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29 March 2002

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



Work Order No. 02687.007.003
KMC Work Order No. 40-50-01-AKW-B

Re: Quarterly Groundwater Treatment Performance Monitoring Report, Q4 2001
Moss-American Site, Milwaukee, Wisconsin

Dear Mr. Hart:

On behalf of Kerr-McGee Chemical, LLC (KMC), Roy F. Weston, Inc. (WESTON®), is submitting this report summarizing the results of the fourth quarter (Q4) 2001 groundwater monitoring event for the above-referenced project. In addition, results are presented for the monthly groundwater sampling conducted in October, November, and December 2001 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 Q4 2001 (October through December) 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 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). The locations of all existing shallow groundwater monitoring wells included in the sampling program are indicated on Figure 1A. Some wells that were previously a





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part of the groundwater monitoring network have been removed to facilitate soil remediation activities. TW-09, MW-8S, and MW-8I were removed during excavation activities and installation of the funnel and gate groundwater treatment system in 1999. Wells MW-4S and MW-4I were removed during early Q3 2001 and well TW-05 was removed during early Q4 2001. The shallow groundwater monitoring wells are sampled on a quarterly basis. 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 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), ammonia-nitrogen (NH₃-N), total phosphate-phosphorous (PO₄-P), and orthophosphate (ORP) on a monthly basis. Additionally, laboratory analyses include biochemical oxygen demand (BOD).



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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 Q4 2001 groundwater monitoring event at the Moss-American site was completed between 10 and 13 December 2001. The Q4 2001 groundwater remedial system treatment performance monitoring sampling includes data obtained during 1 to 2 November 2001, 26 to 27 November 2001, and 10 to 13 December 2001. 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 shallow groundwater monitoring, containment performance monitoring, and treatment performance monitoring wells on 10 December 2001, prior to the beginning of groundwater sampling. 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 October and November 2001 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 December 2001 data. An evaluation of these results is presented below.

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 0.0218 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 0.0070 ft/ft. The estimated hydraulic gradients within the treatment gates ranged



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from -0.0032 to 0.0206 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 0.0011 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 TG1 and TG4 are westward, contrary to the overall groundwater flow direction at the site. The apparently reversed hydraulic gradients at TG1 and TG4 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 0.0218 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 0.0022 ft/day. Near the river, using a hydraulic gradient of 0.0011 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 0.0103 ft/day. The groundwater flow velocities within the treatment gates are estimated to range from 0.0038 ft/day to 0.1946 ft/day (excluding the erratic data for TG1 and TG4). The groundwater flow velocity through each treatment gate is presented in Table 2.

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



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wells (MW-30S, MW-31S, MW-32S, MW-33S, MW-34S, MW-35S, MW-36S and MW-37S); and 18 treatment performance monitoring wells (TG1-1, TG1-2, TG1-3, TG2-1, TG2-2, TG2-3, TG3-1, TG3-2, TG3-3, TG4-1, TG4-2, TG4-3, TG5-1, TG5-2, TG5-3, TG6-1, TG6-2, and TG6-3).

In addition to the investigative groundwater samples collected, four sample duplicate, two matrix spike/matrix spike duplicate (MS/MSD), and four field blank (identified by 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. The results of the December 2001 measurements are provided in Table 3. 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 Q4 2001 ranged from 6.77 to 7.68 pH standard units (S.U.). The pH measurements indicate relatively neutral (7.0 S.U.) conditions. pH is an important factor in determining the feasibility of bioremediation of contaminants in the site groundwater 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 Q4 2001 ranged from -116.0 to -17.2 millivolts (mV), which indicates that reducing conditions are present on a site-wide basis. Redox potential indicates the capability of the groundwater to promote chemical



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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^{2+} , 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

DO levels for the groundwater samples collected during Q4 2001 ranged from 0.02 to 5.24 milligrams per liter (mg/L); however, very few readings indicating DO levels greater than 1.0 mg/L were observed. This dissolved oxygen range indicates 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). Although DO was measured at comparatively high levels in well TG3-1 during the Q4 2001 sampling events (4.48, 5.24, and 5.14 mg/L, respectively), the redox potentials measured in the well were negative (-70.0, -63.2, and -70.9, respectively), indicating that a reducing environment existed despite the relatively high DO levels. 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 Q4 2001 ranged from 0.617 to 1.973 micromhos per centimeter ($\mu\Omega/\text{cm}$). Conductivity of water is a measure of the ability of the solution to carry an electrical current that is transported by ions in the solution; therefore, conductivity is used as an indicator of the total dissolved solids (TDS) present in a water sample. As the dissolved solids content of a solution increases, the capacity for the water to transmit electrical current increases. Although conductivity is a measure of the aggregate dissolved solids in the water, it may be correlated to the readily available nutrient levels in the water, since TDS include nitrate, nitrite, ammonium, and phosphate ions.



