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10 July 2002



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U. S. Environmental Protection Agency
Region V
77 West Jackson Boulevard
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WESTON Work Order No.: 02687.007.003
KMC Work Order No.: 40-50-01-AKW-B

Re: Quarterly Groundwater Treatment Performance Monitoring Report, Q1 2002
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) 2002 groundwater monitoring event for the above-referenced project. In addition, results are presented for the monthly groundwater sampling conducted in January, February, and March 2002 for the treatment performance monitoring of the funnel-and-gate groundwater remedial system. A description of the groundwater monitoring program and the results obtained during this monitoring period are presented in the following sections. Also included is a discussion of the laboratory analytical results that exceeded the Preventive Action Limits (PALs) and Enforcement Standards (ESs) promulgated by Wisconsin Department of Natural Resources (WDNR) in NR140.10, entitled "Public Health Groundwater Quality Standards."

The groundwater analytical results reported for Q1 2002 (January through March) reflect conditions at the site where the funnel and gate groundwater treatment system, including the containment-performance wells and treatment performance wells, are in place. This quarterly groundwater monitoring report presents the results of the shallow and intermediate plume monitoring wells, the eight shallow containment performance wells, and the 18 treatment performance wells.

1 BACKGROUND

In accordance with paragraph 4a of the Remedial Design/Remedial Action Statement of Work (RD/RA SOW), KMC is required to implement a groundwater monitoring program capable of detecting changes in chemical concentrations in the groundwater. As previously agreed, the monitoring network includes 13 shallow groundwater monitoring wells (MW-3S, MW-5S, MW-6S, MW-7S, MW-9S, MW-10S, MW-13S, MW-20S, MW-25S, MW-26S, MW-27S, MW-28S, and MW-29S) and four intermediate groundwater monitoring wells (MW-3I, MW-7I, MW-9I, and MW-20I). The locations of all existing shallow and intermediate groundwater monitoring

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wells included in the sampling program are indicated on Figure 1A. Some wells that were previously a part of the groundwater monitoring network have been removed to facilitate soil remediation activities. Wells TW-09, MW-8S, and MW-8I were removed during excavation activities and installation of the funnel and gate groundwater treatment system in 1999. In addition, wells MW-4S and MW-4I were removed during early Q3 2001 and well TW-05 was removed during early Q4 2001. The shallow groundwater monitoring wells are sampled on a quarterly basis, and the intermediate groundwater monitoring wells are sampled on a semiannual basis, corresponding with the Q1 and Q3 sampling events. Additionally, the quarterly groundwater monitoring program includes sampling of the eight newly installed 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.

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. Also, 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 well locations are indicated on Figure 1A. 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.

In accordance with paragraph 4a (i) of the RD/RA SOW, the quarterly field measurement and analysis of groundwater samples collected from the shallow, intermediate, 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 monthly field measurements for samples collected from the treatment performance monitoring wells include groundwater elevation, pH, temperature, specific conductance, redox potential, and DO. Quarterly laboratory analyses required for the treatment performance wells include microbial enumeration, nitrate-nitrogen (NO₃-N), nitrite-nitrogen (NO₂-N), total Kjeldahl nitrogen (TKN),



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ammonia-nitrogen ($\text{NH}_3\text{-N}$), total phosphate-phosphorous ($\text{PO}_4\text{-P}$), and orthophosphate (ORP) on a monthly basis. Additionally, laboratory analyses include biochemical oxygen demand (BOD), chemical oxygen demand (COD), total organic carbon (TOC), BTEX, and the PAHs indicated in the above paragraph on a quarterly basis.

2 GROUNDWATER MONITORING RESULTS

The Q1 2002 groundwater monitoring event at the Moss-American site was completed between 18 March and 9 April 2002. The Q1 2002 groundwater remedial system treatment performance monitoring sampling includes data obtained during 30 to 31 January 2002, 28 February to 01 March 2002, and 18 March to 9 April 2002. Well MW-26S was sampled on 9 April 2002, approximately 2 weeks after the other wells were sampled, because the well could not be located due to site conditions during March 2002. Tasks completed during the field effort for this event included the collection of groundwater elevation and dissolved oxygen 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, intermediate, and containment and performance groundwater monitoring wells. The results of the groundwater samples that were collected and analyzed from the shallow wells are described in the following subsections.

2.1 Groundwater Elevation Measurements

The depth to water was measured in each of the treatment performance monitoring wells on 18 March 2002, and in the shallow groundwater monitoring and containment performance monitoring wells on 20 March 2002, prior to the beginning of groundwater sampling. Depth to groundwater was not measured in MW-20S due to the damaged well casing nor in MW-26S due to freezing conditions. In addition, the depth to groundwater was measured on a monthly basis in each treatment performance monitoring well prior to sample collection. 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 resulting elevations are presented in Table 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. The January and February 2002 groundwater elevation data for the treatment performance monitoring wells is available upon request. Figure 1A presents a groundwater elevation contour map that shows the potentiometric surface within the shallow groundwater-bearing zone based on the March 2002 data. An evaluation of these results is presented below.



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As shown in Figure 1A, the groundwater within the shallow groundwater-bearing zone generally flows northeastward toward the Little Menomonee River (LMR). In the topographically higher (western) portion of the site, the horizontal hydraulic gradient is relatively steep, at approximately 0.05 feet per foot (ft/ft) to the northeast. The topography of the site levels out near the river, as does the potentiometric surface, with an eastward hydraulic gradient of approximately 0.007 ft/ft. The estimated hydraulic gradients within the treatment gates ranged from -0.0048 to 0.0302 ft/ft (Table 2). The hydraulic gradient is relatively flat within the treatment gate area, with an overall hydraulic gradient from TG1 to TG6 of approximately 0.002 ft/ft, in an easterly direction. It should also be noted that due to the low hydraulic gradient in the vicinity of the treatment gates, the calculated hydraulic gradients through TG3, TG4, and TG6 are westward, contrary to the overall groundwater flow direction at the site. The apparently reversed hydraulic gradients at TG3, TG4, and TG6 are likely a result of error in measuring the depth to groundwater due to equipment limitations.

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

$$v = Ki/e$$

where:

v = groundwater velocity

K = hydraulic conductivity (also referred to as the coefficient of permeability)

i = hydraulic gradient

e = 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 (2.8 ft/day). Using a hydraulic gradient of 0.05 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 0.005 ft/day. Near the river, using a hydraulic gradient of 0.007 ft/ft, a porosity of 0.3, and a hydraulic conductivity of 2.8 ft/day, the velocity of groundwater flow is calculated to be approximately 0.07 ft/day. The groundwater flow velocities within the treatment gates are estimated to range from 0.051 ft/day to 0.2854 ft/day (excluding the erratic data for TG3, TG4, and TG6). The groundwater flow velocity through each treatment gate is presented in Table 2.



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2.2 Groundwater Sample Analytical Results

Groundwater samples were collected from a total of 39 shallow monitoring wells screened within the shallow groundwater-bearing unit. The shallow wells sampled include: 13 shallow groundwater monitoring wells included in the original quarterly groundwater monitoring program (MW-3S, MW-5S, MW-6S, MW-7S, MW-9S, MW-10S, MW-13S, MW-20S, MW-25S, MW-26S, 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). The intermediate groundwater monitoring wells sampled include MW-3I, MW-7I, MW-9I, and MW-20I.

In addition to the investigative groundwater samples collected, five sample duplicate, three matrix spike/matrix spike duplicate (MS/MSD), and five field blank (identified by a FB prefix) samples were collected for quality assurance/quality control (QA/QC) purposes. Trip blanks accompanied each cooler of sample containers from the laboratory to the site and were shipped back to the laboratory within each cooler containing 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, dissolved oxygen, and turbidity. The field parameters were collected using portable water quality meters. Due to the presence of free product, groundwater quality parameters were not measured in well MW-34S, and DO was not measured in MW-20S due to the damaged well casing. The results of the monthly field-measured parameters for the treatment performance monitoring wells, which vary only slightly from the quarterly measurements, are presented in Attachment 1. The groundwater pH, redox potential, specific conductance, and temperature are monitored during well purging prior to sampling, and the final (stabilized) values for these measurements prior to sample collection are presented in Table 3 and Attachment 1.

2.2.1.1 pH

The pH of the groundwater samples collected during Q1 2002 ranged from 6.54 to 8.27 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



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groundwater since biological systems typically function only in narrow pH ranges (typically 6.5 to 8.5 S.U.) and microbial growth rates are pH dependant.

2.2.1.2 Redox Potential

The redox potentials of the groundwater samples collected at the site during Q1 2002 ranged from -173.0 to 35.3 millivolts (mV); however, only three positive redox potentials were measured during Q1 2002 (MW-6S, MW-28S, and MW-31S during March 2002). The redox potential data for the site indicate that reducing conditions are present on a site-wide basis. 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^- , and Fe^{3+}) predominate in comparison to their reduced counterparts (NH_4^+ , S^{2-} , and Fe^{3+} , respectively). Once dissolved oxygen 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

Although DO levels for the groundwater samples collected during Q1 2002 ranged from 0.04 to 7.20 milligrams per liter (mg/L), very few readings indicating DO levels greater than 1.0 mg/L were observed. The dissolved oxygen data indicate the presence of relatively low levels of oxygen in the water, and the system as a whole is considered to be under anaerobic conditions (<1 mg/L DO). DO promotes the growth of aerobic and facultative bacteria, production of readily assimilated nutrients, and provides oxygen, all of which are required to facilitate the oxidation reaction responsible for removal the contaminants from the groundwater under aerobic conditions. Figure 2 indicates the DO concentrations over time in the treatment performance monitoring wells.

2.2.1.4 Specific Conductance

The specific conductance, or conductivity, of the groundwater samples collected during Q1 2002 ranged from 0.306 to 1.263 micromhos per centimeter ($\mu\text{mhos/cm}$). Conductivity of water is a measure of the ability of the solution to carry an electrical current that is transported by ions in



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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 1.36 to 9.23 °C during Q1 2002. A downward trend in groundwater temperature was observed during Q1 2002 when comparing the data to the previous quarter. Temperatures measured approximately 5 °C lower in Q1 2002 in than that of December 2001 which ranged from 7.83 to 14.73 °C. Temperature is an extremely important factor in bioremediation since microbial growth rates are greatly dependent upon temperature.

2.2.1.6 Turbidity

Turbidity ranged from 0.90 to 387 nephelometric turbidity units (NTU) during Q1 2002; however, turbidity was only measured at levels >20 NTU in five wells during Q1 2002. 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 January, February, and March 2002 are provided in Attachments 2, 3, and 4, respectively. 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 2002 sampling event was analyzed for BTEX and PAH compounds. The results of these analyses are presented and compared to WDNR PALs and ESs in Table 4. Table 4 also indicates those parameters that were detected at concentrations exceeding their respective PALs (shown as bold values). Parameters with concentrations exceeding both PALs and ESs are presented as bold and shaded values in Table 4. Exceedences are summarized in the following paragraphs. The laboratory reports that included results of the BTEX and PAH analyses are provided as Attachment 4.



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Groundwater Sample Results

As shown in Table 4, benzene, naphthalene, fluorene, fluoranthene, pyrene, benzo(b)fluoranthene, benzo(a)pyrene, and chrysene 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:

PAL Exceedances:

- Benzene was detected at concentrations exceeding the WDNR PAL of 0.5 µg/L in the groundwater samples collected from wells MW-7S, MW-34S, and TG1-1. Benzene was also detected at a concentration exceeding its PAL in the duplicate sample collected from well MW-7S.
- Naphthalene was detected at concentrations exceeding the WDNR PAL of 8 µg/L in the groundwater samples collected from wells MW-7S, MW-33S, MW-34S, and TG1-1. Naphthalene was also detected at a concentration exceeding its PAL in the duplicate sample collected from wells MW-7S and MW-33S.
- Chrysene was detected at concentrations exceeding the WDNR PAL of 0.02 µg/L in the groundwater samples collected from wells MW-34S and TG1-1.
- Benzo(b)fluoranthene was detected at concentrations exceeding the WDNR PAL of 0.02 µg/L in the groundwater samples collected from wells MW-34S, TG1-1, and TG6-1.
- Benzo(a)pyrene was detected at concentrations exceeding the WDNR PAL of 0.02 µg/L in the groundwater samples collected from wells MW-34S, TG1-1, TG1-3, TG4-3, and TG6-1.
- Fluorene was detected at concentrations exceeding the WDNR PAL of 80 µg/L in the groundwater samples collected from well TG1-1.
- Fluoranthene was detected at concentrations exceeding the WDNR PAL of 80 µg/L in the groundwater samples collected from well TG1-1.
- Pyrene was detected at concentrations exceeding the WDNR PAL of 50 µg/L in the groundwater samples collected from well TG1-1.



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ES Exceedances:

- Benzene was detected at a concentration exceeding the WDNR ES of 5 µg/L in the groundwater sample collected from well MW-34S.
- Naphthalene was detected at concentrations exceeding the WDNR ES of 40 µg/L in the groundwater samples collected from wells MW-7S, MW-33S, MW-34S, and TG1-1. Naphthalene was also detected at a concentration exceeding its ES in the duplicate sample collected from wells MW-7S and MW-33S.
- Chrysene was detected at concentrations exceeding the WDNR ES of 0.2 µg/L in the groundwater samples collected from wells MW-34S and TG1-1.
- Benzo(b)fluoranthene was detected at concentrations exceeding the WDNR ES of 0.2 µg/L in the groundwater samples collected from well TG1-1.
- Benzo(a)pyrene was detected at concentrations exceeding the WDNR ES of 0.2 µg/L in the groundwater samples collected from well TG1-1.
- Pyrene was detected at a concentration exceeding the WDNR ES of 250 µg/L in the groundwater sample collected from well TG1-1.

The detected plume boundary is primarily in an area encompassing seven shallow monitoring wells (MW-7S, MW-33S, MW-34S, TG1-1, TG1-3, TG4-3 and TG6-1). The majority of PAL and ES exceedances are associated with wells MW-34S and TG1-1, which have previously contained varying amounts of free product. During Q1 2002, only trace levels of product were observed in MW-34S. In general, PAH concentrations measured in groundwater samples collected from the rest of the site were at relatively low levels with few PAL/ES exceedances. Based on these detected concentrations, the contaminant plume generally indicates a northeasterly trend as indicated in Figure 1A, which is similar to the previous 15 quarterly groundwater-sampling events.

Overall, the lateral extent of the Q1 2002 groundwater contaminant plume is similar to the past quarter of groundwater sampling. A relatively small, downgradient increase in plume size is noticeable, and may be attributable to seasonal fluctuations of site hydrogeology, source removal activities and disruption to the site hydrogeology caused by excavation of contaminated soil, treatment of contaminated groundwater, and/or other factors. As with the recent quarters, the groundwater contaminant plume does not extend downgradient of treatment gates TG5 and TG6, indicating that groundwater exiting the treatment system meets PALs.



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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 5. 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 trend in monitoring wells MW-32S and MW-35S. These constituents had also shown an overall decreasing trend in well MW-4S prior to its removal in Q2 2001. Well MW-7S has shown a relatively decreasing trend for naphthalene and fluorene; however, MW-7S has shown a fluctuating trend for benzene. Well MW-33S has shown a steady trend for benzene, naphthalene, and benzo(a)pyrene; however, MW-33S has shown a steadily increasing concentration of fluorene over the last 7 quarters. Well MW-34S has shown relatively stable benzene and naphthalene concentrations, and had also shown an increase in fluorene and benzo(a)pyrene until Q1 2002, when levels were significantly reduced. Well MW-34S contained approximately 10 inches of free product during Q4 2001 and only trace levels during Q1 2002, a trend that correlates with the levels of fluorene and benzo(a)pyrene. Well TG1-1 had shown fluctuating benzene, naphthalene, fluorene, and benzo(a)pyrene concentrations since it was first sampled in Q3 2000.

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, and ORP on a monthly basis, and analyzed for BOD, COD, TOC, BTEX, and PAHs on a quarterly basis. The analytical results for microbial enumeration, NO₃-N, NO₂-N, TKN, NH₃-N, PO₄-P, ORP, BOD, COD, and TOC are presented in Table 6. The analytical results for the treatment performance monitoring groundwater samples are summarized below.

Nitrogen and Phosphorous Compounds

NO₃-N was detected at concentrations ranging from below method detection limits (nondetect) to 0.27 mg/L. NO₂-N was detected at levels ranging from nondetect to 0.037 mg/L. TKN was detected at concentrations ranging from nondetect to 1.54 mg/L. NH₃-N was detected at levels ranging from nondetect to 1.4 mg/L. Temporal changes of NO₃-N, NO₂-N, and NH₃-N concentrations in the treatment performance monitoring wells with respect to treatment gate are presented in Figures 3, 4, and 5, respectively. Overall, nitrogen compound concentrations are at relatively low levels; however, NH₃-N is typically an order of magnitude greater than NO₃-N and NO₂-N concentrations. NH₃-N is slightly higher in the TG3 wells as compared to the other treatment gates. Oxidized nitrogen compounds (NO₃-N and NO₂-N) are more prevalent in TG3, presumably due to the relatively higher DO levels.



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PO₄-P was detected at concentrations ranging from nondetect to 0.43 mg/L. ORP was detected at concentrations ranging from nondetect to 0.036 mg/L. The temporal changes of PO₄-P and ORP concentrations in the treatment performance monitoring wells with respect to treatment gate are presented in Figures 6 and 7, respectively. Gates TG1 and TG2 typically had slightly higher PO₄-P levels than the rest of the system; however, ORP levels appear to be consistent system-wide.

BOD, COD, TOC

BOD concentrations for the samples collected throughout the treatment system range from non-detect to 9.1 mg/L. COD concentrations for the samples collected throughout the treatment system range from 5.2 to 35.3 mg/L. TOC concentrations for the samples collected throughout the treatment system range from non-detect to 13.7 mg/L. As expected, the treatment gate wells indicate less BOD compared to COD. COD indicates presence of constituents that exert an oxygen demand, including carbon compounds such as the site contaminants in the groundwater, as well as other constituents such as ammonia, sulfurous compounds, and biological material such humic acids and detritus. A significant portion of oxygen demand that is 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 detected by the COD analysis is catalyzed chemically and thermally. The low BOD indicates low concentrations of material that is readily biodegradable and/or quickly oxidized.

Microbial Enumeration

The monthly mean of the total microbe populations for TG1 and TG2 ranged from 4.2×10^2 to 7.9×10^3 colony forming units per milliliter (CFU/mL) during first quarter 2002. The monthly mean of the total microbe populations for TG3 and TG4 ranged from 7.1×10^2 to 1.5×10^5 CFU/mL during first quarter 2002. The monthly mean of the total microbe populations for TG5 and TG6 ranged from 5.3×10^2 to 8.9×10^3 CFU/mL during first quarter 2002. The temporal changes in total microbial populations are presented in Figure 8.

The monthly mean of the degrader microbe populations for TG1 and TG2 ranged from 2.0×10^1 to 8.4×10^2 CFU/mL during first quarter 2002. The monthly mean of the degrader populations for TG3 and TG4 ranged from 4.0×10^1 to 4.3×10^4 CFU/mL during first quarter 2002. The monthly mean of the degrader populations for TG5 and TG6 ranged from 2.0×10^1 to 1.4×10^3 CFU/mL during first quarter 2002. The temporal changes in degrader microbial populations are presented in Figure 9.

Overall, total and degrader bacterial populations were relatively consistent on a system-wide basis; however, TG3 had slightly higher levels than other gates, presumably due to the higher levels of DO.



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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). Based on the hydraulic gradient, effects of nutrient addition and air injection would be observed in treatment performance monitoring wells TG1-2 and TG1-3, which are immediately downgradient of the injection wells. Discussions regarding the effects of the site augmentation activities and are discussed below.

3.1 Dissolved Oxygen

Overall, DO levels at the site remain at relatively low levels such that the system as a whole is considered to be anoxic. Although the entire system is considered to be anaerobic, there were several instances where notable concentrations of DO were observed, as described below.

During January and February 2002, well TG3-1 indicated relatively high DO levels (5.94 and 7.20 mg/L, respectively); however, the DO in well TG3-1 significantly decreased in March 2002 to 0.19 mg/L. Several other wells indicated moderate to relatively high DO levels during Q1 2002: during January, TG1-3 had a DO concentration of 2.17 mg/L; during February, TG4-3, TG5-1, and TG5-2 had DO concentrations of 2.10, 4.10, and 3.60 mg/L, respectively; and well MW-25S had a DO concentration of 2.93 mg/L in March 2002. Although well TG3-1 had been demonstrating relatively high DO levels over the past few quarters, spikes in DO concentrations of this magnitude have not been historically observed in the other monitoring wells.

The cause of the increased DO levels is uncertain; however, based on their inconsistency, the elevated DO levels may be due to the influence of groundwater recharge from precipitation. Although the DO concentrations in these wells indicated that oxidizing conditions should exist, the redox potential measured in the wells at the time of the DO measurements ranged from -25.2 to -68.6 mV, indicating a reducing environment. Furthermore, the sitewide ratio of $\text{NO}_3\text{-N}$ to $\text{NH}_3\text{-N}$ is approximately 1:10, indicating that nitrogen is primarily present in its reduced state, further signifying that a reducing environment exists in the wells. Although the sitewide $\text{NO}_3\text{-N}:\text{NH}_3\text{-N}$ ratio indicates a reducing environment, the $\text{NO}_3\text{-N}$ levels measured in TG3-1 are significantly greater than levels detected in other wells during Q1 2002, indicating that some oxidation may be occurring.

Well packers were installed in the TG5 injection wells in June 2000; however, no discernable change in the DO levels has been observed in the TG5 wells to date. KMC/WESTON attempted to install inflatable bladder packers in TG1 and TG2 injection wells in August 2001; however, KMC/WESTON was unable to properly install the packers due to the injection well



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

3.2 Nutrients and pH

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 (6.54 to 7.29 S.U.) is sufficient to facilitate biological activity. Table 7 contains calculated C:N:P ratios for each of the treatment performance monitoring wells. No wells exhibited the desired C:N:P ratio; however, on a sitewide basis the C:N:P ratio is 100:10.3:0.2, which is somewhat close to the desired ratio. Phosphorus appears to be the limiting nutrient at the site.

NO₃-N was not detected at significant levels in any of the TG1 wells during Q1 2002. A steady increase in PO₄-P was observed in TG1 during Q1 2002, with downgradient wells TG1-2 and TG1-3 having higher concentrations than upgradient well TG1-1. Orthophosphate concentrations in TG1 ranged between non-detect and 0.027 mg/L during Q1 2002.

3.3 Effects on Bacterial Populations

Although fluctuations in the total bacteria counts in TG1 were observed during Q1 2002, the levels measured in TG1 were similar to other gates. The bacteria levels in TG3 were slightly higher than those observed in the other treatment gates. Figure 10 compares the degrader populations in TG1 and TG2 since Q1 2001. As indicated in Figure 10, there has been a significant decrease in the total bacteria levels in TG1 and TG2 (and other gates) since Q3 2001, presumably due to the low temperature observed since October or November of 2001. Since air injection began in October 2000, degrader populations in TG1 have typically been higher than in TG2; however, it is uncertain if this trend is due to air/nutrient injection, presence of higher levels of substrate (contaminants), or a combination of these and/or other factors.

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 has been observed with site



Mr. Russell D. Hart
U.S. EPA

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10 July 2002

hydrogeology based on the Q1 2002 monitoring results. KMC/WESTON will continue to monitor and evaluate the site hydrogeology.

3.5 Summary of Overall System Performance and Recommendations for System Modifications

Based on the nutrient levels observed since June 2001, it is inconclusive whether nutrient addition at TG1 has enhanced biodegradation of contaminants. Although a significant concentration gradient is observed across the TG1 wells during the past few quarters, similar concentration gradients were evident prior to implementing the nutrient injection, as indicated in the plot of naphthalene concentrations for Q1 2001, Q2 2002, Q4 2001, and Q1 2002 (Figure 11).

Although significant quantities of nutrients have been added to TG1, evidence of this augmentation has not been observed in the TG1 monitoring wells. This circumstance indicates that either the nutrients are being utilized before the chemicals reach a monitoring station or that the system has such strong reducing conditions that the added nutrients are being reduced before they travel to the next downgradient monitoring well. Similarly, no increase in bacteria levels has been observed in TG1. Bacterial levels in TG1 are similar to the other gates, and have not increased after nutrient augmentation began.

Since it is not apparent that the nutrient augmentation has enhanced biodegradation of contaminants in TG1 and no other treatment gate has sufficient or consistent contaminant levels that would facilitate pilot testing of nutrient injection, KMC proposes to confirm the conclusion that the nutrient addition at TG1 is unnecessary by discontinuing the nutrient augmentation. KMC will continue to monitor the contaminant levels in TG1, and if a sustained rebound in contaminant levels is observed in TG1-2 and TG1-3, KMC will resume nutrient injection at TG1. Air injection at the treatment gates will continue as present.

KMC proposes to reduce the groundwater monitoring at the treatment gates from monthly to quarterly. Based on the monthly monitoring data collected since October 2000, minimal fluctuations in site conditions occur on a monthly basis, thereby nullifying the benefit of monthly monitoring.

Furthermore, KMC proposes to eliminate shallow monitoring wells MW-3S, MW-10S, MW-13S, MW-25S, MW-26S, and MW-20S and the intermediate wells (MW-3I, MW-7I, MW-9I, and MW-20I) from the groundwater monitoring program. The wells proposed for removal from the monitoring program are indicated on Figure 12. Since the inception of the quarterly groundwater monitoring at the site, there have been few instances where contaminants have been detected in these wells, and very few occurrences where a contaminant exceeded a PAL. Typically when these contaminants are detected they are at very low levels, slightly above the



Mr. Russell D. Hart
U.S. EPA

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10 July 2002

method detection limit for the target compound. KMC proposes to continue monitoring the remaining wells covered under the groundwater monitoring program on the same frequency they are currently sampled.

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 cursive script, appearing to read "Brian Voss".

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













TPG/ld

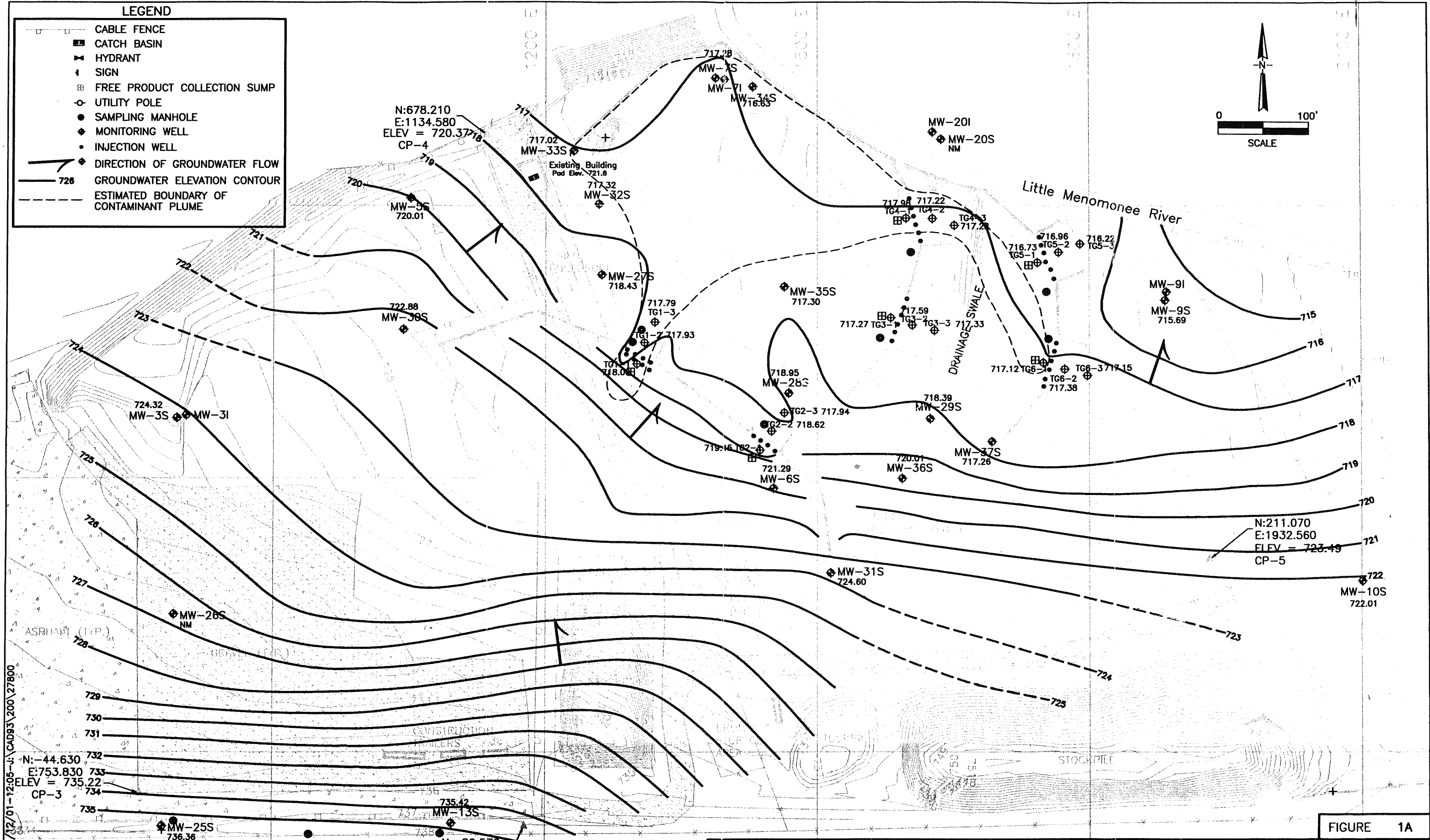
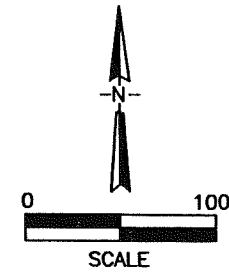
Attachments

cc: K. Watson, KMC
G. Edelstein, WDNR
B. Felix, WDNR

FIGURES

LEGEND

-  CABLE FENCE
-  CATCH BASIN
-  HYDRANT
-  SIGN
-  FREE PRODUCT COLLECTION SUMP
-  UTILITY POLE
-  SAMPLING MANHOLE
-  MONITORING WELL
-  INJECTION WELL
-  DIRECTION OF GROUNDWATER FLOW
-  726 GROUNDWATER ELEVATION CONTOUR
-  ESTIMATED BOUNDARY OF CONTAMINANT PLUME



HERNANDD-07/12/01-1205-4\CAD93\200\27800

N: -44.630
E: 753.830
ELEV = 735.22
CP-3

MW-25S
736.36

MW-13S
N: -80.570
E: 1177.070
ELEV = 737.17
CP-6

N: 211.070
E: 1932.560
ELEV = 723.49
CP-5

MW-10S
722.01

NOTES: GROUNDWATER LEVELS MEASURED ON 18 MARCH 2002.
NM = NOT MEASURED DUE TO FREEZING CONDITION.
SOURCE: BERNKLAU SURVEYING, N64 W24801 MAIN ST.,
SUITE 103, SUSSEX, WI 53089

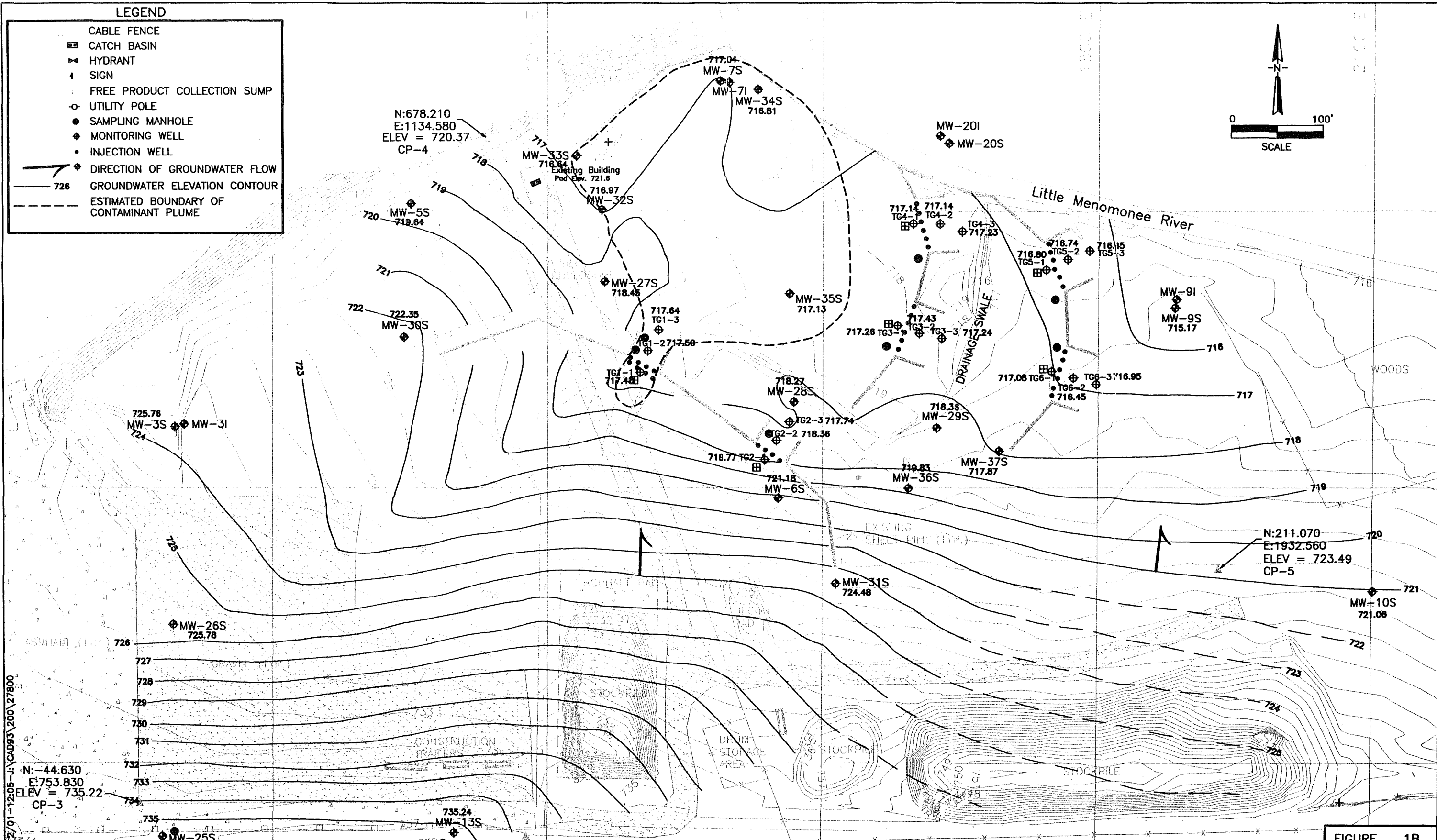
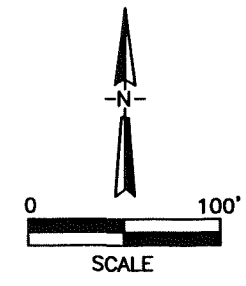


750 E. Bunker Ct.
Suite 500
Vernon Hills, Illinois
60061

FIGURE 1A
GROUNDWATER ELEVATION CONTOUR MAP - 1ST QTR 2002
KERR MCGEE CORPORATION
MOSS-AMERICAN SITE
Milwaukee, Wisconsin

LEGEND

- CABLE FENCE
- ▣ CATCH BASIN
- ⋈ HYDRANT
- ⊠ SIGN
- FREE PRODUCT COLLECTION SUMP
- UTILITY POLE
- SAMPLING MANHOLE
- ◆ MONITORING WELL
- INJECTION WELL
- DIRECTION OF GROUNDWATER FLOW
- 726 GROUNDWATER ELEVATION CONTOUR
- - - ESTIMATED BOUNDARY OF CONTAMINANT PLUME



J:\CAD93\200\27800.dwg, 07/09/2002 05:22:40 PM
 HERNAND-07/12/01-12:05-J:\CAD93\200\27800

N: -44.630
 E: 753.830
 ELEV = 735.22
 CP-3

N: 678.210
 E: 1134.580
 ELEV = 720.37
 CP-4

N: 211.070
 E: 1932.560
 ELEV = 723.49
 CP-5

N: -80.570
 E: 1177.070
 ELEV = 737.17
 CP-6

FIGURE 1B

SOURCE: BERNKLAU SURVEYING, N64 W24801 MAIN ST., SUITE 103, SUSSEX, WI 53089



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 Suite 500
 Vernon Hills, Illinois
 60061

GROUNDWATER ELEVATION CONTOUR MAP - 4TH QTR 2001
 KERR MCGEE CORPORATION
 MOSS-AMERICAN SITE
 Milwaukee, Wisconsin

Figure 2

Treatment Performance Monitoring Wells
 First Quarter 2002
 Moss-American Site
 Milwaukee, Wisconsin

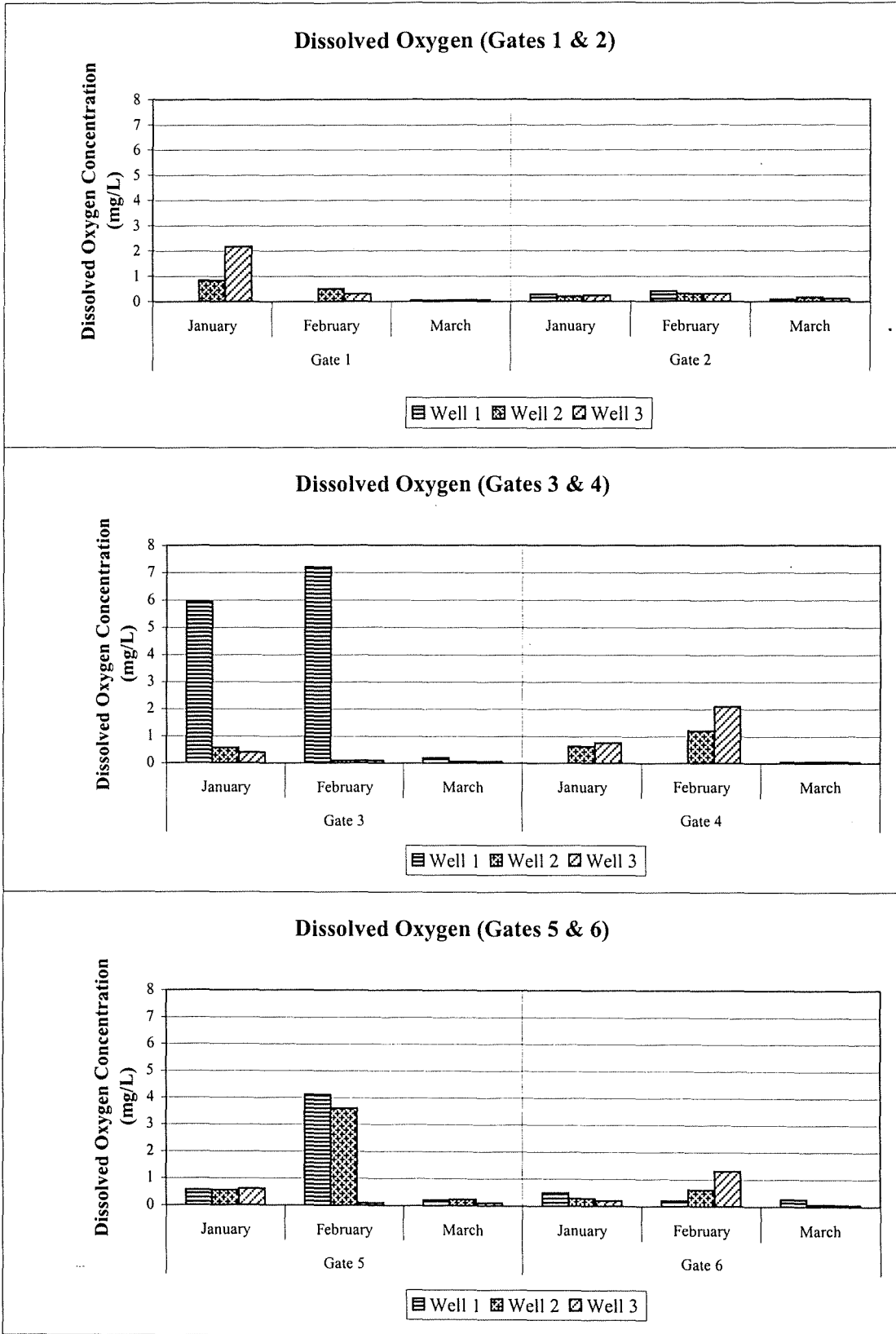


Figure 3

Treatment Performance Monitoring Wells
First Quarter 2002
Moss-American Site
Milwaukee, Wisconsin

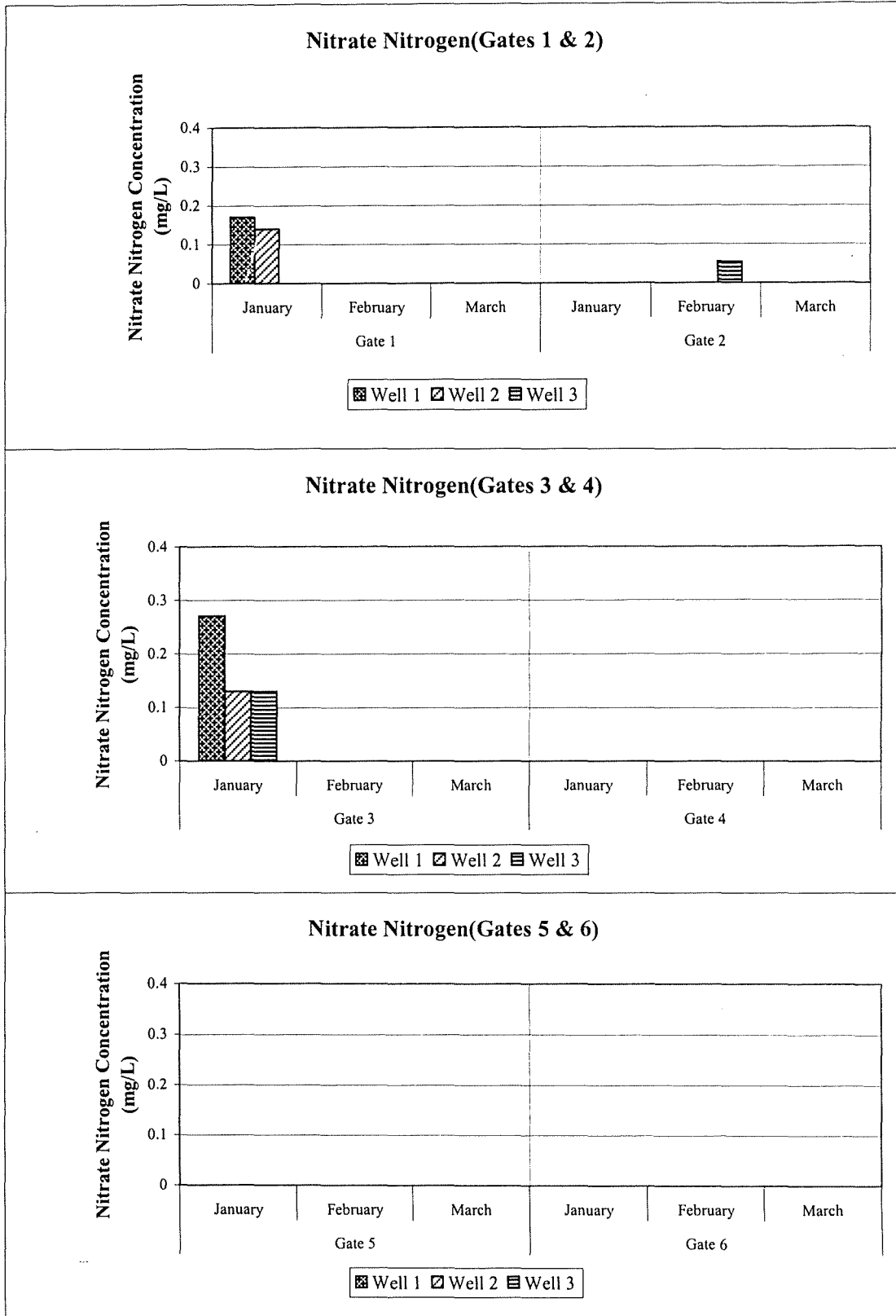


Figure 4

Treatment Performance Monitoring Wells
 First Quarter 2002
 Moss-American Site
 Milwaukee, Wisconsin

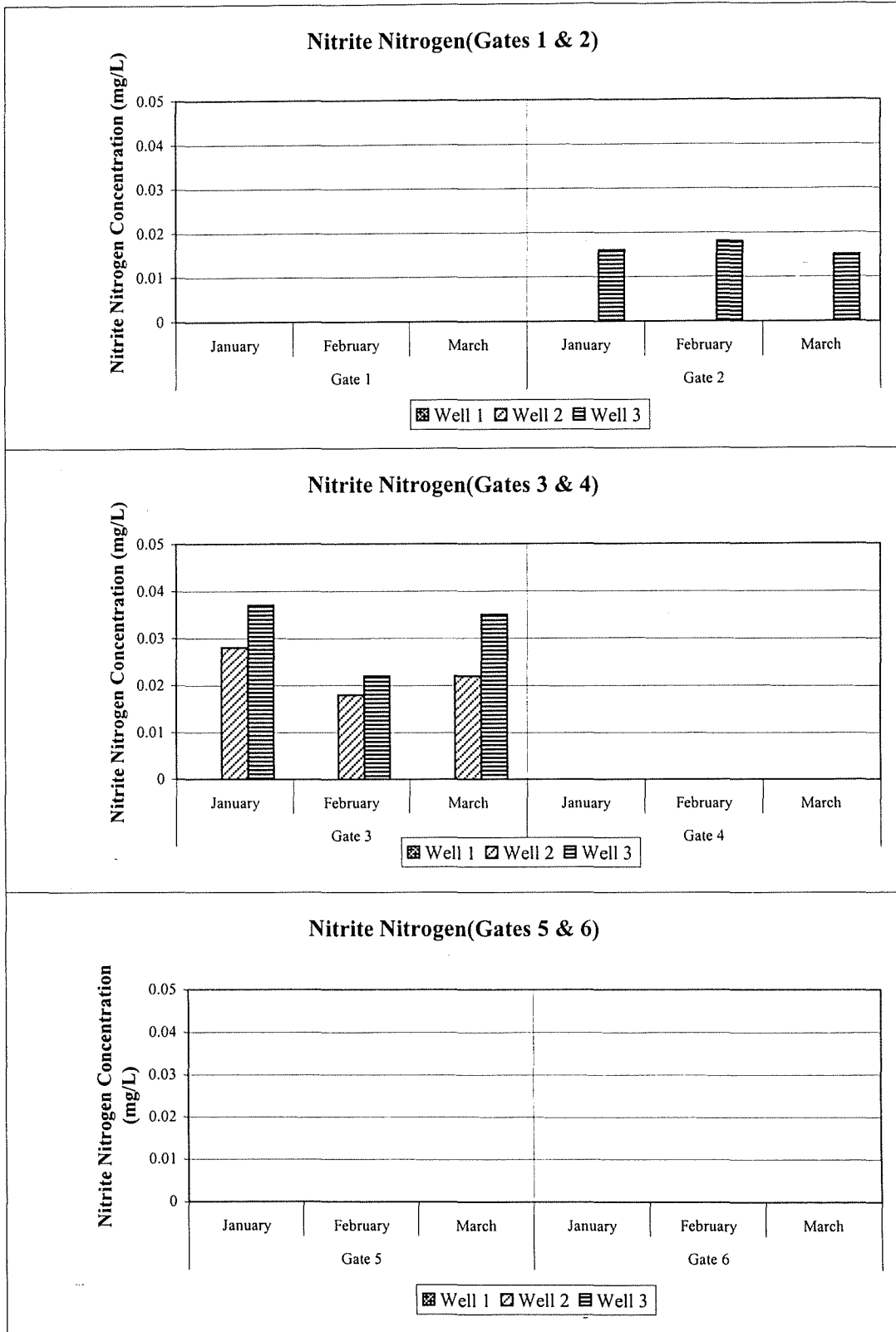


Figure 5

Treatment Performance Monitoring Wells
 First Quarter 2002
 Moss-American Site
 Milwaukee, Wisconsin

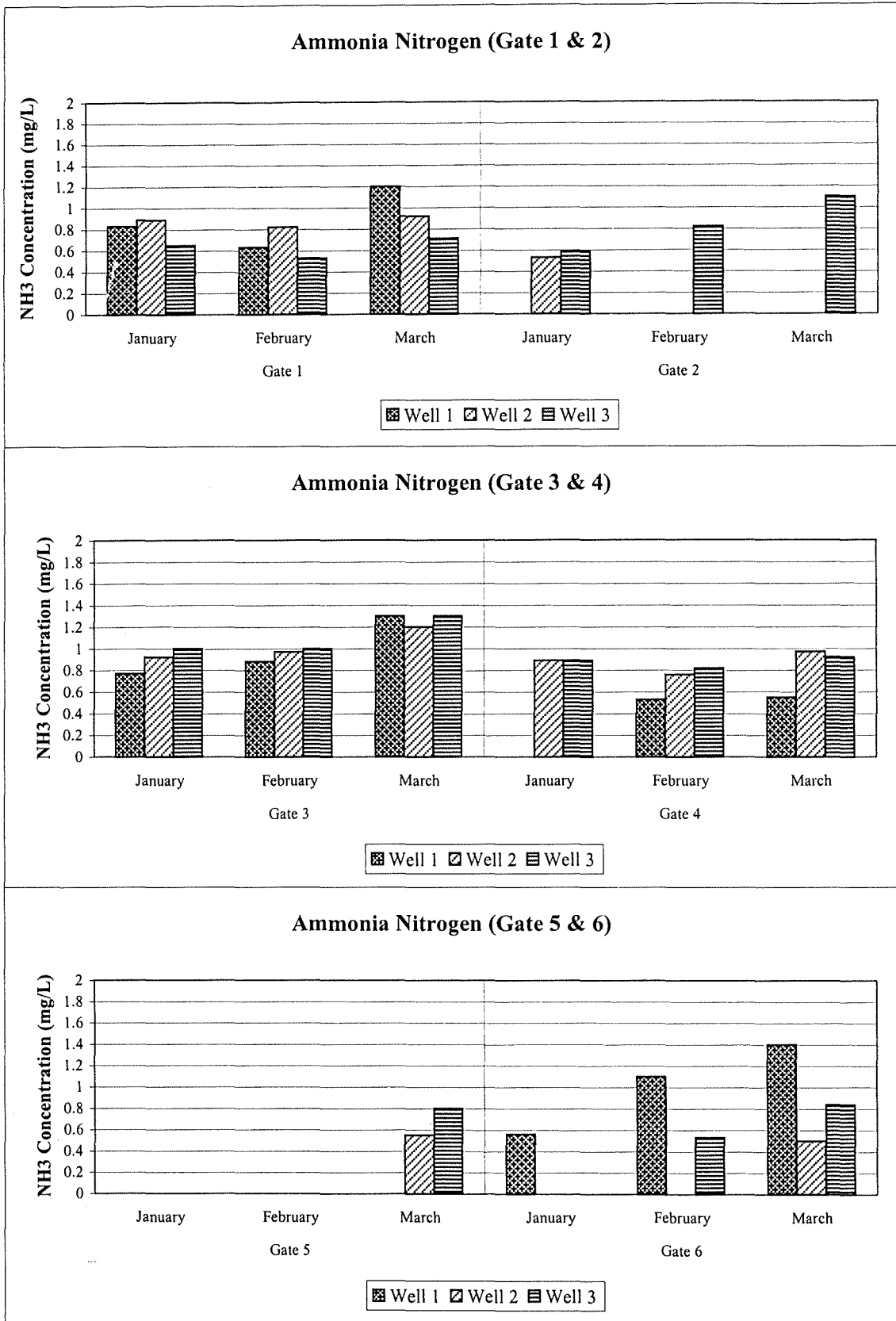


Figure 6

Treatment Performance Monitoring Wells
 First Quarter 2002
 Moss-American Site
 Milwaukee, Wisconsin

