass Vi	0ml-Glass Vie	0ml-Glass Vi				
					Preservative	N/A	H2SO4	HCI	N/A				
Lab ID	Sample ID	Matrix	PID	MS/MSD	Date-Time Collected								
	MA3-FB-091709-16	W		N	9/17/2009 17:30			3					
	MA3-MW34S-091709-14	W		N	9/17/2009 15:58			3					
	MA3-MW7S-091709-13	W	-	N	9/17/2009 15:52			3					
	MA3-MW7S-091709-13-DP	W		N	9/17/2009 15:52			3					
	MA3-TB-091709-2	W		N	9/17/2009 09:05	-			2				
	MA3-TG1-1-091709-8	W		N	9/17/2009 12:02	1	1	3	-				
	MA3-TG1-3-091709-9	W		N	9/17/2009 12:09	1	1	3					
····	MA3-TG2-1-091709-15	W		N	9/17/2009 16:55	1	1	3					
· ·	MA3-TG2-3-091709-12	W		N	9/17/2009 15:07	1	1	3					**************************************
	MA3-TG3-1-091709-10	W		N	9/17/2009 14:28	1	1	3	·····				Ali
	MA3-TG3-3-091709-11	W		N	9/17/2009 14:30	1	1	3					
w	MA3-TG4-1-091709-6	W		N	9/17/2009 10:49	1	1	3		ed an er			1000
	MA3-TG4-3-091709-7	W		N	9/17/2009 10:55	1	1	3					<del></del>
	MA3-TG5-1-091709-3	W		N	9/17/2009 09:05	1	1	3					
	MA3-TG5-3-091709-4	W		N	9/17/2009 09:22	1	1	3					
	MA3-TG6-1-091709-5	W		N	9/17/2009 11:30	1	1	3				····	<u> </u>
	MA3-TG6-3-091709-1	W		N	9/17/2009 09:15	1	1	3					
										-			
Remarks/Co	mments		Lab U Temp of 1 2	se Only Cooler wh	then Received, C $\frac{4}{3}$	X Tape was pre Tape was unbro COC Tape COC Tape wa:	esent on outer oken on outer ws present o s unbroken or	r package (* r package (* n sample (* n sample (*)	) N ) N N N	Received in Labels indicate Pro Received withi	s good condition N sperty Preserved N n Holding Time N		
			Relinqui	shed By	Date / Time Received	ВуГ	Date / Time	Re	linguished By	Date / Time	Received By	Date / Time	
		Z	Kinel	Aldo	1930 1/17/09				·				
Sampled	Ву	([	]								h	<u> </u>	
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COC ID:	091709-8	<u></u>		Ch	ain of Custo	dy Re	eard		WIST			
liont	Kerr McGee			UH)		uy ne			SOL	HIDNS.	Page 1	of 1
	Nen Mcoce	Cor	itant Nor	ne To	m Graan							
Site Name	MOSS American	Con	taet Ival	no No <b>84</b>	7.018.4142	831					ĺ	
₩. O.	02687.007.007.0001	Con	HACI PHO	ne 190. <u>04</u>		0-P/						
Lab	LANCASTER LABS	Lab	Contact		SVVEIGARI	IHS						
ГАТ		Lab	Phone	<u>71</u>	7-656-2308 X1527							
					Filtered	0mL Amher G						
					Preservative	N/A						
ab ID	Sample ID	Matrix	PID	MS/MSD	Date-Time Collected							1
<u>.</u> ,	MA3-FB-091709-16	w		N	9/17/2009 17:30	2						
— — — — — — — — — — — — — — — — —	MA3-MW34S-091709-14	W		N	9/17/2009 15:58	2						<u> </u>
ala:39 - 04	MA3-MW78-091709-13	W		N	9/17/2009 15:52	2						
	MA3-MW7S-091709-13-DP	w		N	9/17/2009 15:52	2						
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Remarks/	Comments		Lab I	Jse Only	c	OC Tape was p	esent on outer pac	kage N	Received	in good condition Ø	N	
			Temp o	of Cooler wh	en Received, C CO	C Tape was unbi	oken on outer pac	kage & N	Labels indicate P	roperly Preserved <table-cell></table-cell>	N	
			1	2 3	4 5 _{4,0}	COC Tap	ws present on sa	mple OX N	Received with	hin Holding Time 🕑	N.	
						COC Tape wa	s unbroken on sar		Deta (Tim-	Parainad Br	Date / 1	lime
			Relinq	uished By	Date / Time Received	By	Date / Time	Reinquished By		Keceived b)		
		(	fime	Wildo	1430 7/17/09	$\rightarrow$				+ -		
Samp	ied By	1	U					· .			······································	- 01
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COC ID:	091709-5	ſ		<b>' C</b>	hain of Custo	ody R	ecor	ď		WISS		
Client Site Name W. O. Lab	Kerr McGee Moss American 02687.007.007.0001 LANCASTER LABS	Cor Cor Lab	ntact Na ntact Ph Contac	me <u>T</u> one No. <u>8</u> t <u>C</u>	om Graan 47-918-4142 . SWEIGART 17-656-2308 X1527	351.2- TKN,365.1- TP,410.2-COI 350.2-NH3	365.3-OP, 405. BOD	415.1-TOC	8310-PAHS		Page 1 of 1	
		Lut	1 none	<u>.</u>	Filtered			1000 mL				
					Container	H2SO4	PMI-Koune (	N/A	H3PO4	ML Amber G		
ab ID	Sample ID	Matrix	PID	MS/MSD	Date-Time Collected	12001	112001		15.01			
	MA3-TG1-1-091709-8	w		N	0/17/2000 12:02	4		40 2	4			
	MA3-TG1-3-091709-9	W		N	9/17/2009 12:02	4	4		1	2		
		- W	Be Site Mar 1997		9/1//2009 12:09		1	°ZI	1	<u> </u>		
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ko <del>n</del> 1 ¹ - 11 - 1			<u></u>									
lemarks/Co	mments		Lab U Femp of	se Only Cooler who 3	$\frac{cc}{cc}$ en Received, C coc $\frac{4}{5} \Im i \eth$	C Tape was pr Tape was unbr COC Tape COC Tape wa	esent on oute oken on oute ws present o s unbroken o	r package & r package & on sample & n sample &	N N N	Receive Labels indicate Received w	ed in good condition Property Preserved Y within Holding Time	N N N
			Relinqui	shed By	Date / Time Received I 1930 1/17/01	By I	Date / Time	Re	linquished By	Date / Time	Received By	Date / Time
Sampled	Ву	`_		\					··.		AUT	

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COC ID: Client	091709-6 Kerr McGee	·		[°] Cl	hain of Custo	ody R	8CO	rd		WIST		Page 1	of 1
Site Name W. O. Lab TAT	<u>Moss American</u> 02687.007.007.0001 LANCASTER LABS	Co Co Lai Lai	ntact Na ntact Ph b Contac b Phone	me <u>T</u> ( one No. <u>&amp;</u> t <u>C</u>	<u>om Graan</u> 47-918-4142 . SWEIGART 17-656-2308 X1527	350.2-NH3	351.2- TKN,365.1- TP,410.2-COD	365.3-OP, 405.1- BOD	415.1-TOC	8310-PAHS			
					Filtered		Ć	91000 ml					
					Container	Oml-Round G	Dml-Round	C <del>500ml</del> -Plastic	ml-Round And	mL Amber G			
ab ID	Sample ID	Matrix	PID	MS/MSD	Date-Time Collected	11230,94	112304		r.5r04	IVA			+
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COC ID: Client	091709-4 Kerr McGee	,		Ci	nain of Custo	ody R	OCO	r <b>d</b>		W	<b>STEN</b>	Page 1	of 1
Site Name W. O. Lab TAT	Moss American 02687.007.007.0001 LANCASTER LABS	Co Co Lat Lat	ntact Name ntact Phone b Contact b Phone	: <u>To</u> : No. <u>84</u> <u>C.</u> 71	om Graan 17-918-4142 SWEIGART 7-656-2308 X1527	350.2-NH3	351.2- TKN,365.1- TP,410.2-COD	365.3-OP, 405.1- BOD	415.1-TOC	8310-PAHS			
					Filtered	Omi-Round C	Round	NOO ML	ml-Round Ar	OmI Amher G			
					Preservative	H2504	H2804	N/A	H3PO4	N/A			
_ab ID	Sample ID	Matrix	PID N	AS/MSD	Date-Time Collected								
·	MA3-TG3-1-091709-10	W		N	9/17/2009 14:28	1	1	@ZI	1	2			
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COC ID: Client	091709-3 Kerr McGee	1		Ċ	hain of Custo	ody R	eco	rd	·	WI	TEN	Page 1 of 1
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					Filtered Container	0ml-Round G	G mi-Round	(100) mL	ml-Round Am	emL Amber G	· · · · · · · · · · · · · · · · · · ·	
ab ID	Sample ID	Matrix	PID	MS/MSD	Preservative Date-Time Collected	H2SO4	H2SO4	N/A	H3PO4	N/A		
	MA3-TG4-1-091709-6	w		N	9/17/2009 10:49	1	1	21	1	2		
	MA3-TG4-3-091709-7	W		N	9/17/2009 10:55	1	1	1021	1	2		
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COC ID	: 091709-2 Kerr McGee	/		Ć	hain of Custo	ody R	ecor	d			ST.	N	Page 1	l of 1
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					Filtered	Mml-Round G	band G	1000 mL	ml-Round Art	Oml. Amher G				
					Preservative	H2SO4	H2SO4	N/A	H3PO4	N/A				
ab ID	Sample ID	Matrix	PID	MS/MSD	Date-Time Collected	+								+ :
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Client	Kerr McGee			-							-2101101101	NSI.	Page 1	of 1
Site Name	Moss American	Con	tact Nar	ne <u>T</u> o	om Graan			365	~	~		·		
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Lab	LANCASTER LABS	Lab	Contact	: <u>C</u> .	SWEIGART	NH.	12-C	DD 4	-TO	PAF				
TAT		Lab	Phone	<u>71</u>	17-656-2308 X1527	5	8÷	)5.1-	C	5				
					Filtered		<u> </u>	IN JUIL						
					Container	0ml-Round G	Oml-Round (	500ml-Plastic	mi-Round An	OmL Amber G				
				1.000.000	Preservative	H2SO4	H2SO4	N/A	НЗРО4	N/A				
ab ID	Sample ID	Matrix	PID	MS/MSD	Date-1 ime Collected	ļ		<u> </u>						
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### Environmental Sample Administration Receipt Documentation Log

Client/Project:	Kerr McGee	Shipping Container	Sealed: VE8	NO
Date of Receipt:	9/18/09	Custody Seal Prese	nt*· VF9	NO
Time of Receipt:	6930			
Source Code:	50-1	* Custody seal was intact discrepancy secti	unless otherwise no ion	oted in the
Unpacker Emp. No.:	1454	Package:	Chilled	Not Chilled

	Temperature of Shipping Containers								
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments		
1	04299165	2,8.4	TB	ωι	, y	В			
2		2.5.6							
3		4.0.0							
4		3,2.0							
5		2.7.1							
6	$\bigvee$	1.6.6			V				

Number of Trip Blanks received NOT listed on chain of custody: Ø___

Paperwork Discrepancy/Unpacking Problems:

A San	nple Administration Inte	ernal Chain of	Custody
Name	Date	Time	Reason for Transfer
Carrien Dunne A	9/18/09	1105	Unpacking
Daverland	5/18/09	1110	Place in Storage or Entry
			Entry
			Entry



### Environmental Sample Administration Receipt Documentation Log

Client/Project: <u>Ke</u>	err Metiee	Shipping Container S	ealed: VES	° NO
Date of Receipt:	9/18/09			
Time of Receipt:	0930	Custody Seal Present	:*: ¥≞S	NO
Source Code:	50-1	* Custody seal was intact ur discrepancy sectior	nless otherwise no n	oted in the
Unpacker Emp. No.:	1454	Package:	Chilled	Not Chilled

	Temperature of Shipping Containers								
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments		
* ד	04129665	1.8.0	TB	$(\omega)$	a cy	B			
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Number of Trip Blanks received NOT listed on chain of custody:

Paperwork Discrepancy/Unpacking Problems:

Sar	nple Administration Int	ernal Chain of	Custody
Name	Date	Time	Reason for Transfer
John Will Day	9/18/09	llos	Unpacking
Javestund	9/18/09	///0	Place in Storage or Entry
			Entry
			Entry

### Lancaster Laboratories Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	BMQL	Below Minimum Quantitation Level
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
С	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	I	liter(s)
mĪ	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml

 less than – The number following the sign is the <u>limit of quantitation</u>, the smallest amount of analyte which can be reliably determined using this specific test.