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2.2.1.5 Temperature

Groundwater temperatures ranged from 7.83 to 14.73 °C during Q4 2001. A significant downward trend in groundwater temperature was observed during Q4 2001. During October 2001, temperatures measured in the treatment gate wells ranged from 12.80 to 14.73 °C; however, during December 2001, the measured temperatures in these wells ranged from 8.68 to 11.09 °C. This change represents an overall reduction in temperature of approximately 4 °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 0.96 to 796 nephelometric turbidity units (NTU) during Q4 2001; however, turbidity was only measured at levels >20 NTU in three wells during Q4 2001. 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 October, November, and December 2001 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 December 2001 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.

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:



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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.
- Naphthalene was detected at concentrations exceeding the WDNR PAL of 8 µg/L in the groundwater samples collected from wells MW-3S, MW-7S, MW-33S, MW-34S, TG1-1, and TG1-2. Naphthalene was also detected at a concentration exceeding its PAL in the duplicate sample collected from well MW-33S.
- Chrysene was detected at concentrations exceeding the WDNR PAL of 0.02 µg/L in the groundwater samples collected from wells MW-3S, 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 and TG1-1.
- 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, MW-35S, and TG1-1.
- Fluorene was detected at a concentration exceeding the WDNR PAL of 80 µg/L in the groundwater sample collected from well MW-34S.
- Fluoranthene was detected at a concentration exceeding the WDNR PAL of 80 µg/L in the groundwater sample collected from well MW-34S.
- Pyrene was detected at a concentration exceeding the WDNR PAL of 50 µg/L in the groundwater sample collected from well MW-34S.

ES Exceedances:

- Benzene was detected at a concentration exceeding the WDNR ES of 5 µg/L in the groundwater sample collected from well MW-7S, MW-34S, and TG1-1.
- Naphthalene was detected at concentrations exceeding the WDNR ES of 40 µg/L in the groundwater samples collected from wells MW-3S, MW-7S, MW-33S, MW-34S, TG1-1, and TG1-2. Naphthalene was also detected at a concentration exceeding its ES in the duplicate sample collected from well MW-33S.



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- Chrysene was detected at concentrations exceeding the WDNR ES of 0.2 µg/L in the groundwater samples collected from wells MW-3S and MW-34S.
- Benzo(b)fluoranthene was detected at concentrations exceeding the WDNR ES of 0.2 µg/L in the groundwater samples collected from well MW-34S.
- Benzo(a)pyrene was detected at concentrations exceeding the WDNR ES of 0.2 µg/L in the groundwater samples collected from well MW-34S.
- Pyrene was detected at a concentration exceeding the WDNR ES of 250 µg/L in the groundwater sample collected from well MW-34S.

The detected plume boundary is primarily in an area encompassing six shallow monitoring wells (MW-7S, MW-33S, MW-34S, MW-35S, TG1-1, and TG1-2); however, an outlying well (MW-3S) had an exceedance to the WDNR ES for naphthalene and also contained benzo(a)pyrene and chrysene at levels exceeding their respective WDNR PALs. Since contaminants have historically not been measured at elevated levels in well MW-3S, the elevated PAH levels detected in the sample collected from well MW-3S are likely attributed to the significant disruption to the site hydrogeology that is expected to have occurred during excavation activities at the site during Q3 and Q4 2001. The majority of PAL and ES exceedances are associated with wells MW-34S and TG1-1, which contained 10 inches and trace levels of free product respectively. 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, as well as during the previous 15 quarterly groundwater-sampling events.

Overall, the lateral extent of the Q4 2001 groundwater contaminant plume is smaller than past two quarters of groundwater sampling. Figure 1B indicates the extent of the groundwater contaminant plume from Q3 2001. The reduction in plume size 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.