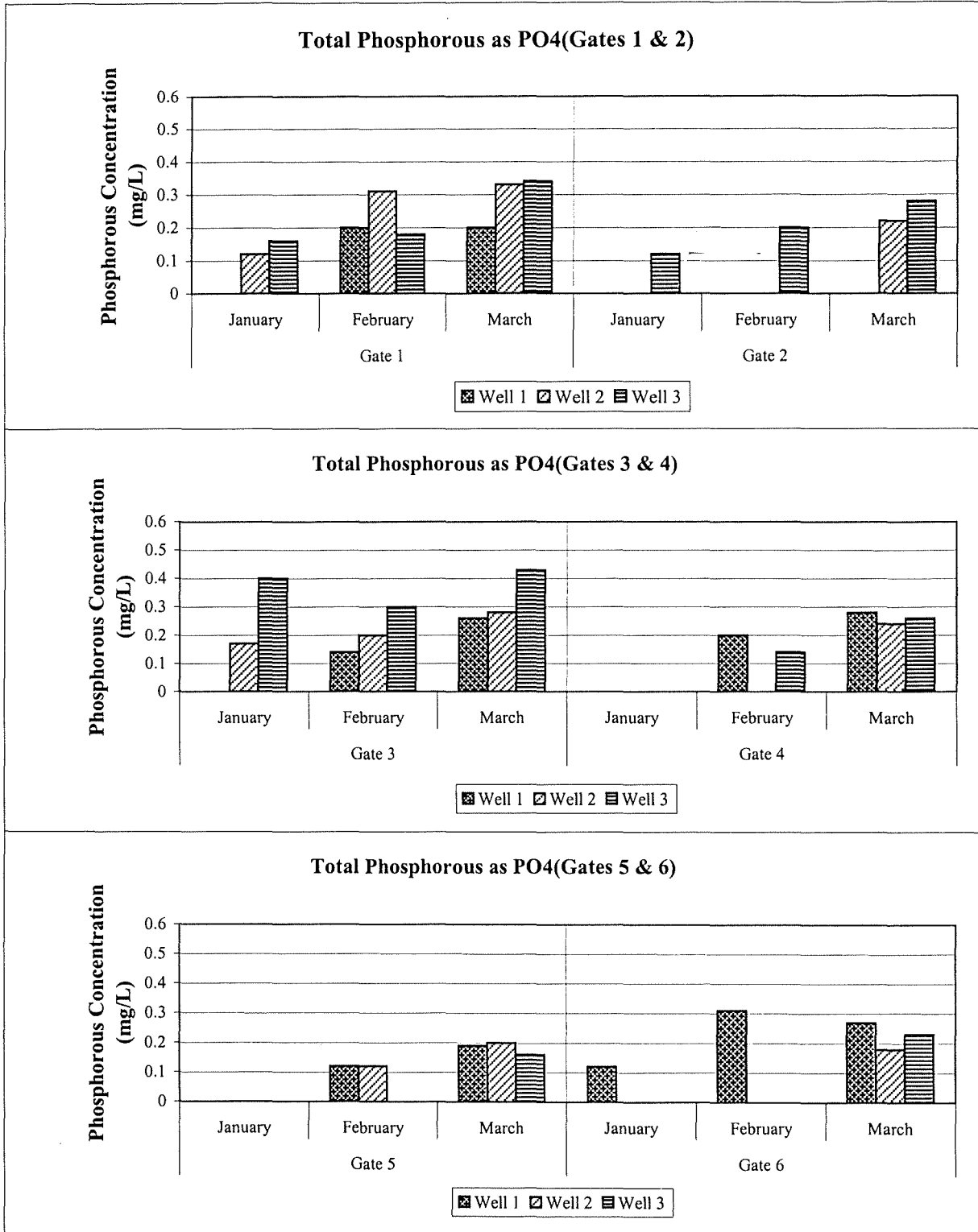


Figure 7

Treatment Performance Monitoring Wells
 First Quarter 2002
 Moss-American Site
 Milwaukee, Wisconsin

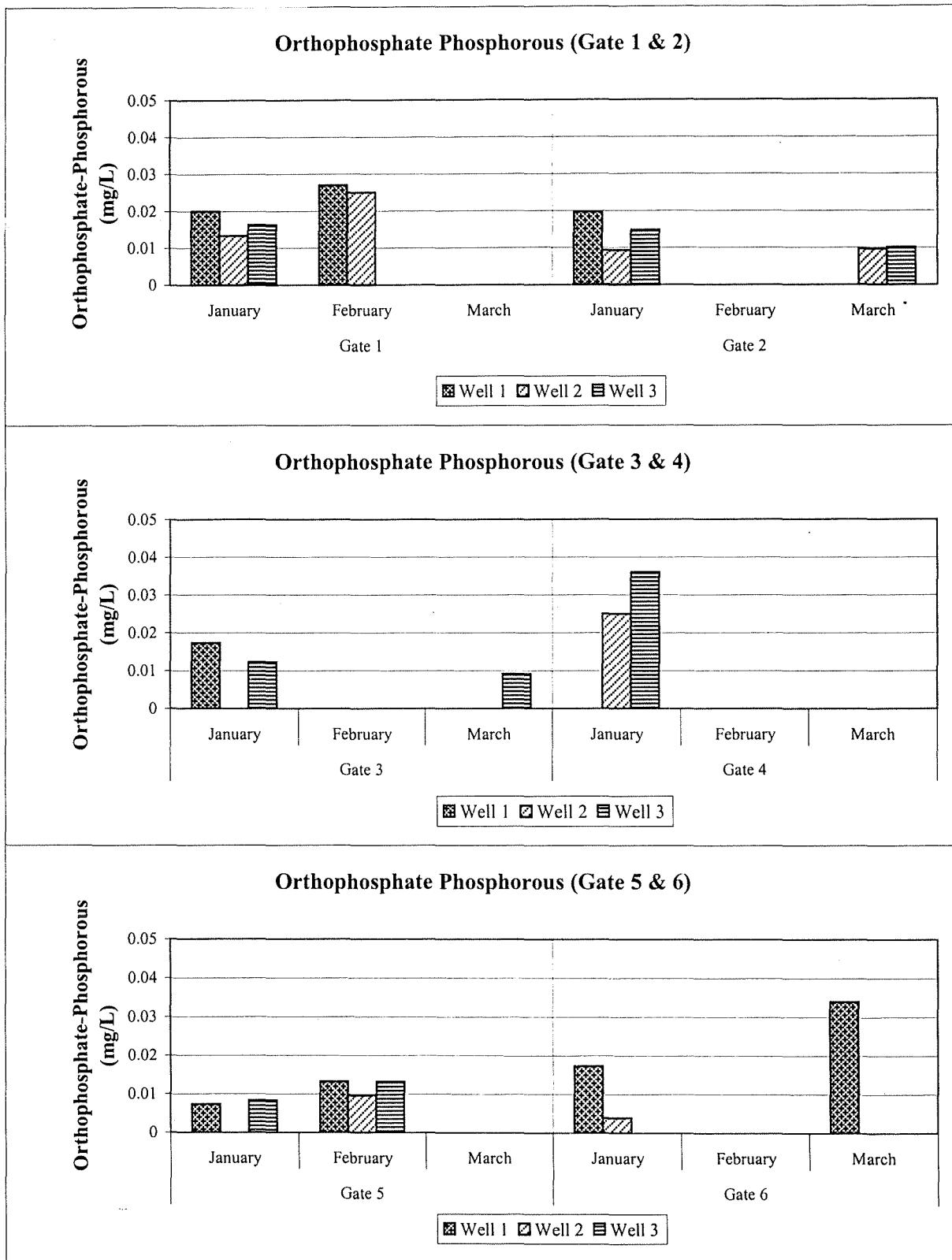


Figure 8

Treatment Performance Monitoring Wells
First Quarter 2002
Moss-American Site
Milwaukee, Wisconsin

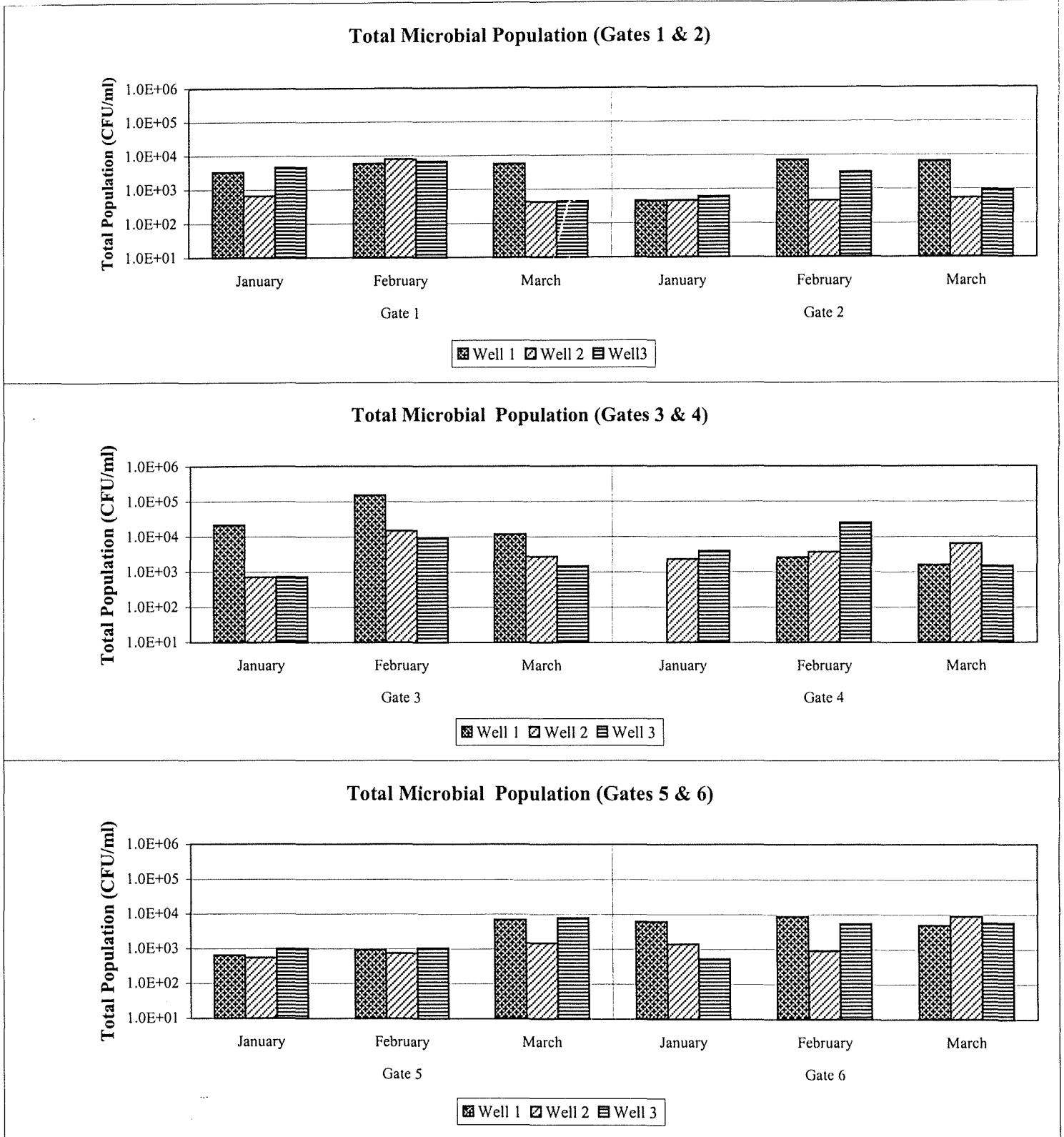


Figure 9

Treatment Performance Monitoring Wells
 First Quarter 2002
 Moss-American Site
 Milwaukee, Wisconsin

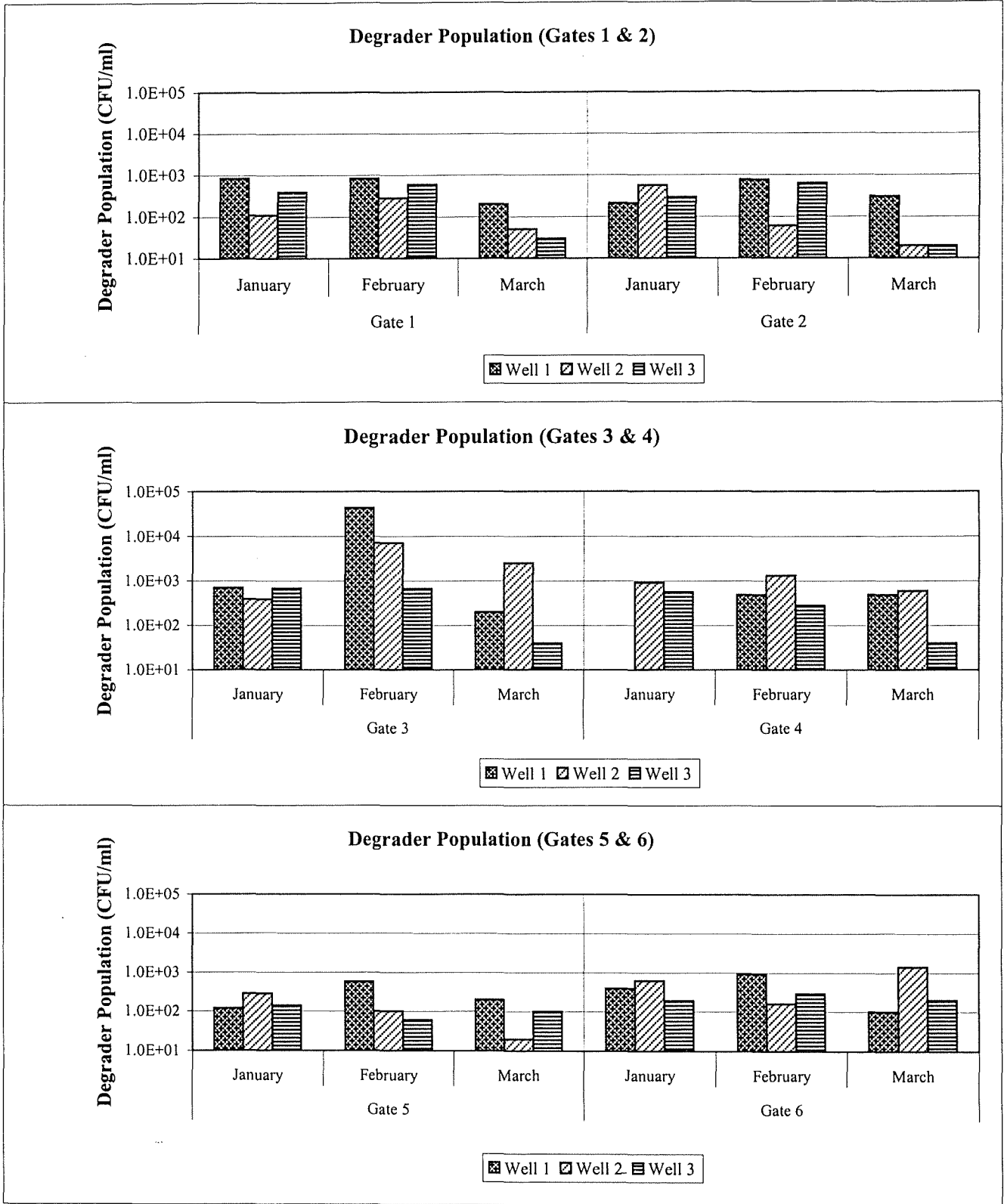


Figure 10

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

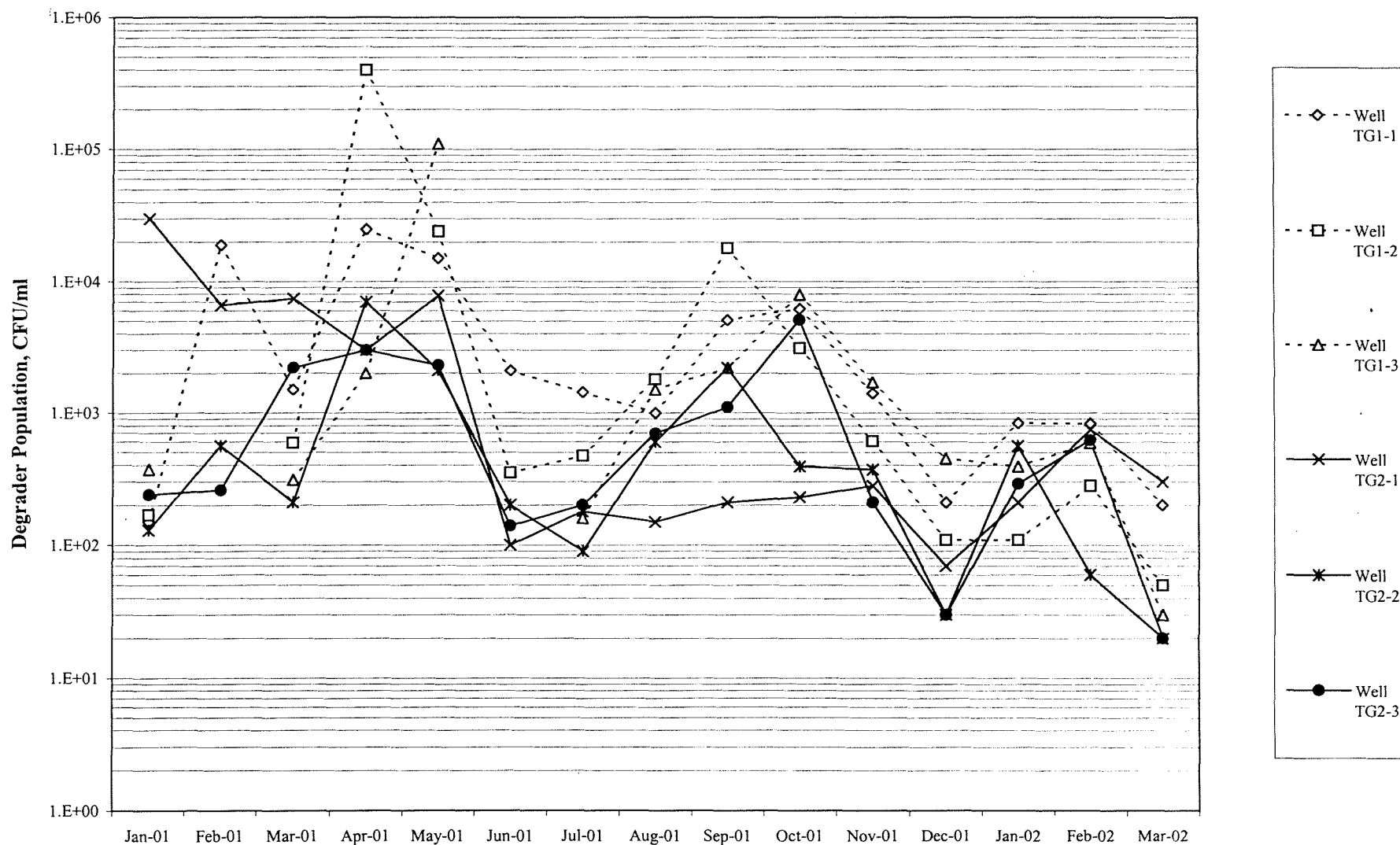
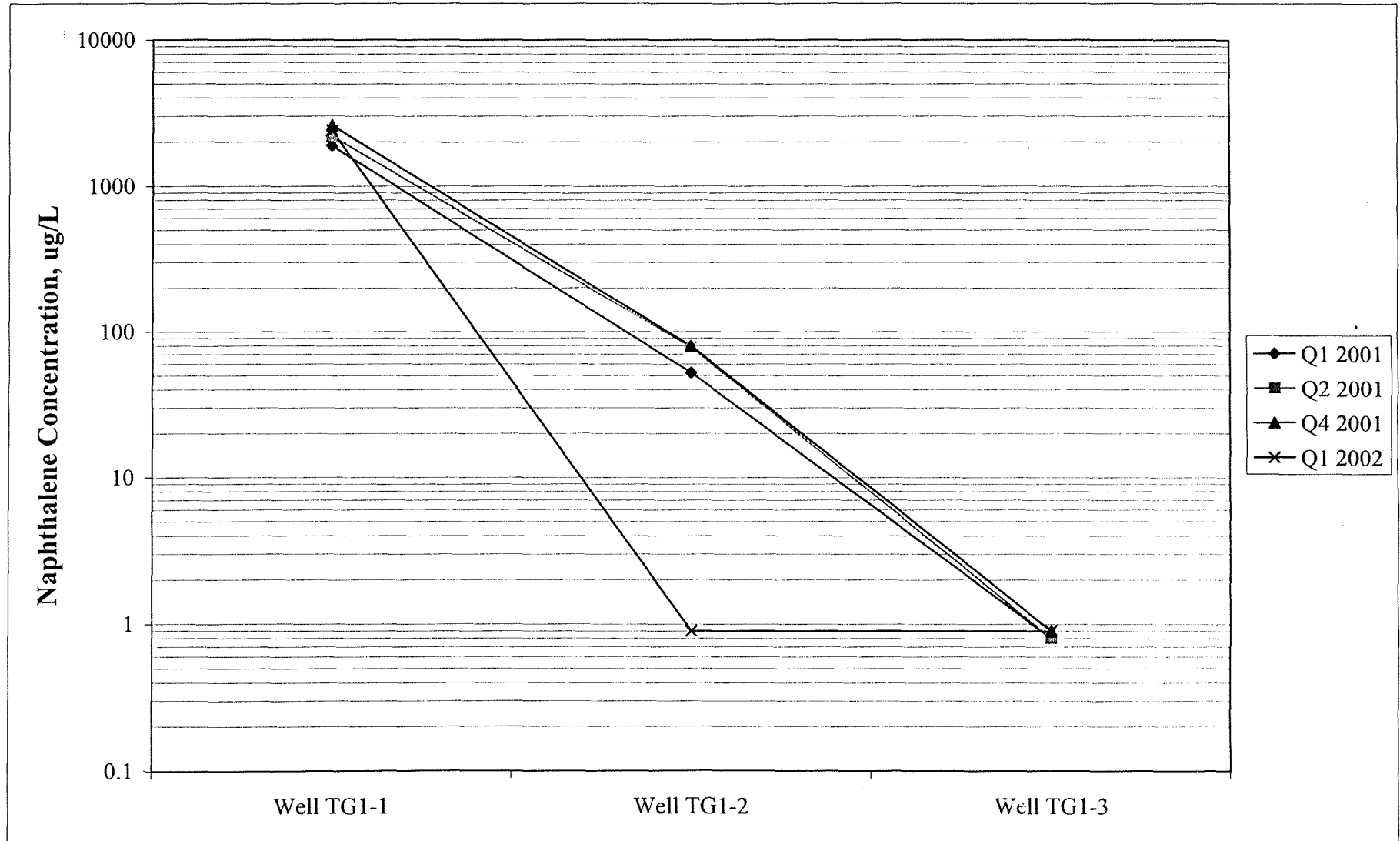
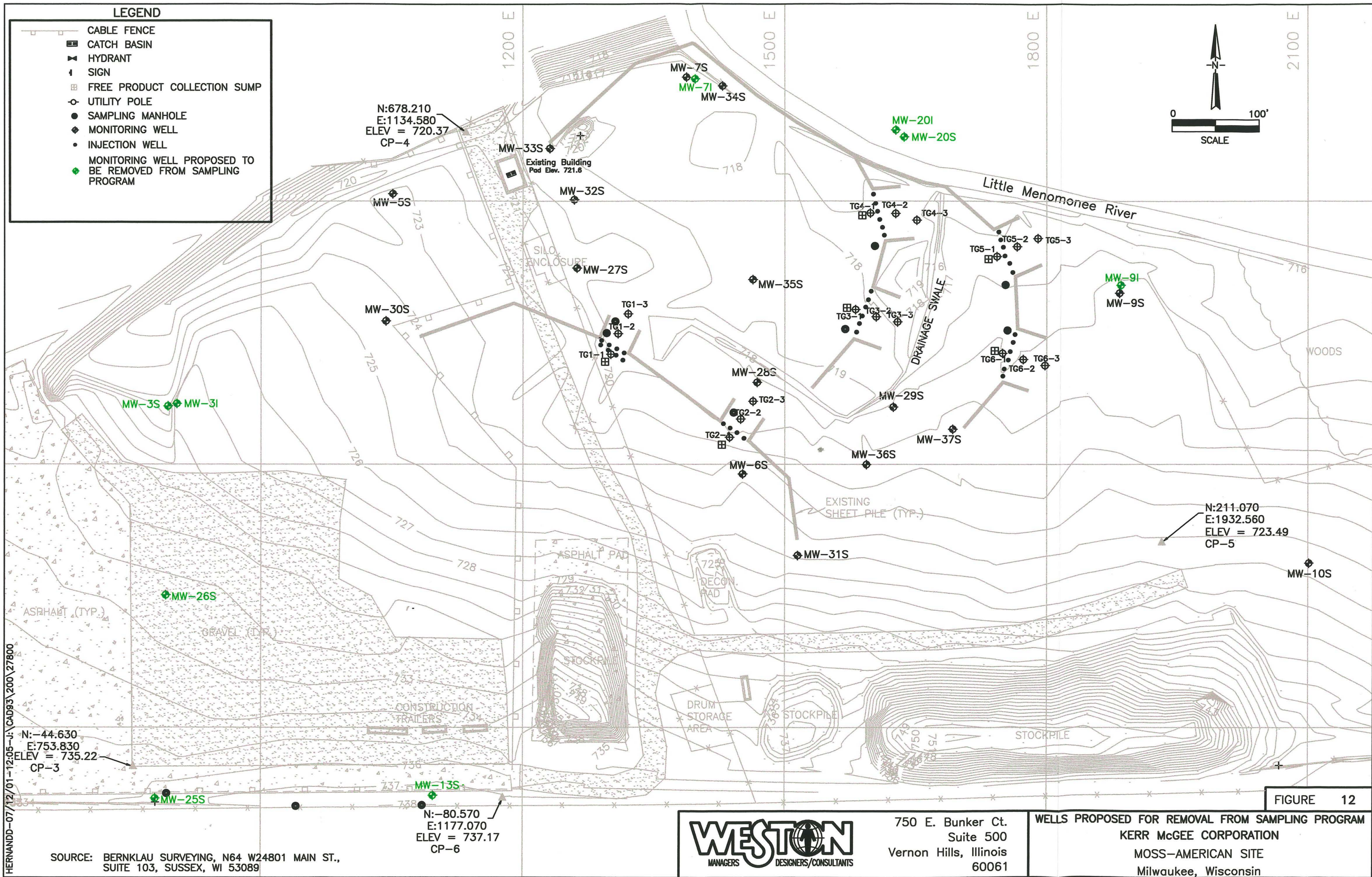
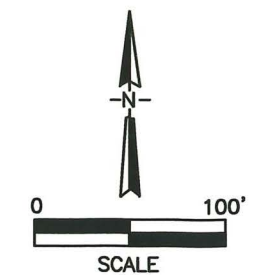


Figure 11
Naphthalene Concentrations in Treatment Gate 1
Moss-American Site
Milwaukee, Wisconsin



LEGEND

- CABLE FENCE
- ▣ CATCH BASIN
- ⊠ HYDRANT
- ⊠ SIGN
- ▣ FREE PRODUCT COLLECTION SUMP
- UTILITY POLE
- SAMPLING MANHOLE
- ◆ MONITORING WELL
- INJECTION WELL
- ◆ MONITORING WELL PROPOSED TO BE REMOVED FROM SAMPLING PROGRAM



N:678.210
E:1134.580
ELEV = 720.37
CP-4

N:211.070
E:1932.560
ELEV = 723.49
CP-5

N:-44.630
E:753.830
ELEV = 735.22
CP-3

N:-80.570
E:1177.070
ELEV = 737.17
CP-6

FIGURE 12

SOURCE: BERNKLAU SURVEYING, N64 W24801 MAIN ST., SUITE 103, SUSSEX, WI 53089



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

WELLS PROPOSED FOR REMOVAL FROM SAMPLING PROGRAM
KERR MCGEE CORPORATION
MOSS-AMERICAN SITE
Milwaukee, Wisconsin

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TABLES

Table 1

**Groundwater Elevation Measurements
Shallow Monitoring and Containment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002**

Well ID	Ground Elevation	TOC Elevation	Depth to Water	GW Elevation	Product Thickness
MW-3S	729.00	731.50	7.18	724.32	ND
MW-5S	723.00	724.70	4.69	720.01	ND
MW-6S	727.00	724.28	2.99	721.29	ND
MW-7S	720.00	721.70	4.42	717.28	ND
MW-9S	720.00	721.71	6.02	715.69	ND
MW-10S	723.00	726.58	4.57	722.01	ND
MW-13S	737.00	738.68	3.26	735.42	ND
MW-20S	716.00	719.94	NM	NM	ND
MW-25S	736.83	739.24	2.88	736.36	ND
MW-26S	732.31	731.66	NMF	NMF	ND
MW-27S	720.59	723.15	4.72	718.43	ND
MW-28S	720.04	722.65	3.70	718.95	ND
MW-29S	720.01	722.39	4.00	718.39	ND
MW-30S	724.5	727.19	4.31	722.88	ND
MW-31S	723.8	726.35	1.75	724.60	ND
MW-32S	719.6	722.62	5.3	717.32	ND
MW-33S	719.1	721.69	4.67	717.02	ND
MW-34S	718.6	721.42	4.79	716.63	TRACE
MW-35S	718.9	721.54	4.24	717.30	ND
MW-36S	720.2	723.09	3.08	720.01	ND
MW-37S	720.5	723.13	5.87	717.26	ND

Note: All values in feet.

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

TOC = Top of well casing.

GW = Groundwater.

NM = Not measured due to well casing damage.

NMF = Not able to be measured due to freezing conditions.

ND = Not detected.

Depth to groundwater was measured on 20 March 2002.

Table 2

**Groundwater Elevation Measurements
Treatment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002**

Well ID	Ground Elevation	TOC Elevation	Depth to Water	GW Elevation	Hydraulic Gradient (ft/ft)	Groundwater Velocity (ft/day)	Product Thickness
TG1-1	720.05	723.18	5.12	718.06	0.0054	0.0510	TRACE
TG1-2	719.80	722.60	4.67	717.93			ND
TG1-3	719.30	722.35	4.56	717.79			ND
TG2-1	720.50	723.60	4.15	719.45	0.0302	0.2854	ND
TG2-2	719.90	722.86	4.24	718.62			ND
TG2-3	719.90	722.35	4.41	717.94			ND
TG3-1	718.40	720.95	3.68	717.27	-0.0012	-0.0113	ND
TG3-2	718.20	720.75	3.16	717.59			ND
TG3-3	717.80	720.30	2.97	717.33			ND
TG4-1	717.60	720.79	3.81	716.98	-0.0048	-0.0454	ND
TG4-2	717.90	720.51	3.29	717.22			ND
TG4-3	717.40	719.93	2.71	717.22			ND
TG5-1	717.60	720.56	3.83	716.73	0.0102	0.0964	ND
TG5-2	717.30	720.24	3.28	716.96			ND
TG5-3	717.00	719.73	3.51	716.22			ND
TG6-1	719.20	721.73	4.61	717.12	-0.0006	-0.0057	ND
TG6-2	719.20	721.90	4.52	717.38			ND
TG6-3	719.40	722.32	5.17	717.15			ND

Note: 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 = 2.8 ft/day.

TOC = Top of the casing.

GW = Groundwater.

ft/day = feet per day.

ND = Not detected.

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 18 March 2002.

Table 3

**Field-Measured Parameters
Shallow Groundwater, Intermediate Groundwater, and Containment Performance
Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002**

Well Number	pH (Standard Units)	Specific Conductance (µmho/cm)	Temperature (°C)	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
MW-3S	7.51	0.943	6.85	-60.1	0.80	8.58
MW-5S	7.23	0.817	4.93	-69.7	1.38	6.19
MW-6S	7.43	0.633	4.00	35.3	0.10	387
MW-7S	6.89	0.857	8.29	-52.6	0.08	4.73
MW-9S	6.98	0.916	7.15	-22.5	0.09	26.8
MW-10S	7.31	0.740	4.28	-7.7	1.01	2.42
MW-13S	7.30	0.936	2.78	-63.1	1.34	4.22
MW-20S	7.26	1.071	6.81	-42.4	NM	1.25
MW-25S	7.43	0.774	1.36	-63.1	2.93	1.13
MW-26S	7.45	0.930	6.65	-48.7	0.78	2.04
MW-27S	6.84	0.806	7.07	-87.2	0.07	14.0
MW-28S	7.09	1.056	2.83	18.7	0.19	5.6
MW-29S	7.11	0.710	5.66	-26.6	0.21	4.98
MW-30S	7.11	0.808	4.25	-93.1	0.21	2.73
MW-31S	7.38	0.638	4.68	25.3	0.08	11.6
MW-32S	6.76	0.815	7.34	-94.5	0.07	0.96
MW-33S	6.77	0.880	7.95	-80.9	0.81	2.8
MW-34S	NMP	NMP	NMP	NMP	NMP	NMP
MW-35S	6.98	1.044	5.63	-10.8	0.55	17.8
MW-36S	7.26	0.577	5.16	-33.0	0.24	141
MW-37S	7.16	0.786	7.15	-32.5	0.19	4.06
MW-3I	8.27	0.355	8.09	-71.7	0.49	2.36
MW-7I	7.38	0.371	9.23	-34.0	0.06	140
MW-9I	7.67	0.393	6.01	-52.4	0.11	0.90
MW-20I	7.98	0.306	8.91	-58.9	0.07	3.52

Table 3 (continued)

**Field-Measured Parameters
Treatment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002**

Well Number	pH (Standard Units)	Specific Conductance (µmhos/cm)	Temperature (°C)	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
TG1-1	6.90	1.059	6.62	-74.5	0.04	3.03
TG1-2	6.89	0.981	7.30	-71.6	0.04	2.54
TG1-3	6.94	1.014	7.00	-63.1	0.05	13.1
TG2-1	6.80	0.720	6.28	-14.1	0.08	4.16
TG2-2	7.14	0.653	6.33	-24.0	0.18	1.88
TG2-3	6.64	1.224	6.05	-40.6	0.11	4.56
TG3-1	6.82	1.034	4.88	-63.7	0.19	7.52
TG3-2	6.81	0.817	4.58	-89.3	0.06	2.73
TG3-3	6.59	1.058	5.04	-51.6	0.06	7.15
TG4-1	6.89	0.714	5.53	-73.3	0.05	3.08
TG4-2	7.10	0.734	5.91	-71.9	0.06	1.48
TG4-3	6.99	0.711	6.18	-60.2	0.05	3.13
TG5-1	7.08	0.722	5.86	-75.8	0.20	4.57
TG5-2	7.12	0.721	5.25	-73.5	0.23	5.79
TG5-3	7.17	0.687	7.06	-35.8	0.11	24.2
TG6-1	6.78	1.106	6.00	-173.0	0.26	6.43
TG6-2	6.98	1.189	6.63	-109.3	0.08	3.47
TG6-3	6.72	1.152	6.53	-87.2	0.06	4.2

S - Shallow well.

NM – Not measured due to well casing damage.

NMP – Not measured due to presence of trace free product.

TW - Temporary well (shallow).

TG – Treatment gate performance monitoring well.

Table 4

**Groundwater Sample Analytical Results
Shallow Groundwater Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002**

Sample ID:	MW-3S-220302-01	MW-5S-210302-09	MW-6S-210302-01	MW-7S-200302-04	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	3/22/2002	3/21/2002	3/21/2002	3/20/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L		
Parameters						
VOCs						
Benzene	0.2 U	0.2 U	0.2 U	3.6 J	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	12	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	36	124	620
PAHs						
Naphthalene	1 U	1 U	1 U	2100 J	8.0	40
Acenaphthalylene	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	NA	NA
Acenaphthene	0.8 U	0.8 U	0.8 U	58 J	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	8 J	80	400
Phenanthrene	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA
Anthracene	0.04 U	0.04 U	0.04 U	0.04 U	600	3,000
Fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA

Table 4 (continued)

Groundwater Sample Analytical Results
Shallow Groundwater Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002

Sample ID:	MW-9S-210302-04	MW-10S-210302-06	MW-13S-210302-07	MW-20S-200302-01	MW-25S-210302-08	MW-26S-040902-01	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	3/21/2002	3/21/2002	3/21/2002	3/20/2002	3/21/2002	4/9/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs								
Naphthalene	1 U	1 U	1 U	1 U	1 U	0.9 U	8.0	40
Acenaphthylene	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	0.8 U	NA	NA
Acenaphthene	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA
Anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	600	3,000
Fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.09 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA

Table 4 (continued)

**Groundwater Sample Analytical Results
Shallow Groundwater Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002**

Sample ID:	MW-27S-190302-10	MW-28S-210302-02	MW-29S-200302-07	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater		
Sample Date:	3/19/2002	3/21/2002	3/20/2002		
Units of Measure:	ug/L	ug/L	ug/L		
Parameters					
VOCs					
Benzene	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	124	620
PAHs					
Naphthalene	1 U	1.00 U	0.9 U	8.0	40
Acenaphthalylene	0.8 UJ	0.90 UJ	0.8 UJ	NA	NA
Acenaphthene	0.8 U	0.90 U	0.8 U	NA	NA
Fluorene	0.2 U	0.20 U	0.2 U	80	400
Phenanthrene	0.08 U	0.09 U	0.08 U	NA	NA
Anthracene	0.04 U	0.04 U	0.04 U	600	3,000
Fluoranthene	0.04 U	0.04 U	0.04 U	80	400
Pyrene	0.2 U	0.20 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.09 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.10 U	0.09 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.09 U	0.08 U	NA	NA

Table 4 (continued)

Groundwater Sample Analytical Results
Containment Performance Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002

Sample ID:	MW-30S-210302-10	MW-31S-210302-03	MW-32S-190302-11	MW-33S-190302-12	MW-34S-200302-03	MW-35S-200302-06	MW-36S-200302-08	MW-37S-200302-09	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	3/21/2002	3/21/2002	3/19/2002	3/19/2002	3/20/2002	3/20/2002	3/20/2002	3/20/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters										
VOCs										
Benzene	0.2 U	0.2 U	0.2 U	1 U	8.9 J	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	1 U	2.1 J	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	8.3	23	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	22	74	0.6 U	0.6 U	0.6 U	124	620
PAHs										
Naphthalene	1 U	1 U	1 U	2000	5400	1 U	1 U	1 U	8.0	40
Acenaphthylene	0.8 UJ	0.9 UJ	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	NA	NA
Acenaphthene	0.8 U	0.9 U	0.8 U	110	180	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	33	80	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.08 U	0.09 U	0.08 U	2	85	0.1 J	0.08 U	0.08 U	NA	NA
Anthracene	0.04 U	0.04 U	0.04 U	0.04 U	8	0.2 J	0.04 U	0.04 U	600	3,000
Fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	9	0.6	0.04 U	0.04 U	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	7	0.4 J	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	0.6	0.03 J	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.09 U	0.08 U	0.08 U	0.5	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.2 J	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	0.09 J	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.2	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.09 U	0.08 U	0.08 U	0.08 J	0.08 U	0.08 U	0.08 U	NA	NA

Table 4 (continued)

**Groundwater Sample Analytical Results
Treatment Performance Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002**

Sample ID:	TG1-1-191302-04	TG1-2-190302-05	TG1-3-190302-06	TG2-1-190302-01	TG2-2-190302-02	TG2-3-190302-03	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	3/19/2002	3/19/2002	3/19/2002	3/19/2002	3/19/2002	3/19/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	4.3 J	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	1.4 J	0.2	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	24	0.32 J	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	37	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs								
Naphthalene	2400 J	0.9 U	0.9 U	1 U	1 U	1 U	8.0	40
Acenaphthylene	50 J	0.8 UJ	0.8 UJ	0.9 UJ	0.8 UJ	0.8 UJ	NA	NA
Acenaphthene	420 J	0.8 U	0.8 U	0.9 U	0.8 U	0.8 U	NA	NA
Fluorene	270 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	640 J	0.08 U	0.08 U	0.09 U	0.08 U	0.08 J	NA	NA
Anthracene	90 J	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	600	3,000
Fluoranthene	280 J	0.07 J	0.07 J	0.04 U	0.04 U	0.04 U	80	400
Pyrene	280 J	0.2 J	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	54 J	0.02 J	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	42 J	0.08 U	0.08 U	0.09 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	20 J	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	12 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	23 J	0.02 U	0.03 J	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.2 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	11 J	0.09 U	0.09 U	0.1 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	10 J	0.08 U	0.08 U	0.09 U	0.08 U	0.08 U	NA	NA

Table 4 (continued)

Groundwater Sample Analytical Results
Treatment Performance Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002

Sample ID:	TG3-1-180302-07	TG3-2-180302-08	TG3-3-180302-09	TG4-1-190302-07	TG4-2-190302-08	TG4-3-190302-09	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	3/18/2002	3/18/2002	3/18/2002	3/19/2002	3/19/2002	3/19/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs								
Naphthalene	1 U	1 U	1 U	0.9 U	0.9 U	0.9 U	8.0	40
Acenaphthylene	0.8 UJ	0.8 UJ	0.9 UJ	0.8 UJ	0.8 UJ	0.8 UJ	NA	NA
Acenaphthene	0.8 U	0.8 U	0.9 U	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	0.4 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.08 U	0.08 U	0.09 U	0.08 U	0.08 U	0.08 U	NA	NA
Anthracene	0.1 J	0.04 U	0.06 J	0.04 U	0.04 U	0.04 U	600	3,000
Fluoranthene	0.07 J	0.04 U	0.05 J	0.04 U	0.04 U	0.07 J	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.09 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.09 U	0.09 U	0.09 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.09 U	0.08 U	0.08 U	0.08 U	NA	NA

Table 4 (continued)

**Groundwater Sample Analytical Results
Treatment Performance Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002**

Sample ID:	TG5-1-180302-04	TG5-2-180302-05	TG5-3-180302-06	TG6-1-180302-01	TG6-2-190302-02	TG6-3-190302-03	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	3/18/2002	3/18/2002	3/18/2002	3/18/2002	3/18/2002	3/18/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs								
Naphthalene	1 U	1 U	1 U	1 U	1 U	0.9 U	8.0	40
Acenaphthylene	0.8 UJ	0.8 UJ	0.9 UJ	0.9 UJ	0.8 UJ	0.8 UJ	NA	NA
Acenaphthene	0.8 U	0.8 U	0.9 U	0.9 U	0.8 U	0.8 U	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.08 U	0.08 U	0.09 U	0.09 U	0.08 U	0.08 U	NA	NA
Anthracene	0.04 U	0.04 U	0.04 U	0.07 J	0.08 J	0.04 J	600	3,000
Fluoranthene	0.04 U	0.04 U	0.05 J	0.06 J	0.1 J	0.05 J	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.05 J	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.09 U	0.09 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.09 U	0.05 J	0.02 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.06 J	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.05 J	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.08 J	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.09 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.09 U	0.09 U	0.08 U	0.08 U	NA	NA

Table 4 (continued)

**Groundwater Sample Analytical Results
Intermediate Groundwater Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002**

Sample ID:	MW-31-220302-02	MW-71-200302-05	MW-91-210302-05	MW-201-200302-02	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	3/22/2002	3/20/2002	3/21/2002	3/20/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L		
Parameters						
VOCs						
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	0.2 UJ	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs						
Naphthalene	1.00 U	1.00 U	1.00 U	1.00 U	8.0	40
Acenaphthylene	0.80 UJ	0.90 UJ	0.80 UJ	1.00 UJ	NA	NA
Acenaphthene	0.80 U	0.90 U	0.80 U	1.00 U	NA	NA
Fluorene	0.20 U	0.20 U	0.20 U	0.20 U	80	400
Phenanthrene	0.08 U	0.09 U	0.08 U	0.10 U	NA	NA
Anthracene	0.040 U	0.04 U	0.04 U	0.05 U	600	3,000
Fluoranthene	0.04 U	0.04 U	0.04 U	0.05 U	80	400
Pyrene	0.20 U	0.20 U	0.20 U	0.20 U	50	250
Benzo(a)anthracene	0.02 U	0.04 U	0.02 U	0.02 U	NA	NA
Chrysene	0.080 U	0.09 U	0.08 U	0.10 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.05 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.05 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.10 U	0.10 U	0.10 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.09 U	0.08 U	0.10 U	NA	NA

Table 4 (continued)

Groundwater Sample Analytical Results
 Field Duplicate Samples
 Moss-American Site
 Milwaukee, Wisconsin
 First Quarter 2002

Sample ID:	MW-33S-190302-DUP	MW-7S-200302-04-DUP	MW-29S-200302-07-DUP	MW-13S-210302-07-DUP	MW-28S-210302-DUP	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	3/19/2002	3/20/2002	3/20/2002	3/21/2002	3/21/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters							
VOCs							
Benzene	1 U	3.3 J	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	1 U	2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	7.2	12	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	19	34	0.6 U	0.6 U	0.6 U	124	620
PAHs							
Naphthalene	2200	1200 J	1 U	1 U	1 U	8.0	40
Acenaphthylene	43 UJ	0.9 UJ	0.8 UJ	0.8 UJ	0.9 UJ	NA	NA
Acenaphthene	130	56 J	0.8 U	0.8 U	0.9 U	NA	NA
Fluorene	37	8 J	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	2	0.09 U	0.08 U	0.08 U	0.09 U	NA	NA
Anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	600	3,000
Fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.09 U	0.08 U	0.08 U	0.09 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.09 U	0.08 U	0.08 U	0.09 U	NA	NA

Table 4 (continued)

**Groundwater Sample Analytical Results
Matrix Spike/Matrix Spike Duplicate Samples
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002**

Sample ID:	MW-09S-210302-04-MS	MW-09S-210302-04-MSD	MW-30S-210302-10-MS	MW-30S-210302-10-MSD	MW-32S-190302-11-MS	MW-32S-190302-11-MSD	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	3/21/2002	3/21/2002	3/21/2002	3/21/2002	3/19/2002	3/19/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	22	23	22	21	21	22	0.5	5
Toluene	22	23	22	22	21	22	68.6	343
Ethylbenzene	22	23	22	22	21	22	140	700
Total Xylenes	67	69	68	65	65	66	124	620
PAHs								
Naphthalene	170	160	170	170	150	160	8.0	40
Acenaphthylene	180	180	190	180	170	180	NA	NA
Acenaphthene	190	180	180	180	170	180	NA	NA
Fluorene	19	18	18	17	17	18	80	400
Phenanthrene	6	6	6	5	6	6	NA	NA
Anthracene	3	3	3	3	3	3	600	3,000
Fluoranthene	3	3	3	3	3	3	80	400
Pyrene	20	19	19	19	20	21	50	250
Benzo(a)anthracene	2	1	1	1	1	2	NA	NA
Chrysene	6	6	6	6	6	6	0.02	0.2
Benzo(b)fluoranthene	1	1	1	1	1	1	0.02	0.2
Benzo(k)fluoranthene	1	1	1	1	1	1	NA	NA
Benzo(a)pyrene	2	2	1	1	1	2	0.02	0.2
Dibenzo(a,h)anthracene	3	3	3	3	3	3	NA	NA
Benzo(g,h,i)perylene	12	12	12	12	11	12	NA	NA
Indeno(1,2,3-cd)pyrene	6	6	6	6	6	6	NA	NA

Table 4 (continued)

Groundwater Sample Analytical Results
 Field Blank Samples
 Moss-American Site
 Milwaukee, Wisconsin
 First Quarter 2002

Sample ID:	FB-01	FB-02	FB-03	FB-04	FB-05	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	3/19/2002	3/20/2002	3/21/2002	3/21/2002	3/22/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters							
VOCs							
Benzene	0.2 U	0.2 U	NM	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	NM	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	NM	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	0.6 U	NM	0.6 U	0.6 U	124	620
PAHs							
Naphthalene	1 U	1 U	0.9 U	1 U	0.9 U	8.0	40
Acenaphthylene	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	NA	NA
Acenaphthene	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA
Anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	600	3,000
Fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.09 U	0.1 U	0.09 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA

Table 4 (continued)

Groundwater Sample Analytical Results

Table Notes

Moss-American Site

Milwaukee, Wisconsin

First Quarter 2002

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.

NM - Not measured.

Bold values indicate concentration exceeding PAL.

Bold and shaded values indicate concentration exceeding PAL and ES.

Table 5

**Concentration Trends in Groundwater Monitoring Wells
Second Quarter 1999 through First Quarter 2002
Moss-American Site
Milwaukee, Wisconsin**

	MW-4S ¹	MW-7S	TW-05 ³	MW-32S ²	MW-33S ²	MW-34S ²	MW-35S ²	TG1-1 ²
Benzene (ug/L)								
Second Quarter (June '99)	6.00	7.00 J	0.20 U	---	---	---	---	---
Third Quarter (September '99)	3.00	9.00	0.20 U	---	---	---	---	---
Fourth Quarter (December '99)	2.80	7.10	0.20 U	---	---	---	---	---
First Quarter (March '00)	4.00	5.20	0.20 U	---	---	---	---	---
Second Quarter (June '00)	3.40	4.00 J	0.20 U	0.20 U	1.00 U	9.50 J	0.20 U	---
Third Quarter (September '00)	25.0	4.00 U	0.20 U	0.20 U	1.00 U	8.10 J	0.20 U	2.80
Fourth Quarter (December '00)	2.60	3.40 J	0.20 U	0.20 U	8.30 J	2.00 U	0.20 U	7.00
First Quarter (March '01)	5.10 J	5.50 J	0.20 U	0.20 U	4.00 U	9.80 J	0.20 U	2.80
Second Quarter (June '01)	---	2.90 J	0.20 U	0.20 U	1.00 U	6.80 J	0.20 U	5.00
Third Quarter (September '01)	---	3.70 J	0.20 U	0.20 U	1.00 U	9.00 J	0.20 U	3.10
Fourth Quarter (December '01)	---	7.70 J	---	0.20 U	1.00 U	6.10 J	0.20 U	5.70
First Quarter (March '02)	---	3.6 J	---	0.20 U	1.00 U	8.9 J	0.20 U	4.3 J
Naphthalene (ug/L)								
Second Quarter (June '99)	940	6,400	3.90 J	---	---	---	---	---
Third Quarter (September '99)	418 J	0.80 U	7.90 J	---	---	---	---	---
Fourth Quarter (December '99)	790	4,740	9.00 J	---	---	---	---	---
First Quarter (March '00)	1,020	3,950	9.80 J	---	---	---	---	---
Second Quarter (June '00)	364 J	4,260	6.96 J	40.70	1,920	5,980	42.70	---
Third Quarter (September '00)	810	3,960	15.30 J	59.30	2,220	5,720	0.78 U	475
Fourth Quarter (December '00)	720	3,470	10.00 J	1.25 J	1,760	5,050	0.94 J	3,300
First Quarter (March '01)	830	3,800	8.60 J	0.78 U	2,900	5,900	2.36 J	1,890
Second Quarter (June '01)	---	3,200	8.00 J	0.80 U	2,900	5,700	1.00 J	2,200
Third Quarter (September '01)	---	3,700	22.00	1.00 U	2,600	6,200	1.00 J	2,400
Fourth Quarter (December '01)	---	3,300	---	1.00 U	2,100	6,700	1.00 U	2,600
First Quarter (March '02)	---	2,100	---	1.00 U	2,200	5,400	1.00 U	2,400

Table 5 (continued)

**Concentration Trends in Groundwater Monitoring Wells
Second Quarter 1999 through First Quarter 2002
Moss-American Site
Milwaukee, Wisconsin**

	MW-4S ¹	MW-7S	TW-05 ³	MW-32S ²	MW-33S ²	MW-34S ²	MW-35S ²	TG1-1 ²
Fluorene (ug/L)								
Second Quarter (June '99)	547	36.5	79.6	---	---	---	---	---
Third Quarter (September '99)	651	39.2	136.0	---	---	---	---	---
Fourth Quarter (December '99)	333	24.4	66.6	---	---	---	---	---
First Quarter (March '00)	281	15.8	55.5	---	---	---	---	---
Second Quarter (June '00)	223	12.8	53.2	0.17 U	1.41	89.0	4.92	---
Third Quarter (September '00)	103	14.2	74.6	0.19	5.86	73.0 J	0.17 U	16.2
Fourth Quarter (December '00)	217	12.7	40.1	0.82 U	15.0	74.0	0.23 J	69.2
First Quarter (March '01)	210	10.0	43.0	0.17 U	19.0	83.0	0.31 J	72.0
Second Quarter (June '01)	---	8.5	56.0	0.20 U	27.0	80.0	0.20 U	59.0
Third Quarter (September '01)	---	11.0	60.0	0.20 U	34.0	120.0	0.20 U	410
Fourth Quarter (December '01)	---	11.0	---	0.20 U	32.0	320.0	0.20 U	80
First Quarter (March '02)	---	8.0	---	0.20 U	37.0	80.0	0.20 U	270
Benzo(a) pyrene (ug/L)								
Second Quarter (June '99)	35.10	0.12 U	1.420	---	---	---	---	---
Third Quarter (September '99)	40.50	0.022 U	4.330	---	---	---	---	---
Fourth Quarter (December '99)	9.70	0.21 U	1.490	---	---	---	---	---
First Quarter (March '00)	8.40	0.21 U	1.440	---	---	---	---	---
Second Quarter (June '00)	1.70 J	0.021 U	0.361	0.02 U	0.02 U	2.00 U	0.162	---
Third Quarter (September '00)	6.70 J	0.019 U	0.890	0.02 U	0.02 U	0.10	0.153	0.052
Fourth Quarter (December '00)	0.051 J	0.02 U	0.096 U	0.021 U	0.02 U	0.031 J	0.138	0.19 U
First Quarter (March '01)	1.00 U	0.19 U	0.110 U	0.019 U	0.20 U	0.23 U	0.023 U	0.39U
Second Quarter (June '01)	---	0.02 U	0.020 U	0.02	0.02 U	0.030 J	0.020 U	0.05 J
Third Quarter (September '01)	---	0.02 U	0.020 J	0.02 U	0.02 U	3.00	0.020 J	33.0
Fourth Quarter (December '01)	---	0.02 U	---	0.02 U	0.02 U	19.00	0.030 J	0.050 J
First Quarter (March '02)	---	0.02 U	---	0.02 U	0.02 U	0.20	0.020 U	23

--- - No data available.