- > greater than
- ppm parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.
- ppb parts per billion

**Dry weight basis** Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

#### **Organic Qualifiers**

- **A** TIC is a possible aldol-condensation product
- **B** Analyte was also detected in the blank
- C Pesticide result confirmed by GC/MS
- **D** Compound quatitated on a diluted sample
- E Concentration exceeds the calibration range of the instrument
- J Estimated value
- **N** Presumptive evidence of a compound (TICs only)
- **P** Concentration difference between primary and confirmation columns >25%
- **U** Compound was not detected
- **X,Y,Z** Defined in case narrative

### **Inorganic Qualifiers**

- B Value is <CRDL, but ≥IDL
- **E** Estimated due to interference
- **M** Duplicate injection precision not met
- **N** Spike amount not within control limits
- S Method of standard additions (MSA) used for calculation
- U Compound was not detected
- W Post digestion spike out of control limits
- * Duplicate analysis not within control limits
- + Correlation coefficient for MSA < 0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY – In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions of Lancaster Laboratories and we hereby object to any conflicting terms contained in any acceptance or order submitted by client.





#### ANALYTICAL RESULTS

Prepared for:

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

405-775-5429

Prepared by:

Lancaster Laboratories 2425 New Holland Pike Lancaster, PA 17605-2425

October 01, 2009

#### Project: Moss American

Samples arrived at the laboratory on Saturday, September 19, 2009. The PO# for this group is ZAKW1KEOK0A90089. The group number for this submittal is 1162608.

Client Sample Description	Lancaster Labs (LLI) #
MA3-FB-091809-12 Groundwater	5781425
MA3-MW30S-091809-13 Groundwater	5781426
MA3-MW33S-091809-10 Groundwater	5781427
MA3-MW35S-091809-9 Groundwater	5781428
MA3-MW35S-091809-9MS Groundwater	5781429
MA3-MW35S-091809-9MSD Groundwater	5781430
MA3-MW37S-091809-7 Groundwater	5781431
MA3-MW39S-091809-11 Groundwater	5781432
MA3-MW9S-091809-8 Groundwater	5781433
MA3-MWA-091809-6 Groundwater	5781434
MA3-MWB-091809-2 Groundwater	5781435
MA3-MWC-091809-1 Groundwater	5781436
MA3-MWC-091809-1-DP Groundwater	5781437
MA3-MWD-091809-4 Groundwater	5781438
MA3-MWE-091809-5 Groundwater	5781439
MA3-TB-091809-3 Groundwater	5781440

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.





ELECTRONIC	Tronox LLC
СОРҮ ТО	
ELECTRONIC	Weston Solutions, Inc.
СОРҮ ТО	
ELECTRONIC	Tronox LLC
СОРҮ ТО	
ELECTRONIC	Tronox LLC
СОРҮ ТО	
ELECTRONIC	Weston Solutions
СОРҮ ТО	
1 COPY TO	Data Package Group

Attn: Keith Watson Attn: Tom Graan Attn: Sherron Hendricks Attn: Roy Widmann Attn: Andris Slesers

Questions? Contact your Client Services Representative Katherine A Klinefelter at (717) 656-2300

Respectfully Submitted,

Chad Moline

Chad A. Moline Group Leader





Page 1 of 1

LLI Sample # WW 5781425

WI

LLI Group # 1162608

Sample Description: MA3-FB-091809-12 Groundwater 091809-3,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 15:45

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

FB12- SDG#: KMB01-01FB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 8	310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.51	1
00774	Acenaphthylene	208-96-8	N.D.	1.0	1
00774	Anthracene	120-12-7	N.D.	0.020	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0082	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.061	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0082	1
00774	Chrysene	218-01-9	N.D.	0.061	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.020	1
00774	Fluoranthene	206-44-0	N.D.	0.020	1
00774	Fluorene	86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	N.D.	1.0	1
00774	Phenanthrene	85-01-8	N.D.	0.041	1
00774	Pyrene	129-00-0	N.D.	0.10	1
GC Vol	latiles SW-846 8	021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	0.6 J	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	e	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09264WAE026	09/24/2009	10:33	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09264WAE026	09/22/2009 (	09:40	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09266A94A	09/24/2009	15:58	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09266A94A	09/24/2009	15:58	Marie D John	1



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LLI Sample # WW 5781426

WI

LLI Group # 1162608

Sample Description: MA3-MW30S-091809-13 Groundwater 091809-3,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 15:57

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

30S13 SDG#: KMB01-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.52	1
00774	Acenaphthylene	208-96-8	N.D.	1.0	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0083	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.062	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0083	1
00774	Chrysene	218-01-9	N.D.	0.062	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	N.D.	1.0	1
00774	Phenanthrene	85-01-8	N.D.	0.041	1
00774	Pyrene	129-00-0	N.D.	0.10	1
GC Vol	atiles SW-846	8021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	1.5	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	ne	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09264WAE026	09/24/2009	11:12	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09264WAE026	09/22/2009	09:40	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09266A53A	09/24/2009	18:44	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09266A53A	09/24/2009	18:44	Marie D John	1



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LLI Sample # WW 5781427

WI

LLI Group # 1162608

Sample Description: MA3-MW33S-091809-10 Groundwater 091809-3,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 15:05

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

33S10 SDG#: KMB01-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 833	10	ug/l	ug/l	
00774	Acenaphthene	83-32-9	150	0.51	1
00774	Acenaphthylene	208-96-8	N.D.	12	1
00774	Anthracene	120-12-7	1.3	0.020	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0081	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.061	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0081	1
00774	Chrysene	218-01-9	N.D.	0.061	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.020	1
00774	Fluoranthene	206-44-0	0.051 J	0.020	1
00774	Fluorene	86-73-7	77	0.51	5
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	76	1.0	1
00774	Phenanthrene	85-01-8	31	0.20	5
00774	Pyrene	129-00-0	N.D.	0.10	1
Due t repoi limit	to the presence of an interferent tring limit was not attained for a t for this compound was raised ac	near its retent acenaphthylene. cordingly.	tion time, the normal The reporting		
GC Vol	atiles SW-846 802	21B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	0.5 J	0.2	1
08213	Toluene	108-88-3	0.4 J	0.2	1
08213	Total Xylenes	1330-20-7	4.1	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	9	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09264WAE026	09/24/2009 1	1:51	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	09264WAE026	09/25/2009 0	01:08	Mark A Clark	5
03337	PAH Water Extraction	SW-846 3510C	1	09264WAE026	09/22/2009 0	9:40	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09266A53A	09/24/2009 1	9:08	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09266A53A	09/24/2009 1	9:08	Marie D John	1



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LLI Sample # WW 5781428

WI

LLI Group # 1162608

Sample Description: MA3-MW35S-091809-9 Groundwater 091809-1,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 12:49

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

35S-9 SDG#: KMB01-04BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 83	10	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.51	1
00774	Acenaphthylene	208-96-8	N.D.	1.0	1
00774	Anthracene	120-12-7	N.D.	0.080	1
00774	Benzo(a)anthracene	56-55-3	0.019 J	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0081	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.061	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0081	1
00774	Chrysene	218-01-9	0.082 J	0.061	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.020	1
00774	Fluoranthene	206-44-0	0.51	0.020	1
00774	Fluorene	86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	N.D.	1.0	1
00774	Phenanthrene	85-01-8	0.051 J	0.041	1
00774	Pyrene	129-00-0	0.34 J	0.10	1
Due	to the presence of an interferen	t near its rete	ntion time, the normal		
repo comp	rting limit was not attained for ound was raised accordingly.	anthracene. I	he reporting limit for t	this	
GC Vo	latiles SW-846 80	21B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09264WAE026	09/24/2009 07:19	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09264WAE026	09/22/2009 09:40	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09266A53A	09/25/2009 01:30	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09266A53A	09/25/2009 01:30	Marie D John	1



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LLI Sample # WW 5781429

WI

LLI Group # 1162608

Sample Description: MA3-MW35S-091809-9MS Groundwater 091809-1,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 12:49	Account Number: 11947
Submitted: 09/19/2009 10:20	Tronox LLC
Reported: 10/01/2009 at 13:49	PO Box 268859
Discard: 12/01/2009	Oklahoma City OK 73126-8859

35S-9 SDG#: KMB01-04MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	81	0.51	1
00774	Acenaphthylene	208-96-8	160	1.0	1
00774	Anthracene	120-12-7	2.7	0.020	1
00774	Benzo(a)anthracene	56-55-3	1.4	0.010	1
00774	Benzo(a)pyrene	50-32-8	1.5	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	1.2	0.0082	1
00774	Benzo(g,h,i)perylene	191-24-2	12	0.061	1
00774	Benzo(k)fluoranthene	207-08-9	1.2	0.0082	1
00774	Chrysene	218-01-9	5.8	0.061	1
00774	Dibenz(a,h)anthracene	53-70-3	3.0	0.020	1
00774	Fluoranthene	206-44-0	3.2	0.020	1
00774	Fluorene	86-73-7	18	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	6.6	0.041	1
00774	Naphthalene	91-20-3	150	1.0	1
00774	Phenanthrene	85-01-8	5.7	0.041	1
00774	Pyrene	129-00-0	20	0.10	1
GC Vol	atiles SW-846	8021B	ug/l	ug/l	
08213	Benzene	71-43-2	25	0.2	1
08213	Ethylbenzene	100-41-4	25	0.2	1
08213	Toluene	108-88-3	24	0.2	1
08213	Total Xylenes	1330-20-7	75	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	e	Analyst	Dilution Factor
00774 03337	PAH's in Water by HPLC PAH Water Extraction	SW-846 8310 SW-846 3510C	1 1	09264WAE026 09264WAE026	09/24/2009 09/22/2009	07:58 09:40	Mark A Clark Cynthia J	1 1
08213 01146	BTEX (8021) GC VOA Water Prep	SW-846 8021B SW-846 5030B	1 1	09266A53A 09266A53A	09/25/2009 09/25/2009	01:54 01:54	Salvatori Marie D John Marie D John	1 1