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



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relatively decreasing trend for naphthalene, fluorene, and benzo(a)pyrene; however, MW-7S has shown a fluctuating trend for benzene, and had been decreasing overall until the rebound observed during Q4 2001. 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 an increasing trend in concentrations for naphthalene, fluorene, and benzo(a)pyrene and a fluctuating trend for benzene. Well MW-34S contained approximately 10 inches of free product during Q4 2001, which correlates with the elevated levels of naphthalene, 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, $\text{NO}_3\text{-N}$, $\text{NO}_2\text{-N}$, TKN, $\text{NH}_3\text{-N}$, $\text{PO}_4\text{-P}$, 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, $\text{NO}_3\text{-N}$, $\text{NO}_2\text{-N}$, TKN, $\text{NH}_3\text{-N}$, $\text{PO}_4\text{-P}$, 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

$\text{NO}_3\text{-N}$ was detected at concentrations ranging from below method detection limits (nondetect) to 0.16 mg/L. $\text{NO}_2\text{-N}$ was detected at levels ranging from nondetect to 0.031 mg/L. TKN was detected at concentrations ranging from nondetect to 2.2 mg/L. $\text{NH}_3\text{-N}$ was detected at levels ranging from nondetect to 1.7 mg/L. Temporal changes of $\text{NO}_3\text{-N}$, $\text{NO}_2\text{-N}$, and $\text{NH}_3\text{-N}$ 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, $\text{NH}_3\text{-N}$ is typically an order of magnitude greater than $\text{NO}_3\text{-N}$ and $\text{NO}_2\text{-N}$ concentrations. $\text{NH}_3\text{-N}$ is slightly higher in the TG3 wells. $\text{NO}_3\text{-N}$ levels in the TG3 wells are approximately four times higher than other treatment gate wells, and $\text{NO}_2\text{-N}$ is detected more frequently than in other gates, potentially due to the presence of relatively high DO levels in the upgradient well in the gate (TG3-1) allowing for some oxidation of nitrogen.

$\text{PO}_4\text{-P}$ was detected at concentrations ranging from nondetect to 0.49 mg/L. ORP was detected at concentrations ranging from nondetect to 0.057 mg/L. The temporal changes of $\text{PO}_4\text{-P}$ and ORP concentrations in the treatment performance monitoring wells with respect to treatment gate are presented in Figures 6 and 7, respectively.



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BOD, COD, TOC

BOD concentrations for the samples collected throughout the treatment system range from non-detect to 12.0 mg/L. COD concentrations for the samples collected throughout the treatment system range from 5.3 to 44.2 mg/L. TOC concentrations for the samples collected throughout the treatment system range from 2.2 to 14.2 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 as 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 2.7×10^2 to 1.4×10^5 colony forming units per milliliter (CFU/mL) during fourth quarter 2001. The monthly mean of the total microbe populations for TG3 and TG4 ranged from <10 to 3.6×10^4 CFU/mL during fourth quarter 2001. The monthly mean of the total microbe populations for TG5 and TG6 ranged from 3.3×10^2 to 7.6×10^3 CFU/mL during fourth quarter 2001. 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 3.0×10^1 to 7.9×10^3 CFU/mL during fourth quarter 2001. The monthly mean of the microbe populations for TG3 and TG4 ranged from <10 to 1.1×10^4 CFU/mL during fourth quarter 2001. The monthly mean of the microbe populations for TG5 and TG6 ranged from 1.4×10^2 to 4.7×10^3 CFU/mL during fourth quarter 2001. The temporal changes in degrader microbial populations are presented in Figure 9.

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 (KH_2PO_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.



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3.1 DISSOLVED OXYGEN

Dissolved oxygen concentrations remained very low in TG1 during Q4 2001, similar to all other gates. The only exception to this trend is well TG3-1, where relatively high concentrations of DO (approximately 5.0 mg/L) were measured present during Q4 2001. The increase in DO at well TG3-1 occurred between late September and late October 2001, and the cause for the increase is uncertain. Although the DO concentrations in this well indicate that oxidizing conditions should exist, the redox potential measured in TG3-1 ranged from -63.2 to -70.9 mV, indicating a reducing environment. Furthermore, the 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 well. Although the $\text{NO}_3\text{-N}:\text{NH}_3\text{-N}$ ratio indicates a reducing environment, the $\text{NO}_3\text{-N}$ levels measured in TG3-1 are approximately 4 times greater than levels detected in other wells during Q4 2001, indicating that some oxidation is 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 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 (6.77 to 7.48 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 100:9.6:0.3, which is somewhat close to the desired ratio. Phosphorus appears to be the limiting nutrient at the site, except for wells TG1-1 and TG6-3, where nitrogen is the limiting nutrient.