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

J - Estimated concentration.

ug/L - Micrograms per liter.

1 - MW-4S was removed during Q2 2001 to prepare for excavation of soils surrounding the well.

2 - Additional wells (MW-32S, MW-33S, MW-34S, MW-35S, and TG1-1) installed after March 2000.

3 - TW-05 was removed during Q4 2001 to prepare for excavation of soils surrounding the well.

Table 6

**Groundwater Sample Analytical Results
Treatment Performance Monitoring Wells - Nutrient and Biological Parameters
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002**

Parameter (mg/L)	Sample Identification								
	TG1-1			TG1-2			TG1-3		
	January	February	March	January	February	March	January	February	March
Kjeldahl Nitrogen	0.8 J	1.3	1.1	1.1 J	1.3	1.1	0.85 J	2.5	0.84 J
Nitrite Nitrogen	0.015 U	0.015 U	0.015 UJ	0.015 U	0.015 U	0.015 UJ	0.015 U	0.015 U	0.015 UJ
Nitrate Nitrogen	0.17	0.040 U	0.040 U	0.14	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Ammonia Nitrogen	0.83 J	0.63 J	1.2	0.89 J	0.82 J	0.92 J	0.65 J	0.53 J	0.71 J
Ortho-Phosphate as P	0.02	0.027	0.0066 UJ	0.013 J	0.025	0.0066 UJ	0.016 J	0.0066 U	0.0066 UJ
Biochemical Oxygen Demand (BOD)	NA	NA	8.2 J	NA	NA	4.8 J	NA	NA	5.0 UJ
Total Organic Carbon (non-purgable)	NA	NA	13.7	NA	NA	12.3	NA	NA	8.9
Total Phosphorous as PO4	0.12 U	0.2	0.2	0.12 J	0.31	0.33	0.16 J	0.18 J	0.34
Chemical Oxygen Demand (COD)	NA	NA	57	NA	NA	31.9	NA	NA	25.5
Total Microbial Population (mean)	3.30E+03	5.90E+03	5.60E+03	6.60E+02	7.90E+03	4.20E+02	4.60E+03	6.70E+03	4.40E+02
Degrader Microbial Population (mean)	8.40E+02	8.30E+02	2.00E+02	1.10E+02	2.80E+02	5.00E+01	3.90E+02	5.90E+02	3.00E+01
	TG2-1			TG2-2			TG2-3		
	January	February	March	January	February	March	January	February	March
Kjeldahl Nitrogen	0.30 U	0.65 J	0.30 U	0.6 J	0.68 J	0.41 J	0.82 J	1.5	0.89 J
Nitrite Nitrogen	0.015 U	0.015 U	0.015 UJ	0.015 U	0.015 U	0.015 UJ	0.016 J	0.018 J	0.015 J
Nitrate Nitrogen	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.054 J	0.040 U
Ammonia Nitrogen	0.46 U	0.46 U	0.46 U	0.53 J	0.46 U	0.46 U	0.59 J	0.82 J	1.1
Ortho-Phosphate as P	0.0197 J	0.0066 U	0.0066 UJ	0.009 J	0.0066 U	0.0096 J	0.015 J	0.0066 U	0.0101 J
Biochemical Oxygen Demand (BOD)	NA	NA	3.0 UJ	NA	NA	5.2 UJ	NA	NA	5.6 J
Total Organic Carbon (non-purgable)	NA	NA	1.95 U	NA	NA	2.1 U	NA	NA	11.6
Total Phosphorous as PO4	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.22	0.12 J	0.2	0.28
Chemical Oxygen Demand (COD)	NA	NA	5.2 J	NA	NA	6.4 J	NA	NA	17.5
Total Microbial Population (mean)	4.50E+02	7.10E+03	6.50E+03	4.60E+02	4.50E+02	5.40E+02	6.00E+02	3.10E+03	9.10E+02
Degrader Microbial Population (mean)	2.10E+02	7.50E+02	3.00E+02	5.60E+02	6.00E+01	2.00E+01	2.90E+02	6.20E+02	2.00E+01

Table 6 (continued)

Groundwater Sample Analytical Results
Treatment Performance Monitoring Wells - Nutrient and Biological Parameters
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002

Parameter (mg/L)	Sample Identification								
	TG3-1			TG3-2			TG3-3		
	January	February	March	January	February	March	January	February	March
Kjeldahl Nitrogen	0.87 J	1.2	1.3	1.24 J	1.3	1.1	1.54 J	1.2	1.3
Nitrite Nitrogen	0.015 U	0.015 U	0.015 U	0.028 J	0.018 J	0.022 J	0.037 J	0.022 J	0.035 J
Nitrate Nitrogen	0.27	0.040 U	0.040 U	0.13	0.040 U	0.040 U	0.13	0.040 U	0.040 U
Ammonia Nitrogen	0.77 J	0.88 J	1.3 J	0.92 J	0.97 J	1.2 J	1	1 J	1.3 J
Ortho-Phosphate as P	0.017 J	0.0066 U	0.0066 U	0.0028 U	0.0066 U	0.0066 U	0.012 J	0.0066 U	0.009 J
Biochemical Oxygen Demand (BOD)	NA	NA	3.8 U	NA	NA	9.1	NA	NA	8.2
Total Organic Carbon (non-purgable)	NA	NA	11	NA	NA	8	NA	NA	11.9
Total Phosphorous as PO4	0.12 U	0.14 J	0.26	0.17 J	0.2 J	0.28	0.4	0.3	0.43
Chemical Oxygen Demand (COD)	NA	NA	28.3	NA	NA	23.6	NA	NA	35.3
Total Microbial Population (mean)	2.10E+04	1.51E+05	1.18E+04	7.10E+02	1.50E+04	2.70E+03	7.30E+02	9.40E+03	1.46E+03
Degrader Microbial Population (mean)	7.00E+02	4.30E+04	2.00E+02	3.90E+02	7.10E+03	2.50E+03	6.80E+02	6.70E+02	4.00E+01
Parameter (mg/L)	TG4-1			TG4-2			TG4-3		
	January	February	March	January	February	March	January	February	March
Kjeldahl Nitrogen	NS	0.67 J	0.40 J	1.02 J	1.1	0.97 J	0.89 J	1.3	0.90 J
Nitrite Nitrogen	NS	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Nitrate Nitrogen	NS	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Ammonia Nitrogen	NS	0.53 J	0.55 J	0.89 J	0.76 J	0.97 J	0.89 J	0.82 J	0.92 J
Ortho-Phosphate as P	NS	0.0066 U	0.0066 UJ	0.025	0.0066 U	0.0066 UJ	0.036	0.0066 U	0.0066 UJ
Biochemical Oxygen Demand (BOD)	NS	NA	3.3 UJ	NA	NA	4.4 UJ	NA	NA	3.8 UJ
Total Organic Carbon (non-purgable)	NS	NA	5.4	NA	NA	8.9	NA	NA	5.8
Total Phosphorous as PO4	NS	0.2 J	0.28	0.12 U	0.12 U	0.24	0.12 U	0.14 J	0.26
Chemical Oxygen Demand (COD)	NS	NA	15.1	NA	NA	21.5	NA	NA	17.1
Total Microbial Population (mean)	NS	2.60E+03	1.58E+03	2.30E+03	3.70E+03	6.30E+03	3.90E+03	2.47E+04	1.49E+03
Degrader Microbial Population (mean)	NS	4.90E+02	4.90E+02	9.10E+02	1.32E+03	6.00E+02	5.70E+02	2.80E+02	4.00E+01

Table 6 (continued)

Groundwater Sample Analytical Results
Treatment Performance Monitoring Wells - Nutrient and Biological Parameters
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002

Parameter (mg/L)	Sample Identification								
	TG5-1			TG5-2			TG5-3		
	January	February	March	January	February	March	January	February	March
Kjeldahl Nitrogen	0.45 J	0.55 J	0.49 J	0.60 U	0.67 J	0.48 J	0.60 U	0.58 J	0.47 J
Nitrite Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Nitrate Nitrogen	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Ammonia Nitrogen	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.55 J	0.46 U	0.46 U	0.8 J
Ortho-Phosphate as P	0.007 J	0.013 J	0.0066 U	0.0028 U	0.0096 J	0.0066 U	0.008 J	0.013 J	0.0066 U
Biochemical Oxygen Demand (BOD)	NA	NA	2.6 U	NA	NA	2.9 U	NA	NA	2.7 U
Total Organic Carbon (non-purgable)	NA	NA	5.6	NA	NA	5.2	NA	NA	5
Total Phosphorous as PO4	0.12 U	0.12 J	0.19 J	0.12 U	0.12 J	0.2	0.12 U	0.12 U	0.16 J
Chemical Oxygen Demand (COD)	NA	NA	13.2	NA	NA	20.2	NA	NA	10.7
Total Microbial Population (mean)	6.40E+02	9.40E+02	7.00E+03	5.50E+02	7.50E+02	1.47E+03	1.00E+03	1.05E+03	7.90E+03
Degrader Microbial Population (mean)	1.20E+02	5.80E+02	2.00E+02	2.80E+02	1.00E+02	2.00E+01	1.40E+02	6.00E+01	1.00E+02
Parameter (mg/L)	TG6-1			TG6-2			TG6-3		
	January	February	March	January	February	March	January	February	March
	January	February	March	January	February	March	January	February	March
Kjeldahl Nitrogen	1.12 J	1.2	0.96 J	1.15 J	0.99 J	0.59 J	0.75 J	1.3	0.95 J
Nitrite Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Nitrate Nitrogen	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Ammonia Nitrogen	0.56 J	1.1	1.4 J	0.46 U	0.46 U	0.5 J	0.46 U	0.53 J	0.84 J
Ortho-Phosphate as P	0.0173 J	0.0066 U	0.034	0.0039 J	0.0066 U	0.0066 U	0.0028 U	0.0066 U	0.0066 U
Biochemical Oxygen Demand (BOD)	NA	NA	2.5 U	NA	NA	2.5 U	NA	NA	2.8 U
Total Organic Carbon (non-purgable)	NA	NA	7.9	NA	NA	10.5	NA	NA	9.9
Total Phosphorous as PO4	0.12 J	0.31	0.27	0.12 U	0.12 U	0.18 J	0.12 U	0.12 U	0.23
Chemical Oxygen Demand (COD)	NA	NA	19.4	NA	NA	25.2	NA	NA	22.9
Total Microbial Population (mean)	6.20E+03	8.70E+03	5.00E+03	1.40E+03	8.90E+02	8.90E+03	5.30E+02	5.50E+03	5.80E+03
Degrader Microbial Population (mean)	3.90E+02	9.30E+02	1.00E+02	6.20E+02	1.60E+02	1.40E+03	1.90E+02	2.90E+02	2.00E+02

U - Compound not detected. Detection limit indicated.

J - Estimated value.

NA - Not analyzed.

NS - Well not measured due to freezing conditions.

Table 7

**Calculation of Carbon:Nitrogen:Phosphorous Ratios
Treatment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002**

Well	Carbon ¹ , mg/L	Total Nitrogen ² , mg/L	Phosphorous ³ , mg/L	C-N-P Ratio (100-14-1 desired)
TG1-1	13.7	1.2	ND	100 - 8.8 - 0.0
TG1-2	12.3	0.92	ND	100 - 7.5 - 0.0
TG1-3	8.9	0.71	ND	100 - 8.0 - 0.0
TG2-1	ND	ND	ND	100 - 0.0 - 0.0
TG2-2	ND	ND	0.0096	100 - 0 - 0.0
TG2-3	11.6	1.115	0.0101	100 - 9.6 - 0.1
TG3-1	11	1.3	ND	100 - 11.82 - 0.0
TG3-2	8	1.22	ND	100 - 15.3 - 0.0
TG3-3	11.9	1.34	0.009	100 - 11.2 - 0.1
TG4-1	5.4	ND	ND	100 - 0.0 - 0.0
TG4-2	8.9	ND	ND	100 - 0.0 - 0
TG4-3	5.8	ND	ND	100 - 0.0 - 0.0
TG5-1	5.6	0.00	ND	100 - 0.0 - 0.0
TG5-2	5.2	0.55	ND	100 - 10.6 - 0.0
TG5-3	5	0.80	ND	100 - 16.0 - 0.0
TG6-1	7.9	1.40	0.0340	100 - 17.72 - 0.4
TG6-2	10.5	0.5	ND	100 - 4.76 - 0.0
TG6-3	9.9	0.84	ND	100 - 8.5 - 0.0
Site Average	8.9	0.91	0.016	100 - 10.3 - 0.2

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

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

3 - Phosphorous measured as orthophosphate (PO₄-P).

ND - Constituent not detected.

Shaded values indicate values less than desired quantity.

ATTACHMENT 1

**MONTHLY FIELD-MEASURED PARAMETERS
FOR TREATMENT PERFORMANCE MONITORING WELLS**

Attachment 1
Monthly Field-Measured Parameters
Treatment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2002

Well Number	Date	Temperature (C)	pH	Specific Conductance (micromhos/cm)	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (Ntu)
TG1-1	January-02	4.8	6.98	0.892	-75.5	NMP	NM
	February-02	4.6	7.06	1.105	-77.6	NMP	NM
	March-02	6.6	6.90	1.059	-74.5	0.04	3.03
TG1-2	January-02	5.9	6.87	1.029	-73.7	0.83	NM
	February-02	5.1	6.95	1.127	-53.6	0.50	NM
	March-02	7.3	6.89	0.981	-71.6	0.04	2.5
TG1-3	January-02	6.0	7.06	1.030	-68.6	2.17	NM
	February-02	5.3	7.04	1.148	-66.7	0.30	NM
	March-02	7.0	6.94	1.014	-63.1	0.05	13.10
TG2-1	January-02	6.1	6.89	0.739	-38.3	0.28	NM
	February-02	4.7	7.03	0.802	-46.6	0.40	NM
	March-02	6.3	6.80	0.720	-14.1	0.08	4.16
TG2-2	January-02	6.5	6.95	0.658	-68.2	0.20	NM
	February-02	5.4	7.11	0.750	-67.5	0.30	NM
	March-02	6.3	7.14	0.653	-24	0.18	1.88
TG2-3	January-02	5.7	6.68	1.263	-49.3	0.24	NM
	February-02	4.8	6.83	1.242	-54.7	0.30	NM
	March-02	6.1	6.64	1.224	-40.6	0.11	4.56
TG3-1	January-02	5.0	6.63	1.156	-53.5	5.94	NM
	February-02	4.7	6.59	0.984	-25.2	7.20	NM
	March-02	4.9	6.82	1.034	-63.7	0.19	7.52
TG3-2	January-02	5.0	6.74	0.858	-92.0	0.56	NM
	February-02	4.6	6.77	0.785	-66.1	0.10	NM
	March-02	4.6	6.81	0.817	-89.3	0.06	2.73
TG3-3	January-02	5.6	6.54	1.137	-77.7	0.40	NM
	February-02	4.7	6.73	1.050	-60.3	0.10	NM
	March-02	5.0	6.59	1.058	-51.6	0.06	7.15
TG4-1	January-02	2.8	7.20	0.736	-90.3	NA	NM
	February-02	4.2	7.12	0.805	-68.8	NA	NM
	March-02	5.5	6.89	0.714	-73.3	0.05	3.08
TG4-2	January-02	5.5	7.08	0.745	-89.1	0.62	NM
	February-02	4.8	7.09	0.822	-70.6	1.20	NM
	March-02	5.9	7.10	0.734	-71.9	0.06	1.48
TG4-3	January-02	5.9	7.06	0.752	-86.3	0.75	NM
	February-02	4.8	7.10	0.876	-67.7	2.10	NM
	March-02	6.2	6.99	0.711	-60.2	0.05	3.13
TG5-1	January-02	5.4	7.09	0.665	-82.5	0.57	NM
	February-02	6.4	7.05	0.714	-60.2	4.10	NM
	March-02	5.9	7.08	0.722	-75.8	0.20	4.57
TG5-2	January-02	5.2	7.12	0.678	-96.6	0.56	NM
	February-02	6.0	7.09	0.653	-68.6	3.60	NM
	March-02	5.3	7.12	0.721	-73.5	0.23	5.8
TG5-3	January-02	7.4	7.29	0.694	-64.3	0.61	NM
	February-02	7.0	7.08	0.653	-44.2	0.10	NM
	March-02	7.1	7.17	0.687	-35.8	0.11	24.2
TG6-1	January-02	5.2	7.03	0.933	-105.9	0.49	NM
	February-02	5.3	6.96	0.975	-55	0.20	NM
	March-02	6.0	6.78	1.106	-173	0.26	6.43
TG6-2	January-02	6.2	6.78	1.150	-35.7	0.28	NM
	February-02	5.5	6.72	1.087	-28.7	0.60	NM
	March-02	6.6	6.98	1.189	-109.3	0.08	3.47
TG6-3	January-02	5.9	6.66	1.029	-45	0.20	NM
	February-02	5.6	6.73	0.987	-27.6	1.30	NM
	March-02	6.5	6.72	1.152	-87.2	0.06	4.20

NA- Not available due to cold temperatures and ice.

NM- Not measured. Value only measured quarterly.

NMP- Not measured due to free product observed in well.

ATTACHMENT 2

JANUARY 2002 GROUNDWATER SAMPLE ANALYTICAL RESULTS



ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 795314. Samples arrived at the laboratory on Friday, February 01, 2002.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
MA3-TG6-1-300102-01 Grab Water Sample	3767304
MA3-TG6-2-300102-02 Grab Water Sample	3767305
MA3-TG6-3-300102-03 Grab Water Sample	3767306
MA3-TG5-1-300102-04 Grab Water Sample	3767307
MA3-TG5-2-300102-05 Grab Water Sample	3767308
MA3-TG5-3-300102-06 Grab Water Sample	3767309
MA3-TG4-2-300102-07 Grab Water Sample	3767310
MA3-TG4-3-300102-08 Grab Water Sample	3767311
MA3-TG3-1-310102-01 Grab Water Sample	3767312
MA3-TG3-2-310102-02 Grab Water Sample	3767313
MA3-TG3-3-310102-03 Grab Water Sample	3767314
MA3-TG2-1-310102-04 Grab Water Sample	3767315
MA3-TG2-2-310102-05 Grab Water Sample	3767316
MA3-TG2-3-310102-06 Grab Water Sample	3767317
MA3-TG1-1-310102-07 Grab Water Sample	3767318
MA3-TG1-2-310102-08 Grab Water Sample	3767319
MA3-TG1-3-310102-09 Grab Water Sample	3767320

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 Roy F. Weston
1 COPY TO Data Package Group

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



Lancaster Laboratories, Inc.
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Lancaster Laboratories

Where quality is a science.

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

Respectfully Submitted,

Robert G. Heisey
Sr. Chemist/Coordinator



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Lancaster Laboratories Sample No. WW 3767304

Collected: 01/30/2002 14:35 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

Kerr-McGee Corporation

Reported: 02/12/2002 at 11:55

P.O. Box 25861

Discard: 03/15/2002

Oklahoma City OK 73125

MA3-TG6-1-300102-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

36121 SDG#: KMA03-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.	7727-37-9	1.12 J		0.60	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 Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.	7664-41-7	0.56 J		0.46	mg/l	1
00226	Ortho-Phosphate as P This sample was analyzed past the 48 hour hold time for orthophosphate.	14265-44-2	0.0173 J		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.12 J		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 20:50		Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:38		Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 14:58		Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15		Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	02/02/2002 01:30		Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:14		Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53		Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:00		Cheryl L Robinson	1



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Lancaster Laboratories Sample No. WW 3767305

Collected: 01/30/2002 14:45 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

Kerr-McGee Corporation

Reported: 02/12/2002 at 11:55

P.O. Box 25861

Discard: 03/15/2002

Oklahoma City OK 73125

MA3-TG6-2-300102-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG6-2 SDG#: KMA03-02

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result	J	Method	Units	
00217	Kjeldahl Nitrogen Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.	7727-37-9	1.15	J	Detection Limit 0.60	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 Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.	7664-41-7	N.D.		0.46	mg/l	1
00226	Ortho-Phosphate as P This sample was analyzed past the 48 hour hold time for orthophosphate.	14265-44-2	0.0039	J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 20:51	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:40	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 14:59	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	02/02/2002 01:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:20	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:00	Cheryl L Robinson	1



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Lancaster Laboratories Sample No. WW 3767306

Collected: 01/30/2002 14:55 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15
 Reported: 02/12/2002 at 11:55
 Discard: 03/15/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG6-3-300102-03 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG6-3 SDG#: KMA03-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.	7727-37-9	0.75 J		0.60	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 Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.	7664-41-7	N.D.		0.46	mg/l	1
00226	Ortho-Phosphate as P This sample was analyzed past the 48 hour hold time for orthophosphate.	14265-44-2	N.D.		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 20:53		Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:41		Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 15:03		Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15		Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	2	02/06/2002 20:20		Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:21		Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53		Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:00		Cheryl L Robinson	1

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0015



Lancaster Laboratories Sample No. WW 3767307

Collected: 01/30/2002 15:35 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

Kerr-McGee Corporation

Reported: 02/12/2002 at 11:56

P.O. Box 25861

Discard: 03/15/2002

Oklahoma City OK 73125

MA3-TG5-1-300102-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG5-1 SDG#: KMA03-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.45 J		0.30	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.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0073 J		0.0028	mg/l	1
This sample was analyzed past the 48 hour hold time for orthophosphate.							
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 20:54	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:42	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 15:04	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	02/02/2002 01:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:22	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:00	Cheryl L Robinson	1



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Lancaster Laboratories Sample No. WW 3767308

Collected: 01/30/2002 15:45 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

Kerr-McGee Corporation

Reported: 02/12/2002 at 11:56

P.O. Box 25861

Discard: 03/15/2002

Oklahoma City OK 73125

MA3-TG5-2-300102-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG5-2 SDG#: KMA03-05

CAT No.	Analysis Name	CAS Number	As Received		Units	Dilution Factor
			Result	Method Detection Limit		
00217	Kjeldahl Nitrogen Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.	7727-37-9	N.D.	0.60	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 Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.	7664-41-7	N.D.	0.46	mg/l	1
00226	Ortho-Phosphate as P This sample was analyzed past the 48 hour hold time for orthophosphate.	14265-44-2	N.D.	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 21:00	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:43	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 15:06	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	2	02/06/2002 20:20	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:23	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:00	Cheryl L Robinson	1



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Lancaster Laboratories Sample No. WW 3767309

Collected: 01/30/2002 15:55 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

Kerr-McGee Corporation

Reported: 02/12/2002 at 11:56

P.O. Box 25861

Discard: 03/15/2002

Oklahoma City OK 73125

MA3-TG5-3-300102-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG5-3 SDG#: KMA03-06

CAT No.	Analysis Name	CAS Number	As Received		Units	Dilution Factor
			As Received Result	Method Detection Limit		
00217	Kjeldahl Nitrogen Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.	7727-37-9	N.D.	0.60	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 Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.	7664-41-7	N.D.	0.46	mg/l	1
00226	Ortho-Phosphate as P This sample was analyzed past the 48 hour hold time for orthophosphate.	14265-44-2	0.0083 J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilut: Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 21:01	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:44	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 15:07	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	2	02/06/2002 20:20	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:24	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:00	Cheryl L Robinson	1



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717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 3767310

Collected: 01/30/2002 17:20 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

Kerr-McGee Corporation

Reported: 02/12/2002 at 11:56

P.O. Box 25861

Discard: 03/15/2002

Oklahoma City OK 73125

MA3-TG4-2-300102-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG4-2 SDG#: KMA03-07

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.	7727-37-9	1.02	J	Detection Limit 0.60	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 Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.	7664-41-7	0.89	J	0.46	mg/l	1
00226	Ortho-Phosphate as P This sample was analyzed past the 48 hour hold time for orthophosphate.	14265-44-2	0.025		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 21:03	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:46	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 15:08	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	02/02/2002 01:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:24	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:00	Cheryl L Robinson	1



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0019



Lancaster Laboratories Sample No. WW 3767311

Collected: 01/30/2002 17:30 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

Kerr-McGee Corporation

Reported: 02/12/2002 at 11:56

P.O. Box 25861

Discard: 03/15/2002

Oklahoma City OK 73125

MA3-TG4-3-300102-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG4-3 SDG#: KMA03-08

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result	J	Method	Detection Limit	
00217	Kjeldahl Nitrogen Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.	7727-37-9	0.89	J	0.60	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 Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.	7664-41-7	0.89	J	0.46	mg/l	1
00226	Ortho-Phosphate as P This sample was analyzed past the 48 hour hold time for orthophosphate.	14265-44-2	0.036		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Diluti Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 21:04	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:47	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 15:26	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	02/02/2002 01:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:25	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:00	Cheryl L Robinson	1



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Lancaster Laboratories Sample No. WW 3767312

Collected: 01/31/2002 09:10. by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

Kerr-McGee Corporation

Reported: 02/12/2002 at 11:56

P.O. Box 25861

Discard: 03/15/2002

Oklahoma City OK 73125

MA3-TG3-1-310102-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG3-1 SDG#: KMA03-09

CAT No.	Analysis Name	CAS Number	As Received		Method Detection Limit	Units	Dilution Factor
			Result	J			
00217	Kjeldahl Nitrogen	7727-37-9	0.87	J	0.60	mg/l	1
Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.							
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.27		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.77	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0173	J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 21:05	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:51	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 15:27	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	02/02/2002 01:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:26	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:00	Cheryl L Robinson	1



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Lancaster Laboratories Sample No. WW 3767313

Collected: 01/31/2002 09:20 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

Kerr-McGee Corporation

Reported: 02/12/2002 at 11:56

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Discard: 03/15/2002

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MA3-TG3-2-310102-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG3-2 SDG#: KMA03-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.	7727-37-9	1.24 J	J	0.60	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.028 J	J	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.13	J	0.040	mg/l	1
00221	Ammonia Nitrogen Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.	7664-41-7	0.92 J	J	0.46	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	N.D.	J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.17 J	J	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 21:06		Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:52		Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 15:28		Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15		Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	02/02/2002 01:30		Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:31		Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53		Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:45		Cheryl L Robinson	1



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Lancaster Laboratories Sample No. WW 3767314

Collected: 01/31/2002 09:30 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

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MA3-TG3-3-310102-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG3-3 SDG#: KMA03-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.	7727-37-9	1.54 J		0.60	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.037 J		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.13		0.040	mg/l	1
00221	Ammonia Nitrogen Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.	7664-41-7	1.0		0.46	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0123 J		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.40		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 21:08	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:53	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 15:29	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	02/02/2002 01:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:34	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:45	Cheryl L Robinson	1



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Lancaster Laboratories Sample No. WW 3767315

Collected: 01/31/2002 10:20 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

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Reported: 02/12/2002 at 11:56

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Discard: 03/15/2002

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MA3-TG2-1-310102-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG2-1 SDG#: KMA03-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	N.D.		0.30	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.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0197 J		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 21:09	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:54	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 15:14	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	02/02/2002 01:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:35	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:45	Cheryl L Robinson	1



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Lancaster Laboratories Sample No. WW 3767316

Collected: 01/31/2002 10:30 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

Kerr-McGee Corporation

Reported: 02/12/2002 at 11:56

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Discard: 03/15/2002

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MA3-TG2-2-310102-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG2-2 SDG#: KMA03-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.60 J		0.30	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	0.53 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0093 J		0.0028	mg/l	1
This sample was analyzed past the 48 hour hold time for orthophosphate.							
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 21:15	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:56	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 15:18	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	2	02/06/2002 20:20	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:35	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:45	Cheryl L Robinson	1



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00245



Lancaster Laboratories Sample No. **WW 3767317**

Collected: 01/31/2002 10:40 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15
 Reported: 02/12/2002 at 11:56
 Discard: 03/15/2002

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MA3-TG2-3-310102-06 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG2-3 SDG#: KMA03-14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.	7727-37-9	0.82 J		0.60	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.016 J		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.	7664-41-7	0.59 J		0.46	mg/l	1
00226	Ortho-Phosphate as P This sample was analyzed past the 48 hour hold time for orthophosphate.	14265-44-2	0.0148 J		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.12 J		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Diluti. Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 21:16	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:57	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 15:19	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	2	02/06/2002 20:20	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:36	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:45	Cheryl L Robinson	1



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Lancaster Laboratories Sample No. WW 3767318

Collected: 01/31/2002 13:10 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15
 Reported: 02/12/2002 at 11:57
 Discard: 03/15/2002

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MA3-TG1-1-310102-07 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG1-1 SDG#: KMA03-15

CAT No.	Analysis Name	CAS Number	As Received		As Received	Units	Dilution Factor
			Result	J	Method Detection Limit		
00217	Kjeldahl Nitrogen Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.	7727-37-9	0.80	J	0.60	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.17		0.040	mg/l	1
00221	Ammonia Nitrogen Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.	7664-41-7	0.83	J	0.46	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.020		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 21:18	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:58	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 18:03	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	02/02/2002 01:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:37	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:45	Cheryl L Robinson	1



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00217



Lancaster Laboratories Sample No. WW 3767319

Collected: 01/31/2002 13:20 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

Kerr-McGee Corporation

Reported: 02/12/2002 at 11:57

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Discard: 03/15/2002

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MA3-TG1-2-310102-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG1-2 SDG#: KMA03-16

CAT No.	Analysis Name	CAS Number	As Received		As Received	Units	Dilution Factor
			Result		Method		
00217	Kjeldahl Nitrogen	7727-37-9	1.10	J	Detection Limit 0.60	mg/l	1
Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.							
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.14		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.89	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0133	J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.12	J	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 21:19	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 13:59	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 18:04	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	02/02/2002 01:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:38	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:45	Cheryl L Robinson	1



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

000000



Lancaster Laboratories Sample No. WW 3767320

Collected: 01/31/2002 13:30 by BS

Account Number: 07802

Submitted: 02/01/2002 09:15

Kerr-McGee Corporation

Reported: 02/12/2002 at 11:57

P.O. Box 25861

Discard: 03/15/2002

Oklahoma City OK 73125

MA3-TG1-3-310102-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG1-3 SDG#: KMA03-17

CAT No.	Analysis Name	CAS Number	As Received		As Received	Units	Dilution Factor
			Result	Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.85	J	0.60	mg/l	1
	Due to interferences from the sample matrix, the reporting limit for the total kjeldahl nitrogen determination was increased.						
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	0.65	J	0.46	mg/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.0163	J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.16	J	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	02/06/2002 21:20	Mark A Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	02/01/2002 14:01	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	02/08/2002 16:37	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	02/06/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	02/02/2002 01:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/05/2002 15:39	Matthew J Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	02/05/2002 14:53	Venia B McFadden	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/04/2002 10:45	Cheryl L Robinson	1



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

0029



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3767304-20

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: <u>Winston/Kerr McGee</u> Acct. #: _____ Project Name/ #: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>B. Schaefer, B. Majchrzak</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		4 Matrix <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Potable Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other	5 Analyses Requested NH3 TAN TP-PO4 O-PO4 NO2 NO3	For lab use only FSC: _____ SCR #: _____ 6 temperature of samples upon receipt (if requested)														
2 Sample Identification		Date Collected	Time Collected	3 Grab	Composite	Soil	Potable Water	NPDES	Other	Total # of Containers	Analyses Requested						Remarks	6
<u>MA3-TG6-1-300102-01</u>		<u>1/30/02</u>	<u>1435</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<u>5</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<u>MA3-TG6-2-300102-02</u>		<u>1/30/02</u>	<u>1445</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<u>5</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<u>MA3-TG6-3-300102-03</u>		<u>1/30/02</u>	<u>1455</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<u>5</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input checked="" type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone: Fax: Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: <u>Brian S. Day</u> Date: <u>1/30/02</u> Time: <u>1830</u> Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____		Date: _____ Time: _____ Date: _____ Time: _____ Date: _____ Time: _____ Date: _____ Time: _____		Date: _____ Time: _____ Date: _____ Time: _____ Date: _____ Time: _____ Date: _____ Time: _____										
8 Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <u>PERQUOTE</u> SDG Complete? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP) Site-specific QC required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																		

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only

Acct. # 7802 Sample # 3767304-20

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: Weston/Kerr McGee Acct. #: _____
 Project Name/#: Moss American PWSID #: _____
 Project Manager: Tom Graan P.O.# _____
 Sampler: B Schaefer, B Majchrzak Quote #: _____
 Name of state where samples were collected: WI

Matrix 4

5 Analyses Requested

For lab use only
 FSC: _____
 SCR #: _____

6 temperature of samples upon receipt (if requested)

2 Sample Identification	Date Collected	Time Collected	3 Grab Composite	Soil	Water	Other	Total of Containers	TKN	TP-PO4	NH3	O-PO4	NO2	NO3	Remarks	6
MA3-TG5-1-300102-04	1/30/02	1535	X		X		5	X	X	X	X	X	X		
MA3-TG5-2-300102-05	1/30/02	1545	X		X		5	X	X	X	X	X	X		
MA3-TG5-3-300102-06	1/30/02	1555	X		X		5	X	X	X	X	X	X		

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: STD TAT
 Rush results requested by (please circle): Phone Fax
 Phone #: 847-918-4000 Fax #: 847-918-4055

8 Data Package Options (please circle if requested)

QC Summary	Type VI (Raw Data) <u>PER QUOTE</u>	SDG Complete? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type I (Tier I)	GLP	Site-specific QC required? Yes No (If yes, indicate QC sample and submit triplicate volume.)
Type II (Tier II)	Other	
Type III (NJ Red. Del.)		
Type IV (CLP)		
Internal Chain of Custody required? Yes No		

Relinquished by: <u>B Schaefer</u>	Date: <u>1/30/02</u>	Time: <u>1830</u>	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: <u>Blair/PA</u>	Date: <u>2/1/02</u>	Time: <u>2:15</u>

NO 05 00

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3767304-20

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Wpston/Kerr McGee</u> Acct. #: _____ Project Name/ #: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Groan</u> P.O.# _____ Sampler: <u>B Schaefer, R Majchrzak</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix 4 <input type="checkbox"/> Soil <input type="checkbox"/> Potable/Drinking Water <input type="checkbox"/> NPDES Effluent <input type="checkbox"/> Other	Analyses Requested 5 TKN NH ₃ TP-PO ₄ O-PO ₄ NO ₂ NO ₃	For lab use only FSC: _____ SCR #: _____							
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Potable/Drinking Water	NPDES Effluent	Other	Total # of Containers	Remarks	Temperature of Samples Upon Receipt (Fahrenheit) 6
<u>MA3-TG4-2-300102-07</u>	<u>1/30/02</u>	<u>1720</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<u>5</u>	<input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> TP-PO ₄ <input checked="" type="checkbox"/> O-PO ₄ <input checked="" type="checkbox"/> NO ₂ <input checked="" type="checkbox"/> NO ₃	
<u>MA3-TG4-3-300102-08</u>	<u>1/30/02</u>	<u>1730</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<u>5</u>	<input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> TP-PO ₄ <input checked="" type="checkbox"/> O-PO ₄ <input checked="" type="checkbox"/> NO ₂ <input checked="" type="checkbox"/> NO ₃	
<u>MA3-TG4-1-300102-09</u>	<u>1/30/02</u>	<u>1740</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<u>5</u>	 <input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH₃ <input checked="" type="checkbox"/> TP-PO₄ <input checked="" type="checkbox"/> O-PO₄ <input checked="" type="checkbox"/> NO₂ <input checked="" type="checkbox"/> NO₃ 	<u>RS</u>

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input type="checkbox"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>	Relinquished by: <u>Brian Schaefer</u> Relinquished by: _____ Relinquished by: _____ Relinquished by: _____	Date: <u>1/30/02</u> Date: _____ Date: _____ Date: _____	Time: <u>1830</u> Time: _____ Time: _____ Time: _____	Received by: _____ Received by: _____ Received by: _____ Received by: _____	Date: _____ Date: _____ Date: _____ Date: _____	Time: _____ Time: _____ Time: _____ Time: _____
8 Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)	SDG Complete? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Site-specific QC required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If yes, indicate QC sample and submittal information) Internal Chain of Custody	Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____				

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3767304-20

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Wpston / Kerr McGee</u>		Acct. #:		Matrix 4 <input type="checkbox"/> Potable <input type="checkbox"/> Gas <input type="checkbox"/> Other <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other Total # of Containers		Analyses Requested 5						For lab use only FSC: _____ SCR #: _____	
Project Name/ #: <u>Moss American</u>		PWSID #:				Grab 3 Composite	NH ₃	TKM	TP-PO4	O-PO4	NO ₂	NO ₃	Temperature of samples upon receipt (if requested) 6
Project Manager: <u>Tom Grad</u>		P.O. #:					Remarks						
Sampler: <u>B Schaefer, B Majchrzak</u>		Quote #:											
Name of state where samples were collected: <u>WI</u>													

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input type="checkbox"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: <u>Brian Schaefer</u> Date: <u>1/31/02</u> Time: <u>1430</u> Received by: _____ Date: _____ Time: _____		Date Time	Date Time	Date Time	Date Time	Date Time	Date Time	Date Time	Date Time
8 Data Package Options (please circle if requested)		Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____		Date Time	Date Time	Date Time	Date Time	Date Time	Date Time	Date Time	
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)		SDG Complete? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Site-specific QC required? Yes <input type="checkbox"/> No <input type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>		Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____		Date Time	Date Time	Date Time	Date Time	Date Time	

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3767304-20

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Weston / Kerr McGee</u> Project Name/#: <u>Moss American</u> Project Manager: <u>Tom Graan</u> Sampler: <u>B Scharfer, B Majchrzak</u> Name of state where samples were collected: <u>WI</u>		Acct. #: _____ PWSID #: _____ P.O.#: _____ Quote #: _____		Matrix 4 <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Other		Analyses Requested 5 NH ₃ TKN TP-PO ₄ O-PO ₄ NO ₃ NO ₂						For lab use only FSC: _____ SCR #: _____				
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total of Containers	NH ₃	TKN	TP-PO ₄	O-PO ₄	NO ₃	NO ₂	Remarks	Temperature of samples upon receipt (if requested) 6
<u>MA3-TG2-1-310102-04</u>	<u>1/31/02</u>	<u>1020</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		5	X	X	X	X	X	X		
<u>MA3-TG2-2-310102-05</u>	<u>1/31/02</u>	<u>1030</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		5	X	X	X	X	X	X		
<u>MA3-TG2-3-310102-06</u>	<u>1/31/02</u>	<u>1040</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		5	X	X	X	X	X	X		

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input checked="" type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u>		Relinquished by: <u>Bren Schauf</u> Date: <u>1/31/02</u> Time: <u>1430</u> Received by: _____ Date: _____ Time: _____	
Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____	
8 Data Package Options (please circle if requested): QC Summary: Type VI (Raw Data) <u>PERQUOTE</u> SDG Complete? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Type I (Tier I): GLP Type II (Tier II): Other Site-specific QC required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Type III (NJ Red. Del.): (LP) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____	
		Relinquished by: _____ Date: _____ Time: _____ Received by: <u>Diane L. [Signature]</u> Date: <u>2/1/02</u> Time: <u>3/15</u>	

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3767304-20

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Weston/Kerr McGee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.#: _____ Sampler: <u>B. Schaffer, B. Majchrzak</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix 4 Soil Water Other	Total of Containers	Analyses Requested 5 NH ₃ TKN TP-PO ₄ O-PO ₄ NO ₂ NO ₃	For lab use only FSC: _____ SCR #: _____				
Sample Identification	Date Collected	Time Collected	Grab Composite	Soil	Water	Other	Total of Containers	Remarks	Temperature of samples upon receipt (if requested) 6
MA3-TG1-1-310102-07	1/31/02	1310	X		X		5		
MA3-TG1-2-310102-08	1/31/02	1320	X		X		5		
MA3-TG1-3-310102-09	1/31/02	1330	X		X		5		

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <u>847-918-4000</u> Fax <u>847-918-4055</u>	Relinquished by: <u>Blum & Day</u> Date: <u>1/31/02</u> Time: <u>1430</u>	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____
8 Data Package Options (please circle if requested)	QC Summary Type VI (Raw Data) <u>PERQUOTE</u>	SDG Complete? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____
Type I (Tier I) GLP	Site-specific QC required? Yes <input type="checkbox"/> No <input type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.)	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____
Type II (Tier II) Other	Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____
Type III (NJ Red. Del.)		Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____
Type IV (CLP)		Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: <u>2/1/02</u> Time: <u>0915</u>	Relinquished by: _____ Date: _____ Time: _____



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: KMA03

LANCASTER LABORATORIES

INSTRUMENTAL WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3767304	36121	
3767305	TG6-2	
3767306	TG6-3	
3767307	TG5-1	
3767308	TG5-2	
3767309	TG5-3	
3767310	TG4-2	
3767311	TG4-3	
3767312	TG3-1	
3767313	TG3-2	
3767314	TG3-3	
3767315	TG2-1	
3767316	TG2-2	
3767317	TG2-3	
3767318	TG1-1	
3767319	TG1-2	
3767320	TG1-3	

ANALYSIS:

Dilutions are listed in the table below.

SAMPLE	NO3-N	TP as PO4
All LCS	2	2

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

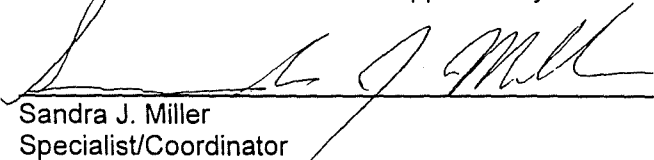
The duplicate sample (3767313) for the total phosphorus as PO4 analysis was out of specifications.

The matrix spike samples (3767307,3767315) for the total Kjeldahl analysis were out of specifications.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

 Date: 2-19-02

Sandra J. Miller
Specialist/Coordinator

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Where quality is a science.

CLIENT: Kerr – McGee Corporation
SDG: KMA03

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3767304	36121	
3767305	TG6-2	
3767306	TG6-3	
3767307	TG5-1	
3767308	TG5-2	
3767309	TG5-3	
3767310	TG4-2	
3767311	TG4-3	
3767312	TG3-1	
3767313	TG3-2	
3767314	TG3-3	
3767315	TG2-1	
3767316	TG2-2	
3767317	TG2-3	
3767318	TG1-1	
3767319	TG1-2	
3767320	TG1-3	

ANALYSIS:

Samples 3767304-11 were analyzed past the 24 hour hold time for the orthophosphate analysis.


QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

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

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

 Date: 2-11-02
 Sandra J. Miller
 Specialist/Coordinator

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CERTIFICATE OF ANALYSIS

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

Date Reported: 2/25/02
P.O. Number:
Sample ID: 9937-00349
Date Received: 1/31/02
Time Received: 11:00

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG6-1-300102-01, 1/30/02 @ 14:35 by Client				
Total Aerobic Bacteria	6,200. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	390. cfu/ml	2/01/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-2-300102-02, 1/30/02 @ 14:45 by Client				
Total Aerobic Bacteria	1,400. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	620. cfu/ml	2/01/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-3-300102-03, 1/30/02 @ 14:55 by Client				
Total Aerobic Bacteria	530. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	190. cfu/ml	2/01/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-1-300102-04, 1/30/02 @ 15:35 by Client				
Total Aerobic Bacteria	640. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	120. cfu/ml	2/01/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-2-300102-05, 1/30/02 @ 15:45 by Client				
Total Aerobic Bacteria	550. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	290. cfu/ml	2/01/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-3-300102-06, 1/30/02 @ 15:55 by Client				
Total Aerobic Bacteria	1,000. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	140. cfu/ml	2/01/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-2-300102-07, 1/30/02 @ 17:20 by Client				
Total Aerobic Bacteria	2,300. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	910. cfu/ml	2/01/02	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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Seaway Division
544 Conkey Street
Hammond, IN 46324
(219) 932-1770

INDIANA CERTIFICATION NUMBERS: M-45-8 C-45-02

<http://www.microbac.com>

CHEMISTRY • MICROBIOLOGY • FOOD SAFETY • CONSUMER PRODUCTS
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CERTIFICATE OF ANALYSIS

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

Date Reported: 2/25/02
P.O. Number:
Sample ID: 9937-00349
Date Received: 1/31/02
Time Received: 11:00

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG4-3-300102-08, 1/30/02 @ 17:30 by Client				
Total Aerobic Bacteria	3,900. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	570. cfu/ml	2/01/02	DJH	9215B MODIFIED

Submitted with Quality by



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USDA-EPA-NIOSH Testing Food Sanitation Consulting Chemical and Microbiology Analysis and Research

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CERTIFICATE OF ANALYSIS

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

Date Reported: 2/25/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9938-00001
Date Received: 2/01/02
Time Received: 10:15

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG3-1-310102-01, 1/31/02 @ 09:10 by Client				
Total Aerobic Bacteria	21,000. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	700. cfu/ml	2/01/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-2-310102-02, 1/31/02 @ 09:20 by Client				
Total Aerobic Bacteria	710. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	390. cfu/ml	2/01/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-3-310102-03, 1/31/02 @ 09:30 by Client				
Total Aerobic Bacteria	730. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	680. cfu/ml	2/01/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-1-310102-04, 1/31/02 @ 10:20 by Client				
Total Aerobic Bacteria	450. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	210. cfu/ml	2/01/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-2-310102-05, 1/31/02 @ 10:30 by Client				
Total Aerobic Bacteria	460. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	560. cfu/ml	2/01/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-3-310102-06, 1/31/02 @ 10:30 by Client				
Total Aerobic Bacteria	600. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	290. cfu/ml	2/01/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-1-310102-07, 1/31/02 @ 10:40 by Client				
Total Aerobic Bacteria	3,300. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	940. cfu/ml	2/01/02	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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(219) 932-1770

INDIANA CERTIFICATION NUMBERS: M-45-5 C-45-01

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CERTIFICATE OF ANALYSIS

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

Date Reported: 2/25/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9938-00001
Date Received: 2/01/02
Time Received: 10:15

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG1-3-310102-08, 1/31/02 @ 13:10 by Client				
Total Aerobic Bacteria	660. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	110. cfu/ml	2/01/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-3-310102-09, 1/31/02 @ 13:20 by Client				
Total Aerobic Bacteria	4,600. cfu/ml	2/01/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	390. cfu/ml	2/01/02	DJH	9215B MODIFIED

Submitted with Quality by _____



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USDA, EPA, NIOSH, Tappin Food Separator, Ciba, Inc., Chemical and Metallurgical, Inc., and other products.

