

**QUARTERLY GROUNDWATER TREATMENT
PERFORMANCE MONITORING REPORT
Q1 2004
MOSS-AMERICAN SITE
MILWAUKEE, WISCONSIN**

Prepared for

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March 2004

W. O. No. 02687.007.006.0001



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6 July 2004

Mr. Russell D. Hart (HSRW-6J)
Remedial Project Manager
U. S. Environmental Protection Agency
Region V
77 West Jackson Boulevard
Chicago, IL 60604

Work Order No. 02687.007.006
KMC Work Order No. 40-50-01-AKW-B

Re: Quarterly Groundwater Treatment Performance Monitoring Report, Q1 2004
Moss-American Site, Milwaukee, Wisconsin

Dear Mr. Hart:

On behalf of Kerr-McGee Chemical, LLC (KMC), Weston Solutions, Inc. (WESTON®), is submitting this report summarizing the results of the first quarter (Q1) 2004 groundwater monitoring event for the above-referenced project.

If you have any questions or require additional information regarding this submittal, please do not hesitate to call me at (847) 918-4142.

Very truly yours,

Weston Solutions, Inc.

A handwritten signature in black ink that reads "Thomas P. Graan". The signature is written in a cursive style.

Thomas P. Graan, Ph.D.
Principal Project Manager

TPG/kms

Attachments

cc: T. Wentland, WDNR
B. Felix, WDNR



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SECTION 1 INTRODUCTION

In accordance with paragraph 4a of the Remedial Design/Remedial Action Statement of Work (RD/RA SOW), Kerr-McGee Chemical, LLC (KMC) is required to implement a groundwater monitoring program capable of detecting changes in chemical concentrations in the groundwater. KMC has directed Weston Solutions, Inc. (WESTON®) to perform this work. As previously agreed, the monitoring network currently includes seven shallow groundwater monitoring wells (MW-5S, MW-6S, MW-7S, MW-9S, MW-27S, MW-28S, and MW-29S). Additionally, the quarterly groundwater monitoring program includes sampling of the eight containment performance monitoring wells (MW-30S, MW-31S, MW-32S, MW-33S, MW-34S, MW-35S, MW-36S and MW-37S), which are screened in the shallow groundwater-bearing unit underlying the site. Nine piezometer wells (PZ-01, PZ-02, PZ-03, PZ-04, PZ-05, PZ-06, PZ-07, PZ-09, and PZ-10) and one staff gauge (SG-01) were installed in December 2002 to monitor groundwater movement. The locations of piezometers, the staff gauge, and the groundwater-monitoring wells that are included in the quarterly sampling program are indicated on Figure 1-1.

In addition, four shallow groundwater monitoring wells (MW-A, MW-B, MW-C and MW-D) were installed in September 2003 to monitor groundwater conditions between old and new river channels in the Reach 1 area. These four wells are sampled annually (during Q3 sampling events) in accordance with the annual groundwater monitoring program for the Reach 1 area.

Some wells that were previously part of the groundwater-monitoring network have been removed to facilitate soil remediation activities. TW-09, MW-8S, and MW-8I were removed during excavation activities and installation of the funnel-and-gate groundwater treatment system in 1999. Wells MW-4S and MW-4I were removed during early Q3 2001, and well TW-05 was removed in early Q4 2001 during the "hot spot" soil excavation and treatment process. Wells MW-20S and MW-20I were removed during Q3 2002 when the Little Menomonee River (LMR) diversion work took place.

As discussed in the Q2 2002 Quarterly Groundwater Treatment Performance Monitoring Report, some modifications were made to the sampling program. The first modification was the reduction of performance monitoring well sampling frequency. The treatment performance monitoring wells were originally sampled on a monthly basis, but sample data showed that minimal changes in site conditions were found on a monthly basis. Therefore a change in sampling frequency from monthly to quarterly was recommended. This recommendation was approved by the Wisconsin Department of Natural Resources (WDNR) and the United States Environmental Protection Agency (collectively "Agencies") and the monthly sampling program was discontinued after October 2002 sampling event. The second modification was the reduction of the groundwater monitoring program scope. It was proposed that some shallow monitoring wells (MW-3S, MW-10S, MW-13S, MW-25S, MW-26S, and MW-20S) and intermediate monitoring wells (MW-3I, MW-7I, MW-9I, and MW-20I) be removed from the groundwater monitoring program due to zero or few sample detections in these wells. The Agencies approved this recommendation, and the sampling of these wells was discontinued after September (Q3) 2002 sampling event; however, per the Agencies' request, these wells were not abandoned. Instead these wells will be utilized to collect water level measurements for the production of more accurate quarterly groundwater potentiometric maps.

The Quality Assurance Project Plan for Installation of Groundwater Remedial System (QAPP) (WESTON, October 1999) requires KMC to implement a groundwater monitoring program capable of indicating groundwater chemistry before, during, and after treatment. In addition, the hydraulic gradient is calculated at each treatment gate and is used to estimate groundwater flow velocity through the treatment gate remediation system. The monitoring network includes six groundwater treatment gates (TG1 through TG6) with three treatment performance monitoring wells located at each groundwater treatment gate. The treatment performance monitoring wells include TG1-1, TG1-2, TG1-3, TG2-1, TG2-2, TG2-3, TG3-1, TG3-2, TG3-3, TG4-1, TG4-2, TG4-3, TG5-1, TG5-2, TG5-3, TG6-1, TG6-2, and TG6-3, and the locations are indicated on Figure 1-1.

In accordance with paragraph 4a (i) of the RD/RA SOW, the quarterly 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 quarterly field measurements for samples collected from the treatment performance monitoring wells include groundwater elevation, pH, temperature, turbidity, specific conductance, redox potential, and DO. Quarterly laboratory analyses required for the treatment performance wells include microbial enumeration, nitrate-nitrogen ($\text{NO}_3\text{-N}$), nitrite-nitrogen ($\text{NO}_2\text{-N}$), total Kjeldahl nitrogen (TKN), ammonia-nitrogen ($\text{NH}_3\text{-N}$), total phosphate-phosphorous ($\text{PO}_4\text{-P}$), orthophosphate (ORP), biochemical oxygen demand (BOD), chemical oxygen demand (COD), total organic carbon (TOC), BTEX, and the PAHs indicated in the above paragraph.

LEGEND

- CABLE FENCE
- ▣ CATCH BASIN
- ⊠ HYDRANT
- 1 SIGN
- ⊠ FREE PRODUCT COLLECTION SUMP
- UTILITY POLE
- SAMPLING MANHOLE
- ◆ MONITORING WELL
- INJECTION WELL
- - - CURRENT RIVER CHANNEL
- - - FORMER RIVER CHANNEL
- ⊕ PIEZOMETER

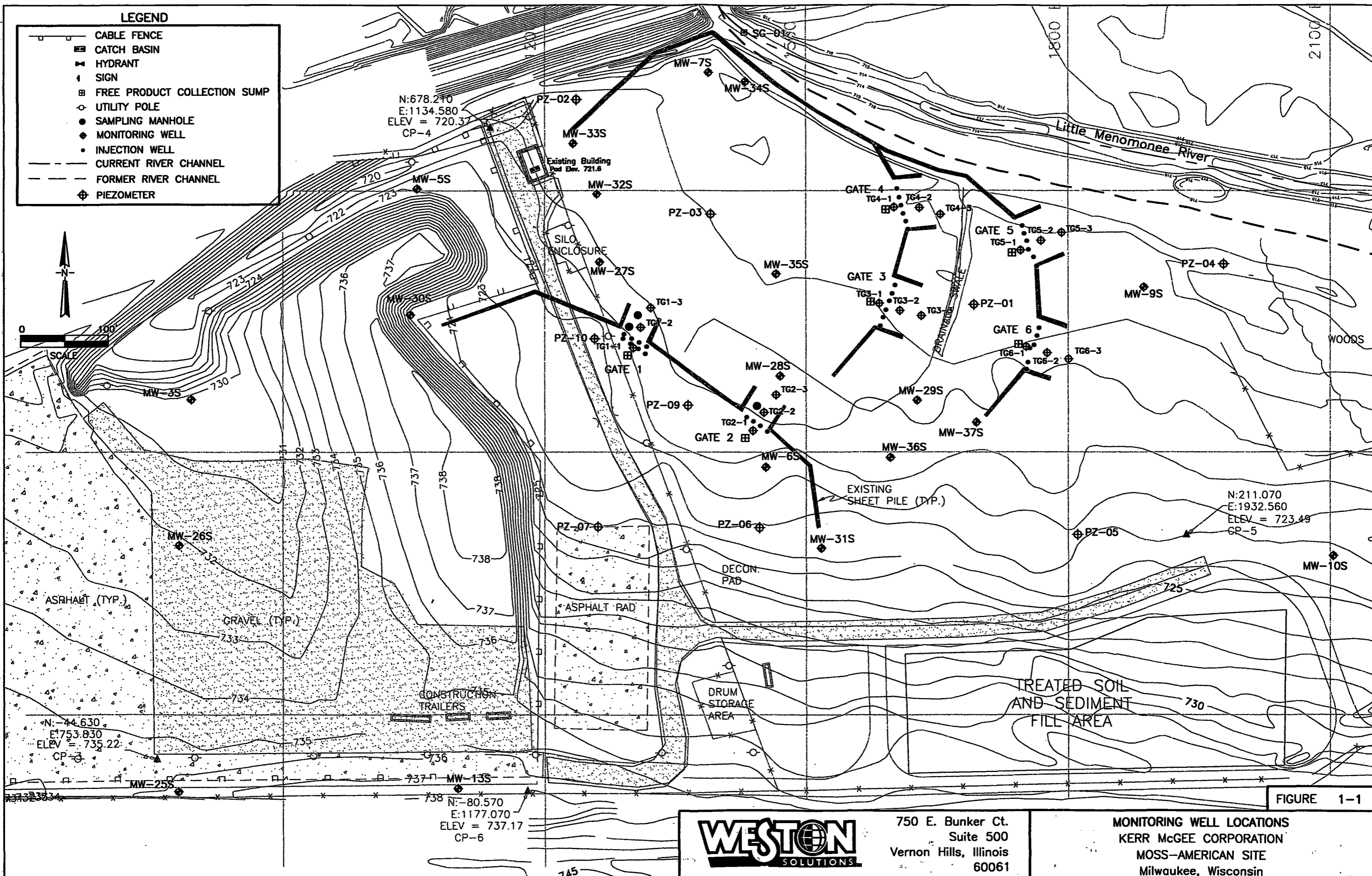


FIGURE 1-1



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MONITORING WELL LOCATIONS
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MOSS-AMERICAN SITE
Milwaukee, Wisconsin

J:\CAD85\www\00303.rnwg

SECTION 2

GROUNDWATER MONITORING RESULTS

The Q1 2004 groundwater-monitoring event at the Moss-American site was completed between 15 and 19 March 2004. 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. Following groundwater elevation and DO measurements, groundwater samples were collected from all the shallow, containment performance, and treatment performance groundwater monitoring wells. The results of the Q1 2004 groundwater sampling event are described in the following subsections.

2.1 GROUNDWATER ELEVATION MEASUREMENTS

The depth to water was measured in each of the shallow groundwater monitoring, containment performance monitoring, treatment performance monitoring wells, piezometers, and staff gauge on 15 March 2004, prior to the commencement of groundwater sampling. 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 for the shallow groundwater monitoring and containment performance monitoring wells and calculated elevations are presented in Table 2-1. 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 2-2. The groundwater levels for the piezometers and staff gauge are presented in Table 2-3. Figure 2-1 presents a potentiometric surface map of the shallow groundwater-bearing zone, based on the 15 March 2004 data. Figure 2-2 presents the potentiometric surface during Q4 2003. An evaluation of the Q1 2004 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 LMR. In the topographically higher (western) portion of the site, the horizontal hydraulic gradient is relatively steep, at approximately 0.034 feet per foot (ft/ft) to

the northeast, as measured from the vicinity of MW-13S to PZ-07. The topography of the site levels out near the river, as does the potentiometric surface with a northerly hydraulic gradient of approximately 0.014 ft/ft, as measured from the vicinity of PZ-05 to PZ-04. The estimated hydraulic gradients within the treatment gates ranged from 0.0038 to 0.0192 ft/ft (Table 2-2). The hydraulic gradient is relatively flat within the treatment gate area with an overall hydraulic gradient from TG1 to TG5 of approximately 0.0034 ft/ft in an easterly direction. The hydraulic gradients calculated in the vicinity of treatment gates, TG1, TG3 and TG5 are negative, contrary to the overall groundwater flow direction at the site.

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 0.034 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 0.0034 ft/day. Near the river, using a hydraulic gradient of 0.014 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 0.14

ft/day. The groundwater flow velocities within the treatment gates are estimated to range from 0.1814 ft/day to 0.0151 ft/day. The groundwater flow velocity through each treatment gate is presented in Table 2-2.

2.2 GROUNDWATER SAMPLE ANALYTICAL RESULTS

Groundwater samples were collected from a total of 33 shallow monitoring wells screened within the shallow groundwater-bearing unit. The shallow wells sampled include seven shallow groundwater monitoring wells (MW-5S, MW-6S, MW-7S, MW-9S, MW-27S, MW-28S, and MW-29S); eight containment performance monitoring wells (MW-30S, MW-31S, MW-32S, MW-33S, MW-34S, MW-35S, MW-36S and MW-37S); and 18 treatment performance monitoring wells (TG1-1, TG1-2, TG1-3, TG2-1, TG2-2, TG2-3, TG3-1, TG3-2, TG3-3, TG4-1, TG4-2, TG4-3, TG5-1, TG5-2, TG5-3, TG6-1, TG6-2, and TG6-3).

In addition to the investigative groundwater samples collected, four sample duplicate, two matrix spike/matrix spike duplicate (MS/MSD), and four field blank (identified by an FB prefix) samples were collected for quality assurance/quality control (QA/QC) purposes. Trip banks 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.

2.2.1 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 HS Scientific DRT-15CE turbidimeter. Downhole DO readings were collected from each monitoring well prior to purging the well for groundwater sample collection. 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 2-4. Water quality parameter measurements were not collected from well TG1-1 or MW-34S due to the presence of sheen on the purge water during Q1 2004.

2.2.1.1 pH

The pH of the groundwater samples collected during Q1 2004 ranged from 6.42 to 7.74 pH standard units (S.U.). The pH measurements indicate relatively neutral (7.0 S.U.) conditions. 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.

2.2.1.2 Redox Potential

The redox potentials of the groundwater samples collected at the site during Q1 2004 ranged from 221.4 to 253.1 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 continue under anaerobic conditions, the reduced ionic species concentration increases, resulting in an overall decrease of the water's redox potential.

2.2.1.3 Dissolved Oxygen

DO levels for the groundwater samples collected during Q1 2004 ranged from 0.26 to 6.67 milligrams per liter (mg/L). Overall, the DO readings indicate the presence of low levels of oxygen in the water, and the system as a whole is considered to be generally under suboxic 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.

2.2.1.4 Specific Conductance

The specific conductance, or conductivity, of the groundwater samples collected during Q1 2004 ranged from 0.663 to 2.012 milliohms per centimeter (mohm/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 include nitrate, nitrite, ammonium, and phosphate ions.

2.2.1.5 Temperature

Groundwater temperatures ranged from 4.4 to 7.57 degrees Celsius (°C) during Q1 2004. Temperature ranges observed during Q1 2004 were similar to those observed during Q4 2003. Q4 2003 temperatures ranged from 5.43 to 10.32 °C. Temperature is an extremely important factor in bioremediation because microbial growth rates are greatly dependent upon temperature.

2.2.1.6 Turbidity

Turbidity ranged from 2.6 to 421 nephelometric turbidity units (NTU) during Q1 2004. 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.

2.2.2 Laboratory Analyses

The results of the laboratory analyses performed on the groundwater samples collected during March 2004 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.

2.2.2.1 Laboratory Analyses for BTEX and PAH

Each groundwater sample collected during the March 2004 sampling event was 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 2-5. Table 2-5 identifies parameters detected at concentrations exceeding their respective PALs (shown as shaded values). Parameters with concentrations exceeding both PALs and ESs are presented as shaded and bolded values in Table 2-5. Exceedences are summarized in the following paragraphs. The laboratory reports that included BTEX and PAH analyses results are provided as Appendix A.

Groundwater Sample Results

As shown in Table 2-5, 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 Exceedences

- Benzene was detected at concentrations exceeding the PAL of 0.5 micrograms per liter ($\mu\text{g/L}$) in the groundwater samples collected from wells MW-33S, MW-34S, and TG1-1.
- Benzo(a)pyrene was detected at concentrations exceeding the PAL of 0.02 $\mu\text{g/L}$ in the groundwater samples collected from wells MW-34S, TG1-1, and TG1-3.
- Benzo(b)fluoranthene was detected at concentrations exceeding the PAL of 0.02 $\mu\text{g/L}$ in the groundwater samples collected from wells MW-34S, TG1-1, and TG1-3.
- Chrysene was detected at concentrations exceeding the PAL of 0.02 $\mu\text{g/L}$ in the groundwater samples collected from wells MW-34S, TG1-1, and TG1-3.
- Fluoranthene was detected at concentrations exceeding the PAL of 80 $\mu\text{g/L}$ in the groundwater samples collected from wells MW-34S, TG1-1, and TG1-3.
- Fluorene was detected at concentrations exceeding the PAL of 80 $\mu\text{g/L}$ in the groundwater samples collected from wells MW-34S, TG1-1, and TG1-3.
- Naphthalene was detected at concentrations exceeding the PAL of 8 $\mu\text{g/L}$ in the groundwater samples from wells MW-7S, MW-33S, MW-34S, TG1-1, TG1-2, and TG1-3.
- Pyrene was detected at concentrations exceeding the PAL of 50 $\mu\text{g/L}$ in the groundwater samples collected from wells MW-34S, TG1-1, and TG1-3.

WDNR ES Exceedences

- Benzene was detected at concentrations exceeding the ES of 5 $\mu\text{g/L}$ in the groundwater sample collected from well MW-34S.
- Benzo(a)pyrene was detected at concentrations exceeding the ES of 0.2 $\mu\text{g/L}$ in the groundwater samples collected from wells MW-34S, TG1-1, and TG1-3.
- Benzo(b)fluoranthene was detected at concentrations exceeding the ES of 0.2 $\mu\text{g/L}$ in the groundwater samples collected from wells MW-34S, TG1-1, and TG1-3.
- Chrysene was detected at concentrations exceeding the ES of 0.2 $\mu\text{g/L}$ in the groundwater samples collected from wells MW-34S, TG1-1, and TG1-3.

- Fluoranthene was detected at concentrations exceeding the ES of 400 µg/L in the groundwater samples collected from well MW-34S.
- Fluorene was detected at concentrations exceeding the ES of 400 µg/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-7S, MW-34S, TG1-1, and TG1-3.
- Pyrene was detected at concentrations exceeding the ES of 250 µg/L in the groundwater sample collected from well MW-34S.
-

The plume boundary is primarily in an area encompassing six shallow monitoring wells (MW-7S, MW-33S, MW-34S, TG1-1, TG1-2, and TG1-3). The majority of PAL and ES exceedences 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 a few PAL/ES exceedences. Based on these detected concentrations, the contaminant plume generally demonstrates a northeasterly trend, as indicated in Figure 2-1, similar to the previous 21 quarterly groundwater sampling events.

Overall, the lateral extent of the groundwater contaminant plume is considerably smaller than in previous years of groundwater sampling. Little change in the contaminant plume size was observed in the past four quarters.

A summary of the concentration of contaminants at wells that have regularly exceeded PALs and/or ESs during the last 12 quarters (3 years) is presented in Table 2-6. Levels of benzene, naphthalene, fluorene, and benzo(a)pyrene fluctuate over wide ranges in these wells without a common pattern. However, these constituents have shown an overall decreasing or constant trend in monitoring wells MW-7S and MW-35S. Well MW-7S has shown a decreasing trend for benzene and benzo(a)pyrene. Although benzene and benzo(a)pyrene concentrations in MW-33S have remained at low levels, fluorene and naphthalene levels have fluctuated over the past 12 quarters. Well MW-34S has shown overall fluctuating levels in benzene, naphthalene, fluorene, and benzo(a)pyrene. Well MW-34S contained a trace amount of free product during Q1 2004 with varying levels of free product found in the well in the recent past. This correlates with the

elevated levels of constituents found in MW-34S. Benzene concentration shows a decreasing trend. However, well TG1-1 has shown fluctuating naphthalene, fluorene, and benzo(a)pyrene concentrations since it was first sampled in Q3 2000. This fluctuating concentration could be due to the presence of free product which has historically been observed in well TG1-1.

2.2.2.2 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 2-7. The analytical results for the treatment performance monitoring groundwater samples are summarized below. The laboratory reports of nutrient and microbial analyses are also included in Appendix A.

Nitrogen and Phosphorous Compounds

NO₃-N was not detected at or above the detection limit. NO₂-N was detected at concentrations ranging from non-detect to 0.17 mg/L. TKN was detected at concentrations ranging from non-detect to 2.6 mg/L. NH₃-N was detected at levels ranging from non-detect to 1.7 mg/L. Overall, nitrogen compound concentrations are at relatively low levels; however, previous sample results have indicated that NH₃-N is typically an order of magnitude greater than NO₃-N concentrations and approximately two orders or magnitude greater than NO₂-N.

PO₄-P was not detected at or above the detection limit. ORP was detected at concentrations ranging from non-detect to 0.036 mg/L. From the ratio between carbon, nitrogen and phosphorous, a beneficial level of PO₄-P was not found in any of the treatment gates during Q1 2004. ORP levels were also minimal in many of the gates for Q1 2004.

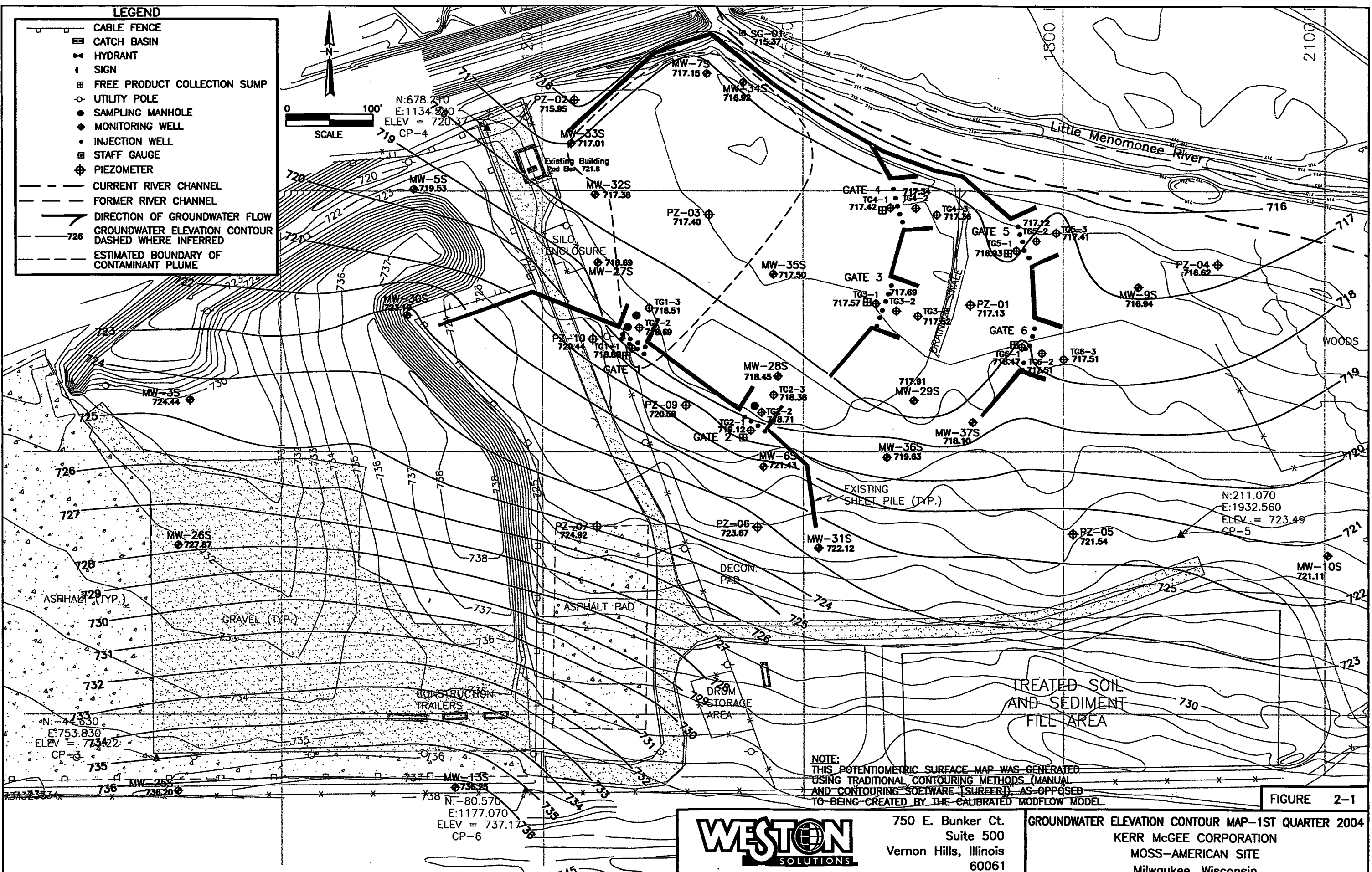
BOD, COD, and TOC

BOD concentrations for the samples collected throughout the treatment system range from non-detect to 8.5 mg/L. COD concentrations for the samples collected throughout the treatment system ranged from 5.4 to 71.7 mg/L. TOC concentrations for the samples collected throughout the treatment system ranged from 2.6 to 18.6 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 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.

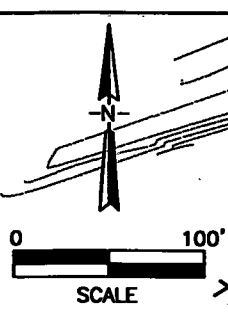
Microbial Enumeration

The total microbial populations for TG1 and TG2 ranged from 3.9×10^3 to 2.1×10^3 colony forming units per milliliter (CFU/mL) during Q1 2004. The total microbial populations for TG3 and TG4 ranged from 2.8×10^2 to 4.3×10^3 CFU/mL during Q1 2004. The total microbial populations for TG5 and TG6 ranged from 2.6×10^2 to 8.3×10^3 CFU/mL during Q1 2004.

The result of degrader microbial population analysis was all non-detect for TG1 and TG2 during Q1 2004. The degrader microbial populations for TG3 and TG4 ranged between non-detect and 1.0×10^1 CFU/mL during Q1 2004. The degrader microbial populations for TG5 and TG6 ranged from non-detect to 4.1×10^2 CFU/mL during Q1 2004.



- LEGEND**
- CABLE FENCE
 - ▣ CATCH BASIN
 - ⊠ HYDRANT
 - ⊠ SIGN
 - ⊠ FREE PRODUCT COLLECTION SUMP
 - UTILITY POLE
 - SAMPLING MANHOLE
 - ◆ MONITORING WELL
 - INJECTION WELL
 - ⊠ STAFF GAUGE
 - ⊠ PIEZOMETER
 - - - CURRENT RIVER CHANNEL
 - - - FORMER RIVER CHANNEL
 - DIRECTION OF GROUNDWATER FLOW
 - GROUNDWATER ELEVATION CONTOUR
 - - - DASHED WHERE INFERRED
 - - - ESTIMATED BOUNDARY OF CONTAMINANT PLUME



Map details including:

- Monitoring wells: MW-7S (717.15), MW-34S (718.92), MW-33S (717.01), MW-5S (719.53), MW-32S (717.38), MW-35S (717.50), MW-28S (718.45), MW-29S (717.91), MW-37S (718.10), MW-36S (719.63), MW-31S (722.12), MW-26S (727.87), MW-10S (721.11), MW-13S (736.35).
- Piezometers: PZ-02 (715.95), PZ-03 (717.40), PZ-01 (717.13), PZ-09 (720.58), PZ-07 (724.92), PZ-06 (723.67), PZ-05 (721.54).
- Gates: GATE 1, GATE 2, GATE 3, GATE 4, GATE 5, GATE 6.
- Other features: Existing Building (Pad Elev. 721.6), SILO ENCLOSURE, ASPHALT PAD, CONSTRUCTION TRAILERS, DROM STORAGE AREA, TREATED SOIL AND SEDIMENT FILL AREA, EXISTING SHEET PILE (TYP.), DECON. PAD, ASRHABE (TYP.), GRAVEL (TYP.).
- Coordinates: N:678.210, E:1134.980, ELEV = 720.37; N:211.070, E:1932.560, ELEV = 723.49; N:44.630, E:753.830, ELEV = 773.22; N:-80.570, E:1177.070, ELEV = 737.17.

NOTE: THIS POTENTIOMETRIC SURFACE MAP WAS GENERATED USING TRADITIONAL CONTOURING METHODS (MANUAL AND CONTOURING SOFTWARE [SURFER]), AS OPPOSED TO BEING CREATED BY THE CALIBRATED MODFLOW MODEL.

FIGURE 2-1



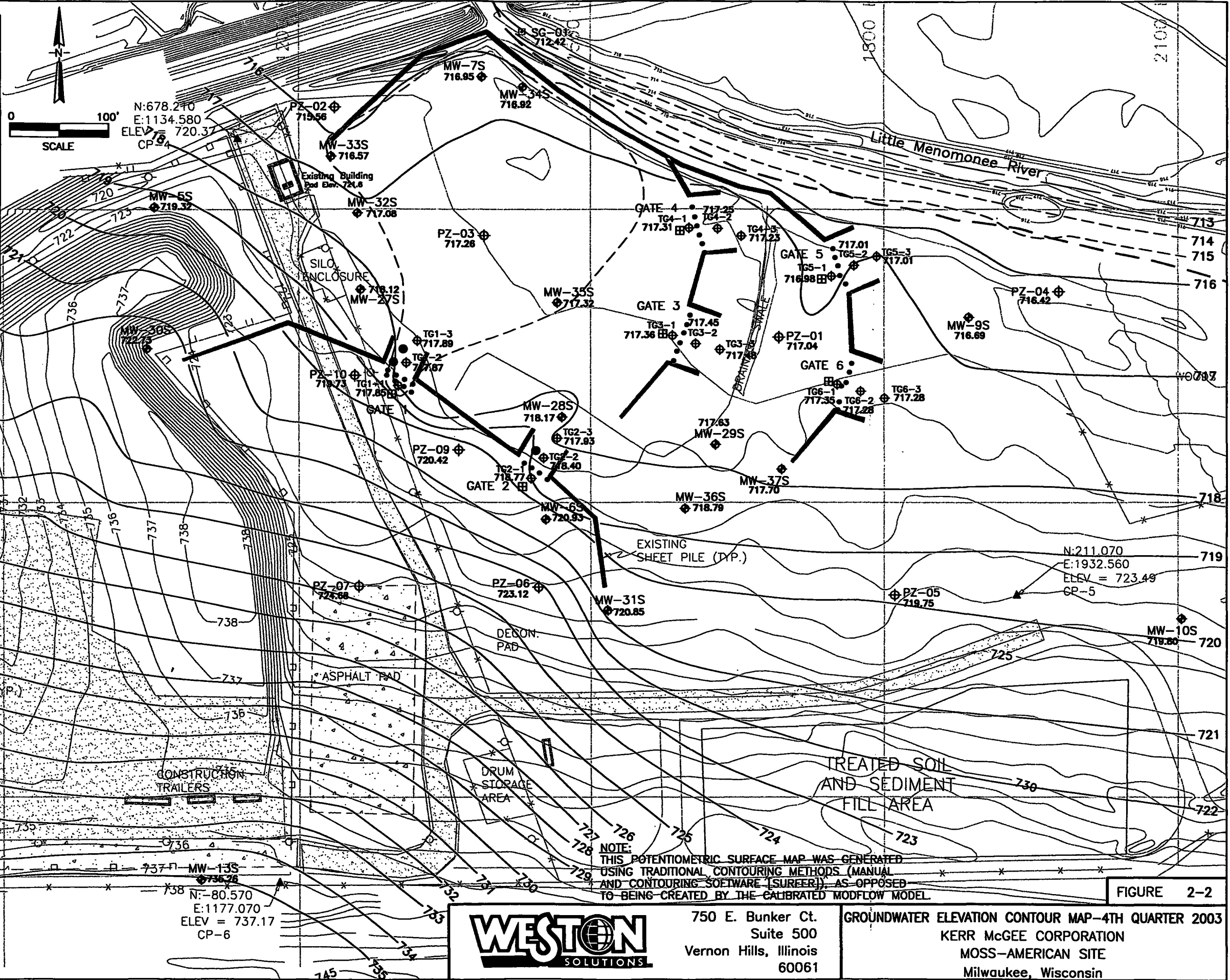
750 E. Bunker Ct.
Suite 500
Vernon Hills, Illinois
60061

GROUNDWATER ELEVATION CONTOUR MAP-1ST QUARTER 2004
KERR MCGEE CORPORATION
MOSS-AMERICAN SITE
Milwaukee, Wisconsin

J:\CAD95\000\00303.dwg

LEGEND

- CABLE FENCE
- ▣ CATCH BASIN
- ⊕ HYDRANT
- ⊕ SIGN
- ⊕ FREE PRODUCT COLLECTION SUMP
- UTILITY POLE
- SAMPLING MANHOLE
- ◆ MONITORING WELL
- INJECTION WELL
- ⊕ STAFF GAUGE
- ⊕ PIEZOMETER
- - - CURRENT RIVER CHANNEL
- - - FORMER RIVER CHANNEL
- DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER ELEVATION CONTOUR
- - - DASHED WHERE INFERRED
- - - ESTIMATED BOUNDARY OF CONTAMINANT PLUME



J:\CAD95\000\00303.dwg

FIGURE 2-2



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

GROUNDWATER ELEVATION CONTOUR MAP-4TH QUARTER 2003
KERR MCGEE CORPORATION
MOSS-AMERICAN SITE
Milwaukee, Wisconsin

Table 2-1

**Groundwater Elevation Measurements
Shallow and Containment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004**

| Well ID | Ground Elevation | TOC Elevation | Depth to Water | GW Elevation | Product Thickness |
|----------------|-------------------------|----------------------|-----------------------|---------------------|--------------------------|
| MW-3S | 729.71 | 731.45 | 7.01 | 724.44 | None Encountered |
| MW-5S | 723.41 | 724.63 | 5.1 | 719.53 | |
| MW-6S | 723.11 | 725.24 | 3.81 | 721.43 | |
| MW-7S | 719.47 | 721.59 | 4.44 | 717.15 | |
| MW-9S | 719.15 | 721.66 | 4.72 | 716.94 | |
| MW-10S | 723.95 | 726.76 | 5.65 | 721.11 | |
| MW-13S | 737.73 | 738.58 | 2.33 | 736.25 | |
| MW-25S | 736.95 | 739.19 | 2.99 | 736.20 | |
| MW-26S | 732.31 | 731.87 | 4 | 727.87 | |
| MW-27S | 720.57 | 723.10 | 4.41 | 718.69 | |
| MW-28S | 719.64 | 722.13 | 3.68 | 718.45 | |
| MW-29S | 719.51 | 722.17 | 4.26 | 717.91 | |
| MW-30S | 725.35 | 727.34 | 4.15 | 723.19 | |
| MW-31S | 725.29 | 725.31 | 3.19 | 722.12 | |
| MW-32S | 719.68 | 722.79 | 5.41 | 717.38 | |
| MW-33S | 719.25 | 721.81 | 4.8 | 717.01 | |
| MW-34S | 718.97 | 721.52 | 4.6 | 716.92 | Trace |
| MW-35S | 718.14 | 721.75 | 4.25 | 717.50 | None Encountered |
| MW-36S | 720.41 | 723.21 | 3.58 | 719.63 | |
| MW-37S | 721.33 | 723.30 | 5.2 | 718.10 | |

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 March 15, 2004.