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Sample	Description:	MA3-MW35S-091809-9MSD Groundwater
		091809-1,4 02687.007.007.0001
		Moss American

#### LLI Sample # WW 5781430 LLI Group # 1162608 WI

#### Project Name: Moss American

Collected: 09/18/2009 12:49	Account Number: 11947
Submitted: 09/19/2009 10:20	Tronox LLC
Reported: 10/01/2009 at 13:49	PO Box 268859
Discard: 12/01/2009	Oklahoma City OK 73126-8859

35S-9 SDG#: KMB01-04MSD

GC/Ms         Semivolatiles         SW-846         831-0         ug/l         ug/l           00774         Acenaphthene         83-32-9         82         0.52         1           00774         Acenaphthylen         208-96-8         160         1.0         1           00774         Acenaphthylene         208-96-8         160         0.021         1           00774         Anthracene         56-55-3         1.5         0.010         1           00774         Benzo(a) anthracene         50-32-8         1.6         0.010         1           00774         Benzo(b) fluoranthene         205-99-2         1.2         0.0083         1           00774         Benzo(k) fluoranthene         207-08-9         1.3         0.0083         1           00774         Benzo(k) fluoranthene         207-08-9         1.3         0.001         1           00774         Benzo(k) fluoranthene         206-44-0         3.3         0.021         1           00774         Pioerae         86-73-7         19         0.10         1           00774         Fluoranthene         91-20-3         150         1.0         1           00774         Piorene         85-01-8	CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
00774       Acenaphthene       83-32-9       82       0.52       1         00774       Acenaphthylene       208-96-8       160       1.0       1         00774       Anthracene       120-12-7       2.8       0.021       1         00774       Benzo(a) anthracene       56-55-3       1.5       0.010       1         00774       Benzo(a) pyrene       50-32-8       1.6       0.0083       1         00774       Benzo(g), i) perylene       191-24-2       13       0.062       1         00774       Benzo(k) fluoranthene       207-08-9       1.3       0.0083       1         00774       Dibenz(a, h) anthracene       53-70-3       3.1       0.021       1         00774       Dibenz(a, h) anthracene       53-70-3       3.1       0.021       1         00774       Dibenz(a, h) anthracene       86-73-7       19       0.10       1         00774       Fluorene       86-73-7       19       0.041       1         00774       Indeno(1, 2, 3-cd) pyrene       129-0-3       150       1.0       1         00774       Phenanthrene       5.01-8       5.9       0.041       1         00774       Pyren	GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774       Acenaphthylene       208-96-8       160       1.0       1         00774       Anthracene       120-12-7       2.8       0.021       1         00774       Benzo(a) anthracene       56-55-3       1.5       0.010       1         00774       Benzo(a) pyrene       50-32-8       1.6       0.010       1         00774       Benzo(b) fluoranthene       205-99-2       1.2       0.0083       1         00774       Benzo(g,h,i) perylene       191-24-2       13       0.0083       1         00774       Benzo(g,h,i) perylene       207-08-9       1.3       0.0083       1         00774       Benzo(a,h) anthracene       53-70-3       3.1       0.021       1         00774       Dibenz(a,h) anthracene       53-70-3       3.1       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluoranthene       91-20-3       150       1.0       1         00774       Fluorene       85-01-8       5.9       0.041       1         00774       Phenanthrene       91-20-3       150       1.0       1         00774       Phenanthrene <td>00774</td> <td>Acenaphthene</td> <td>83-32-9</td> <td>82</td> <td>0.52</td> <td>1</td>	00774	Acenaphthene	83-32-9	82	0.52	1
00774       Anthracene       120-12-7       2.8       0.021       1         00774       Benzo(a) anthracene       56-55-3       1.5       0.010       1         00774       Benzo(a) gyrene       50-32-8       1.6       0.010       1         00774       Benzo(b) fluoranthene       205-99-2       1.2       0.0083       1         00774       Benzo(g, h, i) perylene       191-24-2       13       0.062       1         00774       Benzo(k) fluoranthene       207-08-9       1.3       0.0083       1         00774       Benzo(k) fluoranthene       207-08-9       1.3       0.0083       1         00774       Benzo(k) fluoranthene       207-08-9       1.3       0.0083       1         00774       Benzo(k) fluoranthene       206-44-0       3.1       0.021       1         00774       Dibenz(a, h) anthracene       53-70-3       3.1       0.021       1         00774       Fluorene       86-73-7       19       0.10       1         00774       Fluorene       86-73-7       19       0.041       1         00774       Naphthalene       91-20-3       150       1.0       1         00774 <td< td=""><td>00774</td><td>Acenaphthylene</td><td>208-96-8</td><td>160</td><td>1.0</td><td>1</td></td<>	00774	Acenaphthylene	208-96-8	160	1.0	1
00774       Benzo (a) anthracene       56-55-3       1.5       0.010       1         00774       Benzo (a) pyrene       50-32-8       1.6       0.010       1         00774       Benzo (b) fluoranthene       205-99-2       1.2       0.0083       1         00774       Benzo (g, h, i) perylene       191-24-2       13       0.062       1         00774       Benzo (k) fluoranthene       207-08-9       1.3       0.0083       1         00774       Chrysene       218-01-9       6.1       0.062       1         00774       Dibenz (a, h) anthracene       53-70-3       3.1       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluoranthene       206-73-7       19       0.10       1         00774       Indeno (1, 2, 3-cd) pyrene       193-39-5       6.8       0.041       1         00774       Maphthalene       91-20-3       150       0.041       1         00774       <	00774	Anthracene	120-12-7	2.8	0.021	1
00774       Benzo(a)pyrene       50-32-8       1.6       0.010       1         00774       Benzo(b)fluoranthene       205-99-2       1.2       0.0083       1         00774       Benzo(g,h,i)perylene       191-24-2       13       0.062       1         00774       Benzo(g,h,i)perylene       191-24-2       13       0.0083       1         00774       Benzo(g,h,i)perylene       218-01-9       6.1       0.062       1         00774       Dibenz(a,h)anthracene       53-70-3       3.1       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluoranthene       86-73-7       19       0.10       1         00774       Indeno(1,2,3-cd)pyrene       193-39-5       6.8       0.041       1         00774       Phenanthrene       91-20-3       150       1.0       1         00774       Phenanthrene       85-01-8       5.9       0.041       1         00774       Pyrene	00774	Benzo(a)anthracene	56-55-3	1.5	0.010	1
00774       Benzo (b) fluoranthene       205-99-2       1.2       0.0083       1         00774       Benzo (g, h, i) perylene       191-24-2       13       0.062       1         00774       Benzo (k) fluoranthene       207-08-9       1.3       0.0083       1         00774       Benzo (k) fluoranthene       207-08-9       1.3       0.0083       1         00774       Benzo (a, h) anthracene       53-70-3       3.1       0.021       1         00774       Dibenz (a, h) anthracene       53-70-3       3.1       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluorene       86-73-7       19       0.10       1         00774       Indeno (1, 2, 3-cd) pyrene       193-39-5       6.8       0.041       1         00774       Phenanthrene       91-20-3       150       1.0       1         00774       Pyrene       129-00-0       20       10       1         08213 <t< td=""><td>00774</td><td>Benzo(a)pyrene</td><td>50-32-8</td><td>1.6</td><td>0.010</td><td>1</td></t<>	00774	Benzo(a)pyrene	50-32-8	1.6	0.010	1
00774       Benzo (g, h, i) perylene       191-24-2       13       0.062       1         00774       Benzo (k) fluoranthene       207-08-9       1.3       0.0083       1         00774       Chrysene       218-01-9       6.1       0.062       1         00774       Dibenz (a, h) anthracene       53-70-3       3.1       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluoranthene       86-73-7       19       0.10       1         00774       Indeno (1, 2, 3-cd) pyrene       193-39-5       6.8       0.041       1         00774       Napthalene       91-20-3       150       1.0       1         00774       Pyrene       129-00-0       20       0.041       1         00774       Pyrene       129-00-0       20       0.001       1         00774       Pyrene       129-00-0       20       0.10       1         08213       Benzene       71-43-2       25       0.2       1         08213       Ethylbenzene       108-48-3       24       0.2       1         08213       Total Xylenes       1330-20-7       75	00774	Benzo(b)fluoranthene	205-99-2	1.2	0.0083	1
00774       Benzo (k) fluoranthene       207-08-9       1.3       0.0083       1         00774       Chrysene       218-01-9       6.1       0.062       1         00774       Dibenz (a, h) anthracene       53-70-3       3.1       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluoranthene       206-74-0       3.3       0.021       1         00774       Fluoranthene       86-73-7       19       0.10       1         00774       Indeno (1, 2, 3-cd) pyrene       193-39-5       6.8       0.041       1         00774       Naphthalene       91-20-3       150       1.0       1         00774       Phenanthrene       85-01-8       5.9       0.041       1         00774       Pyrene       129-00-0       20       0.10       1         08213       Benzene       71-43-2       25       0.2       1         08213       Ethylbenzene       100-41-4       24       0.2       1         08213       Toluene       108-88-3       24       0.2       1         08213       Total Xylenes       1330-20-7       75	00774	Benzo(g,h,i)perylene	191-24-2	13	0.062	1
00774       Chrysene       218-01-9       6.1       0.062       1         00774       Dibenz(a,h) anthracene       53-70-3       3.1       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluoranthene       86-73-7       19       0.10       1         00774       Indeno(1,2,3-cd) pyrene       193-39-5       6.8       0.041       1         00774       Naphthalene       91-20-3       150       1.0       1         00774       Phenanthrene       85-01-8       5.9       0.041       1         00774       Pyrene       129-00-0       20       0.10       1         08213       Benzene       71-43-2       25       0.2       1         08213       Ethylbenzene       100-41-4       24       0.2       1         08213       Toluene       108-88-3       24       0.2       1         08213       Toluene       1330-20-7       75       0.6       1	00774	Benzo(k)fluoranthene	207-08-9	1.3	0.0083	1
00774       Dibenz (a, h) anthracene       53-70-3       3.1       0.021       1         00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluorene       86-73-7       19       0.10       1         00774       Indeno (1, 2, 3-cd) pyrene       193-39-5       6.8       0.041       1         00774       Naphthalene       91-20-3       150       1.0       1         00774       Phenanthrene       85-01-8       5.9       0.041       1         00774       Pyrene       129-00-0       20       0.10       1         Ug/l       Ug/l         Other SW-846 8021B       Ug/l       1         08213       Benzene       71-43-2       25       0.2       1         08213       Ethylbenzene       100-41-4       24       0.2       1         08213       Toluene       108-88-3       24       0.2       1         08213       Total Xylenes       1330-20-7       75       0.6       1	00774	Chrysene	218-01-9	6.1	0.062	1
00774       Fluoranthene       206-44-0       3.3       0.021       1         00774       Fluorene       86-73-7       19       0.10       1         00774       Indeno(1,2,3-cd)pyrene       193-39-5       6.8       0.041       1         00774       Naphthalene       91-20-3       150       1.0       1         00774       Phenanthrene       85-01-8       5.9       0.041       1         00774       Pyrene       129-00-0       20       0.10       1         GC Volatiles       SW-846 8021B       ug/l       ug/l       1         08213       Benzene       71-43-2       25       0.2       1         08213       Ethylbenzene       100-41-4       24       0.2       1         08213       Toluene       108-88-3       24       0.2       1         08213       Total Xylenes       1330-20-7       75       0.6       1	00774	Dibenz(a,h)anthracene	53-70-3	3.1	0.021	1
00774       Fluorene       86-73-7       19       0.10       1         00774       Indeno(1,2,3-cd)pyrene       193-39-5       6.8       0.041       1         00774       Naphthalene       91-20-3       150       1.0       1         00774       Phenanthrene       85-01-8       5.9       0.041       1         00774       Pyrene       129-00-0       20       0.10       1         GC Volatiles       SW-846 8021B       ug/l       ug/l         08213       Benzene       71-43-2       25       0.2       1         08213       Ethylbenzene       100-41-4       24       0.2       1         08213       Toluene       108-88-3       24       0.2       1         08213       Total Xylenes       1330-20-7       75       0.6       1	00774	Fluoranthene	206-44-0	3.3	0.021	1
00774       Indeno(1,2,3-cd)pyrene       193-39-5       6.8       0.041       1         00774       Naphthalene       91-20-3       150       1.0       1         00774       Phenanthrene       85-01-8       5.9       0.041       1         00774       Pyrene       129-00-0       20       0.10       1         GC Volatiles       SW-846 8021B       ug/l       ug/l         08213 Benzene       71-43-2       25       0.2       1         08213       Ethylbenzene       100-41-4       24       0.2       1         08213       Toluene       108-88-3       24       0.2       1         08213       Total Xylenes       1330-20-7       75       0.6       1	00774	Fluorene	86-73-7	19	0.10	1
00774       Naphthalene       91-20-3       150       1.0       1         00774       Phenanthrene       85-01-8       5.9       0.041       1         00774       Pyrene       129-00-0       20       0.10       1         GC Volatiles       SW-846 8021B       ug/l         08213       Benzene       71-43-2       25       0.2       1         08213       Ethylbenzene       100-41-4       24       0.2       1         08213       Toluene       108-88-3       24       0.2       1         08213       Total Xylenes       1330-20-7       75       0.6       1	00774	Indeno(1,2,3-cd)pyrene	193-39-5	6.8	0.041	1
00774       Phenanthrene       85-01-8       5.9       0.041       1         00774       Pyrene       129-00-0       20       0.10       1         GC Volatiles       SW-846 8021B       ug/l       ug/l       1         08213       Benzene       71-43-2       25       0.2       1         08213       Ethylbenzene       100-41-4       24       0.2       1         08213       Toluene       108-88-3       24       0.2       1         08213       Total Xylenes       1330-20-7       75       0.6       1	00774	Naphthalene	91-20-3	150	1.0	1
00774       Pyrene       129-00-0       20       0.10       1         GC Volatiles       SW-846 8021B       ug/l       ug/l       ug/l         08213       Benzene       71-43-2       25       0.2       1         08213       Ethylbenzene       100-41-4       24       0.2       1         08213       Toluene       108-88-3       24       0.2       1         08213       Total Xylenes       1330-20-7       75       0.6       1	00774	Phenanthrene	85-01-8	5.9	0.041	1
GC Volatiles         SW-846 8021B         ug/l         ug/l           08213         Benzene         71-43-2         25         0.2         1           08213         Ethylbenzene         100-41-4         24         0.2         1           08213         Toluene         108-88-3         24         0.2         1           08213         Total Xylenes         1330-20-7         75         0.6         1	00774	Pyrene	129-00-0	20	0.10	1
08213       Benzene       71-43-2       25       0.2       1         08213       Ethylbenzene       100-41-4       24       0.2       1         08213       Toluene       108-88-3       24       0.2       1         08213       Total Xylenes       1330-20-7       75       0.6       1	GC Vol	Latiles SW-846	8021B	ug/l	ug/l	
08213       Ethylbenzene       100-41-4       24       0.2       1         08213       Toluene       108-88-3       24       0.2       1         08213       Total Xylenes       1330-20-7       75       0.6       1	08213	Benzene	71-43-2	25	0.2	1
08213         Toluene         108-88-3         24         0.2         1           08213         Total Xylenes         1330-20-7         75         0.6         1	08213	Ethylbenzene	100-41-4	24	0.2	1
08213 Total Xylenes 1330-20-7 75 0.6 1	08213	Toluene	108-88-3	24	0.2	1
	08213	Total Xylenes	1330-20-7	75	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	e	Analyst	Dilution Factor
00774 03337	PAH's in Water by HPLC PAH Water Extraction	SW-846 8310 SW-846 3510C	1 1	09264WAE026 09264WAE026	09/24/2009 09/22/2009	08:37 09:40	Mark A Clark Cynthia J Salvatori	1 1
08213 01146	BTEX (8021) GC VOA Water Prep	SW-846 8021B SW-846 5030B	1 1	09266A53A 09266A53A	09/25/2009 09/25/2009	02:18 02:18	Marie D John Marie D John	1 1