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Project name Miss American Project # _____
 Project location Milwaukee, WI (City) (state)

Site contaminant * BTEX, Cresote, PAH
 (Used in test for degrader microbial populations, give ratios if applicable, e.g. 50:50, gasoline:diesel)

* If available, a sample of free product is preferred for use as the carbon source for enumerating the degrader microbial populations. Free product included? yes No

Requested analyses (✓)

Sample ID	Lab use only	Date	Time	Soil		Sample depth	#			Additional comments	CEA* (soil/gw) see note <input type="checkbox"/> Aerobic, <input type="checkbox"/> Anaerobic, <input type="checkbox"/> Microaerophilic	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) <input type="checkbox"/> sieve and hydrometer, <input type="checkbox"/> sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core		Microbial Enumeration
				Soil	GW		Jars	Vials	Core						Soil moisture at field capacity	Bulk density (soil)	
1 MA3-TG3-1-310102-01		1/31/02	0910		X	—	1										X
2 MA3-TG3-2-310102-02		1/31/02	0920		X	—	1										X
3 MA3-TG3-3-310102-03		1/31/02	0930		X	—	1										X
4 MA3-TG2-1-310102-04		1/31/02	1020		X	—	1										X
5 MA3-TG2-2-310102-05		1/31/02	1030		X	—	1										X
6 MA3-TG2-3-310102-06		1/31/02	1040		X	—	1										X
7 MA3-TG1-1-310102-07		1/31/02	1310		X	—	1										X
8 MA3-TG1-2-310102-08		1/31/02	1320		X	—	1										X
9 MA3-TG1-3-310102-09		1/31/02	1330		X	—	1										X

Relinquished by: Bren S. [Signature] Date/time: 1/31/02 / 1430 Comments: 9938-1 Sample condition upon arrival:
 Received by: [Signature] Date/time: 1/31/02 10:15 On ice? Yes, No

**Microbac Laboratories,
 HAMMOND DIVISION
 542-544 Conkey Street
 Hammond, Indiana 46324
 219-932-1770**

Send results to:
 Name Tom Graan
 Company Roy F. Webster
 Address 750 E. Bunker Court, Suite 500
 City Vernon Hills State IL Zip 60061
 Phone 847-918-4000 Fax 847-918-4055

Send invoice to: Same as results
 Name _____
 Company _____
 Address _____
 City _____ State _____ Zip _____
 Phone _____ Fax _____

*CEA : Comparative Enumeration Assay Includes total heterotrophic and degrader populations

Project name Maz American Project # _____
 Project location Milwaukee, WI (City) _____ (state) _____

Site contaminant * BTEX, creosote, PAH
 (Used in test for degrader microbial populations, give ratios if applicable, e.g. 50:50, gasoline:diesel)

* If available, a sample of free product is preferred for use as the carbon source for enumerating the degrader microbial populations. Free product included? yes No

Requested analyses (✓)

Sample ID	Lab use only	Date	Time	(✓)		Sample depth	#			Additional comments	CEA* (soil/gw) see note <input type="checkbox"/> Aerobic, <input type="checkbox"/> Anaerobic, <input type="checkbox"/> Microaerophilic	Standard nutrient panel (soil/gw) *incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) <input type="checkbox"/> sieve and hydrometer, <input type="checkbox"/> sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core	Soil moisture at field capacity	Bulk density (soil)	Microbial Enumeration
				Soil	GW		Jars	Vials	Core									
1 MA3-TG6-1- 300102-01		1/30/02	1455		X	—	—	—	—									X
2 MA3-TG6-2- 300102-02		1/30/02	1445		X	—	—	—	—									X
3 MA3-TG6-3- 300102-03		1/30/02	1455		X	—	—	—	—									X
4 MA3-TG5-1- 300102-04		1/30/02	1535		X	—	—	—	—									X
5 MA3-TG5-2- 300102-05		1/30/02	1545		X	—	—	—	—									X
6 MA3-TG5-3- 300102-06		1/30/02	1555		X	—	—	—	—									X
7 MA3-TG4-2- 300102-07		1/30/02	1720		X	—	—	—	—									X
8 MA3-TG4-3- 300102-08		1/30/02	1730		X	—	—	—	—									X
MA3-TG4-1- 300102-08		1/30/02	1740		X	—	—	—	—									X

Relinquished by: [Signature]
 Received by: [Signature]

Date/Time: 1/30/02 / 1830
 Date/Time: 1/31/02 11:00

Comments: 9937-349

Sample condition upon arrival:
 On ice? Yes, No

Microbac Laboratories,
 HAMMOND DIVISION
 542-544 Conkey Street
 Hammond, Indiana 46324
 219-932-1770

Send results to: .
 Name Tom Graun
 Company Roy F. W. Ston
 Address 750 E. Funke Court, Suite 500
 City Vernon Hills State IL Zip 60055
 Phone 847-918-4200 Fax 847-918-4055

Send Invoice to: Same as results
 Name _____
 Company _____
 Address _____
 City _____ State _____ Zip _____
 Phone _____ Fax _____

*CEA : Comparative Enumeration Assay Includes total heterotrophic and degrader populations

ATTACHMENT 3

FEBRUARY 2002 GROUNDWATER SAMPLE ANALYTICAL RESULTS



ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 798651. Samples arrived at the laboratory on Friday, March 01, 2002.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
MA3-TG1-1-280202-01 Grab Water Sample	3780743
MA3-TG1-2-280202-02 Grab Water Sample	3780744
MA3-TG1-3-280202-03 Grab Water Sample	3780745
MA3-TG4-1-280202-05 Grab Water Sample	3780746
MA3-TG4-2-280202-04 Grab Water Sample	3780747
MA3-TG4-3-280202-06 Grab Water Sample	3780748
MA3-TG2-1-280202-09 Grab Water Sample	3780749
MA3-TG2-2-280202-07 Grab Water Sample	3780750
MA3-TG2-3-280202-08 Grab Water Sample	3780751

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 Roy F. Weston
1 COPY TO Data Package Group

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



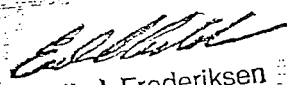
Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

0
0
1
2



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

Respectfully Submitted,



Erik J. Frederiksen
Group Leader



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

0111010



Lancaster Laboratories Sample No. **WW 3780743**

Collected: 02/28/2002 13:30 by TH

Account Number: 07802

Submitted: 03/01/2002 09:10

Kerr-McGee Corporation

Reported: 03/11/2002 at 12:05

P.O. Box 25861

Discard: 04/11/2002

Oklahoma City OK 73125

MA3-TG1-1-280202-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

KM-11 SDG#: KMA04-01

CAT No.	Analysis Name	CAS Number	As Received		Units	Dilution Factor
			As Received Result	Method Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.3	0.30	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	0.63 J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.027	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.20	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:08	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/01/2002 19:45	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 15:35	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/07/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/01/2002 18:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 17:13	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1

114



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 3780744

Collected: 02/28/2002 13:40 by TH

Account Number: 07802

Submitted: 03/01/2002 09:10

Kerr-McGee Corporation

Reported: 03/11/2002 at 12:05

P.O. Box 25861

Discard: 04/11/2002

Oklahoma City OK 73125

MA3-TG1-2-280202-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

KM22- SDG#: KMA04-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.3		0.30	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	0.82 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.025		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.31		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:12	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/01/2002 19:46	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 15:37	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/07/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/01/2002 18:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 17:13	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1



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

000110



Lancaster Laboratories Sample No. WW 3780745

Collected: 02/28/2002 13:50 by TH

Account Number: 07802

Submitted: 03/01/2002 09:10

Kerr-McGee Corporation

Reported: 03/11/2002 at 12:05

P.O. Box 25861

Discard: 04/11/2002

Oklahoma City OK 73125

MA3-TG1-3-280202-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

KM33- SDG#: KMA04-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	2.5		0.30	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	0.53 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.18 J		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:13	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/01/2002 19:50	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 15:38	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/07/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/01/2002 18:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 15:44	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1

0016



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 3780746

Collected: 02/28/2002 14:55 by TH

Account Number: 07802

Submitted: 03/01/2002 09:10

Kerr-McGee Corporation

Reported: 03/11/2002 at 12:05

P.O. Box 25861

Discard: 04/11/2002

Oklahoma City OK 73125

MA3-TG4-1-280202-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

KM15- SDG#: KMA04-04

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result	J	Method	Detection Limit	
00217	Kjeldahl Nitrogen	7727-37-9	0.67	J	0.30	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	0.53	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.20	J	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:14	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/01/2002 19:51	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 15:39	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/07/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/01/2002 18:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 15:45	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	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 3780747

Collected: 02/28/2002 14:45 by TH

Account Number: 07802

Submitted: 03/01/2002 09:10

Kerr-McGee Corporation

Reported: 03/11/2002 at 12:05

P.O. Box 25861

Discard: 04/11/2002

Oklahoma City OK 73125

MA3-TG4-2-280202-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

KM24- SDG#: KMA04-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.1		0.30	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	0.76 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:15	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/01/2002 19:52	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 15:40	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/07/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/01/2002 18:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 15:46	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1

0010



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Lancaster Laboratories Sample No. WW 3780748

Collected: 02/28/2002 15:02 by TH

Account Number: 07802

Submitted: 03/01/2002 09:10
 Reported: 03/11/2002 at 12:05
 Discard: 04/11/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG4-3-280202-06 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

KM36- SDG#: KMA04-06

CAT No.	Analysis Name	CAS Number	As Received		Units	Dilution Factor
			As Received Result	Method Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.3		mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.82 J		mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	N.D.		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.14 J		mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:16	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/01/2002 19:53	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 15:44	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/07/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/01/2002 18:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 15:46	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1



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9



Lancaster Laboratories Sample No. WW 3780749

Collected: 02/28/2002 16:55 by TH

Account Number: 07802

Submitted: 03/01/2002 09:10

Kerr-McGee Corporation

Reported: 03/11/2002 at 12:05

P.O. Box 25861

Discard: 04/11/2002

Oklahoma City OK 73125

MA3-TG2-1-280202-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

KM19- SDG#: KMA04-07

CAT No.	Analysis Name	CAS Number	As Received		Units	Dilution Factor
			Result	Method		
00217	Kjeldahl Nitrogen	7727-37-9	0.65 J	0.30	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.	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	N.D.	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:18	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/01/2002 19:55	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 15:45	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/07/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/01/2002 18:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 15:47	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1

0020



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Lancaster Laboratories Sample No. WW 3780750

Collected: 02/28/2002 16:30 by TH

Account Number: 07802

Submitted: 03/01/2002 09:10
 Reported: 03/11/2002 at 12:06
 Discard: 04/11/2002

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MA3-TG2-2-280202-07 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

KM27- SDG#: KMA04-08

CAT No.	Analysis Name	CAS Number	As Received		As Received	Units	Dilution Factor
			Result		Method		
00217	Kjeldahl Nitrogen	7727-37-9	0.68	J	0.30	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.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:19	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/01/2002 19:56	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 16:50	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/07/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/01/2002 18:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 15:48	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1



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0021



Lancaster Laboratories Sample No. WW 3780751

Collected: 02/28/2002 16:45 by TH

Account Number: 07802

Submitted: 03/01/2002 09:10

Kerr-McGee Corporation

Reported: 03/11/2002 at 12:06

P.O. Box 25861

Discard: 04/11/2002

Oklahoma City OK 73125

MA3-TG2-3-280202-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

KM38- SDG#: KMA04-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.5		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.018 J		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.054 J		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.82 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.20		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:35	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/01/2002 19:57	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 16:54	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/07/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/01/2002 18:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 15:51	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 13:00	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1



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03/11/02



ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 798793. Samples arrived at the laboratory on Saturday, March 02, 2002.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
MA3-TG3-1-010302-01 Grab Water Sample	3781334
MA3-TG3-2-010302-02 Grab Water Sample	3781335
MA3-TG3-3-010302-03 Grab Water Sample	3781336
MA3-TG5-1-010302-06 Grab Water Sample	3781337
MA3-TG5-2-010302-04 Grab Water Sample	3781338
MA3-TG5-3-010302-05 Grab Water Sample	3781339
MA3-TG6-1-010302-08 Grab Water Sample	3781340
MA3-TG6-2-010302-07 Grab Water Sample	3781341
MA3-TG6-3-010302-09 Grab Water Sample	3781342

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 Roy F. Weston
1 COPY TO Data Package Group

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



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02/02/02




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Carrie A Fleming at (717) 656-2300.

Respectfully Submitted,


Erik J. Frederiksen
Group Leader



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4 2 0 0 9



Lancaster Laboratories Sample No. WW 3781334

Collected: 03/01/2002 10:50 by BC

Account Number: 07802

Submitted: 03/02/2002 10:15

Kerr-McGee Corporation

Reported: 03/12/2002 at 19:47

P.O. Box 25861

Discard: 04/12/2002

Oklahoma City OK 73125

MA3-TG3-1-010302-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

311-- SDG#: KMA04-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.2		0.30	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	0.88 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.14 J		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:41	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/02/2002 12:47	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 16:57	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/07/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/03/2002 07:15	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 17:14	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 13:00	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1



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LUNN



Lancaster Laboratories Sample No. WW 3781335

Collected: 03/01/2002 11:00 by BC

Account Number: 07802

Submitted: 03/02/2002 10:15

Kerr-McGee Corporation

Reported: 03/12/2002 at 19:47

P.O. Box 25861

Discard: 04/12/2002

Oklahoma City OK 73125

MA3-TG3-2-010302-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

322-- SDG#: KMA04-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.3		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.018 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	0.97 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.20 J		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:43	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/02/2002 12:48	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 16:59	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/07/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/03/2002 07:15	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 15:58	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 13:00	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1



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030202



Lancaster Laboratories Sample No. WW 3781336

Collected: 03/01/2002 11:05 by BC

Account Number: 07802

Submitted: 03/02/2002 10:15

Kerr-McGee Corporation

Reported: 03/12/2002 at 19:47

P.O. Box 25861

Discard: 04/12/2002

Oklahoma City OK 73125

MA3-TG3-3-010302-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

333-- SDG#: KMA04-12

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		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.022 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	1.00 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.30		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:44	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/02/2002 12:50	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 17:02	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/08/2002 06:50	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/03/2002 07:15	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 17:15	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 13:00	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1



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Lancaster Laboratories Sample No. WW 3781337

Collected: 03/01/2002 12:30 by BC

Account Number: 07802

Submitted: 03/02/2002 10:15
 Reported: 03/12/2002 at 19:47
 Discard: 04/12/2002

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 Oklahoma City OK 73125

MA3-TG5-1-010302-06 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

516-- SDG#: KMA04-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.55 J		0.30	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.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0132 J		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.12 J		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:45	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/02/2002 12:51	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 17:04	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/08/2002 06:50	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/03/2002 07:15	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 16:02	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 13:00	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1

030202

MEMBER
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Lancaster Laboratories Sample No. WW 3781338

Collected: 03/01/2002 12:15 by BC

Account Number: 07802

Submitted: 03/02/2002 10:15
 Reported: 03/12/2002 at 19:47
 Discard: 04/12/2002

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MA3-TG5-2-010302-04 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

--524 SDG#: KMA04-14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.67 J	0.30	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.	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.0096 J	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.12 J	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:46	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/02/2002 12:52	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 17:05	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/08/2002 06:50	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/03/2002 07:15	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 16:03	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 13:00	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1



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50000000



Lancaster Laboratories Sample No. WW 3781339

Collected: 03/01/2002 12:25 by BC

Account Number: 07802

Submitted: 03/02/2002 10:15
 Reported: 03/12/2002 at 19:47
 Discard: 04/12/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG5-3-010302-05 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

--535 SDG#: KMA04-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.58 J		0.30	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.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0132 J		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:48	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/02/2002 12:53	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 17:06	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/08/2002 06:50	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/03/2002 07:15	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 16:04	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 13:00	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1



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03/12/02



Lancaster Laboratories Sample No. WW 3781340

Collected: 03/01/2002 14:55 by BC

Account Number: 07802

Submitted: 03/02/2002 10:15
 Reported: 03/12/2002 at 19:47
 Discard: 04/12/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG6-1-010302-08 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

618-- SDG#: KMA04-16

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		0.30	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		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.31		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:49	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/02/2002 12:55	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 17:07	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/08/2002 06:50	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/03/2002 07:15	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 17:18	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 13:00	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1



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000001



Lancaster Laboratories Sample No. WW 3781341

Collected: 03/01/2002 14:45 by BC

Account Number: 07802

Submitted: 03/02/2002 10:15

Kerr-McGee Corporation

Reported: 03/12/2002 at 19:47

P.O. Box 25861

Discard: 04/12/2002

Oklahoma City OK 73125

MA3-TG6-2-010302-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

627-- SDG#: KMA04-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.99 J		0.30	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.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:50	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/02/2002 12:56	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 17:11	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/08/2002 06:50	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/03/2002 07:15	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 16:06	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 13:00	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1



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20020312



Lancaster Laboratories Sample No. WW 3781342

Collected: 03/01/2002 15:05 by BC

Account Number: 07802

Submitted: 03/02/2002 10:15
 Reported: 03/12/2002 at 19:47
 Discard: 04/12/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG6-3-010302-09 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

639-- SDG#: KMA04-18*

CAT No.	Analysis Name	CAS Number	As Received	As Received	Units	Dilution Factor
			Result	Method		
00217	Kjeldahl Nitrogen	7727-37-9	1.3	0.30	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	0.53 J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	N.D.	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/07/2002 16:51	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/02/2002 13:00	Mark A Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/06/2002 17:12	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/08/2002 06:50	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/03/2002 07:15	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/05/2002 16:07	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/06/2002 13:00	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/04/2002 09:00	Timothy M Petree	1



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00000000

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3780743-51

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>WESTON / Ken McVee</u> Acct. #: _____ Project Name/ #: <u>More American</u> PWSID #: _____ Project Manager: <u>Tom Guan</u> P.O.# _____ Sampler: <u>T. Hanzely / B. Crawford</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix 4 Soil Water Potable WAPDES Other	Total # of Containers	Analyses Requested 5 NO3- NO2- TOC- BOD- o-Po4- NH3- TKN-COD-TPPO4							For lab use only FSC: _____ SCR #: _____											
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Potable	WAPDES	Other	Total # of Containers	NO3-	NO2-	TOC-	BOD-	o-Po4-	NH3-	TKN-	COD-	TPPO4	Remarks	Temperature of samples upon receipt (if requested)	
<u>MA3-TG1-1-280202-01</u>	<u>2/28/02</u>	<u>1330</u>	<input checked="" type="checkbox"/>							6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
MA3-TG2-TM4																						
<u>MA3-TG1-2-280202-02</u>	<u>2/28/02</u>	<u>1340</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>				6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
<u>MA3-TG1-3-280202-03</u>	<u>2/28/02</u>	<u>1350</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>				6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>SID TAT</u> Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input type="checkbox"/> Phone #: <u>847-9164006</u> Fax #: <u>847-9184055</u>	Relinquished by: <u>[Signature]</u> Date: <u>2/28/02</u> Time: <u>1800</u>	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	
8 Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <u>for Audit</u> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Type I (Tier I) GLP Type II (Tier II) Other Type III (NY, Reg. Del.) Type IV (CLP)	Site-specific QC required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____	Received by: <u>Unaired</u> Date: <u>3/1/02</u> Time: <u>0910</u>

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3780743-51

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>WESTON/Kim McFee</u> Acct. #: _____ Project Name/ #: <u>MOSS AMERICAN</u> PWSID #: _____ Project Manager: <u>TOM BRAN</u> P.O.# _____ Sampler: <u>T. Hanzely / B. Crawford</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix 4 Soil Water (Potable & Non-Potable) Other Total # of Containers		Analyses Requested 5 NO ₂ NO _x TAC BOP O-PB4 NH ₃ TRN-COD-TPB4 For lab use only FSC: _____ SCR #: <u>1162932</u>										Temperature of samples upon receipt (if requested) 6			
Sample Identification	Data Collected	Time Collected	Grab	Composite	Soil	Water (Potable & Non-Potable)	Other	Total # of Containers	NO ₂	NO _x	TAC	BOP	O-PB4	NH ₃	TRN-COD-TPB4	Remarks	Temperature of samples upon receipt (if requested)
<u>MA3-T64-1-280202-05</u>	<u>2/20/02</u>	<u>1455</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>6</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<u>MA3-T64-2-280202-04</u>	<u>2/20/02</u>	<u>1445</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>6</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<u>MA3-T64-3-280202-06</u>	<u>2/20/02</u>	<u>1502</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>6</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input type="checkbox"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: <u>[Signature]</u> Date: <u>2/22/02</u> Time: <u>1100</u> Received by: <u>[Signature]</u> Date: <u>2/25/02</u> Time: <u>1200</u>															
Relinquished by: <u>[Signature]</u> Date: <u>2/28/02</u> Time: <u>1800</u> Received by: _____ Date: _____ Time: _____		Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____															
8 Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <input checked="" type="checkbox"/> SDG Complete? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Type I (11) GLP _____ Type II (11) Other _____ Type III (3 Red. Del.) _____ Type IV (CEP) _____ Site-specific QC required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If yes, indicate QC sample and amount to be tested) _____ Internal Chain of Custody required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Relinquished by: _____ Date: _____ Time: _____ Received by: <u>[Signature]</u> Date: <u>3/1/02</u> Time: <u>0910</u>															

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only:
 Acct. # 7802 Sample # 3780743-51

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>WESTON / Ken McVee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Green</u> P.O.# _____ Sampler: <u>T. Hanzely / B. Crawford</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix 4 <input type="checkbox"/> Soil <input type="checkbox"/> Potable <input type="checkbox"/> Water <input type="checkbox"/> Other	Total # of Containers _____	Analyses Requested 5 NO3 NO2 TOC BOD O-Po4 NH3 TKN-COD-TP-Po4	For lab use only FSC: _____ SCR #: <u>1162932</u>													
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Potable	Water	Other	Total # of Containers	NO3	NO2	TOC	BOD	O-Po4	NH3	TKN-COD-TP-Po4	Remarks	Temperature of samples upon receipt (if requested) 6
<u>MA3-T62-1-280202-09</u>	<u>2/28/02</u>	<u>1655</u>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<u>6</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<u>MA3-T62-2-280202-07</u>	<u>2/28/02</u>	<u>1630</u>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<u>6</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<u>MA3-T62-3-280202-08</u>	<u>2/28/02</u>	<u>1645</u>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<u>6</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input checked="" type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>SDTAT</u> Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>	Relinquished by: <u>[Signature]</u> Date: <u>2/28/02</u> Time: <u>1500</u>	Received by: <u>[Signature]</u> Date: <u>2-25-02</u> Time: <u>1200</u>
	Relinquished by: <u>[Signature]</u> Date: <u>2/28/02</u> Time: <u>1800</u>	Received by: _____ Date: _____ Time: _____
	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____
	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____
	Relinquished by: _____ Date: _____ Time: _____	Received by: <u>[Signature]</u> Date: <u>2/1/02</u> Time: <u>0910</u>

8 Data Package Options (please circle if requested)		SDG Complete? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
QC Summary Type VI (Raw Data) <u>in Quote</u>	Type I (Tier I) GLP	Site-specific QC required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Type II (Tier II) Other		
Type III (NJ Red. Del.)		
Type IV (CLP)		

Cooler # 2

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 378/334-42

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>WESTON/KERR McFee</u> Acct. #: _____ Project Name/#: <u>Mass American</u> PWSID #: _____ Project Manager: <u>Tom Graun</u> P.O.# _____ Sampler: <u>T. Houghly / B. Cranford</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix: <u>4</u> Soil: _____ Potable: _____ Water: _____ Other: _____ Total # of Containers: _____	Analyses Requested: <u>5</u> NO ₃ NO ₂ BOD O-PO ₄ NH ₃ TKN-COD-TPPO ₄ TOC	For lab use only FSC: _____ SCR #: _____														
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Potable	Water	Other	Total # of Containers	NO ₃	NO ₂	BOD	O-PO ₄	NH ₃	TKN-COD-TPPO ₄	TOC	Remarks	Temperature of samples upon receipt (if requested)
<u>MA3-TG3-1-010302-01</u>	<u>3/1/02</u>	<u>1050</u>	<u>X</u>						<u>6</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		
<u>MA3-TG3-2-010302-02</u>	<u>3/1/02</u>	<u>1100</u>	<u>X</u>						<u>6</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		
<u>MA3-TG3-3-010302-03</u>	<u>3/1/02</u>	<u>1105</u>	<u>X</u>						<u>6</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		
7 Turnaround Time Requested (TAT) (please circle): Normal <input type="radio"/> Rush <input type="radio"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STAT</u> Rush results requested by (please circle): Phone <input type="radio"/> Fax <input type="radio"/> Phone #: <u>247-918-4000</u> Fax #: <u>847-9184055</u>										Relinquished by: <u>[Signature]</u> Date: <u>3/1/02</u> Time: <u>1630</u>		Received by: _____ Date: _____ Time: _____						
8 Data Package Options (please circle if requested)										Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____						
QC Summary Type VI (Raw Data) <u>For Audit</u>					SDG Complete? Yes <input checked="" type="radio"/>					Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____						
Type I (Tier I) GLP					Site-specific QC required? Yes <input type="checkbox"/>					Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____						
Type II (Tier II) Other					Internal Chain of Custody required? Yes <input type="checkbox"/>					Relinquished by: _____ Date: _____ Time: _____		Received by: <u>Demi y [Signature]</u> Date: <u>3/2</u> Time: <u>1635</u>						
Type III (NI, Red, Del.)										Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____						
Type IV (CLP)										Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____						

021167

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3781334-42

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: <u>WESTON/KERR McFee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Oran</u> P.O.# _____ Sampler: <u>Te Hany / B. Crawford</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		4 Matrix Sol Possible Gases Water Gases Other	5 Total # of containers	6 Analyses Requested NO3 NO2 TOL BOD-0P04 TKN-COD-TP04 NH3	For lab use only FSC: _____ SCR #: _____												
Sample Identification	Date Collected	Time Collected	Grav	Composite	Sol	Possible Gases	Water Gases	Other	Total # of containers	NO3	NO2	TOL	BOD-0P04	TKN-COD-TP04	NH3	Remarks	Temperature of samples upon receipt (if required)
<u>MA3-T65-1-010302-00</u>	<u>3/1/02</u>	<u>1230</u>	<u>X</u>			<u>X</u>			<u>6</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		
<u>MA3-T65-2-010302-04</u>	<u>3/1/02</u>	<u>1215</u>	<u>X</u>			<u>X</u>			<u>6</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		
<u>MA3-T65-3-010302-05</u>	<u>3/1/02</u>	<u>1225</u>	<u>X</u>			<u>X</u>			<u>6</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		
7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input checked="" type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>5/2/02</u> Rush results requested by (please circle): Phone <u>847 984000</u> Fax <u>847 918 4055</u> Phone #: <u>847 984000</u> Fax #: <u>847 918 4055</u>										Relinquished by: <u>[Signature]</u> Date: <u>3/1/02</u> Time: <u>1630</u>		Received by: _____ Date: _____ Time: _____					
8 Data Package Options (please circle if requested)										Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____					
QC Summary Type VI (Raw Data) <u>For Choice</u> SDG Complete? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>					Type I (Tier I) GLP					Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____					
Type II (Tier II) Other					Site-specific QC required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.)					Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____					
Type III (NJ Reg., Del.)					Internal Chain of Custody required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>					Relinquished by: _____ Date: _____ Time: _____		Received by: <u>Devin [Signature]</u> Date: <u>03/02/02</u> Time: <u>0915</u>					
Type IV (CLP)					_____					Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____					

[Signature]

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only

Acct. # 7902 Sample # 3781334-42

Please print. Instructions on reverse side correspond with circled numbers.

Client: WESTON/KERR M'VEE Acct. #: _____
 Project Name/ #: MOSS AMERICAN PWSID #: _____
 Project Manager: Tom Green P.O.# _____
 Sampler: T. Long / B. Crawford Quote #: _____
 Name of state where samples were collected: WI

Matrix: Water (4)
 Analyses Requested: NO2, NO3, TOC, BOD-5, TKN-COD-TPP4, NH3 (5)

For lab use only
 FSC: _____
 SCR #: _____

Sample Identification	Date Collected	Time Collected	Grab Composite	Matrix (4)				Analyses Requested (5)						Remarks	Temperature of Sample Upon Receipt (F)
				Soil	Water	Sludge	Other	NO2	NO3	TOC	BOD-5	TKN-COD-TPP4	NH3		
<u>MA3-T66-1-010302-08</u>	<u>3/1/02</u>	<u>1455</u>	<u>X</u>		<u>X</u>	<u>6</u>	<u>Y</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>			
<u>MA3-T66-2-010302-07</u>	<u>3/1/02</u>	<u>1445</u>	<u>X</u>		<u>X</u>	<u>6</u>	<u>Y</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>			
<u>MA3-T66-3-010302-69</u>	<u>3/1/02</u>	<u>1505</u>	<u>X</u>		<u>X</u>	<u>6</u>	<u>Y</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>			

Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: SDTAT
 Rush results requested by (please circle): Phone Fax
 Phone #: 847 918 4000 Fax #: 847 918 4055

Relinquished by: [Signature] Date: 3/1/02 Time: 1630
 Relinquished by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____

Data Package Options (please circle if requested)
 QC Summary Type VI (Raw Data) Yes SDG Complete? Yes NO
 Type III (CLP) _____
 Specific QC required _____ No _____
 Date QC sample analyzed _____
 Type IV (CLP) _____ Internal Chain of Custody required _____

Received by: [Signature] Date: 3/1/02 Time: 1630
 Received by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____



CLIENT: Kerr-Mcgee Corporation
SDG: KMA04

LANCASTER LABORATORIES

INSTRUMENTAL WET CHEMISTRY

SAMPLE NUMBERS:

Table with 3 columns: Sample #, Sample Code, Comments. Lists sample numbers 3780743 through 3781342 and their corresponding codes.

ANALYSIS:

Dilutions are listed in the table below.

Table with 3 columns: SAMPLE, NO3-N, TP as PO4. Row 1: LCS, 2, 2.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The matrix spike samples for the nitrate nitrogen (3780744, 3780750) and total Kjeldahl nitrogen (3780751) analyses were out of specifications.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Signature of Sandra J. Miller
Sandra J. Miller
Specialist/Coordinator

Date: 3.13.02

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Where quality is a science.

CLIENT: Kerr – McGee Corporation
SDG: KMA04

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3780743	KM-11	
3780744	KM22-	
3780745	KM33-	
3780746	KM15-	
3780747	KM24-	
3780748	KM36-	
3780749	KM19-	
3780750	KM27-	
3780751	KM38-	
3781334	311--	
3781335	322--	
3781336	333--	
3781337	516--	
3781338	--524	
3781339	--535	
3781340	618--	
3781341	627--	
3781342	639--	

ANALYSIS:

No problems were encountered during analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

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

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Sandra J. Miller
Specialist/Coordinator

Date: 3.13.07

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CERTIFICATE OF ANALYSIS

Test Program
Ray E. Weston, Inc.
150 East Bunker Court
Suite 800
Vernon Hills, IL 60061-1450

Date Reported: 1/28/01
F.O. Number: MILWAUKEE, WI
Sample ID: 8875-1001
Date Received: 1/26/01
Time Received: 08:00

Permit Number

TEST NAME	RESULTS	DATE	TEST	NOTE
AP0010 - Aerobic Plate Count	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
Total Aerobic Bacteria	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
Aerobic Degradable Bacteria	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
AP0011 - Aerobic Plate Count	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
Total Aerobic Bacteria	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
Aerobic Degradable Bacteria	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
AP0012 - Aerobic Plate Count	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
Total Aerobic Bacteria	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
Aerobic Degradable Bacteria	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
AP0013 - Aerobic Plate Count	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
Total Aerobic Bacteria	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
Aerobic Degradable Bacteria	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
AP0014 - Aerobic Plate Count	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
Total Aerobic Bacteria	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
Aerobic Degradable Bacteria	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
AP0015 - Aerobic Plate Count	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
Total Aerobic Bacteria	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED
Aerobic Degradable Bacteria	1.0 x 10 ³ cfu/ml	1/26/01	DJB	90195 MODIFIED

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CERTIFICATE OF ANALYSIS

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

Date Reported: 1/25/07
F.L. Number: MILWAUKEE, WI
Sample ID: 9989-00000
Date Received: 1/25/07
Time Received: 09:00

Permit Number

PARAMETERS	RESULTS	DATE	TYPE	NOTES
SUBJECT: WAS-101-1-181001-07 1/25/07 10:00 AM 10:00 AM				
Total Aerobic Bacteria	400 CFU/g	1/25/07	CFU	SC166 MODIFIED
Total Coliform Bacteria	400 CFU/g	1/25/07	CFU	SC166 MODIFIED
SUBJECT: WAS-101-1-181001-07 1/25/07 10:00 AM 10:00 AM				
Total Aerobic Bacteria	400 CFU/g	1/25/07	CFU	SC166 MODIFIED
Total Coliform Bacteria	400 CFU/g	1/25/07	CFU	SC166 MODIFIED

QUALITY CONTROL

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

Date Reported: 3/28/02
P.O. Number: 0018551 HOSS AMERICA
Sample ID: 9938-00007
Date Received: 3/04/02
Time Received: 08:55

Permit Number

PARAMETERS	RESULTS	DATE	CODE	METHOD
SUBSTRATE: MAB-T04-0-110340-01 1.0 ml @ 100000 cfu/ml				
Total Aerobic Bacteria	151,000 cfu/ml	3/21/02	DTH	9015B MODIFIED
Aerobic Degradable Bacteria	48,000 cfu/ml	3/21/02	DTH	9015B MODIFIED
SUBSTRATE: MAB-T04-0-110340-01 1.0 ml @ 100000 cfu/ml				
Total Aerobic Bacteria	20,000 cfu/ml	3/21/02	DTH	9015B MODIFIED
Aerobic Degradable Bacteria	7,000 cfu/ml	3/21/02	DTH	9015B MODIFIED
SUBSTRATE: MAB-T04-0-110340-01 1.0 ml @ 100000 cfu/ml				
Total Aerobic Bacteria	2,400 cfu/ml	3/21/02	DTH	9015B MODIFIED
Aerobic Degradable Bacteria	800 cfu/ml	3/21/02	DTH	9015B MODIFIED
SUBSTRATE: MAB-T04-0-110340-01 1.0 ml @ 100000 cfu/ml				
Total Aerobic Bacteria	80 cfu/ml	3/21/02	DTH	9015B MODIFIED
Aerobic Degradable Bacteria	60 cfu/ml	3/21/02	DTH	9015B MODIFIED
SUBSTRATE: MAB-T04-0-110340-01 1.0 ml @ 100000 cfu/ml				
Total Aerobic Bacteria	16 cfu/ml	3/21/02	DTH	9015B MODIFIED
Aerobic Degradable Bacteria	10 cfu/ml	3/21/02	DTH	9015B MODIFIED
SUBSTRATE: MAB-T04-0-110340-01 1.0 ml @ 100000 cfu/ml				
Total Aerobic Bacteria	2,700 cfu/ml	3/21/02	DTH	9015B MODIFIED
Aerobic Degradable Bacteria	480 cfu/ml	3/21/02	DTH	9015B MODIFIED
SUBSTRATE: MAB-T04-0-110340-01 1.0 ml @ 100000 cfu/ml				
Total Aerobic Bacteria	80 cfu/ml	3/21/02	DTH	9015B MODIFIED
Aerobic Degradable Bacteria	20 cfu/ml	3/21/02	DTH	9015B MODIFIED

*** Identify the Substrate in Next Page ***

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CERTIFICATE OF ANALYSIS

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

Date Reported: 3/29/02
P.O. Number: 0018581 MOSS AMBER
Sample ID: 9939-00007
Date Received: 3/24/02
Time Received: 08:55

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
PROJECT: MA9-738-1-10180-01: 1/1/01 1/1/01 1/1/01 Client				
Total Aerobic Bacteria	1,300 cfu/ml	3/21/02	DCH	9016B MODIFIED
Aerobic Deoxidizer Bacteria	0 cfu/ml	3/21/02	DCH	9016B MODIFIED
PROJECT: MA9-738-1-10180-15: 1/1/01 1/1/01 1/1/01 Client				
Total Aerobic Bacteria	1,300 cfu/ml	3/21/02	DCH	9016B MODIFIED
Aerobic Deoxidizer Bacteria	0 cfu/ml	3/21/02	DCH	9016B MODIFIED

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 Seaway Industrial Laboratory Division
 542-544 Conkey Street Hammond, Indiana 46324
 219/932-1770 219/932-1721 Fax

COMPOSITE BEGIN: _____ END: _____ TEMP _____
 AUTOMATIC DATE _____ DATE _____ TECH _____
 DISCRETE TIME _____ TIME _____ MLS/Sample _____
 FLOW PROPORTIONED FLOW _____ FLOW _____ # Samples _____
 CONTINUOUS
 TIME TOTAL FLOW _____ INTERVAL _____

P.O. #		CLIENT NAME <i>WESTON / KIM McVEE</i>				LOCATION/PROJECT <i>M. Winkler, WI</i>				ANALYSES REQUESTED REMARKS OBSERVATIONS LIST SPECIAL HAZARDS HERE										RETURN SAMPLES TO CLIENT
SAMPLERS (Signature) <i>[Signature]</i>		SEND REPORT TO: <i>Tom Green</i>				PHONE (<i>547</i>) <i>918-4000</i>														
LAB I.D. # <i>9939-2</i>		Sample Chest # Chest Temp. °C		Sample Temp. at Lab °C		Method of Shipment To Lab: <i>FEDEX</i> Date <i>2/28/02</i> Time <i>1800</i>														
SAMPLE LOCATION		COLLECTED		SAMPLE TYPE			NO OF CONTAINERS	CONTAINER TYPE PRESERVATIVE												
		DATE	TIME	COMP	GRAB	MATRIX														
<i>MA3-TG-1-1-280202-01</i>		<i>2/28/02</i>	<i>1330</i>		<i>X</i>	<i>G.W.</i>		<i>1</i>	<i>HMP</i>											
<i>MA3-TG-1-2-280202-02</i>			<i>1340</i>					<i>1</i>												
<i>MA3-TG-1-3-280202-03</i>			<i>1350</i>					<i>1</i>												
<i>MA3-TG-4-1-280202-05</i>			<i>1455</i>					<i>1</i>												
<i>MA3-TG-4-2-280202-04</i>			<i>1445</i>					<i>1</i>												
<i>MA3-TG-4-3-280202-06</i>			<i>1502</i>					<i>1</i>												
<i>MA3-TG-2-1-280202-09</i>			<i>1655</i>					<i>1</i>												
<i>MA3-TG-2-2-280202-07</i>			<i>1630</i>					<i>1</i>												
Relinquished by: (Signature) <i>[Signature]</i>		Date <i>2/28/02</i>	Time <i>1800</i>	Received by: (Signature)				Relinquished by: (Signature)			Date	Time	Received by: (Signature)							
5		6	7	8	9	10	11	12	13	14	15	16	17	18						
Relinquished by: (Signature)		Date	Time	Received by: (Signature)				Relinquished by: (Signature)			Date	Time	Received by: (Signature)							
9		10	11	12	13	14	15	16	17	18	19	20	21	22						
Relinquished by: (Signature)		Date	Time	Received by: (Signature)				Date	Time											
<i>[Signature]</i>		<i>2/28/02</i>	<i>1800</i>	<i>[Signature]</i>				<i>2/28/02</i>	<i>1800</i>											

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COMPOSITE
 AUTOMATIC
 DISCRETE
 FLOW PROPORTIONED
 CONTINUOUS
 TIME TOTAL FLOW

BEGIN: _____ END: _____
 DATE _____ DATE _____
 TIME _____ TIME _____
 FLOW _____ FLOW _____ # Samples _____
 INTERVAL _____

P O #		CLIENT NAME <i>WESTON / Ken McCre</i>				LOCATION/PROJECT <i>Milwaukee WI</i>				ANALYSES REQUESTED REMARKS OBSERVATIONS LIST SPECIAL HAZARDS HERE RETURN SAMPLES TO CLIENT									
SAMPLERS (Signature) <i>[Signature]</i>		SEND REPORT TO: <i>Tom Guan</i>				PHONE (<i>347</i>) <i>918-4000</i>													
LAB I.D. # <i>9939-2</i>		Sample Chest # Chest Temp °C		Sample Temp. at Lab °C		Method of Shipment To Lab <i>FedEx</i> Date <i>2/28/02</i> Time <i>1800</i>													
SAMPLE LOCATION		COLLECTED		SAMPLE TYPE			NO OF CONTAINERS	CONTAINER TYPE PRESERVATIVE											
DATE	TIME	COMP	GRAB	MATRIX															
<i>MA3-162-3-260202-08</i>		<i>2/28/02</i>	<i>1645</i>		<i>X</i>	<i>G.W.</i>	<i>1</i>	<i>None</i>	<i>X</i>										
Relinquished by: (Signature) <i>[Signature]</i>		Date	Time	Received by: (Signature)				Relinquished by: (Signature)	Date	Time	Received by: (Signature)								
		<i>2/28/02</i>	<i>1800</i>																
Relinquished by: (Signature)		Date	Time	Received by: (Signature)				Relinquished by: (Signature)	Date	Time	Received by: (Signature)								
Relinquished by: (Signature)		Date	Time	Received by: (Signature)				Date	Time										
				<i>Mickael Seder</i>				<i>03/01/02</i>	<i>0920</i>	Page _____ of _____									

Contact person Tom Givan Sample ID MA3-TG3-1-010302-01
 Project name Mass American Project # _____
 Project location M. Lunken WI
 (City) (state)

Requested analyses (✓)

Site contaminant * BTEX/PAH
 (Used in test for degrader microbial populations, give ratios if applicable, e.g. 50:50, gasoline:diesel)

* If available, a sample of free product is preferred for use as the carbon source for enumerating the degrader microbial populations. Free product included? yes No

CEA* (soil/gw) see note <input type="checkbox"/> Aerobic, <input type="checkbox"/> Anaerobic, <input type="checkbox"/> Microaerophilic	Standard nutrient panel (soil/gw) * incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) <input type="checkbox"/> sieve and hydrometer, <input type="checkbox"/> sieve only	% air-filled pore space (soil) (includes bulk density)	Soil moisture at field capacity	Bulk density (soil)	Intact core		Microbial Enumeration

Sample ID	Lab use only	Date	Time	(✓)		Sample depth	(#)			Additional comments
				Soil	GW		Jars	Vials	Core	
MA3-TG3-1-010302-01		3/1/02	1050		X		X			
MA3-TG3-2-010302-02		3/1/02	1100		X		X			
MA3-TG3-3-010302-03		3/1/02	1105		X		X			
MA3-TG5-1-010302-06		3/1/02	1230		X		X			
MA3-TG5-2-010302-04		3/1/02	1245		X		X			
MA3-TG6-1-010302-05		3/1/02	1455		X		X			
MA3-TG6-2-010302-07		3/1/02	1445		X		X			
MA3-TG6-3-010302-09		3/1/02	1505		X		X			

Relinquished by: [Signature] Date/time: 3/1/02 1630 Comments: _____ Sample condition upon arrival: _____
 Received by: [Signature] Date/time: 3/4/02 0855 On ice? Yes, No

Microbac Laboratories,
 HAMMOND DIVISION
 542-544 Conkey Street
 Hammond, Indiana 46324
 219-932-1770

Send results to:
 Name Tom Givan
 Company Ray E Weston
 Address 750 E Banker Ct #500
 City Hammon Hills State IL Zip 60061
 Phone 847-9184000 Fax 847-9184055

Send Invoice to: Same as results
 Name _____
 Company _____
 Address _____
 City _____ State _____ Zip _____
 Phone _____ Fax _____

*CEA : Comparative Enumeration Assay includes total heterotrophic and degrader populations

9939-7

Contract person Tom Green Sampler Tom Green

Rec red analysis (✓)

Project name Miss Arrium Project # _____

Project location Milwaukee WI
(City) (state)

Site contaminant * BTEX / PAH
(Used in test for degrader microbial populations, give ratios if applicable, e.g. 50:50, gasoline:diesel)

* If available, a sample of free product is preferred for use as the carbon source for enumerating the degrader microbial populations. Free product included? yes No

CEA* (soil/gw) see note <input type="checkbox"/> Aerobic, <input type="checkbox"/> Anaerobic, <input type="checkbox"/> Microaerophilic	Standard nutrient panel (soil/gw) * incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) <input type="checkbox"/> sieve and hydrometer, <input type="checkbox"/> sieve only	% air-filled pore space (soil) (includes bulk density)	Soil moisture at field capacity	Bulk density (soil)	Intact core	

Sample ID	Lab use only	Date	Time	(✓)		Sample depth	(#)			Additional comments
				Soil	GW		Jars	Vials	Core	
<u>MA3-TG-5-3</u> <u>0103-2-05</u>		<u>3/1/02</u>	<u>1225</u>		<u>X</u>		<u>X</u>			

Relinquished by:	Date/time:	Comments:	Sample condition upon arrival:
Received by: <u>M. Scher</u>	Date/time: <u>3/4/02 0855</u>		On ice? <input checked="" type="checkbox"/> Yes, <input type="checkbox"/> No

**Microbac Laboratories,
HAMMOND DIVISION
542-544 Conkey Street
Hammond, Indiana 46324
219-932-1770**

Send results to:
Name Tom Green
Company Roy F. Weston
Address 750 E. Burke Ct #500
City Union Hills State IL Zip 60661
Phone 847-918-4000 Fax 847-918-4655

Send invoice to: Same as results
Name _____
Company _____
Address _____
City _____ State _____ Zip _____
Phone _____ Fax _____

*CEA : Comparative Enumeration Assay includes total heterotrophic and degrader populations

9939-7

ATTACHMENT 4

MARCH 2002 GROUNDWATER SAMPLE ANALYTICAL RESULTS

Data validation for grab water samples analyses performed by Lancaster Laboratories, Lancaster, Pennsylvania for the Kerr McGee Moss American Site in Milwaukee, WI.

The water samples were analyzed for Semi-Volatile (Polynuclear Aromatic Hydrocarbons-PAH 8310), and Volatile (BTEX 8021) analyses.

Polynuclear Aromatic Hydrocarbons (PAHs by HPLC, U.S. EPA Method 8310)

Moss American Site

SDG # KMA09

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>
MA3-MW-13S-210302-07	3793007	Grab water	03/21/02	03/25/02	04/04/02
MA3-MW-13S-210302-07-DUP	3793008	Grab water	03/21/02	03/25/02	04/04/02
MA3-MW-25S-210302-08	3793009	Grab water	03/21/02	03/25/02	04/04/02
FB-04	3793011	Grab water	03/21/02	03/25/02	04/04/02
MA3-MW-5S-210302-09	3793012	Grab water	03/21/02	03/25/02	04/05/02
MA3-MW-30S-210302-10	3793013	Grab water	03/21/02	03/25/02	04/04/02
MA3-MW-30S-210302-10MS	3793014	Grab water	03/21/02	03/25/02	04/04/02
MA3-MW-30S-210302-10MSD	3793015	Grab water	03/21/02	03/25/02	04/04/02

2. Holding Times:

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

3. Method Blank:

The method blank SBLKWC0842 was associated with this SDG. SBLKWC0842 was analyzed on 04/04/02 and associated with (3793007 thru 3793015). The method blank results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate:

The matrix spike/matrix spike duplicate was performed on 3793013. The MS/MSD recoveries were within the quality control limit. Also, the RPD% values were acceptable.

5. Laboratory control Sample:

The laboratory control sample recoveries were within the quality control limit.

6. Surrogate:

The method blank and investigated samples had recoveries within the acceptance quality control limits.

7. Retention Time:

The retention time recoveries were acceptable.

8. Initial and Continuing Calibration:

All the initial calibrations results were within the quality control limits (RSD $>+/-30\%$), except in method file HP03456.i that were analyzed on 04/02/02 for acenaphthylene (77.26%).

All the continuing calibrations results were within the quality control limits (RSD $>+/-25\%$), except in method file HP03456.i/02092-77R, HP03456.i/02092-88R and HP03456.i/02092-99R.d that analyzed on 04/02/02 for acenaphthylene was (-40.09%), (-42.46%), and (-39.70%).

According to the initial and continuing calibration above qualify acenaphthylene in the samples as estimated (J).

BETX (U.S. EPA Method 8021B)
SDG # KMA09

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-MW-13S-210302-07	3793007	Grab water	03/21/02	03/24/02
MA3-MW-13S-210302-07-DUP	3793008	Grab water	03/21/02	03/24/02
MA3-MW-25S-210302-08	3793009	Grab water	03/21/02	03/24/02
TB-04	3793010	Grab water	03/21/02	03/24/02
FB-04	3793011	Grab water	03/21/02	03/24/02
MA3-MW-5S-210302-09	3793012	Grab water	03/21/02	03/24/02
MA3-MW-30S-210302-10	3793013	Grab water	03/21/02	03/24/02
MA3-MW-30S-210302-10MS	3793014	Grab water	03/21/02	03/24/02
MA3-MW-30S-210302-10MSD	3793015	Grab water	03/21/02	03/24/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

The method blank BLK6596 was associated with this SDG. BLK6596 was analyzed on 03/23/02 associated with (3793007 thru 3793015). The method blank results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate :

The matrix spike was performed on sample 3793013. The matrix spike/matrix spike duplicate recoveries were within the quality control limits. Also. The RPD% values were acceptable.

5. Laboratory control Sample:

The laboratory control sample/laboratory control sample duplicate recoveries were within the quality control limits. Also, the relative percent difference (RPD%) values were acceptable.

6. Surrogate:

The method blank and investigated samples had recoveries within the acceptance quality control limits.

7. Initial and Continuing Calibration:

All the initial calibration and continuing calibration results were within the quality control limits.

Please feel free to contact me at (847) 549-1042 or (847) 971-6800 with any question regarding these validation reports.

Sincerely
Tania Balikji-Shammo



ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 801285. Samples arrived at the laboratory on Friday, March 22, 2002.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
MA3-MW-13S-210302-07 Grab Water Sample	3793007
MA3-MW-13S-210302-07-DUP Grab Water Sample	3793008
MA3-MW-25S-210302-08 Grab Water Sample	3793009
TB-04 Water Sample	3793010
FB-04 Grab Water Sample	3793011
MA3-MW-5S-210302-09 Grab Water Sample	3793012
MA3-MW-30S-210302-10 Unspiked Grab Water Sample	3793013
MA3-MW-30S-210302-10-MS Matrix Spike Grab	3793014
MA3-MW-30S-210302-10-MSD Matrix Spike Dup.	3793015

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 Roy F. Weston
1 COPY TO Data Package Group

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



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

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

Respectfully Submitted,

Steven A Skiles
Steven A. Skiles
Sr. Chemist



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

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Lancaster Laboratories Sample No. WW 3793007

Collected: 03/21/2002 15:50 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:19

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-13S-210302-07 Grab Water Sample

Moss American Site - WI

07GRA SDG#: KMA09-01

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	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	03/24/2002 00:58		Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	04/04/2002 21:14		Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/24/2002 00:58		Steven J Stabinger	n.a.



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

copy



Lancaster Laboratories Sample No. WW 3793007

Collected: 03/21/2002 15:50 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:19

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-13S-210302-07 Grab Water Sample

Moss American Site - WI

07GRA SDG#: KMA09-01

03337 PAH Water Extraction

SW-846 3510C

1 03/25/2002 17:00

Desiree J Wann

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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

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Lancaster Laboratories Sample No. WW 3793008

Collected: 03/21/2002 15:50 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:19

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-13S-210302-07-DUP Grab Water Sample

Moss American Site - WI

DUP07 SDG#: KMA09-02FD

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	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	03/24/2002 01:30	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	04/04/2002 21:53	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/24/2002 01:30	Steven J Stabinger	n.a.



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

Handwritten initials



Lancaster Laboratories Sample No. WW 3793008

Collected: 03/21/2002 15:50 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:19

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-13S-210302-07-DUP Grab Water Sample

Moss American Site - WI

DUP07 SDG#: KMA09-02FD

03337 PAH Water Extraction

SW-846 3510C

1

03/25/2002 17:00

Desiree J Wann

1



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

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Lancaster Laboratories Sample No. WW 3793009

Collected: 03/21/2002 16:00 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:19

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-25S-210302-08 Grab Water Sample

Moss American Site - WI

325SS SDG#: KMA09-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method		Dilution Factor
				Detection Limit	Units	
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	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	03/24/2002 02:03	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	04/04/2002 23:10	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/24/2002 02:03	Steven J Stabinger	n.a.



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

Handwritten initials



Lancaster Laboratories

Where quality is a science.

Lancaster Laboratories Sample No. WW 3793009

Collected: 03/21/2002 16:00 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:19

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-25S-210302-08 Grab Water Sample

Moss American Site - WI

325SS SDG#: KMA09-03

03337 PAH Water Extraction

SW-846 3510C

1

03/25/2002 17:00

Desiree J Wann

1



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

44009



Lancaster Laboratories Sample No. WW 3793010

Collected: 03/21/2002 18:00

Account Number: 07802

Submitted: 03/22/2002 09:25
 Reported: 04/08/2002 at 11:19
 Discard: 05/09/2002
 TB-04 Water Sample
 Moss American Site - WI

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

TB04W SDG#: KMA09-04TB

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	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	03/24/2002 00:25	Steven J Stabinger	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/24/2002 00:25	Steven J Stabinger	n.a.



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

0015



Lancaster Laboratories Sample No. **WW 3793011**

Collected: 03/21/2002 16:30 by **BS**

Account Number: 07802

Submitted: 03/22/2002 09:25
 Reported: 04/08/2002 at 11:19
 Discard: 05/09/2002
 FB-04 Grab Water Sample
 Moss American Site - WI

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

F04BC SDG#: KMA09-05FB

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	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	03/24/2002 02:36	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	04/04/2002 23:49	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/24/2002 02:36	Steven J Stabinger	n.a.



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Lancaster Laboratories Sample No. WW 3793011

Collected: 03/21/2002 16:30 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:19

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

FB-04 Grab Water Sample

Moss American Site - WI

F04BC SDG#: KMA09-05FB
03337 PAH Water Extraction

SW-846 3510C

1 03/25/2002 17:00 Desiree J Wann

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0017



Lancaster Laboratories Sample No. WW 3793012

Collected: 03/21/2002 17:00 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:19

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-5S-210302-09 Grab Water Sample

Moss American Site - WI

09GRA SDG#: KMA09-06

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	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	03/24/2002 03:08	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	04/05/2002 00:27	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/24/2002 03:08	Steven J Stabinger	n.a.



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Lancaster Laboratories Sample No. WW 3793012

Collected: 03/21/2002 17:00 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:19

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-5S-210302-09 Grab Water Sample

Moss American Site - WI

09GRA SDG#: KMA09-06

03337 PAH Water Extraction

SW-846 3510C

1 03/25/2002 17:00

Desiree J Wann

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Lancaster Laboratories Sample No. WW 3793013

Collected: 03/21/2002 17:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:20

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-30S-210302-10 Unspiked Grab Water Sample

Moss American Site - WI

10SUP SDG#: KMA09-07BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	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	03/24/2002 03:41	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	04/04/2002 17:23	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/24/2002 03:41	Steven J Stabinger	n.a.



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Lancaster Laboratories Sample No. WW 3793013

Collected: 03/21/2002 17:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

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Reported: 04/08/2002 at 11:20

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Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-30S-210302-10 Unspiked Grab Water Sample

Moss American Site - WI

10SUP SDG#: KMA09-07BKG

03337 PAH Water Extraction

SW-846 3510C

1 03/25/2002 17:00

Desiree J Wann

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0021



Lancaster Laboratories Sample No. WW 3793014

Collected: 03/21/2002 17:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:20

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-30S-210302-10-MS Matrix Spike Grab

Water Sample

Moss American Site - WI

10SUP SDG#: KMA09-07MS

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	22.	0.20	ug/l	1
00777	Toluene	108-88-3	22.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	22.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	68.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	170.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	190.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	180.	0.8	ug/l	1
00784	Fluorene	86-73-7	18.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	6.	0.08	ug/l	1
00789	Anthracene	120-12-7	3.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	3.	0.04	ug/l	1
00811	Pyrene	129-00-0	19.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	6.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	12.	0.1	ug/l	1
07409	Chrysene	218-01-9	6.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.	0.02	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	03/24/2002 04:13	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	04/04/2002 18:02	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/24/2002 04:13	Steven J Stabinger	n.a.



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Lancaster Laboratories Sample No. WW 3793014

Collected: 03/21/2002 17:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:20

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-30S-210302-10-MS Matrix Spike Grab

Water Sample

Moss American Site - WI

10SUP SDG#: KMA09-07MS

03337 PAH Water Extraction SW-846 3510C

1 03/25/2002 17:00 Desiree J Wann

1



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04/25/02



Lancaster Laboratories Sample No. WW 3793015

Collected: 03/21/2002 17:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:20

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-30S-210302-10-MSD Matrix Spike Dup.

Water Sample

Moss American Site - WI ;

10SUP SDG#: KMA09-07MSD*

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	21.	0.20	ug/l	1
00777	Toluene	108-88-3	22.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	22.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	65.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	170.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	180.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	180.	0.8	ug/l	1
00784	Fluorene	86-73-7	17.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	5.	0.08	ug/l	1
00789	Anthracene	120-12-7	3.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	3.	0.04	ug/l	1
00811	Pyrene	129-00-0	19.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	6.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	12.	0.1	ug/l	1
07409	Chrysene	218-01-9	6.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.	0.02	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	03/24/2002 04:46	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	04/04/2002 18:40	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/24/2002 04:46	Steven J Stabinger	n.a.



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Lancaster Laboratories Sample No. WW 3793015

Collected: 03/21/2002 17:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/08/2002 at 11:20

P.O. Box 25861

Discard: 05/09/2002

Oklahoma City OK 73125

MA3-MW-30S-210302-10-MSD Matrix Spike Dup.