Table 2-2

**Groundwater Elevation Measurements
Treatment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004**

| Well ID | Ground Elevation | TOC Elevation | Depth to Water | GW Elevation | Hydraulic Gradient (ft/ft) | Groundwater Velocity (ft/day) | Product Thickness |
|---------|------------------|---------------|----------------|--------------|----------------------------|-------------------------------|-------------------|
| TG1-1 | 719.77 | 723.32 | 4.44 | 718.88 | 0.0038 | 0.0359 | Trace |
| TG1-2 | 720.06 | 722.81 | 4.12 | 718.69 | | | |
| TG1-3 | 719.56 | 722.53 | 4.02 | 718.51 | | | |
| TG2-1 | 720.67 | 723.80 | 4.68 | 719.12 | 0.0082 | 0.0775 | None Encountered |
| TG2-2 | 720.62 | 723.05 | 4.34 | 718.71 | | | |
| TG2-3 | 720.06 | 722.61 | 4.25 | 718.36 | | | |
| TG3-1 | 719.14 | 721.05 | 3.48 | 717.57 | -0.0024 | -0.0227 | |
| TG3-2 | 718.87 | 720.92 | 3.23 | 717.69 | | | |
| TG3-3 | 718.35 | 720.60 | 3.08 | 717.52 | | | |
| TG4-1 | 718.06 | 721.14 | 3.72 | 717.42 | 0.0016 | 0.0151 | |
| TG4-2 | 718.26 | 720.75 | 3.41 | 717.34 | | | |
| TG4-3 | 718.01 | 720.04 | 2.68 | 717.36 | | | |
| TG5-1 | 717.60 | 721.12 | 4.19 | 716.93 | -0.0038 | -0.0359 | |
| TG5-2 | 718.18 | 720.63 | 3.51 | 717.12 | | | |
| TG5-3 | 718.17 | 719.99 | 2.58 | 717.41 | | | |
| TG6-1 | 719.47 | 721.96 | 3.49 | 718.47 | 0.0192 | 0.1814 | |
| TG6-2 | 719.70 | 722.05 | 4.54 | 717.51 | | | |
| TG6-3 | 719.58 | 722.47 | 4.96 | 717.51 | | | |

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 the casing.

GW = Groundwater.

ft/day = feet per day.

ft/ft = feet per foot.

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 March 15, 2004.

Table 2-3

**Groundwater and Surface Water Elevation Measurements
Piezometer and Staff Gauge
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004**

| Well ID | Ground Elevation | TOC Elevation | Depth to Water | Water Elevation | Product Thickness |
|----------------------|------------------|---------------|----------------|-----------------|-------------------|
| Groundwater | | | | | |
| PZ-01 | 718.04 | 721.05 | 3.92 | 717.13 | None Encountered |
| PZ-02 | 718.89 | 721.84 | 5.89 | 715.95 | |
| PZ-03 | 719.00 | 722.09 | 4.69 | 717.40 | |
| PZ-04 | 717.30 | 720.22 | 3.6 | 716.62 | |
| PZ-05 | 724.34 | 727.43 | 5.89 | 721.54 | |
| PZ-06 | 724.62 | 727.79 | 4.12 | 723.67 | |
| PZ-07 | 725.78 | 728.72 | 3.8 | 724.92 | |
| PZ-09 | 721.12 | 724.08 | 3.5 | 720.58 | |
| PZ-10 | 722.04 | 725.05 | 4.61 | 720.44 | |
| Surface Water | | | | | |
| SG-01 | 716.22 | - | 0.85 | 715.37 | Not applicable |

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 March 15, 2004.

Table 2-4

**Field-Measured Parameters
Shallow Groundwater and Containment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004**

| StationName | pH (Standard Units) | Specific Conductance (mohm/cm) | Temperature (Deg C) | Redox Potential (mV) | Dissolved Oxygen (mg/L) | Turbidity (NTU) |
|--------------------|------------------------------------|-----------------------------------------------|--------------------------------|-------------------------------------|----------------------------------------|----------------------------|
| MW-27S | 6.94 | 1.027 | 6.26 | 234.4 | 1.24 | 19.8 |
| MW-28S | 7.03 | 1.181 | 5.06 | 237.3 | 0.78 | 2.6 |
| MW-29S | 7.17 | 0.888 | 5.09 | 239.1 | 0.82 | 11.9 |
| MW-30S | 6.42 | 2.012 | 6.78 | 227.3 | 1.73 | 3.01 |
| MW-31S | 7.48 | 0.727 | 6.17 | 249.5 | 1.88 | 7.38 |
| MW-32S | 6.92 | 1.032 | 6.77 | 239.1 | 1.32 | 9.52 |
| MW-33S | 6.91 | 1.238 | 5.97 | 235.8 | 1.74 | 12.9 |
| MW-35S | 6.9 | 1.632 | 5.38 | 240.4 | 1.05 | 19.5 |
| MW-36S | 7.3 | 0.667 | 5.51 | 235.5 | 1.98 | 88 |
| MW-37S | 7.06 | 0.966 | 5.8 | 235.9 | 0.68 | 8.11 |
| MW-5S | 6.89 | 0.919 | 7.01 | 228.7 | 2.28 | 3.61 |
| MW-6S | 7.7 | 0.663 | 7.13 | 247.8 | 1.98 | 421 |
| MW-7S | 7.05 | 0.932 | 7.32 | 246 | 0.54 | 7.86 |
| MW-9S | 6.9 | 0.96 | 7.57 | 253.1 | 2.87 | 57.7 |

Table 2-4 (Continued)

**Field-Measured Parameters
Treatment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004**

| StationName | pH (Standard Units) | Specific Conductance (mohm/cm) | Temperature (Deg C) | Redox Potential (mV) | Dissolved Oxygen (mg/L) | Turbidity (NTU) |
|--------------------|------------------------------------|-----------------------------------------------|--------------------------------|-------------------------------------|----------------------------------------|----------------------------|
| TG1-2 | 6.9 | 1.031 | 4.66 | 233.9 | 0.42 | 17.2 |
| TG1-3 | 6.85 | 1.038 | 5.2 | 231.9 | 0.26 | 20.5 |
| TG2-1 | 7.01 | 0.921 | 5.32 | 247 | 1.71 | 5.2 |
| TG2-2 | 7.12 | 0.754 | 5.42 | 243.1 | 1.26 | 2.96 |
| TG2-3 | 6.89 | 1.056 | 5.05 | 244.1 | 3.05 | 19.3 |
| TG3-1 | 7.13 | 1.31 | 4.85 | 237.4 | 6.67 | 5.35 |
| TG3-2 | 7.06 | 1.34 | 4.73 | 237.7 | 0.42 | 7.4 |
| TG3-3 | 6.9 | 1.112 | 5.09 | 237.1 | 0.97 | 5.05 |
| TG4-1 | 6.95 | 1.236 | 4.4 | 235.3 | 0.68 | 4.36 |
| TG4-2 | 6.99 | 1.162 | 4.77 | 234.7 | 0.42 | 9.5 |
| TG4-3 | 6.96 | 1.186 | 5.31 | 233.6 | 0.7 | 4.35 |
| TG5-1 | 7.66 | 1.044 | 4.95 | 223.7 | 4.39 | 23.4 |
| TG5-2 | 7.64 | 1.003 | 5.5 | 224.9 | 0.52 | 6.49 |
| TG5-3 | 7.74 | 0.878 | 6.8 | 221.4 | 1.56 | 13.7 |
| TG6-1 | 6.82 | 1.302 | 4.98 | 238.3 | 1.46 | 10.8 |
| TG6-2 | 6.65 | 1.472 | 6.07 | 236.8 | 4.45 | 5.97 |
| TG6-3 | 6.64 | 1.351 | 5.32 | 236.9 | 4.05 | 9.41 |

Notes:

S - Shallow well.

TG - Treatment gate performance monitoring well.

NM - Not measured due frozen conditions or free product in well.

mohm/cm - milliohm per centimeter

Deg C - Degrees Celcius

mV - millivolt

mg/L - milligram per liter

NTU - Nephelometric Turbidity unit

Table 2-5

Groundwater Sample Analytical Results
Shallow Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004

| Sample ID: | MA3-MW5S-160304-1 | MA3-MW6S-190304-3 | MA3-MW7S-190304-2 | MA3-MW9S-190304-5 | WDNR PAL (ug/L) | WDNR ES (ug/L) |
|------------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|----------------------|
| Sample Matrix: | Groundwater | Groundwater | Groundwater | Groundwater | | |
| Sample Date: | 3/16/2004 | 3/19/2004 | 3/19/2004 | 3/19/2004 | | |
| Units of Measure: | ug/L | ug/L | ug/L | ug/L | | |
| Parameter | | | | | | |
| VOCs | | | | | | |
| Benzene | 0.2 U | 0.2 U | 4 U | 0.2 U | 0.5 | 5 |
| Ethylbenzene | 0.2 U | 0.2 U | 16 J | 0.2 U | 140 | 700 |
| Toluene | 0.2 U | 0.2 U | 4 U | 0.2 U | 68.6 | 343 |
| Total Xylenes | 0.6 U | 0.6 U | 37 J | 0.6 U | 124 | 650 |
| PAHs | | | | | | |
| Acenaphthene | 1.6 U | 1.6 U | 45 | 1.6 U | NA | NA |
| Acenaphthylene | 1.6 U | 1.6 U | 46 | 1.6 U | NA | NA |
| Anthracene | 0.041 U | 0.04 U | 0.038 U | 0.04 U | 600 | 3,000 |
| Benzo(a)anthracene | 0.021 U | 0.02 U | 0.019 U | 0.02 U | NA | NA |
| Benzo(a)pyrene | 0.021 U | 0.02 U | 0.019 U | 0.02 U | 0.02 | 0.2 |
| Benzo(b)fluoranthene | 0.041 U | 0.04 U | 0.038 U | 0.04 U | 0.02 | 0.2 |
| Benzo(g,h,i)perylene | 0.1 U | 0.099 U | 0.096 U | 0.1 U | NA | NA |
| Benzo(k)fluoranthene | 0.021 U | 0.02 U | 0.019 U | 0.02 U | NA | NA |
| Chrysene | 0.082 U | 0.079 U | 0.077 U | 0.081 U | 0.02 | 0.2 |
| Dibenz(a,h)anthracene | 0.041 U | 0.04 U | 0.038 U | 0.04 U | NA | NA |
| Fluoranthene | 0.041 U | 0.04 U | 0.038 U | 0.04 U | 80 | 400 |
| Fluorene | 0.18 U | 0.18 U | 7 | 0.18 U | 80 | 400 |
| Indeno(1,2,3-cd)pyrene | 0.082 U | 0.079 U | 0.077 U | 0.081 U | NA | NA |
| Naphthalene | 1.4 U | 1.4 U | 2,500 | 1.4 U | 8 | 40 |
| Phenanthrene | 0.082 U | 0.079 U | 0.077 U | 0.081 U | NA | NA |
| Pyrene | 0.18 U | 0.18 U | 0.17 U | 0.18 U | 50 | 250 |

Table 2-5 (Continued)

**Groundwater Sample Analytical Results
Shallow Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004**

| Sample ID: | MA3-MW27S-180304-7 | MA3-MW28S-180304-11 | MA3-MW29S-180304-5 | MA3-MW30S-160304-2 | WDNR PAL (ug/L) | WDNR ES (ug/L) |
|------------------------|--------------------|---------------------|--------------------|--------------------|-----------------------|----------------------|
| Sample Matrix: | Groundwater | Groundwater | Groundwater | Groundwater | | |
| Sample Date: | 3/18/2004 | 3/18/2004 | 3/18/2004 | 3/16/2004 | | |
| Units of Measure: | ug/L | ug/L | ug/L | ug/L | | |
| Parameter | | | | | | |
| VOCs | | | | | | |
| 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 | 1.5 U | 1.6 U | 1.6 U | 1.5 U | NA | NA |
| Acenaphthylene | 1.5 U | 1.6 U | 1.6 U | 1.5 U | NA | NA |
| Anthracene | 0.038 U | 0.039 U | 0.04 U | 0.039 U | 600 | 3,000 |
| Benzo(a)anthracene | 0.019 U | 0.019 U | 0.02 U | 0.019 U | NA | NA |
| Benzo(a)pyrene | 0.019 U | 0.019 U | 0.02 U | 0.019 U | 0.02 | 0.2 |
| Benzo(b)fluoranthene | 0.038 U | 0.039 U | 0.04 U | 0.039 U | 0.02 | 0.2 |
| Benzo(g,h,i)perylene | 0.096 U | 0.097 U | 0.1 U | 0.097 U | NA | NA |
| Benzo(k)fluoranthene | 0.019 U | 0.019 U | 0.02 U | 0.019 U | NA | NA |
| Chrysene | 0.077 U | 0.078 U | 0.081 U | 0.077 U | 0.02 | 0.2 |
| Dibenz(a,h)anthracene | 0.038 U | 0.039 U | 0.04 U | 0.039 U | NA | NA |
| Fluoranthene | 0.038 U | 0.039 U | 0.04 U | 0.039 U | 80 | 400 |
| Fluorene | 0.17 U | 0.18 U | 0.18 U | 0.17 U | 80 | 400 |
| Indeno(1,2,3-cd)pyrene | 0.077 U | 0.078 U | 0.081 U | 0.077 U | NA | NA |
| Naphthalene | 1.3 U | 1.4 U | 1.4 U | 1.4 U | 8 | 40 |
| Phenanthrene | 0.077 U | 0.078 U | 0.081 U | 0.077 U | NA | NA |
| Pyrene | 0.17 U | 0.18 U | 0.18 U | 0.17 U | 50 | 250 |

Table 2-5 (Continued)

Groundwater Sample Analytical Results
 Containment Performance Monitoring Well Samples
 Moss-American Site
 Milwaukee, Wisconsin
 First Quarter 2004

| Sample ID: | MA3-MW31S-190304-4 | MA3-MW32S-180304-8 | MA3-MW33S-180304-9 | MA3-MW34S-190304-1 | MA3-MW35S-180304-10 | MA3-MW36S-180304-4 | MA3-MW37S-180304-6 | WDNR PAL (ug/L) | WDNR ES (ug/L) |
|------------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--------------------|--------------------|-----------------------|----------------------|
| Sample Matrix: | Groundwater | Groundwater | Groundwater | Groundwater | Groundwater | Groundwater | Groundwater | | |
| Sample Date: | 3/19/2004 | 3/18/2004 | 3/18/2004 | 3/19/2004 | 3/18/2004 | 3/18/2004 | 3/18/2004 | | |
| Units of Measure: | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | | |
| Parameter | | | | | | | | | |
| VOCs | | | | | | | | | |
| Benzene | 0.2 U | 0.2 U | 4.7 J | 5.7 J | 0.2 U | 0.2 U | 0.2 U | 0.5 | 5 |
| Ethylbenzene | 0.2 U | 0.2 U | 4.7 J | 26 | 0.2 U | 0.2 U | 0.2 U | 140 | 700 |
| Toluene | 0.2 U | 0.2 U | 2 U | 4 U | 0.2 U | 0.2 U | 0.2 U | 68.6 | 343 |
| Total Xylenes | 0.6 U | 0.6 U | 6 U | 77 | 0.6 U | 0.6 U | 0.6 U | 124 | 650 |
| PAHs | | | | | | | | | |
| Acenaphthene | 1.7 U | 1.6 UJ | 44 | 750 | 1.6 U | 1.6 U | 1.6 U | NA | NA |
| Acenaphthylene | 1.7 U | 1.6 UJ | 11 J | 110 J | 1.6 U | 1.6 U | 1.6 U | NA | NA |
| Anthracene | 0.043 U | 0.041 UJ | 0.051 J | 130 | 0.05 J | 0.041 U | 0.04 U | 600 | 3,000 |
| Benzo(a)anthracene | 0.021 U | 0.02 UJ | 0.02 UJ | 79 | 0.026 J | 0.02 U | 0.02 U | NA | NA |
| Benzo(a)pyrene | 0.021 U | 0.02 UJ | 0.02 UJ | 79 | 0.02 U | 0.02 U | 0.02 U | 0.02 | 0.2 |
| Benzo(b)fluoranthene | 0.043 U | 0.041 UJ | 0.04 UJ | 29 | 0.04 U | 0.041 U | 0.04 U | 0.02 | 0.2 |
| Benzo(g,h,i)perylene | 0.11 U | 0.1 UJ | 0.1 UJ | 20 U | 0.099 U | 0.1 U | 0.1 U | NA | NA |
| Benzo(k)fluoranthene | 0.021 U | 0.02 UJ | 0.02 UJ | 16 | 0.02 U | 0.02 U | 0.02 U | NA | NA |
| Chrysene | 0.085 U | 0.081 UJ | 0.08 UJ | 56 | 0.079 U | 0.081 U | 0.08 U | 0.02 | 0.2 |
| Dibenz(a,h)anthracene | 0.043 U | 0.041 UJ | 0.04 UJ | 2.2 | 0.04 U | 0.041 U | 0.04 U | NA | NA |
| Fluoranthene | 0.043 U | 0.041 UJ | 0.04 UJ | 490 | 0.46 | 0.041 U | 0.04 U | 80 | 400 |
| Fluorene | 0.19 U | 0.18 UJ | 13 | 470 | 0.21 J | 0.18 U | 0.18 U | 80 | 400 |
| Indeno(1,2,3-cd)pyrene | 0.085 U | 0.081 UJ | 0.08 UJ | 14 | 0.079 U | 0.081 U | 0.08 U | NA | NA |
| Naphthalene | 1.5 U | 1.4 UJ | 660 J | 7,400 | 1.4 U | 1.4 U | 1.4 U | 8 | 40 |
| Phenanthrene | 0.085 U | 0.081 UJ | 1.7 J | 1,200 | 0.079 U | 0.081 U | 0.08 U | NA | NA |
| Pyrene | 0.19 U | 0.18 UJ | 0.18 U | 380 | 0.32 J | 0.18 U | 0.18 U | 50 | 250 |

Table 2-5 (Continued)

Groundwater Sample Analytical Results
Treatment Performance Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004

| Sample ID: | MA3-TG1-1-180304-1 | MA3-TG1-2-180304-2 | MA3-TG1-3-180304-3 | MA3-TG2-1-170304-7 | MA3-TG2-2-170304-8 | MA3-TG2-3-170304-9 | WDNR PAL (ug/L) | WDNR ES (ug/L) |
|------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-----------------------|----------------------|
| Sample Matrix: | Groundwater | Groundwater | Groundwater | Groundwater | Groundwater | Groundwater | | |
| Sample Date: | 3/18/2004 | 3/18/2004 | 3/18/2004 | 3/17/2004 | 3/17/2004 | 3/17/2004 | | |
| Units of Measure: | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | | |
| Parameter | | | | | | | | |
| VOCs | | | | | | | | |
| Benzene | 1.5 | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.5 | 5 |
| Ethylbenzene | 29 | 0.4 J | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 140 | 700 |
| Toluene | 0.6 J | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 68.6 | 343 |
| Total Xylenes | 40 | 0.6 U | 0.6 U | 0.6 U | 0.6 U | 0.6 U | 124 | 650 |
| PAHs | | | | | | | | |
| Acenaphthene | 320 | 24 | 320 | 1.5 U | 1.5 U | 1.5 U | NA | NA |
| Acenaphthylene | 53 J | 1.6 U | 47 J | 1.5 U | 1.5 U | 1.5 U | NA | NA |
| Anthracene | 26 | 0.89 | 33 | 0.038 U | 0.038 U | 0.038 U | 600 | 3,000 |
| Benzo(a)anthracene | 17 | 0.047 J | 22 | 0.019 U | 0.019 U | 0.019 U | NA | NA |
| Benzo(a)pyrene | 6.2 | 0.02 U | 8.5 | 0.019 U | 0.019 U | 0.019 U | 0.02 | 0.2 |
| Benzo(b)fluoranthene | 6.2 | 0.039 U | 8.3 | 0.038 U | 0.038 U | 0.038 U | 0.02 | 0.2 |
| Benzo(g,h,i)perylene | 4 U | 0.098 U | 5 U | 0.095 U | 0.095 U | 0.095 U | NA | NA |
| Benzo(k)fluoranthene | 3.5 | 0.02 U | 4.7 | 0.019 U | 0.019 U | 0.019 U | NA | NA |
| Chrysene | 12 | 0.079 U | 17 | 0.076 U | 0.076 U | 0.076 U | 0.02 | 0.2 |
| Dibenz(a,h)anthracene | 0.61 J | 0.039 U | 0.81 J | 0.038 U | 0.038 U | 0.038 U | NA | NA |
| Fluoranthene | 93 | 1.4 | 120 | 0.038 U | 0.038 U | 0.038 U | 80 | 400 |
| Fluorene | 160 | 10 | 170 | 0.17 U | 0.17 U | 0.17 U | 80 | 400 |
| Indeno(1,2,3-cd)pyrene | 3.5 J | 0.079 U | 4.2 | 0.076 U | 0.076 U | 0.076 U | NA | NA |
| Naphthalene | 2,200 | 16 | 1,900 | 1.3 U | 1.3 U | 1.3 U | 8 | 40 |
| Phenanthrene | 240 | 6 | 280 | 0.076 U | 0.076 U | 0.076 U | NA | NA |
| Pyrene | 78 | 0.83 | 100 | 0.17 U | 0.17 U | 0.17 U | 50 | 250 |

Table 2-5 (Continued)

Groundwater Sample Analytical Results
Treatment Performance Well Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004

| Sample ID: | MA3-TG3-1-170304-4 | MA3-TG3-2-170304-5 | MA3-TG3-3-170304-6 | MA3-TG4-1-170304-1 | MA3-TG4-2-170304-2 | MA3-TG4-3-170304-3 | WDNR PAL (ug/L) | WDNR ES (ug/L) |
|------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-----------------------|----------------------|
| Sample Matrix: | Groundwater | Groundwater | Groundwater | Groundwater | Groundwater | Groundwater | | |
| Sample Date: | 3/17/2004 | 3/17/2004 | 3/17/2004 | 3/17/2004 | 3/17/2004 | 3/17/2004 | | |
| Units of Measure: | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | | |
| Parameter | | | | | | | | |
| VOCs | | | | | | | | |
| 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 | 0.2 U | 0.2 U | 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 | 0.6 U | 0.6 U | 124 | 650 |
| PAHs | | | | | | | | |
| Acenaphthene | 1.5 U | 1.6 U | 1.5 U | 1.5 U | 1.5 U | 1.5 U | NA | NA |
| Acenaphthylene | 1.5 U | 1.6 U | 1.5 U | 1.5 U | 1.5 U | 1.5 U | NA | NA |
| Anthracene | 0.038 U | 0.039 U | 0.038 U | 0.038 U | 0.038 U | 0.038 U | 600 | 3,000 |
| Benzo(a)anthracene | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U | NA | NA |
| Benzo(a)pyrene | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.02 | 0.2 |
| Benzo(b)fluoranthene | 0.038 U | 0.039 U | 0.038 U | 0.038 U | 0.038 U | 0.038 U | 0.02 | 0.2 |
| Benzo(g,h,i)perylene | 0.096 U | 0.097 U | 0.095 U | 0.094 U | 0.095 U | 0.096 U | NA | NA |
| Benzo(k)fluoranthene | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U | 0.019 U | NA | NA |
| Chrysene | 0.077 U | 0.078 U | 0.076 U | 0.075 U | 0.076 U | 0.077 U | 0.02 | 0.2 |
| Dibenz(a,h)anthracene | 0.038 U | 0.039 U | 0.038 U | 0.038 U | 0.038 U | 0.038 U | NA | NA |
| Fluoranthene | 0.038 U | 0.039 U | 0.038 U | 0.058 J | 0.038 U | 0.16 J | 80 | 400 |
| Fluorene | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 0.19 J | 80 | 400 |
| Indeno(1,2,3-cd)pyrene | 0.077 U | 0.078 U | 0.076 U | 0.075 U | 0.076 U | 0.077 U | NA | NA |
| Naphthalene | 1.3 U | 1.4 U | 1.3 U | 1.3 U | 1.3 U | 1.3 U | 8 | 40 |
| Phenanthrene | 0.077 U | 0.078 U | 0.076 U | 0.075 U | 0.076 U | 0.077 U | NA | NA |
| Pyrene | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 50 | 250 |

Table 2-5 (Continued)

Groundwater Sample Analytical Results
Treatment Performance Well Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004

| Sample ID: | MA3-TG5-1-160304-6 | MA3-TG5-2-160304-7 | MA3-TG5-3-160304-8 | MA3-TG6-1-160304-3 | MA3-TG6-2-160304-4 | MA3-TG6-3-160304-5 | WDNR PAL (ug/L) | WDNR ES (ug/L) |
|------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-----------------------|----------------------|
| Sample Matrix: | Groundwater | Groundwater | Groundwater | Groundwater | Groundwater | Groundwater | | |
| Sample Date: | 3/16/2004 | 3/16/2004 | 3/16/2004 | 3/16/2004 | 3/16/2004 | 3/16/2004 | | |
| Units of Measure: | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | | |
| Parameter | | | | | | | | |
| VOCs | | | | | | | | |
| 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 | 0.2 U | 0.2 U | 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 | 0.6 U | 0.6 U | 124 | 650 |
| PAHs | | | | | | | | |
| Acenaphthene | 1.6 U | 1.5 U | 1.6 U | 1.7 U | 1.6 U | 1.7 U | NA | NA |
| Acenaphthylene | 1.6 U | 1.5 U | 1.6 U | 1.7 U | 1.6 U | 1.7 U | NA | NA |
| Anthracene | 0.04 U | 0.038 U | 0.04 U | 0.042 U | 0.039 U | 0.042 U | 600 | 3,000 |
| Benzo(a)anthracene | 0.02 U | 0.019 U | 0.02 U | 0.021 U | 0.02 U | 0.021 U | NA | NA |
| Benzo(a)pyrene | 0.02 U | 0.019 U | 0.02 U | 0.021 U | 0.02 U | 0.021 U | 0.02 | 0.2 |
| Benzo(b)fluoranthene | 0.04 U | 0.038 U | 0.04 U | 0.042 U | 0.039 U | 0.042 U | 0.02 | 0.2 |
| Benzo(g,h,i)perylene | 0.099 U | 0.095 U | 0.099 U | 0.1 U | 0.099 U | 0.1 U | NA | NA |
| Benzo(k)fluoranthene | 0.02 U | 0.019 U | 0.02 U | 0.021 U | 0.02 U | 0.021 U | NA | NA |
| Chrysene | 0.079 U | 0.076 U | 0.079 U | 0.084 U | 0.079 U | 0.084 U | 0.02 | 0.2 |
| Dibenz(a,h)anthracene | 0.04 U | 0.038 U | 0.04 U | 0.042 U | 0.039 U | 0.042 U | NA | NA |
| Fluoranthene | 0.04 U | 0.047 J | 0.042 J | 0.042 U | 0.08 J | 0.042 U | 80 | 400 |
| Fluorene | 0.18 U | 0.17 U | 0.18 U | 0.19 U | 0.18 U | 0.19 U | 80 | 400 |
| Indeno(1,2,3-cd)pyrene | 0.079 U | 0.076 U | 0.079 U | 0.084 U | 0.079 U | 0.084 U | NA | NA |
| Naphthalene | 1.4 U | 1.3 U | 1.4 U | 1.5 U | 1.4 U | 1.5 U | 8 | 40 |
| Phenanthrene | 0.079 U | 0.076 U | 0.079 U | 0.084 U | 0.079 U | 0.084 U | NA | NA |
| Pyrene | 0.18 U | 0.17 U | 0.18 U | 0.19 U | 0.18 U | 0.19 U | 50 | 250 |

Table 2-5 (Continued)

Groundwater Sample Analytical Results
Duplicate Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004

| Sample ID: | MA3-MW5S-160304-1-DP | MA3-MW32S-180304-8-DP | MA3-TG3-2-170304-5-DP | MA3-TG5-2-160304-7-DP | WDNR PAL (ug/L) | WDNR ES (ug/L) |
|------------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|
| Sample Matrix: | Groundwater | Groundwater | Groundwater | Groundwater | | |
| Sample Date: | 3/16/2004 | 3/18/2004 | 3/17/2004 | 3/16/2004 | | |
| Units of Measure: | ug/L | ug/L | ug/L | ug/L | | |
| Parameter | | | | | | |
| VOCs | | | | | | |
| 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 | 1.7 U | 1.6 U | 1.5 U | 1.5 U | NA | NA |
| Acenaphthylene | 1.7 U | 1.6 U | 1.5 U | 1.5 U | NA | NA |
| Anthracene | 0.043 U | 0.04 U | 0.038 U | 0.038 U | 600 | 3,000 |
| Benzo(a)anthracene | 0.022 U | 0.02 U | 0.019 U | 0.019 U | NA | NA |
| Benzo(a)pyrene | 0.022 U | 0.02 U | 0.019 U | 0.019 U | 0.02 | 0.2 |
| Benzo(b)fluoranthene | 0.043 U | 0.04 U | 0.038 U | 0.038 U | 0.02 | 0.2 |
| Benzo(g,h,i)perylene | 0.11 U | 0.1 U | 0.094 U | 0.095 U | NA | NA |
| Benzo(k)fluoranthene | 0.022 U | 0.02 U | 0.019 U | 0.019 U | NA | NA |
| Chrysene | 0.086 U | 0.08 U | 0.076 U | 0.076 U | 0.02 | 0.2 |
| Dibenz(a,h)anthracene | 0.043 U | 0.04 U | 0.038 U | 0.038 U | NA | NA |
| Fluoranthene | 0.043 U | 0.04 U | 0.038 U | 0.041 J | 80 | 400 |
| Fluorene | 0.19 U | 0.18 U | 0.17 U | 0.17 U | 80 | 400 |
| Indeno(1,2,3-cd)pyrene | 0.086 U | 0.08 U | 0.076 U | 0.076 U | NA | NA |
| Naphthalene | 1.5 U | 1.4 U | 1.3 U | 1.3 U | 8 | 40 |
| Phenanthrene | 0.086 U | 0.08 U | 0.076 U | 0.076 U | NA | NA |
| Pyrene | 0.19 U | 0.18 U | 0.17 U | 0.17 U | 50 | 250 |

Table 2-5 (Continued)

Groundwater Sample Analytical Results
Field Blank Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004

| Sample ID: | MA3-FB-160304-1 | MA3-FB-170304-1 | MA3-FB-180304-1 | MA3-FB-190304-1 | WDNR PAL (ug/L) | WDNR ES (ug/L) |
|------------------------|-----------------|-----------------|-----------------|-----------------|-----------------------|----------------------|
| Sample Matrix: | Groundwater | Groundwater | Groundwater | Groundwater | | |
| Sample Date: | 3/16/2004 | 3/17/2004 | 3/18/2004 | 3/19/2004 | | |
| Units of Measure: | ug/L | ug/L | ug/L | ug/L | | |
| Parameter | | | | | | |
| VOCs | | | | | | |
| 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 | 1.5 U | 1.5 U | 1.6 U | 1.6 U | NA | NA |
| Acenaphthylene | 1.5 U | 1.5 U | 1.6 U | 1.6 U | NA | NA |
| Anthracene | 0.039 U | 0.038 U | 0.041 U | 0.039 U | 600 | 3,000 |
| Benzo(a)anthracene | 0.019 U | 0.019 U | 0.02 U | 0.02 U | NA | NA |
| Benzo(a)pyrene | 0.019 U | 0.019 U | 0.02 U | 0.02 U | 0.02 | 0.2 |
| Benzo(b)fluoranthene | 0.039 U | 0.038 U | 0.041 U | 0.039 U | 0.02 | 0.2 |
| Benzo(g,h,i)perylene | 0.097 U | 0.096 U | 0.1 U | 0.099 U | NA | NA |
| Benzo(k)fluoranthene | 0.019 U | 0.019 U | 0.02 U | 0.02 U | NA | NA |
| Chrysene | 0.077 U | 0.077 U | 0.081 U | 0.079 U | 0.02 | 0.2 |
| Dibenz(a,h)anthracene | 0.039 U | 0.038 U | 0.041 U | 0.039 U | NA | NA |
| Fluoranthene | 0.039 U | 0.038 U | 0.041 U | 0.039 U | 80 | 400 |
| Fluorene | 0.17 U | 0.17 U | 0.18 U | 0.18 U | 80 | 400 |
| Indeno(1,2,3-cd)pyrene | 0.077 U | 0.077 U | 0.081 U | 0.079 U | NA | NA |
| Naphthalene | 1.4 U | 1.3 U | 1.4 U | 1.4 U | 8 | 40 |
| Phenanthrene | 0.077 U | 0.077 U | 0.081 U | 0.079 U | NA | NA |
| Pyrene | 0.17 U | 0.17 U | 0.18 U | 0.18 U | 50 | 250 |

Table 2-5 (Continued)

**Groundwater Sample Analytical Results
 Trip Blank Samples
 Moss-American Site
 Milwaukee, Wisconsin
 First Quarter 2004**

| Sample ID: | MA3-TB-160304-1 | MA3-TB-170304-1 | MA3-TB-180304-1 | MA3-TB-190304-1 | WDNR PAL (ug/L) | WDNR ES (ug/L) |
|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------------|----------------------|
| Sample Matrix: | Groundwater | Groundwater | Groundwater | Groundwater | | |
| Sample Date: | 3/16/2004 | 3/17/2004 | 3/18/2004 | 3/19/2004 | | |
| Units of Measure: | ug/L | ug/L | ug/L | ug/L | | |
| Parameter | | | | | | |
| VOCs | | | | | | |
| 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 |

Table 2-5 (Continued)

Groundwater Sample Analytical Results

Notes

Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004

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.