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LLI Sample # WW 5781431

WI

LLI Group # 1162608

Sample Description: MA3-MW37S-091809-7 Groundwater 091809-2,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 12:52

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

37S-7 SDG#: KMB01-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 8	310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.52	1
00774	Acenaphthylene	208-96-8	N.D.	1.0	1
00774	Anthracene	120-12-7	0.023 J	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0083	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.062	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0083	1
00774	Chrysene	218-01-9	N.D.	0.062	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	0.060 J	0.021	1
00774	Fluorene	86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	N.D.	1.0	1
00774	Phenanthrene	85-01-8	0.19 J	0.041	1
00774	Pyrene	129-00-0	N.D.	0.10	1
GC Vol	atiles SW-846 8	021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09264WAE026	09/24/2009 13	:09 Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09264WAE026	09/22/2009 09	:40 Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09266A53A	09/24/2009 19	:32 Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09266A53A	09/24/2009 19	:32 Marie D John	1



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LLI Sample # WW 5781432

WI

LLI Group # 1162608

Sample Description: MA3-MW39S-091809-11 Groundwater 091809-3,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 14:56

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

39S11 SDG#: KMB01-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 831	LO	ug/l	ug/l	
00774	Acenaphthene	83-32-9	2.2	0.52	1
00774	Acenaphthylene	208-96-8	N.D.	4.3	1
00774	Anthracene	120-12-7	0.14	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0083	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.062	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0083	1
00774	Chrysene	218-01-9	N.D.	0.062	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	0.18	0.021	1
00774	Fluorene	86-73-7	0.86	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.042	1
00774	Naphthalene	91-20-3	N.D.	1.0	1
00774	Phenanthrene	85-01-8	N.D.	0.042	1
00774	Pyrene	129-00-0	0.13 J	0.10	1
Due t repoi limit	to the presence of an interferent ting limit was not attained for a for this compound was raised ac	near its reten acenaphthylene. cordingly.	tion time, the normal The reporting		
GC Vol	atiles SW-846 802	21B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09264WAE026	09/24/2009 13:	47 Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09264WAE026	09/22/2009 09:	40 Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09266A53A	09/24/2009 19:	56 Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09266A53A	09/24/2009 19:	56 Marie D John	1



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LLI Sample # WW 5781433

WI

LLI Group # 1162608

Sample Description: MA3-MW9S-091809-8 Groundwater 091809-3,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 12:53

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

9S-8- SDG#: KMB01-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.51	1
00774	Acenaphthylene	208-96-8	N.D.	1.0	1
00774	Anthracene	120-12-7	N.D.	0.020	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0082	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.061	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0082	1
00774	Chrysene	218-01-9	N.D.	0.061	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.020	1
00774	Fluoranthene	206-44-0	N.D.	0.020	1
00774	Fluorene	86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	N.D.	1.0	1
00774	Phenanthrene	85-01-8	N.D.	0.041	1
00774	Pyrene	129-00-0	N.D.	0.10	1
GC Vol	atiles SW-846	8021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	e	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09264WAE026	09/24/2009 1	14:26	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09264WAE026	09/22/2009 0	09:40	Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09266A53A	09/24/2009 2	20:20	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	09266A53A	09/24/2009 2	20:20	Marie D John	1



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LLI Sample # WW 5781434

WI

LLI Group # 1162608

Sample Description: MA3-MWA-091809-6 Groundwater 091809-2,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 11:27

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

A--6- SDG#: KMB01-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.52	1
00774	Acenaphthylene	208-96-8	N.D.	1.0	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0083	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.062	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0083	1
00774	Chrysene	218-01-9	N.D.	0.062	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	N.D.	1.0	1
00774	Phenanthrene	85-01-8	N.D.	0.041	1
00774	Pyrene	129-00-0	N.D.	0.10	1
GC Vol	atiles SW-846	8021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	e	Analyst	Dilution Factor
00774 03337	PAH's in Water by HPLC PAH Water Extraction	SW-846 8310 SW-846 3510C	1 1	09264WAE026 09264WAE026	09/24/2009 09/22/2009	15:05 09:40	Mark A Clark Cynthia J Salvatori	1 1
08213 01146	BTEX (8021) GC VOA Water Prep	SW-846 8021B SW-846 5030B	1 1	09266A53A 09266A53A	09/24/2009 09/24/2009	20:43 20:43	Marie D John Marie D John	1 1





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LLI Sample # WW 5781435

WI

LLI Group # 1162608

Sample Description: MA3-MWB-091809-2 Groundwater 091809-1,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 09:01

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

B--2- SDG#: KMB01-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.52	1
00774	Acenaphthylene	208-96-8	N.D.	1.0	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0083	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.062	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0083	1
00774	Chrysene	218-01-9	N.D.	0.062	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	N.D.	1.0	1
00774	Phenanthrene	85-01-8	N.D.	0.041	1
00774	Pyrene	129-00-0	N.D.	0.10	1
GC Vol	atiles SW-846	8021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	e	Analyst	Dilution Factor
00774 03337	PAH's in Water by HPLC PAH Water Extraction	SW-846 8310 SW-846 3510C	1 1	09264WAE026 09264WAE026	09/24/2009 09/22/2009	15:44 09:40	Mark A Clark Cynthia J Salvatori	1 1
08213 01146	BTEX (8021) GC VOA Water Prep	SW-846 8021B SW-846 5030B	1 1	09266A53A 09266A53A	09/24/2009 09/24/2009	21:55 21:55	Marie D John Marie D John	1 1





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LLI Sample # WW 5781436

WI

LLI Group # 1162608

Sample Description: MA3-MWC-091809-1 Groundwater 091809-2,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 08:57

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

C--1- SDG#: KMB01-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 83	310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.51	1
00774	Acenaphthylene	208-96-8	N.D.	1.0	1
00774	Anthracene	120-12-7	N.D.	0.020	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0082	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.061	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0082	1
00774	Chrysene	218-01-9	N.D.	0.061	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.020	1
00774	Fluoranthene	206-44-0	N.D.	0.020	1
00774	Fluorene	86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	N.D.	1.0	1
00774	Phenanthrene	85-01-8	N.D.	0.041	1
00774	Pyrene	129-00-0	N.D.	0.10	1
GC Vol	atiles SW-846 8	021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	e	Analyst	Dilution Factor
00774 03337	PAH's in Water by HPLC PAH Water Extraction	SW-846 8310 SW-846 3510C	1 1	09264WAE026 09264WAE026	09/24/2009 1 09/22/2009 0	16:23 09:40	Mark A Clark Cynthia J Salvatori	1 1
08213 01146	BTEX (8021) GC VOA Water Prep	SW-846 8021B SW-846 5030B	1 1	09267A53A 09267A53A	09/25/2009 1 09/25/2009 1	16:32 16:32	Martha L Seidel Martha L Seidel	1 1