Water Sample

Moss American Site - WI

10SUP SDG#: KMA09-07MSD*

03337 PAH Water Extraction

SW-846 3510C

1 03/25/2002 17:00

Desiree J Wann

1



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03/25/02

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3793007-15

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Kerr McGee</u> Acct. #: _____ Project Name/ #: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O. # _____ Sampler: <u>Schaefer, Crawford & Hagiwara</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>			Matrix 4 <input type="checkbox"/> Potable (Check if applicable) <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Soil <input type="checkbox"/> Other		Analyses Requested 5 <div style="text-align: center; font-size: 2em; font-weight: bold; color: blue;">BTEX (Hce pres)</div>					For lab use only FSC: _____ SCR #: _____									
Sample Identification	Date Collected	Time Collected	Grab 3	Composite	Soil	Water	Other	Total # of Containers										Remarks	Temperature of samples upon receipt (if requested) 6
MA3-MW-13S-210302-07	3/21/02	1550	✓			✓		2	2										
MA3-MW-13S-210302-07-DUP	3/21/02	1550	✓			✓		2	2										
MA3-MW-25S-210302-08	3/21/02	1600	✓			✓		3	3										
TB-04	3/21/02	1800	✓			✓		2	2										
FB-04	3/21/02	1630	✓			✓		3	3										
MA3-MW-5S-210302-09	3/21/02	1700	✓			✓		3	3										
MA3-MW-30S-210302-10	3/21/02	1715	✓			✓		3	3										
MA3-MW-30S-210302-10-MS	3/21/02	1715	✓			✓		3	3										
MA3-MW-30S-210302-10-MSD	3/21/02	1715	✓			✓		3	3										

Turnaround Time Requested (TAT) (please circle): Normal 7 Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <u>847-918-4000</u> Fax <u>847-918-4055</u> Phone #: _____ Fax #: _____	Relinquished by: <u>Bren Day</u> Date: <u>3/21/02</u> Time: <u>1800</u>	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____
Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Yes 8 No _____ Type I (Tier I) GLP _____ Type II (Tier II) Other _____ Type III (NJ Red. Del.) _____ Type IV (CLP) _____ Site-specific QC required? Yes No _____ Internal Chain of Custody required? Yes No _____	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3-793607-15

Please print. Instructions on reverse side correspond with circled numbers.

1	Client: <u>Weston/Kenn McGehee</u> Acct. #: _____ Project Name/ID: <u>Mass American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>Schaefer, Crawford, Hagiwara</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>	Matrix 4 <input type="checkbox"/> Potable (Check if applicable) <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other	Total # of Containers 2	5 Analyses Requested PAH	For lab use only FSC: _____ SCR #: _____																																																																																																																																				
2	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;">Sample Identification</th> <th style="width: 10%;">Date Collected</th> <th style="width: 10%;">Time Collected</th> <th style="width: 3%;">Grab 5</th> <th style="width: 3%;">Composite</th> <th style="width: 3%;">Soil</th> <th style="width: 3%;">Water</th> <th style="width: 3%;">Other</th> <th style="width: 3%;">Total # of Containers</th> <th style="width: 20%;">Remarks</th> <th style="width: 5%;">Temperature of samples upon receipt (if requested) 6</th> </tr> </thead> <tbody> <tr> <td>MA3-MW-305-210302-10</td> <td>3/21/02</td> <td>1715</td> <td style="text-align: center;">✓</td> <td></td> <td></td> <td style="text-align: center;">✓</td> <td></td> <td style="text-align: center;">2</td> <td></td> <td></td> </tr> <tr> <td>MA3-MW-305-210302-10-MS</td> <td>3/21/02</td> <td>1715</td> <td style="text-align: center;">✓</td> <td></td> <td></td> <td style="text-align: center;">✓</td> <td></td> <td style="text-align: center;">2</td> <td></td> <td></td> </tr> <tr> <td>MA3-MW-305-210302-10-MSD</td> <td>3/21/02</td> <td>1715</td> <td style="text-align: center;">✓</td> <td></td> <td></td> <td style="text-align: center;">✓</td> <td></td> <td style="text-align: center;">2</td> <td></td> <td></td> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	Sample Identification	Date Collected	Time Collected	Grab 5	Composite	Soil	Water	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested) 6	MA3-MW-305-210302-10	3/21/02	1715	✓			✓		2			MA3-MW-305-210302-10-MS	3/21/02	1715	✓			✓		2			MA3-MW-305-210302-10-MSD	3/21/02	1715	✓			✓		2																																																																																														
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7	Turnaround Time Requested (TAT) (please circle): Normal <u>Rush</u> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <u>847-918-4000</u> Fax <u>847-918-4055</u>	Relinquished by: <u>Brian Schaefer</u> Date <u>3/21/02</u> Time <u>1800</u>	Received by: <u>Kathy Binkley</u> Date <u>3-22-02</u> Time <u>0925</u>																																																																																																																																						
8	Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <u>PBR QUOTE</u> Type I (Tier I) GLP Type II (Tier II) Type III (NJ Rule) Type IV (CLP)	SDG Complete? Yes <u>NO</u> Site-specific QC required? Yes No If so, indicate QC method used: _____ If alternate method used, describe: _____	Relinquished by: _____ Date _____ Time _____ Relinquished by: _____ Date _____ Time _____ Relinquished by: _____ Date _____ Time _____	Received by: _____ Date _____ Time _____ Received by: _____ Date _____ Time _____ Received by: _____ Date _____ Time _____																																																																																																																																					

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3793007-15

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Kerr McGree</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Gron</u> P.O.# _____ Sampler: <u>B. Schaefer, B. Crawford, Y. Haginwa</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>			Matrix: ④ <input type="checkbox"/> Potable (check if applicable) <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Soil <input type="checkbox"/> Other		⑤ Analyses Requested <div style="text-align: center; font-size: 2em; opacity: 0.5;">PAH</div>				For lab use only FSC: _____ SCR #: _____			
Sample Identification	Date Collected	Time Collected	Grab ③	Composite	Soil	Water	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested) ⑥		
<u>MA3-MW-13S-210302-07</u>	<u>3/21/02</u>	<u>1550</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		2 2				
<u>MA3-MW-13S-210302-07-DUP</u>	<u>3/21/02</u>	<u>1550</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		2 2				
<u>MA3-MW-25S-210302-08</u>	<u>3/21/02</u>	<u>1600</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		2 2				
<u>MA3-MW-25S-210302-09</u>	<u>3/21/02</u>	<u>1630</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		2 2				
<u>MA3-MW-05S-210302-09</u>	<u>3/21/02</u>	<u>1700</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		2 2				
⑦ Turnaround Time Requested (TAT) (please circle): Normal Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone Fax Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>			Relinquished by: <u>[Signature]</u> Relinquished by: _____ Relinquished by: _____ Relinquished by: _____ Relinquished by: _____		Date: <u>3/21/02</u> Date: _____ Date: _____ Date: _____ Date: _____	Time: <u>1815</u> Time: _____ Time: _____ Time: _____ Time: _____	Received by: _____ Received by: _____ Received by: _____ Received by: _____ Received by: _____	Date: _____ Date: _____ Date: _____ Date: _____ Date: _____	Time: _____ Time: _____ Time: _____ Time: _____ Time: _____			
⑧ Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <u>Per Quote</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)			SDG Complete? Yes <u>No</u> Site-specific QC required? Yes No _____ (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes No _____		Relinquished by: _____ Relinquished by: _____ Relinquished by: _____ Relinquished by: _____						Date: _____ Date: _____ Date: _____ Date: _____	Time: _____ Time: _____ Time: _____ Time: _____

CASE NARRATIVE

Client: Kerr-McGee Corporation
SDG #: KMA09

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>
3793007	07GRA	X	
3793008	DUP07	X	
3793009	325SS	X	
3793011	F04BC	X	Client Blank
3793012	09GRA	X	
3793013	10SUP	X	Unspiked
3793014	10SUPMS	X	Matrix Spike
3793015	10SUPMSD	X	Matrix Spike Dup

LABORATORY SUBMITTED QC:

SBLKWC084	SBLKWC0842	X	Method Blank
084WCLCS	084WCLCS2	X	Lab Control Sample

SAMPLE PREPARATION:

Due to insufficient sample, reduced volumes were used in the extraction of the following samples.

<u>Sample Code</u>	<u>Volume</u>
DUP07	983 mls
09GRA	983 mls
10SUP, 10SUPMS, 10SUPMSD	940 mls

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

Case Narrative
SDG #: KMA09 continued

ANALYSIS:

The method used for analysis was SW-846 8310.

All samples were analyzed for polynuclear aromatic hydrocarbons by HPLC.

No 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.

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:



Charles J. Meslund
Group Leader, GC/MS Semivolatiles

Date: 4/16/02

000000

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

SAMPLE ANALYSES

LL Sample #	Sample Designation	Matrix Soil Water	Comments
3793007	07GRA	X	
3793008	DUP07	X	
3793009	325SS	X	
3793010	TB04W	X	
3793011	F04BC	X	
3793012	09GRA	X	
3793013	10SUP	X	Unspiked
3793014MS	10SUP	X	Matrix Spike
3793015MSD	10SUP	X	Matrix Spike Dup

QUALITY CONTROL ANALYSES

BLK6596		X	Method Blank
LCS6596		X	Lab Control Sample
LDS6596		X	Lab Control Dup

SAMPLE PREPARATION

No sample preparation was necessary.

ANALYSIS

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."

The method used for analysis was EPA Method SW-846 8021B. A J&W DB-VRX, 75m x 0.45mm, 2.55um column was used for the analysis of all samples. The surrogate concentration was 30.0 UG/L.

The instrument ID displayed on the analytical data is 5890-64--, while that displayed on the forms is 5890-65--. Although different, these IDs represent the same instrument.

No problems were encountered during analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY

Client submitted batch QC was referenced.

All QC was within specifications.

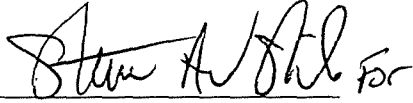
Case Narrative
SDG# KMA09

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

DATA INTERPRETATION

No explanation is necessary for the data submitted.

Narrative reviewed and approved by:



Steve J. Stabinger, Group Leader

4/12/02
Date

Data validation for grab water samples analyses performed by Lancaster Laboratories, Lancaster, Pennsylvania for the Kerr McGee Moss American Site in Milwaukee, WI.
The water samples were analyzed for Semi-Volatile (Polynuclear Aromatic Hydrocarbons-PAH 8310), and Volatile (BTEX 8021) Analyses.

Polynuclear Aromatic Hydrocarbons (PAHs by HPLC, U.S. EPA Method 8310)

Moss American Site

SDG # KMA10

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>
MAFB5	3793631	Grab water	03/22/02	03/25/02	04/05/02
MA-3S	3793632	Grab water	03/22/02	03/25/02	04/05/02
MA-3I	3793633	Grab water	03/22/02	03/25/02	04/05/02

2. Holding Times:

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

3. Method Blank:

The method blank SBLKWC0842 was associated with this SDG. SBLKWC0842 was analyzed on 04/04/02 and associated with (MAFB5, MA-3S, and MA-3I). The method blank SBLKWC0842 results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate:

Sufficient samples volume was not available to perform a matrix spike/matrix spike duplicate for this analysis. Therefore, MS/MSD were performed on sample 10SUP (3793013) from different set. The MS/MSD recoveries were within the quality control limit. Also, the RPD% values were acceptable.

5. Laboratory control Sample:

The laboratory control sample recoveries were within the quality control limit.

6. Surrogate:

The method blank and investigated samples had recoveries within the acceptance quality control limits.

7. Retention Time:

The retention time recoveries were acceptable.

8. Initial and Continuing Calibration:

All the initial calibrations results were within the quality control limits (RSD $>+/-30\%$), except in method file HP03456.i that were analyzed on 04/02/02, 04/02/02 for acenaphthylene (77.26%). Therefore, qualify the positive results in the samples as estimated (J).

All the continuing calibrations results were within the quality control limits (RSD $>+/-25\%$), except in method file HP03456.i that were analyzed on 04/02/02, 04/02/02 for acenaphthylene (-40.09%). Therefore, qualify the positive results in the samples as estimated (J).

BETX (U.S. EPA Method 8021B)
SDG # KMA10

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MAFB5	3793631	Grab water	03/22/02	03/25/02
MA-3S	3793632	Grab water	03/22/02	03/26/02
MA-3I	3793633	Grab water	03/22/02	03/26/02
MA-TB	3793634	Grab water	03/22/02	03/25/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

The method blank BLK1623 was associated with this SDG. BLK1623 was analyzed on 03/25/02 associated with (MAFB5, MA-3s, MA-3I, and MA-TB). The method blank BLK1623 results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate :

Sufficient samples volume was not available to perform a matrix spike and matrix spike duplicate for this analysis. Therefore, the laboratory performed only matrix spike on sample 3793213 from different set. The matrix spike recoveries were within the quality control limits.

5. Laboratory control Sample:

The laboratory control sample/laboratory control sample duplicate recoveries were within the quality control limits. Also, the relative percent difference (RPD%) values were acceptable.

6. Surrogate:

The method blank and investigated samples had recoveries within the acceptance quality control limits.

7. Initial and Continuing Calibration:

All the initial calibration and continuing calibration results were within the quality control limits.

Please feel free to contact me at (847) 971-6800 with any question regarding these validation reports.

Sincerely
Tania Balikji-Shammo



ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 801421. Samples arrived at the laboratory on Saturday, March 23, 2002.

Table with 2 columns: Client Description and Lancaster Labs Number. Rows include FB-05 Field Blank Grab Water Sample, MA3-MW-3S-220302-01 Grab Water Sample, MA3-MW-3I-220302-02 Grab Water Sample, and TB-05 Trip Blank Water Sample.

METHODOLOGY

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

1 COPY TO Kerr-McGee Corporation Attn: Dr. Jeff Ostmeier
1 COPY TO Roy F. Weston Attn: Mr. Tom Graan
1 COPY TO Data Package Group

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

44 00 00 00



Lancaster Laboratories

Where quality is a science.

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

Respectfully Submitted,

Christine M. Ratcliff
Christine M. Ratcliff
Sr. Chemist



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

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REPRINT

Page 1 of 2

Lancaster Laboratories Sample No. WW 3793631

Collected: 03/22/2002 09:00 by BC

Account Number: 07802

Submitted: 03/23/2002 10:15

Kerr-McGee Corporation

Reported: 04/19/2002 at 09:53

P.O. Box 25861

Discard: 05/20/2002

Oklahoma City OK 73125

FB-05 Field Blank Grab Water Sample

Moss American Site - WI

MAFB5 SDG#: KMA10-01FB

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

Laboratory Chronicle

TBS
5-9-02



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



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Lancaster Laboratories Sample No. WW 3793631

Collected: 03/22/2002 09:00 by BC

Account Number: 07802

Submitted: 03/23/2002 10:15

Kerr-McGee Corporation

Reported: 04/19/2002 at 09:53

P.O. Box 25861

Discard: 05/20/2002

Oklahoma City OK 73125

FB-05 Field Blank Grab Water Sample

Moss American Site - WI

MAFB5 SDG#: KMA10-01FB

No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/25/2002 16:55	Melissa D Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	04/05/2002 03:40	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/25/2002 16:55	Melissa D Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	03/25/2002 17:00	Desiree J Wann	1



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PO Box 12425
Lancaster, PA 17605-2425
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03/25/02



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Page 1 of 2

Lancaster Laboratories Sample No. WW 3793632

Collected: 03/22/2002 11:00 by BC

Account Number: 07802

Submitted: 03/23/2002 10:15

Kerr-McGee Corporation

Reported: 04/19/2002 at 09:53

P.O. Box 25861

Discard: 05/20/2002

Oklahoma City OK 73125

MA3-MW-3S-220302-01 Grab Water Sample

Moss American Site - WI

MA-3S SDG#: KMA10-02

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

Laboratory Chronicle

TBS
5-9-02
001010



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



REPRINT

Lancaster Laboratories Sample No. WW 3793632

Collected: 03/22/2002 11:00 by BC

Account Number: 07802

Submitted: 03/23/2002 10:15

Kerr-McGee Corporation

Reported: 04/19/2002 at 09:53

P.O. Box 25861

Discard: 05/20/2002

Oklahoma City OK 73125

MA3-MW-3S-220302-01 Grab Water Sample

Moss American Site - WI

MA-3S SDG#: KMA10-02

CAT

No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	03/26/2002 00:33	Darvin L Martin	1
00774	PAH's in Water by HPLC	SW-846 8310	1	04/05/2002 04:19	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/26/2002 00:33	Darvin L Martin	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	03/25/2002 17:00	Desiree J Wann	1



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

00000000



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Page 1 of 2

Lancaster Laboratories Sample No. WW 3793633

Collected: 03/22/2002 11:10 by BC

Account Number: 07802

Submitted: 03/23/2002 10:15

Kerr-McGee Corporation

Reported: 04/19/2002 at 09:53

P.O. Box 25861

Discard: 05/20/2002

Oklahoma City OK 73125

MA3-MW-3I-220302-02 Grab Water Sample

Moss American Site - WI

MA-3I SDG#: KMA10-03

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

UT

TBS
9-9-02

Laboratory Chronicle



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



REPRINT

Lancaster Laboratories Sample No. WW 3793633

Collected: 03/22/2002 11:10 by BC

Account Number: 07802

Submitted: 03/23/2002 10:15

Kerr-McGee Corporation

Reported: 04/19/2002 at 09:53

P.O. Box 25861

Discard: 05/20/2002

Oklahoma City OK 73125

MA3-MW-3I-220302-02 Grab Water Sample

Moss American Site - WI

MA-3I SDG#: KMA10-03

CAT

No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	03/26/2002 01:05	Darvin L Martin	1
00774	PAH's in Water by HPLC	SW-846 8310	1	04/05/2002 04:57	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/26/2002 01:05	Darvin L Martin	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	03/25/2002 17:00	Desiree J Wann	1



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0011



REPRINT

Lancaster Laboratories Sample No. WW 3793634

Collected: 03/22/2002 12:00 by BC

Account Number: 07802

Submitted: 03/23/2002 10:15
 Reported: 04/19/2002 at 09:53
 Discard: 05/20/2002
 TB-05 Trip Blank Water Sample
 Moss American Site - WI

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA-TB SDG#: KMA10-04TB*

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1

Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/25/2002 16:22	Melissa D Mann	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/25/2002 16:22	Melissa D Mann	n.a.

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

01146

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3792636-4

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Weston/Kerr McGee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Green</u> P.O.# _____ Sampler: <u>B. Crawford, B. Schaeffer, Y. Higuma</u> # _____ Name of state where samples were collected: <u>WI</u>				Matrix (4) <input type="checkbox"/> Potable (Check if applicable) <input type="checkbox"/> NPDES <input type="checkbox"/> Other		Analyses Requested BTEX (McL Dyeery) PAH					For lab use only FSC: _____ SCR #: _____				
Sample Identification	Date Collected	Time Collected	Grab (3)	Composite	Soil	Water	Other	Total # of Containers	Remarks					Temperature of samples upon receipt (if requested) (6)	
FB-05	3/22/01	0900	X			X		5	3	2					
MA3-MW-3S-270302-01	3/22/01	1100	X			X		5	3	2					
MA3-MW-3I-270302-02	3/22/01	1110	X			X		5	3	2					
TB-05	3/22/01	1200	X			X		2	2						
7 Turnaround Time Requested (TAT) (please circle): Normal Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone Fax Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>			Relinquished by: <u>Bang C. Chid</u> Date: <u>3/22/02</u> Time: <u>1230</u>			Received by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____							
8 Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)			SDG Complete? Yes <u>No</u> Site-specific QC required? Yes No (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes No			Relinquished by: _____ Date: _____ Time: _____			Received by: _____ Date: _____ Time: _____						
						Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____							
						Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: <u>3/23/02</u> Time: <u>10:15</u>							

CASE NARRATIVE

Client: Kerr-McGee Corporation
SDG #: KMA10

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>
3793631	MAFB5	X	Client Blank
3793632	MA-3S	X	
3793633	MA-3I	X	

LABORATORY SUBMITTED QC:

SBLKWC084	SBLKWC0842	X	Method Blank
3793013	10SUP	X	Unspiked
3793014	10SUPMS	X	Matrix Spike
3793015	10SUPMSD	X	Matrix Spike Dup
084WCLCS	084WCLCS2	X	Lab Control Sample

SAMPLE PREPARATION:

Due to insufficient sample, reduced volumes were used in the extraction of the following samples.

<u>Sample Code</u>	<u>Volume</u>
MA-3S	977 mls
MA-3I	974 mls
10SUP, 10SUPMS, 10SUPMSD	940 mls

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

ANALYSIS:

The method used for analysis was SW-846 8310.

Case Narrative
SDG #: KMA10 continued

All samples were analyzed for polynuclear aromatic hydrocarbons by HPLC.

No 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.

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Christine M. Ratchiff for CJN Date: 4-9-02
Charles J. Neslund
Group Leader, GC/MS Semivolatiles

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

SAMPLE ANALYSES

LL Sample #	Sample Designation	Matrix Soil Water	Comments
3793631	MAFB5	X	
3793632	MA-3S	X	
3793633	MA-3I	X	
3793634	MA-TB	X	

QUALITY CONTROL ANALYSES

BLK1623		X	Method Blank
LCS1623		X	Lab Control Sample
LDS1623		X	Lab Control Dup
3793213		X	Unspiked
3793213MS		X	Matrix Spike

SAMPLE PREPARATION

No sample preparation was necessary.

ANALYSIS

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."

The method used for analysis was EPA Method SW-846 8021B. A J&W DB-MTBE, 60m, 0.45mm, 2.55um column was used for the analysis of all samples. The surrogate concentration was 30.0 UG/L.

No problems were encountered during analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY


There was no client submitted QC, so Lancaster Laboratories batch QC was referenced. Sufficient sample volume was not available to perform an MSD for this analysis, therefore an LCS/LDS was performed to demonstrate precision and accuracy at a batch level.

All QC was within specifications.

DATA INTERPRETATION

No explanation is necessary for the data submitted.

Narrative reviewed and approved by:


Steve J. Stabinger, Group Leader

4/16/02
Date
Page 1 of 1

64100502

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CERTIFICATE OF ANALYSIS

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

Date Reported: 4/15/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9939-00222
Date Received: 3/19/02
Time Received: 09:00

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG6-1-180302-01, 3/18/02 @ 14:15 by Client				
Total Aerobic Bacteria	5,000. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	100. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-2-180302-02, 3/18/02 @ 14:25 by Client				
Total Aerobic Bacteria	8,900. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	1,400. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-3-180302-03, 3/18/02 @ 14:35 by Client				
Total Aerobic Bacteria	5,800. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	200. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-1-180302-04, 3/18/02 @ 15:50 by Client				
Total Aerobic Bacteria	7,000. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	200. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-2-180302-05, 3/18/02 @ 16:00 by Client				
Total Aerobic Bacteria	1,470. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	20. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-3-180302-06, 3/18/02 @ 16:10 by Client				
Total Aerobic Bacteria	7,900. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	100. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-1-180302-07, 3/18/02 @ 17:15 by Client				
Total Aerobic Bacteria	11,800. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	200. cfu/ml	3/20/02	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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CERTIFICATE OF ANALYSIS

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

Date Reported: 4/15/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9939-00222
Date Received: 3/19/02
Time Received: 09:00

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG3-7-180302-08, 3/18/02 @ 17:25 by Client				
Total Aerobic Bacteria	2,700. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	2,500. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-3-180302-09, 3/18/02 @ 17:35 by Client				
Total Aerobic Bacteria	1,460. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	40. cfu/ml	3/20/02	DJH	9215B MODIFIED

This document has been reviewed and is electronically signed by:

Karen A. Ziolkowski
Laboratory Director

Microbac

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Hammond, IN 46324
(219) 932-1770

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CERTIFICATE OF ANALYSIS

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

Date Reported: 4/15/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9939-00248
Date Received: 3/20/02
Time Received: 09:30

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG2-1-190302-01, 3/19/02 @ 09:15 by Client				
Total Aerobic Bacteria	6,500. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	300. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-2-190302-02, 3/19/02 @ 09:25 by Client				
Total Aerobic Bacteria	540. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	20. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-3-190302-03, 3/19/02 @ 09:35 by Client				
Total Aerobic Bacteria	910. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	20. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-1-190302-04, 3/19/02 @ 11:10 by Client				
Total Aerobic Bacteria	5,600. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	200. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-2-190302-05, 3/19/02 @ 11:20 by Client				
Total Aerobic Bacteria	420. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	50. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-3-190302-06, 3/19/02 @ 11:30 by Client				
Total Aerobic Bacteria	440. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	30. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-1-190302-07, 3/19/02 @ 15:00 by Client				
Total Aerobic Bacteria	1,580. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	490. cfu/ml	3/20/02	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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CERTIFICATE OF ANALYSIS

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

Date Reported: 4/15/02
P.O. Number: 0018581 MOSS AMERIC..
Sample ID: 9939-00248
Date Received: 3/20/02
Time Received: 09:30

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG4-2-190302-08, 3/19/02 @ 15:10 by Client				
Total Aerobic Bacteria	6,300. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	600. cfu/ml	3/20/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-3-190302-09, 3/19/02 @ 15:20 by Client				
Total Aerobic Bacteria	1,490. cfu/ml	3/20/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	40. cfu/ml	3/20/02	DJH	9215B MODIFIED

This document has been reviewed and is electronically signed by:

Karen A. Ziolkowski
Laboratory Director

Project name Mass American Project # _____
 Project location Milwaukee, WI (City) _____ (state) _____

Site contaminant * Crapsote, PAH
 (Used in test for degrader microbial populations, give ratios if applicable, e.g. 50:50, gasoline:diesel)

* If available, a sample of free product is preferred for use as the carbon source for enumerating the degrader microbial populations. Free product included? yes No

Requested analyses (✓)

Sample ID	Lab use only	Date	Time	Soil (✓)		Sample depth	Jars (#)			Additional comments	CEA* (soil/gw) see note <input type="checkbox"/> Aerobic, <input type="checkbox"/> Anaerobic, <input type="checkbox"/> Microaerophilic	Standard nutrient panel (soil/gw) * incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) <input type="checkbox"/> sieve and hydrometer, <input type="checkbox"/> sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core		Microbial Fluorescence			
				Soil	Gw		Jars	Vials	Core						Soil moisture at field capacity	Bulk density (soil)				
MAB-TG6-1-180302-01		3/18/02	1415		X	1										X				
MAB-TG6-2-180302-02		3/18/02	1425		X	1										X				
MAB-TG6-3-180302-03		3/18/02	1435		X	1										X				
MAB-TG5-1-180302-04		3/18/02	1550		X	1										X				
MAB-TG5-2-180302-05		3/18/02	1600		X	1										X				
MAB-TG5-3-180302-06		3/18/02	1610		X	1										X				
MAB-TG3-1-180302-07		3/18/02	1715		X	1										X				
MAB-TG3-2-180302-08		3/18/02	1725		X	1										X				
MAB-TG3-3-180302-09		3/18/02	1735		X	1										X				

Relinquished by: Eric Schuy Date/time: 3/18/02 1930 Comments: _____ Sample condition upon arrival: _____
 Received by: Anna Depina Date/time: 3/19/02 9:00 On ice? Yes, No

Microbac Laboratories,
HAMMOND DIVISION
542-544 Conkey Street
Hammond, Indiana 46324
219-932-1770

Send results to:
 Name Tom Girgan
 Company Weston
 Address 190 F. Bunker Court, Suite 507
 City Bremen Hills State IL Zip 60061
 Phone 547-913-4000 Fax 547-913-4055

Send Invoice to: Same as results
 Name _____
 Company _____
 Address _____
 City _____ State _____ Zip _____
 Phone _____ Fax _____

*CEA : Comparative Enumeration Assay Includes total heterotrophic and degrader populations

9939-222

Contact person Tom Green Sampler P. S. L. Green | 1725 W. 10th St
 Project name Miss America Project # _____
 Project location MILWAUKEE, WI
 (City) (state)

Site contaminant * Crude oil, AAH
 (Used in test for degrader microbial populations, give ratios if applicable, e.g. 50:50, gasoline:diesel)

* If available, a sample of free product is preferred for use as the carbon source for enumerating the degrader microbial populations. Free product included? yes No

Required analyses ()

Sample ID	Lab use only	Date	Time	✓		Sample depth	#			Additional comments	CEA* (soil/gw) see note <input type="checkbox"/> Aerobic, <input type="checkbox"/> Anaerobic, <input type="checkbox"/> Microaerophillic	Standard nutrient panel (soil/gw) incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) <input type="checkbox"/> sieve and hydrometer, <input type="checkbox"/> sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core		Microbial Enumeration
				Soil	GW		Jars	Vials	Core						Soil moisture at field capacity	Bulk density (soil)	
MA3-TG2-1-190302-01		3/19/02	0915		X	—	—	—	—							X	
MA3-TG2-2-190302-02			0925		X	—	—	—	—							X	
MA3-TG2-3-190302-03			0935		X	—	—	—	—							X	
MA3-TG1-1-190302-04			1110		X	—	—	—	—							X	
MA3-TG1-2-190302-05			1120		X	—	—	—	—							X	
MA3-TG1-3-190302-06			1130		X	—	—	—	—							X	
MA3-TG4-1-190302-07			1500		X	—	—	—	—							X	
MA3-TG4-2-190302-08			1510		X	—	—	—	—							X	
MA3-TG4-3-190302-09			1520		X	—	—	—	—							X	

Relinquished by: Tom Green Date/time: 3/19/02 / 1930 Comments: _____
 Received by: D. Adams Date/time: 3/20/02 930 Sample condition upon arrival: _____
 On ice? Yes, No

Microbac Laboratories,
 HAMMOND DIVISION
 542-544 Conkey Street
 Hammond, Indiana 46324
 219-932-1770

Send results to:
 Name Tom Green
 Company Roy F. Weston
 Address 750 E. Bunker Court, Suite 500
 City Wernon Hills State IL Zip 60061
 Phone 847-918-4000 Fax 847-918-4055

Send invoice to: Same as results
 Name _____
 Company _____
 Address _____
 City _____ State _____ Zip _____
 Phone _____ Fax _____

Yvonne Depina 3/20/02 9:30am

*CEA : Comparative Enumeration Assay Includes total heterotrophic and degrader populations

9939-248



ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 803392. Samples arrived at the laboratory on Wednesday, April 10, 2002.

Client Description

TB-06 Water Sample
MA3-MW26S-040902-01 Grab Water Sample

Lancaster Labs Number

3802491
3802492

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 Roy F. Weston
1 COPY TO Data Package Group

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



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

40000



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

Respectfully Submitted,

Rachel R. Cochis
Rachel R. Cochis
Sr. Chemist/Coordinator



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

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Lancaster Laboratories Sample No. WW 3802491

Collected: 04/09/2002 10:15

Account Number: 07802

Submitted: 04/10/2002 09:15

Kerr-McGee Corporation

Reported: 04/18/2002 at 16:30

P.O. Box 25861

Discard: 05/19/2002

Oklahoma City OK 73125

TB-06 Water Sample

Moss American Site - WI

TB-06 SDG#: KMA11-01TB

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	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	04/11/2002 20:49	John B Kiser	1
01146	GC VOA Water Prep	SW-846 5030B	1	04/11/2002 20:49	John B Kiser	n.a.



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

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Lancaster Laboratories Sample No. WW 3802492

Collected: 04/09/2002 10:05 by TB

Account Number: 07802

Submitted: 04/10/2002 09:15

Kerr-McGee Corporation

Reported: 04/18/2002 at 16:30

P.O. Box 25861

Discard: 05/19/2002

Oklahoma City OK 73125

MA3-MW26S-040902-01 Grab Water Sample

Moss American Site - WI

MW26S SDG#: KMA11-02*

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
The vial submitted for volatile analysis did not have a pH < 2 at the time of analysis. Due to the volatile nature of the analytes, it is not appropriate for the laboratory to adjust the pH at the time of sample receipt.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

00007



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425



Lancaster Laboratories Sample No. WW 3802492

Collected: 04/09/2002 10:05 by TB

Account Number: 07802

Submitted: 04/10/2002 09:15

Kerr-McGee Corporation

Reported: 04/18/2002 at 16:30

P.O. Box 25861

Discard: 05/19/2002

Oklahoma City OK 73125

MA3-MW26S-040902-01 Grab Water Sample

Moss American Site - WI

MW26S SDG#: KMA11-02*

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	04/11/2002 21:20	John B Kiser	1
00774	PAH's in Water by HPLC	SW-846 8310	1	04/17/2002 09:44	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	04/11/2002 21:20	John B Kiser	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	04/11/2002 23:05	Karen L Beyer	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

0000

Analysis Request / Environmental Services Contract / Order



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3802491-92

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Kerr McGee / Weston</u>		Acct. #: <u>7802</u>		Matrix 4		Analyses Requested 5 BTEX (MCL Prescribed) PAHs										For lab use only				
Project Name/#: <u>Moss American</u>		PWSID #: _____														FSC: _____				
Project Manager: <u>Tom Grant</u>		P.O.# _____														SCR #: _____				
Sampler: <u>Tim Borman</u>		Quote #: _____																		
Name of state where samples were collected: <u>WT</u>				Composite 3																
Sample Identification		Date Collected	Time Collected	Grab	Soil	Water	Other	Total Containers	Remarks											
<u>TB-06</u>		<u>4/9/02</u>	<u>1015</u>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<u>2</u>												
<u>MA3 • MW265 • 040902 • 01</u>		<u>4/9/02</u>	<u>1005</u>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<u>5</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input type="checkbox"/> Phone #: <u>847 918 4060</u> Fax #: <u>847 918 4055</u>		Relinquished by: <u>Timothy Borman / Weston</u>		Date	Time	Received by:		Date	Time

8 Data Package Options (please circle if requested)		SDG Complete?									
QC Summary Type VI (Raw Data) <u>Per Quote</u>		Yes No									
Type I (Tier I) GLP											
Type II (Tier II) Other											
Type III (NJ Red. Del.)		Site-specific QC required? Yes <input type="checkbox"/> No <input type="checkbox"/>									
Type IV (CLP)		(If yes, indicate QC sample and submit triplicate volume.)									
		Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>									

CASE NARRATIVE

Client: Kerr-McGee Corporation
SDG #: KMA11

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>
3802492	MW26S	X	

LABORATORY SUBMITTED QC:

SBLKWD101	SBLKWD1012	X	Method Blank
101WDLCS	101WDLCS2	X	Lab Control Sample
101WDLCS2	101WDLCS2	X	Lab Control Sample Dup

SAMPLE PREPARATION:

No problems were encountered during the extraction of this sample.

ANALYSIS:

The method used for analysis was SW-846 8310.

MW26S was analyzed for polynuclear aromatic hydrocarbons by HPLC.

Sufficient sample volume was not available to perform a MS/MSD for the analysis of MW26S. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

No other problems were encountered during the analysis of this sample.

Case Narrative
SDG #: KMA11 continued

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.

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Christine M. Ratcheff for CJN
Charles J. Neslund
Group Leader, GC/MS Semivolatiles

Date: 4-30-02

Case Narrative
SDG# KMA11

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

SAMPLE ANALYSES

LL Sample #	Sample Designation	Matrix Soil Water	Comments
3802491	TB-06	X	
3802492	MW26S	X	

QUALITY CONTROL ANALYSES

LK1628		X	Method Blank
3802576		X	Unspiked
802577MS		X	Matrix Spike
802578MSD		X	Matrix Spike Dup
UCS1628		X	Lab Control Sample

SAMPLE PREPARATION

sample preparation was necessary.

ANALYSIS

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."

The method used for analysis was EPA Method SW-846/8021B. A J&W DB-MTBE, 60m, 0.45mm, 2.55um column was used for the analysis of all samples. The surrogate concentration was 30.0 UG/L.

No problems were encountered during analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY

There was no client submitted QC, so Lancaster Laboratories batch QC was referenced. All QC was within specifications.

0
0
7
0

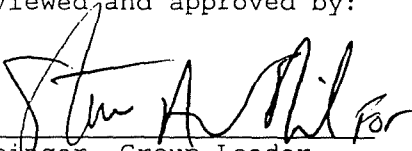
Case Narrative
SDG# KMA11

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

DATA INTERPRETATION

o explanation is necessary for the data submitted.

Narrative reviewed and approved by:



Steve J. Stabinger, Group Leader

Date 5/1/02

Data validation for grab water samples analyses performed by Lancaster Laboratories, Lancaster, Pennsylvania for the Kerr McGee Moss American Site in Milwaukee, WI.

The water samples were analyzed for Semi-Volatile (Polynuclear Aromatic Hydrocarbons-PAH 8310), and Volatile (BTEX 8021) analyses.

Polynuclear Aromatic Hydrocarbons (PAHs by HPLC, U.S. EPA Method 8310)

Moss American Site

SDG # KMA08

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>
MA3-MW-06S-210302-01	3792995	Grab water	03/21/02	03/28/02	03/30/02
MA3-MW-28S-210302-02	3792996	Grab water	03/21/02	03/28/02	03/30/02
MA3-MW-28S-210302-02-DUP	3792997	Grab water	03/21/02	03/28/02	03/30/02
MA3-MW-31S-210302-03	3792998	Grab water	03/21/02	03/28/02	03/30/02
MA3-MW-09S-210302-04	3792999	Grab water	03/21/02	03/28/02	03/31/02
MA3-MW-09S-210302-04-MS	3793000	Grab water	03/21/02	03/28/02	03/31/02
MA3-MW-09S-210302-04-MSD	3793001	Grab water	03/21/02	03/28/02	03/31/02
MA3-MW-09I-210302-05	3793002	Grab water	03/21/02	03/28/02	03/30/02
MA3-MW-10S-210302-06	3793003	Grab water	03/21/02	03/28/02	03/30/02
FB-03	3793005	Grab water	03/21/02	03/28/02	03/30/02

2. Holding Times:

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

3. Method Blank:

The method blank SBLKWI0862 was associated with this SDG. SBLKW I0862 was analyzed on 03/31/02 and associated with (3792995 thru 3793005). The method blank results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate:

The matrix spike/matrix spike duplicate was performed on 3792999. The MS/MSD recoveries were within the quality control limit. Also, the RPD% values were acceptable.

5. Laboratory control Sample:

The laboratory control sample recoveries were within the quality control limit.

6. Surrogate:

The method blank and investigated samples had recoveries within the quality control limits.

7. Retention Time:

The retention time recoveries were acceptable, except in method file HP03456.i acenaphthylene was outside the required RT window.

8. Initial and Continuing Calibration:

All the initial calibrations results were within the quality control limits (RSD $> \pm 30\%$), except in method file HP03456.i that were analyzed on 03/25/02 for acenaphthylene (0%).

All the continuing calibrations results were within the quality control limits (RSD $> \pm 25\%$), except in method file HP03456.i/02084B1-77R, HP03456.i/02084B1-88R, and HP03456.i/02084B2-52R.d that analyzed on 03/25/02 for acenaphthylene was (0%).

According to the initial and continuing calibration above qualify acenaphthylene in the samples as estimated (J/UJ).

BETX (U.S. EPA Method 8021B)
SDG # KMA08

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-MW-06S-210302-01	3792995	Grab water	03/21/02	03/23/02
MA3-MW-28S-210302-02	3792996	Grab water	03/21/02	03/23/02
MA3-MW-28S-210302-02-DUP	3792997	Grab water	03/21/02	03/23/02
MA3-MW-31S-210302-03	3792998	Grab water	03/21/02	03/23/02
MA3-MW-09S-210302-04	3792999	Grab water	03/21/02	03/23/02
MA3-MW-09S-210302-04-MS	3793000	Grab water	03/21/02	03/23/02
MA3-MW-09S-210302-04-MSD	3793001	Grab water	03/21/02	03/23/02
MA3-MW-09I-210302-05	3793002	Grab water	03/21/02	03/23/02
MA3-MW-10S-210302-06	3793003	Grab water	03/21/02	03/23/02
TB-03	3793004	Grab water	03/21/02	03/23/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

The method blank BLK6595 was associated with this SDG. BLK6595 was analyzed on 03/23/02 associated with (3792114 thru 3792132). The method blank results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate :

The matrix spike was performed on sample 3792999. The matrix spike/matrix spike duplicate recoveries were within the quality control limits. Also. The RPD% values were acceptable.

5. Laboratory control Sample:

The laboratory control sample/laboratory control sample duplicate recoveries were within the quality control limits. Also, the relative percent difference (RPD%) values were acceptable.

6. Surrogate:

The method blank and investigated samples had recoveries within the quality control limits.

7. Initial and Continuing Calibration:

All the initial calibration and continuing calibration results were within the quality control limits.

Please feel free to contact me at (847) 549-1042 or (847) 971-6800 with any question regarding these validation reports.

Sincerely
Tania Balikji-Shammo



ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 801283. Samples arrived at the laboratory on Friday, March 22, 2002.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
MA3-MW-06S-210302-01 Grab Water Sample	3792995
MA3-MW-28S-210302-02 Grab Water Sample	3792996
MA3-MW-28S-210302-02-DUP Grab Water Sample	3792997
MA3-MW-31S-210302-03 Grab Water Sample	3792998
MA3-MW-09S-210302-04 Unspiked Grab Water Sample	3792999
MA3-MW-09S-210302-04-MS Matrix Spike Grab	3793000
MA3-MW-09S-210302-04-MSD Matrix Spike Dup. Grab	3793001
MA3-MW-09I-210302-05 Grab Water Sample	3793002
MA3-MW-10S-210302-06 Grab Water Sample	3793003
TB-03 Water Sample	3793004
FB-03 Grab Water Sample	3793005

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 Roy F. Weston
 1 COPY TO Data Package Group

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



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

3792995



Lancaster Laboratories

Where quality is a science.

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

Respectfully Submitted,

Rachel R. Cochis
Rachel R. Cochis
Sr. Chemist/Coordinator



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

00000000



Lancaster Laboratories Sample No. WW 3792995

Collected: 03/21/2002 09:20 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25
 Reported: 04/03/2002 at 13:04
 Discard: 05/04/2002
 MA3-MW-06S-210302-01 Grab Water Sample
 Moss American Site - WI

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

06SSS SDG#: KMA08-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method Detection Limit	Units	
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	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	03/23/2002 15:12	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/30/2002 02:12	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002 15:12	Steven J Stabinger	n.a.



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 3792995

Collected: 03/21/2002 09:20 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:04

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-06S-210302-01 Grab Water Sample

Moss American Site - WI

06SSS SDG#: KMA08-01

03337 PAH Water Extraction

SW-846 3510C

2 03/28/2002 09:45

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

03140615



Lancaster Laboratories Sample No. WW 3792996

Collected: 03/21/2002 09:30 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:04

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-28S-210302-02 Grab Water Sample

Moss American Site - WI

28SSS SDG#: KMA08-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
08213	BTEX (8021)			Detection Limit		
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D. <i>UJ</i>	0.9	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.9	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.09	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.09	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.09	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

TBS
5/13/06

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
						1
						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 3792996

Collected: 03/21/2002 09:30 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:04

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-28S-210302-02 Grab Water Sample

Moss American Site - WI

28SSS SDG#: KMA08-02

08213	BTEX (8021)	SW-846 8021B	1	03/23/2002 15:45	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/30/2002 02:50	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002 15:45	Steven J Stabinger	n.a.
03337	PAH Water Extraction	SW-846 3510C	2	03/28/2002 09:45	Felix C Arroyo	1



Lancaster Laboratories, Inc.
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00112



Lancaster Laboratories Sample No. WW 3792997

Collected: 03/21/2002 09:30 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:04

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-28S-210302-02-DUP Grab Water Sample

Moss American Site - WI

328DU SDG#: KMA08-03FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method		Dilution Factor
				Detection Limit	Units	
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.9	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.9	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.09	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.09	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.09	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

TAS
5/13/02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilutio.. Factor
				Date and Time			

0
0
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3



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 3792997

Collected: 03/21/2002 09:30 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:04

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-28S-210302-02-DUP Grab Water Sample

Moss American Site - WI

328DU	SDG#: KMA08-03FD				
08213	BTEX (8021)	SW-846 8021B	1	03/23/2002 16:17	Steven J Stabinger 1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/30/2002 03:29	Mark A Clark 1
01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002 16:17	Steven J Stabinger n.a.
03337	PAH Water Extraction	SW-846 3510C	2	03/28/2002 09:45	Felix C Arroyo 1



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0
0
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4



Lancaster Laboratories Sample No. WW 3792998

Collected: 03/21/2002 09:40 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25
 Reported: 04/03/2002 at 13:05
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-MW-31S-210302-03 Grab Water Sample
 Moss American Site - WI

31SSS SDG#: KMA08-04

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.9	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.9	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.09	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.09	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.09	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

TBS
5/13/02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
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1
1
5



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



Lancaster Laboratories Sample No. WW 3792998

Collected: 03/21/2002 09:40 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:05

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-31S-210302-03 Grab Water Sample

Moss American Site - WI

31SSS SDG#: KMA08-04

08213	BTEX (8021)	SW-846 8021B	1	03/23/2002 16:50	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/30/2002 04:08	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002 16:50	Steven J Stabinger	n.a.
03337	PAH Water Extraction	SW-846 3510C	2	03/28/2002 09:45	Felix C Arroyo	1



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0016



Lancaster Laboratories Sample No. WW 3792999

Collected: 03/21/2002 11:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:05

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-09S-210302-04 Unspiked Grab Water Sample

Moss American Site - WI

04USP SDG#: KMA08-05BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
				Detection Limit		
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	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	03/23/2002 17:23	Anastasia Papadopoulos	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/31/2002 19:38	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002 17:23	Anastasia Papadopoulos	n.a.



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Lancaster Laboratories Sample No. WW 3792999

Collected: 03/21/2002 11:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:05

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-09S-210302-04 Unspiked Grab Water Sample
Moss American Site - WI

04USP SDG#: KMA08-05BKG

03337 PAH Water Extraction

SW-846 3510C

2 03/28/2002 09:45

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

0018



Lancaster Laboratories Sample No. WW 3793000

Collected: 03/21/2002 11:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:05

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-09S-210302-04-MS Matrix Spike Grab

Water Sample

Moss American Site - WI

04USP SDG#: KMA08-05MS

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	22.	0.20	ug/l	1
00777	Toluene	108-88-3	22.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	22.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	67.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	170.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	180.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	190.	0.8	ug/l	1
00784	Fluorene	86-73-7	19.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	6.	0.08	ug/l	1
00789	Anthracene	120-12-7	3.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	3.	0.04	ug/l	1
00811	Pyrene	129-00-0	20.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	2.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	2.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	6.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	12.	0.1	ug/l	1
07409	Chrysene	218-01-9	6.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.	0.02	ug/l	1

TPS 5/13/02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	03/23/2002 17:55	Anastasia Papadopoulos	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/31/2002 20:16	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002 17:55	Anastasia Papadopoulos	n.a.



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 2425 New Holland Pike
 PO Box 12425
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 717-656-2300 Fax: 717-656-2681



Lancaster Laboratories Sample No. WW 3793000

Collected: 03/21/2002 11:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:05

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-09S-210302-04-MS Matrix Spike Grab

Water Sample

Moss American Site - WI

04USP SDG#: KMA08-05MS

03337 PAH Water Extraction

SW-846 3510C

2

03/28/2002 09:45

Felix C Arroyo

1



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

03/28/02



Lancaster Laboratories Sample No. WW 3793001

Collected: 03/21/2002 11:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:05

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-09S-210302-04-MSD Matrix Spike Dup. Grab

Water Sample

Moss American Site - WI

04USP SDG#: KMA08-05MSD

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	23.		0.20	ug/l	1
00777	Toluene	108-88-3	23.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	23.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	69.		0.60	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	160.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	180.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	180.		0.8	ug/l	1
00784	Fluorene	86-73-7	18.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	6.		0.08	ug/l	1
00789	Anthracene	120-12-7	3.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	3.		0.04	ug/l	1
00811	Pyrene	129-00-0	19.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	2.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.		0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	6.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	12.		0.1	ug/l	1
07409	Chrysene	218-01-9	6.		0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.		0.02	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	03/23/2002	18:28	Anastasia Papadopoulos	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/31/2002	20:55	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002	18:28	Anastasia Papadopoulos	n.a.



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Lancaster Laboratories Sample No. WW 3793001

Collected: 03/21/2002 11:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:05

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-09S-210302-04-MSD Matrix Spike Dup. Grab
Water Sample

Moss American Site - WI

04USP SDG#: KMA08-05MSD

03337 PAH Water Extraction

SW-846 3510C

2 03/28/2002 09:45

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

50305



Lancaster Laboratories Sample No. WW 3793002

Collected: 03/21/2002 12:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:05

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-09I-210302-05 Grab Water Sample

Water Sample

Moss American Site - WI

09III SDG#: KMA08-06

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

Laboratory Chronicle

TAD
5/13/02

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factc
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/23/2002 19:00	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/30/2002 04:46	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002 19:00	Steven J Stabinger	n.a.



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



Lancaster Laboratories Sample No. WW 3793002

Collected: 03/21/2002 12:15 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:05

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-09I-210302-05 Grab Water Sample

Water Sample

Moss American Site - WI

09III SDG#: KMA08-06

03337 PAH Water Extraction

SW-846 3510C

2

03/28/2002 09:45

Felix C Arroyo

1



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0000224



Lancaster Laboratories Sample No. WW 3793003

Collected: 03/21/2002 12:30 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25

Kerr-McGee Corporation

Reported: 04/03/2002 at 13:05

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-MW-10S-210302-06 Grab Water Sample

Moss American Site - WI

10SMW SDG#: KMA08-07

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

TSJ
5/13/02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/23/2002 19:33	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/30/2002 06:03	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002 19:33	Steven J Stabinger	n.a.

50213



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Lancaster Laboratories Sample No. WW 3793003

Collected: 03/21/2002 12:30 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25
Reported: 04/03/2002 at 13:05
Discard: 05/04/2002
MA3-MW-10S-210302-06 Grab Water Sample
Moss American Site - WI

Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

10SMW SDG#: KMA08-07
03337 PAH Water Extraction SW-846 3510C 2 03/28/2002 09:45 Felix C Arroyo 1



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

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Lancaster Laboratories Sample No. WW 3793004

Collected: 03/21/2002 08:00

Account Number: 07802

Submitted: 03/22/2002 09:25
Reported: 04/03/2002 at 13:05
Discard: 05/04/2002
TB-03 Water Sample
Moss American Site - WI

Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

TB03C SDG#: KMA08-08TB

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	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	03/23/2002 20:05	Steven J Stabinger	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002 20:05	Steven J Stabinger	n.a.