NS-Not sampled due to frozen conditions.

Shaded values indicate concentration exceeding PAL.

Shaded and bold values indicate concentration exceeding PAL and ES.

Table 2-6

**Concentration Trends in Groundwater Monitoring Wells
Second Quarter 2001 through First Quarter 2004
Moss-American Site
Milwaukee, Wisconsin**

| | MW-7S | MW-32S* | MW-33S* | MW-34S* | MW-35S* | TG1-1* | TG1-2* |
|----------------------------------|--------|---------|---------|---------|---------|---------|--------|
| <u>Benzene (ug/L)</u> | | | | | | | |
| Second Quarter (June '01) | 2.90 J | 0.20 U | 1.00 U | 6.80 J | 0.20 U | 5 | 0.2 U |
| Third Quarter (September '01) | 3.70 J | 0.20 U | 1.00 U | 9.00 J | 0.20 U | 3.1 | 0.2 U |
| Fourth Quarter (December '01) | 7.70 J | 0.20 U | 1.00 U | 6.10 J | 0.20 U | 5.7 | 0.2 U |
| First Quarter (March '02) | 3.6 J | 0.20 U | 1.00 U | 8.9 J | 0.20 U | 4.3 J | 0.2 |
| Second Quarter (June '02) | 0.43 J | 0.20 U | 2 J | 12 | 0.20 U | 3.2 J | 0.2 U |
| Third Quarter (September '02) | 5 U | 0.20 U | 4 UJ | 10 UJ | 0.20 U | 1.3 | 0.2 U |
| Fourth Quarter (December '02) | 4 U | 0.20 U | 2 U | 5.6 J | 0.20 U | 4.9 J | 0.2 U |
| First Quarter (March '03) | 2.9 J | 0.20 U | 1.0 U | 6.4 J | 0.20 U | 2.7 J | 0.2 U |
| Second Quarter (June '03) | 2.4 J | 0.2 U | 2 U | 15 J | 0.2 U | 1.4 J | 0.2 U |
| Third Quarter (September '03) | 10 U | 0.2 U | 0.3 J | 10 U | 0.2 U | 2 U | 0.2 U |
| Fourth Quarter (December '03) | 2.3 J | 0.2 U | 0.2 U | 6.6 | 0.2 U | 1 U | 0.2 U |
| First Quarter (March '04) | 4 U | 0.2 U | 4 J | 5.7 J | 0.2 U | 1.5 | 0.2 U |
| <u>Naphthalene (ug/L)</u> | | | | | | | |
| Second Quarter (June '01) | 3,200 | 0.80 U | 2,900 | 5,700 | 1.00 J | 2200 | 78 |
| Third Quarter (September '01) | 3,700 | 1.00 U | 2,600 | 6,200 | 1.00 J | 2400 | 72 |
| Fourth Quarter (December '01) | 3,300 | 1.00 U | 2,100 | 6,700 | 1.00 U | 2600 | 80 |
| First Quarter (March '02) | 2,100 | 1.00 U | 2,200 | 5,400 | 1.00 U | 2400 | 0.9 U |
| Second Quarter (June '02) | 3,000 | 1.00 U | 2,900 | 6,100 | 0.90 U | 1500 | 62 |
| Third Quarter (September '02) | 4,000 | 1.00 U | 2,700 | 7,000 | 1.00 U | 1200 | 27 |
| Fourth Quarter (December '02) | 2,800 | 1.0 U | 2,100 | 5,300 | 1.00 U | 8900 | 48 |
| First Quarter (March '03) | 2,800 | 1.0 U | 2,300 | 6,100 | 1.00 U | 1900 | 27 |
| Second Quarter (June '03) | 3,400 | 1.2 U | 2,500 | 6,100 | 1.2 U | 1,300 J | 41 |
| Third Quarter (September '03) | 3,800 | 1.3 U | 2,600 | 5,000 | 1.2 U | 5800 | 20 |
| Fourth Quarter (December '03) | 3,000 | 1.4 U | 58 J | 6,500 J | 1.3 U | 1500 | 31 |
| First Quarter (March '04) | 2,500 | 1.4 UJ | 660 J | 7,400 | 1.4 U | 2200 | 16 |

Table 2-6 (continued)

**Concentration Trends in Groundwater Monitoring Wells
Second Quarter 2001 through First Quarter 2004
Moss-American Site
Milwaukee, Wisconsin**

| | MW-7S | MW-32S* | MW-33S* | MW-34S* | MW-35S* | TG1-1* | TG1-2* |
|-------------------------------|---------|---------|---------|---------|---------|---------|----------|
| Fluorene (ug/L) | | | | | | | |
| Second Quarter (June '01) | 8.5 | 0.20 U | 27 | 80 | 0.20 U | 59 | 9.6 |
| Third Quarter (September '01) | 11 | 0.20 U | 34 | 120 | 0.20 U | 410 | 10 |
| Fourth Quarter (December '01) | 11 | 0.20 U | 32 | 320 | 0.20 U | 80 | 13 |
| First Quarter (March '02) | 8.0 | 0.20 U | 37 | 80 | 0.20 U | 270 | 0.2 U |
| Second Quarter (June '02) | 7 | 0.20 U | 50 | 120 | 0.20 U | 70 | 14 |
| Third Quarter (September '02) | 11 | 0.20 U | 60 | 130 | 0.20 U | 330 | 13 |
| Fourth Quarter (December '02) | 11 | 0.20 UJ | 59.0J | 170 J | 0.20 UJ | 3,400J | 14 |
| First Quarter (March '03) | 9.5 | 1.9 | 62 | 150 | 0.20 U | 230 | 7.4 |
| Second Quarter (June '03) | 8 | 0.17 U | 72 | 84 | 0.18 U | 170 J | 14 |
| Third Quarter (September '03) | 11 | 0.19 U | 88 | 86 | 0.18 U | 2400 | 14 |
| Fourth Quarter (December '03) | 8 | 0.18 U | 0.84 J | 180 J | 0.17 U | 150 | 13 |
| First Quarter (March '04) | 7 | 0.18 UJ | 13 | 470 | 0.21 J | 160 | 10 |
| Benzo(a) pyrene (ug/L) | | | | | | | |
| Second Quarter (June '01) | 0.02 U | 0.02 | 0.02 U | 0.030 J | 0.020 U | 0.05 J | 0.02 U |
| Third Quarter (September '01) | 0.02 U | 0.02 U | 0.02 U | 3 | 0.020 J | 33 | 0.02 J |
| Fourth Quarter (December '01) | 0.02 U | 0.02 U | 0.02 U | 19 | 0.030 J | 0.050 J | 0.09 U |
| First Quarter (March '02) | 0.02 U | 0.02 U | 0.02 U | 0.2 | 0.020 U | 23 | 0.02 U |
| Second Quarter (June '02) | 0.02 J | 0.02 U | 0.02 U | 4 | 0.02 U | 0.05 J | 0.02 U |
| Third Quarter (September '02) | 0.20 U | 0.02 U | 0.02 U | 0.78 | 0.02 U | 25 | 0.02 U |
| Fourth Quarter (December '02) | 0.20 U | 0.02 UJ | 0.02 UJ | 5.6 J | 0.02 UJ | 290J | 0.02 UJ |
| First Quarter (March '03) | 0.20 U | 0.02 U | 0.02 U | 3.2 | 0.02 U | 15 | 0.02 U |
| Second Quarter (June '03) | 0.02 U | 0.02 U | 0.02 U | 0.18 | 0.02 U | 7.9 J | 0.02 U |
| Third Quarter (September '03) | 0.022 U | 0.29 J | 0.021 U | 0.047 J | 0.02 U | 190 | 0.022 UJ |
| Fourth Quarter (December '03) | 0.019 U | 0.02 U | 0.02 U | 5.9 J | 0.028 J | 5.9 | 0.019 U |
| First Quarter (March '04) | 0.019 U | 0.02 UJ | 0.02 UJ | 29 | 0.02 U | 6.2 | 0.02 U |

--- - No data available.

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

J - Estimated concentration.

ug/L - Micrograms per liter.

* Wells (MW-32S, MW-33S, MW-34S, MW-35S, TG1-1, and TG1-2) were installed after March 2000.

Table 2-7

Groundwater Sample Analytical Results
Treatment Performance Monitoring Wells- Nutrient and Biological Parameters
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004

| Parameter (mg/L) | Sample Identification | | | | | |
|-----------------------------------------------|-----------------------|---------|---------|---------|---------|---------|
| | TG1-1 | TG1-2 | TG1-3 | TG2-1 | TG2-2 | TG2-3 |
| Kjeldahl nitrogen | 2.6 | 1.4 | 1.2 | 0.5 U | 0.5 U | 1.6 |
| Nitrate (as N) | 0.04 U | 0.04 U | 0.04 U | 0.04 U | 0.04 U | 0.04 U |
| Nitrite | 0.015 U | 0.015 U | 0.015 U | 0.015 U | 0.037 J | 0.17 |
| Ammonia Nitrogen | 1.7 | 1.3 | 1.1 | 0.26 J | 0.44 J | 1.5 |
| Biochemical oxygen demand | 5.5 | 5 | 5.6 U | 2.7 U | 3.7 U | 5.6 |
| Total Organic Carbon | 18.6 | 11.7 | 12.2 | 2.9 | 2.6 | 12 |
| Total Phosphorus as PO4 water | 0.12 U | 0.12 U | 0.12 U | 0.12 U | 0.12 U | 0.12 U |
| Ortho-Phosphate as P | 0.01 U | 0.015 J | 0.036 | 0.01 U | 0.01 U | 0.013 J |
| Chemical oxygen demand | 71.7 | 31.3 | 30.2 | 5.4 J | 5.4 J | 33.1 |
| Total Microbial Population (mean) (cfu/ml) | 7.8E+02 | 1.2E+03 | 2.1E+03 | 3.9E+02 | 5.8E+02 | 1.4E+03 |
| Degrader Microbial Population (mean) (cfu/ml) | 10 U | 10 U | 10 U | 10 U | 10 U | 10 U |

| Parameter (mg/L) | Sample Identification | | | | | |
|-----------------------------------------------|-----------------------|---------|---------|---------|---------|---------|
| | TG3-1 | TG3-2 | TG3-3 | TG4-1 | TG4-2 | TG4-3 |
| Kjeldahl nitrogen | 1 | 0.93 J | 1.6 | 1.2 | 1.5 | 1.3 |
| Nitrate (as N) | 0.04 U | 0.04 U | 0.04 U | 0.04 U | 0.04 U | 0.04 U |
| Nitrite | 0.015 U | 0.024 J | 0.14 | 0.015 U | 0.015 U | 0.015 U |
| Ammonia Nitrogen | 0.11 U | 1.5 | 0.11 U | 0.44 J | 0.73 J | 0.64 J |
| Biochemical oxygen demand | 3 U | 3.6 U | 8.5 | 2.4 U | 3.6 U | 3.1 U |
| Total Organic Carbon | 10.9 | 6.3 | 11.4 | 7.8 | 9.4 | 9 |
| Total Phosphorus as PO4 water | 0.12 U | 0.12 U | 0.12 U | 0.12 U | 0.12 U | 0.12 U |
| Ortho-Phosphate as P | 0.013 J | 0.01 U | 0.011 J | 0.022 J | 0.01 U | 0.01 J |
| Chemical oxygen demand | 26.9 | 16.2 | 32.7 | 19.6 | 24.2 | 23.8 |
| Total Microbial Population (mean) (cfu/ml) | 1.7E+03 | 1.5E+03 | 1.4E+03 | 2.8E+02 | 4.3E+03 | 4.5E+02 |
| Degrader Microbial Population (mean) (cfu/ml) | 10 U | 10 U | 10 U | 10 | 10 U | 10 U |

| Parameter (mg/L) | Sample Identification | | | | | |
|-----------------------------------------------|-----------------------|---------|---------|---------|---------|---------|
| | TG5-1 | TG5-2 | TG5-3 | TG6-1 | TG6-2 | TG6-3 |
| Kjeldahl nitrogen | 0.5 U | 0.95 J | 1 | 1.9 | 1 | 1.1 |
| Nitrate (as N) | 0.04 U | 0.04 U | 0.04 U | 0.04 U | 0.04 U | 0.04 U |
| Nitrite | 0.015 U | 0.015 U | 0.015 U | 0.015 U | 0.015 U | 0.015 U |
| Ammonia Nitrogen | 0.47 J | 0.64 J | 1.1 | 1.6 | 0.76 J | 0.79 J |
| Biochemical oxygen demand | 2.7 U | 2.9 U | 2.7 U | 3.2 U | 2.6 U | 2.6 U |
| Total Organic Carbon | 5.3 | 6.1 | 6 | 11.5 | 7.7 | 8.6 |
| Total Phosphorus as PO4 water | 0.12 U | 0.12 U | 0.12 U | 0.12 U | 0.12 U | 0.12 U |
| Ortho-Phosphate as P | 0.013 J | 0.013 J | 0.01 U | 0.01 U | 0.01 U | 0.01 U |
| Chemical oxygen demand | 10 | 14.6 | 13.5 | 27.7 | 18.1 | 21.2 |
| Total Microbial Population (mean) (cfu/ml) | 8.3E+03 | 3.3E+03 | 9.6E+02 | 1.7E+03 | 2.6E+02 | 1.9E+03 |
| Degrader Microbial Population (mean) (cfu/ml) | 410 | 10 | 10 U | 160 | 10 U | 20 |

U- Constituent not detected; method detection limit of the analysis reported

J- Estimated concentration

SECTION 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 (KNO_3) and potassium phosphate ($KHPO_4$). 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

DO levels were unusually high in most of the wells during Q1 2004. Many wells exhibited DO concentration exceeding 1.0 mg/L. This may be due to an unusually large volume of precipitation the site has received since late 2003 which resulted in an increased flux of oxygenated water. The DO concentration is expected to return to normal once the high water condition subsides, and the level of precipitation returns to normal.

N- NO_3 was not detected in any treatment performance wells, and N- NO_2 was detected in four of the treatment performance wells. This indicates that nitrogen is primarily present in its reduced state, and a reducing environment exists in the wells. Nitrogen data were not collected for the shallow monitoring wells.

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

KMC/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 still be monitored.

Recommended guidelines for bioremediation of contaminants in site groundwater include a pH range of 5.5 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 (6.44 to 7.02 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 Q4 2003, wells TG5-2 and TG6-3 exhibited the desired C:N:P ratio. Wells TG3-2, TG5-1, TG6-1 and TG6-3 exhibited the desired C:N:P ratio during the Q3 sampling event. On a sitewide basis, the C:N:P ratio is 100:9:1. Nitrogen and phosphorous appear to be the limiting nutrients at the site.

3.3 BACTERIAL POPULATIONS

Total bacterial counts in the performance monitoring wells decreased in some wells while the counts increased in other wells during Q1 2004 when compared to last quarter's counts. The degrader bacterial counts showed similar trends to the total bacterial counts. Figure 3-1 compares the degrader populations in TG1 and TG2 since Q1 2001. As indicated in Figure 3-1, there has been a trend of general decrease in the degrader bacterial population levels in TG1 and TG2 since Q1 2001. It is not known what the cause of this bacterial decrease is at the site. However, this decrease in degrader bacterial population needs to be closely monitored so that actions to augment the degrader population can be implemented as necessary.

3.4 HYDROGEOLOGY

KMC/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 KMC/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 Q1 2004.

3.5 SITE MODIFICATIONS

Per the Q2 2002 Monitoring Report recommendations, modifications have been made to the system at the site. In October 2002, the performance monitoring well sampling frequency and scope reductions went into effect following the Agencies' approval. Groundwater sampling was revised to quarterly sampling regime instead of a monthly sampling regime. Also, shallow monitoring wells MW-3S, MW-10S, MW-13S, MW-25S, MW-26S, and MW-20S as well as intermediate wells MW-3I, MW-7I, MW-9I, and MW-20I were removed from the groundwater monitoring program. However, these wells were not abandoned, per WDNR's request. Water levels will continue to be gathered from these wells on a quarterly basis to assist with the production of the groundwater elevation contour map. Nutrient injection at gate TG1 was also discontinued.

The hydrogeologic investigation proposed in the Q2 2002 Monitoring Report took place in December 2002. This work included the installation of nine piezometers (PZ-01 thru PZ-07, PZ-09, and PZ-10) as well as a staff gauge (SG-1). Records were updated with this information, and used to prepare the groundwater elevation contour map for this quarter.

Figure 3-1

Comparison of Degradar Populations in Treatment Gates 1 and 2 since Q2 2001
 Moss-American Site
 Milwaukee, Wisconsin

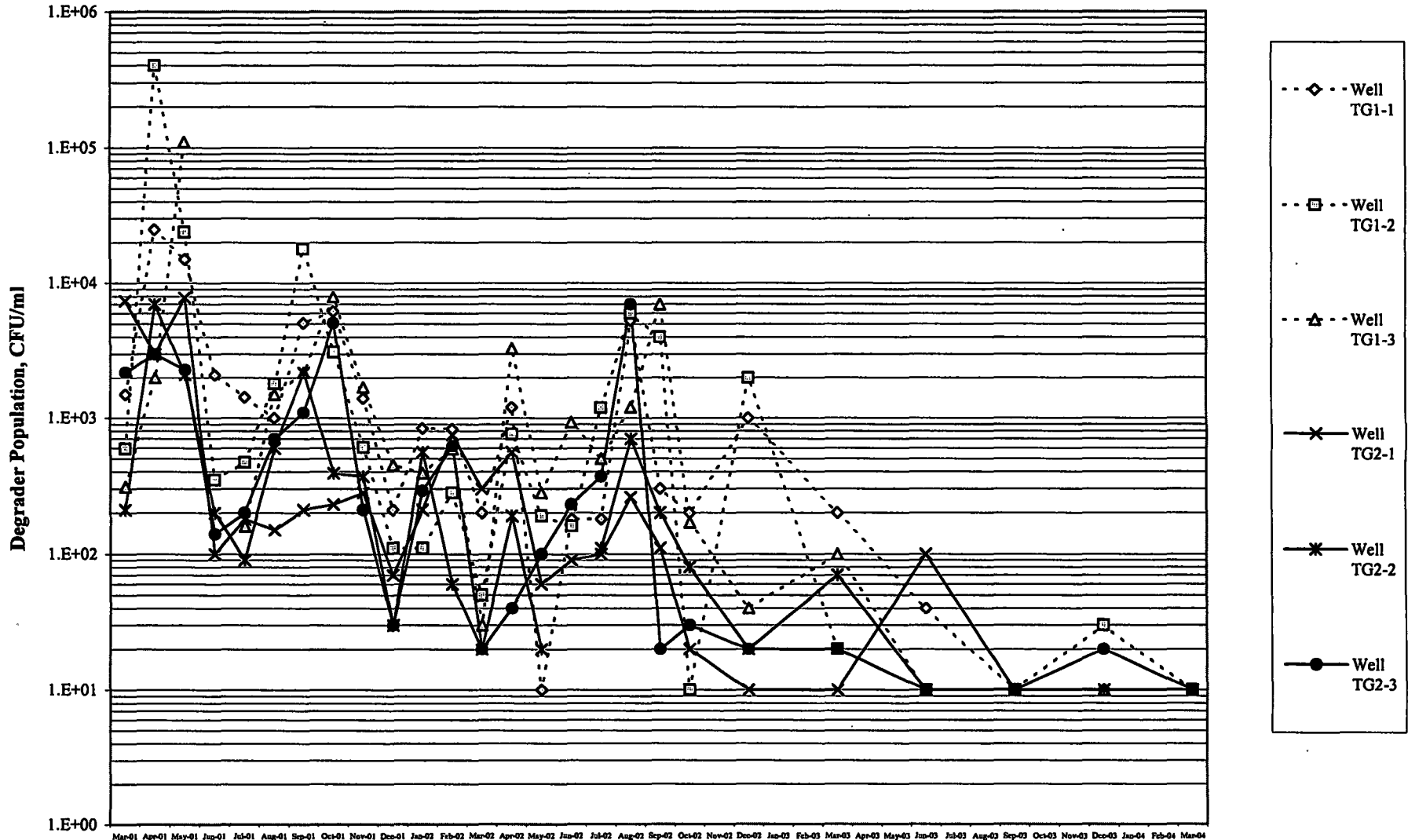


Table 3-1

**Calculation of Carbon:Nitrogen:Phosphorous Ratios
Treatment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2004**

| Well | Carbon ¹ , mg/L | Total Nitrogen ² , mg/L | Phosphorous ³ , mg/L | C-N-P Ratio (100-14-1 desired) | | |
|--------------|----------------------------|------------------------------------|---------------------------------|-----------------------------------|----|---|
| | | | | 100 | 14 | 1 |
| TG1-1 | 18.6 | 1.7 | ND | 100 | 9 | 0 |
| TG1-2 | 11.7 | 1.3 | 0.015 | 100 | 11 | 0 |
| TG1-3 | 12.2 | 1.1 | 0.036 | 100 | 9 | 0 |
| TG2-1 | 2.9 | 0.26 | ND | 100 | 9 | 0 |
| TG2-2 | 2.6 | 0.477 | ND | 100 | 18 | 0 |
| TG2-3 | 12 | 1.67 | ND | 100 | 14 | 0 |
| TG3-1 | 10.9 | ND | ND | 100 | 0 | 0 |
| TG3-2 | 6.30 | 1.52 | ND | 100 | 24 | 0 |
| TG3-3 | 11.4 | 0.14 | ND | 100 | 1 | 0 |
| TG4-1 | 7.8 | 0.44 | 0.022 | 100 | 6 | 0 |
| TG4-2 | 9.4 | 0.73 | ND | 100 | 8 | 0 |
| TG4-3 | 9 | 0.64 | 0.01 | 100 | 7 | 0 |
| TG5-1 | 5.30 | 0.47 | 0.01 | 100 | 9 | 0 |
| TG5-2 | 6.1 | 0.64 | 0.013 | 100 | 10 | 0 |
| TG5-3 | 6 | 1.1 | ND | 100 | 18 | 0 |
| TG6-1 | 11.50 | 1.60 | ND | 100 | 14 | 0 |
| TG6-2 | 7.7 | 0.76 | ND | 100 | 10 | 0 |
| TG6-3 | 8.6 | 0.79 | ND | 100 | 9 | 0 |
| Site Average | 8.89 | 0.90 | 0.02 | 100 | 10 | 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 (PO₄-P).

ND - Constituent not detected.

Shaded values indicate values at or above desired quantity.

SECTION 4

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. 2004. *2003 Annual Maintenance and Monitoring Report for the Little Menomonee River Cleanup Report*.

APPENDIX A

MARCH 2004 GROUNDWATER SAMPLE ANALYTICAL RESULTS



**Kerr-McGee
Moss American site
Milwaukee, Wisconsin**

water samples – BTEX

SDG# KMA52

1. Holding Times:

| <u>Lab ID</u> | <u>Client ID</u> | <u>Sample Date</u> | <u>Analysis Date</u> |
|---------------|------------------|--------------------|----------------------|
| | MA3- | | |
| 4235804 | FB-160304-1 | 3/16/04 | 3/18/04 |
| 4235805 | MW30-160304-2 | 3/16/04 | 3/18/04 |
| 4235806 | MW5S-160304-1 | 3/16/04 | 3/18/04 |
| 4235807 | MW5S-160304-1DP | 3/16/04 | 3/18/04 |
| 4235808 | TB-160304-1 | 3/16/04 | 3/18/04 |
| 4235809 | TG5-1-160304-6 | 3/16/04 | 3/18/04 |
| 4235810 | TG5-2-160304-7 | 3/16/04 | 3/18/04 |
| 4235811 | TG5-2-160304-7DP | 3/16/04 | 3/18/04 |
| 4235812 | TG5-3-160304-8 | 3/16/04 | 3/19/04 |
| 4235815 | TG6-1-160304-3 | 3/16/04 | 3/18/04 |
| 4235816 | TG6-2-160304-4 | 3/16/04 | 3/18/04 |
| 4235817 | TG6-3-160304-5 | 3/16/04 | 3/18/04 |
| 4236791 | FB-170304-1 | 3/17/04 | 3/19/04 |
| 4236792 | TG2-1-170304-7 | 3/17/04 | 3/19/04 |
| 4236793 | TG2-2-170304-8 | 3/17/04 | 3/19/04 |
| 4236794 | TG2-3-170304-9 | 3/17/04 | 3/19/04 |
| 4236795 | TG3-1-170304-4 | 3/17/04 | 3/19/04 |
| 4236796 | TG3-2-170304-5 | 3/17/04 | 3/19/04 |
| 4236797 | TG3-2-170304-5DP | 3/17/04 | 3/19/04 |
| 4236798 | TG3-3-170304-6 | 3/17/04 | 3/19/04 |

All samples were analyzed and extracted within the required holding times.

2. Method Blank:

Five method blanks were associated with the BTEX samples (BLK1553, 1555, 1556, 1557, 1558). All blanks were free of contamination.

3. Initial and Continuing Calibration:

For the BTEX samples, all initial and continuing calibration criteria appears to have been achieved. No deficiencies were noted in the laboratory narrative.

4. Surrogate Recovery:-

The surrogate recoveries for the BTEX surrogate (TFT) were all within required QC limits.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD):

Sample TG5-3 was used for the MS/MSD audit. All MS and MSD recoveries were acceptable.

6. Laboratory Control Sample:

All laboratory control sample results were acceptable.

7. Trip Blanks:

All trip blank results were non-detect. All results are acceptable.

8. Field Blanks:

FB16 and FB17 were field blanks. All BTEX results were non-detect. All results are acceptable.

9. Field Duplicates:

Samples MW5S/MWS-FD, TG5-2/TG5-2FD, and TG3-2/TG3-2FD are field duplicates.

Overall, results showed good correlation.

Water Samples – Polynuclear Aromatic Hydrocarbons (PAHs by HPLC)

1. Holding Times:

| <u>Lab ID</u> | <u>Client ID</u> | <u>Sample Date</u> | <u>Extraction Date</u> | <u>Analysis Date</u> |
|---------------|------------------|--------------------|------------------------|----------------------|
| 4235804 | FB-160304-1 | 3/16/04 | 3/19/04 | 3/26/04 |
| 4235805 | MW30-160304-2 | 3/16/04 | 3/19/04 | 3/26/04 |
| 4235806 | MW5S-160304-1 | 3/16/04 | 3/19/04 | 3/26/04 |
| 4235807 | MW5S-160304-1DP | 3/16/04 | 3/19/04 | 3/26/04 |
| 4235809 | TG5-1-160304-6 | 3/16/04 | 3/19/04 | 3/26/04 |
| 4235810 | TG5-2-160304-7 | 3/16/04 | 3/19/04 | 3/26/04 |
| 4235811 | TG5-2-160304-7DP | 3/16/04 | 3/19/04 | 3/26/04 |
| 4235812 | TG5-3-160304-8 | 3/16/04 | 3/19/04 | 3/26/04 |
| 4235815 | TG6-1-160304-3 | 3/16/04 | 3/19/04 | 3/26/04 |
| 4235816 | TG6-2-160304-4 | 3/16/04 | 3/19/04 | 3/26/04 |
| 4235817 | TG6-3-160304-5 | 3/16/04 | 3/19/04 | 3/26/04 |
| 4236791 | FB-170304-1 | 3/17/04 | 3/20/04 | 3/27/04 |
| 4236792 | TG2-1-170304-7 | 3/17/04 | 3/20/04 | 3/27/04 |
| 4236793 | TG2-2-170304-8 | 3/17/04 | 3/20/04 | 3/26/04 |
| 4236794 | TG2-3-170304-9 | 3/17/04 | 3/20/04 | 3/27/04 |
| 4236795 | TG3-1-170304-4 | 3/17/04 | 3/20/04 | 3/27/04 |

| | | | | |
|---------|------------------|---------|---------|---------|
| 4236796 | TG3-2-170304-5 | 3/17/04 | 3/20/04 | 3/27/04 |
| 4236797 | TG3-2-170304-5DP | 3/17/04 | | |
| 4236798 | TG3-3-170304-6 | 3/17/04 | | |

All samples were analyzed and extracted within the required holding times.

2. Method Blank:

There are two method blanks associated with the PAH fraction (SBLKWD0782 and 792). All three method blanks were free of contamination.

3. Initial and Continuing Calibration:

Calibration results were acceptable.

4. Surrogate Recovery:

The surrogates for PAHs include nitrobenzene and triphenylene. All surrogates were acceptable.

5. Matrix Spike/Matrix Spike Duplicate:

Sample MWTG5-3 was used for the MS/MSD audit. The following compound was outside control limits: fluoranthene (83MSD). Based on an acceptable MS recovery, RPD, and LCS recovery, no qualifications are required. All other MS and MSD recoveries were acceptable.

6. Laboratory Control Sample:

One LCS was associated with the samples. The LCS and LCD recoveries were acceptable. However the RPD for dibenz(a,h,)anthracene (55) and benzo(g,h,i)perylene (55) were high outside control limits. Based on acceptable LCS/LCD and MS/MSD results, no qualifications are required.

7. Field Blanks:

FB16 and FB17 were field blanks. All PAH results were non-detect. All results are acceptable.

8. Field Duplicates:

Samples MW5S/MWS-FD, TG5-2/TG5-2FD, and TG3-2/TG3-2FD are field duplicates.

Overall, results showed good correlation.