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LLI Sample # WW 5781437

WI

LLI Group # 1162608

Sample Description: MA3-MWC-091809-1-DP Groundwater 091809-2,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 08:57

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

C-1FD SDG#: KMB01-11FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 8	310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.51	1
00774	Acenaphthylene	208-96-8	N.D.	1.0	1
00774	Anthracene	120-12-7	N.D.	0.020	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0081	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.061	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0081	1
00774	Chrysene	218-01-9	N.D.	0.061	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.020	1
00774	Fluoranthene	206-44-0	N.D.	0.020	1
00774	Fluorene	86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	N.D.	1.0	1
00774	Phenanthrene	85-01-8	N.D.	0.041	1
00774	Pyrene	129-00-0	N.D.	0.10	1
GC Vol	atiles SW-846 8	021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774 03337	PAH's in Water by HPLC PAH Water Extraction	SW-846 8310 SW-846 3510C	1 1	09264WAE026 09264WAE026	09/24/2009 17:0 09/22/2009 09:4	2 Mark A Clark 0 Cynthia J Salvatori	1 1
08213 01146	BTEX (8021) GC VOA Water Prep	SW-846 8021B SW-846 5030B	1 1	09267A53A 09267A53A	09/25/2009 16:5 09/25/2009 16:5	6 Martha L Seidel 6 Martha L Seidel	1 1



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LLI Sample # WW 5781438

WI

LLI Group # 1162608

Sample Description: MA3-MWD-091809-4 Groundwater 091809-1,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 10:26

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

D--4- SDG#: KMB01-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 8	310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.52	1
00774	Acenaphthylene	208-96-8	N.D.	1.0	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.010	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.010	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0083	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.062	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0083	1
00774	Chrysene	218-01-9	N.D.	0.062	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.10	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.041	1
00774	Naphthalene	91-20-3	N.D.	1.0	1
00774	Phenanthrene	85-01-8	N.D.	0.041	1
00774	Pyrene	129-00-0	N.D.	0.10	1
GC Vol	atiles SW-846 8	021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09264WAE026	09/24/2009 17:	<ul> <li>40 Mark A Clark</li> <li>40 Cynthia J</li></ul>	1
03337	PAH Water Extraction	SW-846 3510C	1	09264WAE026	09/22/2009 09:	Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09267A53A	09/25/2009 17:	20 Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	09267A53A	09/25/2009 17:	20 Martha L Seidel	1





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LLI Sample # WW 5781439

WI

LLI Group # 1162608

Sample Description: MA3-MWE-091809-5 Groundwater 091809-2,4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 11:15

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

E--5- SDG#: KMB01-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles SW-846	8310	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	1.1	1
00774	Anthracene	120-12-7	N.D.	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.0084	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.063	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.0084	1
00774	Chrysene	218-01-9	N.D.	0.063	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.021	1
00774	Fluorene	86-73-7	N.D.	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.042	1
00774	Naphthalene	91-20-3	N.D.	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.042	1
00774	Pyrene	129-00-0	N.D.	0.11	1
GC Vol	atiles SW-846	8021B	ug/l	ug/l	
08213	Benzene	71-43-2	N.D.	0.2	1
08213	Ethylbenzene	100-41-4	N.D.	0.2	1
08213	Toluene	108-88-3	N.D.	0.2	1
08213	Total Xylenes	1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09264WAE026	09/24/2009 18	:19 Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09264WAE026	09/22/2009 09	:40 Cynthia J Salvatori	1
08213	BTEX (8021)	SW-846 8021B	1	09270A94A	09/29/2009 22	:42 Katrina T Longenecker	1
01146	GC VOA Water Prep	SW-846 5030B	1	09270A94A	09/29/2009 22	:42 Katrina T Longenecker	1





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LLI Sample # WW 5781440

WI

LLI Group # 1162608

Sample Description: MA3-TB-091809-3 Groundwater 091809-4 02687.007.007.0001 Moss American

#### Project Name: Moss American

Collected: 09/18/2009 09:30

Submitted: 09/19/2009 10:20 Reported: 10/01/2009 at 13:49 Discard: 12/01/2009 Account Number: 11947

Tronox LLC PO Box 268859 Oklahoma City OK 73126-8859

-TB3- SDG#: KMB01-14TB*

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC Vol	latiles	SW-846	8021B	ug/l	ug/l	
08213	Benzene		71-43-2	N.D.	0.2	1
08213	Ethylbenzene		100-41-4	N.D.	0.2	1
08213	Toluene		108-88-3	N.D.	0.2	1
08213	Total Xylenes		1330-20-7	N.D.	0.6	1

#### General Sample Comments

State of Wisconsin Lab Certification No. 998035060

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	e	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	09269A94A	09/27/2009	23:39	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	09269A94A	09/27/2009	23:39	Martha L Seidel	1



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### Quality Control Summary

Client Name: Tronox LLC Reported: 10/01/09 at 01:49 PM Group Number: 1162608

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

	Blank	Blank	Report	LCS	LCSD	LCS/LCSD		
<u>Analysis Name</u>	<u>Result</u>	MDL	<u>Units</u>	<u>%REC</u>	<u>%REC</u>	<u>Limits</u>	RPD	<u>RPD Max</u>
Batch number: 09264WAE026	Sample nu	mber(s): 57	81425-578	1439				
Acenaphthene	N.D.	0.50	uq/l	86		61-102		
Acenaphthylene	N.D.	1.0	ug/l	84		61-99		
Anthracene	N.D.	0.020	11g/1	92		69-103		
Benzo (a) anthracene	N D	0 010	ug/1	96		74-109		
Benzo (a) nyrene	ND.	0.010	ug/1	106		67-107		
Benzo(h) fluoranthene	N.D.	0.010	ug/1	100		76-110		
Ponzo (g h i) porviono	N.D.	0.0000	ug/1	102		62 117		
Benzo (g, n, 1) peryrene	N.D.	0.000	ug/1	103		77 100		
Character Charac	N.D.	0.0080	ug/1	102		77-109		
	N.D.	0.060	ug/1	99		74-111		
Dibenz(a, n) anthracene	N.D.	0.020	ug/1	100		/5-109		
Fluoranthene	N.D.	0.020	ug/1	93		68-103		
Fluorene	N.D.	0.10	ug/l	95		67-107		
Indeno(1,2,3-cd)pyrene	N.D.	0.040	ug/l	111		81-122		
Naphthalene	N.D.	1.0	ug/l	78		57-95		
Phenanthrene	N.D.	0.040	ug/l	98		71-108		
Pyrene	N.D.	0.10	ug/l	99		70-108		
Batch number: 09266A53A	Sample nu	mber(s): 57	81426-578	1435				
Benzene	N.D.	0.2	ug/l	120	115	80-120	4	30
Ethylbenzene	N.D.	0.2	ug/l	115	115	80-120	0	30
Toluene	N.D.	0.2	ug/l	115	115	80-120	0	30
Total Xylenes	N.D.	0.6	ug/l	118	117	80-120	1	30
Batch number: 09266A94A	Sample nu	mber(s): 57	81425					
Benzene	N.D.	0.2	ug/l	110	105	80-120	5	30
Ethylbenzene	N.D.	0.2	ug/l	110	105	80-120	5	30
Toluene	N.D.	0.2	uq/l	110	105	80-120	5	30
Total Xylenes	N.D.	0.6	ug/l	110	107	80-120	3	30
Batch number: 09267A53A	Sample nu	mber(s): 57	81436-578	1438				
Benzene	N.D.	0.2	uq/l	120	120	80-120	0	30
Ethylbenzene	N.D.	0.2	uq/l	115	115	80-120	0	30
Toluene	N.D.	0.2	ug/l	115	115	80-120	0	30
Total Xylenes	N.D.	0.6	ug/l	118	118	80-120	0	30
Batch number: 09269A94A	Sample nu	mber(s): 57	81440					
Benzene	N.D.	0.2	ug/l	110	110	80-120	0	30
Ethvlbenzene	N.D.	0.2	ug/l	110	105	80-120	5	30
Toluene	N.D.	0.2	ug/1	110	105	80-120	5	30
Total Xylenes	N.D.	0.6	ug/l	110	108	80-120	2	30
Batch number: 09270A94A	Sample nu	mber(s): 57	81439					
Benzene	N.D.	0.2	ug/1	105	110	80-120	5	30
Ethylbenzene	N.D.	0.2	ug/1	105	110	80-120	5	30
Toluene	N D	0.2	$u_{g}/1$	105	110	80-120	5	30
Total Xvlenes	N D	0.6	$\frac{ug}{1}$	107	113	80-120	6	30
TOCAT MYTCHCD		0.0	49/1	107	110	00 120	0	50

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.





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### Quality Control Summary

Client Name: Tronox LLC Reported: 10/01/09 at 01:49 PM Group Number: 1162608

#### Laboratory Compliance Quality Control

	Blank	Blank	Report	LCS	LCSD	LCS/LCSD		
<u>Analysis Name</u>	<u>Result</u>	MDL	Units	%REC	%REC	<u>Limits</u>	<u>RPD</u>	<u>RPD Max</u>

**Sample Matrix Quality Control** Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	MS <u>%REC</u>	MSD <u>%REC</u>	MS/MSD <u>Limits</u>	RPD	RPD <u>MAX</u>	BKG <u>Conc</u>	DUP <u>Conc</u>	DUP <u>RPD</u>	Dup RPL <u>Max</u>
Batch number: 09264WAE026	Sample	number(s	): 5781425	-578143	9 UNSPK	: 5781428			
Acenaphthene	79 -	80	67-99	2	30				
Acenaphthylene	78	78	66-97	2	30				
Anthracene	86	89	74-101	4	30				
Benzo(a)anthracene	92	96	78-106	5	30				
Benzo (a) pyrene	97	100	77-102	5	30				
Benzo (b) fluoranthene	96	100	79-108	4	30				
Benzo(g,h,i)pervlene	98	101	68-116	4	30				
Benzo(k) fluoranthene	98	102	81-105	5	30				
Chrysene	93	97	78-108	5	30				
Dibenz(a b)anthracene	97	100	75-104	4	30				
Fluoranthene	88	90	75-96	3	30				
Fluorene	89	90	73-103	2	30				
Indono (1, 2, 2, ad) purcho	100*	110*	79 106	2	20				
Naphthalono	100"	72	61 04	1	30				
Departhrop	/3	73	61-94 CC 11E	1	30				
Phenanchitene	92	94	00-115	3	30				
Pyrene	94	97	/3-105	4	30				
Batch number: 09266A53A	Sample	number(s	): 5781426	-578143	5 UNSPK	: 5781428			
Benzene	125	125	70-152	0	30				
Ethylbenzene	125	120	75-133	4	30				
Toluene	120	120	78-129	0	30				
Total Xylenes	125	125	67-155	0	30				
Batch number: 09266A94A	Sample	number(s	): 5781425	UNSPK:	P78005	4			
Benzene	115		70-152						
Ethylbenzene	115		75-133						
Toluene	115		78-129						
Total Xvlenes	115		67-155						
Batch number: 09267A53A	Sample	number(s	): 5781436	-578143	8 UNSPK	: P783947			
Benzene	125		70-152						
Ethylbenzene	125		75-133						
Toluene	125		78-129						
Total Xylenes	128		67-155						
Batch number: 09269A94A	Sample	number(s	): 5781440	UNSPK:	P78706	9			
Benzene	115	110	70-152	4	30				
Ethylbenzene	110	110	75-133	0	30				
Toluene	110	110	78-129	0	30				
Total Xvlenes	113	112	67-155	1	30				
	110	110	3, 133	-	20				
Batch number: 09270A94A	Sample	number(s	): 5781439	UNSPK:	P78707	3			
Benzene	130		70-152						

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.