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Lancaster, PA 17605-2425
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Lancaster Laboratories Sample No. WW 3793005

Collected: 03/21/2002 08:00 by BS

Account Number: 07802

Submitted: 03/22/2002 09:25
 Reported: 04/03/2002 at 13:05
 Discard: 05/04/2002
 FB-03 Grab Water Sample
 Moss American Site - WI

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

FB03E SDG#: KMA08-09FB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
00774	PAH's in Water by HPLC			Detection Limit		
00775	Naphthalene	91-20-3	N.D.	0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

TBS
5/13/02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00774	PAH's in Water by HPLC	SW-846 8310	1	03/30/2002 06:42	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	2	03/28/2002 09:45	Felix C Arroyo	1



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 Lancaster, PA 17605-2425
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Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3792945-05

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Kerr McGee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>B. Schaefer, B. Crawford, Y. Hagiwara</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>			Matrix (4) <input type="checkbox"/> Potable (Check if applicable) <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other		(5) Analyses Requested <div style="text-align: center; font-size: 2em; transform: rotate(-45deg); opacity: 0.5;">BTEX (HCL Pres)</div>					For lab use only FSC: _____ SCR #: <u>58457</u>		
Sample Identification	Date Collected	Time Collected	Grab (3)	Composite	Soil	Water	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested)		
<u>TB-03 S</u>	<u>3/21/02</u>	<u>0800</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>2</u>				
<u>MA3-MW-065-210302-01</u>	<u>3/21/02</u>	<u>0920</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>3</u>				
<u>MA3-MW-285-210302-02</u>	<u>3/21/02</u>	<u>0930</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>3</u>				
<u>MA3-MW-285-210302-02-DUP</u>	<u>3/21/02</u>	<u>0930</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>3</u>				
<u>MA3-MW-315-210302-03</u>	<u>3/21/02</u>	<u>0940</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>3</u>				
<u>MA3-MW-095-210302-04</u>	<u>3/21/02</u>	<u>1115</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>3</u>				
<u>MA3-MW-095-210302-04-MS</u>	<u>3/21/02</u>	<u>1115</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>3</u>				
<u>MA3-MW-095-210302-04-MSD</u>	<u>3/21/02</u>	<u>1115</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>3</u>				
<u>MA3-MW-095-210302-05</u>	<u>3/21/02</u>	<u>1215</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>3</u>				
<u>MA3-MW-105-210302-06</u>	<u>3/21/02</u>	<u>1230</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>3</u>				
(7) Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input type="checkbox"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>			Relinquished by: <u>[Signature]</u> Date: <u>3/21/02</u> Time: <u>1800</u>		Received by: _____ Date: _____ Time: _____		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____			
(8) Data Package Options (please circle if requested)			SDG Complete? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)			Site-specific QC required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____		Relinquished by: _____ Date: _____ Time: _____		Received by: <u>Kathy Binkley</u> Date: <u>3/22/02</u> Time: <u>0921</u>	

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3792995-05

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: <u>Kerr McGee/WESTON</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>Schaefer, Crawford & Hagiwara</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>				Matrix 4 <input type="checkbox"/> Potable (check if applicable) <input type="checkbox"/> NPDES <input type="checkbox"/> Other		5 Analyses Requested <div style="text-align: center; font-size: 2em; font-weight: bold;">PAH</div>						For lab use only FSC: _____ SCR #: _____				
2			3		4		6						9			
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks						Temperature of samples upon receipt (if requested)	
MA3-MW-9S-210302-04	3/21/02	1115	✓			✓		2								
MA3-MW-9S-210302-04-MS	3/21/02	1115	✓			✓		2								
MA3-MW-9S-210302-04-MSD	3/21/02	1115	✓			✓		2								
MA3-MW-9I-210302-05m	3/21/02	1215	✓			✓		2								
MA3-MW-10S-210302-06	3/21/02	1230	✓			✓		2								
7 Turnaround Time Requested (TAT) (please circle): Normal <input type="radio"/> Rush <input type="radio"/>			Relinquished by: <u>Yoshie Hagiwara</u>		Date	Time	Received by:		Date	Time	Received by:		Date	Time		
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="radio"/> Fax <input type="radio"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>																
8 Data Package Options (please circle if requested)			SDG Complete? Yes <input type="radio"/> No <input checked="" type="radio"/>		Relinquished by:		Date	Time	Received by:		Date	Time	Received by:		Date	Time
Type I (Tier I)	Type VI (Raw Data) <u>Per Quote</u>	GLP	Site-specific QC required? Yes <input type="radio"/> No <input checked="" type="radio"/>		Relinquished by:		Date	Time	Received by:		Date	Time	Received by:		Date	Time
Type II (Tier II)	Other		(If yes, indicate QC sample and submit triplicate volume.)		Relinquished by:		Date	Time	Received by:		Date	Time	Received by:		Date	Time
Type III (NJ Red. Del.)			Internal Chain of Custody required? Yes <input type="radio"/> No <input checked="" type="radio"/>		Relinquished by:		Date	Time	Received by:		Date	Time	Received by:		Date	Time
Type IV (GLP)																

Analysis Request / Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3792995-05

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Kerr McGee</u> Acct. #: _____ Project Name/#: <u>Mass American</u> PWSID #: _____ Project Manager: <u>Tom</u> P.O.# _____ Sampler: <u>Schaefer, Crawford, Haginara</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix 4 <input type="checkbox"/> Potable (check if applicable) <input type="checkbox"/> NPDES <input type="checkbox"/> Other	Analyses Requested 5 <div style="text-align: center; font-size: 2em; font-weight: bold;">PAH</div>	For lab use only FSC: _____ SCR #: _____						
Sample Identification	Date Collected	Time Collected	Grab 3	Composite	Soil	Water	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested) 6
<u>MA3-MW-065-210302-01</u>	<u>3/21/02</u>	<u>0920</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>2</u> <u>2</u>		
<u>MA3-MW-285-210302-02</u>	<u>3/21/02</u>	<u>0930</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>2</u> <u>2</u>		
<u>MA3-MW-285-210302-02-DP</u>	<u>3/21/02</u>	<u>0930</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>2</u> <u>2</u>		
<u>MA3-MW-315-210302-03</u>	<u>3/21/02</u>	<u>0940</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>2</u> <u>2</u>		
<u>FB-03</u>	<u>3/21/02</u>	<u>0800</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<u>2</u> <u>2</u>		

7 Turnaround Time Requested (TAT) (please circle): Normal Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone Fax Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>	Relinquished by: <u>Yoshie Haginara</u>	Date <u>3/21/02</u>	Time <u>1800</u>	Received by: _____	Date _____	Time _____
8 Data Package Options (please circle if requested)	QC Summary Type VI (Raw Data) <u>per Quote</u>	SDG Complete? Yes <u>No</u>	 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ 			
Type I (Tier I) GLP	Site-specific QC required? Yes No					
Type II (Tier II) Other	(If yes, indicate QC sample and submit triplicate volume.)					
Type III (NJ Red. Del.)	Internal Chain of Custody					
				Received by: <u>Kathy Binkley</u>	Date <u>3-22-02</u>	Time <u>02:02</u>

CASE NARRATIVE

Client: Kerr-McGee Corporation
SDG #: KMA08

LANCASTER LABORATORIES
PAH BY HPLC

SAMPLE NUMBER(S) :

<u>LL #'s</u>	<u>Sample Code</u>	<u>Matrix Water</u>	<u>Comments</u>
3792995	06SSS	X	
3792996	28SSS	X	
3792997	328DU	X	
3792998	31SSS	X	
3792999	04USP	X	Unspiked
3793000	04USPMS	X	Matrix Spike
3793001	04USPMSD	X	Matrix Spike Dup
3793002	09III	X	
3793003	10SMW	X	
3793005	FB03E	X	Client Blank

LABORATORY SUBMITTED QC:

SBLKWI086	SBLKWI0862	X	Method Blank
086WILCS	086WILCS2	X	Lab Control Sample

SAMPLE PREPARATION:

Due to insufficient sample, reduced volumes were used in the extraction of the following samples.

<u>Sample Code</u>	<u>Volume</u>
28SSS	930 mls
328DU	893 mls
31SSS	927 mls
09III	973 mls
10SMW	962 mls

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

Case Narrative
SDG #: KMA08 continued

ANALYSIS:

The method used for analysis was SW-846 8310.

All samples were analyzed for polynuclear aromatic hydrocarbons by HPLC.

No 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.

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Christine M. Ratchell for CJN Date: 4-9-02

Charles J. Neslund
Group Leader, GC/MS Semivolatiles

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

SAMPLE ANALYSES

LL Sample #	Sample Designation	Matrix Soil Water	Comments
3792995	06SSS	X	
3792996	28SSS	X	
3792997	328DU	X	
3792998	31SSS	X	
3792999	04USP	X	Unspiked
3793000MS	04USP	X	Matrix Spike
3793001MSD	04USP	X	Matrix Spike Dup
3793002	09III	X	
3793003	10SMW	X	
3793004	TB03C	X	

QUALITY CONTROL ANALYSES

BLK6595		X	Method Blank
LCS6595		X	Lab Control Sample
LDS6595		X	Lab Control Dup

SAMPLE PREPARATION

No sample preparation was necessary.

ANALYSIS

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."

The method used for analysis was EPA Method SW-846 8021B. A J&W DB-VRX, 75m x 0.45mm, 2.55um column was used for the analysis of all samples. The surrogate concentration was 30.0 UG/L.

The instrument ID displayed on the analytical data is 5890-64--, while that displayed on the forms is 5890-65--. Although different, these IDs represent the same instrument.

No problems were encountered during analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY

Client submitted batch QC was referenced.

All QC was within specifications.

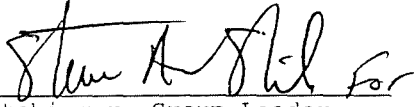
Case Narrative
SDG# KMA08

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

DATA INTERPRETATION

No explanation is necessary for the data submitted.

Narrative reviewed and approved by:



Steve J. Stabinger, Group Leader

Date 4/11/02

Data validation for grab water samples analyses performed by Lancaster Laboratories, Lancaster, Pennsylvania for the Kerr McGee Moss American Site in Milwaukee, WI.

The water samples were analyzed for Semi-Volatile (Polynuclear Aromatic Hydrocarbons-PAH 8310), Volatile (BTEX 8021), Kjeldahl Nitrogen Analysis (TKN), Nitrite Nitrogen, Nitrate Nitrogen, Total Phosphorus as (PO₄), Total Organic Carbon (TOC), Ammonia Nitrogen, Ortho-Phosphate as P, and Biochemical Oxygen Demand (BOD) analyses.

Polynuclear Aromatic Hydrocarbons (PAHs by HPLC, U.S. EPA Method 8310)

Moss American Site

SDG # KMA05

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>
MA3-TG6-3-180302-03	3790473	Grab water	03/18/02	03/21/02	03/28/02
MA3-TG6-2-180302-02	3790474	Grab water	03/18/02	03/21/02	03/28/02
MA3-TG6-1-180302-01	3790475	Grab water	03/18/02	03/21/02	03/28/02
MA3-TG3-3-180302-09	3790476	Grab water	03/18/02	03/21/02	03/28/02
MA3-TG3-2-180302-08	3790477	Grab water	03/18/02	03/21/02	03/28/02
MA3-TG3-1-180302-07	3790478	Grab water	03/18/02	03/21/02	03/28/02
MA3-TG5-1-180302-04	3790479	Grab water	03/18/02	03/21/02	03/28/02
MA3-TG5-2-180302-05	3790480	Grab water	03/18/02	03/21/02	03/28/02
MA3-TG5-3-180302-06	3790481	Grab water	03/18/02	03/21/02	03/28/02

2. Holding Times:

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

3. Method Blank:

The method blank SBLKWD0792 was associated with this SDG. SBLKWD0792 was analyzed on 03/28/02 and associated with (3790473 thru 3790481). The method blank results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate:

Sufficient samples volume was not available to perform a matrix spike/matrix spike duplicate for this analysis.

5. Laboratory control Sample:

The laboratory control sample/laboratory control sample duplicate recoveries were within the quality control limit. Also, the RPD% values were acceptable.

6. Surrogate:

The method blank and investigated samples had recoveries within the acceptance quality control limits.

7. Retention Time:

The retention time recoveries were acceptable, except in acenaphthylene was outside the required RT window.

8. Initial and Continuing Calibration:

All the initial calibrations results were within the quality control limits (RSD $>+/-30\%$), except in method file HP03456.i that were analyzed on 03/25/02 for acenaphthylene (0%).

All the continuing calibrations results were within the quality control limits (RSD $>+/-25\%$), except in method file HP03456.i/02084B1-21R.d, and HP03456.i/02084B1-32R.d that analyzed on 03/25/02 for acenaphthylene was (0%).

According to the initial and continuing calibration above qualify acenaphthylene in the samples as estimated (J/UJ).

BETX (U.S. EPA Method 8021B)
SDG # KMA05

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
TB-01	3790472	Grab water	03/18/02	03/20/02
MA3-TG6-3-180302-03	3790473	Grab water	03/18/02	03/21/02
MA3-TG6-2-180302-02	3790474	Grab water	03/18/02	03/21/02
MA3-TG6-1-180302-01	3790475	Grab water	03/18/02	03/21/02
MA3-TG3-3-180302-09	3790476	Grab water	03/18/02	03/21/02
MA3-TG3-2-180302-08	3790477	Grab water	03/18/02	03/21/02
MA3-TG3-1-180302-07	3790478	Grab water	03/18/02	03/21/02
MA3-TG5-1-180302-04	3790479	Grab water	03/18/02	03/21/02
MA3-TG5-2-180302-05	3790480	Grab water	03/18/02	03/21/02
MA3-TG5-3-180302-06	3790481	Grab water	03/18/02	03/21/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

The method blank BLK5333 was associated with this SDG. BLK5333 was analyzed on 03/20/02 associated with (3790472 thru 3790481). The method blank results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate :

Sufficient samples volume was not available to perform a matrix spike and matrix spike duplicate for this analysis. Therefore, the laboratory performed only matrix spike on sample 3790367 from different SDG. However, the matrix spike recoveries were within the quality control limits.

5. Laboratory control Sample:

The laboratory control sample/laboratory control sample duplicate recoveries were within the quality control limits. Also, the relative percent difference (RPD%) values were acceptable.

6. Surrogate:

The method blank and investigated samples had recoveries within the acceptance quality control limits.

7. Initial and Continuing Calibration:

All the initial calibration and continuing calibration results were within the quality control limits.

WET CHEMISTRY ANALYSIS

Kjeldahl Nitrogen Analysis (TKN):
SDG # KMA05

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Digested</u>	<u>Date Analyzed</u>
MA3-TG6-3-180302-03	3790473	Grab water	03/18/02	03/22/02	03/26/02
MA3-TG6-2-180302-02	3790474	Grab water	03/18/02	03/22/02	03/26/02
MA3-TG6-1-180302-01	3790475	Grab water	03/18/02	03/22/02	03/26/02
MA3-TG3-3-180302-09	3790476	Grab water	03/18/02	03/22/02	03/26/02
MA3-TG3-2-180302-08	3790477	Grab water	03/18/02	03/22/02	03/26/02
MA3-TG3-1-180302-07	3790478	Grab water	03/18/02	03/22/02	03/26/02
MA3-TG5-1-180302-04	3790479	Grab water	03/18/02	03/22/02	03/26/02
MA3-TG5-2-180302-05	3790480	Grab water	03/18/02	03/22/02	03/26/02
MA3-TG5-3-180302-06	3790481	Grab water	03/18/02	03/22/02	03/26/02

2. Holding Times:

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

3. Method Blank:

The method blank result was free of contamination.

4. Matrix Spike Recovery:

Two matrix spikes 3790473, and 3790474 associated with all the samples. Both MS recoveries were within the quality control limit.

5. Duplicate Recovery:

Two duplicates 3790473, and 3790474 associated with the analysis. The RPD% value for sample 3790474 was within the control limit. However, The RPD% value for sample 3790473 was not required because the background or the duplicate sample result was less than the limit of quantitation.

6. Laboratory Control Sample Recovery:

The laboratory control sample recovery was within the quality control limits.

7. Initial and Continuing Calibration:

The initial and continuing calibration recoveries were all within the quality control limits.

Nitrite Nitrogen Analysis:
SDG # KMA05

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG6-3-180302-03	3790473	Grab water	03/18/02	03/19/02
MA3-TG6-2-180302-02	3790474	Grab water	03/18/02	03/19/02
MA3-TG6-1-180302-01	3790475	Grab water	03/18/02	03/19/02
MA3-TG3-3-180302-09	3790476	Grab water	03/18/02	03/19/02
MA3-TG3-2-180302-08	3790477	Grab water	03/18/02	03/19/02
MA3-TG3-1-180302-07	3790478	Grab water	03/18/02	03/19/02
MA3-TG5-1-180302-04	3790479	Grab water	03/18/02	03/19/02
MA3-TG5-2-180302-05	3790480	Grab water	03/18/02	03/19/02
MA3-TG5-3-180302-06	3790481	Grab water	03/18/02	03/19/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

The method blank result was free of contamination.

4. Matrix Spike Recovery:

The matrix spike recovery was within the quality control limits.

5. Laboratory Control Sample Recovery:

The laboratory control sample recovery was acceptable.

6. Duplicate Recovery:

The RPD% value for sample 3790473 was not required because the background or the duplicate sample result was less than the limit of quantitation.

7. Initial and Continuing Calibration:

The initial and continuing calibration recoveries were all within the quality control limits.

Nitrate Nitrogen Analysis:
SDG # KMA05

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG6-3-180302-03	3790473	Grab water	03/18/02	03/24/02
MA3-TG6-2-180302-02	3790474	Grab water	03/18/02	03/24/02
MA3-TG6-1-180302-01	3790475	Grab water	03/18/02	03/24/02
MA3-TG3-3-180302-09	3790476	Grab water	03/18/02	03/24/02
MA3-TG3-2-180302-08	3790477	Grab water	03/18/02	03/25/02
MA3-TG3-1-180302-07	3790478	Grab water	03/18/02	03/25/02
MA3-TG5-1-180302-04	3790479	Grab water	03/18/02	03/25/02
MA3-TG5-2-180302-05	3790480	Grab water	03/18/02	03/25/02
MA3-TG5-3-180302-06	3790481	Grab water	03/18/02	03/25/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

The two method blanks results were free of contamination.

4. Matrix Spike Recovery:

Two matrix spikes 3790473 associated with (3790473, 3790474, 3790475, 3790476), and 3790477 associated with (3790477, 3790478, 3790479, 3790480, 3790481). Both MS recoveries were the quality control limits.

5. Duplicate Recovery:

The RPD% value for samples 3790473, and 3790477 was not required because the background or the duplicates for both samples result were less than the limit of quantitation.

6. Laboratory Control Sample Recovery:

The two associated laboratories control samples recoveries were acceptable.

7. Initial and Continuing Calibration:

The initial and continuing calibration recoveries were all within the quality control limits.

Total Phosphorus as (PO4):
SDG # KMA05

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>
MA3-TG6-3-180302-03	3790473	Grab water	03/18/02	03/20/02	03/25/02
MA3-TG6-2-180302-02	3790474	Grab water	03/18/02	03/20/02	03/25/02
MA3-TG6-1-180302-01	3790475	Grab water	03/18/02	03/20/02	03/25/02
MA3-TG3-3-180302-09	3790476	Grab water	03/18/02	03/20/02	03/25/02
MA3-TG3-2-180302-08	3790477	Grab water	03/18/02	03/20/02	03/25/02
MA3-TG3-1-180302-07	3790478	Grab water	03/18/02	03/20/02	03/25/02
MA3-TG5-1-180302-04	3790479	Grab water	03/18/02	03/20/02	03/25/02
MA3-TG5-2-180302-05	3790480	Grab water	03/18/02	03/20/02	03/25/02
MA3-TG5-3-180302-06	3790481	Grab water	03/18/02	03/20/02	03/25/02

2. Holding Times:

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

3. Method Blank:

The method blank result was free of contamination.

4. Matrix Spike Recovery:

Two matrix spikes 3790473, and 3790474 associated with all the samples. Both MS recoveries were within the quality control limit.

5. Duplicate Recovery:

Two duplicates 3790473, and 3790474 associated with the analysis. The RPD% value for sample 3790473 was within the control limit. However, The RPD% value for sample 3790474 was not required because the background or the duplicate sample result was less than the limit of quantitation.

6. Laboratory Control Sample Recovery:

The laboratory control sample recovery was acceptable.

7. Initial and Continuing Calibration:

The initial and continuing calibration recoveries were all within the quality control limits.

Total Organic Carbon Analysis (TOC):
SDG # KMA05

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG6-3-180302-03	3790473	Grab water	03/18/02	03/20/02
MA3-TG6-2-180302-02	3790474	Grab water	03/18/02	03/20/02
MA3-TG6-1-180302-01	3790475	Grab water	03/18/02	03/20/02
MA3-TG3-3-180302-09	3790476	Grab water	03/18/02	03/20/02
MA3-TG3-2-180302-08	3790477	Grab water	03/18/02	03/20/02
MA3-TG3-1-180302-07	3790478	Grab water	03/18/02	03/20/02
MA3-TG5-1-180302-04	3790479	Grab water	03/18/02	03/20/02
MA3-TG5-2-180302-05	3790480	Grab water	03/18/02	03/20/02
MA3-TG5-3-180302-06	3790481	Grab water	03/18/02	03/20/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

The method blank contained 0.50 mg/l. The amount found in all the samples was greater than 5X the blank. Therefore, no qualification was applied.

4. Matrix Spike/Matrix Spike Duplicate :

The matrix spike was performed on sample 3790473, and 3790474. Both MS recoveries were within the quality control limit.

5. Duplicate Recovery:

The RPD% value for samples 3790473, and 3790474 were not required because the background or the duplicate for the samples result was less than the limit of quantitation.

6. Laboratory Control Sample Recovery:

The laboratory control sample recovery was acceptable.

7. Initial and Continuing Calibration:

The initial and continuing calibration recoveries were all within the QC control limits.

Ammonia Nitrogen Analysis:

SDG # KMA05

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG6-3-180302-03	3790473	Grab water	03/18/02	03/26/02
MA3-TG6-2-180302-02	3790474	Grab water	03/18/02	03/26/02
MA3-TG6-1-180302-01	3790475	Grab water	03/18/02	03/26/02
MA3-TG3-3-180302-09	3790476	Grab water	03/18/02	03/26/02
MA3-TG3-2-180302-08	3790477	Grab water	03/18/02	03/26/02
MA3-TG3-1-180302-07	3790478	Grab water	03/18/02	03/26/02
MA3-TG5-1-180302-04	3790479	Grab water	03/18/02	03/26/02
MA3-TG5-2-180302-05	3790480	Grab water	03/18/02	03/26/02
MA3-TG5-3-180302-06	3790481	Grab water	03/18/02	03/26/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

The method blank result was free of contamination.

4. Duplicate Recovery:

The RPD% value for samples 3790473 was 15% outside the control limit of quantitation (7%). Therefore, qualify the positive results as estimated (J).

5. Laboratory Control Sample Recovery:

The laboratory control sample/ laboratory control sample duplicate recoveries were within the acceptance QC control limits. Also, the relative percent difference (RPD%) recoveries were acceptable.

6. Matrix Spike Recovery:

No matrix spike was performed for this analysis.

Ortho-Phosphate as P Analysis:
SDG # KMA05

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG6-3-180302-03	3790473	Grab water	03/18/02	03/20/02
MA3-TG6-2-180302-02	3790474	Grab water	03/18/02	03/20/02
MA3-TG6-1-180302-01	3790475	Grab water	03/18/02	03/20/02
MA3-TG3-3-180302-09	3790476	Grab water	03/18/02	03/20/02
MA3-TG3-2-180302-08	3790477	Grab water	03/18/02	03/20/02
MA3-TG3-1-180302-07	3790478	Grab water	03/18/02	03/20/02
MA3-TG5-1-180302-04	3790479	Grab water	03/18/02	03/20/02
MA3-TG5-2-180302-05	3790480	Grab water	03/18/02	03/20/02
MA3-TG5-3-180302-06	3790481	Grab water	03/18/02	03/20/02

2. Holding Times:

All samples were analyzed within the required holding time.

3. Method Blank:

The method blank result was free of contamination.

4. Matrix Spike Recovery:

The matrix spike was performed on sample 3790473. The MS/MSD recoveries were within the quality control limit. Also, the RPD% value was acceptable.

5. Duplicate Recovery:

The duplicate RPD% for sample 3790473 recoveries was within the quality control limits.

6. Laboratory Control Sample Recovery:

The two laboratories control sample for sample 3790473 and 3790474 recoveries were within the quality control limits.

Biochemical Oxygen Demand Analysis (BOD):
SDG # KMA05

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG6-3-180302-03	3790473	Grab water	03/18/02	03/19/02
MA3-TG6-2-180302-02	3790474	Grab water	03/18/02	03/19/02
MA3-TG6-1-180302-01	3790475	Grab water	03/18/02	03/19/02
MA3-TG3-3-180302-09	3790476	Grab water	03/18/02	03/19/02
MA3-TG3-2-180302-08	3790477	Grab water	03/18/02	03/19/02
MA3-TG3-1-180302-07	3790478	Grab water	03/18/02	03/19/02
MA3-TG5-1-180302-04	3790479	Grab water	03/18/02	03/19/02
MA3-TG5-2-180302-05	3790480	Grab water	03/18/02	03/19/02
MA3-TG5-3-180302-06	3790481	Grab water	03/18/02	03/19/02

2. Holding Times:

All samples were analyzed within the required holding time.

3. Matrix Spike Recovery:

The matrix spike was performed on sample 3790473. The MS/MSD recoveries were within the quality control limit. Also, the RPD% value was acceptable.

4. Duplicate Recovery:

The duplicate RPD% for sample 3790473 recoveries was acceptable.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate Recovery:

The laboratory control sample/ laboratory control sample duplicate recoveries were within the quality control limit. Also, the RPD% value was acceptable.

Chemical Oxygen Demand Analysis (COD):
SDG # KMA05

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG6-3-180302-03	3790473	Grab water	03/18/02	03/24/02
MA3-TG6-2-180302-02	3790474	Grab water	03/18/02	03/24/02
MA3-TG6-1-180302-01	3790475	Grab water	03/18/02	03/24/02
MA3-TG3-3-180302-09	3790476	Grab water	03/18/02	03/24/02
MA3-TG3-2-180302-08	3790477	Grab water	03/18/02	03/24/02
MA3-TG3-1-180302-07	3790478	Grab water	03/18/02	03/24/02
MA3-TG5-1-180302-04	3790479	Grab water	03/18/02	03/24/02
MA3-TG5-2-180302-05	3790480	Grab water	03/18/02	03/26/02
MA3-TG5-3-180302-06	3790481	Grab water	03/18/02	03/26/02

2. Holding Times:

All samples were analyzed within the required holding time.

3. Matrix Spike Recovery:

Two matrix spike was performed on sample 3790473 associated with (3790473, 3790474, 3790475, 3790476, 3790477, 3790478, 3790479) and 37904780 associated with 3790480, 3790481. The MS/MSD recoveries were within the quality control limit. Also, the RPD% value was acceptable.

4. Duplicate Recovery:

The two duplicates RPD% for sample 3790473, and 3790480 recoveries was within the quality control limits.

5. Laboratory Control Sample Recovery:

The laboratory control sample recovery was within the quality control limit.

Please feel free to contact me at (847) 549-1042 or (847) 971-6800 with any question regarding these validation reports.

Sincerely
Tania Balikji-Shammo



ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 800732. Samples arrived at the laboratory on Tuesday, March 19, 2002.

Client Description

Lancaster Labs Number

TB-01 Grab Water Sample	3790472
MA3-TG6-3-180302-03 Grab Water Sample	3790473
MA3-TG6-2-180302-02 Grab Water Sample	3790474
MA3-TG6-1-180302-01 Grab Water Sample	3790475
MA3-TG3-3-180302-09 Grab Water Sample	3790476
MA3-TG3-2-180302-08 Grab Water Sample	3790477
MA3-TG3-1-180302-07 Grab Water Sample	3790478
MA3-TG5-1-180302-04 Grab Water Sample	3790479
MA3-TG5-2-180302-05 Grab Water Sample	3790480
MA3-TG5-3-180302-06 Grab Water Sample	3790481

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 Roy F. Weston
1 COPY TO Data Package Group

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



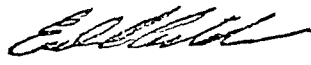
Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

5011



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

Respectfully Submitted,



Erik J. Frederiksen
Group Leader



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

503-100



Lancaster Laboratories Sample No. WW 3790472

Collected: 03/18/2002 19:00

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:28

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

TB-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TBX01 SDG#: KMA05-01TB

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.	0.20		ug/l	1
00777	Toluene	108-88-3	N.D.	0.20		ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20		ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60		ug/l	1

Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/20/2002 22:10	Patrick N Evans	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/20/2002 22:10	Patrick N Evans	n.a.



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

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Lancaster Laboratories Sample No. WW 3790473

Collected: 03/18/2002 14:35 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15
 Reported: 04/03/2002 at 07:28
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG6-3-180302-03 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG633 SDG#: KMA05-02

CAT No.	Analysis Name	CAS Number	As Received		Units	Dilution Factor
			Result	Method Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.95	J	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.84	(J)	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	N.D.		mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		mg/l	1
00273	Total Organic Carbon	n.a.	9.9		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.23		mg/l	1
01553	Chemical Oxygen Demand	n.a.	22.9		mg/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.		ug/l	1
00777	Toluene	108-88-3	N.D.		ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.		ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		ug/l	1
00783	Acenaphthene	83-32-9	N.D.		ug/l	1
00784	Fluorene	86-73-7	N.D.		ug/l	1
00785	Phenanthrene	85-01-8	N.D.		ug/l	1
00789	Anthracene	120-12-7	0.04	J	ug/l	1
00807	Fluoranthene	206-44-0	0.05	J	ug/l	1
00811	Pyrene	129-00-0	N.D.		ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		ug/l	1



Lancaster Laboratories, Inc.
 2425 New Holland Pike
 PO Box 12425
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TAS
 5/13/02

0502105



Lancaster Laboratories Sample No. WW 3790473

Collected: 03/18/2002 14:35 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:28

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG6-3-180302-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG633 SDG#: KMA05-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Detection Limit	
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 15:48	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/19/2002 14:26	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/24/2002 19:09	Matthew J Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/26/2002 07:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/20/2002 07:00	Michele L Graham	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/19/2002 22:15	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/20/2002 10:07	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 18:23	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/24/2002 05:48	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/21/2002 00:28	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/28/2002 12:11	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/21/2002 00:28	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/22/2002 07:45	James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	03/21/2002 09:30	Felix C Arroyo	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/20/2002 16:20	Nancy J Shoop	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
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00071



Lancaster Laboratories Sample No. WW 3790474

Collected: 03/18/2002 14:25 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:28

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG6-2-180302-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG622 SDG#: KMA05-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.59 J		0.30	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	0.50 (J)		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.5	mg/l	1
00273	Total Organic Carbon	n.a.	10.5		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.18 J		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	25.2		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D. (J)		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	0.08 J		0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.1 J		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1



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Lancaster, PA 17605-2425

BS
5/13/02



Lancaster Laboratories Sample No. WW 3790474

Collected: 03/18/2002 14:25 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:28

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG6-2-180302-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG622 SDG#: KMA05-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 15:49	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/19/2002 14:27	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/24/2002 19:11	Matthew J Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/26/2002 07:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/20/2002 07:00	Michele L Graham	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/19/2002 22:15	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/20/2002 10:15	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 17:18	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/24/2002 05:48	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/21/2002 01:02	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/28/2002 12:49	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/21/2002 01:02	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/22/2002 07:45	James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	03/21/2002 09:30	Felix C Arroyo	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/20/2002 16:20	Nancy J Shoop	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

03/19/02



Lancaster Laboratories Sample No. **WW 3790475**

Collected: 03/18/2002 14:15 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15
 Reported: 04/03/2002 at 07:28
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG6-1-180302-01 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG611 SDG#: KMA05-04

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.96	J	0.30	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	1.4	(5)	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.034		0.0066	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.5	mg/l	1
00273	Total Organic Carbon	n.a.	7.9		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.27		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	19.4		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	WJ	0.9	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.9	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.09	ug/l	1
00789	Anthracene	120-12-7	0.07	J	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.06	J	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.05	J	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.05	J	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	0.05	J	0.02	ug/l	1



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 PO Box 12425
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Lancaster Laboratories Sample No. WW 3790475

Collected: 03/18/2002 14:15 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:28

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG6-1-180302-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG611 SDG#: KMA05-04

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Detection Limit	
00895	Dibenz(a,h)anthracene	53-70-3	0.08	J	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.09	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.09	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.06	J	0.02	ug/l	1

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

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	Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002	15:50	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/19/2002	14:29	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/24/2002	19:12	Matthew J Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/26/2002	07:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/20/2002	07:00	Michele L Graham	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/19/2002	22:15	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/20/2002	10:23	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002	17:19	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/24/2002	05:48	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/21/2002	01:37	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/28/2002	13:28	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/21/2002	01:37	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/22/2002	07:45	James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	03/21/2002	09:30	Felix C Arroyo	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/20/2002	16:20	Nancy J Shoop	1



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2425 New Holland Pike
PO Box 12425
Lancaster PA 17605-2425

03/21/02



Lancaster Laboratories Sample No. WW 3790475

Collected: 03/18/2002 14:15 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:28

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG6-1-180302-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG611 SDG#: KMA05-04



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

0026



Lancaster Laboratories Sample No. WW 3790476

Collected: 03/18/2002 17:35 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:29

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG3-3-180302-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG339 SDG#: KMA05-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.3		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.035 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	1.3 (J)		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0091 J		0.0066	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	8.2		0.80	mg/l	1
00273	Total Organic Carbon	n.a.	11.9		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.43		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	35.3		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D. (J)		0.9	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.9	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.09	ug/l	1
00789	Anthracene	120-12-7	0.06 J		0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.05 J		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1



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2425 New Holland Pike
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Lancaster Laboratories Sample No. WW 3790476

Collected: 03/18/2002 17:35 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:29

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG3-3-180302-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG339 SDG#: KMA05-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Detection Limit	
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04 ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.09 ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1 ug/l	1
07409	Chrysene	218-01-9	N.D.		0.09 ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.02 ug/l	1

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

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	Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002	15:51	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/19/2002	14:30	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/24/2002	19:13	Matthew J Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/26/2002	07:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/20/2002	07:00	Michele L Graham	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/19/2002	22:15	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/20/2002	10:31	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002	17:20	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/24/2002	05:48	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/21/2002	05:03	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/28/2002	14:06	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/21/2002	05:03	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/22/2002	07:45	James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	03/21/2002	09:30	Felix C Arroyo	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/20/2002	16:20	Nancy J Shoop	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

002100



Lancaster Laboratories Sample No. WW 3790476

Collected: 03/18/2002 17:35 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:29

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG3-3-180302-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG339 SDG#: KMA05-05



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

0121010



Lancaster Laboratories Sample No. WW 3790477

Collected: 03/18/2002 17:25 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15
 Reported: 04/03/2002 at 07:29
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG3-2-180302-08 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG328 SDG#: KMA05-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.1		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.022 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	1.2 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	9.1		0.80	mg/l	1
00273	Total Organic Carbon	n.a.	8.0		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.28		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	23.6		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D. VJ		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1



Lancaster Laboratories, Inc.
 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425

TBS
 5/13/02
 7716 Rev 9/11/00



Lancaster Laboratories Sample No. WW 3790477

Collected: 03/18/2002 17:25 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:29

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG3-2-180302-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG328 SDG#: KMA05-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00895	Dibenz (a, h) anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 15:53		Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/19/2002 14:31		Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/25/2002 14:10		Matthew J Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/26/2002 07:30		Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/20/2002 07:00		Michele L Graham	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/19/2002 22:15		Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/20/2002 10:39		Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 17:23		Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/24/2002 05:48		Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/21/2002 05:38		Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/28/2002 14:45		Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/21/2002 05:38		Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/22/2002 07:45		James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	03/21/2002 09:30		Felix C Arroyo	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/20/2002 16:20		Nancy J Shoop	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

11-01-02



Lancaster Laboratories Sample No. WW 3790478

Collected: 03/18/2002 17:15 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:29

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG3-1-180302-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG317 SDG#: KMA05-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	1.3	Detection Limit	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 J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	N.D.	0.0066	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	3.8	mg/l	1
00273	Total Organic Carbon	n.a.	11.0	0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.26	0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	28.3	1.7	mg/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D. VJ	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	0.4 J	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	0.1 J	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.07 J	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

TBS
5/13/02
2000



Lancaster Laboratories Sample No. WW 3790478

Collected: 03/18/2002 17:15 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15
 Reported: 04/03/2002 at 07:29
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG3-1-180302-07 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG317 SDG#: KMA05-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	Detection Limit	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	Detection Limit	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	Detection Limit	ug/l	1
07409	Chrysene	218-01-9	N.D.	Detection Limit	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	Detection Limit	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 15:56	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/19/2002 14:32	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/25/2002 14:12	Matthew J Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/26/2002 07:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/20/2002 07:00	Michele L Graham	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/19/2002 22:15	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/20/2002 10:48	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 17:26	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/24/2002 05:48	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/21/2002 06:12	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/28/2002 15:24	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/21/2002 06:12	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/22/2002 07:45	James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	03/21/2002 09:30	Felix C Arroyo	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/20/2002 16:20	Nancy J Shoop	1



Lancaster Laboratories, Inc.
 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425

04/03/02



Lancaster Laboratories Sample No. **WW 3790479**

Collected: 03/18/2002 15:50 by BS Account Number: 07802

Submitted: 03/19/2002 09:15
 Reported: 04/03/2002 at 07:29
 Discard: 05/04/2002
 MA3-TG5-1-180302-04 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

TG514 SDG#: KMA05-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.49 J		0.30	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.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.6	mg/l	1
00273	Total Organic Carbon	n.a.	5.6		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.19 J		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	13.2		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D. <i>JS</i>		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1



Lancaster Laboratories, Inc.
 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425

TBS
 5/13/02
 4-1-00-10



Lancaster Laboratories Sample No. WW 3790479

Collected: 03/18/2002 15:50 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:29

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG5-1-180302-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG514 SDG#: KMA05-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	Detection Limit	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	Detection Limit	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	Detection Limit	ug/l	1
07409	Chrysene	218-01-9	N.D.	Detection Limit	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	Detection Limit	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 15:57	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/19/2002 14:34	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/25/2002 14:13	Matthew J Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/26/2002 07:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/20/2002 07:00	Michele L Graham	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/19/2002 22:15	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/20/2002 10:56	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 17:27	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/24/2002 05:48	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/21/2002 06:46	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/28/2002 16:02	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/21/2002 06:46	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/22/2002 07:45	James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	03/21/2002 09:30	Felix C Arroyo	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/20/2002 16:20	Nancy J Shoop	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

L0047005



Lancaster Laboratories Sample No. **WW 3790480**

Collected: 03/18/2002 16:00 by **BS**

Account Number: **07802**

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:29

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG5-2-180302-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG525 SDG#: KMA05-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.48 J		0.30	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	0.55 (J)		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.9	mg/l	1
00273	Total Organic Carbon	n.a.	5.2		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.20		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	20.2		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D. (J)		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

TBS
5/13/02



Lancaster Laboratories Sample No. WW 3790480

Collected: 03/18/2002 16:00 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:29

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG5-2-180302-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG525 SDG#: KMA05-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	Detection Limit	0.04	ug/l 1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	Detection Limit	0.08	ug/l 1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	Detection Limit	0.1	ug/l 1
07409	Chrysene	218-01-9	N.D.	Detection Limit	0.08	ug/l 1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	Detection Limit	0.02	ug/l 1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 16:01		Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/19/2002 14:35		Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/25/2002 14:14		Matthew J Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/26/2002 07:30		Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/20/2002 07:00		Michele L Graham	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/19/2002 22:15		Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/20/2002 11:04		Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 17:28		Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/26/2002 05:40		Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/21/2002 07:21		Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/28/2002 17:19		Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/21/2002 07:21		Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/22/2002 07:45		James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	03/21/2002 09:30		Felix C Arroyo	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/20/2002 16:20		Nancy J Shoop	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

03/19/02



Lancaster Laboratories Sample No. WW 3790481

Collected: 03/18/2002 16:10 by BS Account Number: 07802

Submitted: 03/19/2002 09:15
 Reported: 04/03/2002 at 07:29
 Discard: 05/04/2002
 MA3-TG5-3-180302-06 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG536 SDG#: KMA05-10*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.47 J	0.30		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	0.80 (J)	0.46		mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.	0.0066		mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.7		mg/l	1
00273	Total Organic Carbon	n.a.	5.0	0.50		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.16 J	0.12		mg/l	1
01553	Chemical Oxygen Demand	n.a.	10.7	1.7		mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.	0.20		ug/l	1
00777	Toluene	108-88-3	N.D.	0.20		ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20		ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60		ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	1.		ug/l	1
00782	Acenaphthylene	208-96-8	N.D. (UJ)	0.9		ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.9		ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2		ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.09		ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04		ug/l	1
00807	Fluoranthene	206-44-0	0.05 J	0.04		ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2		ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02		ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04		ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02		ug/l	1



Lancaster Laboratories, Inc.
 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425

TBS
5/13/02

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Lancaster Laboratories Sample No. WW 3790481

Collected: 03/18/2002 16:10 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:29

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG5-3-180302-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG536 SDG#: KMA05-10*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.09	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.09	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.02	ug/l	1

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

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	Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002	16:02	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/19/2002	14:39	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	03/25/2002	14:15	Matthew J Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/26/2002	07:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/20/2002	07:00	Michele L Graham	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/19/2002	22:15	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/20/2002	11:12	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002	17:29	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/26/2002	05:40	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/21/2002	07:55	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/28/2002	17:58	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/21/2002	07:55	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/22/2002	07:45	James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	03/21/2002	09:30	Felix C Arroyo	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/20/2002	16:20	Nancy J Shoop	1





Lancaster Laboratories Sample No. WW 3790481

Collected: 03/18/2002 16:10 by BS

Account Number: 07802

Submitted: 03/19/2002 09:15

Kerr-McGee Corporation

Reported: 04/03/2002 at 07:29

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG5-3-180302-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG536 SDG#: KMA05-10*



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

00440000

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Weston/Kear McGee</u> Acct. #: _____ Project Name/#: <u>Mass American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>X Schaefer, Y Hagan, & Crawford</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix (4) <input type="checkbox"/> Soil <input type="checkbox"/> Potable Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other		Analyses Requested (5) BTEX NO ₂ NO ₃ OP04 BOD					For lab use only FSC: _____ SCR #: <u>1161969</u>							
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Potable Water	NPDES	Other	Total # of Containers	BTEX	NO ₂	NO ₃	OP04	BOD	Remarks	Temperature of samples upon receipt (if requested)
TB-01	3/18/02	1900	X			X			2	X						
MA3-TG6-3-180302-03		1435	X			X				X	X	X	X	X		
MA3-TG6-2-180302-02		1425	X			X				X	X	X	X	X		
MA3-TG6-1-180302-01		1415	X			X				X	X	X	X	X		
MA3-TG3-3-180302-09		1735	X			X				X	X	X	X	X		
MA3-TG3-2-180302-08		1725	X			X				X	X	X	X	X		
MA3-TG3-1-180302-07		1715	X			X				X	X	X	X	X		
MA3-TG5-1-180302-04		1550	X			X				X	X	X	X	X		
MA3-TG5-2-180302-05		1600	X			X				X	X	X	X	X		
MA3-TG5-3-180302-06	✓	1610	X			X				X	X	X	X	X		

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input type="checkbox"/> Phone #: <u>847-9184000</u> Fax #: <u>847-9184055</u>	Relinquished by: <u>[Signature]</u> Date: <u>3/18/02</u> Time: <u>0830</u> Relinquished by: <u>[Signature]</u> Date: <u>3/18/02</u> Time: <u>1930</u> Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____ Received by: _____ Date: <u>3/18/02</u> Time: <u>0915</u>
--	--	--	---

8 Data Package Options (please circle if requested)	SDG Complete? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<table style="width:100%;"> <tr> <td style="width:15%;"> QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NI Red. Del.) Type IV (CLP) </td> <td style="width:45%;"> Site-specific QC required? Yes <input type="checkbox"/> No <input type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/> </td> </tr> </table>	QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NI Red. Del.) Type IV (CLP)	Site-specific QC required? Yes <input type="checkbox"/> No <input type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NI Red. Del.) Type IV (CLP)	Site-specific QC required? Yes <input type="checkbox"/> No <input type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>			

cooler # 2



For Lancaster Laboratories use only

Acct. # _____ Sample # _____

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: Weston/Ken McGee Acct. #: _____
 Project Name/ #: Moss American PWSID #: _____
 Project Manager: Tom Graan P.O. # _____
 Sampler: B Schaefer, Y Hopkinson, & Crawford Quote #: _____
 Name of state where samples were collected: WI

For lab use only
 FSC: _____
 SCR #: 1163480

Sample Identification	Date Collected	Time Collected	Matrix				Analyses Requested						Remarks	Temperature of samples upon receipt (if requested)		
			Grab	Composite	Soil	Water	Other	Total # of Containers	BTXAS	PAH	NO ₂ /NO ₃	TKN/TP-PO ₄			COD, NH ₃	BOD, O ₂
MA3-TG3-1-180302-07	3/18/02	1715	X		X		4	X		X	X					
MA3-TG3-2-180302-08	3/18/02	1725	X		X		4	X		X	X					
MA3-TG3-3-180302-09	3/18/02	1735	X		X		2	X								

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: STD TAT
 Rush results requested by (please circle): Phone Fax
 Phone #: 847-918-4500 Fax #: 347-918-4035

8 Data Package Options (please circle if requested)

QC Summary	Type VI (Raw Data) <u>PERQUOTE</u>	SDG Complete? Yes <input type="radio"/> No <input checked="" type="radio"/>
Type I (Tier I)	GLP	Site-specific QC required? Yes <input type="radio"/> No <input type="radio"/> (If yes, indicate QC sample and submit triplicate volume.)
Type II (Tier II)	Other	
Type III (NJ Red. Del.)		Internal Chain of Custody required? Yes <input type="radio"/> No <input type="radio"/>
Type IV (CLP)		

Relinquished by: <u>K. Smith</u>	Date: <u>3/13/02</u>	Time: <u>1500</u>	Received by:	Date:	Time:
Relinquished by: <u>B. Schaefer</u>	Date: <u>3/18/02</u>	Time: <u>1930</u>	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by: <u>Woiner</u>	Date: <u>3/19/02</u>	Time: <u>0915</u>

Cooler # 1

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Weston/Kerr McGee</u> Acct. #: _____ Project Name/ #: <u>Mass American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O. #: _____ Sampler: <u>B Schaefel, Y Higginson, B Crawford</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix (4) <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Potable (Check if NPDES applicable) <input type="checkbox"/> Other	Total # of Containers (5)	Analyses Requested (6) <u>TKN TP-Po4</u> <u>COD NH3</u> <u>TOC</u>	For lab use only FSC: _____ SCR #: <u>1161969</u> Temperature of samples upon receipt (if requested) (6)											
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Potable	Other	Total # of Containers	TKN	TP	Po4	COD	NH3	TOC	Remarks
<u>MA3-TG6-1-180302-01</u>	<u>3/18/02</u>	<u>1415</u>	<u>X</u>			<u>X</u>			<u>1</u>				<u>X</u>			
<u>MA3-TG6-2-180302-02</u>		<u>1425</u>	<u>X</u>			<u>X</u>			<u>1</u>				<u>X</u>			
<u>MA3-TG6-3-180302-03</u>		<u>1435</u>	<u>X</u>			<u>X</u>			<u>3</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>			
<u>MA3-TG5-1-180302-04</u>		<u>1550</u>	<u>X</u>			<u>X</u>			<u>1</u>				<u>X</u>			
<u>MA3-TG5-2-180302-05</u>		<u>1600</u>	<u>X</u>			<u>X</u>			<u>1</u>				<u>X</u>			
<u>MA3-TG5-3-180302-06</u>		<u>1610</u>	<u>X</u>			<u>X</u>			<u>3</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>			
<u>MA3-TG3-1-180302-07</u>		<u>1715</u>	<u>X</u>			<u>X</u>			<u>1</u>				<u>X</u>			
<u>MA3-TG3-2-180302-08</u>		<u>1725</u>	<u>X</u>			<u>X</u>			<u>1</u>				<u>X</u>			
<u>MA3-TG3-3-180302-09</u>		<u>1735</u>	<u>X</u>			<u>X</u>			<u>3</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>			

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input type="checkbox"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>	Relinquished by: <u>X X [Signature]</u> Date: <u>3/25/02</u> Time: <u>0830</u> Relinquished by: <u>[Signature]</u> Date: <u>3/18/02</u> Time: <u>1930</u> Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____	Date: _____ Time: _____ Date: _____ Time: _____ Date: _____ Time: _____ Date: _____ Time: _____
8 Data Package Options (please circle if requested)	SDG Complete? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)	Site-specific QC required? Yes <input type="checkbox"/> No <input type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>		



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3790472-81

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Weston/Kerr McGee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O. #: _____ Sampler: <u>B Schaefer, Y Hagiwara, B Crawford</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix: <u>4</u> <input type="checkbox"/> Soil <input type="checkbox"/> Forable <input type="checkbox"/> Great if <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other _____ Total # of Containers: _____		5 Analyses Requested: <u>BTEX</u> <u>PAH</u> <u>NO2/NO3</u> <u>TKN, TP-PO4</u> <u>NH3, COD</u> <u>Ben-a</u> <u>Ben-O-PO4</u>					For lab use only FSC: _____ SCR #: _____						
Sample Identification		Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks					Temperature of samples upon receipt (if requested)
<u>MA3-TG6-1-180302-01</u>		<u>3/18/02</u>	<u>1415</u>	<u>X</u>			<u>X</u>		<u>4</u>	<u>X</u>	<u>X</u>	<u>X</u>			
<u>MA3-TG6-2-180302-02</u>		<u>3/18/02</u>	<u>1425</u>	<u>X</u>			<u>X</u>		<u>4</u>	<u>X</u>	<u>X</u>	<u>X</u>			
<u>MA3-TG6-3-180302-03</u>		<u>3/18/02</u>	<u>1435</u>	<u>X</u>			<u>X</u>		<u>2</u>	<u>X</u>					

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="radio"/> Rush <input type="radio"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="radio"/> Fax <input type="radio"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: <u>[Signature]</u> Date: <u>3/18/02</u> Time: <u>1930</u> Received by: _____ Date: _____ Time: _____	
8 Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <u>PER QUOTE</u> SDG Complete? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Type I (Tier I) GLP Type II (Tier II) Other Type III (N) Red. Del. Type IV (CLP)		Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Received by: <u>[Signature]</u> Date: <u>3/19/02</u> Time: <u>0915</u>	
Site-specific QC required? Yes <input type="checkbox"/> No <input type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>			

Cooler #5

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Weston/Kerr McGee</u> Acct. #: _____ Project Name/ #: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>B Schaefer, Y Higuiwara, & Crawford</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix (4) <input type="checkbox"/> Soil <input type="checkbox"/> Potable Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other		Total # of Containers (5) <u>4</u>		Analyses Requested (6) <u>STEXAS</u> <u>PAH</u> <u>TKN/NO3-N</u> <u>TKN/TP-PO4</u> <u>COD, NH3</u> <u>BOD, O-PO4-N</u> <u>Turbidity</u>				For lab use only FSC: _____ SCR #: <u>1163480</u>	
---	--	--	--	--	--	---	--	--	--	---	--

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Potable Water	NPDES	Other	Total # of Containers	Analyses Requested	Remarks	Temperature of samples upon receipt (if requested)
MA3-TG3-1-180302-07	3/18/02	1715	X			X			4	X X X		
MA3-TG3-2-180302-08	3/18/02	1725	X			X			4	X X X		
MA3-TG3-3-180302-09	3/18/02	1735	X			X			2	X		

Turnaround Time Requested (TAT) (please circle): Normal <input type="radio"/> Rush <input type="radio"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="radio"/> Fax <input type="radio"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: <u>[Signature]</u> Date: <u>3-13-02</u> Time: <u>1500</u> Relinquished by: <u>[Signature]</u> Date: <u>3/18/02</u> Time: <u>1930</u> Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: <u>Uoines</u> Date: <u>3/19/02</u> Time: <u>0915</u>	
Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (TCP)		SDG Complete? Yes <input type="radio"/> No <input checked="" type="radio"/> Site-specific QC required? Yes <input type="radio"/> No <input type="radio"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="radio"/> No <input type="radio"/>			

Analysis Request/Environmental



For Lancaster Laboratories use only

Acct. # _____ Sample # _____

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Weston / Ken McGee</u> Project Name/#: <u>Moss American</u> Project Manager: <u>Tom Green</u> Sampler: <u>K Schaefer, Y Harrison, R Crawford</u> Name of state where samples were collected: <u>WI</u>	Acct. #: _____ PWSID #: _____ P.O. #: _____ Quote #: _____	Matrix 4 <input type="checkbox"/> Soil <input type="checkbox"/> Potable Water <input type="checkbox"/> Wastewater <input type="checkbox"/> Other	Total # of Containers _____	Analyses Requested 5 BTEX NO ₂ NO ₃ OP04 BOD	For lab use only FSC: _____ SCR #: <u>1161969</u>
---	---	---	--------------------------------	--	---

Sample Identification	Date Collected	Time Collected	Grab 3	Composite	Soil	Potable Water	Wastewater	Other	Total # of Containers	Analyses Requested	Remarks	Temperature of sample upon receipt (if requested)	
TB-01	3/18/02	1900	X		X				2	X			
MA3-TG6-3-180302-03		1435	X		X					X X X X X			
MA3-TG6-2-180302-02		1425	X		X					X X X X X			
MA3-TG6-1-180302-01		1415	X		X					X X X X X			
MA3-TG3-3-180302-09		1735	X		X					X X X X X			
MA3-TG3-2-180302-08		1725	X		X					X X X X X			
MA3-TG3-1-180302-07		1715	X		X					X X X X X			
MA3-TG5-1-180302-04		1550	X		X					X X X X X			
MA3-TG5-2-180302-05		1600	X		X					X X X X X			
MA3-TG5-3-180302-06	V	1610	X		X					X X X X X			

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STAT</u> Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input type="checkbox"/> Phone #: <u>847-918 4000</u> Fax #: <u>847-918 4055</u>	Relinquished by: <u>[Signature]</u> Date: <u>3/25/02</u> Time: <u>0830</u>	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____
8 Data Package Options (please circle if requested)	Relinquished by: <u>[Signature]</u> Date: <u>3/18/02</u> Time: <u>1930</u>	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)	SDG Complete? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Site-specific QC required? Yes <input type="checkbox"/> No <input type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>	Relinquished by: _____ Date: _____ Time: _____	Received by: <u>[Signature]</u> Date: <u>3/19/02</u> Time: <u>0915</u>



For Lancaster Laboratories use only

Acct. # _____ Sample # _____

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: Weston / Ken McGee Acct. #: _____
 Project Name/#: Mass American PWSID #: _____
 Project Manager: Tom Graun P.O.# _____
 Sampler: B Schaefer, Y Hagiwara, B Crawford Quote #: _____
 Name of state where samples were collected: VT

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix				Analyses Requested						Remarks	Temperature of sample upon receipt (if indicated)
					Soil	Water	Sludge	Other	TKN	TP	PO4	NH3	COD	TOC		
MA3-TG5-1-180302-04	3/18/02	1550	X			X		4	X	X	X					
MA3-TG5-2-180302-05	3/18/02	1600	X			X		4	X	X	X					
MA3-TG5-3-180302-06	3/18/02	1610	X			X		2	X							

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: STD TAT
 Rush results requested by (please circle): Phone Fax
 Phone #: 847-918-4000 Fax #: 847-918-4055

8 Data Package Options (please circle if requested)

QC Summary	Type VI (Raw Data) <u>PER QUOTE</u>	SDG Complete? Yes <input checked="" type="radio"/> No <input type="radio"/>
Type I (Tier I)	GLP	Site-specific QC required? Yes No (If yes, indicate QC sample and submit triplicate volume.)
Type II (Tier II)	Other	
Type III (NJ Red. Del.)		Internal Chain of Custody required? Yes No
Type IV (CLP)		

Relinquished by: Brian Schaefer Date: 3/18/02 Time: 1930
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: Wagner Date: 3/19/02 Time: 0915

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only

Acct. # _____ Sample # _____

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: Weston/Kerr McGee Acct. #: _____
 Project Name/ #: Mass American PWSID #: _____
 Project Manager: Tom Gram P.O. # _____
 Sampler: BSchaefer, Y Haginawar, B Crawford Quote #: _____
 Name of state where samples were collected: WI

Matrix 4: Soil Potable Water NPDES Other

5 Analyses Requested: TKW, TP, P, P, COD, NH3, TOC

For lab use only: FSC: _____ SCR #: 1161969

Temperature of samples upon receipt (if required): _____

Sample Identification	Date Collected	Time Collected	3		Soil	Water	Other	Total Containers	5			Remarks
			Grab	Composite					TKW	TP	P	
MA3-TG6-1-180302-01	3/18/02	1415	X			X	1		X			
MA3-TG6-2-180302-02		1425	X			X	1		X			
MA3-TG6-3-180302-03		1435	X			X	3	X	X	X		
MA3-TG5-1-180302-04		1550	X			X	1		X			
MA3-TG5-2-180302-05		1600	X			X	1		X			
MA3-TG5-3-180302-06		1610	X			X	3	X	X	X		
MA3-TG3-1-180302-07		1715	X			X	1		X			
MA3-TG3-2-180302-08		1725	X			X	1		X			
MA3-TG3-3-180302-09		1735	X			X	3	X	X	X		

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: STD TAT
 Rush results requested by (please circle): Phone, Fax
 Phone #: 847-918-4000 Fax #: 847-918-4055

8 Data Package Options (please circle if requested) SDG Complete? Yes No

QC Summary Type VI (Raw Data) PER QUOTE
 Type I (Tier I) GLP
 Type II (Tier II) Other
 Type III (NJ Red. Del.)
 Type IV (CLP)

Site-specific QC required? Yes No
 (If yes, indicate QC sample and submit triplicate volume.)
 Internal Chain of Custody required? Yes No

Relinquished by: X. X. X. X. Date: 3/25/02 Time: 0830 Received by: _____ Date: _____ Time: _____
 Relinquished by: B. B. B. B. Date: 3/18/02 Time: 1730 Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: W. W. W. W. Date: 3/19/02 Time: 0905

Cont. #4



For Lancaster Laboratories use only

Acct. # _____ Sample # _____

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: Weston/Ken McGee Acct. #: _____
 Project Name/#: Moss American PWSID #: _____
 Project Manager: Tom Crahan P.O.# _____
 Sampler: B Schaefer, Y Hagiewicz, B Crawford Quote #: _____
 Name of state where samples were collected: WI

Sample Identification	Date Collected	Time Collected	Grab	Matrix				Total # of Containers	Analyses Requested						Remarks
				Composite	Soil	Water	Other		Asph	PAH	Metals	TKN, TP-PO ₄	NH ₃ , COD	Residuals	
MAB-TG6-1-180302-01	3/18/02	1415	X		X			4	X	X	X				
MAB-TG6-2-180302-02	3/18/02	1425	X		X			4	X	X	X				
MAB-TG6-3-180302-03	3/18/02	1435	X		X			2	X						

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: 5/1/02
 Rush results requested by (please circle): Phone Fax
 Phone #: 847-918-4000 Fax #: 847-918-4035

8 Data Package Options (please circle if requested) SDG Complete? Yes No
 QC Summary Type VI (Raw Data) PER QUOTE
 Type I (Tier I) GLP
 Type II (Tier II) Other
 Type III (NJ Red Del.)
 Type IV (CLP)
 Site-specific QC required? Yes No
 (If yes, indicate QC sample and submit triplicate volume.)
 Internal Chain of Custody required? Yes No

Relinquished by: <u>Bren Schaefer</u>	Date: <u>3/18/02</u>	Time: <u>1730</u>	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by: <u>Wagner</u>	Date: <u>3/19/02</u>	Time: <u>0915</u>

CASE NARRATIVE

Client: Kerr-McGee Corporation
SDG #: KMA05

LANCASTER LABORATORIES
PAH BY HPLC

SAMPLE NUMBER(S) :

<u>LL #'s</u>	<u>Sample Code</u>	<u>Matrix</u>		<u>Comments</u>
		<u>Water</u>		
3790473	TG633	X		
3790474	TG622	X		
3790475	TG611	X		
3790476	TG339	X		
3790477	TG328	X		
3790478	TG317	X		
3790479	TG514	X		
3790480	TG525	X		
3790481	TG536	X		

LABORATORY SUBMITTED QC:

SBLKWD079	SBLKWD0792	X	Method Blank
079WDLCS	079WDLCS2	X	Lab Control Sample
079WDLCS2	079WDLCS2	X	Lab Control Sample Dup

SAMPLE PREPARATION:

Due to insufficient sample, reduced volumes were used in the extraction of the following samples.