Data reviewed by: T. Balla Date: 5/19/04

COC ID: 160304-02

Chain of Custody Record

Client **Kerr McGee**
 Site Name **Mesa American**
 W. O. **02687.007.006.0001**
 Lab **LANCASTER LABS**
 TAT **Per Quote**

Contact Name **Tom Green**
 Contact Phone No. **847-818-4142**
 Lab Contact **C. SWEIGART**
 Lab Phone **717-658-2308 X1527**

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | SW946 E310- PARS | | | | | | | | | | | | |
|--------|-----------------------|--------|-----|--------|---------------------|---------------------------------------|-----------|----|--|--|--|--|--|--|--|--|--|--|
| | | | | | | Filtered Container Preservative | 1-L Amber | NA | | | | | | | | | | |
| | MA3-TG5-2-160304-7 | G | | N | 3/16/2004 16:40 | X | | | | | | | | | | | | |
| | MA3-TG5-2-160304-7-DF | G | | N | 3/16/2004 16:40 | X | | | | | | | | | | | | |
| | MA3-TG5-3-160304-8 | G | | N | 3/16/2004 16:50 | X | | | | | | | | | | | | |
| | MA3-TG5-3-160304-8-MS | G | | Y | 3/16/2004 16:50 | X | | | | | | | | | | | | |

Remarks/Comments

Lab Use Only

Temp of Cooler when Received, C

3 2 4 3 4 3 3

COC Tape was present on outer package Y N

COC Tape was unbroken on outer package Y N

COC Tape was present on sample Y N

COC Tape was unbroken on sample Y N NA

Received in good condition Y N

Labels indicate Properly Preserved Y N

Received within Holding Time Y N

| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time |
|------------------|---------------|-------------|-------------|-----------------|-------------|-------------|-------------|
| <i>Tom Green</i> | 3/16/04 16:40 | | | | | | |
| | | | | | | | |
| | | | | | | | |

Sampled By

Tom Green

3-17-04 0930

COC ID: 180304-03

Chain of Custody Record

Client **Kerr McGee**
 Site Name **Moss American**
 W. O. **02887.007.008.0001**
 Lab **LANCASTER LABS**
 TAT

Contact Name **Tom Green**
 Contact Phone No. **847-918-4142**
 Lab Contact **C. SWEIGART**
 Lab Phone **717-858-2308 X1527**

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | Filtered Container Preservative | | | | | | | | | |
|--------|------------------------|--------|-----|--------|---------------------|---------------------------------|-------------|--------------|-------------|-------------|--|--|--|--|--|
| | | | | | | 300-ml Poly | 500-ml Poly | 250 ml Glass | 40 ml Vials | 40 ml Vials | | | | | |
| | | | | | | N/A | N/A | N/A | HCl | HCl | | | | | |
| | MA3-FB-160304-1 | G | | N | 3/16/2004 09:20 | | | | X | X | | | | | |
| | MA3-MW30S-160304-2 | G | | N | 3/16/2004 09:15 | | | | X | X | | | | | |
| | MA3-MW5S-160304-1 | G | | N | 3/16/2004 09:00 | | | | X | X | | | | | |
| | MA3-MW5S-160304-1-DE | G | | N | 3/16/2004 09:00 | | | | X | X | | | | | |
| | MA3-TB-160304-1 | G | | N | 3/16/2004 10:58 | | | | X | X | | | | | |
| | MA3-TG5-1-160304-6 | G | | N | 3/16/2004 16:30 | X | X | X | X | X | | | | | |
| | MA3-TG5-2-160304-7 | G | | N | 3/16/2004 16:40 | X | X | X | X | X | | | | | |
| | MA3-TG5-2-160304-7-DE | G | | N | 3/16/2004 16:40 | | | | X | X | | | | | |
| | MA3-TG5-3-160304-8 | G | | N | 3/16/2004 16:50 | X | X | X | X | X | | | | | |
| | MA3-TG5-3-160304-8-MSI | G | | Y | 3/16/2004 16:50 | | | | X | X | | | | | |
| | MA3-TG6-1-160304-3 | G | | N | 3/16/2004 12:10 | X | X | X | X | X | | | | | |
| | MA3-TG6-2-160304-4 | G | | N | 3/16/2004 12:20 | X | X | X | X | X | | | | | |
| | MA3-TG6-3-160304-5 | G | | N | 3/16/2004 12:30 | X | X | X | X | X | | | | | |

Remarks/Comments

Lab Use Only

Temp of Cooler when Received, C

1 3 2 4 3 4 3 3

COC Tape was present on outer package Y N

COC Tape was unbroken on outer package Y N

COC Tape was present on sample Y N

COC Tape was unbroken on sample Y N NA

Received in good condition Y N

Labels indicate Property Preserved Y N

Received within Holding Time Y N

| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time |
|------------------|---------------|-------------|-------------|-----------------|-------------|-------------|-------------|
| <i>Tom Green</i> | 3/16/04 14:00 | | | | | | |
| | | | | | | | |
| | | | | | | | |

Sampled by *Tom Green*

1 March 17 2004 09:50

COC ID: 160304-01

Chain of Custody Record

Client **Kerr McGee**
 Site Name **Moss American** Contact Name **Tom Green**
 W. O. **02687.007.008.0001** Contact Phone No. **847-818-4142**
 Lab **LANCASTER LABS** Lab Contact **C. SWEIGART**
 TAT **Per Quote** Lab Phone **717-658-2308 X1627**

| SW846 R310-PAHS | | | | | | | | | | | | | | | |
|-----------------|---------------------------------|-----------|-----|--------|---------------------|---|--|--|--|--|--|--|--|--|--|
| | Filtered Container Preservative | 1-L Amber | | | | | | | | | | | | | |
| | | N/A | | | | | | | | | | | | | |
| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | | | | | | | | | | |
| | MA3-FB-160304-1 | G | | N | 3/16/2004 09:20 | X | | | | | | | | | |
| | MA3-MW30S-160304-2 | G | | N | 3/16/2004 09:15 | X | | | | | | | | | |
| | MA3-MW3S-160304-1 | G | | N | 3/16/2004 09:00 | X | | | | | | | | | |
| | MA3-MW3S-160304-1-DF | G | | N | 3/16/2004 09:00 | X | | | | | | | | | |
| | MA3-TGS-1-160304-6 | G | | N | 3/16/2004 16:30 | X | | | | | | | | | |
| | | | | | | | | | | | | | | | |

Remarks/Comments

Lab Use Only
 Temp of Cooler when Received, C

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 3 | 2 | 4 | 3 | 4 | 4 | 3 | 5 | 3 |
|---|---|---|---|---|---|---|---|---|---|

 COC Tape was present on outer package Y N
 COC Tape was unbroken on outer package Y N
 COC Tape was present on sample Y N
 COC Tape was unbroken on sample Y N/A
 Received in good condition Y N
 Labels indicate Property Preserved Y N
 Received within Holding Time Y N

| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time |
|--------------------|---------------|-------------|-------------|-----------------|-------------|-------------|-------------|
| <i>[Signature]</i> | 3/16/04 18:00 | | | | | | |
| | | | | | | | |

Sampled By *[Signature]*

[Signature] 3-17-04 09:30

COC ID: 160304-04

Chain of Custody Record

Client **Karr McGee**
 Site Name **Moss American**
 W. O. **02887.007.006.0001**
 Lab **LANCASTER LABS**
 TAT **Per Quote**
 Contact Name **Tom Graan**
 Contact Phone No. **847-818-4142**
 Lab Contact **C. SWEIGART**
 Lab Phone **717-858-2308 X152Z**

| EPA 350.2-NH3 | EPA 351.2-TKN | EPA 353.2-N02 A-N03 | EPA 353.2-N02 A-N03 | EPA 365.1-TP PO4 | EPA 410.2-COD | Filtered | | Container | | Preservative | |
|---------------|---------------|------------------------|------------------------|---------------------|---------------|-----------|-----------|------------|------------|--------------|-----------|
| | | | | | | 1-L Glass | 1-L Glass | 40 ml Vial | 40 ml Vial | 1-L Glass | 1-L Glass |
| | | | | | | N/A | N/A | H2SO4 | H2SO4 | N/A | N/A |
| X | X | X | X | X | X | | | | | | |
| X | X | X | X | X | X | | | | | | |
| X | X | X | X | X | X | | | | | | |
| X | X | X | X | X | X | | | | | | |
| X | X | X | X | X | X | | | | | | |
| | | X | X | | | | | | | | |

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected |
|--------|--------------------|--------|-----|--------|---------------------|
| | MA3-TG5-1-160304-6 | G | | N | 3/16/2004 16:30 |
| | MA3-TG5-2-160304-7 | G | | N | 3/16/2004 16:40 |
| | MA3-TG5-3-160304-8 | G | | N | 3/16/2004 16:50 |
| | MA3-TG6-1-160304-3 | G | | N | 3/16/2004 12:10 |
| | MA3-TG6-2-160304-4 | G | | N | 3/16/2004 12:20 |
| | MA3-TG6-3-160304-5 | G | | N | 3/16/2004 12:30 |

Remarks/Comments

Sampled By *Auel*

Lab Use Only

Temp of Cooler when Received, C

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 3 | 2 | 4 | 3 | 4 | 1 | 3 | 5 | 3 |
|---|---|---|---|---|---|---|---|---|---|

COC Tape was present on outer package Y N
 Received in good condition Y N
 COC Tape was unbroken on outer package Y N
 Labels indicate Property Preserved Y N
 COC Tape was present on sample Y N
 Received within Holding Time Y N
 COC Tape was unbroken on sample Y N NA

| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time |
|-----------------|----------------------|-------------|-------------|-----------------|-------------|-------------|-------------|
| <i>Auel</i> | <i>3/16/04 09:00</i> | | | | | | |
| | | | | | | | |

3-17-04 09:36

7802

880101 4200191-48
888774 423698-31

COC ID: 170304-06

Chain of Custody Record

Page 1 of 1

Client **Kerr McGee**
 Site Name **Moss American**
 W. O. **02587.007.006.0001**
 Lab **LANCASTER LABS**
 TAT **Per Quote**

Contact Name **Tom Green**
 Contact Phone No. **847-918-4142**
 Lab Contact **C. SWEIGART**
 Lab Phone **717-856-2308 X1527**

| | | | | | | | | | |
|-----------------------|-----------------------|---------------|----------------------|----------------------|--|--|--|--|--|
| EPA 353.2-N02 &N03 | EPA 353.2-N02 &N03 | EPA 415.1-TOC | SW846 8021B- BTEX | SW846 8021B- BTEX | | | | | |
|-----------------------|-----------------------|---------------|----------------------|----------------------|--|--|--|--|--|

| | | | | | |
|--------------|-------------|-------------|--------------|-------------|-------------|
| Filtered | | | | | |
| Container | 40 ml Vials | 40 ml Vials | 250 ml Glass | 40 ml Vials | 40 ml Vials |
| Preservative | N/A | N/A | N/A | HCl | HCl |

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | | | | | | | | | | | | | |
|--------|-----------------------|--------|-----|--------|---------------------|---|---|---|---|---|--|--|--|--|--|--|--|--|
| | MA3-FB-170304-1 | G | | N | 3/17/2004 12:00 | | | | X | X | | | | | | | | |
| | MA3-TB-170304-1 | G | | N | 3/17/2004 08:00 | | | | X | X | | | | | | | | |
| | MA3-TG2-1-170304-7 | G | | N | 3/17/2004 15:00 | X | X | X | X | X | | | | | | | | |
| | MA3-TG2-2-170304-8 | G | | N | 3/17/2004 15:10 | X | X | X | X | X | | | | | | | | |
| | MA3-TG2-3-170304-9 | G | | N | 3/17/2004 15:20 | X | X | X | X | X | | | | | | | | |
| | MA3-TG3-1-170304-4 | G | | N | 3/17/2004 11:00 | X | X | X | X | X | | | | | | | | |
| | MA3-TG3-2-170304-5 | G | | N | 3/17/2004 11:10 | X | X | X | X | X | | | | | | | | |
| | MA3-TG3-2-170304-5-DF | G | | N | 3/17/2004 11:10 | | | | X | X | | | | | | | | |
| | MA3-TG3-3-170304-6 | G | | N | 3/17/2004 11:20 | X | X | X | X | X | | | | | | | | |
| | MA3-TG4-1-170304-1 | G | | N | 3/17/2004 09:10 | X | X | X | X | X | | | | | | | | |
| | MA3-TG4-2-170304-2 | G | | N | 3/17/2004 09:20 | X | X | X | X | X | | | | | | | | |
| | MA3-TG4-3-170304-3 | G | | N | 3/17/2004 09:30 | X | X | X | X | X | | | | | | | | |

Remarks/Comments

Lab Use Only

Temp of Cooler when Received, C

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

COC Tape was present on outer package Y N

Received in good condition Y N

COC Tape was unbroken on outer package Y N

Labels indicate Properly Preserved Y N

COC Tape was present on sample Y N

Received within Holding Time Y N

COC Tape was unbroken on sample Y N NA

| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time |
|-----------------|--------------|-------------|-------------|-----------------|-------------|-------------|-------------|
| <i>Alex L</i> | 3/17/04 1300 | | | | | | |
| | | | | | | | |
| | | | | | | | |

Sampled

Alex L

Dustin 3-18-04 0930

7802 888 774 4236928-31

COC ID: 170304-01

Chain of Custody Record

Client: **Kerr McGee**
 Site Name: **Moss American**
 W. O.: **02887.007.006.0001**
 Lab: **LANCASTER LABS**
 TAT: **Per Quote**

Contact Name: **Tom Graan**
 Contact Phone No.: **847-918-4142**
 Lab Contact: **C. SWEIGART**
 Lab Phone: **717-856-2308 X1527**


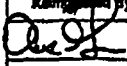
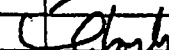
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|-------------------|---------------|-----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| EPA 365-3 ORTHO P | EPA 405 L-BOD | SW846 8310 PAHS | | | | | | | | | | | | | | | | | |
|-------------------|---------------|-----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

Filtered Container Preservative

| | | |
|-------------|-------------|-----------|
| 500-ml Poly | 500-ml Poly | 1-L Amber |
| N/A | N/A | N/A |

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | 500-ml Poly | 500-ml Poly | 1-L Amber |
|--------|--------------------|--------|-----|--------|---------------------|-------------|-------------|-----------|
| | MA3-TG2-1-170304-7 | G | | N | 3/17/2004 15:00 | X | X | |
| | MA3-TG2-2-170304-8 | G | | N | 3/17/2004 15:10 | X | X | |
| | MA3-TG2-3-170304-9 | G | | N | 3/17/2004 15:20 | X | X | |
| | MA3-TG3-1-170304-4 | G | | N | 3/17/2004 11:00 | X | X | X |
| | MA3-TG3-2-170304-5 | G | | N | 3/17/2004 11:10 | X | X | |
| | MA3-TG3-3-170304-6 | G | | N | 3/17/2004 11:20 | X | X | |
| | MA3-TG4-1-170304-1 | G | | N | 3/17/2004 09:10 | X | X | |
| | MA3-TG4-2-170304-2 | G | | N | 3/17/2004 09:20 | X | X | |
| | MA3-TG4-3-170304-3 | G | | N | 3/17/2004 09:30 | X | X | |

45

| | | | | | | | | | | | | | | | |
|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------|--|---|--|--|--|-------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------|
| Remarks/Comments | Lab Use Only | | COC Tape was present on outer package <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | | Received in good condition <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | | | | | | | | | | |
| | Temp of Cooler when Received, C | | COC Tape was unbroken on outer package <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | | Labels indicate Property Preserved <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | | | | | | | | | | |
| | <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>2</td> <td></td> <td></td> <td></td> </tr> </table> | | 1 | 2 | 3 | 4 | 5 | | 2 | | | | COC Tape was present on sample <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | | Received within Holding Time <input checked="" type="checkbox"/> Y <input type="checkbox"/> N |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | |
| | 2 | | | | | | | | | | | | | | |
| COC Tape was unbroken on sample <input checked="" type="checkbox"/> Y <input type="checkbox"/> N/A | | Relinquished By | Date / Time | Received By | Date / Time | Received By | Date / Time | | | | | | | | |
| Sampled  | |  | 3/17/07 1300 | | |  | 3-17-07 0930 | | | | | | | | |

COC ID: 170304-02

Chain of Custody Record

Client: **Kerr McGee**
 Site Name: **Moss American**
 W. O.: **02687.007.008.0001**
 Lab: **LANCASTER LABS**
 TAT:

Contact Name: **Tom Green**
 Contact Phone No.: **847-918-4142**
 Lab Contact: **C. SWEIGART**
 Lab Phone: **717-656-2308 X1527**

| | |
|-----------------|---------------------------------|
| SW846 E310-PAHS | |
| | Filtered Container Preservative |
| | 1-L Amber N/A |

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | |
|--------|-----------------------|--------|-----|--------|---------------------|---|
| | MA3-TG3-2-170304-5 | G | | N | 3/17/2004 11:10 | X |
| | MA3-TG3-2-170304-5-DF | G | | N | 3/17/2004 11:10 | X |
| | MA3-TG4-1-170304-1 | G | | N | 3/17/2004 09:10 | X |
| | MA3-TG4-2-170304-2 | G | | N | 3/17/2004 09:20 | X |
| | MA3-TG4-3-170304-3 | G | | N | 3/17/2004 09:30 | X |
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Remarks/Comments

Lab Use Only

COC Tape was present on outer package Y N
 Received in good condition Y N
 COC Tape was unbroken on outer package Y N
 Label Indicate Properly Preserved Y N
 COC Tape was present on sample Y N
 Received within Holding Time Y N
 COC Tape was unbroken on sample Y N/A

Temp of Cooler when Received, C

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| | 2 | | | |

| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time |
|-----------------|---------------|-------------|-------------|-----------------|-------------|-------------|-------------|
| <i>CS</i> | 3/17/04 12:05 | | | | | | |
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Sampled By: *CS*

Florida 3-18-04 09:30

COC ID: 170304-05

Chain of Custody Record

Client **Kerr McGee**
 Site Name **Moss American** Contact Name **Tom Green**
 W. O. **02887 007 008 0001** Contact Phone No. **847-818-4142**
 Lab **LANCASTER LABS** Lab Contact **C. SWEIGART**
 TAT **Per Quote** Lab Phone **717-858-2308 X1527**

| | | | | | | | | | |
|--------------|---------------|---------------------|--------------|--|--|--|--|--|--|
| EPA 3302-NH3 | EPA 351.2-TKN | EPA 365.1-TP POM | EPA 4102-COD | | | | | | |
|--------------|---------------|---------------------|--------------|--|--|--|--|--|--|

Filtered
 Container
 Preservative

| | | | |
|-----------|-----------|-----------|-----------|
| 1-L Glass | 1-L Glass | 1-L Glass | 1-L Glass |
| N/A | N/A | N/A | N/A |

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | EPA 3302-NH3 | EPA 351.2-TKN | EPA 365.1-TP POM | EPA 4102-COD |
|--------|--------------------|--------|-----|--------|---------------------|--------------|---------------|---------------------|--------------|
| | MA3-TG2-1-170304-7 | G | | N | 3/17/2004 15:00 | X | X | X | X |
| | MA3-TG2-2-170304-8 | G | | N | 3/17/2004 15:10 | X | X | X | X |
| | MA3-TG2-3-170304-9 | G | | N | 3/17/2004 15:20 | X | X | X | X |
| | MA3-TG4-2-170304-2 | G | | N | 3/17/2004 09:20 | X | X | X | X |
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Remarks/Comments

Lab Use Only

COC Tape was present on outer package Y N
 Received in good condition Y N

COC Tape was unbroken on outer package Y N
 Labels indicate Property Preserved Y N

COC Tape was present on sample Y N
 Received within Holding Time Y N

COC Tape was unbroken on sample Y NNR

| Requisitioned By | Date / Time | Received By | Date / Time | Requisitioned By | Date / Time | Received By | Date / Time |
|------------------|--------------|-------------|-------------|------------------|-------------|-------------|--------------|
| <i>Quill</i> | 3/17/04 1800 | / | / | / | / | <i>Paul</i> | 3-18-04 0930 |
| | | | | | | | |

Sampled By *Quill*

COC ID: 170304-03

Chain of Custody Record

Client **Kerr McGee**

Page 2 of 2

Site Name **Moss American**

Contact Name **Tom Green**

W. O. **02887.007.008.0001**

Contact Phone No. **847-818-4142**

Lab **LANCASTER LABS**

Lab Contact **C. SWEIGART**

TAT

Lab Phone **717-656-2308 X1627**

SW846 E310
PAHS

Filtered

Container

I-L Amber

Preservative

N/A

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | | | | | | |
|--------|--------------------|--------|-----|--------|---------------------|---|--|--|--|--|--|
| | MA3-FB-170304-1 | G | | N | 3/17/2004 12:00 | X | | | | | |
| | MA3-TG2-1-170304-7 | G | | N | 3/17/2004 13:00 | X | | | | | |
| | MA3-TG2-2-170304-8 | G | | N | 3/17/2004 13:10 | X | | | | | |
| | MA3-TG2-3-170304-9 | G | | N | 3/17/2004 13:20 | X | | | | | |
| | MA3-TG3-3-170304-6 | G | | N | 3/17/2004 11:20 | X | | | | | |
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|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------------------|---|---|---------------|---|---|--|--|-------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------|--|
| Remarks/Comments | Lab Use Only | | | | COC Tape was present on outer package <input checked="" type="radio"/> Y <input type="radio"/> N | | Received in good condition <input checked="" type="radio"/> Y <input type="radio"/> N | | | | | | | | | | | |
| | Temp of Cooler when Received, C | | | | COC Tape was unbroken on outer package <input checked="" type="radio"/> Y <input type="radio"/> N | | Labels indicate Property Preserved <input checked="" type="radio"/> Y <input type="radio"/> N | | | | | | | | | | | |
| | <table border="1" style="display: inline-table;"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>2</td> <td>3</td> <td></td> <td></td> </tr> </table> | | | | 1 | 2 | 3 | 4 | 5 | | 2 | 3 | | | COC Tape was present on sample <input checked="" type="radio"/> Y <input type="radio"/> N | | Received within Holding Time <input checked="" type="radio"/> Y <input type="radio"/> N | |
| | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | |
| | | 2 | 3 | | | | | | | | | | | | | | | |
| | | | | COC Tape was unbroken on sample <input checked="" type="radio"/> Y <input type="radio"/> N | | | | | | | | | | | | | | |
| Relinquished By | | Date / Time | | Received By | | Date / Time | | | | | | | | | | | | |
| | | 3/17/04 12:00 | | _____ | | _____ | | | | | | | | | | | | |
| Sampled By | | | | | | | | | | 3-17-04 09:30 | | | | | | | | |



ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

734-367-7900

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 888558. Samples arrived at the laboratory on Wednesday, March 17, 2004. The PO# for this group is ZAKWIKKEOK0A90089.

| <u>Client Description</u> | <u>Lancaster Labs Number</u> |
|----------------------------------------------|------------------------------|
| MA3-FB MA3-FB-160304-1 Groundwater | 4235804 |
| MA3-MW30S MA3-MW30S-160304-2 Groundwater | 4235805 |
| MA3-MW5S MA3-MW5S-160304-1 Groundwater | 4235806 |
| MA3-MW5S MA3-MW5S-160304-1-DP Groundwater | 4235807 |
| MA3-TB MA3-TB-160304-1 Groundwater | 4235808 |
| MA3-TG5-1 MA3-TG5-1-160304-6 Groundwater | 4235809 |
| MA3-TG5-2 MA3-TG5-2-160304-7 Groundwater | 4235810 |
| MA3-TG5-2 MA3-TG5-2-160304-7-DP Groundwater | 4235811 |
| MA3-TG5-3 MA3-TG5-3-160304-8 Groundwater | 4235812 |
| MA3-TG5-3 MA3-TG5-3-160304-8-MS Groundwater | 4235813 |
| MA3-TG5-3 MA3-TG5-3-160304-8-MSD Groundwater | 4235814 |
| MA3-TG6-1 MA3-TG6-1-160304-3 Groundwater | 4235815 |
| MA3-TG6-2 MA3-TG6-2-160304-4 Groundwater | 4235816 |
| MA3-TG6-3 MA3-TG6-3-160304-5 Groundwater | 4235817 |

METHODOLOGY

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

1 COPY TO Kerr-McGee Corporation
1 COPY TO Weston Solutions, Inc.
1 COPY TO Data Package Group

Attn: Dr. Jeff Ostmeyer
Attn: Mr. Tom Graan

8821



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Questions? Contact your Client Services Representative
Carrie A Fleming at (717) 656-2300.

Respectfully Submitted,

Michele A. Jarosick
Michele A Jarosick
Senior Chemist

8022



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4235804

MA3-FB MA3-FB-160304-1 Groundwater
 160304-01, 03 02687.007.006.0001

Moss American

Collected: 03/16/2004 09:20 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30
 Reported: 03/30/2004 at 14:21
 Discard: 04/30/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

MA3FB SDG#: KMA52-01FB

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.077 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.039 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.039 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.039 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.039 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.077 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.097 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.077 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|------------------------|--------------|--------|------------------------|--------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/18/2004 13:11 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/26/2004 07:30 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/18/2004 13:11 | Todd T Smythe | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/19/2004 07:30 | Danette S Blystone | 1 |



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Lancaster Laboratories Sample No. WW 4235804

MA3-FB MA3-FB-160304-1 Groundwater
160304-01, 03 02687.007.006.0001

Moss American

Collected: 03/16/2004 09:20 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30
Reported: 03/30/2004 at 14:21
Discard: 04/30/2004

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MA3FB SDG#: KMA52-01FB

3824



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Lancaster Laboratories Sample No. WW 4235805

MA3-MW30S MA3-MW30S-160304-2 Groundwater
 160304-01, 03 02687.007.006.0001

Moss American

Collected: 03/16/2004 09:15 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30
 Reported: 03/30/2004 at 14:21
 Discard: 04/30/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

MW30S SDG#: KMA52-02

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.077 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.039 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.039 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.039 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.039 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.077 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.097 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.077 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/18/2004 13:51 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/26/2004 08:09 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/18/2004 13:51 | Todd T Smythe | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/19/2004 07:30 | Danette S Blystone | 1 |



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Lancaster Laboratories Sample No. WW 4235805

MA3-MW30S MA3-MW30S-160304-2 Groundwater
160304-01, 03 02687.007.006.0001

Moss American

Collected: 03/16/2004 09:15 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Reported: 03/30/2004 at 14:21

Discard: 04/30/2004

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MW30S SDG#: KMA52-02

8926



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Lancaster Laboratories Sample No. **WW 4235806**

MA3-MW5S **MA3-MW5S-160304-1** **Groundwater**
160304-01, 03 **02687.007.006.0001**

Moss American

Collected: 03/16/2004 09:00 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30
 Reported: 03/30/2004 at 14:21
 Discard: 04/30/2004

Kerr-McGee Corporation
 PO Box 3048
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MW-5S SDG#: KMA52-03

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.082 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.041 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.041 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.021 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.041 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.021 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.041 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.082 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.082 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.021 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|------------------------|--------------|--------|------------------------|--------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/18/2004 14:31 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/26/2004 08:47 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/18/2004 14:31 | Todd T Smythe | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/19/2004 07:30 | Danette S Blystone | 1 |



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Lancaster Laboratories Sample No. WW 4235806

MA3-MW5S MA3-MW5S-160304-1 Groundwater
160304-01, 03 02687.007.006.0001

Moss American

Collected: 03/16/2004 09:00 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30
Reported: 03/30/2004 at 14:21
Discard: 04/30/2004

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MW-5S SDG#: KMA52-03

0028



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Lancaster Laboratories Sample No. WW 4235807

MA3-MW5S MA3-MW5S-160304-1-DP Groundwater
 160304-01, 03 02687.007.006.0001

Moss American

Collected: 03/16/2004 09:00 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Kerr-McGee Corporation

Reported: 03/30/2004 at 14:21

PO Box 3048

Discard: 04/30/2004

Livonia MI 48150

MW5SD SDG#: KMA52-04FD

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.5 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.7 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.7 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.19 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.086 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.043 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.043 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.19 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.022 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.043 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.022 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.043 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.086 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.11 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.086 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.022 | ug/l | 1 |

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|---------------|--------------|--------|------------------------|---------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/18/2004 15:11 | Todd T Smythe | 1 |



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Lancaster Laboratories Sample No. WW 4235807

MA3-MW5S MA3-MW5S-160304-1-DP Groundwater
160304-01, 03 02687.007.006.0001

Moss American

Collected: 03/16/2004 09:00 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Kerr-McGee Corporation

Reported: 03/30/2004 at 14:21

PO Box 3048

Discard: 04/30/2004

Livonia MI 48150

MW5SD SDG#: KMA52-04FD

| | | | | | | |
|-------|------------------------|--------------|---|------------------|--------------------|------|
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/26/2004 09:26 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/18/2004 15:11 | Todd T Smythe | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/19/2004 07:30 | Danette S Blystone | 1 |

8838



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Lancaster Laboratories Sample No. WW 4235808

MA3-TB MA3-TB-160304-1 Groundwater
 160304-03 02687.007.006.0001

Moss American

Collected: 03/16/2004 10:58

Account Number: 07802

Submitted: 03/17/2004 09:30
 Reported: 03/30/2004 at 14:21
 Discard: 04/30/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

MA3TB SDG#: KMA52-05TB

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|---------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|-------------------|--------------|--------|------------------------|---------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/18/2004 15:51 | Todd T Smythe | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/18/2004 15:51 | Todd T Smythe | n.a. |

6031



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Lancaster Laboratories Sample No. WW 4235809

MA3-TG5-1 MA3-TG5-1-160304-6 Groundwater
 160304-01, 03, 04 02687.007.006.0001

Moss American

Collected: 03/16/2004 16:30 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Kerr-McGee Corporation

Reported: 03/30/2004 at 14:21

PO Box 3048

Discard: 04/30/2004

Livonia MI 48150

TG5-1 SDG#: KMA52-06

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | | Dilution Factor |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------|--------------------|------------------------|-------|-----------------|
| | | | | Method Detection Limit | Units | |
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | N.D. | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 0.47 J | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | 0.013 J | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | 2.7 | mg/l | 1 |
| The laboratory control standard (LCS) and the LCS duplicate analyzed with this sample had percent recoveries of 86% and 82%, respectively. The method acceptance window is 85% to 115%. Because the 48-hour hold time had lapsed, the analysis was not repeated. The BOD data is reported with client consent. | | | | | | |
| 00273 | Total Organic Carbon | n.a. | 5.3 | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 10.0 | 2.1 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.079 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.040 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.040 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.040 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.040 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.079 | ug/l | 5032 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.099 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.079 | ug/l | 1 |



Lancaster Laboratories Sample No. WW 4235809

MA3-TG5-1 MA3-TG5-1-160304-6 Groundwater
 160304-01, 03, 04 02687.007.006.0001

Moss American

Collected: 03/16/2004 16:30 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Reported: 03/30/2004 at 14:21

Discard: 04/30/2004

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Livonia MI 48150

TG5-1 SDG#: KMA52-06

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | Units | Dilution Factor |
|---------|----------------------|------------|--------------------|--------------------------|-------|-----------------|
| | | | | Method | | |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | Detection Limit 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/24/2004 17:11 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/18/2004 09:45 | Timothy M Petree | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 18:40 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/23/2004 16:00 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/17/2004 19:00 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/17/2004 23:31 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/18/2004 11:56 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/18/2004 22:23 | Venia B McFadden | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/18/2004 16:30 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/26/2004 10:04 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/18/2004 16:30 | Todd T Smythe | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 2 | 03/23/2004 15:25 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/19/2004 07:30 | Danette S Blystone | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/18/2004 12:30 | Cheryl L Robinson | 1 |

0033



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Lancaster Laboratories Sample No. WW 4235810

MA3-TG5-2 MA3-TG5-2-160304-7 Groundwater
 160304-02, 03, 04 02687.007.006.0001
 Moss American

Collected: 03/16/2004 16:40 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30
 Reported: 03/30/2004 at 14:22
 Discard: 04/30/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

TG5-2 SDG#: KMA52-07

| CAT No. | Analysis Name | CAS Number | As Received | | As Received | | Dilution Factor |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------|-------------|---|-------------|-------|-----------------|
| | | | Result | | Method | Units | |
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 0.95 | J | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 0.64 | J | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | 0.013 | J | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | | 2.9 | mg/l | 1 |
| The laboratory control standard (LCS) and the LCS duplicate analyzed with this sample had percent recoveries of 86% and 82%, respectively. The method acceptance window is 85% to 115%. Because the 48-hour hold time had lapsed, the analysis was not repeated. The BOD data is reported with client consent. | | | | | | | |
| 00273 | Total Organic Carbon | n.a. | 6.1 | | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 14.6 | | 2.1 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | | 1.3 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | | 0.076 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | | 0.038 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | 0.047 | J | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | | 0.038 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | | 0.038 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | | 0.076 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | | 0.095 | ug/l | 8034 |
| 07409 | Chrysene | 218-01-9 | N.D. | | 0.076 | ug/l | 1 |