$\text{NO}_3\text{-N}$ was not detected at significant in any of the TG1 wells during Q4 2001. A steady increase in $\text{PO}_4\text{-P}$ was observed in TG1 during Q4 2001, with downgradient wells TG1-2 and TG1-3 having higher concentrations than upgradient well TG1-1; however, similar trends in $\text{PO}_4\text{-P}$ concentrations were observed in TG2 and TG3. Orthophosphate in TG1 was low during Q4 2001. TG1 wells were mostly nondetect, with only two exceptions: a concentration of 0.041 mg/L in well TG1-1 during November 2001 and a concentration of 0.044 mg/L in well TG1-3 during November 2001.



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The groundwater monitoring data presented for the second quarter of 2001 indicate that continued site augmentation might be required for bioremediation, since the C:N:P ratios in the treatment gate wells indicate a potential nutrient deficiencies in the groundwater, and the DO concentrations in the wells indicate an anaerobic environment. Furthermore, the negative redox potentials observed indicate that many alternate electron receptors may already exist in their reduced state.

Nutrient addition will continue at TG1. Upon evaluation of the performance of TG1 compared to the other gates, based on Q3 and Q4 2001 data, a recommendation regarding the benefits of nutrient addition will be drafted and included in the Q1 2002 report.

3.3 EFFECTS ON BACTERIAL POPULATIONS

There was a slight decrease in the total bacteria counts in TG1 during Q4 2001; however, the bacteria levels in TG1 were slightly higher than those observed in the other treatment gates. Figure 10 compares the degrader populations in TG1 and TG2 since Q3 2000. 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 approximately 4 °C drop in temperature observed during Q4 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 hydrogeology based on the Q4 2001 monitoring results. KMC/WESTON will continue to monitor and evaluate the site hydrogeology.



Mr. Russell D. Hart
U.S. EPA

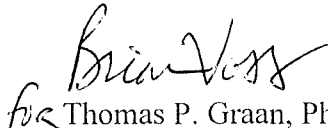
-14-

29 March 2002

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,

ROY F. WESTON, INC.