<u>Sample Code</u>	<u>Volume</u>
TG611	908 mls
TG339	905 mls
TG328	993 mls
TG514	996 mls
TG536	876 mls

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

Case Narrative
SDG#: KMA05 continued

ANALYSIS:

The method used for analysis was SW-846 8310.

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.

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.

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:



Charles J. Neslund
Group Leader, GC/MS Semivolatiles

Date: 4/5/02

Client : Kerr-McGee Corporation
Project: Moss American Superfund Site
Milwaukee, WI
Volatiles by GC - Water

AMPLE ANALYSES

LL Sample #	Sample Designation	Matrix Soil Water	Comments
3790472	TBX01	X	
3790473	TG633	X	
3790474	TG622	X	
3790475	TG611	X	
3790476	TG339	X	
3790477	TG328	X	
3790478	TG317	X	
3790479	TG514	X	
3790480	TG525	X	
3790481	TG536	X	

QUALITY CONTROL ANALYSES

BLK5333		X	Method Blank
3790367		X	Unspiked
3790367MS		X	Matrix Spike
LCS5332		X	Lab Control Sample
LDS5332		X	Lab Control Dup

AMPLE PREPARATION

No sample preparation was necessary.

ANALYSIS

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."

The method used for analysis was EPA Method SW-846 8021B. A J&W DB-VRX, 75m x 0.45mm, 2.55um column was used for the analysis of all samples. The surrogate concentration was 30.0 UG/L.

No problems were encountered during analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY

There was no client submitted QC, so Lancaster Laboratories batch QC was referenced. Sufficient sample volume was not available to perform an MSD for this analysis, therefore an LCS/LDS was performed to demonstrate precision and accuracy at a batch level.

All QC was within specifications.

11-13-05

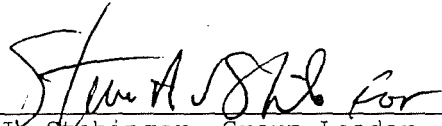
Case Narrative
SDG# KMA05

Client : Kerr-McGee Corporation
Project: Moss American Superfund Site
Milwaukee, WI
Volatiles by GC - Water

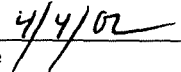
ATA INTERPRETATION

No explanation is necessary for the data submitted.

Narrative reviewed and approved by:



Steve J. Seabinger, Group Leader



Date

CLIENT: Kerr-McGee Corporation
SDG: KMA05

LANCASTER LABORATORIES

INSTRUMENTAL WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3790473	TG633	
3790474	TG622	
3790475	TG611	
3790476	TG339	
3790477	TG328	
3790478	TG317	
3790479	TG514	
3790480	TG525	
3790481	TG536	

ANALYSIS:

All dilutions are listed in the table below.

Sample	Nitrate-N	TP as PO4	TOC
All LCS	DF2	DF2	DF5

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The duplicate sample (3790477) for the total phosphorus as PO4 analysis was out of specification.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

 _____ Date: 3.27.02
Sandra J. Miller
Specialist/Coordinator

15045103



CLIENT: Kerr-McGee Corporation
SDG: KMA05

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

Table with 3 columns: Sample #, Sample Code, Comments. Rows include sample numbers 3790473 through 3790481 and P790440, with codes like TG633, TG622, etc., and a comment BKG/DUP/DF10.

ANALYSIS:

Dilutions for the biochemical oxygen demand analysis are listed in the comments section above.

Sample P790182 (BKG/DUP) was analyzed at a dilution factor of 2 for the chemical oxygen demand analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The duplicate sample for the ammonia nitrogen analysis was out of specification.

Site-specific MS/MSD samples were not submitted for the ammonia nitrogen analysis. A LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Handwritten signature of Sandra J. Miller for Date: 4/12/02
Sandra J. Miller
Specialist/Coordinator

0316

Data validation for grab water samples analyses performed by Lancaster Laboratories, Lancaster, Pennsylvania for the Kerr McGee Moss American Site in Milwaukee, WI.

The water samples were analyzed for Semi-Volatile (Polynuclear Aromatic Hydrocarbons-PAH 8310), and Volatile (BTEX 8021), Kjeldahl Nitrogen Analysis (TKN), Nitrite Nitrogen, Nitrate Nitrogen, Total Phosphorus as (PO₄), Total Organic Carbon (TOC), Ammonia Nitrogen, Ortho-Phosphate as P, and Biochemical Oxygen Demand (BOD) analyses.

Polynuclear Aromatic Hydrocarbons (PAHs by HPLC, U.S. EPA Method 8310)

Moss American Site

SDG # KMA06

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>
MA3-TG2-1-190302-01	3792071	Grab water	03/19/02	03/22/02	03/29/02
MA3-TG2-2-190302-02	3792072	Grab water	03/19/02	03/22/02	03/29/02
MA3-TG2-3-190302-03	3792073	Grab water	03/19/02	03/22/02	03/29/02
MA3-TG1-1-190302-04	3792074	Grab water	03/19/02	03/22/02	03/29/02
MA3-TG1-2-190302-05	3792075	Grab water	03/19/02	03/22/02	03/29/02
MA3-TG1-3-190302-06	3792076	Grab water	03/19/02	03/22/02	03/29/02
MA3-TG4-1-190302-07	3792077	Grab water	03/19/02	03/22/02	03/29/02
MA3-TG4-2-190302-08	3792078	Grab water	03/19/02	03/22/02	03/29/02
MA3-TG4-3-190302-09	3792079	Grab water	03/19/02	03/22/02	03/29/02
FB-01	3792080	Grab water	03/19/02	03/22/02	03/29/02

2. Holding Times:

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

3. Method Blank:

The method blank SBLKWB0812 was associated with this SDG. SBLKWC0842 was analyzed on 03/28/02 and associated with (3792071 thru 3792080). The method blank SBLKWB0812 results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate:

Sufficient samples volume was not available to perform a matrix spike/matrix spike duplicate for this analysis.

5. Laboratory control Sample:

The laboratory control sample/laboratory control sample duplicate recoveries were within the quality control limit. Also, the RPD% values were acceptable.

6. Surrogate:

All the surrogate recoveries for the analysis of (3792071 thru 3792080) were within the control limits on UV-Vis detector, except triphenylene for sample 3792074, and 3792074DL on UV-Vis detector. Therefore, qualify the positive results in 3792074, and 3792074DL as estimated (J).

Also, the surrogate recoveries from the fluorescence detector were outside the acceptance control limits for nitrobenzene, and acceptable for triphenylene.

Therefore, the surrogate was reported from the UV-Vis detector, due to reduce sensitivity on the fluorescence detector.

7. Retention Time:

The retention time recoveries were acceptable, except in acenaphthylene was outside the required RT window.

8. Initial and Continuing Calibration:

All the initial calibrations results were within the quality control limits (RSD $> \pm 30\%$), except in method file HP03456.i that were analyzed on 03/25/02 for acenaphthylene (0%).

All the continuing calibrations results were within the quality control limits (RSD $> \pm 25\%$), except in method file HP03456.i/02084B1-51R.d and HP03456.i/02084B1-64R.d that analyzed on 03/25/02 for acenaphthylene was (0%).

According to the initial and continuing calibration above qualify acenaphthylene in the samples as estimated (J/UJ).

BETX (U.S. EPA Method 8021B)

SDG # KMA06

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG2-1-190302-01	3792071	Grab water	03/19/02	03/22/02
MA3-TG2-2-190302-02	3792072	Grab water	03/19/02	03/22/02
MA3-TG2-3-190302-03	3792073	Grab water	03/19/02	03/22/02
MA3-TG1-1-190302-04	3792074	Grab water	03/19/02	03/22/02
MA3-TG1-2-190302-05	3792075	Grab water	03/19/02	03/22/02
MA3-TG1-3-190302-06	3792076	Grab water	03/19/02	03/22/02
MA3-TG4-1-190302-07	3792077	Grab water	03/19/02	03/22/02
MA3-TG4-2-190302-08	3792078	Grab water	03/19/02	03/22/02
MA3-TG4-3-190302-09	3792079	Grab water	03/19/02	03/22/02
FB-01	3792080	Grab water	03/19/02	03/23/02
TB-02	3792081	Grab water	03/19/02	03/23/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

The method blank BLK5127 was associated with this SDG. BLK5127 was analyzed on 03/22/02 associated with (3792071 thru 3792081). The method blank results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate :

Sufficient samples volume was not available to perform a matrix spike and matrix spike duplicate for this analysis. Therefore, the laboratory performed only matrix spike on sample 3792071. The matrix spike recoveries were within the quality control limits.

5. Laboratory control Sample:

The laboratory control sample/laboratory control sample duplicate recoveries were within the quality control limits. Also, the relative percent difference (RPD%) values were acceptable.

6. Surrogate:

The method blank and investigated samples had recoveries within the acceptance quality control limits.

7. Initial and Continuing Calibration:

All the initial calibration and continuing calibration results were within the quality control limits.

WET CHEMISTRY ANALYSIS

Kjeldahl Nitrogen Analysis (TKN):
SDG # KMA06

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Digested</u>	<u>Date Analyzed</u>
MA3-TG2-1-190302-01	3792071	Grab water	03/19/02	03/26/02	03/26/02
MA3-TG2-2-190302-02	3792072	Grab water	03/19/02	03/26/02	03/26/02
MA3-TG2-3-190302-03	3792073	Grab water	03/19/02	03/26/02	03/26/02
MA3-TG1-1-190302-04	3792074	Grab water	03/19/02	03/26/02	03/26/02
MA3-TG1-2-190302-05	3792075	Grab water	03/19/02	03/26/02	03/26/02
MA3-TG1-3-190302-06	3792076	Grab water	03/19/02	03/26/02	03/26/02
MA3-TG4-1-190302-07	3792077	Grab water	03/19/02	03/26/02	03/26/02
MA3-TG4-2-190302-08	3792078	Grab water	03/19/02	03/26/02	03/26/02
MA3-TG4-3-190302-09	3792079	Grab water	03/19/02	03/26/02	03/26/02

2. Holding Times:

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

3. Method Blank:

The method blank result was free of contamination.

4. Matrix Spike Recovery:

Two matrix spikes 3792071, and 3792072 associated with all the samples. The 3792071/MS recovery was within the quality control limit. However, The 3792072/MS recovery was out. No qualification was required because both MS were associated with the samples and all the samples were analyzed in the same batch.

5. Duplicate Recovery:

Two duplicates 3792071, and 3792072 associated with the analysis. The RPD% value for sample 3792071 was within the control limit. However, The RPD% value for sample 3792072 was not required because the background or the duplicate sample result was less than the limit of quantitation.

6. Laboratory Control Sample Recovery:

The laboratory control sample recovery was within the quality control limits.

7. Initial and Continuing Calibration:

The initial and continuing calibration recoveries were all within the quality control limits.

Nitrite Nitrogen Analysis:
SDG # KMA06

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG2-1-190302-01	3792071	Grab water	03/19/02	03/21/02
MA3-TG2-2-190302-02	3792072	Grab water	03/19/02	03/21/02
MA3-TG2-3-190302-03	3792073	Grab water	03/19/02	03/21/02
MA3-TG1-1-190302-04	3792074	Grab water	03/19/02	03/21/02
MA3-TG1-2-190302-05	3792075	Grab water	03/19/02	03/21/02
MA3-TG1-3-190302-06	3792076	Grab water	03/19/02	03/21/02
MA3-TG4-1-190302-07	3792077	Grab water	03/19/02	03/21/02
MA3-TG4-2-190302-08	3792078	Grab water	03/19/02	03/21/02
MA3-TG4-3-190302-09	3792079	Grab water	03/19/02	03/21/02

2. Holding Times:

All samples were analyzed within the required holding times for samples 3792077 thru 3792079. However, samples 3792071 thru 3792076 were analyzed past the 48 hrs holding time. Therefore, qualify the results as estimated (J/UJ).

3. Method Blank:

The method blank result was free of contamination.

4. Matrix Spike Recovery:

The matrix spike recovery was within the quality control limits.

5. Laboratory Control Sample Recovery:

The laboratory control sample recovery was acceptable.

6. Duplicate Recovery:

The RPD% value for sample 3792071 was not required because the background or the duplicate sample result was less than the limit of quantitation.

7. Initial and Continuing Calibration:

The initial and continuing calibration recoveries were all within the quality control limits.

Nitrate Nitrogen Analysis:
SDG # KMA06

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG2-1-190302-01	3792071	Grab water	03/19/02	04/01/02
MA3-TG2-2-190302-02	3792072	Grab water	03/19/02	04/01/02
MA3-TG2-3-190302-03	3792073	Grab water	03/19/02	04/01/02
MA3-TG1-1-190302-04	3792074	Grab water	03/19/02	04/01/02
MA3-TG1-2-190302-05	3792075	Grab water	03/19/02	04/01/02
MA3-TG1-3-190302-06	3792076	Grab water	03/19/02	04/01/02
MA3-TG4-1-190302-07	3792077	Grab water	03/19/02	04/01/02
MA3-TG4-2-190302-08	3792078	Grab water	03/19/02	04/01/02
MA3-TG4-3-190302-09	3792079	Grab water	03/19/02	04/01/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

The method blank result was free of contamination.

4. Matrix Spike Recovery:

Two matrix spikes 3792071, and 3792072 associated with all the samples. Both MS recoveries were acceptable.

5. Duplicate Recovery:

The RPD% value for samples 3792071, and 3792072 was not required because the background or the duplicates for both samples result were less than the limit of quantitation.

6. Laboratory Control Sample Recovery:

The laboratory control sample recovery was acceptable.

7. Initial and Continuing Calibration:

The initial and continuing calibration recoveries were all within the quality control limits.

Total Phosphorus as (PO4):

SDG # KMA06

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>
MA3-TG2-1-190302-01	3792071	Grab water	03/19/02	03/22/02	03/25/02
MA3-TG2-2-190302-02	3792072	Grab water	03/19/02	03/22/02	03/25/02
MA3-TG2-3-190302-03	3792073	Grab water	03/19/02	03/22/02	03/25/02
MA3-TG1-1-190302-04	3792074	Grab water	03/19/02	03/22/02	03/25/02
MA3-TG1-2-190302-05	3792075	Grab water	03/19/02	03/22/02	03/25/02
MA3-TG1-3-190302-06	3792076	Grab water	03/19/02	03/22/02	03/25/02
MA3-TG4-1-190302-07	3792077	Grab water	03/19/02	03/22/02	03/25/02
MA3-TG4-2-190302-08	3792078	Grab water	03/19/02	03/22/02	03/25/02
MA3-TG4-3-190302-09	3792079	Grab water	03/19/02	03/22/02	03/25/02

2. Holding Times:

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

3. Method Blank:

The method blank result was free of contamination.

4. Matrix Spike Recovery:

Two matrix spikes 3792071, and 3792077 associated with all the samples. Both MS recoveries were within the quality control limit.

5. Duplicate Recovery:

Two duplicates 3792071, and 3792072 associated with the analysis. The RPD% value for sample 3792072 was within the control limit. However, The RPD% value for sample 3792071 was not required because the background or the duplicate sample result was less than the limit of quantitation.

6. Laboratory Control Sample Recovery:

The laboratory control sample recovery was acceptable.

7. Initial and Continuing Calibration:

The initial and continuing calibration recoveries were all within the quality control limits.

Total Organic Carbon Analysis (TOC):
SDG # KMA06

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG2-1-190302-01	3792071	Grab water	03/19/02	03/26/02
MA3-TG2-2-190302-02	3792072	Grab water	03/19/02	03/26/02
MA3-TG2-3-190302-03	3792073	Grab water	03/19/02	03/26/02
MA3-TG1-1-190302-04	3792074	Grab water	03/19/02	03/26/02
MA3-TG1-2-190302-05	3792075	Grab water	03/19/02	03/26/02
MA3-TG1-3-190302-06	3792076	Grab water	03/19/02	03/26/02
MA3-TG4-1-190302-07	3792077	Grab water	03/19/02	03/26/02
MA3-TG4-2-190302-08	3792078	Grab water	03/19/02	03/26/02
MA3-TG4-3-190302-09	3792079	Grab water	03/19/02	03/26/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

The method blank contained 0.54 mg/l. The amount found in the samples 3792073 thru 3792079 was greater than 5X the blank. Therefore, no qualification was applied.

However, the amount found in 3792071, and 3792072 was less than 5X the blank. Therefore, qualify the results in 3792071, and 3792072 as not detected (U).

4. Matrix Spike/Matrix Spike Duplicate :

The matrix spike was performed on sample 3792071. The MS recovery was within the quality control limit.

5. Duplicate Recovery:

The RPD% value for samples 3792071 was not required because the background or the duplicate for the sample result was less than the limit of quantitation.

6. Laboratory Control Sample Recovery:

The laboratory control sample recovery was acceptable.

7. Initial and Continuing Calibration:

The initial and continuing calibration recoveries were all within the QC control limits.

Ammonia Nitrogen Analysis:
SDG # KMA06

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG2-1-190302-01	3792071	Grab water	03/19/02	03/29/02
MA3-TG2-2-190302-02	3792072	Grab water	03/19/02	03/29/02
MA3-TG2-3-190302-03	3792073	Grab water	03/19/02	03/29/02
MA3-TG1-1-190302-04	3792074	Grab water	03/19/02	03/29/02
MA3-TG1-2-190302-05	3792075	Grab water	03/19/02	03/29/02
MA3-TG1-3-190302-06	3792076	Grab water	03/19/02	03/29/02
MA3-TG4-1-190302-07	3792077	Grab water	03/19/02	03/29/02
MA3-TG4-2-190302-08	3792078	Grab water	03/19/02	03/29/02
MA3-TG4-3-190302-09	3792079	Grab water	03/19/02	03/29/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

The method blank result was free of contamination.

4. Duplicate Recovery:

The RPD% value for samples 3792071 was not required because the background or the duplicate for the sample result was less than the limit of quantitation.

5. Laboratory Control Sample Recovery:

The laboratory control sample recovery was within the quality control limits.

6. Matrix Spike Recovery:

The matrix spike/matrix spike duplicate recoveries were within the acceptance QC control limits. Also, the relative percent difference (RPD%) recoveries were acceptable.

Ortho-Phosphate as P Analysis:
SDG # KMA06

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG2-1-190302-01	3792071	Grab water	03/19/02	03/22/02
MA3-TG2-2-190302-02	3792072	Grab water	03/19/02	03/22/02
MA3-TG2-3-190302-03	3792073	Grab water	03/19/02	03/22/02
MA3-TG1-1-190302-04	3792074	Grab water	03/19/02	03/22/02
MA3-TG1-2-190302-05	3792075	Grab water	03/19/02	03/22/02
MA3-TG1-3-190302-06	3792076	Grab water	03/19/02	03/22/02
MA3-TG4-1-190302-07	3792077	Grab water	03/19/02	03/22/02
MA3-TG4-2-190302-08	3792078	Grab water	03/19/02	03/22/02
MA3-TG4-3-190302-09	3792079	Grab water	03/19/02	03/22/02

2. Holding Times:

All samples 3792071 thru 3792079 were analyzed past the 48 hrs holding time. Therefore, qualify all the results as estimated (J/UJ).

3. Method Blank:

The method blank result was free of contamination.

4. Matrix Spike Recovery:

The matrix spike was performed on sample 3792071. The MS/MSD recoveries were within the quality control limit. Also, the RPD% value was acceptable.

5. Duplicate Recovery:

The duplicate RPD% for sample 3792071 and 3792072 recoveries were within the quality control limits.

6. Laboratory Control Sample Recovery:

The two laboratories control sample for sample 3792071 and 3792072 recoveries were within the quality control limits.

Biochemical Oxygen Demand Analysis (BOD):
SDG # KMA06

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG2-1-190302-01	3792071	Grab water	03/19/02	03/21/02
MA3-TG2-2-190302-02	3792072	Grab water	03/19/02	03/21/02
MA3-TG2-3-190302-03	3792073	Grab water	03/19/02	03/21/02
MA3-TG1-1-190302-04	3792074	Grab water	03/19/02	03/21/02
MA3-TG1-2-190302-05	3792075	Grab water	03/19/02	03/21/02
MA3-TG1-3-190302-06	3792076	Grab water	03/19/02	03/21/02
MA3-TG4-1-190302-07	3792077	Grab water	03/19/02	03/21/02
MA3-TG4-2-190302-08	3792078	Grab water	03/19/02	03/21/02
MA3-TG4-3-190302-09	3792079	Grab water	03/19/02	03/21/02

2. Holding Times:

All samples 3792071 thru 3792079 were analyzed past the 48 hrs holding time. Therefore, qualify all the results as estimated (J/UJ).

3. Matrix Spike Recovery:

The matrix spike was performed on sample 3792071. The MS/MSD recoveries were within the quality control limit. Also, the RPD% value was acceptable.

4. Duplicate Recovery:

The duplicate RPD% for sample 3792071 recoveries was acceptable.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate Recovery:

The laboratory control sample recovery was within the quality control limit.

Chemical Oxygen Demand Analysis (COD):
SDG # KMA06

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-TG2-1-190302-01	3792071	Grab water	03/19/02	03/27/02
MA3-TG2-2-190302-02	3792072	Grab water	03/19/02	03/27/02
MA3-TG2-3-190302-03	3792073	Grab water	03/19/02	03/27/02
MA3-TG1-1-190302-04	3792074	Grab water	03/19/02	03/27/02
MA3-TG1-2-190302-05	3792075	Grab water	03/19/02	03/27/02
MA3-TG1-3-190302-06	3792076	Grab water	03/19/02	03/27/02
MA3-TG4-1-190302-07	3792077	Grab water	03/19/02	03/27/02
MA3-TG4-2-190302-08	3792078	Grab water	03/19/02	03/27/02
MA3-TG4-3-190302-09	3792079	Grab water	03/19/02	03/27/02

2. Holding Times:

All samples were analyzed within the required holding time.

3. Matrix Spike Recovery:

The matrix spike was performed on sample 3792071. The MS/MSD recoveries were within the quality control limit. Also, the RPD% value was acceptable.

4. Duplicate Recovery:

The duplicate RPD% for sample 3792071 recoveries was outside the quality control limits. Therefore, qualify the sample as estimated (J).

5. Laboratory Control Sample/Laboratory Control Sample Duplicate Recovery:

The laboratory control sample recovery was within the quality control limit.

Please feel free to contact me at (847) 549-1042 or (847) 971-6800 with any question regarding these validation reports.

Sincerely
Tania Balikji-Shammo



ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 801093. Samples arrived at the laboratory on Thursday, March 21, 2002.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
MA3-TG2-1-190302-01 Grab Water Sample	3792071
MA3-TG2-2-190302-02 Grab Water Sample	3792072
MA3-TG2-3-190302-03 Grab Water Sample	3792073
MA3-TG1-1-190302-04 Grab Water Sample	3792074
MA3-TG1-2-190302-05 Grab Water Sample	3792075
MA3-TG1-3-190302-06 Grab Water Sample	3792076
MA3-TG4-1-190302-07 Grab Water Sample	3792077
MA3-TG4-2-190302-08 Grab Water Sample	3792078
MA3-TG4-3-190302-09 Grab Water Sample	3792079
FB-01 Grab Water Sample	3792080
TB-02 Grab Water Sample	3792081

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 Roy F. Weston
1 COPY TO Data Package Group

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



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

00115



Lancaster Laboratories

Where quality is a science.

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

Respectfully Submitted,

Rachel R. Cochis
Rachel R. Cochis
Sr. Chemist/Coordinator



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

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Lancaster Laboratories Sample No. WW 3792071

Collected: 03/19/2002 09:15 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20
 Reported: 04/03/2002 at 12:57
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG2-1-190302-01 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

MA321 SDG#: KMA06-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	N.D.		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
This sample was not submitted with sufficient time for the nitrite analysis to be completed within 48 hours.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	N.D.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
This sample was submitted past the 48 hr holding time for Orthophosphate.							
00235	Biochemical Oxygen Demand	n.a.	N.D.		3.0	mg/l	1
This sample was analyzed past the 48 hold time for BOD with client consent.							
00273	Total Organic Carbon	n.a.	1.95		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.	5.2	J	1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.9	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.9	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.09	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1

MEMBER
 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 3792071

Collected: 03/19/2002 09:15 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/03/2002 at 12:57

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG2-1-190302-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MA321 SDG#: KMA06-01

08264 Total Phos as PO4 Prep EPA 365.1
(water)

1 03/22/2002 14:45 Nancy J Shoop

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Lancaster Laboratories, Inc.
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PO Box 12425
Lancaster, PA 17605-2425
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0101010



Lancaster Laboratories Sample No. **WW 3792072**

Collected: 03/19/2002 09:25 by **BS**

Account Number: 07802

Submitted: 03/21/2002 09:20
 Reported: 04/03/2002 at 12:57
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG2-2-190302-02 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

MA322 SDG#: KMA06-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.41 J		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D. (UJ)		0.015	mg/l	1
This sample was submitted past the 48 hour holding time for nitrite.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	N.D.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0096 (U)		0.0066	mg/l	1
This sample was submitted past the 48 hr holding time for Orthophosphate.							
00235	Biochemical Oxygen Demand	n.a.	N.D. (UJ)		5.2	mg/l	1
This sample was analyzed past the 48 hold time for BOD with client consent.							
00273	Total Organic Carbon	n.a.	2.1 (U)		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.22		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	6.4 J		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D. (UJ)		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1



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

TB
 5/10/02



Lancaster Laboratories Sample No. **WW 3792072**

Collected: 03/19/2002 09:25 by **BS**

Account Number: **07802**

Submitted: 03/21/2002 09:20
 Reported: 04/03/2002 at 12:57
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG2-2-190302-02 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

MA322 SDG#: KMA06-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Detection Limit	
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 16:34	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/21/2002 11:26	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	04/01/2002 16:01	Mark A Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/29/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/22/2002 17:00	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/21/2002 22:23	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/26/2002 15:44	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 18:10	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/27/2002 05:30	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 19:14	Melissa D Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/29/2002 06:11	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 19:14	Melissa D Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/26/2002 09:25	Cheryl L Robinson	1
03337	PAH Water Extraction	SW-846 3510C	1	03/22/2002 17:30	Desiree J Wann	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/22/2002 14:45	Nancy J Shoop	1



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032102



Lancaster Laboratories Sample No. **WW 3792073**

Collected: 03/19/2002 09:35 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20
 Reported: 04/03/2002 at 12:58
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG2-3-190302-03 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

MA323 SDG#: KMA06-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.89 J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.015 J	0.015	mg/l	1
This sample was submitted past the 48 hour holding time for nitrite.						
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.1	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.0101 J	0.0066	mg/l	1
This sample was submitted past the 48 hr holding time for Orthophosphate.						
00235	Biochemical Oxygen Demand	n.a.	5.6 J	0.80	mg/l	1
This sample was analyzed past the 48 hold time for BOD with client consent.						
00273	Total Organic Carbon	n.a.	11.6	0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.28	0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	17.5	1.7	mg/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	0.08 J	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1



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5-16-02



Lancaster Laboratories Sample No. WW 3792073

Collected: 03/19/2002 09:35 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/03/2002 at 12:58

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG2-3-190302-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MA323 SDG#: KMA06-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 16:35	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/21/2002 11:27	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	04/01/2002 16:03	Mark A Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/29/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/22/2002 17:00	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/21/2002 22:23	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/26/2002 16:19	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 18:11	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/27/2002 05:30	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 19:49	Melissa D Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/29/2002 06:49	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 19:49	Melissa D Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/26/2002 09:25	Cheryl L Robinson	1
03337	PAH Water Extraction	SW-846 3510C	1	03/22/2002 17:30	Desiree J Wann	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/22/2002 14:45	Nancy J Shoop	1



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Lancaster Laboratories Sample No. WW 3792074

Collected: 03/19/2002 11:10 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20
Reported: 04/03/2002 at 12:58
Discard: 05/04/2002

Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

MA3-TG1-1-190302-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

MA311 SDG#: KMA06-04

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	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D. <i>VJ</i>	0.015	mg/l	1
This sample was not submitted with sufficient time for the nitrite analysis to be completed within the 48 hour holding time.						
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.2	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	N.D. <i>VJ</i>	0.0066	mg/l	1
This sample was submitted past the 48 hr holding time for Orthophosphate.						
00235	Biochemical Oxygen Demand	n.a.	8.2 <i>J</i>	0.80	mg/l	1
This sample was analyzed past the 48 hold time for BOD with client consent.						
00273	Total Organic Carbon	n.a.	13.7	0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.20	0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	57.0	1.7	mg/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	4.3 <i>J</i>	1.0	ug/l	5
00777	Toluene	108-88-3	1.4 <i>J</i>	1.0	ug/l	5
00778	Ethylbenzene	100-41-4	24.	1.0	ug/l	5
00779	Total Xylenes	1330-20-7	37.	3.0	ug/l	5
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
Due to dilution of the sample made necessary by the high level of non-target compounds, normal reporting limits were not attained.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	2,400. <i>J</i>	50.	ug/l	50
00782	Acenaphthylene	208-96-8	50. <i>J</i>	4.	ug/l	5
00783	Acenaphthene	83-32-9	420. <i>J</i>	4.	ug/l	5



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42000



Lancaster Laboratories Sample No. WW 3792074

Collected: 03/19/2002 11:10 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20
 Reported: 04/03/2002 at 12:58
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG1-1-190302-04 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

MA311 SDG#: KMA06-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Detection Limit	
00784	Fluorene	86-73-7	270. J	9.	ug/l	50
00785	Phenanthrene	85-01-8	640.	4.	ug/l	50
00789	Anthracene	120-12-7	90.	2.	ug/l	50
00807	Fluoranthene	206-44-0	280.	2.	ug/l	50
00811	Pyrene	129-00-0	280.	9.	ug/l	50
00812	Benzo(a)anthracene	56-55-3	54.	1.	ug/l	50
00818	Benzo(b)fluoranthene	205-99-2	20.	2.	ug/l	50
00823	Benzo(a)pyrene	50-32-8	23.	1.	ug/l	50
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.2	ug/l	5
00898	Indeno(1,2,3-cd)pyrene	193-39-5	10. J	0.4	ug/l	5
00907	Benzo(g,h,i)perylene	191-24-2	11.	0.5	ug/l	5
07409	Chrysene	218-01-9	42.	0.4	ug/l	5
07410	Benzo(k)fluoranthene	207-08-9	12. J	0.1	ug/l	5

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

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

Due to the high concentration of target compounds, a dilution was necessary to perform the PAH by HPLC analysis. Therefore, the reporting limits for the HPLC PAH compounds were raised.

*TBS
5/10/02*

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 16:36	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/21/2002 11:28	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	04/01/2002 16:04	Mark A Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/29/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/22/2002 17:00	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/21/2002 22:23	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/26/2002 16:30	Timothy M Petree	1



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Lancaster Laboratories Sample No. WW 3792074

Collected: 03/19/2002 11:10 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/03/2002 at 12:58

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG1-1-190302-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MA311	SDG#: KMA06-04					
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 18:12	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/27/2002 05:30	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 20:59	Melissa D Mann	5
00774	PAH's in Water by HPLC	SW-846 8310	1	03/29/2002 07:31	Mark A Clark	5
00774	PAH's in Water by HPLC	SW-846 8310	1	03/31/2002 16:25	Mark A Clark	50
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 20:59	Melissa D Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/26/2002 09:25	Cheryl L Robinson	1
03337	PAH Water Extraction	SW-846 3510C	1	03/22/2002 17:30	Desiree J Mann	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/22/2002 14:45	Nancy J Shoop	1



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Lancaster Laboratories Sample No. **WW 3792075**

Collected: 03/19/2002 11:20 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20
 Reported: 04/03/2002 at 12:58
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG1-2-190302-05 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

MA312 SDG#: KMA06-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.1		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D. <i>UJ</i>		0.015	mg/l	1
This sample was not submitted with sufficient time for the nitrite analysis to be completed within the 48 hour holding time.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.92 <i>J</i>		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D. <i>UJ</i>		0.0066	mg/l	1
This sample was submitted past the 48 hr holding time for Orthophosphate.							
00235	Biochemical Oxygen Demand	n.a.	0.80 <i>UJ</i>		0.80	mg/l	1
This sample was analyzed past the 48 hold time for BOD with client consent.							
00273	Total Organic Carbon	n.a.	12.3		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.33		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	31.9		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	0.32 <i>J</i>		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D. <i>UJ</i>		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.07 <i>J</i>		0.04	ug/l	1

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Lancaster Laboratories Sample No. WW 3792075

Collected: 03/19/2002 11:20 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20
 Reported: 04/03/2002 at 12:58
 Discard: 05/04/2002

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 Oklahoma City OK 73125

MA3-TG1-2-190302-05 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

MA312 SDG#: KMA06-05

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result	J	Method	Detection Limit	
00811	Pyrene	129-00-0	0.2	J	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.02	J	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 16:37	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/21/2002 11:32	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	04/01/2002 16:05	Mark A Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/29/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/22/2002 17:00	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/21/2002 22:23	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/26/2002 16:42	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 18:12	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/27/2002 05:30	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 21:33	Melissa D Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/29/2002 08:10	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 21:33	Melissa D Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/26/2002 09:25	Cheryl L Robinson	1
03337	PAH Water Extraction	SW-846 3510C	1	03/22/2002 17:30	Desiree J Wann	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/22/2002 14:45	Nancy J Shoop	1

002200

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Lancaster Laboratories Sample No. WW 3792075

Collected: 03/19/2002 11:20 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/03/2002 at 12:58

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG1-2-190302-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MA312 SDG#: KMA06-05



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030205



Lancaster Laboratories Sample No. **WW 3792076**

Collected: 03/19/2002 11:30 by **BS**

Account Number: 07802

Submitted: 03/21/2002 09:20
 Reported: 04/03/2002 at 12:58
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG1-3-190302-06 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

MA313 SDG#: KMA06-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.84 J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D. (UT)	0.015	mg/l	1
This sample was not submitted with sufficient time for the nitrite analysis to be completed within the 48 hour holding time.						
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.71 J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	N.D. (UT)	0.0066	mg/l	1
This sample was submitted past the 48 hr holding time for Orthophosphate.						
00235	Biochemical Oxygen Demand	n.a.	N.D. (UT)	5.0	mg/l	1
This sample was analyzed past the 48 hold time for BOD with client consent.						
00273	Total Organic Carbon	n.a.	8.9	0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.34	0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	25.5	1.7	mg/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D. (UJ)	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.07 J	0.04	ug/l	1



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001150

JBS
3/10/02



Lancaster Laboratories Sample No. WW 3792076

Collected: 03/19/2002 11:30 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/03/2002 at 12:58

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG1-3-190302-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MA313 SDG#: KMA06-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Detection Limit	
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	0.03 J	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 16:41	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/21/2002 11:33	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	04/01/2002 16:09	Mark A Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/29/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/22/2002 17:00	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/21/2002 22:23	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/26/2002 16:53	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 18:13	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/27/2002 05:30	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 22:08	Melissa D Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/29/2002 08:48	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 22:08	Melissa D Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/26/2002 09:25	Cheryl L Robinson	1
03337	PAH Water Extraction	SW-846 3510C	1	03/22/2002 17:30	Desiree J Wann	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/22/2002 14:45	Nancy J Shoop	1



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030301



Lancaster Laboratories Sample No. WW 3792076

Collected: 03/19/2002 11:30 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/03/2002 at 12:58

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG1-3-190302-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MA313 SDG#: KMA06-06



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200203



Lancaster Laboratories Sample No. WW 3792077

Collected: 03/19/2002 15:00 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/03/2002 at 12:58

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG4-1-190302-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MA341 SDG#: KMA06-07

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method Detection Limit	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.40	J	0.30	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	0.55	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.	UJ	0.0066	mg/l	1
This sample was analyzed past the 48 hr hold time for Orthophosphate.							
00235	Biochemical Oxygen Demand	n.a.	N.D.	UJ	3.3	mg/l	1
This sample was analyzed past the 48 hold time for BOD with client consent.							
00273	Total Organic Carbon	n.a.	5.4		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.28		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	15.1		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	UJ	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1



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Lancaster Laboratories Sample No. WW 3792077

Collected: 03/19/2002 15:00 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/03/2002 at 12:58

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG4-1-190302-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

MA341 SDG#: KMA06-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 16:45	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/21/2002 11:37	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	04/01/2002 16:10	Mark A Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/29/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/22/2002 17:00	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/21/2002 22:23	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/26/2002 17:05	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 18:14	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/27/2002 05:30	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 22:43	Melissa D Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/29/2002 09:27	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 22:43	Melissa D Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/26/2002 09:25	Cheryl L Robinson	1
03337	PAH Water Extraction	SW-846 3510C	1	03/22/2002 17:30	Desiree J Wann	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/22/2002 14:45	Nancy J Shoop	1



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03/26/02



Lancaster Laboratories Sample No. WW 3792078

Collected: 03/19/2002 15:10 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/03/2002 at 12:58

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG4-2-190302-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MA342 SDG#: KMA06-08

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.97	J	0.30	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	0.97	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.	(VJ)	0.0066	mg/l	1
This sample was analyzed past the 48 hr hold time for Orthophosphate.							
00235	Biochemical Oxygen Demand	n.a.	N.D.	(VJ)	4.4	mg/l	1
This sample was analyzed past the 48 hold time for BOD with client consent.							
00273	Total Organic Carbon	n.a.	8.9		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.24		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	21.5		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	(VJ)	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1



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LCS/LCSD



Lancaster Laboratories Sample No. WW 3792078

Collected: 03/19/2002 15:10 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20
 Reported: 04/03/2002 at 12:58
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG4-2-190302-08 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

MA342 SDG#: KMA06-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Detection Limit	
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 16:46	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/21/2002 11:38	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	04/01/2002 16:11	Mark A Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/29/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/22/2002 17:00	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/21/2002 22:23	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/26/2002 17:17	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 18:19	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/27/2002 05:30	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 23:17	Melissa D Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/29/2002 10:06	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 23:17	Melissa D Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/26/2002 09:25	Cheryl L Robinson	1
03337	PAH Water Extraction	SW-846 3510C	1	03/22/2002 17:30	Desiree J Wann	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/22/2002 14:45	Nancy J Shoop	1



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Lancaster Laboratories Sample No. WW 3792079

Collected: 03/19/2002 15:20 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/03/2002 at 12:58

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

MA3-TG4-3-190302-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MA343 SDG#: KMA06-09

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method Detection Limit	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.90	J	0.30	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	0.92	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.	UJ	0.0066	mg/l	1
This sample was analyzed past the 48 hr hold time for Orthophosphate.							
00235	Biochemical Oxygen Demand	n.a.	N.D.	UJ	3.8	mg/l	1
This sample was analyzed past the 48 hold time for BOD with client consent.							
00273	Total Organic Carbon	n.a.	5.8		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.26		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	17.1		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	UJ	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.07	J	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1



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TK?
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000007



Lancaster Laboratories Sample No. WW 3792079

Collected: 03/19/2002 15:20 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20
 Reported: 04/03/2002 at 12:58
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG4-3-190302-09 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

MA343 SDG#: KMA06-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	0.03	J	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	03/26/2002 16:47	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	03/21/2002 11:40	Matthew J Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	04/01/2002 16:13	Mark A Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	03/29/2002 07:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	03/22/2002 17:00	Daniel S Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	03/21/2002 22:23	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	03/26/2002 17:28	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	03/25/2002 18:20	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	03/27/2002 05:30	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 23:52	Melissa D Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/29/2002 10:44	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 23:52	Melissa D Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	03/26/2002 09:25	Cheryl L Robinson	1
03337	PAH Water Extraction	SW-846 3510C	1	03/22/2002 17:30	Desiree J Wann	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	03/22/2002 14:45	Nancy J Shoop	1

00000



Lancaster Laboratories Sample No. **WW 3792080**

Collected: 03/19/2002 08:05 by **BS**

Account Number: **07802**

Submitted: 03/21/2002 09:20
 Reported: 04/03/2002 at 12:59
 Discard: 05/04/2002

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

FB-01 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

MA3F1 SDG#: KMA06-10FB

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						



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

TB
5/10/02

00000



Lancaster Laboratories Sample No. WW 3792080

Collected: 03/19/2002 08:05 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/03/2002 at 12:59

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

FB-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MA3F1 SDG#: KMA06-10FB

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/23/2002 02:11	Melissa D Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/29/2002 11:23	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002 02:11	Melissa D Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	03/22/2002 17:30	Desiree J Wann	1



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

00040



Lancaster Laboratories Sample No. WW 3792081

Collected: 03/19/2002 18:00

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/03/2002 at 12:59

P.O. Box 25861

Discard: 05/04/2002

Oklahoma City OK 73125

TB-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MA3T2 SDG#: KMA06-11TB

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1

Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	03/23/2002 01:36	Melissa D Mann	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002 01:36	Melissa D Mann	n.a.



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

03/23/02

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3792071-81

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Wpston / Kerr McGee</u> Acct. #: _____ Project Name#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>B Schaefer, Y Haginara</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>	Matrix 4 <input type="checkbox"/> Soil <input type="checkbox"/> Potable Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other	Total # of Containers	Analyses Requested 5 BTEX NO2 NO3 O-POLY/BOD TOC	For lab use only FSC: _____ SCR #: _____ Temperature of samples upon receipt (if requested) 6
--	--	-----------------------	--	---

Sample Identification	Date Collected	Time Collected	Grab 3	Composite	Soil	Potable Water	NPDES	Other	Total # of Containers	Analyses Requested	Remarks	Temperature of samples upon receipt (if requested) 6
TB-02	3/19/02	1800	X			X			2	X		
MA3-TG1-1-190302-04		1110	X			X			7	X X X X X		
MA3-TG1-2-190302-05		1120	X			X			7	X X X X X		
MA3-TG1-3-190302-06		1130	X			X			7	X X X X X		
MA3-TG2-1-190302-01		0915	X			X			7	X X X X X		
MA3-TG2-2-190302-02		0925	X			X			7	X X X X X		
MA3-TG2-3-190302-03		0935	X			X			7	X X X X X		
MA3-TG4-1-190302-07		1500	X			X			7	X X X X X		
MA3-TG4-2-190302-08		1510	X			X			7	X X X X X		
MA3-TG4-3-190302-09	✓	1520	X			X			7	X X X X X		

7 Turnaround Time Requested (TAT) (please circle): Normal Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone Fax Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>	Relinquished by: <u>Bru Schaefer</u> Date: <u>3/19/02</u> Time: <u>1930</u>	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____
8 Data Package Options (please circle if requested)	Relinquished by: _____ Date: _____ Time: _____			
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> SDG Complete? Yes <u>NO</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)	Relinquished by: _____ Date: _____ Time: _____			
Site-specific QC required? Yes No (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes No	Relinquished by: _____ Date: _____ Time: _____			

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3792071-81

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>W. Weston / Ken McGee</u> Project Name/ #: <u>Moss American</u> Project Manager: <u>Tom Groan</u> Sampler: <u>B. Schaefer, Y. Higunawa</u> Name of state where samples were collected: <u>WI</u>		Acct. #: _____ PWSID #: _____ P.O. #: _____ Quote #: _____		Matrix: <u>4</u> <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Other		Analyses Requested: <u>5</u> ST-XB5 PAH COD, NH3 TKN, TP-P04 BOD-5 TOC-BS					For lab use only FSC: _____ SCR #: _____	
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested)		
FB-01	3/19/02	0905	X					1				
MA3-TG2-1-190302-01	3/19/02	0915	X			X		4				
MA3-TG2-2-190302-02	3/19/02	0925	X			X		4				
MA3-TG2-3-190302-03	3/19/02	0935	X			X		2				

Turnaround Time Requested (TAT) (please circle): Normal <u>7</u> Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone Fax Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>				Relinquished by: <u>Brian Schaefer</u> Date: <u>3/19/02</u> Time: <u>1930</u>		Received by: _____ Date: _____ Time: _____	
Data Package Options (please circle if requested)				Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	
QC Summary Type VI (Raw Data) <u>PER QUOTE</u>		SDG Complete? Yes <u>NO</u>		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	
Type I (Tier I) GLP		Site-specific QC required? Yes No		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	
Type II (Tier II) Other		(If yes, indicate QC sample and submit triplicate volume.)		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	
Type III (NJ Red. Del.)		Internal Chain of Custody required? Yes No		Relinquished by: _____ Date: _____ Time: _____		Received by: <u>Katley Pinkley</u> <u>3/21/02</u>	
Type IV (CLR)				Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3792114-32

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Wiston / Ken McGee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>B Schaefer, Y Hagiwara</u> Quote #: _____ Name of state where samples were collected: <u>X WI</u>		Matrix (4) <input type="checkbox"/> Potable (check if applicable) <input type="checkbox"/> NPDES <input type="checkbox"/> Other		(5) Analyses Requested <div style="font-size: 2em; font-weight: bold; text-align: center;">BTEX</div>					For lab use only FSC: _____ SCR #: _____						
Sample Identification	Date Collected	Time Collected	Grab (6)	Composite (6)	Soil	Water	Other	Total # of Containers	Remarks					Temperature of samples upon receipt (if requested) (6)	
FB-01	3/19/02	0805	X			X		3	X						
MA3-MW-275-190302-10		1705	X			X		3	X						
MA3-MW-335-190302-12		1725	X			X		3	X						
MA3-MW-335-190302-12-DUP		1725	X			X		3	X						
MA3-MW-325-190302-11-MS		1715	X			X		3	X						
MA3-MW-325-190302-11-MSD		1715	X			X		3	X						
MA3-MW-325-190302-11		1715	X			X		3	X						

(7) Turnaround Time Requested (TAT) (please circle): Normal Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone Fax Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: <u>Brian Schaefer</u> Date: <u>3/19/02</u> Time: <u>1930</u>		Received by: _____ Date: _____ Time: _____	
(8) Data Package Options (please circle if requested)		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> SDG Complete? Yes <u>NO</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NI, Rad., Del.) Type IV (CLP)		Site-specific QC required? Yes No (If yes, indicate QC sample and submit triplicate volume.)		Relinquished by: _____ Date: _____ Time: _____	
		Relinquished by: _____ Date: _____ Time: _____		Received by: <u>Kathy Binkley</u> Date: <u>3-21-02</u> Time: <u>0900</u>	

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3792071-81

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Weston/Kerr McGee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O. #: _____ Sampler: <u>B. Schaefer, Y. Hagiwara</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>			Matrix 4	5	Analyses Requested	For lab use only FSC: _____ SCR #: _____				
			<input type="checkbox"/> Potable (check if applicable) <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other	Total # of Containers		Analyses Requested: BTEXs PAH NO ₂ /NO ₃ TKN TP-PO4 CO ₂ NH ₃ BOB-D-PAHs TOL	Temperature of samples upon receipt (if requested)			
Sample Identification	Date Collected	Time Collected	Lab	Composite	Soil	Water	Other	Total # of Containers	Remarks	
MA3-TG1-1-190302-04	3/19/02	1110	X		X			4		
MA3-TG1-2-190302-05	3/19/02	1120	X		X			4		
MA3-TG1-3-190302-06	3/19/02	1130	X		X			2		

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="radio"/> Rush <input type="radio"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u>		Relinquished by: <u>Brian Schaefer</u> Date: <u>3/19/02</u> Time: <u>1930</u>		Received by: _____ Date: _____ Time: _____		
Rush results requested by (please circle): Phone _____ Fax _____ Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____		
8 Data Package Options (please circle if requested)		SDG Complete? Yes <input type="radio"/> No <input checked="" type="radio"/>		Relinquished by: _____ Date: _____ Time: _____		
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)	Site-specific QC required? Yes <input type="radio"/> No <input checked="" type="radio"/> (If yes, indicate QC sample and submit triplicate volume.)		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	
Internal Chain of Custody required? Yes <input type="radio"/> No <input checked="" type="radio"/>		Relinquished by: _____ Date: _____ Time: _____		Received by: <u>Kathy Binkley</u> Date: <u>3-21-02</u> Time: <u>0900</u>		

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3792071-81

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Wpston / Kevin McGee</u> Acct. #: _____ Project Name#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graun</u> P.O.# _____ Sampler: <u>B. Schaefer, Y. Hagiwara</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix 4 <input type="checkbox"/> Soil <input type="checkbox"/> Potable (Drinking) Water <input type="checkbox"/> NPDES (Effluent) Water <input type="checkbox"/> Other	Total # of Containers	Analyses Requested 5 BTEX <u>HS</u> PAH NO ₂ -NO ₃ <u>HS</u> TKN/TP-PO ₄ COD, NH ₃ BOD ₅ -PO ₄ <u>HS</u> TOC <u>HS</u>	For lab use only FSC: _____ SCR #: _____							
Sample Identification	Date Collected	Time Collected	Grab 3	Composite	Soil	Potable (Drinking) Water	NPDES (Effluent) Water	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested) 6	
MA3-TG4-1-190302-07	3/19/02	1500	X			X			4	X	X	X
MA3-TG4-2-190302-08	3/19/02	1510	X			X			4	X	X	X
MA3-TG4-3-190302-09	3/19/02	1520	X			X			2	X		

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="radio"/> Rush <input type="radio"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="radio"/> Fax <input type="radio"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>	Relinquished by: <u>Bren Schaefer</u> Date: <u>3/19/02</u> Time: <u>1930</u>	Received by: _____ Date: _____ Time: _____	9
8 Data Package Options (please circle if requested)	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	
QC Summary Type VI (Raw Data) <u>PER Q.U.T.E</u> SDG Complete? Yes <input checked="" type="radio"/> No <input type="radio"/> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (GLP)	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	
Site-specific QC required? Yes <input type="radio"/> No <input type="radio"/> (If yes, indicate QC sample and submit triplicate volume.) Chain of Custody required? Yes <input type="radio"/> No <input type="radio"/>	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3792071-81

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Weston/Kerr McGee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>B Schaefer, Y Hagiwara</u> Quote #: _____ Name of state, where samples were collected: <u>WI</u>		Matrix 4 Soil <input type="checkbox"/> Water <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Other <input type="checkbox"/>	Total # of Containers	Analyses Requested 5 PAH TKN/TP-PO4 COD/NH3	For lab use only FSC: _____ SCR #: _____							
Sample Identification	Date Collected	Time Collected	Grab 3	Composite	Soil	Water	Potable	NPDES	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested) 6
FB-01	3/19/02	0805	X			X				2		
MA3-MW-275-190302-10		1705	X			X				2		
MA3-TG1-3-190302-06		1130	X			X				2	X	
MA3-TG2-3-190302-03		0935	X			X				2	X	
MA3-TG4-3-190302-09		1520	X			X				2	X	

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input type="checkbox"/> Phone #: <u>847-918-4500</u> Fax #: <u>847-918-4055</u>	Relinquished by: <u>Brian S. Day</u>	Date <u>3/19/02</u>	Time <u>1930</u>	Received by:	Date	Time
8 Data Package Options (please circle if requested)						
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)	SDG Complete? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Site-specific QC required? Yes <input type="checkbox"/> No <input type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.)		Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>		
Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Received by: <u>Kathy Binkley</u> Date: <u>3-21-02</u> Time: <u>0900</u>						

CASE NARRATIVE

Client: Kerr-McGee Corporation
SDG #: KMA06

LANCASTER LABORATORIES
 PAH BY HPLC

SAMPLE NUMBER(S) :

<u>LL #'s</u>	<u>Sample Code</u>	<u>Matrix</u>		<u>Comments</u>
		<u>Water</u>		
3792071	MA321	X		
3792072	MA322	X		
3792073	MA323	X		
3792074	MA311	X	5X Dilution	
3792074DL	MA311DL	X	50X Dilution	
3792075	MA312	X		
3792076	MA313	X		
3792077	MA341	X		
3792078	MA342	X		
3792079	MA343	X		
3792080	MA3F1	X	Client Blank	

LABORATORY SUBMITTED QC:

SBLKWB081	SBLKWB0812	X	Method Blank
081WBLCS	081WBLCS2	X	Lab Control Sample
081WBLCSD	081WBLCSD2	X	Lab Control Sample Dup

SAMPLE PREPARATION:

Due to insufficient sample, reduced volumes were used in the extraction of the following samples.