Lancaster Laboratories Sample No. WW 4235810

MA3-TG5-2 MA3-TG5-2-160304-7 Groundwater
 160304-02, 03, 04 02687.007.006.0001

Moss American

Collected: 03/16/2004 16:40 by AG Account Number: 07802

Submitted: 03/17/2004 09:30

Kerr-McGee Corporation

Reported: 03/30/2004 at 14:22

PO Box 3048

Discard: 04/30/2004

Livonia MI 48150

TG5-2 SDG#: KMA52-07

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|-------------|-----------------|-------|-----------------|
| | | | | Method | Detection Limit | | |
| 07410 | Benzo (k) fluoranthene | 207-08-9 | N.D. | | 0.019 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/24/2004 17:12 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/18/2004 09:46 | Timothy M Petree | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 18:42 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/23/2004 16:00 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/17/2004 19:00 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/17/2004 23:31 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/18/2004 12:04 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/18/2004 22:24 | Venia B McFadden | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/18/2004 17:10 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/26/2004 11:22 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/18/2004 17:10 | Todd T Smythe | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 2 | 03/23/2004 15:25 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/19/2004 07:30 | Danette S Blystone | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/18/2004 12:30 | Cheryl L Robinson | 1 |

0835



Lancaster Laboratories, Inc.
 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425
 717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4235811

MA3-TG5-2 MA3-TG5-2-160304-7-DP Groundwater
 160304-02, 03 02687.007.006.0001

Moss American

Collected: 03/16/2004 16:40 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Kerr-McGee Corporation

Reported: 03/30/2004 at 14:22

PO Box 3048

Discard: 04/30/2004

Livonia MI 48150

TG52D SDG#: KMA52-008FD

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.3 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.076 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.038 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | 0.041 J | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.038 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.038 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.076 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.095 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.076 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | | Dilution Factor |
|---------|------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | Analyst | |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/18/2004 17:50 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/26/2004 12:00 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/18/2004 17:50 | Todd T Smythe | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/19/2004 07:30 | Danette S Blystone | 1 |



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Lancaster Laboratories Sample No. WW 4235811

MA3-TG5-2 MA3-TG5-2-160304-7-DP Groundwater
160304-02, 03 02687.007.006.0001

Moss American

Collected: 03/16/2004 16:40 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Reported: 03/30/2004 at 14:22

Discard: 04/30/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

TG52D SDG#: KMA52-008FD

6637



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Lancaster Laboratories Sample No. WW 4235812

MA3-TG5-3 MA3-TG5-3-160304-8 Groundwater

160304-02, 03, 04 02687.007.006.0001

Moss American

Collected: 03/16/2004 16:50 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Kerr-McGee Corporation

Reported: 03/30/2004 at 14:22

PO Box 3048

Discard: 04/30/2004

Livonia MI 48150

TG5-3 SDG#: KMA52-08BKG

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | | Dilution Factor |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------|--------------------|-------------|-------|-----------------|
| | | | | Method | Units | |
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 1.0 | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 1.1 | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | N.D. | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | 2.7 | mg/l | 1 |
| <p>The laboratory control standard (LCS) and the LCS duplicate analyzed with this sample had percent recoveries of 86% and 82%, respectively. The method acceptance window is 85% to 115%. Because the 48-hour hold time had lapsed, the analysis was not repeated. The BOD data is reported with client consent.</p> | | | | | | |
| 00273 | Total Organic Carbon | n.a. | 6.0 | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 13.5 | 2.1 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.079 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.040 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | 0.042 J | 0.040 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.040 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.040 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.079 | ug/l | 0.038 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.099 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.079 | ug/l | 1 |



Lancaster Laboratories Sample No. **WW 4235812**

MA3-TG5-3 MA3-TG5-3-160304-8 Groundwater
160304-02, 03, 04 02687.007.006.0001

Moss American

Collected: 03/16/2004 16:50 by AG Account Number: 07802

Submitted: 03/17/2004 09:30 Kerr-McGee Corporation
 Reported: 03/30/2004 at 14:22 PO Box 3048
 Discard: 04/30/2004 Livonia MI 48150

TG5-3 SDG#: KMA52-08BKG

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|----------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/24/2004 17:13 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/18/2004 09:47 | Timothy M Petree | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 18:43 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/23/2004 16:00 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/17/2004 19:00 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/17/2004 23:31 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/18/2004 12:12 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/18/2004 22:18 | Venia B McFadden | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 00:04 | Michael F Barrow | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/26/2004 05:34 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 00:04 | Michael F Barrow | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 2 | 03/23/2004 15:25 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/19/2004 07:30 | Danette S Blystone | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/18/2004 12:30 | Cheryl L Robinson | 1 |

0035



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 2425 New Holland Pike
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 Lancaster, PA 17605-2425
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Lancaster Laboratories Sample No. WW 4235813

MA3-TG5-3 MA3-TG5-3-160304-8-MS Groundwater
 160304-02, 03, 04 02687.007.006.0001

Moss American

Collected: 03/16/2004 16:50 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Kerr-McGee Corporation

Reported: 03/30/2004 at 14:22

PO Box 3048

Discard: 04/30/2004

Livonia MI 48150

TG5-3 SDG#: KMA52-08MS

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | 20. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | 22. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | 22. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | 65. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | 160. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | 170. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | 170. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | 16. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | 5.0 | 0.082 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | 2.5 | 0.041 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | 2.6 | 0.041 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | 17. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | 1.3 | 0.021 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | 1.1 | 0.041 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | 1.3 | 0.021 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | 2.7 | 0.041 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 5.2 | 0.082 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | 10. | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | 5.1 | 0.082 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | 1.1 | 0.021 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|------------------------|--------------|--------|------------------------|--------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 00:44 | Michael F Barrow | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/26/2004 06:13 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 00:44 | Michael F Barrow | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/19/2004 07:30 | Danette S Blystone | 1 |



Lancaster Laboratories Sample No. WW 4235813

MA3-TG5-3 MA3-TG5-3-160304-8-MS Groundwater
160304-02, 03, 04 02687.007.006.0001

Moss American

Collected: 03/16/2004 16:50 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Reported: 03/30/2004 at 14:22

Discard: 04/30/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

TG5-3 SDG#: KMA52-08MS

2216



Lancaster Laboratories, Inc.
2425 New Holland Pike
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Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4235814

MA3-TG5-3 MA3-TG5-3-160304-8-MSD Groundwater
 160304-02, 03, 04 02687.007.006.0001

Moss American

Collected: 03/16/2004 16:50 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30
 Reported: 03/30/2004 at 14:22
 Discard: 04/30/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

TG5-3 SDG#: KMA52-09MSD

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | 20. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | 22. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | 22. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | 65. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | 160. | 1.5 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | 170. | 1.7 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | 170. | 1.7 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | 16. | 0.19 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | 5.1 | 0.083 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | 2.6 | 0.042 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | 2.6 | 0.042 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | 17. | 0.19 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | 1.3 | 0.021 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | 1.1 | 0.042 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | 1.3 | 0.021 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | 2.8 | 0.042 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 5.5 | 0.083 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | 11. | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | 5.2 | 0.083 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | 1.1 | 0.021 | ug/l | 1 |

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|---------------|--------------|--------|------------------------|------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 01:24 | Michael F Barrow | 1 |



Lancaster Laboratories, Inc.
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Lancaster Laboratories Sample No. WW 4235814

MA3-TG5-3 MA3-TG5-3-160304-8-MSD Groundwater
160304-02, 03, 04 02687.007.006.0001

Moss American

Collected: 03/16/2004 16:50 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Reported: 03/30/2004 at 14:22

Discard: 04/30/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

TG5-3 SDG#: KMA52-09MSD

00774 PAH's in Water by HPLC

01146 GC VOA Water Prep

03337 PAH Water Extraction

SW-846 8310

SW-846 50308

SW-846 3510C

1 03/26/2004 06:52

1 03/19/2004 01:24

1 03/19/2004 07:30

Mark A Clark

Michael F Barrow

Danette S Blystone

1

n.a.

1

8843



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4235815

MA3-TG6-1 MA3-TG6-1-160304-3 Groundwater
 160304-03, 04, 05 02687.007.006.0001

Moss American

Collected: 03/16/2004 12:10 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Kerr-McGee Corporation

Reported: 03/30/2004 at 14:22

PO Box 3048

Discard: 04/30/2004

Livonia MI 48150

TG6-1 SDG#: KMA52-10

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | | Units | Dilution Factor |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------|--------------------|-------------|-----------------|-------|-----------------|
| | | | | Method | Detection Limit | | |
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 1.9 | | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 1.6 | | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | N.D. | | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | | 3.2 | mg/l | 1 |
| The laboratory control standard (LCS) and the LCS duplicate analyzed with this sample had percent recoveries of 86% and 82%, respectively. The method acceptance window is 85% to 115%. Because the 48-hour hold time had lapsed, the analysis was not repeated. The BOD data is reported with client consent. | | | | | | | |
| 00273 | Total Organic Carbon | n.a. | 11.5 | | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 27.7 | | 2.1 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | | 1.5 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | | 1.7 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | | 1.7 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | | 0.19 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | | 0.084 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | | 0.042 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | | 0.042 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | | 0.19 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | | 0.021 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | | 0.042 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | | 0.021 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | | 0.042 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | | 0.084 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | | 0.084 | ug/l | 1 |



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Lancaster Laboratories Sample No. WW 4235815

MA3-TG6-1 MA3-TG6-1-160304-3 Groundwater

160304-03, 04, 05 02687.007.006.0001

Moss American

Collected: 03/16/2004 12:10 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Kerr-McGee Corporation

Reported: 03/30/2004 at 14:22

PO Box 3048

Discard: 04/30/2004

Livonia MI 48150

TG6-1 SDG#: KMA52-10

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | | Units | Dilution Factor |
|--------------------------------------------------------------------------------------------------------------------------------|----------------------|------------|--------------------|-------------|-----------------|-------|-----------------|
| | | | | Method | Detection Limit | | |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | | 0.021 | ug/l | 1 |
| Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly. | | | | | | | |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/24/2004 17:15 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/18/2004 09:54 | Timothy M Petree | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 18:47 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/23/2004 16:00 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/17/2004 19:00 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/17/2004 23:31 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/18/2004 12:37 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/18/2004 22:25 | Venia B McFadden | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/18/2004 18:29 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/26/2004 12:39 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/18/2004 18:29 | Todd T Smythe | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 2 | 03/23/2004 15:25 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/19/2004 07:30 | Danette S Blystone | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/18/2004 12:30 | Cheryl L Robinson | 1 |

0045



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 Lancaster, PA 17605-2425
 717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4235816

MA3-TG6-2 MA3-TG6-2-160304-4 Groundwater
 160304-03, 04, 05 02687.007.006.0001

Moss American

Collected: 03/16/2004 12:20 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30
 Reported: 03/30/2004 at 14:22
 Discard: 04/30/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

TG6-2 SDG#: KMA52-11

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | | Dilution Factor |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------|--------------------|-----------------|-------|-----------------|
| | | | | Method | Units | |
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 1.0 | Detection Limit | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | 0.50 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | 0.015 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 0.76 J | 0.040 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | N.D. | 0.11 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | 0.010 | mg/l | 1 |
| The laboratory control standard (LCS) and the LCS duplicate analyzed with this sample had percent recoveries of 86% and 82%, respectively. The method acceptance window is 85% to 115%. Because the 48-hour hold time had lapsed, the analysis was not repeated. The BOD data is reported with client consent. | | | | | | |
| 00273 | Total Organic Carbon | n.a. | 7.7 | 2.6 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | 0.50 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 18.1 | 0.12 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 2.1 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 0.2 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.4 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 1.6 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.18 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.079 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | 0.080 J | 0.039 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.039 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.18 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.020 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.039 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.020 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.039 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.079 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.099 | ug/l | 1 |



Lancaster Laboratories Sample No. WW 4235816

MA3-TG6-2 MA3-TG6-2-160304-4 Groundwater

160304-03, 04, 05 02687.007.006.0001

Moss American

Collected: 03/16/2004 12:20 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Reported: 03/30/2004 at 14:22

Discard: 04/30/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

TG6-2 SDG#: KMA52-11

| CAT No. | Analysis Name | CAS Number | As Received | As Received | Units | Dilution Factor |
|---------|----------------------|------------|-------------|------------------------|-------|-----------------|
| | | | Result | Method Detection Limit | | |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/24/2004 17:18 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/18/2004 09:55 | Timothy M Petree | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 18:48 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/23/2004 16:00 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/17/2004 19:00 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/17/2004 23:31 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/18/2004 12:45 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/18/2004 22:26 | Venia B McFadden | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/18/2004 22:44 | Michael F Barrow | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/26/2004 13:17 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/18/2004 22:44 | Michael F Barrow | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 2 | 03/23/2004 15:25 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/19/2004 07:30 | Danette S Blystone | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/18/2004 12:30 | Cheryl L Robinson | 1 |

0047



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Lancaster Laboratories Sample No. WW 4235817

MA3-TG6-3 MA3-TG6-3-160304-5 Groundwater
 160304-03, 04, 05 02687.007.006.0001

Moss American

Collected: 03/16/2004 12:30 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Kerr-McGee Corporation

Reported: 03/30/2004 at 14:22

PO Box 3048

Discard: 04/30/2004

Livonia MI 48150

TG6-3 SDG#: KMA52-12

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 1.1 | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 0.79 J | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | N.D. | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | 2.6 | mg/l | 1 |
| The laboratory control standard (LCS) and the LCS duplicate analyzed with this sample had percent recoveries of 86% and 82%, respectively. The method acceptance window is 85% to 115%. Because the 48-hour hold time had lapsed, the analysis was not repeated. The BOD data is reported with client consent. | | | | | | |
| 00273 | Total Organic Carbon | n.a. | 8.6 | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 21.2 | 2.1 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.5 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.7 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.7 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.19 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.084 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.042 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.042 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.19 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.021 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.042 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.021 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.042 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.084 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.084 | ug/l | 1 |



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Lancaster Laboratories Sample No. **WW 4235817**

MA3-TG6-3 MA3-TG6-3-160304-5 Groundwater
160304-03, 04, 05 02687.007.006.0001

Moss American

Collected: 03/16/2004 12:30 by AG

Account Number: 07802

Submitted: 03/17/2004 09:30

Kerr-McGee Corporation

Reported: 03/30/2004 at 14:22

PO Box 3048

Discard: 04/30/2004

Livonia MI 48150

TG6-3 SDG#: KMA52-12

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | Units | Dilution Factor |
|--------------------------------------------------------------------------------------------------------------------------------|----------------------|------------|--------------------|--------------------------|-------|-----------------|
| | | | | Method | | |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | Detection Limit 0.021 | ug/l | 1 |
| Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly. | | | | | | |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|--------|------------------|--------------------|-----------------|
| | | | | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/24/2004 16:48 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/18/2004 09:56 | Timothy M Petree | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 18:49 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/23/2004 16:00 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/17/2004 19:00 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/17/2004 23:31 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/18/2004 13:09 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/18/2004 22:27 | Venia B McFadden | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/18/2004 23:24 | Michael F Barrow | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/26/2004 13:56 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/18/2004 23:24 | Michael F Barrow | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 2 | 03/23/2004 16:10 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/19/2004 07:30 | Danette S Blystone | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/18/2004 12:30 | Cheryl L Robinson | 1 |

8949



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ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

734-367-7900

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 888761. Samples arrived at the laboratory on Thursday, March 18, 2004. The PO# for this group is ZAKWIKKEOK0A90089.

| <u>Client Description</u> | <u>Lancaster Labs Number</u> |
|---------------------------------------------|------------------------------|
| MA3-FB MA3-FB-170304-1 Groundwater | 4236791 |
| MA3-TG2-1 MA3-TG2-1-170304-7 Groundwater | 4236792 |
| MA3-TG2-2 MA3-TG2-2-170304-8 Groundwater | 4236793 |
| MA3-TG2-3 MA3-TG2-3-170304-9 Groundwater | 4236794 |
| MA3-TG3-1 MA3-TG3-1-170304-4 Groundwater | 4236795 |
| MA3-TG3-2 MA3-TG3-2-170304-5 Groundwater | 4236796 |
| MA3-TG3-2 MA3-TG3-2-170304-5-DP Groundwater | 4236797 |
| MA3-TG3-3 MA3-TG3-3-170304-6 Groundwater | 4236798 |

METHODOLOGY

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

1 COPY TO Kerr-McGee Corporation
1 COPY TO Weston Solutions, Inc.
1 COPY TO Data Package Group

Attn: Dr. Jeff Ostmeyer
Attn: Mr. Tom Graan

8856



Lancaster Laboratories, Inc.
2425 New Holland Pike
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Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Questions? Contact your Client Services Representative
Carrie A Fleming at (717) 656-2300.

Respectfully Submitted,

Michele A. Jarosick
Michele A. Jarosick
Senior Chemist

0051



Lancaster Laboratories, Inc.
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PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4236791

MA3-FB MA3-FB-170304-1 Groundwater
 170304-03, 06 02687.007.006.0001

Moss American

Collected: 03/17/2004 12:00 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30
 Reported: 04/01/2004 at 09:18
 Discard: 05/02/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

A3FB1 SDG#: KMA52-13FB

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.3 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.077 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.038 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.038 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.038 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.077 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.096 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.077 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|------------------------|--------------|--------|------------------------|----------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 11:20 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/27/2004 10:30 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 11:20 | Todd T Smythe | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/20/2004 01:00 | Felix C Arroyo | 1 |



Lancaster Laboratories, Inc.
 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425
 717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4236791

MA3-FB MA3-FB-170304-1 Groundwater
170304-03, 06 02687.007.006.0001

Moss American

Collected: 03/17/2004 12:00 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Reported: 04/01/2004 at 09:18

Discard: 05/02/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

A3FB1 SDG#: KMA52-13FB

5853



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4236792

MA3-TG2-1 MA3-TG2-1-170304-7 Groundwater
 170304-01,03,05,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 15:00 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Reported: 04/01/2004 at 09:18

Discard: 05/02/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

TG2-1 SDG#: KMA52-14

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|-------------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | N.D. | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 0.26 J | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | N.D. | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | 2.7 | mg/l | 1 |
| 00273 | Total Organic Carbon | n.a. | 2.9 | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 5.4 J | 2.1 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.3 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.076 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.038 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.038 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.038 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.076 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.095 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.076 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

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Lancaster Laboratories Sample No. WW 4236792

MA3-TG2-1 MA3-TG2-1-170304-7 Groundwater
 170304-01,03,05,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 15:00 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Kerr-McGee Corporation

Reported: 04/01/2004 at 09:18

PO Box 3048

Discard: 05/02/2004

Livonia MI 48150

TG2-1 SDG#: KMA52-14

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|-------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/24/2004 16:53 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 3 | 03/18/2004 21:38 | Kyle W Eckenroad | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 20:16 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/24/2004 15:30 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/18/2004 19:05 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/18/2004 22:34 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/22/2004 22:35 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/23/2004 14:13 | Michelle A Bolton | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 11:59 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/27/2004 11:09 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 11:59 | Todd T Smythe | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 2 | 03/23/2004 16:10 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/20/2004 01:00 | Felix C Arroyo | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/19/2004 12:20 | Cheryl L Robinson | 1 |

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Lancaster Laboratories Sample No. WW 4236793

MA3-TG2-2 MA3-TG2-2-170304-8 Groundwater
 170304-01,03,05,06 02687.007.006.0001

Moss American

Collected:03/17/2004 15:10 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30
 Reported: 04/01/2004 at 09:18
 Discard: 05/02/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

TG2-2 SDG#: KMA52-15

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|-------------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | N.D. | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | 0.037 J | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 0.44 J | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | N.D. | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | 3.7 | mg/l | 1 |
| 00273 | Total Organic Carbon | n.a. | 2.6 | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 5.4 J | 2.1 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.3 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.076 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.038 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.038 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.038 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.076 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.095 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.076 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

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Lancaster Laboratories Sample No. WW 4236793

MA3-TG2-2 MA3-TG2-2-170304-8 Groundwater
 170304-01,03,05,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 15:10 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Kerr-McGee Corporation

Reported: 04/01/2004 at 09:18.

PO Box 3048

Discard: 05/02/2004

Livonia MI 48150

TG2-2 SDG#: KMA52-15

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/24/2004 16:54 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/19/2004 08:36 | Timothy M Petree | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 20:17 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/24/2004 15:30 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/18/2004 19:05 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/18/2004 22:34 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/22/2004 22:43 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/23/2004 14:10 | Michelle A Bolton | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 14:38 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/26/2004 22:56 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 14:38 | Todd T Smythe | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 2 | 03/23/2004 16:10 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/20/2004 01:00 | Felix C Arroyo | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/19/2004 12:20 | Cheryl L. Robinson | 1 |

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Lancaster Laboratories Sample No. WW 4236794

MA3-TG2-3 MA3-TG2-3-170304-9 Groundwater
 170304-01,03,05,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 15:20 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30
 Reported: 04/01/2004 at 09:18
 Discard: 05/02/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

TG2-3 SDG#: KMA52-16

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|-------------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 1.6 | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | 0.17 | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 1.5 | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | 0.013 J | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | 5.6 | 0.80 | mg/l | 1 |
| 00273 | Total Organic Carbon | n.a. | 12.0 | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 33.1 | 2.1 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.3 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.076 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.038 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.038 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.038 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.076 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.095 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.076 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

0058



Lancaster Laboratories Sample No. WW 4236794

MA3-TG2-3 MA3-TG2-3-170304-9 Groundwater
 170304-01,03,05,06 02687.007.006.0001
 Moss American

Collected: 03/17/2004 15:20 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30
 Reported: 04/01/2004 at 09:18
 Discard: 05/02/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

TG2-3 SDG#: KMA52-16

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|-------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/24/2004 16:54 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/19/2004 08:38 | Timothy M Petree | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 20:18 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/24/2004 15:30 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/18/2004 19:05 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/18/2004 22:34 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/22/2004 22:51 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/23/2004 14:14 | Michelle A Bolton | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 15:17 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/27/2004 00:13 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 15:17 | Todd T Smythe | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 2 | 03/23/2004 16:10 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/20/2004 01:00 | Felix C Arroyo | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/19/2004 12:20 | Cheryl L Robinson | 1 |

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Lancaster Laboratories Sample No. WW 4236795

MA3-TG3-1 MA3-TG3-1-170304-4 Groundwater

170304-01,04,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 11:00 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Reported: 04/01/2004 at 09:18

Discard: 05/02/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

TG3-1 SDG#: KMA52-17

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|-------------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 1.0 | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | N.D. | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | 0.013 J | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | 3.0 | mg/l | 1 |
| 00273 | Total Organic Carbon | n.a. | 10.9 | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as P04 water | 14265-44-2 | N.D. | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 26.9 | 2.1 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.3 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.077 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.038 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.038 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.038 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.077 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.096 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.077 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

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Lancaster Laboratories Sample No. WW 4236795

MA3-TG3-1 MA3-TG3-1-170304-4 Groundwater
 170304-01,04,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 11:00 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30
 Reported: 04/01/2004 at 09:18
 Discard: 05/02/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

TG3-1 SDG#: KMA52-17

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|-------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/24/2004 16:55 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/19/2004 08:39 | Timothy M Petree | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 20:19 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/24/2004 15:30 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/18/2004 19:05 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/18/2004 22:34 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/22/2004 22:59 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/23/2004 14:15 | Michelle A Bolton | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 15:57 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/27/2004 00:52 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 15:57 | Todd T Smythe | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 2 | 03/23/2004 16:10 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/20/2004 01:00 | Felix C Arroyo | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/19/2004 12:20 | Cheryl L Robinson | 1 |

886 f



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 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425
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Lancaster Laboratories Sample No. WW 4236796

MA3-TG3-2 MA3-TG3-2-170304-5 Groundwater
 170304-01,02,04,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 11:10 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30
 Reported: 04/01/2004 at 09:18
 Discard: 05/02/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

TG3-2 SDG#: KMA52-18

| CAT No. | Analysis Name | CAS Number | As Received | | As Received | | Dilution Factor |
|---------|-------------------------------|------------|-------------|---|-------------|-------|-----------------|
| | | | Result | | Method | Units | |
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 0.93 | J | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | 0.024 | J | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 1.5 | | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | N.D. | | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | | 3.6 | mg/l | 1 |
| 00273 | Total Organic Carbon | n.a. | 6.3 | | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 16.2 | | 2.1 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | | 0.078 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | | 0.039 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | | 0.039 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | | 0.039 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | | 0.039 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | | 0.078 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | | 0.097 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | | 0.078 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | | 0.019 | ug/l | 1 |

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Lancaster Laboratories Sample No. WW 4236796

MA3-TG3-2 MA3-TG3-2-170304-5 Groundwater
 170304-01,02,04,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 11:10 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Kerr-McGee Corporation

Reported: 04/01/2004 at 09:18

PO Box 3048

Discard: 05/02/2004

Livonia MI 48150

TG3-2 SDG#: KMA52-18

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|-------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/24/2004 16:58 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/19/2004 08:40 | Timothy M Petree | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 20:21 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/24/2004 15:30 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/18/2004 19:05 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/18/2004 22:34 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/22/2004 23:07 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/23/2004 14:16 | Michelle A Bolton | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 16:37 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/27/2004 01:30 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 16:37 | Todd T Smythe | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 2 | 03/23/2004 16:10 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/20/2004 01:00 | Felix C Arroyo | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/19/2004 12:20 | Cheryl L Robinson | 1 |

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Lancaster Laboratories Sample No. WW 4236797

MA3-TG3-2 MA3-TG3-2-170304-5-DP Groundwater

170304-02,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 11:10 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Kerr-McGee Corporation

Reported: 04/01/2004 at 09:18

PO Box 3048

Discard: 05/02/2004

Livonia MI 48150

TG32D SDG#: KMA52-19FD

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.3 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.076 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.038 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.038 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.038 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.076 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.094 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.076 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|------------------------|--------------|--------|------------------------|----------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 17:17 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/27/2004 02:09 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 17:17 | Todd T Smythe | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/20/2004 01:00 | Felix C Arroyo | 1 |



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Lancaster Laboratories Sample No. WW 4236797

MA3-TG3-2 MA3-TG3-2-170304-5-DP Groundwater
170304-02,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 11:10 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Reported: 04/01/2004 at 09:18

Discard: 05/02/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

TG32D SDG#: KMA52-19FD

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Lancaster Laboratories Sample No. WW 4236798

MA3-TG3-3 MA3-TG3-3-170304-6 Groundwater

170304-01,03,04,06 02687.007.006.0001

Moss American

Collected:03/17/2004 11:20 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Reported: 04/01/2004 at 09:18

Discard: 05/02/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

TG3-3 SDG#: KMA52-20*

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | | Dilution Factor |
|------------------------------|-------------------------------|------------|--------------------|------------------------|-------|-----------------|
| | | | | Method Detection Limit | Units | |
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 1.6 | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | 0.14 | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | N.D. | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | 0.011 J | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | 8.5 | 0.80 | mg/l | 1 |
| 00273 | Total Organic Carbon | n.a. | 11.4 | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 32.7 | 2.1 | mg/l | 1 |
| 08213 BTEX (8021) | | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 PAH's in Water by HPLC | | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.3 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.076 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.038 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.038 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.038 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.076 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.095 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.076 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

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Lancaster Laboratories Sample No. WW 4236798

MA3-TG3-3 MA3-TG3-3-170304-6 Groundwater

170304-01,03,04,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 11:20 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Kerr-McGee Corporation

Reported: 04/01/2004 at 09:18

PO Box 3048

Discard: 05/02/2004

Livonia MI 48150

TG3-3 SDG#: KMA52-20*

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|-------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/24/2004 16:59 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/19/2004 08:41 | Timothy M Petree | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 20:22 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/24/2004 15:30 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/18/2004 19:05 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/18/2004 22:34 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/22/2004 23:15 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/23/2004 14:17 | Michelle A Bolton | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 17:57 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/27/2004 02:47 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 17:57 | Todd T Smythe | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 2 | 03/23/2004 16:10 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/20/2004 01:00 | Felix C Arroyo | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/19/2004 12:20 | Cheryl L Robinson | 1 |

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 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425
 717-656-2300 Fax: 717-656-2681

Case Narrative
 SDG# KMA52

Client : Kerr-McGee Corporation
 Project: Moss American
 Volatiles by GC - Water

AMPLE ANALYSES

| LL Sample # | Sample Designation | Matrix Soil Water | Comments |
|----------------|-----------------------|----------------------|------------------|
| 4235804 | MA3FB | X | |
| 4235805 | MW30S | X | |
| 235806 | MW-5S | X | |
| 235807 | MW5SD | X | |
| 4235808 | MA3TB | X | |
| 235809 | TG5-1 | X | |
| 235810 | TG5-2 | X | |
| 235811 | TG52D | X | |
| 4235812 | TG5-3 | X | Unspiked |
| 235813MS | TG5-3 | X | Matrix Spike |
| 235814MSD | TG5-3 | X | Matrix Spike Dup |
| 4235815 | TG6-1 | X | |
| 235816 | TG6-2 | X | |
| 235817 | TG6-3 | X | |
| 236791 | A3FB1 | X | |
| 4236792 | TG2-1 | X | |
| 236793 | TG2-2 | X | |
| 236794 | TG2-3 | X | |
| 4236795 | TG3-1 | X | |
| 4236796 | TG3-2 | X | |
| 236797 | TG32D | X | |
| 236798 | TG3-3 | X | |

QUALITY CONTROL ANALYSES

| | | |
|---------|---|--------------------|
| BLK1553 | X | Method Blank |
| LK1555 | X | Method Blank |
| LK1556 | X | Method Blank |
| BLK1557 | X | Method Blank |
| BLK1558 | X | Method Blank |
| CS1509 | X | Lab Control Sample |
| LDS1509 | X | Lab Control Dup |
| CS1510 | X | Lab Control Sample |

SAMPLE PREPARATION

No dilutions were necessary.

ANALYSIS

8070

The integration system reviews the chromatogram retention times, comparing them to the retention times in the ID window. A peak in the sample chromatogram with a retention time within the ID window is identified as a "hit."

Case Narrative
SDG# KMA52

Client: Kerr-McGee Corporation
Project: Moss American
Volatiles by GC - Water

The method used for analysis was EPA Method SW-846 8021B. A J&W DB-VRX, 75m x 0.45mm column was used for the analysis of all samples. No problems were encountered during analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY


Client submitted batch QC was referenced.

All QC was within specifications.

DATA INTERPRETATION

No explanation is necessary for the data submitted.

Narrative reviewed and approved by:



Dana M. Kauffman, Group Leader

4/9/04

Date

5871

**Kerr-McGee
Moss American site
Milwaukee, Wisconsin**

water samples – BTEX

SDG# KMS53

1. Holding Times:

| <u>Lab ID</u> | <u>Client ID</u> | <u>Sample Date</u> | <u>Analysis Date</u> |
|---------------|------------------|--------------------|----------------------|
| | MA3- | | |
| 4236928 | TG4-1-170304-1 | 3/17/04 | 3/19/04 |
| 4266929 | TG4-1-170304-2 | 3/17/04 | 3/19/04 |
| 4236930 | TG4-1-170304-3 | 3/17/04 | 3/19/04 |
| 4236931 | TB-170304-1 | 3/17/04 | 3/19/04 |
| 4238164 | FB-180304-1 | 3/18/04 | 3/23/04 |
| 4238165 | MW27S-180304-7 | 3/18/04 | 3/23/04 |
| 4238166 | MW28S-180304-11 | 3/18/04 | 3/23/04 |
| 4238167 | MW29S-180304-5 | 3/18/04 | 3/23/04 |
| 4238168 | MW32S-180304-8 | 3/18/04 | 3/23/04 |
| 4238169 | MW32S-180304-8DP | 3/18/04 | 3/23/04 |
| 4238170 | MW33S-180304-9 | 3/18/04 | 3/23/04 |
| 4238173 | MW35S-180304-10 | 3/18/04 | 3/24/04 |
| 4238174 | MW36S-180304-4 | 3/18/04 | 3/24/04 |
| 4238175 | MW37S-180304-6 | 3/18/04 | 3/24/04 |
| 4238176 | TB-180304-1 | 3/18/04 | 3/23/04 |
| 4238177 | TG1-1-180304-1 | 3/18/04 | 3/24/04 |
| 4238178 | TG1-2-180304-2 | 3/18/04 | 3/24/04 |
| 4238179 | TG1-3-180304-3 | 3/18/04 | 3/24/04 |

All samples were analyzed and extracted within the required holding times.

2. Method Blank:

Three method blanks were associated with the BTEX samples (BLK5628, BLK1556, and BLK1557). All blanks were free of contamination.

3. Initial and Continuing Calibration:

For the BTEX samples, all initial and continuing calibration criteria appears to have been achieved. No deficiencies were noted in the laboratory narrative.

4. Surrogate Recovery:-

The surrogate recoveries for the BTEX surrogate (TFT) were all within required QC limits.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD):

Sample MW33S was used for the MS/MSD audit. All MS and MSD recoveries were acceptable.

6. Laboratory Control Sample:

All laboratory control sample results were acceptable.

7. Trip Blanks:

All trip blank results were non-detect. All results are acceptable.

8. Field Blanks:

FB0180304 was a field blanks. All BTEX results were non-detect. All results are acceptable.

9. Field Duplicates:

Samples MW32S and MW32S-FD are field duplicates. All sample results were non-detect.