2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Page 3 of 5

### Quality Control Summary

Client Name: Tronox LLC Reported: 10/01/09 at 01:49 PM Group Number: 1162608

#### Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

	MS	MSD	MS/MSD		RPD	BKG	DUP	DUP	Dup RPD
Analysis Name	%REC	%REC	Limits	RPD	MAX	Conc	Conc	RPD	Max
Ethylbenzene	120		75-133						
Toluene	123		78-129						
Total Xylenes	120		67-155						

#### Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PAH's in Water by HPLC Batch number: 09264WAE026 Nitrobenzene Triphenylene

		1 1	
5781425	96	102	
5781426	105	108	
5781427	104	106	
5781428	99	106	
5781429	101	103	
5781430	102	107	
5781431	91	100	
5781432	98	107	
5781433	95	105	
5781434	97	105	
5781435	103	105	
5781436	100	104	
5781437	88	97	
5781438	106	108	
5781439	108	110	
Blank	102	105	
LCS	107	108	
MS	101	103	
MSD	102	107	
Limits:	67-111	77-122	 
Analysis M Batch numb	Jame: BTEX (8021) Der: 09266A53A		
	Trifluorotoluene	e-P	

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.



Client Name: Tronox LLC

# **Analysis Report**

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Page 4 of 5

### Quality Control Summary

Group Number: 1162608

Reported:	10/01/09 at 01:49 PM			
-		Surrogate	Ouality	Control
		Durrogate	Quarrey	control
LCS	97			
LCSD	96			
MS	97			
MSD	97			
Limits:	69-129			
Analysis Nam	ne, BTEX (8021)			
Batch number	c: 09266A94A			
	Trifluorotoluene-P			
5781425	96			
Blank	96			
LCS	96			
LCSD	95			
MS	95			
Limits:	69-129			
Analusia Nam				
Ratch number	·· 09267Δ53Δ			
Batti IIulibei	Triflueroteluero D			
	IIIIIuorocoluene-P			
5781436	98			
5781437	99			
5781438	98			
Blank	94			
LCS	97			
	97			
MG	96			
110	50			
Limits:	69-129			
Analvsis Nam	ne: BTEX (8021)			
Batch number	: 09269A94A			
	Trifluorotoluene-P			
5781440	96			
Blank	97			
LCS	96			
LCSD	97			
MS	96			
MSD	96			
Limits:	69-129			
Analysis Nam	ne: BTEX (8021)			
Batch number	c: 09270A94A			
	Trifluorotoluene-P			
5781439	96			
Blank	97			
LCS	97			
LCSD	96			
MS	96			
Timle	<u>(0,100</u>			
LIMITS:	69-129			

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.





Page 5 of 5

### Quality Control Summary

Client Name: Tronox LLC Reported: 10/01/09 at 01:49 PM Group Number: 1162608

Surrogate Quality Control

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

							1/94'	7/	116266	08/57	81425-4
COC ID:	091809-4		C	hain of Custo	ody R	ecor	d		WIST	N	
Client Site Name	Kerr McGee Moss American	Co	ntact Name <u>T</u>	om Graan	- 80	8					Page I of 1
W. O. Lab TAT	02687.007.007.0001 LANCASTER LABS	Cor Lat Lat	ntact Phone No. <u>8</u> Contact <u>C</u> Phone <u>7</u>	47-918-4142 . SWEIGART 17-656-2308 X1527	21B-BTEX	21B-BTEX					
				Filtered Container Preservative	40ml-Glass V HC1	a)ml-Glass Vi N/A				· · · ·	
ab ID	Sample ID	Matrix	PID MS/MSD	Date-Time Collected							
	MA3-FB-091809-12	W	N	9/18/2009 15:45	3						
	MA3-MW30S-091809-13	Ŵ	N	9/18/2009 15:57	3						
	MA3-MW33S-091809-10	W	N	9/18/2009 15:05	3						
	MA3-MW35S-091809-9	W	. Y	9/18/2009 12:49	9						
	MA3-MW37S-091809-7	W	N	9/18/2009 12:52	3				-		
	MA3-MW39S-091809-11	W	N	9/18/2009 14:56	3						
	MA3-MW9S-091809-8	W	N	9/18/2009 12:53	3				~		
	MA3-MWA-091809-6	W	N	9/18/2009 11:27	3					1	
	MA3-MWB-091809-2	W	N	9/18/2009 09:01	3						
	MA3-MWC-091809-1	W	N	9/18/2009 08:57	3						
	MA3-MWC-091809-1-DP	W	N	9/18/2009 08:57	3						
	MA3-MWD-091809-4	W	N	9/18/2009 10:26	3						
	MA3-MWE-091809-5	W	N	9/18/2009 11:15	3						
	MA3-TB-091809-3	W	N	9/18/2009 09:30		2					
										· 4	
					L					5	
marks/Co	mments		Lab Use Only Temp of Cooler wh 1 2-3	en Received, C $coc$	OC Tape was p Tape was unb COC Tap COC Tape w	resent on oute roken on outer e ws present o as unbroken of	r package 4 package 4 n sample 9 1 n sample 9 N	N N N	Received in Labels indicate Prop Received within	good condition A N etly Preserved Y N Holding Time & N	
		1	Relinquished By	Date / Time Received I	Ву	Date / Time	Relin	quished By	Date / Time	Received By	Date / Time
Sampled	By	Ľ.		1.101.000							

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					·		11947	1162609	3157814	125-40
COC ID:	091809-2			C	hain of Cust	odv Rec	ard	WIST		
Client Site Name	Kerr McGee Moss American	Co	ntact Na	ime <u>T</u>	om Graan					Page 1 of 1
W. O.	02687.007.007.0001	Co	ntact Ph	one No. <u>8</u>	<u>47-918-4142</u>	8310-1	-			
Lab TAT	LANCASTER LABS	Lal Lal	o Contac o Phone	xt <u>C</u> <u>7</u>	. SWEIGART 17-656-2308 X1527	PAHS				
					Filtered Container	OmL Amber G	· · · · · · · · · · · · · · · · · · ·			
Lab ID	Sample ID	Matrix	PID	MS/MSD	Preservative Date-Time Collected	N/A				
	MA3-MW37S-091809-7	W		N	0/18/2000 12:52					
·	MA3-MWA-091809-6	w		N	9/18/2009 12:52	2				
<u></u>	MA3-MWC-091809-1	w		N	9/18/2009 11:27	2		194		
	MA3-MWC-091809-1-DP	w	******	N	9/18/2009 08:57	2				
	MA3-MWE-091809-5	W		N	9/18/2009 11:15	2	······································	••••••••••••••••••••••••••••••••••••••		
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¢emarks/Co	mments		Lab U Temp of 1 2	se Only Cooler whe	con n Received, C COC 4 5 5 5	C Tape was present of Tape was unbroken or COC Tape ws pre COC Tape was unbro	n outer package OPN n outer package OPN sent on sample (PNN ken on sample (PNN)	Received in Labels indicate Pro Received within	n good condition & N perly Preserved & N n Holding Time & N	
			Relinquis	shed By	Date / Time Received B	y Date / T	ime Relinquish	ed By Date / Time	Received By	Date / Time
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Sampled	Ву	-	·					· · · · · · · · · · · · · · · · · · ·		Alicition 1-0-2
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Site Name W. O. Lab TAT	Moss American			U	igili ni prist	uuy K	HEULA			<b>SN</b>	D
W. O. Lab TAT	02687.007.007.0004	Ca	nto at Ni	T							Page 1 of 1
Lab TAT		Co	DIACT IN:	ame <u>I</u>	om Graan	83					
TAT	LANCASTED LARS	Col L-1			9/-910-4142	10-P					
IAI	CAROADIER DABS		o Conta		SVVEIGART	AHS					
		Lac	o Phone	· <u>r</u>	17-000-2308 X1527			·····			
					Filtered	ûmî. Amher G					
					Preservative	N/A	• • • • • • • • • • • • • • • • • • • •				
ab ID	Sample ID	Matrix	PID	MS/MSD	Date-Time Collected						
	MA3-FB-091809-12	W		N	9/18/2009 15:45	2					
	MA3-MW30S-091809-13	W		N	9/18/2009 15:57	2					
	MA3-MW33S-091809-10	W		N	9/18/2009 15:05	2		••••••••••••••••••••••••••••••••••••••			
•••••	MA3-MW39S-091809-11	W		N	9/18/2009 14:56	2					
	MA3-MW9S-091809-8	W		N	9/18/2009 12:53	2					
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marks/Co	mments	<u>ii</u>									
			Lab U	ise Only	cc	C Tape was pres	ent on outer pack	age 📿 N	Received in	good condition & N	
			Temp of	f Cooler whe	n Received, C COC	Tape was unbrol	en on outer pack	uge (Y N	Labels indicate Pro	perly Preserved Y N	
		-		23	4 °17	COC Tape v	s present on sam		Received within	n Holding Time 🖌 N	
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Sambied	БУ	· •		<u>†</u>					!(	A. 1-	aluta

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							119	147/11	62609	1578	1425-40
COC ID: 0	91809-1			C	hain of Custo	ndv Re	hran		WASA		
Client	Kerr McGee								5101	UTIONS,	Page 1 of 1
Site Name	Moss American	Co	ntact Name	e <u>T</u> e	om Graan						
W. O. 9	02687.007.007.0001	Co	ntact Phone	e No. <u>84</u>	47-918-4142	: <b>8</b> 310					1
Lab I	LANCASTER LABS	La	b Contact	c	SWEIGART	)-PA					
ТАТ		La	h Phone	7	17-656-2308 X1527	HS					:
		24		<u> </u>	Filtered						
					Container	0mL Amber G					
					Preservative	N/A					
ab ID	Sample ID	Matrix	PID N	AS/MSD	Date-Time Collected						
	MA3-MW35S-091809-9	W		Y	9/18/2009 12:49	6					
	MA3-MWB-091809-2	W		N	9/18/2009 09:01	2				· · · · · ·	
	MA3-MWD-091809-4	W		N	9/18/2009 10:26	2					
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### Environmental Sample Administration Receipt Documentation Log

Client/Project:	Kerr MeGree	_ Shipping Container	Sealed: ÆS	NO
Date of Receipt:	glialog	- Custody Seal Preser	nt*: ₩€S	NO
Time of Receipt:	1020	_ · · · · · · · · · · · · · · · · · · ·		
Source Code:	50-1	* Custody seal was intact u discrepancy secti	unless otherwise no on	ted in the
Unpacker Emp. No	ыЦ5ч	Package:	Chilled	Not Chilled

	Temperature of Shipping Containers								
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments		
1	oureasi	1,5.0	TB	6	Y	B			
2		1.8.0							
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4	$\mathbf{V}$	1.5.0	$\downarrow$		$\checkmark$	$\checkmark$			
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Number of Trip Blanks received <u>NOT</u> listed on chain of custody:  $\underline{\delta}$ 

### Paperwork Discrepancy/Unpacking Problems:

s	ample Administration Int	ternal Chain of	Custody
Name	Date	Time	Reason for Transfer
Land Junio	glialoa	1285	Unpacking to to age
	9/19/09	1239	Place in Storage or Entry
			Entry
			Entry

### Lancaster Laboratories Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	BMQL	Below Minimum Quantitation Level
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
С	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	I	liter(s)
mĪ	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml

 less than – The number following the sign is the <u>limit of quantitation</u>, the smallest amount of analyte which can be reliably determined using this specific test.