<u>Sample Code</u>	<u>Volume</u>
MA321	921 mls
MA322	972 mls
MA311	994 mls
MA3F1	998 mls

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

Case Narrative
SDG#: KMA06 continued

ANALYSIS:

The method used for analysis was SW-846 8310.

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.

MA311 was analyzed at an initial 5X dilution due to the high concentration of target compounds.

Due to a number of concentrations above calibration range, MA311 was analyzed at a further 50X dilution.

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.

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Christine M. Ratchell for CJN

Charles J. Neslund

Group Leader, GC/MS Semivolatiles

Date: 4-9-02

Client : Kerr-McGee Corporation
 Project: Moss American Superfund Site
 Milwaukee, WI
 Volatiles by GC - Water

SAMPLE ANALYSES

LL Sample #	Sample Designation	Matrix Soil Water	Comments
3792071	MA321	X	
3792071MS	MA321	X	Matrix Spike
3792072	MA322	X	
3792073	MA323	X	
3792074	MA311	X	DF 5
3792075	MA312	X	
3792076	MA313	X	
3792077	MA341	X	
3792078	MA342	X	
3792079	MA343	X	
3792080	MA3F1	X	
3792081	MA3T2	X	

QUALITY CONTROL ANALYSES

BLK5127		X	Method Blank
LCS5127		X	Lab Control Sample
LDS5127		X	Lab Control Dup

SAMPLE PREPARATION

Dilutions were necessary for some samples as noted in the comments section above.

ANALYSIS

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."

The method used for analysis was EPA Method SW-846 8021B. A J&W DB-VRX, 75m x 0.45mm, 2.55um column was used for the analysis of all samples. The surrogate concentration was 30.0 UG/L.

No problems were encountered during analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY

There was no client submitted QC, so Lancaster Laboratories batch QC was referenced. Sufficient sample volume was not available to perform an MSD for this analysis, therefore an LCS/LDS was performed to demonstrate precision and accuracy at a batch level.

All QC was within specifications.

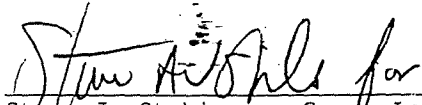
Case Narrative
SDG# KMA06

Client : Kerr-McGee Corporation
Project: Moss American Superfund Site
Milwaukee, WI
Volatiles by GC - Water

DATA INTERPRETATION

No explanation is necessary for the data submitted.

Narrative reviewed and approved by:



Steve J. Stabinger, Group Leader

4/11/02

Date

CLIENT: Kerr-McGee Corporation
SDG: KMA06

LANCASTER LABORATORIES**INSTRUMENTAL WET CHEMISTRY****SAMPLE NUMBERS:**

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3792071	MA321	
3792072	MA322	
3792073	MA323	
3792074	MA311	
3792075	MA312	
3792076	MA313	
3792077	MA341	
3792078	MA342	
3792079	MA343	

ANALYSIS:

Samples 3792072 and 3792073 were submitted past the 48 hour holding time for nitrite nitrogen analysis.

Samples 3792071,73,74,75 and 3792076 were not submitted with sufficient time for the nitrite nitrogen analysis to be completed within the 48 hour holding time.

Dilutions are listed in the table below.

SAMPL	NO3-N	TKN	TP as PO4	TOC
LCS	2		2	5
P786507 B,D,S		5		


QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The matrix spike sample (P786507) for the total Kjeldahl nitrogen analysis was out of specifications.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

 Date: 4/5/02
Sandra J. Miller
Specialist/Coordinator

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2
2
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Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: KMA06

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3792071	MA321	
3792072	MA322	
3792073	MA323	
3792074	MA311	
3792075	MA312	
3792076	MA313	
3792077	MA341	
3792078	MA342	
3792079	MA343	
P786026	B,D	DF10

ANALYSIS:

Dilutions for the ortho-phosphate as P analysis are listed in the comments section above.

Samples 3792071-79 were submitted past 48 hour holding time for ortho-phosphate as P analysis.

Samples 3792071-79 were submitted past 48 hour holding time for biochemical oxygen demand analysis with client consent.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The duplicate sample for the chemical oxygen demand analysis was out of specifications.

Site-specific MS/MSD samples were not submitted for the ammonia nitrogen analysis. A LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

 Date: 4-4-07
 Sandra J. Miller
 Specialist/Coordinator

051010105

Data validation for grab water samples analyses performed by Lancaster Laboratories, Lancaster, Pennsylvania for the Kerr McGee Moss American Site in Milwaukee, WI.
The water samples were analyzed for Semi-Volatile (Polynuclear Aromatic Hydrocarbons-PAH 8310), and Volatile (BTEX 8021) analyses.

Polynuclear Aromatic Hydrocarbons (PAHs by HPLC, U.S. EPA Method 8310)
Moss American Site
SDG # KMA07

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>
MA3-MW-20S-200302-01	3792114	Grab water	03/20/02	03/24/02	03/25/02
MA3-MW-20I-200302-02	3792115	Grab water	03/20/02	03/24/02	03/25/02
MA3-MW-34S-200302-03	3792116	Grab water	03/20/02	03/24/02	03/25/02
MA3-MW-7S-200302-04	3792117	Grab water	03/20/02	03/24/02	03/25/02
MA3-MW-7S-200302-04DUP	3792118	Grab water	03/20/02	03/24/02	03/25/02
MA3-MW-7I-200302-05	3792119	Grab water	03/20/02	03/24/02	03/25/02
MA3-MW-35S-200302-06	3792120	Grab water	03/20/02	03/24/02	03/25/02
MA3-MW-29S-200302-07	3792121	Grab water	03/20/02	03/24/02	03/26/02
MA3-MW-29S-200302-07DUP	3792122	Grab water	03/20/02	03/24/02	03/26/02
MA3-MW-36S-200302-08	3792123	Grab water	03/20/02	03/24/02	03/25/02
MA3-MW-37S-200302-09	3792124	Grab water	03/20/02	03/24/02	03/25/02
FB-02	3792125	Grab water	03/20/02	03/24/02	03/25/02
MA3-MW-27S-190302-10	3792126	Grab water	03/19/02	03/24/02	03/25/02
MA3-MW-32S-190302-11	3792127	Grab water	03/19/02	03/24/02	03/25/02
MA3-MW-32S-190302-11MS	3792128	Grab water	03/19/02	03/24/02	03/25/02
MA3-MW-32S-190302-11MSD	3792129	Grab water	03/19/02	03/24/02	03/25/02
MA3-MW-33S-190302-12	3792130	Grab water	03/19/02	03/24/02	03/25/02
MA3-MW-33S-190302-12DUP	3792131	Grab water	03/19/02	03/24/02	03/25/02

2. Holding Times:

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

3. Method Blank:

The method blank SBLKWH0812 was associated with this SDG. SBLKWH0812 was analyzed on 03/25/02 and associated with (3792114 thru 3792131). The method blank SBLKWH0812 results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate:

The matrix spike/matrix spike duplicate was performed on 3792127. The MS/MSD recoveries were within the quality control limit. Also, the RPD% values were acceptable.

5. Laboratory control Sample:

The laboratory control sample recoveries were within the quality control limit.

6. Surrogate:

All the surrogate recoveries for the analysis of (3792114 thru 3792131) were within the control limits on UV-Vis detector for nitrobenzene, and triphenylene. However, the surrogate was out in nitrobenzene for 3792117 and diluted out in 3792117DUP, 3792117DL. Therefore, qualify the positive results in 3792117, 3792117DUP, and 3792117DL as estimated (J).

Also, the surrogate recoveries from the fluorescence detector were within the acceptance quality control limits for triphenylene, except diluted out in 3792116, and 3792131DUP for triphenylene.

The surrogate recoveries from the fluorescence detector were outside the acceptance quality control limits and diluted out in all the samples for nitrobenzene.

Therefore, the surrogate was reported from the UV-Vis detector, due to reduce sensitivity on the fluorescence detector.

7. Retention Time:

The retention time recoveries were acceptable, except in method file HP03456.i acenaphthylene was outside the required RT window.

8. Initial and Continuing Calibration:

All the initial calibrations results were within the quality control limits (RSD $>+/-30\%$), except in method file HP03456.i that were analyzed on 03/25/02 for acenaphthylene (0%).

All the continuing calibrations results were within the quality control limits (RSD $>+/-25\%$), except in method file HP03456.i/02084-10R, HP03456.i/02084-21R and HP03456.i/02084-32R.d that analyzed on 03/25/02 for acenaphthylene was (0%).

According to the initial and continuing calibration above qualify acenaphthylene in the samples as estimated (J/UJ).

BETX (U.S. EPA Method 8021B)

SDG # KMA07

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Analyzed</u>
MA3-MW-20S-200302-01	3792114	Grab water	03/20/02	03/22/02
MA3-MW-20I-200302-02	3792115	Grab water	03/20/02	03/22/02
MA3-MW-34S-200302-03	3792116	Grab water	03/20/02	03/22/02
MA3-MW-7S-200302-04	3792117	Grab water	03/20/02	03/22/02
MA3-MW-7S-200302-04DUP	3792118	Grab water	03/20/02	03/22/02
MA3-MW-7I-200302-05	3792119	Grab water	03/20/02	03/22/02
MA3-MW-35S-200302-06	3792120	Grab water	03/20/02	03/22/02
MA3-MW-29S-200302-07	3792121	Grab water	03/20/02	03/22/02
MA3-MW-29S-200302-07DUP	3792122	Grab water	03/20/02	03/22/02
MA3-MW-36S-200302-08	3792123	Grab water	03/20/02	03/22/02
MA3-MW-37S-200302-09	3792124	Grab water	03/20/02	03/22/02
FB-02	3792125	Grab water	03/20/02	03/22/02
MA3-MW-27S-190302-10	3792126	Grab water	03/19/02	03/22/02
MA3-MW-32S-190302-11	3792127	Grab water	03/19/02	03/22/02
MA3-MW-32S-190302-11MS	3792128	Grab water	03/19/02	03/23/02
MA3-MW-32S-190302-11MSD	3792129	Grab water	03/19/02	03/23/02
MA3-MW-33S-190302-12	3792130	Grab water	03/19/02	03/23/02
MA3-MW-33S-190302-12DUP	3792131	Grab water	03/19/02	03/22/02
TB-03	3792132	Grab water	03/19/02	03/22/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

The method blank BLK6594 was associated with this SDG. BLK6594 was analyzed on 03/22/02 associated with (3792114 thru 3792132). The method blank results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate :

The matrix spike was performed on sample 3792127. The matrix spike/matrix spike duplicate recoveries were within the quality control limits. Also. The RPD% values were acceptable.

5. Laboratory control Sample:

The laboratory control sample/laboratory control sample duplicate recoveries were within the quality control limits. Also, the relative percent difference (RPD%) values were acceptable.

6. Surrogate:

The method blank and investigated samples had recoveries within the acceptance quality control limits.

Analytical Data Validation Report
Kerr-McGee Corporation
Moss American Superfund Site- Milwaukee, WI
SDG #: KMA07

Monday, May 13, 2002

7. Initial and Continuing Calibration:

All the initial calibration and continuing calibration results were within the quality control limits.

Please feel free to contact me at (847) 549-1042 or (847) 971-6800 with any question regarding these validation reports.

Sincerely

Tania Balikji-Shammo



ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 801101. Samples arrived at the laboratory on Thursday, March 21, 2002.

Client Description

Lancaster Labs Number

MA3-MW-20S-200302-01 Grab Water Sample	3792114
MA3-MW-20I-200302-02 Grab Water Sample	3792115
MA3-MW-34S-200302-03 Grab Water Sample	3792116
MA3-MW-7S-200302-04 Grab Water Sample	3792117
MA3-MW-7S-200302-04-DUP Grab Water Sample	3792118
MA3-MW-7I-200302-05 Grab Water Sample	3792119
MA3-MW-35S-200302-06 Grab Water Sample	3792120
MA3-MW-29S-200302-07 Grab Water Sample	3792121
MA3-MW-29S-200302-07-DUP Grab Water Sample	3792122
MA3-MW-36S-200302-08 Grab Water Sample	3792123
MA3-MW-37S-200302-09 Grab Water Sample	3792124
FB-02 Grab Water Sample	3792125
MA3-MW-27S-190302-10 Grab Water Sample	3792126
MA3-MW-32S-190302-11 Unspiked Grab Water Sample	3792127
MA3-MW-32S-190302-11-MS Matrix Spike Grab Water	3792128
MA3-MW-32S-190302-11-MSD Matrix Spike Dup/Dup Wate	3792129
MA3-MW-33S-190302-12 Grab Water Sample	3792130
MA3-MW-33S-190302-12-DUP Grab Water Sample	3792131
TB-03 Water Sample	3792132

METHODOLOGY

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

1 COPY TO
1 COPY TO

Kerr-McGee Corporation
Roy F. Weston

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



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-556-2200 Fax: 717-556-2684

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1 COPY TO

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

Respectfully Submitted,

Steven A. Skiles
Steven A. Skiles
Sr. Chemist



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

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Lancaster Laboratories Sample No. WW 3792114

Collected: 03/20/2002 09:30 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-20S-200302-01 Grab Water Sample

Moss American Site - WI

3-20S SDG#: KMA07-01

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.	0.20	ug/l	1	
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1	
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1	
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1	
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1	
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1	
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1	
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1	
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1	
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1	
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1	
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1	
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1	
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1	
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1	
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1	
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1	
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1	
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1	
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1	

TBS 5/10/02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 14:15	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 12:41	Mark A Clark	1

0013



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 3792114

Collected: 03/20/2002 09:30 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-20S-200302-01 Grab Water Sample

Moss American Site - WI

3-20S SDG#: KMA07-01

01146 GC VOA Water Prep SW-846 5030B

1 03/22/2002 14:15 Steven J Stabinger n.a.

03337 PAH Water Extraction SW-846 3510C

1 03/24/2002 12:40 Felix C Arroyo 1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717.656.2200 FAX: 717.656.2884

4-1-03-02



Lancaster Laboratories Sample No. WW 3792115

Collected: 03/20/2002 09:40 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-20I-200302-02 Grab Water Sample

Moss American Site - WI

3-20I SDG#: KMA07-02

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	1.	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	1.	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.1	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.05	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.05	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.05	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.05	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.1	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.1	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

TAS
5/10/02

Laboratory Chronicle



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

0015



Lancaster Laboratories Sample No. WW 3792115

Collected: 03/20/2002 09:40 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-20I-200302-02 Grab Water Sample

Moss American Site - WI

3-20I SDG#: KMA07-02

CAT			Analysis			Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 14:49	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 13:20	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 14:49	Steven J Stabinger	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	03/24/2002 12:40	Felix C Arroyo	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

0016



Lancaster Laboratories Sample No. WW 3792116

Collected: 03/20/2002 11:40 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-34S-200302-03 Grab Water Sample

Moss American Site - WI

3-34S SDG#: KMA07-03

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	8.9 J	2.0	ug/l	10
00777	Toluene	108-88-3	2.1 J	2.0	ug/l	10
00778	Ethylbenzene	100-41-4	23.	2.0	ug/l	10
00779	Total Xylenes	1330-20-7	74.	6.0	ug/l	10
Due to dilution of the sample made necessary by the high level of non-target compounds, normal reporting limits were not attained.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	5,400.	20.	ug/l	20
00782	Acenaphthylene	208-96-8	N.D. <i>UJ</i>	0.8	ug/l	1
00783	Acenaphthene	83-32-9	180.	0.8	ug/l	1
00784	Fluorene	86-73-7	80.	4.	ug/l	20
00785	Phenanthrene	85-01-8	85.	2.	ug/l	20
00789	Anthracene	120-12-7	8.	0.8	ug/l	20
00807	Fluoranthene	206-44-0	9.	0.8	ug/l	20
00811	Pyrene	129-00-0	7.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.6	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.2 J	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	0.2	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	0.08 J	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	0.5	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.09 J	0.02	ug/l	1

TBS
5/11/02

Laboratory Chronicle



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster PA 17605-2425



Lancaster Laboratories Sample No. WW 3792116

Collected: 03/20/2002 11:40 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-34S-200302-03 Grab Water Sample

Moss American Site - WI

3-34S SDG#: KMA07-03

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 15:24	Steven J Stabinger	10
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 13:58	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/26/2002 00:23	Mark A Clark	20
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 15:24	Steven J Stabinger	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	03/24/2002 12:40	Felix C Arroyo	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

030100



Lancaster Laboratories Sample No. WW 3792117

Collected: 03/20/2002 11:50 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-7S-200302-04 Grab Water Sample

Moss American Site - WI

3-7S- SDG#: KMA07-04

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	3.6 J	2.0	ug/l	10
00777	Toluene	108-88-3	N.D.	2.0	ug/l	10
00778	Ethylbenzene	100-41-4	12.	2.0	ug/l	10
00779	Total Xylenes	1330-20-7	36.	6.0	ug/l	10
Due to dilution of the sample made necessary by the high level of non-target compounds, normal reporting limits were not attained.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	2,100 J	20.	ug/l	20
00782	Acenaphthylene	208-96-8	N.D. J	0.8	ug/l	1
00783	Acenaphthene	83-32-9	58. J	0.8	ug/l	1
00784	Fluorene	86-73-7	8. J	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

TBS
5/10/02
0000000000



Lancaster Laboratories Sample No. WW 3792117

Collected: 03/20/2002 11:50 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-7S-200302-04 Grab Water Sample

Moss American Site - WI

3-7S- SDG#: KMA07-04

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 15:58	Steven J Stabinger	10
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 15:16	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/26/2002 01:05	Mark A Clark	20
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 15:58	Steven J Stabinger	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	03/24/2002 12:40	Felix C Arroyo	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

5828



Lancaster Laboratories Sample No. WW 3792118

Collected: 03/20/2002 11:50 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-7S-200302-04-DUP Grab Water Sample

Moss American Site - WI

3-7SD SDG#: KMA07-05

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	3.3 J	2.0	ug/l	10
00777	Toluene	108-88-3	N.D.	2.0	ug/l	10
00778	Ethylbenzene	100-41-4	12.	2.0	ug/l	10
00779	Total Xylenes	1330-20-7	34.	6.0	ug/l	10
Due to dilution of the sample made necessary by the high level of non-target compounds, normal reporting limits were not attained.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	1,200. J	10.	ug/l	10
00782	Acenaphthylene	208-96-8	N.D. UJ	0.9	ug/l	1
00783	Acenaphthene	83-32-9	56. J	0.9	ug/l	1
00784	Fluorene	86-73-7	8. J	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.09	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.09	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.09	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

TBS
4-10-02
0
0
2
1



Lancaster Laboratories Sample No. WW 3792118

Collected: 03/20/2002 11:50 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-7S-200302-04-DUP Grab Water Sample

Moss American Site - WI

3-7SD SDG#: KMA07-05

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 16:33	Steven J Stabinger	10
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 15:54	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/26/2002 01:47	Mark A Clark	10
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 16:33	Steven J Stabinger	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	03/24/2002 12:40	Felix C Arroyo	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

030222



Lancaster Laboratories Sample No. WW 3792119

Collected: 03/20/2002 13:00 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-7I-200302-05 Grab Water Sample

Moss American Site - WI

3-7I- SDG#: KMA07-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
				Detection Limit		
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D. <i>UJ</i>	0.9	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.9	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.09	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.09	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.09	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

TBS
5-10-02

Laboratory Chronicle



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

000000



Lancaster Laboratories Sample No. WW 3792119

Collected: 03/20/2002 13:00 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-7I-200302-05 Grab Water Sample

Moss American Site - WI

3-7I- SDG#: KMA07-06

CAT	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 17:07	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 16:33	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 17:07	Steven J Stabinger	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	03/24/2002 12:40	Felix C Arroyo	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

000004



Lancaster Laboratories Sample No. WW 3792120

Collected: 03/20/2002 13:10 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-35S-200302-06 Grab Water Sample

Moss American Site - WI

3-35S SDG#: KMA07-07

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	0.1 J	0.08	ug/l	1
00789	Anthracene	120-12-7	0.2 J	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.6	0.04	ug/l	1
00811	Pyrene	129-00-0	0.4 J	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.03 J	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

TB's
5-10-02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 17:45	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 17:11	Mark A Clark	1

03/24/02



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425



Lancaster Laboratories Sample No. WW 3792120

Collected: 03/20/2002 13:10 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-35S-200302-06 Grab Water Sample

Moss American Site - WI

3-35S SDG#: KMA07-07

01146 GC VOA Water Prep

SW-846 5030B

1 03/22/2002 17:45

Steven J Stabinger

n.a.

03337 PAH Water Extraction

SW-846 3510C

1 03/24/2002 12:40

Felix C Arroyo

1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

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Lancaster Laboratories Sample No. WW 3792121

Collected: 03/20/2002 16:30 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-29S-200302-07 Grab Water Sample

Moss American Site - WI

3-29S SDG#: KMA07-08

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

TBS
5-10-02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 20:38	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/26/2002 02:26	Mark A Clark	1

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2
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Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425



Lancaster Laboratories Sample No. WW 3792121

Collected: 03/20/2002 16:30 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-29S-200302-07 Grab Water Sample

Moss American Site - WI

3-29S SDG#: KMA07-08

01146 GC VOA Water Prep

SW-846 5030B

1 03/22/2002 20:38

Steven J Stabinger

n.a.

03337 PAH Water Extraction

SW-846 3510C

1 03/24/2002 12:40

Felix C Arroyo

1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

0
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2
0



Lancaster Laboratories Sample No. WW 3792122

Collected: 03/20/2002 16:30 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-29S-200302-07-DUP Grab Water Sample
Moss American Site - WI

329SD SDG#: KMA07-09

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

TBS
5-16-02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 21:12	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/26/2002 03:04	Mark A Clark	1

002200



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425



Lancaster Laboratories Sample No. WW 3792122

Collected: 03/20/2002 16:30 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Reported: 04/02/2002 at 11:59

Discard: 05/03/2002

MA3-MW-29S-200302-07-DUP Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

329SD SDG#: KMA07-09

01146 GC VOA Water Prep

SW-846 5030B

1 03/22/2002 21:12

Steven J Stabinger

n.a.

03337 PAH Water Extraction

SW-846 3510C

1 03/24/2002 12:40

Felix C Arroyo

1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

03/22/02



Lancaster Laboratories Sample No. WW 3792123

Collected: 03/20/2002 16:40 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-36S-200302-08 Grab Water Sample

Moss American Site - WI

3-36S SDG#: KMA07-10

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

TBS
5-10-02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 21:47	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 19:07	Mark A Clark	1

0
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0
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Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425



Lancaster Laboratories Sample No. WW 3792123

Collected: 03/20/2002 16:40 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-36S-200302-08 Grab Water Sample

Moss American Site - WI

3-36S SDG#: KMA07-10

01146 GC VOA Water Prep

SW-846 5030B

1 03/22/2002 21:47

Steven J Stabinger

n.a.

03337 PAH Water Extraction

SW-846 3510C

1 03/24/2002 12:40

Felix C Arroyo

1



Lancaster Laboratories Sample No. WW 3792124

Collected: 03/20/2002 16:50 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-37S-200302-09 Grab Water Sample

Moss American Site - WI

3-37S SDG#: KMA07-11

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D. <i>UJ</i>	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

TBS
5-10-02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 22:22	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 19:46	Mark A Clark	1

CALCULATED



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster PA 17605-2425



Lancaster Laboratories Sample No. WW 3792124

Collected: 03/20/2002 16:50 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 11:59

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-37S-200302-09 Grab Water Sample

Moss American Site - WI

3-37S SDG#: KMA07-11

01146 GC VOA Water Prep

SW-846 5030B

1 03/22/2002 22:22

Steven J Stabinger

n.a.

03337 PAH Water Extraction

SW-846 3510C

1 03/24/2002 12:40

Felix C Arroyo

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Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster PA 17605-2425

40109



Lancaster Laboratories Sample No. WW 3792125

Collected: 03/20/2002 08:00 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

FB-02 Grab Water Sample

Moss American Site - WI

3FB02 SDG#: KMA07-12FB

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

TBS
5-10-02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 20:03	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 20:24	Mark A Clark	1

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Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425



Lancaster Laboratories Sample No. WW 3792125

Collected: 03/20/2002 08:00 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

FB-02 Grab Water Sample

Moss American Site - WI

3FB02 SDG#: KMA07-12FB

01146 GC VOA Water Prep

SW-846 5030B

1 03/22/2002 20:03

Steven J Stabinger

n.a.

03337 PAH Water Extraction

SW-846 3510C

1 03/24/2002 12:40

Felix C Arroyo

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Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

03/21/02



Lancaster Laboratories Sample No. WW 3792126

Collected: 03/19/2002 17:05 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-27S-190302-10 Grab Water Sample

Moss American Site - WI

3-27S SDG#: KMA07-13

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

TAS
5-10-02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 22:56	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 21:03	Mark A Clark	1

00337



Lancaster Laboratories Sample No. WW 3792126

Collected: 03/19/2002 17:05 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-27S-190302-10 Grab Water Sample

Moss American Site - WI

3-27S SDG#: KMA07-13

01146 GC VOA Water Prep

SW-846 5030B

1 03/22/2002 22:56

Steven J Stabinger

n.a.

03337 PAH Water Extraction

SW-846 3510C

1 03/24/2002 12:40

Felix C Arroyo

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Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

03/24/2002



Lancaster Laboratories Sample No. WW 3792127

Collected: 03/19/2002 17:15 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-32S-190302-11 Unspiked Grab Water Sample
Moss American Site - WI

3-32S SDG#: KMA07-14BKG

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.	0.20		ug/l	1
00777	Toluene	108-88-3	N.D.	0.20		ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20		ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60		ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	1.		ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8		ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8		ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2		ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08		ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04		ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04		ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2		ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02		ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04		ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02		ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04		ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08		ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1		ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08		ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02		ug/l	1

TAS
5-12-02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 23:31	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 09:29	Mark A Clark	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425



Lancaster Laboratories Sample No. WW 3792127

Collected: 03/19/2002 17:15 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-32S-190302-11 Unspiked Grab Water Sample
Moss American Site - WI

3-32S SDG#: KMA07-14BKG

01146 GC VOA Water Prep SW-846 5030B

1 03/22/2002 23:31 Steven J Stabinger n.a.

03337 PAH Water Extraction SW-846 3510C

1 03/24/2002 12:40 Felix C Arroyo 1





Lancaster Laboratories Sample No. WW 3792128

Collected: 03/19/2002 17:15 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-32S-190302-11-MS Matrix Spike Grab Water

Moss American Site - WI

3-32S SDG#: KMA07-14MS

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	21.	0.20		ug/l	1
00777	Toluene	108-88-3	21.	0.20		ug/l	1
00778	Ethylbenzene	100-41-4	21.	0.20		ug/l	1
00779	Total Xylenes	1330-20-7	65.	0.60		ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	150.	1.		ug/l	1
00782	Acenaphthylene	208-96-8	170.	0.8		ug/l	1
00783	Acenaphthene	83-32-9	170.	0.8		ug/l	1
00784	Fluorene	86-73-7	17.	0.2		ug/l	1
00785	Phenanthrene	85-01-8	6.	0.08		ug/l	1
00789	Anthracene	120-12-7	3.	0.04		ug/l	1
00807	Fluoranthene	206-44-0	3.	0.04		ug/l	1
00811	Pyrene	129-00-0	20.	0.2		ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.	0.02		ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.	0.04		ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.	0.02		ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.	0.04		ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	6.	0.08		ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	11.	0.1		ug/l	1
07409	Chrysene	218-01-9	6.	0.08		ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.	0.02		ug/l	1

TBS

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/23/2002 00:05	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 10:07	Mark A Clark	1

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Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717.655.2200 Fax: 717.655.2621



Lancaster Laboratories Sample No. WW 3792128

Collected: 03/19/2002 17:15 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-32S-190302-11-MS Matrix Spike Grab Water

Moss American Site - WI

3-32S SDG#: KMA07-14MS

01146 GC VOA Water Prep SW-846 5030B

1 03/23/2002 00:05 Steven J Stabinger n.a.

03337 PAH Water Extraction SW-846 3510C

1 03/24/2002 12:40 Felix C Arroyo 1





Lancaster Laboratories Sample No. WW 3792129

Collected: 03/19/2002 17:15 by BS Account Number: 07802

Submitted: 03/21/2002 09:20
 Reported: 04/02/2002 at 12:00
 Discard: 05/03/2002
 MA3-MW-32S-190302-11-MSD Matrix Spike Dup/Dup Wate
 Moss American Site - WI

Kerr-McGee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

3-32S SDG#: KMA07-14MSD

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	22.	0.20	ug/l	1
00777	Toluene	108-88-3	22.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	22.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	66.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	160.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	180.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	180.	0.8	ug/l	1
00784	Fluorene	86-73-7	18.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	6.	0.08	ug/l	1
00789	Anthracene	120-12-7	3.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	3.	0.04	ug/l	1
00811	Pyrene	129-00-0	21.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	2.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	2.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	6.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	12.	0.1	ug/l	1
07409	Chrysene	218-01-9	6.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.	0.02	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	03/23/2002 00:40	Steven J Stabinger	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 10:46	Mark A Clark	1



Lancaster Laboratories, Inc.
 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425

000431



Lancaster Laboratories Sample No. WW 3792129

Collected: 03/19/2002 17:15 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-32S-190302-11-MSD Matrix Spike Dup/Dup Water

Moss American Site - WI

3-32S SDG#: KMA07-14MSD

01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002 00:40	Steven J Stabinger	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	03/24/2002 12:40	Felix C Arroyo	1





Lancaster Laboratories Sample No. WW 3792130

Collected: 03/19/2002 17:25 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-33S-190302-12 Grab Water Sample

Moss American Site - WI

3-33S SDG#: KMA07-15

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.	1.0	ug/l	5
00777	Toluene	108-88-3	N.D.	1.0	ug/l	5
00778	Ethylbenzene	100-41-4	8.3	1.0	ug/l	5
00779	Total Xylenes	1330-20-7	22.	3.0	ug/l	5
Due to dilution of the sample made necessary by the high level of non-target compounds, normal reporting limits were not attained.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	2,000.	20.	ug/l	20
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	110.	0.8	ug/l	1
00784	Fluorene	86-73-7	33.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	2.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo (b) fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno (1, 2, 3-cd) pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo (g, h, i) perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo (k) fluoranthene	207-08-9	N.D.	0.02	ug/l	1

Laboratory Chronicle

JBS
5-10-02

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Lancaster Laboratories Sample No. WW 3792130

Collected: 03/19/2002 17:25 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-33S-190302-12 Grab Water Sample

Moss American Site - WI

3-33S SDG#: KMA07-15

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	03/23/2002 01:14	Steven J Stabinger	5
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 22:20	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/26/2002 03:47	Mark A Clark	20
01146	GC VOA Water Prep	SW-846 5030B	1	03/23/2002 01:14	Steven J Stabinger	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	03/24/2002 12:40	Felix C Arroyo	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

000000



Lancaster Laboratories Sample No. WW 3792131

Collected: 03/19/2002 17:25 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-33S-190302-12-DUP Grab Water Sample

Moss American Site - WI

333SD SDG#: KMA07-16

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.	1.0	ug/l	5
00777	Toluene	108-88-3	N.D.	1.0	ug/l	5
00778	Ethylbenzene	100-41-4	7.2	1.0	ug/l	5
00779	Total Xylenes	1330-20-7	19.	3.0	ug/l	5
Due to dilution of the sample made necessary by the high level of non-target compounds, normal reporting limits were not attained.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	2,200.	20.	ug/l	20
00782	Acenaphthylene	208-96-8	43. J	0.8	ug/l	1
00783	Acenaphthene	83-32-9	130.	0.8	ug/l	1
00784	Fluorene	86-73-7	37.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	2.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo (b) fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno (1, 2, 3-cd) pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo (g, h, i) perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo (k) fluoranthene	207-08-9	N.D.	0.02	ug/l	1

TBS
5-10-02

Laboratory Chronicle

0
0
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7



Lancaster Laboratories Sample No. WW 3792131

Collected: 03/19/2002 17:25 by BS

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

MA3-MW-33S-190302-12-DUP Grab Water Sample

Moss American Site - WI

333SD SDG#: KMA07-16

			Analysis			
CAT	Analysis Name	Method	Trial#	Date and Time	Analyst	Dilution Factor
No.						
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 18:19	Steven J Stabinger	5
00774	PAH's in Water by HPLC	SW-846 8310	1	03/25/2002 22:58	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	03/26/2002 04:29	Mark A Clark	20
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 18:19	Steven J Stabinger	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	03/24/2002 12:40	Felix C Arroyo	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717.656.2300 Fax: 717.656.2691

00-4-0013



Lancaster Laboratories Sample No. WW 3792132

Collected: 03/20/2002 18:00

Account Number: 07802

Submitted: 03/21/2002 09:20

Kerr-McGee Corporation

Reported: 04/02/2002 at 12:00

P.O. Box 25861

Discard: 05/03/2002

Oklahoma City OK 73125

TB-03 Water Sample

Moss American Site - WI

MTB03 SDG#: KMA07-17TB*

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.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis	Analyst	Dilution
				Date and Time		Factor
08213	BTEX (8021)	SW-846 8021B	1	03/22/2002 13:40	Steven J Stabinger	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/22/2002 13:40	Steven J Stabinger	n.a.



040303

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Winston/Kerr McGee</u> Acct. #: _____ Project Name/ #: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>B Schaefer, Y Hagiwara</u> Quoté #: _____ Name of state where samples were collected: <u>X WI</u>		Matrix ④ <input type="checkbox"/> Soil <input type="checkbox"/> Potable <input type="checkbox"/> Water <input type="checkbox"/> WPPES <input type="checkbox"/> Other		Total # of containers: _____		⑤ Analyses Requested BTEX				For lab use only FSC: _____ SCR #: _____		Temperature of samples upon receipt (if requested)
Sample Identification		Date Collected	Time Collected	Grab	Composite	Soil	Potable Water	WPPES	Other	Total # of containers	Remarks	
FB-01		3/19/02	0805	X			X			3	X	
MA3-MW-275-190302-10			1705	X			X			3	X	
MA3-MW-335-190302-12			1725	X			X			3	X	
MA3-MW-335-190302-12-DUP			1725	X			X			3	X	
MA3-MW-325-190302-11-MS			1715	X			X			3	X	
MA3-MW-325-190302-11-MSD			1715	X			X			3	X	
MA3-MW-325-190302-11			1715	X			X			3	X	

⑦ Turnaround Time Requested (TAT) (please circle): Normal Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone Fax Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: <u>Brian Schaefer</u> Date: <u>3/19/02</u> Time: <u>1930</u>		Received by: _____ Date: _____ Time: _____	
⑧ Data Package Options (please circle if requested)		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> SDG Complete? Yes <u>NO</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NI, Red, Del.) Type IV (CLP)		Site-specific QC required? Yes No (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes No		Relinquished by: _____ Date: _____ Time: _____	
		Relinquished by: _____ Date: _____ Time: _____		Received by: <u>Kathy Binkley</u> Date: <u>3-21-02</u> Time: <u>0800</u>	

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
Acct. # 7802 Sample # 3792114-32

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Weston/Ken McGee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>B Schaffer, Y Hagiwara</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix 4 <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Other	Total # of Containers	Analyses Requested 5 STXYS PAH	For lab use only FSC: _____ SCR #: _____					
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested)
MA3-MW-275-190302-10	3/19/02	1705	X							
MA3-MW-325-190302-11	3/19/02	1715	X			X		2		
MA3-MW-325-190302-11-MS		1715	X			X		2		
MA3-MW-325-190302-11-MSD		1715	X			X		2		
MA3-MW-335-190302-12-DVP		1725	X			X		2		
MA3-MW-335-190302-12		1725	X			X		2		

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="radio"/> Rush <input type="radio"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <u>847-918-4000</u> Fax <u>847-918-4055</u>	Relinquished by: <u>[Signature]</u> Date: <u>3/19/02</u> Time: <u>1930</u>	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____
8 Data Package Options (please circle if requested)	Relinquished by: _____ Date: _____ Time: _____			
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)	Site-specific QC required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
	Relinquished by: _____ Date: _____ Time: _____			
	Relinquished by: _____ Date: _____ Time: _____			
	Relinquished by: _____ Date: _____ Time: _____			



For Lancaster Laboratories use only

Acct. # 7802 Sample # 3792114-32

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: Weston/Kerr McGee Acct. #: _____
 Project Name#: Moss American PWSID #: _____
 Project Manager: Tom Groan P.O.# _____
 Sampler: B. Schaefer, B. Crawford, Y. Hg. Wang Quote #: _____
 Name of state where samples were collected: WI

Matrix: 4
 Soil Potable/Gravelly Water NPDES applicable Other

5 Analyses Requested
 BTEX PAH

For lab use only
 FSC: _____
 SCR#: _____

3 Composite

2 Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Potable/Gravelly Water	NPDES applicable	Other	Total # of Containers	BTEX	PAH	Remarks	Temperature of samples upon receipt (if requested)
FB-02	3/26/02	0800	X		X				3	X			
MA3-MW-20S-200302-01		0930	X		X				5	X	X		
MA3-MW-20I-200302-02		0940	X		X				5	X	X		
MA3-MW-34S-200302-03		1140	X		X				3	X			
MA3-MW-7S-200302-04		1150	X		X				3	X			
MA3-MW-7S-200302-04-DUP		1150	X		X				3	X			
MA3-MW-7I-200302-05		1300	X		X				3	X			
MA3-MW-35S-200302-06		1310	X		X				3	X			
MA3-MW-29S-200302-07		1630	X		X				3	X			
MA3-MW-29S-200302-07-DUP		1630	X		X				3	X			

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: STD TAT
 Rush results requested by (please circle): Phone Fax
 Phone #: 847-918-4000 Fax #: 847-918-4055

8 Data Package Options (please circle if requested) SDG Complete? Yes No

QC Summary Type VI (Raw Data) PER QUOTE
 Type I (Tier I) GLP
 Type II (Tier II) Other
 Type III (NJ Red. Del.)
 Type IV (CLP)

Site-specific QC required? Yes No
 (If yes, indicate QC sample and submit triplicate volume.)
 Internal Chain of Custody required? Yes No

Relinquished by: B. Crawford Date: 3/26/02 Time: 1900
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Kathy Benney 3-21-02 0920

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3792114-322

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: Weston/Kerr McGee Acct. #: _____
 Project Name/#: Mass American PWSID #: _____
 Project Manager: Tom Green P.O.# _____
 Sampler: B. Schofer, B. Crawford, Y. Hagiwara Quote #: _____
 Name of state where samples were collected: WI

Matrix 4	5	Analyses Requested	For lab use only
Soil	Water	Other	FSC: _____ SCR #: _____
Composite	Potable	Total of Containers	Temperature of samples upon receipt (if requested)

2 Sample Identification	Date Collected	Time Collected	3 Grab	Composite	Soil	Water	Other	Total of Containers	5 BTEX PAH	Analyses Requested	Remarks
MA3-MW-365-200302-08	3/20/02	1640	X			X		3	X		
MA3-MW-375-200302-09	↓	1650	X			X		3	X		
TB-03	↓	1800	X			X		2	X		

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="radio"/> Rush <input type="radio"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="radio"/> Fax <input type="radio"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>	Relinquished by: <u>[Signature]</u> Date: <u>3/20/02</u> Time: <u>1900</u>	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____
8 Data Package Options (please circle if requested)	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> SDG Complete? Yes <input type="radio"/> No <input checked="" type="radio"/> Type I (Tier I) GLP Type II (Tier II) Other Site-specific QC required? Yes <input type="radio"/> No <input type="radio"/> (If yes, indicate QC sample and submit triplicate volume.) Type III (NJ Red. Del.) Type IV (CLP) Internal Chain of Custody required? Yes <input type="radio"/> No <input type="radio"/>	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____	Received by: <u>Kathy Binkley</u> Date: <u>3/21/02</u> Time: <u>0900</u>



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3792114-32

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>Weston/Kerr McGee</u> Project Name/#: <u>Moss American</u> Project Manager: <u>Tom Green</u> Sampler: <u>B. Schaefer, B. Crawford, V. Higgins</u> Name of state where samples were collected: <u>WI</u>	Acct. #: _____ PWSID #: _____ P.O.# _____ State #: _____	Matrix 4 Soil Water Other	Total # of Containers	Analyses Requested 5 PAH	For lab use only FSC: _____ SCR#: _____ Temperature of samples upon receipt (if requested)
--	---	---	-----------------------	------------------------------------	---

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks
MA3-MW-295-200302-07	3/20/02	1630	X		X			2	X
MA3-MW-295-200302-07-DUP		1630	X		X			2	X
MA3-MW-365-200302-08		1640	X		X			2	X
MA3-MW-375-200302-09		1650	X		X			2	X
MA3 FB-02		0800	X		X			2	X

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="radio"/> Rush <input type="radio"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="radio"/> Fax <input type="radio"/> Phone # <u>847-918-4000</u> Fax # <u>847-918-4055</u>	Relinquished by: <u>Bruce Hefel</u> Date: <u>3/20/02</u> Time: <u>1900</u>	Received by: Date: _____ Time: _____	Relinquished by: Date: _____ Time: _____	Received by: Date: _____ Time: _____
8 Data Package Options (please circle if requested)	Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____			
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> SDG Complete? Yes <input type="radio"/> No <input checked="" type="radio"/> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Reg. Del.) Type I	Site-specific QC required? Yes <input type="radio"/> No <input type="radio"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="radio"/> No <input type="radio"/>			
	Relinquished by: _____ Date: _____ Time: _____ Received by: <u>Kathy Binney</u> Date: <u>3-21-02</u> Time: <u>0900</u>			

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3792114-32

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: Weston/Kerr McGee Acct. #: _____
 Project Name/#: Mass American PWSID #: _____
 Project Manager: Tom Graan P.O.# _____
 Sampler: B. Schaefer, B. Crawford, Y. Higinbotham # _____
 Name of state where samples were collected: WI

For lab use only
 FSC: _____
 SCR #: _____

Sample Identification	Date Collected	Time Collected	Grab Composite	Matrix				Total # of Containers	Analyses Requested	Remarks	Temperature of samples upon receipt (if requested)
				Soil	Water	Other	Total # of Containers				
MA3-MW-345-200302-03	3/20/02	1140	X	X			X	PAH			
MA3-MW-75-200302-04		1150	X	X			X				
MA3-MW-75-200302-04-DUP		1150	X	X			X				
MA3-MW-7I-200302-05		1300	X	X			X				
MA3-MW-355-200302-06		310	X	X			X				

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: STD TAT
 Rush results requested by (please circle): Phone Fax
 Phone #: 847-918-4000 Fax #: 847-918-4055

8 Data Package Options (please circle if requested)

QC Summary	Type VI (Raw Data) <input checked="" type="radio"/> PER QUOTE	SDG Complete? Yes <input type="radio"/> No <input checked="" type="radio"/>
Type I (Tier I)	GLP	Site-specific QC required? Yes <input type="radio"/> No <input type="radio"/> (If yes, indicate QC sample and submit triplicate volume.)
Type II (Tier II)	Other	
Type III (NJ, Red. Del.)		Internal Chain of Custody required? Yes <input type="radio"/> No <input type="radio"/>
Type IV (CLP)		

Relinquished by: Bang L. C. J. J. Date: 3/20/02 Time: 1900
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: Kathy Binkley Date: 3-21-02 Time: 0900

CASE NARRATIVE

Client: Kerr-McGee Corporation
SDG #: KMA07

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>
3792114	3-20S	X	
3792115	3-20I	X	
3792116	3-34S	X	
3792116DL	3-34SDL	X	20X Dilution
3792117	3-7S-	X	
3792117DL	3-7S-DL	X	20X Dilution
3792118	3-7SD	X	
3792118	3-7SDDL	X	10X Dilution
3792119	3-7I-	X	
3792120	3-35S	X	
3792121	3-29S	X	
3792122	329SD	X	
3792123	3-36S	X	
3792124	3-37S	X	
3792125	3FB02	X	Client Blank
3792126	3-27S	X	
3792127	3-32S	X	Unspiked
3792128	3-32SMS	X	Matrix Spike
3792129	3-32SMSD	X	Matrix Spike Dup
3792130	3-33S	X	
3792130	3-33SDL	X	20X Dilution
3792131	333SD	X	
3792131DL	333SDDL	X	20X Dilution

LABORATORY SUBMITTED QC:

SBLKWH081	SBLKWH0812	X	Method Blank
081WHLCS	081WHLCS2	X	Lab Control Sample

Case Narrative
SDG#: KMA07 continued

SAMPLE PREPARATION:

Due to insufficient sample, reduced volumes were used in the extraction of the following samples.

<u>Sample Code</u>	<u>Volume</u>
3-20S	936 mls
3-20I	823 mls
3-7S-	981 mls
3-7SD	921 mls
3-7I-	920 mls
3-35S	934 mls
3-36S	959 mls
3FB02	991 mls

No other 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 following samples were analyzed at further dilutions due to target recoveries above calibration range.

<u>Sample Code</u>	<u>Dilution</u>	<u>Compounds</u>
3-34S	20X	various
3-7S-	20X	naphthalene
3-7SD	10X	naphthalene
3-33S	20X	naphthalene
333SD	20X	naphthalene

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

Case Narrative
SDG#: KMA07 continued

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The surrogate recovery of nitrobenzene is outside QC limits in 3-7S- due to unresolvable matrix problems evident in the sample chromatogram.

All other QC was within specifications.

DATA INTERPRETATION:

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

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Christine M. Ratcheb for CJN Date: 4-9-02
Charles J. Neslund
Group Leader, GC/MS Semivolatiles

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

SAMPLE ANALYSES

LL Sample #	Sample Designation	Matrix Soil Water	Comments
3792114	3-20S	X	
3792115	3-20I	X	
3792116	3-34S	X	DF 10
3792117	3-7S-	X	DF 10
3792118	3-7SD	X	DF 10
3792119	3-7I-	X	
3792120	3-35S	X	
3792121	3-29S	X	
3792122	329SD	X	
3792123	3-36S	X	
3792124	3-37S	X	
3792125	3FB02	X	
3792126	3-27S	X	
3792127	3-32S	X	Unspiked
3792128MS	3-32S	X	Matrix Spike
3792129MSD	3-32S	X	Matrix Spike Dup
3792130	3-33S	X	DF 5
3792131	333SD	X	DF 5
3792132	MTB03	X	

QUALITY CONTROL ANALYSES

BLK6594	X	Method Blank
LCS6594	X	Lab Control Sample
LDS6594	X	Lab Control Dup

SAMPLE PREPARATION

Dilutions were necessary for some samples as noted in the comments section above.

ANALYSIS

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."

The method used for analysis was EPA Method SW-846 8021B. A J&W DB-VRX, 75m x 0.45mm, 2.55um column was used for the analysis of all samples. The surrogate concentration was 30.0 UG/L.

The instrument ID displayed on the analytical data is 5890-64--, while that displayed on the forms is 5890-65--. Although different, these IDs represent the same instrument.

Case Narrative
SDG# KMA07

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

The calibration verification standard (injection #02 analyzed on 03/22/02 at 09:38) met the requirements of SW-846 Method 8000B (section 7.7) since the average of all percent drift values was < 15%. (The average % drift was calculated using all of the compounds in the standard, though the CCV summary form in this data package only reflects the client requested compounds.) As stated in method 8000B (section 7.5.1.2.3) the data user should be made aware that the drift for total xylenes fell outside of the +/- 15% criteria.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY

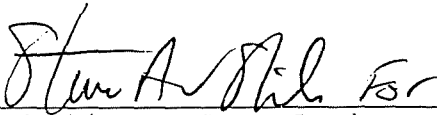
Client submitted batch QC was referenced.

All QC was within specifications.

DATA INTERPRETATION

No explanation is necessary for the data submitted.

Narrative reviewed and approved by:



Steve J. Stabinger, Group Leader

4/11/02

Date