Water Samples – Polynuclear Aromatic Hydrocarbons (PAHs by HPLC)

1. Holding Times:

| <u>Lab ID</u> | <u>Client ID</u> | <u>Sample Date</u> | <u>Extraction Date</u> | <u>Analysis Date</u> |
|---------------|------------------|--------------------|------------------------|----------------------|
| 4236928 | TG4-1-170304-1 | 3/17/04 | 3/20/04 | 3/27/04 |
| 4266929 | TG4-1-170304-2 | 3/17/04 | 3/20/04 | 3/27/04 |
| 4236930 | TG4-1-170304-3 | 3/17/04 | 3/20/04 | 3/27/04 |
| 4238164 | FB-180304-1 | 3/18/04 | 3/20/04 | 3/27/04 |
| 4238165 | MW27S-180304-7 | 3/18/04 | 3/22/04 | 3/28/04 |
| 4238166 | MW28S-180304-11 | 3/18/04 | 3/22/04 | 3/28/04 |
| 4238167 | MW29S-180304-5 | 3/18/04 | 3/22/04 | 3/28/04 |
| 4238168 | MW32S-180304-8 | 3/18/04 | 3/22/04 | 3/28/04 |
| 4238169 | MW32S-180304-8DP | 3/18/04 | 3/22/04 | 3/28/04 |
| 4238170 | MW33S-180304-9 | 3/18/04 | 3/22/04 | 3/28/04 |
| 4238173 | MW35S-180304-10 | 3/18/04 | 3/22/04 | 3/28/04 |
| 4238174 | MW36S-180304-4 | 3/18/04 | 3/22/04 | 3/28/04 |
| 4238175 | MW37S-180304-6 | 3/18/04 | 3/22/04 | 3/28/04 |
| 4238177 | TG1-1-180304-1 | 3/18/04 | 3/22/04 | 3/28/04 |
| 4238178 | TG1-2-180304-2 | 3/18/04 | 3/22/04 | 3/28/04 |
| 4238179 | TG1-3-180304-3 | 3/18/04 | 3/22/04 | 3/28, 29/04 |

All samples were analyzed and extracted within the required holding times..

2. Method Blank:

There are three method blanks associated with the PAH fraction (SBLKWB079, 080, 089). All three method blanks were free of contamination.

3. Initial and Continuing Calibration:

Calibration results were acceptable.

4. Surrogate Recovery:

The surrogates for PAHs include nitrobenzene and triphenylene. NBZ was outside control limits for all samples on the second column. MW32S also had NBZ outside control limits (low) on the primary column and TPE outside control limits on both columns. All compounds in sample MW32S are flagged J for positive results and UJ for non-detects. Sample TG1-1, TG1-3, MW33SDL, TG1-1DL and TG1-3DL had surrogates diluted out for TPE on both columns and NBZ on the secondary column. No qualifications are required.

5. Matrix Spike/Matrix Spike Duplicate:

Sample MW33S was used for the MS/MSD audit. The following compounds were outside control limits: naphthalene (19, -257, 130RPD), fluorine (11MSD, 59RPD), phenanthrene (49MSD, 32RPD), fluoranthene (77MSD), benzo(a)anthracene (69MSD), chrysene (67MSD), benzo(b)fluoranthene (56MSD, 40RPD), benzo(k)fluoranthene (57MSD, 41RPD), benzo(a)pyrene (57MSD, 40RPD), dibenzo(a,h)anthracene (52MSD, 51 RPD), benzo(g,h,i)perylene (59MSD, 35RPD), and indeno(1,2,3-cd)pyrene (50MSD, 51RPD). The above compounds are flagged J for a positive result and UJ for non-detects in sample MW33S. All other MS and MSD recoveries were acceptable.

6. Laboratory Control Sample:

The LCS recovery was within required control limits.

7. Field Blanks:

FB-180304-1 is a field blanks. All PAH results were non-detect. All results are acceptable.

8. Field Duplicates:

Samples MW32S and MW32S-FD are field duplicates. The sample results show good field correlation.

Data reviewed by: T. Balla

Date: 5/19/04

7802

888761

4236791-98

888774

4236928-31

COC ID: 170304-06

Chain of Custody Record

Page 1 of 1

Client **Kerr McGee**
 Site Name **Moss American** Contact Name **Tom Green**
 W. O. **02687.007.008.0001** Contact Phone No. **847-918-4142**
 Lab **LANCASTER LABS** Lab Contact **C. SWEIGART**
 TAT **Per Quote** Lab Phone **717-858-2308 X1527**

| Filtered Container Preservative | EPA 353.2-A NO3 | EPA 353.2-A NO3 | EPA 415.1-TOC | SW846 8021B-BTEX | SW846 8021B-BTEX |
|---------------------------------|-----------------|-----------------|---------------|------------------|------------------|
| 40 ml Vial | 40 ml Vial | 250 ml Glass | 40 ml Vial | 40 ml Vial | |
| N/A | N/A | N/A | HCl | HCl | |

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | | | | | |
|--------|-----------------------|--------|-----|--------|---------------------|---|---|---|---|---|
| | MA3-FB-170304-1 | G | | N | 3/17/2004 12:00 | | | | X | X |
| | MA3-TB-170304-1 | G | | N | 3/17/2004 08:00 | | | | X | X |
| | MA3-TG2-1-170304-7 | G | | N | 3/17/2004 15:00 | X | X | X | X | X |
| | MA3-TG2-2-170304-8 | G | | N | 3/17/2004 15:10 | X | X | X | X | X |
| | MA3-TG2-3-170304-9 | G | | N | 3/17/2004 15:20 | X | X | X | X | X |
| | MA3-TG3-1-170304-4 | G | | N | 3/17/2004 11:00 | X | X | X | X | X |
| | MA3-TG3-2-170304-5 | G | | N | 3/17/2004 11:10 | X | X | X | X | X |
| | MA3-TG3-2-170304-5-DF | G | | N | 3/17/2004 11:10 | | | | X | X |
| | MA3-TG3-3-170304-6 | G | | N | 3/17/2004 11:20 | X | X | X | X | X |
| | MA3-TG4-1-170304-1 | G | | N | 3/17/2004 09:10 | X | X | X | X | X |
| | MA3-TG4-2-170304-2 | G | | N | 3/17/2004 09:20 | X | X | X | X | X |
| | MA3-TG4-3-170304-3 | G | | N | 3/17/2004 09:30 | X | X | X | X | X |

Remarks/Comments

Lab Use Only

Temp of Cooler when Received, C

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

COC Tape was present on outer package Y N

COC Tape was unbroken on outer package Y N

COC Tape was present on sample Y N

COC Tape was unbroken on sample Y N NA

Received in good condition Y N

Labels indicate Property Preserved Y N

Received within Holding Time Y N

| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time |
|-----------------|--------------|-------------|-------------|-----------------|-------------|-------------|-------------|
| <i>Dee L</i> | 3/17/04 1300 | | | | | | |
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112
118
122

Sampled By

Dee L

Dee L 3-18-04 0930

888761 4236791-28
 7802 888774 4236928-31

COC ID: 170304-04

Chain of Custody Record

Page 1 of 1

Client **Kerr McGee**
 Site Name **Moss American**
 W.G. **02887.007.008.0001**
 Lab **LANCASTER LABS**
 FAX **Per Quote**
 Contact Name **Tom Graan**
 Contact Phone No. **847-818-4142**
 Lab Contact **C. SWEIGART**
 Lab Phone **717-658-2308 X1527**

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | Filtered Container Preservative | | | | | | | | | | | | |
|--------|--------------------|--------|-----|--------|---------------------|---------------------------------|---------------|---------------------|---------------|--|--|--|--|--|--|--|--|--|
| | | | | | | EPA 350.2-NH3 | EPA 351.2-TKN | EPA 365.1-TP DOM | EPA 410.2-COD | | | | | | | | | |
| | | | | | | 1-L Glass | 1-L Glass | 1-L Glass | 1-L Glass | | | | | | | | | |
| | MA3-TG3-1-170304-4 | G | | N | 3/17/2004 11:00 | X | X | X | X | | | | | | | | | |
| | MA3-TG3-2-170304-5 | G | | N | 3/17/2004 11:10 | X | X | X | X | | | | | | | | | |
| | MA3-TG3-3-170304-6 | G | | N | 3/17/2004 11:20 | X | X | X | X | | | | | | | | | |
| | MA3-TG4-1-170304-1 | G | | N | 3/17/2004 09:10 | X | X | X | X | | | | | | | | | |
| | MA3-TG4-3-170304-3 | G | | N | 3/17/2004 09:30 | X | X | X | X | | | | | | | | | |

Remarks/Comments

Sampled By *[Signature]*

| Lab Use Only | | COC Tape was present on outer package <input checked="" type="checkbox"/> N | | Received in good condition <input checked="" type="checkbox"/> N | |
|-----------------------------------------------------------------------|--------------|------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------|-------------|
| Temp of Cooler when Received, C | | COC Tape was unbroken on outer package <input checked="" type="checkbox"/> N | | Labels indicate Property Preserved <input checked="" type="checkbox"/> N | |
| 1 2 3 4 5 | | COC Tape was present on sample <input checked="" type="checkbox"/> N | | Received within Holding Time <input checked="" type="checkbox"/> N | |
| COC Tape was unbroken on sample <input checked="" type="checkbox"/> N | | | | | |
| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time |
| <i>[Signature]</i> | 3/17/04 1800 | | | | |
| | | | | | |
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[Signature] 3-18-04 0930

7802 888761 4236791-98
888774 4236928-31

COC ID: 170304-02

Chain of Custody Record

Client **Kerr McGee**

Site Name **Moss American**

W. O. **02887.007.008.0001**

Lab **LANCASTER LABS**

TAT

Contact Name **Tom Graan**

Contact Phone No. **847-918-4142**

Lab Contact **C. SWEIGART**

Lab Phone **717-856-2308 X1627**

| | | | | | | | | | | | |
|---------------------------|---------------------------------|-----------|--|--|--|--|--|--|--|--|--|
| SWEIGART PALS 8310- | | | | | | | | | | | |
| | Filtered Container Preservative | 1-L Amber | | | | | | | | | |
| | | N/A | | | | | | | | | |

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | | | | | | | |
|--------|-----------------------|--------|-----|--------|---------------------|---|--|--|--|--|--|--|
| | MA3-TG3-2-170304-5 | G | | N | 3/17/2004 11:10 | X | | | | | | |
| | MA3-TG3-2-170304-5-DF | G | | N | 3/17/2004 11:10 | X | | | | | | |
| | MA3-TG4-1-170304-1 | G | | N | 3/17/2004 09:10 | X | | | | | | |
| | MA3-TG4-2-170304-2 | G | | N | 3/17/2004 09:20 | X | | | | | | |
| | MA3-TG4-3-170304-3 | G | | N | 3/17/2004 09:30 | X | | | | | | |
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|-----------------------|---------------------------------|--------------|---------------------------------------------------------------------------------------------------|-------------|------------------|-------------|-----------------------------------------------------------------------------------------------|--------------|--|--|
| Remarks/Comments | Lab Use Only | | COC Type was present on outer package <input checked="" type="radio"/> Y <input type="radio"/> N | | | | Received in good condition <input checked="" type="radio"/> Y <input type="radio"/> N | | | |
| | Temp of Cooler when Received, C | | COC Tape was unbroken on outer package <input checked="" type="radio"/> Y <input type="radio"/> N | | | | Labels indicate Property Preserved <input checked="" type="radio"/> Y <input type="radio"/> N | | | |
| | 1 2 3 4 5 | | COC Tape was present on sample <input checked="" type="radio"/> Y <input type="radio"/> N | | | | Received within Holding Time <input checked="" type="radio"/> Y <input type="radio"/> N | | | |
| | | | COC Tape was unbroken on sample <input checked="" type="radio"/> Y <input type="radio"/> N | | | | | | | |
| Sampled By <i>ASL</i> | Requisitioned By | Date / Time | Received By | Date / Time | Requisitioned By | Date / Time | Received By | Date / Time | | |
| | <i>ASL</i> | 3/17/04 1705 | | | | | <i>F. Landa</i> | 3-18-04 0930 | | |

888761 4236791-98
 7802 888774 4236928-31

COC ID: 170304-01

Chain of Custody Record

Client **Kerr McGee**
 Site Name **Mass American** Contact Name **Tom Green**
 W. O. **02887.007.008.0001** Contact Phone No. **947-918-4142**
 Lab **LANCASTER LABS** Lab Contact **C. SWEIGART**
 TAT **Per Quote** Lab Phone **717-858-2308 X1527**

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | Filtered Container Preservative | | | EPA 363-J ORTHO P | EPA 405-L-BOD | SW846 8310 PAHS | | | | | | | |
|--------|--------------------|--------|-----|--------|---------------------|---------------------------------|-------------|------------|-------------------|---------------|-----------------|--|--|--|--|--|--|--|
| | | | | | | 500-ml Poly | 500-ml Poly | I-J. Amber | | | | | | | | | | |
| | | | | | | N/A | N/A | N/A | | | | | | | | | | |
| | MA3-TG2-1-170304-7 | G | | N | 3/17/2004 15:00 | X | X | | | | | | | | | | | |
| | MA3-TG2-2-170304-8 | G | | N | 3/17/2004 15:10 | X | X | | | | | | | | | | | |
| | MA3-TG2-3-170304-9 | G | | N | 3/17/2004 15:20 | X | X | | | | | | | | | | | |
| | MA3-TG3-1-170304-4 | G | | N | 3/17/2004 11:00 | X | X | X | | | | | | | | | | |
| | MA3-TG3-2-170304-5 | G | | N | 3/17/2004 11:10 | X | X | | | | | | | | | | | |
| | MA3-TG3-3-170304-6 | G | | N | 3/17/2004 11:20 | X | X | | | | | | | | | | | |
| | MA3-TG4-1-170304-1 | G | | N | 3/17/2004 09:10 | X | X | | | | | | | | | | | |
| | MA3-TG4-2-170304-2 | G | | N | 3/17/2004 09:20 | X | X | | | | | | | | | | | |
| | MA3-TG4-3-170304-3 | G | | N | 3/17/2004 09:30 | X | X | | | | | | | | | | | |

45

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|-------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Remarks/Comments Sampled By <i>[Signature]</i> | Lab Use Only Temp of Cooler when Received, C 1 2 3 4 5 2 3 4 5 | | COC Tape was present on outer package <input checked="" type="radio"/> Y <input type="radio"/> N COC Tape was unbroken on outer package <input checked="" type="radio"/> Y <input type="radio"/> N COC Tape was present on sample <input checked="" type="radio"/> Y <input type="radio"/> N COC Tape was unbroken on sample <input checked="" type="radio"/> Y <input type="radio"/> N/A | | Received in good condition <input checked="" type="radio"/> Y <input type="radio"/> N Labels indicate Property Preserved <input checked="" type="radio"/> Y <input type="radio"/> N Received within Holding Time <input checked="" type="radio"/> Y <input type="radio"/> N | |
| | Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time |
| | <i>[Signature]</i> | 3/17/04 15:00 | | | | |
| | | | | | | |

3-18-04 0938

7802 888940 4238164-79

COC ID: 180304-05

Chain of Custody Record

Page 1 of 1

Client **Kerr McGee**

Site Name **Moss American**

W. O. **02987.007.008.0001**

Lab **LANCASTER LABS**

TAT **Per Quote**

Contact Name **Tom Green**

Contact Phone No. **847-918-4142**

Lab Contact **C. SWEIGART**

Lab Phone **717-858-2308 X1527**

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | Filtered Container Preservative | | | |
|--------|------------------------|--------|-----|--------|---------------------|---------------------------------|-------------|-------------|-------------|
| | | | | | | 40 ml Vials | 40 ml Vials | 40 ml Vials | 40 ml Vials |
| | | | | | | N/A | H2SO4 | HCl | HCl |
| | MA3-FB-180304-1 | G | | N | 3/18/2004 16:00 | | | X | X |
| | MA3-MW27S-180304-7 | G | | N | 3/18/2004 14:40 | | | X | X |
| | MA3-MW28S-180304-11 | G | | N | 3/18/2004 16:50 | | | X | X |
| | MA3-MW29S-180304-5 | G | | N | 3/18/2004 11:20 | | | X | X |
| | MA3-MW32S-180304-8 | G | | N | 3/18/2004 14:50 | | | X | X |
| | MA3-MW32S-180304-8-D | G | | N | 3/18/2004 14:50 | | | X | X |
| | MA3-MW33S-180304-9 | G | | N | 3/18/2004 15:00 | | | X | X |
| | MA3-MW33S-180304-9-MSD | G | | Y | 3/18/2004 15:00 | | | X | X |
| | MA3-MW35S-180304-10 | G | | N | 3/18/2004 16:40 | | | X | X |
| | MA3-MW36S-180304-4 | G | | N | 3/18/2004 11:10 | | | X | X |
| | MA3-MW37S-180304-6 | G | | N | 3/18/2004 11:30 | | | X | X |
| | MA3-TB-180304-1 | G | | N | 3/18/2004 07:30 | | | X | X |
| | MA3-TG1-1-180304-1 | G | | N | 3/18/2004 09:10 | X | X | X | X |
| | MA3-TG1-2-180304-2 | G | | N | 3/18/2004 09:20 | X | X | X | X |
| | MA3-TG1-3-180304-3 | G | | N | 3/18/2004 09:30 | X | X | X | X |

Remarks/Comments

Lab Use Only

Temp of Cooler when Received, C

12.5 2.4 25.5 4

COC Tape was present on outer package Y N

COC Tape was unbroken on outer package Y N

COC Tape was present on sample Y N

COC Tape was unbroken on sample Y N NA

Received in good condition Y N

Labels indicate Property Preserved Y N

Received within Holding Time Y N

| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time |
|------------------------|---------------|-------------|-------------|-----------------|-------------|--------------------------|---------------|
| <i>Joe [Signature]</i> | 3/18/04 18:30 | | | | | <i>Kathy [Signature]</i> | 3-18-04 09:00 |

Sampled By *[Signature]*

Kathy [Signature] 3-18-04 09:00

COC ID: 180304-03

Chain of Custody Record

Client **Kerr McGee**
 Site Name **Moss American** Contact Name **Tom Green**
 W. O. **02887.007.008.0001** Contact Phone No. **847-818-4142**
 Lab **LANCASTER LABS** Lab Contact **C. SWEIGART**
 TAT **Per Quote** Lab Phone **717-858-2308 X1527**

| | | | | | | | | | | | |
|-----------------|--|--|--|--|--|--|--|--|--|--|--|
| SW846 B310-PAHS | | | | | | | | | | | |
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Filtered
 Container
 Preservative

1-L Amber
 N/A

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | | | | | | |
|--------|-----------------------|--------|-----|--------|---------------------|---|--|--|--|--|--|
| | MA3-FB-180304-1 | G | | N | 3/18/2004 16:00 | X | | | | | |
| | MA3-MW28S-180304-11 | G | | N | 3/18/2004 16:50 | X | | | | | |
| | MA3-MW32S-180304-8 | G | | N | 3/18/2004 14:50 | X | | | | | |
| | MA3-MW32S-180304-8-DP | G | | N | 3/18/2004 14:50 | X | | | | | |
| | MA3-MW32S-180304-10 | G | | N | 3/18/2004 16:40 | X | | | | | |
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|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------|-------------|-------------|---|---|---|---|---|-------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------|--|
| Remarks/Comments Sampled By: | Lab Use Only | | COC Tape was present on outer package <input checked="" type="radio"/> Y <input type="radio"/> N | | Received in good condition <input checked="" type="radio"/> Y <input type="radio"/> N | | | | | | | | | | | |
| | Temp of Cooler when Received, C | | COC Tape was unbroken on outer package <input checked="" type="radio"/> Y <input type="radio"/> N | | Labels Indicate Properly Preserved <input checked="" type="radio"/> Y <input type="radio"/> N | | | | | | | | | | | |
| | <table border="1" style="margin: auto;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr> <tr> <td>2</td><td>5</td><td>2</td><td>3</td><td>4</td></tr> </table> | | 1 | 2 | 3 | 4 | 5 | 2 | 5 | 2 | 3 | 4 | COC Tape was present on sample <input checked="" type="radio"/> Y <input type="radio"/> N | | Received within Holding Time <input checked="" type="radio"/> Y <input type="radio"/> N | |
| | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | |
| | 2 | 5 | 2 | 3 | 4 | | | | | | | | | | | |
| | | COC Tape was unbroken on sample <input type="radio"/> Y <input checked="" type="radio"/> N/A | | | | | | | | | | | | | | |
| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time | | | | | | | | | |
| _____ | | | | Katelyn Kay 3-19-04 #2 | | | | | | | | | | | | |

7802 888940 4238164-79

COC ID: 180304-02

Chain of Custody Record

Page 1 of 1

Client **Kerr McGee**

Site Name **Mesa American**

W. O. **02887.007.008.0001**

Lab **LANCASTER LABS**

TAT **Per Quote**

Contact Name **Tom Green**

Contact Phone No. **847-918-4142**

Lab Contact **C. SWEIGART**

Lab Phone **717-858-2308 X1527**

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | SWS/6 B310- PAHS | Filtered | 1-L Amber | NA | | |
|--------|------------------------|--------|-----|--------|---------------------|---------------------|--------------|--------------|----|--|--|
| | | | | | | | Container | Preservative | | | |
| | | | | | | | Preservative | | | | |
| | MA3-MW27S-180304-7 | G | | N | 3/18/2004 14:40 | X | | | | | |
| | MA3-MW33S-180304-9 | G | | N | 3/18/2004 15:00 | X | | | | | |
| | MA3-MW33S-180304-9-MSD | G | | Y | 3/18/2004 15:00 | X | | | | | |
| | MA3-MW36S-180304-4 | G | | N | 3/18/2004 11:10 | X | | | | | |
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Remarks/Comments

Lab Use Only

Temp of Cooler when Received, C

1 2° 2 5° 3 2: 4 35° 5 4°

COC Tape was present on outer package Y N

COC Tape was unbroken on outer package Y N

COC Tape was present on sample Y N

COC Tape was unbroken on sample Y N NF

Received in good condition Y N

Labels indicate Property Preserved Y N

Received within Holding Time Y N

| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time |
|--------------------|--------------|-------------|-------------|-----------------|-------------|-------------|-------------|
| <i>[Signature]</i> | 3/18/04 1830 | | | | | | |
| | | | | | | | |
| | | | | | | | |

Sampled By *[Signature]*

Kathy ... 3-14-04 1830 #3

COC ID: 180304-01

Chain of Custody Record

Client **Kerr McGee**
 Site Name **Moss American**
 W. O. **02687.007.008.0001**
 Lab **LANCASTER LABS**
 TAT **Per Quote**

Contact Name **Tom Graen**
 Contact Phone No. **847-918-4142**
 Lab Contact **C. SWEIGART**
 Lab Phone **717-658-2308 X1527**

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | Filtered Container Preservative | SW246 8310- PAHS | | | | | | | | | | | |
|--------|--------------------|--------|-----|--------|---------------------|---------------------------------|------------------|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | |
| | MA3-MW29S-180304-5 | G | | N | 3/18/2004 11:20 | X | | | | | | | | | | | | |
| | MA3-MW37S-180304-6 | G | | N | 3/18/2004 11:30 | X | | | | | | | | | | | | |
| | MA3-TG1-1-180304-1 | G | | N | 3/18/2004 09:10 | X | | | | | | | | | | | | |
| | MA3-TG1-2-180304-2 | G | | N | 3/18/2004 09:20 | X | | | | | | | | | | | | |
| | MA3-TG1-3-180304-3 | G | | N | 3/18/2004 09:30 | X | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|------------------|---------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------|-------------|------------------|-------------|-----------------------------------------------------------------------------------------------|-------------|------------------|-------------|--------------|-------------|
| Remarks/Comments | Lab Use Only | | COC Tape was present on outer package <input checked="" type="radio"/> Y <input type="radio"/> N | | | | Received in good condition <input checked="" type="radio"/> Y <input type="radio"/> N | | | | | |
| | Temp of Cooler when Received, C | | COC Tape was unbroken on outer package <input checked="" type="radio"/> Y <input type="radio"/> N | | | | Labels indicate Property Preserved <input checked="" type="radio"/> Y <input type="radio"/> N | | | | | |
| | 2: 2 5: 3 2: 4 3: 5 4: 0 | | COC Tape was present on sample <input checked="" type="radio"/> Y <input type="radio"/> N | | | | Received within Holding Time <input checked="" type="radio"/> Y <input type="radio"/> N | | | | | |
| | | | COC Tape was unbroken on sample <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA | | | | | | | | | |
| Sampled By: | Relinquished By: | Date / Time | Received By: | Date / Time | Relinquished By: | Date / Time | Received By: | Date / Time | Relinquished By: | Date / Time | Received By: | Date / Time |
| | | 3/18/04 18:30 | | | | | | 3-19-04 | | | | |

7802 888940 4238164-79

COC ID: 180304-04

Chain of Custody Record

Client **Karr McGee**
 Site Name **Mesa American**
 W. O. **02687.007.008.0001**
 Lab **LANCASTER LABS**
 TAT **Per Quote**

Contact Name **Tom Green**
 Contact Phone No. **847-918-4142**
 Lab Contact **C. SWEIGART**
 Lab Phone **717-658-2308 X1527**

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | Filtered Container Preservative | | | | | | | |
|--------|--------------------|--------|-----|--------|---------------------|---------------------------------|-----------|-----------|-------------|-------------|-----------|--------------|--|
| | | | | | | 1-L Glass | 1-L Glass | 1-L Glass | 500-ml Poly | 500-ml Poly | 1-L Glass | 250 ml Glass | |
| | | | | | | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| | MA3-TG1-1-180304-1 | G | | N | 3/18/2004 09:10 | X | X | X | X | X | X | X | |
| | MA3-TG1-2-180304-2 | G | | N | 3/18/2004 09:20 | X | X | X | X | X | X | X | |
| | MA3-TG1-3-180304-3 | G | | N | 3/18/2004 09:30 | X | X | X | X | X | X | X | |
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Remarks/Comments

Lab Use Only

Temp of Cooler when Received, C
 12° 25° 32° 25° 42°

COC Tape was present on outer package Y N
 Received in good condition Y N
 COC Tape was unbroken on outer package Y N
 Labels indicate Properly Preserved Y N
 COC Tape was present on sample Y N
 Received within Holding Time Y N
 COC Tape was unbroken on sample Y N/A

| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time |
|--------------------|--------------|-------------|-------------|-----------------|-------------|-----------------|---------------|
| <i>[Signature]</i> | 3/17/04 1830 | | | | | | |
| | | | | | | <i>Kelly...</i> | 3/19/04 #5 |

Sampled By: *[Signature]*



REPRINT

ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

734-367-7900

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 888774. Samples arrived at the laboratory on Thursday, March 18, 2004. The PO# for this group is ZAKW1KEOK0A90089.

| <u>Client Description</u> | <u>Lancaster Labs Number</u> |
|------------------------------------------|------------------------------|
| MA3-TG4-1 MA3-TG4-1-170304-1 Groundwater | 4236928 |
| MA3-TG4-2 MA3-TG4-2-170304-2 Groundwater | 4236929 |
| MA3-TG4-3 MA3-TG4-3-170304-3 Groundwater | 4236930 |
| MA3-TB MA3-TB-170304-1 Groundwater | 4236931 |

METHODOLOGY

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

1 COPY TO Kerr-McGee Corporation
1 COPY TO Weston Solutions, Inc.
1 COPY TO Data Package Group

Attn: Dr. Jeff Ostmeyer
Attn: Mr. Tom Graan

8821



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Questions? Contact your Client Services Representative
Carrie A Fleming at (717) 656-2300.

REPRINT

Respectfully Submitted,

A handwritten signature in cursive script that reads "Victoria M. Martell".

Victoria M. Martell
Chemist

8622



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4236928

MA3-TG4-1 MA3-TG4-1-170304-1 Groundwater
170304-01,02,04,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 09:10 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Kerr-McGee Corporation

Reported: 04/08/2004 at 11:49

PO Box 3048

Discard: 05/09/2004

Livonia MI 48150

TG4-1 SDG#: KMS53-01

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | | Units | Dilution Factor |
|---------|-------------------------------|------------|--------------------|-------------|-----------------|-------|-----------------|
| | | | | Method | Detection Limit | | |
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 1.2 | | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 0.44 J | | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | 0.022 J | | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | | 2.4 | mg/l | 1 |
| 00273 | Total Organic Carbon | n.a. | 7.8 | | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 19.6 | | 2.1 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | | 1.3 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | | 0.075 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | | 0.038 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | 0.058 J | | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | | 0.038 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | | 0.038 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | | 0.075 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | | 0.094 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | | 0.075 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | | 0.019 | ug/l | 1 |

5823





Lancaster Laboratories Sample No. WW 4236928

MA3-TG4-1 MA3-TG4-1-170304-1 Groundwater
170304-01,02,04,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 09:10 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Kerr-McGee Corporation

Reported: 04/08/2004 at 11:49

PO Box 3048

Discard: 05/09/2004

Livonia MI 48150

TG4-1 SDG#: KMS53-01

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|-------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/26/2004 15:32 | Kyle W Eckenroad | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 3 | 03/18/2004 21:30 | Kyle W Eckenroad | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 20:23 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/24/2004 15:30 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/18/2004 19:05 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/18/2004 22:34 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/22/2004 23:23 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/23/2004 14:18 | Michelle A Bolton | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 08:40 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/27/2004 03:26 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 08:40 | Todd T Smythe | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 3 | 03/25/2004 14:20 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/20/2004 01:00 | Felix C Arroyo | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/19/2004 12:20 | Cheryl L Robinson | 1 |

2524





Lancaster Laboratories Sample No. WW 4236929

MA3-TG4-2 MA3-TG4-2-170304-2 Groundwater
170304-01,02,04,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 09:20 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Kerr-McGee Corporation

Reported: 04/08/2004 at 11:49

PO Box 3048

Discard: 05/09/2004

Livonia MI 48150

TG4-2 SDG#: KMS53-02

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | | Dilution Factor |
|---------|-------------------------------------------|------------|--------------------|-----------------|-------|-----------------|
| | | | | Method | Units | |
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 1.5 | Detection Limit | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | 0.50 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | 0.015 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 0.73 J | 0.040 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | N.D. | 0.11 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | 0.010 | mg/l | 1 |
| 00273 | Total Organic Carbon | n.a. | 9.4 | 3.6 | mg/l | 1 |
| 00345 | Total Phosphorus as P ₀₄ water | 14265-44-2 | N.D. | 0.50 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 24.2 | 0.12 | mg/l | 1 |
| 08213 | BTEX (8021) | | | 2.1 | mg/l | 1 |
| 00776 | Benzene | 71-43-2 | N.D. | | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.2 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | 0.6 | ug/l | 1 |
| 00775 | Naphthalene | 91-20-3 | N.D. | | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.3 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 1.5 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.17 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.076 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.038 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.17 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.019 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.038 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.019 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.038 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.076 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.095 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.076 | ug/l | 1 |
| | | | | 0.019 | ug/l | 1 |

5525





Lancaster Laboratories Sample No. WW 4236929

MA3-TG4-2 MA3-TG4-2-170304-2 Groundwater
170304-01,02,04,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 09:20 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Kerr-McGee Corporation

Reported: 04/08/2004 at 11:49

PO Box 3048

Discard: 05/09/2004

Livonia MI 48150

TG4-2 SDG#: KMS53-02

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|-------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/26/2004 15:33 | Kyle W Eckenroad | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 3 | 03/18/2004 21:31 | Kyle W Eckenroad | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 20:24 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/24/2004 15:30 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/18/2004 19:05 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/18/2004 22:34 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/22/2004 23:31 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/23/2004 14:19 | Michelle A Bolton | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 08:00 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/27/2004 04:04 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 08:00 | Todd T Smythe | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 3 | 03/25/2004 14:20 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/20/2004 01:00 | Felix C Arroyo | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/19/2004 12:20 | Cheryl L Robinson | 1 |

3826





Lancaster Laboratories Sample No. WW 4236930

MA3-TG4-3 MA3-TG4-3-170304-3 Groundwater.
170304-01,02,04,06 02687.007.006.0001

Moss American

Collected: 03/17/2004 09:30 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Kerr-McGee Corporation

Reported: 04/08/2004 at 11:49

PO Box 3048

Discard: 05/09/2004

Livonia MI 48150

TG4-3 SDG#: KMS53-03

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | | Dilution Factor |
|------------------------------|-------------------------------|------------|--------------------|------------------------|-------|-----------------|
| | | | | Method Detection Limit | Units | |
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 1.3 | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 0.64 J | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | 0.010 J | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | 3.1 | mg/l | 1 |
| 00273 | Total Organic Carbon | n.a. | 9.0 | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 23.8 | 2.1 | mg/l | 1 |
| 08213 BTEX (8021) | | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 PAH's in Water by HPLC | | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.3 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | 0.19 J | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.077 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.038 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | 0.16 J | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.038 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.038 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.077 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.096 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.077 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

8827





Lancaster Laboratories Sample No. WW 4236930

MA3-TG4-3 MA3-TG4-3-170304-3 Groundwater
170304-01,02,04,06 02687.007.006.0001
Moss American

Collected: 03/17/2004 09:30 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30
Reported: 04/08/2004 at 11:49
Discard: 05/09/2004

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

TG4-3 SDG#: KMS53-03

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|-------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/26/2004 15:33 | Kyle W Eckenroad | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 3 | 03/18/2004 21:32 | Kyle W Eckenroad | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/22/2004 20:28 | Venia B McFadden | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/24/2004 15:30 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/18/2004 19:05 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/18/2004 22:34 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/22/2004 23:40 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/23/2004 14:22 | Michelle A Bolton | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/23/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 07:21 | Todd T Smythe | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/27/2004 04:43 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 07:21 | Todd T Smythe | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 3 | 03/25/2004 14:20 | Nancy J Shoop | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/20/2004 01:00 | Felix C Arroyo | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/19/2004 12:20 | Cheryl L Robinson | 1 |

5828





Lancaster Laboratories Sample No. WW 4236931

MA3-TB MA3-TB-170304-1 Groundwater
170304-06 02687.007.006.0001

Moss American

Collected: 03/17/2004 08:00 by AG

Account Number: 07802

Submitted: 03/18/2004 09:30

Reported: 04/08/2004 at 11:49

Discard: 05/09/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

A3TB1 SDG#: KMS53-04TB

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|---------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|-------------------|--------------|--------|------------------------|---------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/19/2004 06:41 | Todd T Smythe | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/19/2004 06:41 | Todd T Smythe | n.a. |

2829





ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

734-367-7900

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 888940. Samples arrived at the laboratory on Friday, March 19, 2004. The PO# for this group is ZAKW1KEOK0A90089.

| <u>Client Description</u> | <u>Lancaster Labs Number</u> |
|----------------------------------------------|------------------------------|
| MA3-FB MA3-FB-180304-1 Groundwater | 4238164 |
| MA3-MW27S MA3-MW27S-180304-7 Groundwater | 4238165 |
| MA3-MW28S MA3-MW28S-180304-11 Groundwater | 4238166 |
| MA3-MW29S MA3-MW29S-180304-5 Groundwater | 4238167 |
| MA3-MW32S MA3-MW32S-180304-8 Groundwater | 4238168 |
| MA3-MW32S MA3-MW32S-180304-8-DP Groundwater | 4238169 |
| MA3-MW33S MA3-MW33S-180304-9 Groundwater | 4238170 |
| MA3-MW33S MA3-MW33S-180304-9-MS Groundwater | 4238171 |
| MA3-MW33S MA3-MW33S-180304-9-MSD Groundwater | 4238172 |
| MA3-MW35S MA3-MW35S-180304-10 Groundwater | 4238173 |
| MA3-MW36S MA3-MW36S-180304-4 Groundwater | 4238174 |
| MA3-MW37S MA3-MW37S-180304-6 Groundwater | 4238175 |
| MA3-TB MA3-TB-180304-1 Groundwater | 4238176 |
| MA3-TG1-1 MA3-TG1-1-180304-1 Groundwater | 4238177 |
| MA3-TG1-2 MA3-TG1-2-180304-2 Groundwater | 4238178 |
| MA3-TG1-3 MA3-TG1-3-180304-3 Groundwater | 4238179 |

METHODOLOGY

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

1 COPY TO Kerr-McGee Corporation
1 COPY TO Weston Solutions, Inc.
1 COPY TO Data Package Group

Attn: Dr. Jeff Ostmeyer
Attn: Mr. Tom Graan

0000



Questions? Contact your Client Services Representative
Carrie A Fleming at (717) 656-2300.