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

TPG/kms

Attachments

cc: G. Edelstein, WDNR
B. Felix, WDNR

FIGURES

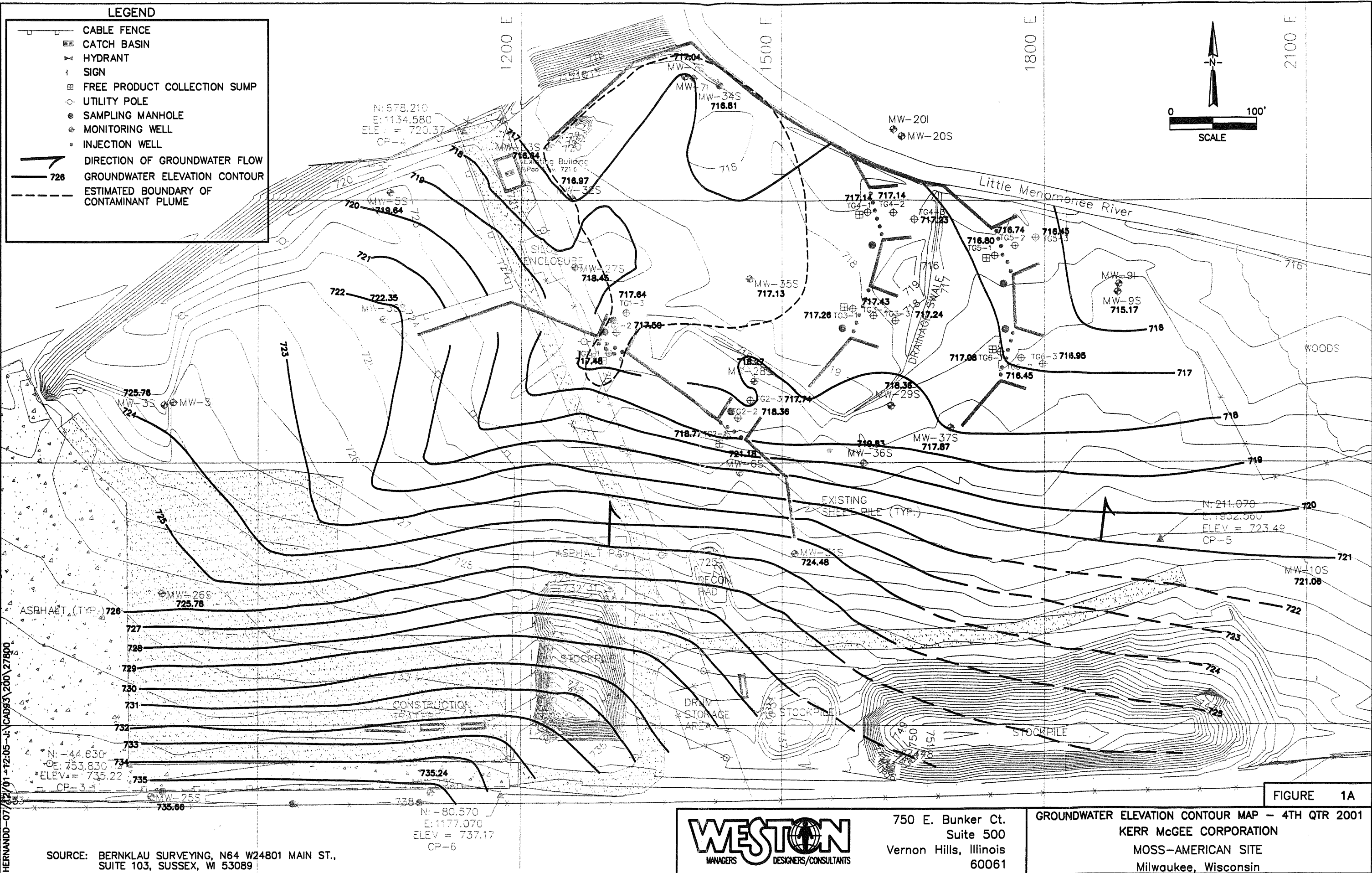


FIGURE 1A

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



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

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

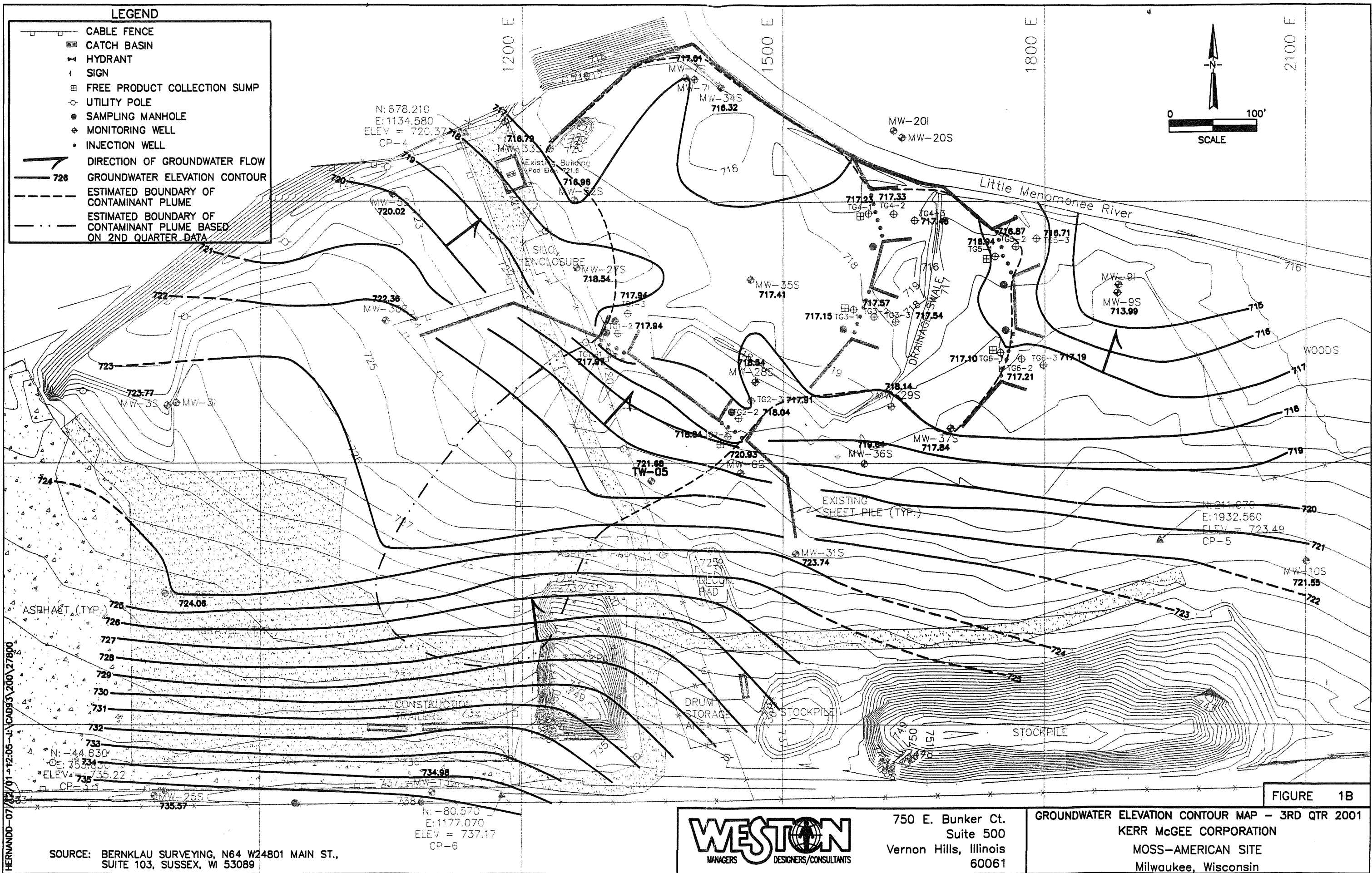


FIGURE 1B



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

GROUNDWATER ELEVATION CONTOUR MAP - 3RD QTR 2001
KERR McGEE CORPORATION
MOSS-AMERICAN SITE
Milwaukee, Wisconsin

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

Figure 2

Treatment Performance Monitoring Wells
 Fourth Quarter 2001
 Moss-American Site
 Milwaukee, Wisconsin