- > greater than
- ppm parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.
- ppb parts per billion

**Dry weight basis** Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

#### **Organic Qualifiers**

- **A** TIC is a possible aldol-condensation product
- **B** Analyte was also detected in the blank
- C Pesticide result confirmed by GC/MS
- **D** Compound quatitated on a diluted sample
- E Concentration exceeds the calibration range of the instrument
- J Estimated value
- **N** Presumptive evidence of a compound (TICs only)
- **P** Concentration difference between primary and confirmation columns >25%
- **U** Compound was not detected
- **X,Y,Z** Defined in case narrative

### **Inorganic Qualifiers**

- B Value is <CRDL, but ≥IDL
- **E** Estimated due to interference
- **M** Duplicate injection precision not met
- **N** Spike amount not within control limits
- S Method of standard additions (MSA) used for calculation
- U Compound was not detected
- W Post digestion spike out of control limits
- * Duplicate analysis not within control limits
- + Correlation coefficient for MSA < 0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY – In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions of Lancaster Laboratories and we hereby object to any conflicting terms contained in any acceptance or order submitted by client.



October 12, 2009

Tom Graan Weston Solutions, Inc. 750 East Bunker Court Suite 500 Vernon Hills, IL 60061-1450

Work Order No.: ME0909816

RE: Kerr McGee / Moss American Dear Tom Graan:

Microbac Laboratories, Inc. received 12 samples on 9/18/2009 9:30:00 AM for the analyses presented in the following report.

The enclosed results were obtained from and are applicable to the sample(s) as received at the laboratory. All sample results are reported on an "as received" basis unless otherwise noted.

All data included in this report have been reviewed and meet the applicable project specific and certification specific requirements, unless otherwise noted. A qualifications page is included in this report and lists the programs under which Microbac maintains certification.

This report has been paginated in its entirety and shall not be reproduced except in full, without the written approval of Microbac Laboratories.

We appreciate the opportunity to service your analytical needs. If you have any questions, please feel free to contact us.

Sincerely, Microbac Laboratories, Inc.

tactzala

Carey A. Gadzala Project Manager

Enclosures



### WORK ORDER SAMPLE SUMMARY

Date:

```
Monday, October 12, 2009
```

CLIENT: Project: Lab Order:	Weston Solutions, Inc. Kerr McGee / Moss Amer ME0909816	ican		
Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
ME0909816-01A	MA3-TG1-1-091709-8		9/17/2009 12:02:00 PM	9/18/2009
ME0909816-02A	MA3-TG1-3-091709-9		9/17/2009 12:09:00 PM	9/18/2009
ME0909816-03A	MA3-TG2-1-091709-15		9/17/2009 4:55:00 PM	9/18/2009
ME0909816-04A	MA3-TG2-3-091709-12		9/17/2009 3:07:00 PM	9/18/2009
ME0909816-05A	MA3-TG3-1-091709-10		9/17/2009 2:28:00 PM	9/18/2009
ME0909816-06A	MA3-TG3-3-091709-11		9/17/2009 2:30:00 PM	9/18/2009
ME0909816-07A	MA3-TG4-1-091709-6		9/17/2009 10:49:00 AM	9/18/2009
ME0909816-08A	MA3-TG4-3-091709-7		9/17/2009 10:55:00 AM	9/18/2009
ME0909816-09A	MA3-TG5-1-091709-3		9/17/2009 9:05:00 AM	9/18/2009
ME0909816-10A	MA3-TG5-3-091709-4		9/17/2009 9:22:00 AM	9/18/2009
ME0909816-11A	MA3-TG6-1-091709-5		9/17/2009 11:30:00 AM	9/18/2009
ME0909816-12A	MA3-TG6-3-091709-1		9/17/2009 9:15:00 AM	9/18/2009
# ANALYTICAL RESULTS

Date: Monday, October 12, 2009

Client: Client Project:	Weston Solutions, Inc. Kerr McGee / Moss Ame	rican		We	ork Ord Receiv	der: ME0909816 ved: 09/18/09 09:30
Analyses	Result	Units	Qual	Analyzed	Tech	Method
01A MA3-TG1-1-091709-	8 -					Collected: 09/17/09 12:02
Total Aerobic Degrader Bact	eria 7400	cfu/ml		09/18/09 20:52	2 RJC	9215B MOD
Total Aerobic Bacteria	57000	cfu/ml		09/18/09 20:52	2 RJC	9215B MOD
02A MA3-TG1-3-091709-	9 -					Collected: 09/17/09 12:09
Total Aerobic Degrader Bact	eria < 100	cfu/ml		09/18/09 20:52	2 RJC	9215B MOD
Total Aerobic Bacteria	15300	cfu/ml		09/18/09 20:52	2 RJC	9215B MOD
03A MA3-TG2-1-091709-	15 -		111119 gar			Collected: 09/17/09 16:55
Total Aerobic Degrader Bact	eria < 100	cfu/ml		09/18/09 20:52	2 RJC	9215B MOD
Total Aerobic Bacteria	310	cfu/ml		09/18/09 20:52	2 RJC	9215B MOD
04A MA3-TG2-3-091709-1	12 -					Collected: 09/17/09 15:07
Total Aerobic Degrader Bact	eria < 100	cfu/ml		09/18/09 20:52	RJC	9215B MOD
Total Aerobic Bacteria	630	cfu/ml		09/18/09 20:52	2 RJC	9215B MOD
05A MA3-TG3-1-091709-1	10 -					Collected: 09/17/09 14:28
Total Aerobic Degrader Bact	eria < 100	cfu/ml		09/18/09 20:52	RJC	9215B MOD
Total Aerobic Bacteria	900	cfu/ml		09/18/09 20:52	RJC	9215B MOD
06A MA3-TG3-3-091709-1	11 -					Collected: 09/17/09 14:30
Total Aerobic Degrader Bacte	eria < 100	cfu/ml		09/18/09 20:52	RJC	9215B MOD
Total Aerobic Bacteria	420	cfu/ml		09/18/09 20:52	RJC	9215B MOD
07A MA3-TG4-1-091709-6	<u>3</u> -					Collected: 09/17/09 10:49
Total Aerobic Degrader Bacto	eria < 100	cfu/ml		09/18/09 20:52	RJC	9215B MOD
Total Aerobic Bacteria	18900	cfu/ml		09/18/09 20:52	RJC	9215B MOD
08A MA3-TG4-3-091709-7	7 -					Collected: 09/17/09 10:55
Total Aerobic Degrader Bacto	eria < 100	cfu/ml		09/18/09 20:52	RJC	9215B MOD
Total Aerobic Bacteria	< 100	cfu/ml		09/18/09 20:52	RJC	9215B MOD
09A MA3-TG5-1-091709-3	3 -					Collected: 09/17/09 09:05
Total Aerobic Degrader Bacte	eria < 100	cfu/ml		09/18/09 20:52	RJC	9215B MOD
Total Aerobic Bacteria	210	cfu/ml		09/18/09 20:52	RJC	9215B MOD
10A MA3-TG5-3-091709-4	1 -					Collected: 09/17/09 09:22
Total Aerobic Degrader Bacte	eria < 100	cfu/ml		09/18/09 20:52	RJC	9215B MOD
Total Aerobic Bacteria	1000	cfu/ml		09/18/09 20:52	RJC	9215B MOD
11A MA3-TG6-1-091709-5	5 -					Collected: 09/17/09 11:30
Total Aerobic Degrader Bacte	eria < 100	cfu/ml		09/18/09 20:52	RJC	9215B MOD

# ANALYTICAL RESULTS

Monday, October 12, 2009

Date:

Client: Client Project:	Weston Solutions, Inc. Kerr McGee / Moss Ame	rican		Wo	der: ME0909816 ped: 09/18/09 09:30	
Analyses Total Aerobic Bacteria	Result 450	Units cfu/ml	Qual	Analyzed 09/18/09 20:52	Tech RJC	Method 9215B MOD
12A MA3-TG6-3-091709-	11111-1111-111-111-11-11-11-11-11-11-11					Collected: 09/17/09 09:15
Total Aerobic Degrader Bac	teria < 100	cfu/ml		09/18/09 20:52	RJC	9215B MOD
Total Aerobic Bacteria	< 100	cfu/ml		09/18/09 20:52	RIC	9215B MOD

FLAGS	, FO	OTNOTES AND ABBREVIATION	VS (as nee	ded)							
NA	=	Not Analyzed	N/A	=	Not Applicable						
mg/L	=	Milligrams per Liter (ppm)	ug/L	=	Micrograms per Liter (ppb)	cfu	-	Color	ıy For	ming Unit	
mg/Kg	=	Milligrams per Kilogram (ppm)	ug/Kg	=	Micrograms per Kilogram (ppb)	ng/L	-	Nano	grams	per Liter (ppt)	
U	=	Undetected									
J	=	Analyte concentration detected bet	ween RL a	nd M	IDL (Metals / Organics)						
j	=	Analyte concentration detected bet	weeen 1/2	PQL	and PQL (for TIC analytes only)						
В	Ш	Detected in the associated Method	Blank at a	conc	entration above the routine PQL/RI						
b		Detected in the associated Method	Blank at a	conc	entration above the Method Detecti	on Limit l	out les	s than t	the rou	itine PQL/RL	
D	=	Surrogate recoveries are not calcula	ated due to	sam	ple dilution						
ND	=	Not Detected at the Reporting Lim	it (or the N	1etho	d Detection Limit, if listed)						
E	=	= Value above quantitation range									
Н	= Analyte was prepared and/or analyzed outside of the analytical method holding time										
Ι	= Matrix Interference										
R	= RPD outside accepted recovery limits										
S	=	Spike recovery outside recovery lin	nits								
Surr	=	Surrogate									
DF	=	Dilution Factor RL = Re	porting Li	nit	ST = Sample Type	MDL =	M	ethod D	etectio	on Limit	
SAMP	LET	YPES									
A	=	Analyte									
1	=	Internal Standard									
S	=	Surrogate									
Т		Tentatively Identified Compound	(TIC, conc	entra	tion estimated)						
			(,								
<u>QC SAI</u>	MPLI	E IDENTIFICATIONS									
MBLK	=	Method Blank	ICSA	=	Interference Check Standard "A'	•	0	PR	=	Ongoing Precision and	
DUP		Method Duplicate	ICSAB		Interference Check Standard "Al	3"				Recovery Standard	
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Dup	licate					
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate						
ICB	=	Initial Calibration Blank	CCB	-	Continuing Calibration Blank						
ICV	=	Initial Calibration Verification	CCV		Continuing Calibration Verificat	tion					
PDS	=	Post Digestion Spike	SD	-	Serial Dilution						

#### **CERTIFICATIONS**

Below is a list of certifications maintained by the Microbac Merrillville Laboratory. All data included in this report has been reviewed for and meets all project specific and quality control requirements of the applicable accreditation, unless otherwise noted. Complete lists of individual analytes pursuant to each certification below are available upon request.