Respectfully Submitted,

Victoria M. Martell
Victoria M. Martell
Chemist

2231



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4238164

MA3-FB MA3-FB-180304-1 Groundwater
 180304-03, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 16:00 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10
 Reported: 04/02/2004 at 14:52
 Discard: 05/03/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

FB181 SDG#: KMS53-05FB

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.081 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.041 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.041 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.041 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.041 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.081 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.081 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|------------------------|--------------|--------|------------------------|--------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/23/2004 18:20 | Steven A Skiles | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 05:12 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/23/2004 18:20 | Steven A Skiles | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennytza L Marcano | 1 |



Lancaster Laboratories Sample No. WW 4238164

MA3-FB MA3-FB-180304-1 Groundwater
180304-03, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 16:00 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:52

Discard: 05/03/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

FB181 SDG#: KMS53-05FB

8833



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4238165

MA3-MW27S MA3-MW27S-180304-7 Groundwater
 180304-02, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 14:40 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Kerr-McGee Corporation

Reported: 04/02/2004 at 14:52

PO Box 3048

Discard: 05/03/2004

Livonia MI 48150

MW27S SDG#: KMS53-06

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.3 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.077 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.038 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.038 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.038 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.077 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.096 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.077 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|------------------------|--------------|--------|------------------------|---------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/23/2004 21:14 | Steven A Skiles | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 05:51 | Mark A Claggett | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/23/2004 21:14 | Steven A Skiles | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennyntza L Marcano | 1 |



Lancaster Laboratories Sample No. WW 4238165

MA3-MW27S MA3-MW27S-180304-7 Groundwater
180304-02; 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 14:40 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:52

Discard: 05/03/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

MW27S SDG#: KMS53-06

5535



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2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4238166

MA3-MW28S MA3-MW28S-180304-11 Groundwater
 180304-03, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 16:50 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10
 Reported: 04/02/2004 at 14:52
 Discard: 05/03/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

MW28S SDG#: KMS53-07

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.078 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.039 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.039 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.039 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.039 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.078 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.097 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.078 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/23/2004 21:49 | Steven A Skiles | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 06:29 | Mark A Clark #335 | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/23/2004 21:49 | Steven A Skiles | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennytza L Marcano | 1 |



Lancaster Laboratories Sample No. WW 4238166

MA3-MW28S MA3-MW28S-180304-11 Groundwater
180304-03, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 16:50 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:52

Discard: 05/03/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

MW28S SDG#: KMS53-07

8837



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. **WW 4238167**

MA3-MW29S MA3-MW29S-180304-5 Groundwater
180304-01, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 11:20 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10
 Reported: 04/02/2004 at 14:52
 Discard: 05/03/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

MW29S SDG#: KMS53-08

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.081 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.040 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.040 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.040 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.040 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.081 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.081 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|------------------------|--------------|--------|------------------------|---------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/23/2004 22:24 | Steven A Skiles | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 07:08 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/23/2004 22:24 | Steven A Skiles | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennyntza L Marcano | 1 |



Lancaster Laboratories, Inc.
 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425
 717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4238167

MA3-MW29S MA3-MW29S-180304-5 Groundwater
180304-01, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 11:20 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:52

Discard: 05/03/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

MW29S SDG#: KMS53-08

2635



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. **WW 4238168**

MA3-MW32S MA3-MW32S-180304-8 Groundwater
180304-03, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 14:50 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Kerr-McGee Corporation

Reported: 04/02/2004 at 14:52

PO Box 3048

Discard: 05/03/2004

Livonia MI 48150

MW32S SDG#: KMS53-09

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------|-------|-----------------|
| | | | | Method Detection Limit | | |
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.081 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.041 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.041 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.041 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.041 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.081 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.081 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Surrogate recoveries were outside of QC limits for the HPLC PAH compounds. The analysis was repeated outside of the required hold time and surrogate recoveries met requirements. The data reported is from the initial extraction of the sample.



Lancaster Laboratories Sample No. WW 4238168

MA3-MW32S MA3-MW32S-180304-8 Groundwater
180304-03, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 14:50 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:52

Discard: 05/03/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

MW32S SDG#: KMS53-09

CAT

| No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|-------|------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/23/2004 22:58 | Steven A Skiles | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 08:25 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/23/2004 22:58 | Steven A Skiles | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennytza L Marcano | 1 |

5541



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Lancaster Laboratories Sample No. **WW 4238169**

MA3-MW32S MA3-MW32S-180304-8-DP Groundwater
180304-03, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 14:50 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Kerr-McGee Corporation

Reported: 04/02/2004 at 14:52

PO Box 3048

Discard: 05/03/2004

Livonia MI 48150

MW32D SDG#: KMS53-10FD

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|-----------------|-------|-----------------|
| | | | | Method | | |
| | | | | Detection Limit | | |
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.080 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.040 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.040 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.040 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.040 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.080 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.080 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/23/2004 23:33 | Steven A Skiles | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 09:04 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/23/2004 23:33 | Steven A Skiles | n.a. |
| 03337 | PAR Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennytza L Marcano | 1 |



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Lancaster Laboratories Sample No. WW 4238169

MA3-MW32S MA3-MW32S-180304-8-DP Groundwater
180304-03, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 14:50 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:52

Discard: 05/03/2004

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MW32D SDG#: KMS53-10FD

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Lancaster Laboratories Sample No. WW 4238170

MA3-MW33S MA3-MW33S-180304-9 Groundwater
 180304-02, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 15:00 by AG Account Number: 07802

Submitted: 03/19/2004 09:10
 Reported: 04/02/2004 at 14:52
 Discard: 05/03/2004
 Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

MW33S SDG#: KMS53-11BKG

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|-------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | 4.0 J | 2.0 | ug/l | 10 |
| 00777 | Toluene | 108-88-3 | N.D. | 2.0 | ug/l | 10 |
| 00778 | Ethylbenzene | 100-41-4 | 4.7 J | 2.0 | ug/l | 10 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 6.0 | ug/l | 10 |
| Due to dilution of the sample made necessary by the high level of a non-target compound, normal reporting limits were not attained. | | | | | | |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | 660. | 7.0 | ug/l | 5 |
| 00782 | Acenaphthylene | 208-96-8 | 11. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | 44. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | 13. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | 1.7 | 0.080 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | 0.051 | 0.040 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.040 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.040 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.040 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.080 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.080 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|---------------|--------|--------|------------------------|---------|-----------------|
|---------|---------------|--------|--------|------------------------|---------|-----------------|



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Lancaster Laboratories Sample No. WW 4238170

MA3-MW33S MA3-MW33S-180304-9 Groundwater
180304-02, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 15:00 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:52

Discard: 05/03/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

MW33S SDG#: KMS53-11BKG

| | | | | | | |
|-------|------------------------|--------------|---|------------------|--------------------|------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/23/2004 19:30 | Steven A Skiles | 10 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 03:16 | Mark A Clark | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 22:47 | Mark A Clark | 5 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/23/2004 19:30 | Steven A Skiles | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennytza L Marcano | 1 |

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Lancaster Laboratories Sample No. WW 4238171

MA3-MW33S MA3-MW33S-180304-9-MS Groundwater
 180304-02, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 15:00 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10
 Reported: 04/02/2004 at 14:53
 Discard: 05/03/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

MW33S SDG#: KMS53-11MS

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | 220. | 2.0 | ug/l | 10 |
| 00777 | Toluene | 108-88-3 | 210. | 2.0 | ug/l | 10 |
| 00778 | Ethylbenzene | 100-41-4 | 220. | 2.0 | ug/l | 10 |
| 00779 | Total Xylenes | 1330-20-7 | 690. | 6.0 | ug/l | 10 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | 700. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | 170. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | 200. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | 28. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | 6.4 | 0.080 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | 2.5 | 0.040 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | 2.5 | 0.040 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | 17. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | 1.3 | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | 1.0 | 0.040 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | 1.3 | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | 2.6 | 0.040 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 5.0 | 0.080 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | 10. | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | 4.9 | 0.080 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | 1.0 | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Date and Time | Analyst | Dilution Factor |
|---------|------------------------|--------------|--------|------------------|--------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/23/2004 20:04 | Steven A Skiles | 10 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 03:55 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/23/2004 20:04 | Steven A Skiles | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennytza L Marcano | 1 |



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Lancaster Laboratories Sample No. WW 4238171

MA3-MW33S MA3-MW33S-180304-9-MS Groundwater
180304-02, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 15:00 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:53

Discard: 05/03/2004

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MW33S SDG#: KMS53-11MS

8547



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Lancaster Laboratories Sample No. WW 4238172

MA3-MW33S MA3-MW33S-180304-9-MSD Groundwater

180304-02, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 15:00

by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:53

Discard: 05/03/2004

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PO Box 3048

Livonia MI 48150

MW33S SDG#: KMS53-11MSD

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | 230. | 2.0 | ug/l | 10 |
| 00777 | Toluene | 108-88-3 | 220. | 2.0 | ug/l | 10 |
| 00778 | Ethylbenzene | 100-41-4 | 220. | 2.0 | ug/l | 10 |
| 00779 | Total Xylenes | 1330-20-7 | 670. | 6.0 | ug/l | 10 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | 150. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | 160. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | 160. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | 15. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | 4.7 | 0.080 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | 2.5 | 0.040 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | 2.3 | 0.040 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | 16. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | 1.0 | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | 0.67 | 0.040 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | 0.85 | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | 1.6 | 0.040 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 3.0 | 0.080 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | 7.1 | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | 4.0 | 0.080 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | 0.69 | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|------------------------|--------------|--------|------------------------|--------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/23/2004 20:39 | Steven A Skiles | 10 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 04:34 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 50308 | 1 | 03/23/2004 20:39 | Steven A Skiles | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennytza L Marcano | 1 |



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Lancaster Laboratories Sample No. WW 4238172

MA3-MW33S MA3-MW33S-180304-9-MSD Groundwater
180304-02, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 15:00 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:53

Discard: 05/03/2004

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MW33S SDG#: KMS53-11MSD

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Lancaster Laboratories Sample No. WW 4238173

MA3-MW35S MA3-MW35S-180304-10 Groundwater
 180304-03, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 16:40 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10
 Reported: 04/02/2004 at 14:53
 Discard: 05/03/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

MW35S SDG#: KMS53-12

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | 0.21 J | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.079 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | 0.050 J | 0.040 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | 0.46 | 0.040 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | 0.32 J | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | 0.026 J | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.040 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.040 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.079 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.099 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.079 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|------------------------|--------------|--------|------------------------|--------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/24/2004 01:17 | Steven A Skiles | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 09:42 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 50308 | 1 | 03/24/2004 01:17 | Steven A Skiles | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennytza L Marcano | 1 |



Lancaster Laboratories Sample No. WW 4238173

MA3-MW35S MA3-MW35S-180304-10 Groundwater
180304-03, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 16:40 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:53

Discard: 05/03/2004

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Livonia MI 48150

MW35S SDG#: KMS53-12

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Lancaster Laboratories Sample No. **WW 4238174**

MA3-MW36S MA3-MW36S-180304-4 Groundwater
180304-02, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 11:10 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:53

Discard: 05/03/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

MW36S SDG#: KMS53-13

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.081 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.041 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.041 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.041 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.041 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.081 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.081 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/24/2004 01:51 | Steven A Skiles | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 10:21 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/24/2004 01:51 | Steven A Skiles | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennytza L Marcano | 1 |



Lancaster Laboratories Sample No. WW 4238174

MA3-MW36S MA3-MW36S-180304-4 Groundwater
180304-02, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 11:10 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:53

Discard: 05/03/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

MW36S SDG#: KMS53-13

8853



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2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4238175

MA3-MW37S MA3-MW37S-180304-6 Groundwater
 180304-01, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 11:30 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10
 Reported: 04/02/2004 at 14:53
 Discard: 05/03/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

MW37S SDG#: KMS53-14

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.080 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.040 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.040 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.040 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.040 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.080 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.080 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/24/2004 02:26 | Steven A Skiles | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 10:59 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/24/2004 02:26 | Steven A Skiles | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennytza L Marcano | 1 |



Lancaster Laboratories Sample No. WW 4238175

MA3-MW37S MA3-MW37S-180304-6 Groundwater
180304-01, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 11:30 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:53

Discard: 05/03/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

MW37S SDG#: KMS53-14

8855



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4238176

MA3-TB MA3-TB-180304-1 Groundwater
180304-05 02687.007.006.0001

Moss American

Collected: 03/18/2004 07:30

Account Number: 07802

Submitted: 03/19/2004 09:10
Reported: 04/02/2004 at 14:53
Discard: 05/03/2004

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

TB181 SDG#: KMS53-15TB

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | Units | Dilution Factor |
|---------|---------------|------------|--------------------|-----------------|-------|-----------------|
| | | | | Method | | |
| | | | | Detection Limit | | |
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis | Analyst | Dilution Factor |
|---------|-------------------|--------------|--------|------------------|-----------------|-----------------|
| | | | | Date and Time | | |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/23/2004 18:55 | Steven A Skiles | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/23/2004 18:55 | Steven A Skiles | n.a. |

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Lancaster, PA 17605-2425
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Lancaster Laboratories Sample No. WW 4238177

MA3-TG1-1 MA3-TG1-1-180304-1 Groundwater
 180304-01, 04,05 02687.007.006.0001

Moss American

Collected: 03/18/2004 09:10 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Kerr-McGee Corporation

Reported: 04/02/2004 at 14:53

PO Box 3048

Discard: 05/03/2004

Livonia MI 48150

TG1-1 SDG#: KMS53-16

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 2.6 | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 1.7 | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | N.D. | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | 5.5 | 0.80 | mg/l | 1 |
| The laboratory control standard (LCS) and the LCS duplicate analyzed with this sample had percent recoveries of 77% and 87%, respectively. The method acceptance window is 85% to 115%. Because the 48-hour hold time had lapsed, the analysis was not repeated. The BOD data is reported with client consent. | | | | | | |
| 00273 | Total Organic Carbon | n.a. | 18.6 | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 71.7 | 2.1 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | 1.5 | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | 0.6 J | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | 29. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | 40. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | 2,200. | 14. | ug/l | 10 |
| 00782 | Acenaphthylene | 208-96-8 | 53. J | 16. | ug/l | 10 |
| 00783 | Acenaphthene | 83-32-9 | 320. | 16. | ug/l | 10 |
| 00784 | Fluorene | 86-73-7 | 160. | 1.8 | ug/l | 10 |
| 00785 | Phenanthrene | 85-01-8 | 240. | 4.1 | ug/l | 50 |
| 00789 | Anthracene | 120-12-7 | 26. | 0.41 | ug/l | 10 |
| 00807 | Fluoranthene | 206-44-0 | 93. | 2.0 | ug/l | 50 |
| 00811 | Pyrene | 129-00-0 | 78. | 1.8 | ug/l | 10 |
| 00812 | Benzo(a)anthracene | 56-55-3 | 17. | 0.20 | ug/l | 10 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | 6.2 | 0.41 | ug/l | 10 |
| 00823 | Benzo(a)pyrene | 50-32-8 | 6.2 | 0.20 | ug/l | 10 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | 0.61 J | 0.41 | ug/l | 10 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 3.5 J | 0.82 | ug/l | 10 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 4.0 | ug/l | 55:10 |
| 07409 | Chrysene | 218-01-9 | 12. | 0.82 | ug/l | 10 |



Lancaster Laboratories Sample No. WW 4238177

MA3-TG1-1 MA3-TG1-1-180304-1 Groundwater
 180304-01, 04,05 02687.007.006.0001

Moss American

Collected: 03/18/2004 09:10 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Kerr-McGee Corporation

Reported: 04/02/2004 at 14:53

PO Box 3048

Discard: 05/03/2004

Livonia MI 48150

TG1-1 SDG#: KMS53-16

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|-------------------------------------------------------------------------------------------------------------------|----------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 07410 | Benzo(k)fluoranthene | 207-08-9 | 3.5 | 0.20 | ug/l | 10 |
| The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample extraction. | | | | | | |

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 an interferent near its retention time, the normal reporting limit was not attained for benzo(g,h,i)perylene. The reporting limit for this compound was raised accordingly.

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|--------|------------------------|--------------------|-----------------|
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/22/2004 17:13 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/20/2004 07:24 | Kyle W Eckenroad | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/24/2004 19:56 | Kyle W Eckenroad | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/24/2004 15:30 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/19/2004 19:20 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/19/2004 22:14 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/22/2004 19:45 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/23/2004 14:31 | Michelle A Bolton | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/29/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/24/2004 03:00 | Steven A Skiles | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 12:20 | Mark A Clark | 10 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 23:30 | Mark A Clark | 50 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/24/2004 03:00 | Steven A Skiles | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 1 | 03/22/2004 11:00 | Choon Y Tian | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennytza L Marcano | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/23/2004 10:25 | Cheryl L Robinson | 1 |

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Lancaster Laboratories, Inc.
 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425
 717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4238177

MA3-TG1-1 MA3-TG1-1-180304-1 Groundwater
180304-01, 04,05 02687.007.006.0001

Moss American

Collected: 03/18/2004 09:10 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:53

Discard: 05/03/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

TG1-1 SDG#: KMS53-16

8853



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4238178

MA3-TG1-2 MA3-TG1-2-180304-2 Groundwater
 180304-01, 04,05 02687.007.006.0001

Moss American

Collected: 03/18/2004 09:20 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10
 Reported: 04/02/2004 at 14:53
 Discard: 05/03/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

TG1-2 SDG#: KMS53-17

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | | Units | Dilution Factor |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------|--------------------|-------------|-----------------|-------|-----------------|
| | | | | Method | Detection Limit | | |
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 1.4 | | 0.50 | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | | 0.015 | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | | 0.040 | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 1.3 | | 0.11 | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | 0.015 J | | 0.010 | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | 5.0 | | 0.80 | mg/l | 1 |
| The laboratory control standard (LCS) and the LCS duplicate analyzed with this sample had percent recoveries of 77% and 87%, respectively. The method acceptance window is 85% to 115%. Because the 48-hour hold time had lapsed, the analysis was not repeated. The BOD data is reported with client consent. | | | | | | | |
| 00273 | Total Organic Carbon | n.a. | 11.7 | | 0.50 | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | | 0.12 | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 31.3 | | 2.1 | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | 0.4 J | | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | | |
| 00775 | Naphthalene | 91-20-3 | 16. | | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | 24. | | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | 10. | | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | 6.0 | | 0.079 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | 0.89 | | 0.039 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | 1.4 | | 0.039 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | 0.83 | | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | 0.047 J | | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | | 0.039 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | | 0.039 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | | 0.079 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | | 0.098 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | | 0.079 | ug/l | 1 |



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Lancaster Laboratories Sample No. WW 4238178

MA3-TG1-2 MA3-TG1-2-180304-2 Groundwater
 180304-01, 04,05 02687.007.006.0001

Moss American

Collected: 03/18/2004 09:20 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Kerr-McGee Corporation

Reported: 04/02/2004 at 14:53

PO Box 3048

Discard: 05/03/2004

Livonia MI 48150

TG1-2 SDG#: KMS53-17

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|----------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|----------|------------------|--------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/22/2004 17:26 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/20/2004 07:26 | Kyle W Eckenroad | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/24/2004 20:07 | Kyle W Eckenroad | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/24/2004 15:30 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/19/2004 19:20 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/19/2004 22:14 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/22/2004 19:53 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/23/2004 14:36 | Michelle A Bolton | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/29/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/24/2004 03:34 | Steven A Skiles | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 11:38 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/24/2004 03:34 | Steven A Skiles | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 1 | 03/22/2004 11:00 | Choon Y Tian | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennytza L Marcano | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/23/2004 10:25 | Cheryl L Robinson | 1 |

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Lancaster Laboratories Sample No. WW 4238179

MA3-TG1-3 MA3-TG1-3-180304-3 Groundwater
 180304-01, 04, 05 02687.007.006.0001

Moss American

Collected: 03/18/2004 09:30 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Kerr-McGee Corporation

Reported: 04/02/2004 at 14:53

PO Box 3048

Discard: 05/03/2004

Livonia MI 48150

TG1-3 SDG#: KMS53-18

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | | Units | Dilution Factor |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------|--------------------|-------------|-----------------|-------|-----------------|
| | | | | Method | Detection Limit | | |
| 00217 | Kjeldahl Nitrogen | 7727-37-9 | 1.2 | 0.50 | | mg/l | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | 0.015 | | mg/l | 1 |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | 0.040 | | mg/l | 1 |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 1.1 | 0.11 | | mg/l | 1 |
| 00226 | Ortho-Phosphate as P | 14265-44-2 | 0.036 | 0.010 | | mg/l | 1 |
| 00235 | Biochemical Oxygen Demand | n.a. | N.D. | 5.6 | | mg/l | 1 |
| The laboratory control standard (LCS) and the LCS duplicate analyzed with this sample had percent recoveries of 77% and 87%, respectively. The method acceptance window is 85% to 115%. Because the 48-hour hold time had lapsed, the analysis was not repeated. The BOD data is reported with client consent. | | | | | | | |
| 00273 | Total Organic Carbon | n.a. | 12.2 | 0.50 | | mg/l | 1 |
| 00345 | Total Phosphorus as PO4 water | 14265-44-2 | N.D. | 0.12 | | mg/l | 1 |
| 01553 | Chemical Oxygen Demand | n.a. | 30.2 | 2.1 | | mg/l | 1 |
| 08213 | BTEX (8021) | | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | | |
| 00775 | Naphthalene | 91-20-3 | 1,900. | 14. | | ug/l | 10 |
| 00782 | Acenaphthylene | 208-96-8 | 47. J | 16. | | ug/l | 10 |
| 00783 | Acenaphthene | 83-32-9 | 320. | 16. | | ug/l | 10 |
| 00784 | Fluorene | 86-73-7 | 170. | 1.8 | | ug/l | 10 |
| 00785 | Phenanthrene | 85-01-8 | 280. | 4.0 | | ug/l | 50 |
| 00789 | Anthracene | 120-12-7 | 33. | 0.40 | | ug/l | 10 |
| 00807 | Fluoranthene | 206-44-0 | 120. | 2.0 | | ug/l | 50 |
| 00811 | Pyrene | 129-00-0 | 100. | 1.8 | | ug/l | 10 |
| 00812 | Benzo(a)anthracene | 56-55-3 | 22. | 0.20 | | ug/l | 10 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | 8.3 | 0.40 | | ug/l | 10 |
| 00823 | Benzo(a)pyrene | 50-32-8 | 8.5 | 0.20 | | ug/l | 10 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | 0.81 J | 0.40. | | ug/l | 10 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 4.2 | 0.80 | | ug/l | 10 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 5.0 | | ug/l | 10 |
| 07409 | Chrysene | 218-01-9 | 17. | 0.80 | | ug/l | 10 |



Lancaster Laboratories, Inc.
 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425
 717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4238179

MA3-TG1-3 MA3-TG1-3-180304-3 Groundwater
 180304-01, 04,05 02687.007.006.0001

Moss American

Collected: 03/18/2004 09:30 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Kerr-McGee Corporation

Reported: 04/02/2004 at 14:53

PO Box 3048

Discard: 05/03/2004

Livonia MI 48150

TG1-3 SDG#: KMS53-18

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | Units | Dilution Factor |
|-------------------------------------------------------------------------------------------------------------------|----------------------|------------|--------------------|-------------------------|-------|-----------------|
| | | | | Method | | |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | 4.7 | Detection Limit 0.20 | ug/l | 10 |
| The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample extraction. | | | | | | |

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 an interferent near its retention time, the normal reporting limit was not attained for benzo(g,h,i)perylene. The reporting limit for this compound was raised accordingly.

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Date and Time | Analyst | Dilution Factor |
|---------|--------------------------------|--------------|--------|------------------|--------------------|-----------------|
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 03/22/2004 16:56 | Michelle A Bolton | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 03/20/2004 07:27 | Kyle W Eckenroad | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 03/24/2004 20:10 | Kyle W Eckenroad | 1 |
| 00221 | Ammonia Nitrogen | EPA 350.2 | 1 | 03/24/2004 15:30 | Luz M Groff | 1 |
| 00226 | Ortho-Phosphate as P | EPA 365.3 | 1 | 03/19/2004 19:20 | Daniel S Smith | 1 |
| 00235 | Biochemical Oxygen Demand | EPA 405.1 | 1 | 03/19/2004 22:14 | Nicole R Rohrer | 1 |
| 00273 | Total Organic Carbon | EPA 415.1 | 1 | 03/22/2004 20:01 | Timothy M Petree | 1 |
| 00345 | Total Phosphorus as PO4 water | EPA 365.1 | 1 | 03/23/2004 14:37 | Michelle A Bolton | 1 |
| 01553 | Chemical Oxygen Demand | EPA 410.2 | 1 | 03/29/2004 08:00 | Susan A Engle | 1 |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/24/2004 04:09 | Steven A Skiles | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 13:02 | Mark A Clark | 10 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/29/2004 00:12 | Mark A Clark | 50 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/24/2004 04:09 | Steven A Skiles | n.a. |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 1 | 03/22/2004 12:18 | Choon Y Tian | 1 |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/22/2004 10:45 | Jennytza L Marcano | 1 |
| 08264 | Total Phos as PO4 Prep (water) | EPA 365.1 | 1 | 03/23/2004 10:25 | Cheryl L Robinson | 1 |

2263



Lancaster Laboratories, Inc.
 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425
 717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4238179

MA3-TG1-3 MA3-TG1-3-180304-3 Groundwater

180304-01, 04,05 02687.007.006.0001

Moss American

Collected: 03/18/2004 09:30 by AG

Account Number: 07802

Submitted: 03/19/2004 09:10

Reported: 04/02/2004 at 14:53

Discard: 05/03/2004

Kerr-McGee Corporation

PO Box 3048

Livonia MI 48150

TG1-3 SDG#: KMS53-18

8864



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Case Narrative (continued)
SDG#: KMS53

LAB ORATORY SUBMITTED QC continued:

| <u>LL #'s</u> | <u>Sample Code</u> | <u>Matrix</u> <u>Water</u> | <u>Comments</u> |
|---------------|--------------------|-------------------------------|------------------------|
| 4236597 | 271US | X | Unspiked |
| 4236599 | 271USMS | X | Matrix Spike |
| 4243256 | M110B | X | Unspiked |
| 4243257 | M110BMS | X | Matrix Spike |
| 4243258 | M110BMSD | X | Matrix Spike Dup |
| 079WBLCS | 079WBLCS2 | X | Lab Control Sample |
| 079WBLCS2 | 079WBLCS2 | X | Lab Control Sample Dup |
| 080WCLCS | 080WCLCS2 | X | Lab Control Sample |
| 089WALCS | 089WALCS2 | X | Lab Control Sample |

SAMPLE PREPARATION:

No problems were encountered during the extraction of these samples.

ANALYSIS:

The method used for analysis was SW-846 8310.

All samples were analyzed for polynuclear aromatic hydrocarbons by HPLC.

The QC analyzed with samples on organic extraction batch 04079WAB026 was a method blank, a lab control sample, a lab control sample duplicate, and an unspiked sample with an associated matrix spike sample.

Due to the nature of the sample matrices, TG1-1 and TG1-3 were analyzed at initial 10X dilutions.

Reextraction was required for MW32S due to unacceptable surrogate recoveries.

No other problems were encountered during the analysis of these samples.

5555

Case Narrative (continued)
SDG#: KMS53

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Due to surrogate recoveries outside QC limits, MW32S was reextracted. The reextraction was performed outside the method required holding time and did not confirm the original extraction. Both sets of data are included in this data package.

A number of compound recoveries were outside QC limits in MW33SMS and MW33SMSD. A number of relative percent differences (RPD's) between MW33SMS and MW33SMSD were greater than 30 percent. Refer to the matrix spike/matrix spike duplicate form for the specific recoveries and RPD's outside QC limits.

A number of compound recoveries were outside QC limits in M110BMSD. Refer to the matrix spike/matrix spike duplicate form for the specific recoveries outside QC limits.

The relative percent differences (RPD's) for dibenz(a,h)anthracene and benzo(g,h,i)perylene between 079WBLCSD2 and 079WBLCSD2 were greater than 30 percent.

All other QC was within specifications.

DATA INTERPRETATION:

Only non-conformances for client requested compounds are addressed in this case narrative.

Due to incorrect integrations during the initial processing, manual integrations were performed for the following compounds.

| <u>Sample Code</u> | <u>Compound</u> |
|--------------------|------------------------------------|
| TG1-1 | triphenylene, benzo(g,h,i)perylene |
| TG1-1DL | triphenylene |
| TG1-3 | triphenylene, benzo(g,h,i)perylene |
| TG1-3DL | triphenylene |

Due to missed peaks during the initial processing, manual integrations were performed for the following compounds:

5555

Case Narrative (continued)
SDG#: KMS53

Sample Code/File
04091-03R.d

Compound
indeno(1,2,3-cd)pyrene

Due to the presence of interferences near their retention times, the following compound reporting limits were not met. The reporting limits were adjusted accordingly.

Sample Code
TG1-1
TG1-3

Compound
benzo(g,h,i)perylene
benzo(g,h,i)perylene

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:



Date:

4/12/04

Charles J. Neslund
Group Leader, GC/MS Semivolatiles

8879:

**Kerr-McGee
Moss American site
Milwaukee, Wisconsin**

water samples – BTEX

SDG# KMA54

1. Holding Times:

| <u>Lab ID</u> | <u>Client ID</u> | <u>Sample Date</u> | <u>Analysis Date</u> |
|---------------|------------------|--------------------|----------------------|
| | MA3- | | |
| 4239309 | FB-190304-1 | 3/19/04 | 3/25/04 |
| 4239310 | MW13S-190304-4 | 3/19/04 | 3/25/04 |
| 4239311 | MW34S-190304-1 | 3/19/04 | 3/25/04 |
| 4239312 | MW6S-190304-3 | 3/19/04 | 3/25/04 |
| 4239313 | MW7S-190304-2 | 3/19/04 | 3/25/04 |
| 4239314 | MW9S-190304-2 | 3/19/04 | 3/25/04 |
| 4239315 | TB-190304-1 | 3/19/04 | 3/25/04 |

All samples were analyzed and extracted within the required holding times.