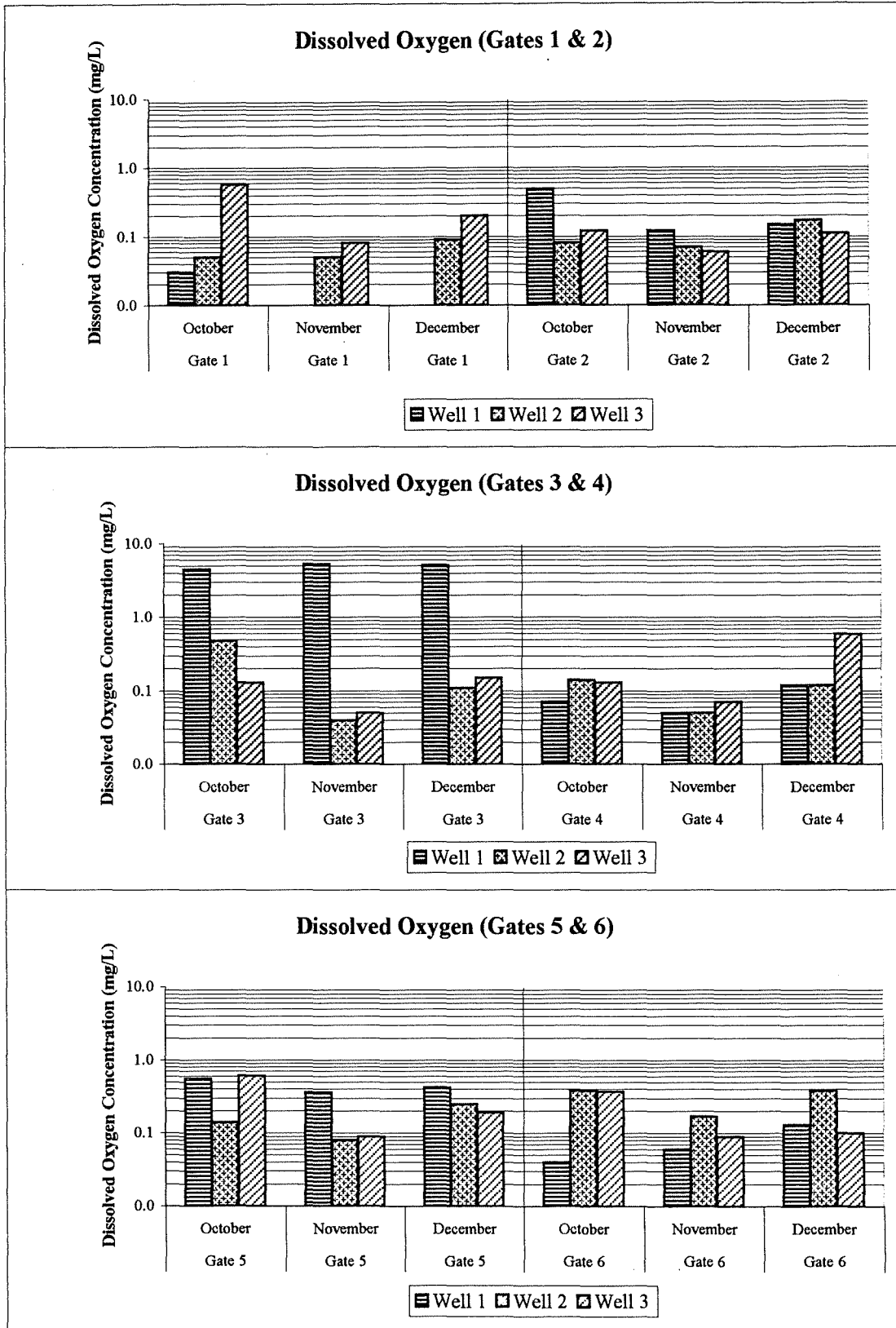


Figure 3
Treatment Performance Monitoring Wells
Fourth Quarter 2001
Moss-American Site
Milwaukee, Wisconsin

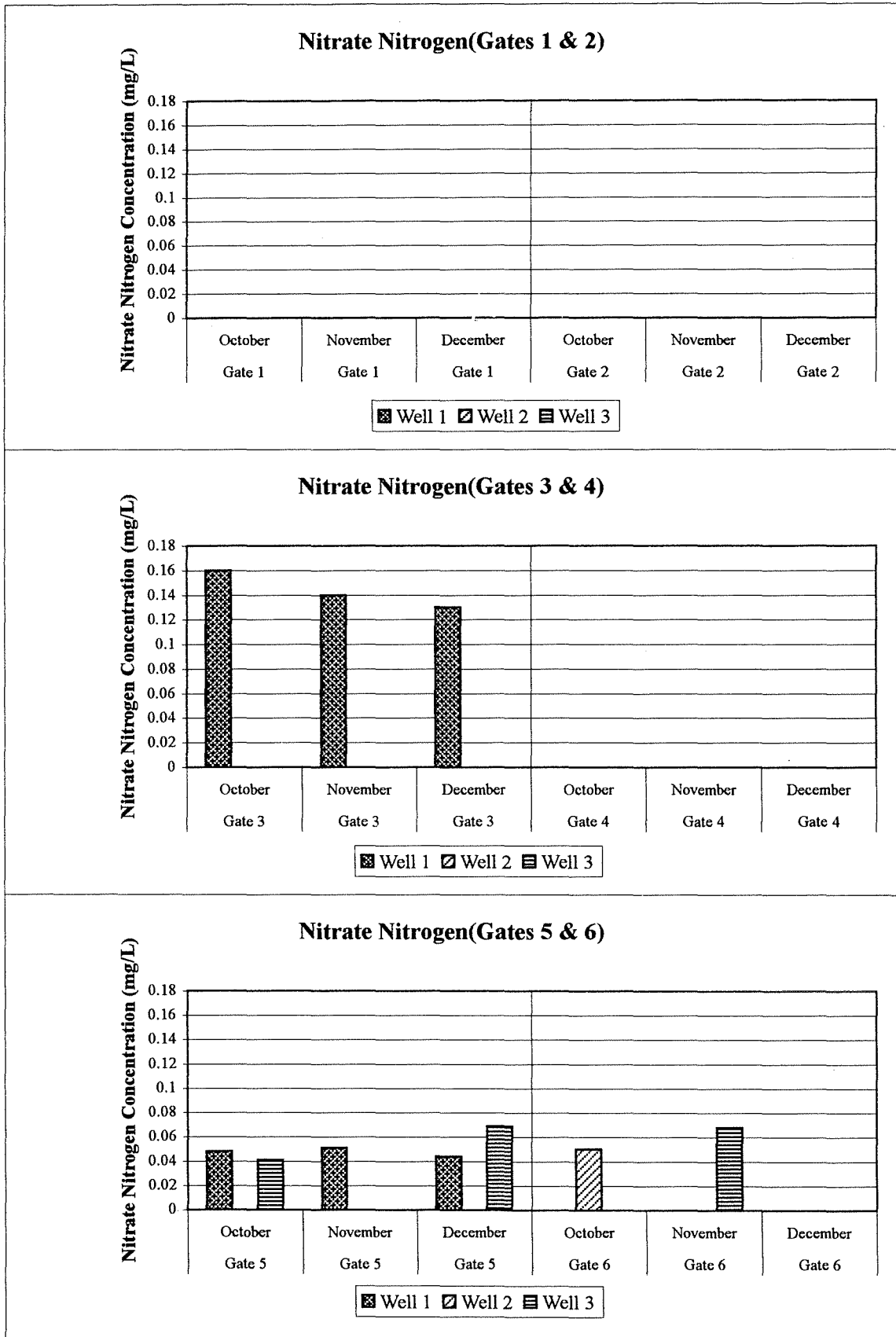


Figure 4
Treatment Performance Monitoring Wells
Fourth Quarter 2001
Moss-American Site
Milwaukee, Wisconsin