- Illinois EPA for the analysis wastewater and solid waste in accordance with the requirements of the National Environmental Laboratory Accreditation Program [NELAP] (accreditation #100435)
- Illinois Department of Public Health for the microbiological analysis of drinking water (registry #1755266)
- Indiana DEM approved support laboratory for solid waste and wastewater analyses
- Indiana SDH for the chemical analysis of drinking water (lab #C-45-03)
- Indiana SDH for the microbiological analysis of drinking water (lab #M-45-8)
- Kentucky DEP for the chemical analysis of drinking water (lab #90147)
- Kentucky EPPC for the analysis of samples applicable to the Underground Storage Tank program (lab #75)
- New York SDH for the chemical analysis of air and emissions (lab #11909)
- North Carolina DENR for the environmental analysis for NPDES effluent, surface water, groundwater, and pretreatment regulations (certificate #597)
- Tennessee DEC for the chemical analysis of drinking water (lab #04017)
- Wisconsin DNR for the chemical analysis of wastewater and solid waste (lab #998036710)

#### MICROBAC LOCATIONS, SERVICE CENTERS (SC) AND SATELLITE OFFICES (Sat)

Baltimore Division - Baltimore, MD Kentucky Division - Louisville, KY Ohio Valley Division - Marietta, OH Camp Hill Division - Camp Hill, PA Kentucky Division (Sat) - Evansville, IN Pittsburgh Division - Warrendale, PA Camp Hill Division (SC) - Pittston, PA Kentucky Division (Sat) - Lexington, KY Richmond Division - Richmond, VA Chicagoland Division - Merrillville, IN Kentucky Division (Sat) - Paducah, KY South Carolina Division - New Ellenton, SC Chicagoland Division (SC) - Indianapolis, IN Knoxville Division - Maryville, TN South Jersey Division - Laurel Springs, NJ Southern California Division - Corona, CA Massachusetts Division - Worchester, MA Southern Headquarters - Poquoson, VA Erie Division - Eric, PA Microbac Corporate Office - Pittsburgh, PA Southern Testing Division - Wilson, NC Fayetteville Division - Fayetteville, NC Microbac NY - Cortland Office - Cortland, NY Southern Testing Division (Sat) - Greensboro, NC Hauser Division - Boulder, CO Microbac NY - Waverly Office - Waverly, NY Venice Division - Venice, FL

# COOLER INSPECTION

COOLER INSPECTION		Date:		lay, October 12, 2009
Client Name Weston Solutions, Inc.		Date / Time F	Received:	<u>9/18/2009 9:30:00 AM</u>
Work Order Number ME0909816		Received by:	DPP	
Checklist completed by DPP 9/18/2009 11:30:31	AM	Reviewed by	CAG	9/21/2009 1:23:55 PM
Carrier	name: <u>UPS</u>			
After-Hour Arrival?	Yes	No	$\checkmark$	
Shipping container/cooler in good condition?	Yes	✓ No	Not	Present
Custody seals intact on shippping container/cooler?	Yes	No	Not	Present V
Custody seals intact on sample bottles?	Yes	No	Not	Present 🗸
Chain of custody present?	Yes	✓ No		
Chain of custody included sufficient client identification?	Yes	✓ No		
Chain of custody included sufficient sample collector information	on? Yes	No	$\checkmark$	
Chain of custody included a sample description?	Yes	✓ No		
Chain of custody agrees with sample labels?	Yes	✓ No		
Chain of custody identified the appropriate matrix?	Yes	✓ No		
Chain of custody included date of collection?	Yes	✓ No		
Chain of custody included time of collection?	Yes	✓ No		
Chain of custody identified the appropriate number of containe	rs? Yes	✓ No		
Samples in proper container/bottle?	Yes	✓ No		
Sample containers intact?	Yes	✓ No		
Sufficient sample volume for indicated test?	Yes	✓ No		
All samples received within holding time?	Yes	✓ No		
If samples are preserved, are the preservatives identified?	Yes	✓ No		
Samples properly preserved?	Yes	✓ No		
If No, adjusted by?		Date/Time		
Chain of custody included the requested analyses?	Yes	✓ No		
Chain of custody signed when relinquished and received?	Yes	✓ No		
Samples received on ice?	Yes	✓ No		
Container/Temp Blank tempe	ratures Cooler	Temp		
	1	8 °C		
VOA vials for aqueous samples have zero headspace?	No VOA vials submitted	V Y	'es	No

ANY "NO" EVALUATION (excluding After-Hour Receipt) REQUIRES CLIENT NOTIFICATION. General Comments:

Sample ID	Client Sample ID	Comments
ME0909816-01A	MA3-TG1-1-091709-8	
ME0909816-02A	MA3-TG1-3-091709-9	
ME0909816-03A	MA3-TG2-1-091709-15	
ME0909816-04A	MA3-TG2-3-091709-12	
ME0909816-05A	MA3-TG3-1-091709-10	
ME0909816-06A	MA3-TG3-3-091709-11	
ME0909816-07A	MA3-TG4-1-091709-6	
ME0909816-08A	MA3-TG4-3-091709-7	
ME0909816-09A	MA3-TG5-1-091709-3	
ME0909816-10A	MA3-TG5-3-091709-4	
ME0909816-11A	MA3-TG6-1-091709-5	
ME0909816-12A	MA3-TG6-3-091709-1	

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Page 1 of 1			60																			Date / Time		
23										0									od condition Y N	ty Preserved Y N	olding Time Y N	Received By		0
TO MARK																			Received in go	Labels indicate Proper	Received within H	Date / Time		
Law																			ge Y N	ge Y N Ie Y N	eY N	Relinquished By		
Record	MICROBIAL	ie Pi	4-21 <b>3</b>								1. 1. 1.				 		81.44 -		as present on outer packa	unbroken on outer packa Tane ws mesent on samp	e was unbroken on samp	Date / Time		
stody	ENUMERATIO N	ainer 20ml-Ster vative N/A	ted	-			-	1	-		1	-	1	~					COC Tape w	COC Tape was COC	COC Tar	Received By		
ain of Gu	n Graan -918-4142 MCDONALD -932-1770	F Cont Preser	Date-Time Collec	9/17/2009 12:02	9/17/2009 12:09	9/17/2009 15:07	9/17/2009 14:28	9/17/2009 14:30	9/17/2009 10:49	9/17/2009 10:55	9/17/2009 09:05	9/17/2009 09:22	9/17/2009 11:30	9/17/2009 09:15						n Received, C	<u>&gt;</u>	Date / Time	Via/69 1930	
5	me <u>Tor</u> one No. <u>847</u> at <u>N. 1</u>		MS/MSD	N	z z	zz	Z	N	N	z	N	Z	Z	N					Jse Only	of Cooler when	2	l I I I I I I I I I I I I I I I I I I I	under	
	Contact Na Contact Ph Lab Contac Lab Phone		ix PID		_										_		 _		Lab	Temp o	_	Relinqu	(CLINNE	$ \geq $
			Matr	M	M	A	M	M	W	W	W	M	M	M	 _			_						
091709-9 <u>Kerr McGee</u>	Moss American 02687.007.007.0001 MICROBAC LABS		Sample ID	MA3-TG1-1-091709-8	MA3-TG1-3-091709-9 MA3-TG2-1-091709-15	MA3-TG2-3-091709-12	MA3-TG3-1-091709-10	MA3-TG3-3-091709-11	MA3-TG4-1-091709-6	MA3-TG4-3-091709-7	MA3-TG5-1-091709-3	MA3-TG5-3-091709-4	MA3-TG6-1-091709-5	MA3-TG6-3-091709-1					SUIDINI					1 By
COC ID: Client	Site Name W. O. Lab TAT		Lab ID															Damantal	VCHIMINA					Sample

9( 20)

## Tronox LLC Moss American KMA97

BTEX - 8021			
Lab ID -	Sample ID	Date Collected	Date Analyzed
5632276	MW7S	3/25/09	3/27/09
5632277	MW7SMS	3/25/09	3/27/09
5632278	MW7SMSD	3/25/09	3/27/09
5632279	MW34S	3/25/09	3/27/09
5632280	MW39S	3/25/09	3/27/09
5632281	MW38S	3/25/09	3/27/09
5632282	TB	3/25/09	3/27/09
5632283	MW38SDUP	3/25/09	3/27/09

### 1. Holding Time / Sample Receipt

The samples were received and analyzed within required holding times.

### 2. Method Blank

One method blank (BLK5317) was included in this package. All method blank results were non-detect.

### 3. Surrogates

All surrogate recoveries were within required control limits.

### 4. Matrix Spike

An MS was performed on a sample MW7S. Naphthalene recoveries (35, 35MSD) were low outside control limits. Since naphthalene recoveries were also outside QC limits for the LCS/LCSD, the reviewer feels that positive naphthalene results in sample MS7S are flagged J and non-detects as UJ. All remaining BTEX recoveries were acceptable.

## 5. Laboratory Control Sample

One LCS sample was associated with the samples. The naphthalene results were low (39, 47LCSD) outside control limits. Naphthalene remains as qualified above. All remaining LCS/LCSD and RPD recoveries were within laboratory required control limits.

6. Performance Check Sample

Performance check sample results were acceptable.

7. Calibration Calibration was acceptable.

8. Trip Blank / Field Blank The TB was free of contamination.

9. Field Duplicates Sample MW38S and MW38SDUP were field duplicates showing good overall correlation.

#### PAH- 8310

Lab ID -	Sample ID	Date Collected	Date Analyzed
5632276	MW7S	3/25/09	4/3/09
5632277	MW7SMS	3/25/09	4/1/09
5632278	MW7SMSD	3/25/09	4/1/09
5632279	MW34S	3/25/09	4/4, 4/6/09
5632280	MW39S	3/25/09	4/3/09
5632281	MW38S	3/25/09	4/3/09
5632283	MW38SDUP	3/25/09	4/3/09

1. Holding Time / Sample Receipt

The samples were received in good condition. The samples were extracted and analyzed within required holding times.

2. Method Blanks

One method blank (SBLKWA086) was included with the data. The method blank was free of contamination.

#### 3. Surrogate Recovery

Due to matrix and multiple sample dilutions, the TRP was diluted out for sample MS34S. All remaining surrogate recoveries for TRP and NTB were within required control limits. No qualifications are required.

4. Matrix Spike

MS information was not presented with this sample set.

5. Laboratory Control Sample.

One LCS was associated with the samples. All LCS recoveries were within required control limits.

6. Performance Check Samples All check sample results were acceptable.

7. Calibration

All average calibrations were within required control limits.

8. Field Duplicates

No field duplicates were identified with this sample set.

9. Other

Due to the nature of the sample matrix, reduced aliquots were used for several samples. Sample MW34S underwent 20 (initial), 400, and 1000X dilutions.

Date reviewed by: T. Balla Date: 10/12/09