2. Method Blank:

Three method blanks were associated with the BTEX samples (BLK1566, 1567, and 1568). All blanks were free of contamination.

3. Initial and Continuing Calibration:

For the BTEX samples, all initial and continuing calibration criteria appears to have been achieved. No deficiencies were noted in the laboratory narrative.

4. Surrogate Recovery-:

The surrogate recoveries for the BTEX surrogate (TFT) were all within required QC limits.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD):

No MS/MSD was associated with this sample set.

6. Laboratory Control Sample:

All laboratory control sample results were acceptable.

7. Trip Blanks:

All trip blank results were non-detect. All results are acceptable.

8. Field Blanks:

FB-190304 was a field blank. All BTEX results were non-detect. All results are acceptable.

Water Samples – Polynuclear Aromatic Hydrocarbons (PAHs by HPLC)

1. Holding Times:

| <u>Lab ID</u> | <u>Client ID</u> | <u>Sample Date</u> | <u>Extraction Date</u> | <u>Analysis Date</u> |
|---------------|------------------|--------------------|------------------------|----------------------|
| 4239309 | FB-190304-1 | 3/19/04 | 3/23/04 | 3/28/04 |
| 4239310 | MW13S-190304-4 | 3/19/04 | 3/23/04 | 3/28/04 |
| 4239311 | MW34S-190304-1 | 3/19/04 | 3/23/04 | 3/28, 3/29/04 |
| 4239312 | MW6S-190304-3 | 3/19/04 | 3/23/04 | 3/28/04 |
| 4239313 | MW7S-190304-2 | 3/19/04 | 3/23/04 | 3/28, 3/29/04 |
| 4239314 | MW9S-190304-2 | 3/19/04 | 3/23/04 | 3/28/04 |

All samples were analyzed and extracted within the required holding times.

2. Method Blank:

One method blank was associated with the PAH fraction (SBLKWC083). The method blank was free of contamination.

3. Initial and Continuing Calibration:

Calibration results were acceptable.

4. Surrogate Recovery:

All surrogate recoveries were acceptable.

5. Matrix Spike/Matrix Spike Duplicate:

A MS/MSD was not associated with this sample set.

6. Laboratory Control Sample:

The LCS recovery was within required control limits.

7. Field Blanks:

FB-190304-1 is a field blank. All PAH results were non-detect. All results are acceptable.

Data reviewed by: T. Balla

Date: 5/27/04

7802

889151

4239309-15

COC ID: 180304-02

Chain of Custody Record

Page 1 of 1

Client **Kerr McGee**
 Site Name **Moss American**
 W. O. **02687.007.008.0001**
 Lab **LANCASTER LABS**
 TAT **Per Quote**

Contact Name **Tom Gran**
 Contact Phone No. **847-918-4142**
 Lab Contact **C. SWEIGART**
 Lab Phone **717-858-2308 X1527**

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | SW846 8021B- RTEX | SW846 8021B- RTEX | SW846 8310- PARIS | | | | | | | | | | | | |
|--------|--------------------|--------|-----|--------|---------------------|---------------------------------|----------------------|----------------------|---------------|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | Filtered Container Preservative | 40 ml Vials HCl | 40 ml Vials HCl | 1-L Amber N/A | | | | | | | | | | | |
| | MA3-FB-190304-1 | G | | N | 3/19/2004 08:30 | X | X | | | | | | | | | | | | | |
| | MA3-MW31S-190304-4 | G | | N | 3/19/2004 10:45 | X | X | | | | | | | | | | | | | |
| | MA3-MW34S-190304-1 | G | | N | 3/19/2004 09:10 | X | X | | | | | | | | | | | | | |
| | MA3-MW6S-190304-3 | G | | N | 3/19/2004 10:35 | X | X | | | | | | | | | | | | | |
| | MA3-MW7S-190304-2 | G | | N | 3/19/2004 09:20 | X | X | | | | | | | | | | | | | |
| | MA3-MW9S-190304-5 | G | | N | 3/19/2004 12:50 | X | X | X | | | | | | | | | | | | |
| | MA3-TB-190304-1 | G | | N | 3/19/2004 07:30 | X | X | | | | | | | | | | | | | |

Remarks/Comments

Lab Use Only

Temp of Cooler when Received, C

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| | | X | | |

COC Tape was present on outer package Y N

COC Tape was unbroken on outer package Y N

COC Tape was present on sample Y N

COC Tape was unbroken on sample Y N N/A

Received in good condition Y N

Labels indicate Property Preserved Y N

Received within Holding Time Y N

| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time |
|--------------------|--------------|-------------|-------------|-----------------|-------------|-------------|-------------|
| <i>[Signature]</i> | 3/19/04 1400 | | | | | | |
| | | | | | | | |

Sampled By

[Signature]

[Signature] 3/22/04 0945

7802

889151

4239309-15

COC ID: 190304-01

Chain of Custody Record

Client **Kerr McGee**
 Site Name **Moss American** Contact Name **Tom Graan**
 W. O. **02687.007.008.0001** Contact Phone No. **847-918-4142**
 Lab **LANCASTER LABS** Lab Contact **C. SWEIGART**
 TAT **Per Quote** Lab Phone **717-858-2308 X1627**

| | | | | | | | | | | | | | | | | | | | |
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| SWEIGART PAHS | | | | | | | | | | | | | | | | | | | |
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Filtered
 Container
 Preservative

1-L Amber
 N/A

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | | | | | | | | | | | | | | |
|--------|--------------------|--------|-----|--------|---------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | MA3-FB-190304-1 | G | | N | 3/19/2004 08:30 | X | | | | | | | | | | | | | |
| | MA3-MW31S-190304-4 | G | | N | 3/19/2004 10:45 | X | | | | | | | | | | | | | |
| | MA3-MW34S-190304-1 | G | | N | 3/19/2004 09:10 | X | | | | | | | | | | | | | |
| | MA3-MW6S-190304-3 | G | | N | 3/19/2004 10:35 | X | | | | | | | | | | | | | |
| | MA3-MW7S-190304-2 | G | | N | 3/19/2004 09:20 | X | | | | | | | | | | | | | |
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Remarks/Comments

Sampled By *[Signature]*

Lab Use Only

Temp of Cooler when Received, C
 1 2 3 X 4 5

COC Tape was present on outer package Y N
 COC Tape was unbroken on outer package Y N
 COC Tape was present on sample Y N
 COC Tape was unbroken on sample Y NNA

Received in good condition Y N
 Labels indicate Property Preserved Y N
 Received within Holding Time Y N

| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time |
|--------------------|--------------|-------------|-------------|-----------------|-------------|-------------|-------------|
| <i>[Signature]</i> | 3/19/04 1300 | | | | | | |
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| | | | | | | | |

[Signature] 3/22/04 0745



ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

734-367-7900

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 889151. Samples arrived at the laboratory on Monday, March 22, 2004. The PO# for this group is ZAKWIKKEOK0A90089.

| <u>Client Description</u> | <u>Lancaster Labs Number</u> |
|------------------------------------------|------------------------------|
| MA3-FB MA3-FB-190304-1 Groundwater | 4239309 |
| MA3-MW31S MA3-MW31S-190304-4 Groundwater | 4239310 |
| MA3-MW34S MA3-MW34S-190304-1 Groundwater | 4239311 |
| MA3-MW6S MA3-MW6S-190304-3 Groundwater | 4239312 |
| MA3-MW7S MA3-MW7S-190304-2 Groundwater | 4239313 |
| MA3-MW9S MA3-MW9S-190304-5 Groundwater | 4239314 |
| MA3-TB MA3-TB-190304-1 Groundwater | 4239315 |

METHODOLOGY

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

1 COPY TO
1 COPY TO
1 COPY TO

Kerr-McGee Corporation
Weston Solutions, Inc.
Data Package Group

Attn: Dr. Jeff Ostmeyer
Attn: Mr. Tom Graan

5886



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Questions? Contact your Client Services Representative
Carrie A Fleming at (717) 656-2300.

Respectfully Submitted,

A handwritten signature in cursive script that reads "Tina L. Thoman".

Tina L. Thoman
Senior Chemist/Coordinator

2587



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4239309

MA3-FB MA3-FB-190304-1 Groundwater
 190304-01,02 02687.007.006.0001

Moss American

Collected: 03/19/2004 08:30 by AG Account Number: 07802

Submitted: 03/22/2004 09:45
 Reported: 03/29/2004 at 15:08
 Discard: 04/29/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

MFB19 SDG#: KMA54-01FB

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.079 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.039 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.039 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.039 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.039 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.079 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.099 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.079 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|------------------------|--------------|--------|------------------------|------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/25/2004 01:15 | Michael F Barrow | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 18:11 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/25/2004 01:15 | Michael F Barrow | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/23/2004 17:00 | Elia R Botrous | 1 |



Lancaster Laboratories Sample No. WW 4239309

MA3-FB MA3-FB-190304-1 Groundwater
190304-01,02 02687.007.006.0001

Moss American

Collected: 03/19/2004 08:30 by AG

Account Number: 07802

Submitted: 03/22/2004 09:45
Reported: 03/29/2004 at 15:08
Discard: 04/29/2004

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

MFB19 SDG#: KMA54-01FB

8889



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 4239310

MA3-MW31S MA3-MW31S-190304-4 Groundwater
 190304-01,02 02687.007.006.0001

Moss American

Collected: 03/19/2004 10:45 by AG

Account Number: 07802

Submitted: 03/22/2004 09:45
 Reported: 03/29/2004 at 15:08
 Discard: 04/29/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

MW31S SDG#: KMA54-02

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.5 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.7 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.7 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.19 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.085 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.043 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.043 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.19 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.021 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.043 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.021 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.043 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.085 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.11 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.085 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.021 | ug/l | 1 |

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|---------------|--------------|--------|------------------------|------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/25/2004 04:06 | Michael F Barrow | 1 |



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Lancaster Laboratories Sample No. WW 4239310

MA3-MW31S MA3-MW31S-190304-4 Groundwater
190304-01,02 02687.007.006.0001

Moss American

Collected: 03/19/2004 10:45 by AG

Account Number: 07802

Submitted: 03/22/2004 09:45

Kerr-McGee Corporation

Reported: 03/29/2004 at 15:08

PO Box 3048

Discard: 04/29/2004

Livonia MI 48150

MW31S SDG#: KMA54-02

00774 PAH's in Water by HPLC

SW-846 8310

1 03/28/2004 18:49

Mark A Clark

1

01146 GC VOA Water Prep

SW-846 5030B

1 03/25/2004 04:06

Michael F Barrow

n.a.

03337 PAH Water Extraction

SW-846 3510C

1 03/23/2004 17:00

Elia R Botrous

1

0011



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Lancaster Laboratories Sample No. WW 4239311

MA3-MW34S MA3-MW34S-190304-1 Groundwater
 190304-01,02 02687.007.006.0001

Moss American

Collected: 03/19/2004 09:10 by AG

Account Number: 07802

Submitted: 03/22/2004 09:45
 Reported: 03/29/2004 at 15:08
 Discard: 04/29/2004

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 PO Box 3048
 Livonia MI 48150

MW34S SDG#: KMA54-03

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | 5.7 J | 4.0 | ug/l | 20 |
| 00777 | Toluene | 108-88-3 | N.D. | 4.0 | ug/l | 20 |
| 00778 | Ethylbenzene | 100-41-4 | 26. | 4.0 | ug/l | 20 |
| 00779 | Total Xylenes | 1330-20-7 | 77. | 12. | ug/l | 20 |
| The reporting limits were raised because sample dilution was necessary to bring non-target compounds into the calibration range of the system. | | | | | | |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | 7,400. | 300. | ug/l | 200 |
| 00782 | Acenaphthylene | 208-96-8 | 110. J | 17. | ug/l | 10 |
| 00783 | Acenaphthene | 83-32-9 | 750. | 17. | ug/l | 10 |
| 00784 | Fluorene | 86-73-7 | 470. | 39. | ug/l | 200 |
| 00785 | Phenanthrene | 85-01-8 | 1,200. | 17. | ug/l | 200 |
| 00789 | Anthracene | 120-12-7 | 130. | 8.6 | ug/l | 200 |
| 00807 | Fluoranthene | 206-44-0 | 490. | 8.6 | ug/l | 200 |
| 00811 | Pyrene | 129-00-0 | 380. | 1.9 | ug/l | 10 |
| 00812 | Benzo(a)anthracene | 56-55-3 | 79. | 4.3 | ug/l | 200 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | 29. | 0.43 | ug/l | 10 |
| 00823 | Benzo(a)pyrene | 50-32-8 | 29. | 0.22 | ug/l | 10 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | 2.2 | 0.43 | ug/l | 10 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 14. | 0.86 | ug/l | 10 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 20. | ug/l | 10 |
| 07409 | Chrysene | 218-01-9 | 56. | 0.86 | ug/l | 10 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | 16. | 0.22 | ug/l | 10 |

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample extraction.

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 nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

9912



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Lancaster Laboratories Sample No. WW 4239311

MA3-MW34S MA3-MW34S-190304-1 Groundwater
 190304-01,02 02687.007.006.0001

Moss American

Collected: 03/19/2004 09:10 by AG

Account Number: 07802

Submitted: 03/22/2004 09:45

Kerr-McGee Corporation

Reported: 03/29/2004 at 15:08

PO Box 3048

Discard: 04/29/2004

Livonia MI 48150

MW34S SDG#: KMA54-03

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|---------------|------------|--------------------|------------------------------------|-------|-----------------|
|---------|---------------|------------|--------------------|------------------------------------|-------|-----------------|

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for benzo(g,h,i)perylene. The reporting limit for this compound was raised accordingly.

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|------------------------|--------------|----------|------------------|------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/25/2004 04:46 | Michael F Barrow | 20 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 22:05 | Mark A Clark | 10 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/29/2004 01:37 | Mark A Clark | 200 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/25/2004 04:46 | Michael F Barrow | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/23/2004 17:00 | Elia R Botrous | 1 |

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Lancaster Laboratories Sample No. **WW 4239312**

MA3-MW6S MA3-MW6S-190304-3 Groundwater
190304-01,02 02687.007.006.0001

Moss American

Collected: 03/19/2004 10:35 by AG

Account Number: 07802

Submitted: 03/22/2004 09:45
 Reported: 03/29/2004 at 15:09
 Discard: 04/29/2004

Kerr-McGee Corporation
 PO Box 3048
 Livonia MI 48150

MW-6S SDG#: KMA54-04

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received | | Dilution Factor |
|---------|------------------------|------------|--------------------|-------------|-----------------|-----------------|
| | | | | Method | Detection Limit | |
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.079 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.040 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.040 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.040 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.040 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.079 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.099 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.079 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Analysis | | Analyst | Dilution Factor |
|---------|------------------------|--------------|----------|------------------|------------------|-----------------|
| | | | Trial# | Date and Time | | |
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/25/2004 08:23 | Michael F Barrow | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 19:28 | Mark A Clark | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/25/2004 08:23 | Michael F Barrow | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/23/2004 17:00 | Elia R Botrous | 1 |



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Lancaster Laboratories Sample No. WW 4239312

MA3-MW6S MA3-MW6S-190304-3 Groundwater
190304-01,02 02687.007.006.0001

Moss American

Collected: 03/19/2004 10:35 by AG

Account Number: 07802

Submitted: 03/22/2004 09:45

Reported: 03/29/2004 at 15:09

Discard: 04/29/2004

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MW-6S SDG#: KMA54-04

0815



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Lancaster Laboratories Sample No. WW 4239313

MA3-MW7S MA3-MW7S-190304-2 Groundwater
 190304-01,02 02687.007.006.0001

Moss American

Collected: 03/19/2004 09:20 by AG

Account Number: 07802

Submitted: 03/22/2004 09:45
 Reported: 03/29/2004 at 15:09
 Discard: 04/29/2004

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MW-7S SDG#: KMA54-05

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 4.0 | ug/l | 20 |
| 00777 | Toluene | 108-88-3 | N.D. | 4.0 | ug/l | 20 |
| 00778 | Ethylbenzene | 100-41-4 | 16. J | 4.0 | ug/l | 20 |
| 00779 | Total Xylenes | 1330-20-7 | 37. J | 12. | ug/l | 20 |
| The reporting limits were raised because sample dilution was necessary to bring non-target compounds into the calibration range of the system. | | | | | | |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | 2,500. | 27. | ug/l | 20 |
| 00782 | Acenaphthylene | 208-96-8 | 46. | 1.5 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | 45. | 1.5 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | 7.0 | 0.17 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.077 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.038 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.038 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.17 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.019 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.038 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.019 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.038 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.077 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.096 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.077 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.019 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|---------------|--------------|--------|------------------------|------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/25/2004 06:06 | Michael F Barrow | 20 |



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Lancaster Laboratories Sample No. WW 4239313

MA3-MW7S MA3-MW7S-190304-2 Groundwater

190304-01,02 02687.007.006.0001

Moss American

Collected: 03/19/2004 09:20 by AG

Account Number: 07802

Submitted: 03/22/2004 09:45

Reported: 03/29/2004 at 15:09

Discard: 04/29/2004

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| | | | | | | |
|-------|------------------------|--------------|---|------------------|------------------|------|
| MW-7S | SDG#: KMA54-05 | | | | | |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 20:06 | Mark A Clark | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/29/2004 00:54 | Mark A Clark | 20 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/25/2004 06:06 | Michael F Barrow | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/23/2004 17:00 | Elia R Botrous | 1 |

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Lancaster Laboratories Sample No. WW 4239314

MA3-MW9S MA3-MW9S-190304-5 Groundwater
 190304-02 02687.007.006.0001

Moss American

Collected: 03/19/2004 12:50 by AG

Account Number: 07802

Submitted: 03/22/2004 09:45
 Reported: 03/29/2004 at 15:09
 Discard: 04/29/2004

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 PO Box 3048
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MW-9S SDG#: KMA54-06

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|------------------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |
| 00774 | PAH's in Water by HPLC | | | | | |
| 00775 | Naphthalene | 91-20-3 | N.D. | 1.4 | ug/l | 1 |
| 00782 | Acenaphthylene | 208-96-8 | N.D. | 1.6 | ug/l | 1 |
| 00783 | Acenaphthene | 83-32-9 | N.D. | 1.6 | ug/l | 1 |
| 00784 | Fluorene | 86-73-7 | N.D. | 0.18 | ug/l | 1 |
| 00785 | Phenanthrene | 85-01-8 | N.D. | 0.081 | ug/l | 1 |
| 00789 | Anthracene | 120-12-7 | N.D. | 0.040 | ug/l | 1 |
| 00807 | Fluoranthene | 206-44-0 | N.D. | 0.040 | ug/l | 1 |
| 00811 | Pyrene | 129-00-0 | N.D. | 0.18 | ug/l | 1 |
| 00812 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.020 | ug/l | 1 |
| 00818 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.040 | ug/l | 1 |
| 00823 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.020 | ug/l | 1 |
| 00895 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.040 | ug/l | 1 |
| 00898 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.081 | ug/l | 1 |
| 00907 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.10 | ug/l | 1 |
| 07409 | Chrysene | 218-01-9 | N.D. | 0.081 | ug/l | 1 |
| 07410 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.020 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|------------------------|--------------|--------|------------------------|------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/25/2004 06:46 | Michael F Barrow | 1 |
| 00774 | PAH's in Water by HPLC | SW-846 8310 | 1 | 03/28/2004 21:23 | Mark A Claiborne | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/25/2004 06:46 | Michael F Barrow | n.a. |
| 03337 | PAH Water Extraction | SW-846 3510C | 1 | 03/23/2004 17:00 | Elia R Botrous | 1 |



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Lancaster Laboratories Sample No. WW 4239314

MA3-MW9S MA3-MW9S-190304-5 Groundwater
190304-02 02687.007.006.0001

Moss American

Collected: 03/19/2004 12:50 by AG

Account Number: 07802

Submitted: 03/22/2004 09:45

Reported: 03/29/2004 at 15:09

Discard: 04/29/2004

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MW-9S SDG#: KMA54-06

0013



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Lancaster Laboratories Sample No. WW 4239315

MA3-TB MA3-TB-190304-1 Groundwater

190304-02 02687.007.006.0001

Moss American

Collected: 03/19/2004 07:30 by AG

Account Number: 07802

Submitted: 03/22/2004 09:45

Reported: 03/29/2004 at 15:09

Discard: 04/29/2004

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MTB19 SDG#: KMA54-07TB

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Units | Dilution Factor |
|---------|---------------|------------|--------------------|------------------------------------|-------|-----------------|
| 08213 | BTEX (8021) | | | | | |
| 00776 | Benzene | 71-43-2 | N.D. | 0.2 | ug/l | 1 |
| 00777 | Toluene | 108-88-3 | N.D. | 0.2 | ug/l | 1 |
| 00778 | Ethylbenzene | 100-41-4 | N.D. | 0.2 | ug/l | 1 |
| 00779 | Total Xylenes | 1330-20-7 | N.D. | 0.6 | ug/l | 1 |

Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|-------------------|--------------|--------|------------------------|------------------|-----------------|
| 08213 | BTEX (8021) | SW-846 8021B | 1 | 03/25/2004 00:36 | Michael F Barrow | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 03/25/2004 00:36 | Michael F Barrow | n.a. |

8828



Lancaster Laboratories, Inc.
2425 New Holland Pike
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Case Narrative
Client: Kerr-McGee Corporation
SDG: KMA54

LANCASTER LABORATORIES
PAH by HPLC

SAMPLE NUMBER(S) :

| <u>LL #'s</u> | <u>Sample Code</u> | <u>Matrix</u> <u>Water</u> | <u>Comments</u> |
|---------------------------------|--------------------|-------------------------------|------------------------|
| 4239309 | MFB19 | X | Client Blank |
| 4239310 | MW31S | X | |
| 4239311 | MW34S | X | 10X Dilution |
| 4239311DL | MW34SDL | X | 200X Dilution |
| 4239312 | MW-6S | X | |
| 4239313 | MW-7S | X | |
| 4239313DL | MW-7SDL | X | 20X Dilution |
| 4239314 | MW-9S | X | |
| LABORATORY SUBMITTED QC: | | | |
| SBLKWC083 | SBLKWC0832 | X | Method Blank |
| 083WCLCS | 083WCLCS2 | X | Lab Control Sample |
| 083WCLCSD | 083WCLCSD2 | X | Lab Control Sample Dup |

SAMPLE PREPARATION:

Due to the nature of the sample matrix, only 937 mls and 927 mls were used in the extractions of MW31S and MW34S, respectively.

No other problems were encountered during the extraction of these samples.

ANALYSIS:

The method used for analysis was SW-846 8310.

8823

Case Narrative (continued)
SDG#: KMA54

All samples were analyzed for polynuclear aromatic hydrocarbons by HPLC.

Sufficient sample volume was not available to perform a MS/MSD for the analysis of these samples. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

MW34S was analyzed at an initial 10X dilution due to the nature of the sample matrix.

No other problems were encountered during the analysis of these samples.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC was within specifications.

DATA INTERPRETATION:

Only non-conformances for client requested compounds are addressed in this case narrative.

Due to incorrect integrations during the initial processing, manual integrations were performed for the following compounds.

| <u>Sample Code</u> | <u>Compound</u> |
|--------------------|--------------------------------------------------|
| MW34S | fluoranthene, triphenylene, benzo(g,h,i)perylene |
| MW34SDL | triphenylene |

Due to the presence of interferents near their retention times, the following compound reporting limits were not met. The reporting limits were adjusted accordingly.

| <u>Sample Code</u> | <u>Compound</u> |
|--------------------|-----------------------|
| MW34S | benzo(g,h,i,)perylene |

No further interpretation is necessary for the data submitted.

8824



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Where quality is a science.

3

**Case Narrative (continued)
SDG#: KMA54**

Case Narrative Reviewed and Approved by:



Date: 4/12/84

**Charles J. Neslund
Group Leader, GC/MS Semivolatiles**

8825



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CHEMISTRY · MICROBIOLOGY · FOOD SAFETY · CONSUMER PRODUCTS
WATER · AIR · WASTES · FOOD · PHARMACEUTICALS · NUTRACEUTICALS

CERTIFICATE OF ANALYSIS

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

Date Reported 4/22/2004
Date Received 3/19/2004
Order Number 0403-00277
Invoice No. 32528
Cust # R017
Sample Date 3/18/2004
Sample Time 18:30
Cust P.O. 0018581

mit No.

Subject: Moss America

Test Result Date Tech Method

MA3-TG1-1-180304-1-3/18/04 @ 09:10 BY CLIENT

Total Aerobic Bacteria 780. cfu/ml 4/16/2004 NMC 9215B MODIFIED
Aerobic Degradable Bacteria <10. cfu/ml 4/16/2004 NMC 9215B MODIFIED

MA3-TG1-2-180304-2-3/18/04 @ 09:20 BY CLIENT

Total Aerobic Bacteria 1,190. cfu/ml 4/16/2004 NMC 9215B MODIFIED
Aerobic Degradable Bacteria <10. cfu/ml 4/16/2004 NMC 9215B MODIFIED

MA3-TG1-3-180304-3-3/18/04 @ 09:30 BY CLIENT

Total Aerobic Bacteria 2,100. cfu/ml 4/16/2004 NMC 9215B MODIFIED
Aerobic Degradable Bacteria <10. cfu/ml 4/16/2004 NMC 9215B MODIFIED

This Document has been reviewed and is electronically signed by:
Karen A. Ziolkowski, Laboratory Manager





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CERTIFICATE OF ANALYSIS

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

Date Reported 4/22/2004
 Date Received 3/18/2004
 Order Number 0403-00267
 Invoice No. 32527
 Cust # R017
 Sample Date 3/17/2004
 Sample Time 15:00
 Cust.P.O. 0018581

Permit No.

Subject: Moss America

| Test | Result | Date | Tech | Method |
|--------------------------------------------------|---------------|-----------|------|----------------|
| MA3-TG2-1-170304-7, 3/17/04 @ 15:00 BY AG | | | | |
| Total Aerobic Bacteria | 390. cfu/ml | 4/16/2004 | NMC | 9215B MODIFIED |
| Aerobic Degradar Bacteria | <10. cfu/ml | 4/16/2004 | NMC | 9215B MODIFIED |
| MA3-TG2-2-170304-8, 3/17/04 @ 15:10 BY AG | | | | |
| Total Aerobic Bacteria | 580. cfu/ml | 4/16/2004 | NMC | 9215B MODIFIED |
| Aerobic Degradar Bacteria | <10. cfu/ml | 4/16/2004 | NMC | 9215B MODIFIED |
| MA3-TG2-3-170304-9, 3/17/04 @ 15:20 BY AG | | | | |
| Total Aerobic Bacteria | 1,410. cfu/ml | 4/16/2004 | NMC | 9215B MODIFIED |
| Aerobic Degradar Bacteria | <10. cfu/ml | 4/16/2004 | NMC | 9215B MODIFIED |
| MA3-TG3-1-170304-4, 3/17/04 @ 11:00 BY AG | | | | |
| Total Aerobic Bacteria | 1,730. cfu/ml | 4/16/2004 | NMC | 9215B MODIFIED |
| Aerobic Degradar Bacteria | <10. cfu/ml | 4/16/2004 | NMC | 9215B MODIFIED |
| MA3-TG3-2-170304-5, 3/17/04 @ 11:10 BY AG | | | | |
| Total Aerobic Bacteria | 1,530. cfu/ml | 4/16/2004 | NMC | 9215B MODIFIED |
| Aerobic Degradar Bacteria | <10. cfu/ml | 4/16/2004 | NMC | 9215B MODIFIED |
| MA3-TG3-3-170304-6, 3/17/04 @ 11:20 BY AG | | | | |



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Tom Graam
750 East Bunker Court
Suite 500
Vernon Hills, IL 60061-1450

Date Reported 4/22/2004
Date Received 3/18/2004
Order Number 0403-00267
Invoice No. 32527
Cust # R017
Sample Date 3/17/2004
Sample Time 15:00
Cust P.O. 0018581

Permit No.

Subject: Moss America

Table with 5 columns: Test, Result, Date, Tech, Method. Contains three sections of test results for MA3-TG3-3-170304-6, MA3-TG4-1-170304-1, MA3-TG4-2-170304-2, and MA3-TG4-3-170304-3.

This Document has been reviewed and is electronically signed by:
Karen A. Ziolkowski, Laboratory Manager

COC ID: 170304-MB

Chain of Custody Record

VENUE

Client **Kerr McGee**

Site Name **Moss American**

W. O. **02687.007.006.0001**

Lab **MICROBAC**

TAT **Per Quote**

Contact Name **Tom Graan**

Contact Phone No. **847-918-4142**

Lab Contact **K. ZIOLKOWSKI**

Lab Phone **219-932-1770**

Microbial
Enumeration

Filtered
Container
Preservative

100 ml Plastic
N/A

| Lab ID | Sample ID | Matrix | PID | MS/MSD | Date-Time Collected | Filtered Container Preservative | Microbial Enumeration | | | | | | | | | | | |
|--------|--------------------|--------|-----|--------|---------------------|---------------------------------|-----------------------|--|--|--|--|--|--|--|--|--|--|--|
| | MA3-TG2-1-170304-7 | G | | N | 3/17/2004 15:00 | | X | | | | | | | | | | | |
| | MA3-TG2-2-170304-8 | G | | N | 3/17/2004 15:10 | | X | | | | | | | | | | | |
| | MA3-TG2-3-170304-9 | G | | N | 3/17/2004 15:20 | | X | | | | | | | | | | | |
| | MA3-TG3-1-170304-4 | G | | N | 3/17/2004 11:00 | | X | | | | | | | | | | | |
| | MA3-TG3-2-170304-5 | G | | N | 3/17/2004 11:10 | | X | | | | | | | | | | | |
| | MA3-TG3-3-170304-6 | G | | N | 3/17/2004 11:20 | | X | | | | | | | | | | | |
| | MA3-TG4-1-170304-1 | G | | N | 3/17/2004 09:10 | | X | | | | | | | | | | | |
| | MA3-TG4-2-170304-2 | G | | N | 3/17/2004 09:20 | | X | | | | | | | | | | | |
| | MA3-TG4-3-170304-3 | G | | N | 3/17/2004 09:30 | | X | | | | | | | | | | | |

Remarks/Comments

Lab Use Only

COC Tape was present on outer package Y N

Received in good condition Y N

Temp of Cooler when Received, C

COC Tape was unbroken on outer package Y N

Labels indicate Property Preserved Y N

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

COC Tape was present on sample Y N

Received within Holding Time Y N

COC Tape was unbroken on sample Y N

| Relinquished By | Date / Time | Received By | Date / Time | Relinquished By | Date / Time | Received By | Date / Time |
|-----------------|--------------|-------------|-------------|-----------------|-------------|-------------|--------------|
| <i>Alex Sh</i> | 3/17/04 1800 | | | | | <i>CD</i> | 3/18/04 9:45 |
| | | | | | | | |
| | | | | | | | |

Sampled By

Alex Sh



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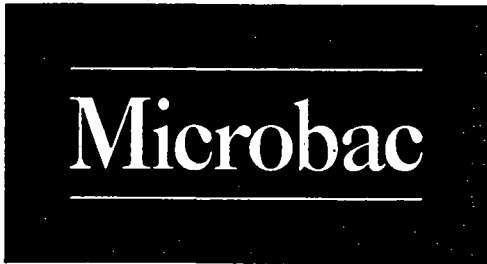
Date Reported 4/22/2004
Date Received 3/17/2004
Order Number 0403-00234
Invoice No. 32526
Cust # R017
Sample Date 3/16/2004
Sample Time 16:30
Cust P.O. 0018581

Permit No.

Subject: Moss America

Table with 5 columns: Test, Result, Date, Tech, Method. Contains 6 test entries (001-006) for MA3-TG5 and MA3-TG6 series, listing bacterial counts and methods.





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Date Reported 4/22/2004
Date Received 3/17/2004
Order Number 0403-00234
Invoice No. 32526
Cust # R017
Sample Date 3/16/2004
Sample Time 16:30
Cust P.O. 0018581

Permit No.

Subject: Moss America

| Test | Result | Date | Tech | Method |
|--------------------------------------------------|---------------|-----------|------|----------------|
| MAS-TG6-3-160304-5, 3/16/04 @ 12:30 BY AG | | | | |
| Total Aerobic Bacteria | 1,940. cfu/ml | 4/16/2004 | NMC | 9215B MODIFIED |
| Aerobic Degradable Bacteria | 20. cfu/ml | 4/16/2004 | NMC | 9215B MODIFIED |

This Document has been reviewed and is electronically signed by:
Karen A. Ziolkowski, Laboratory Manager