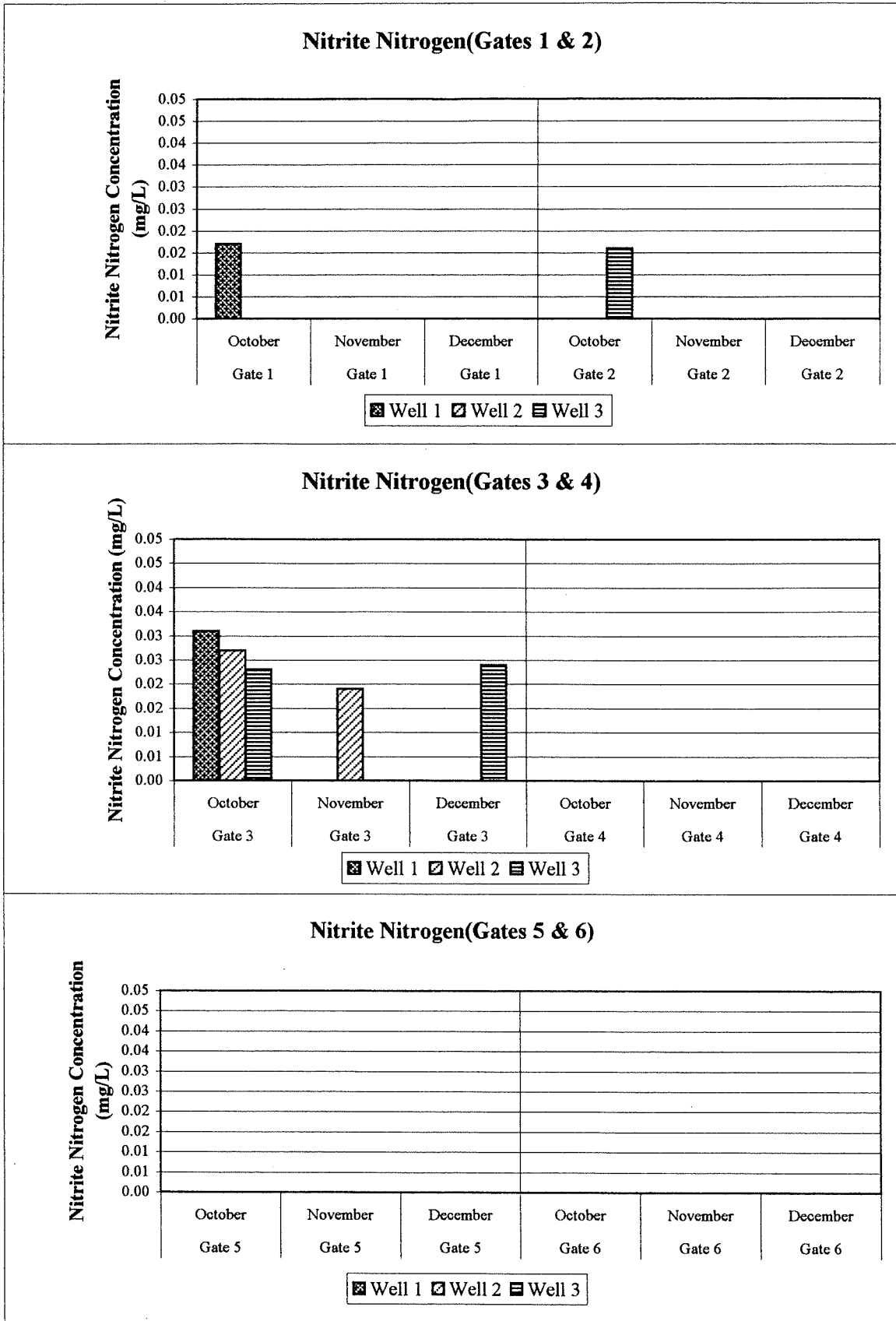


Figure 5
Treatment Performance Monitoring Wells
Fourth Quarter 2001
Moss-American Site
Milwaukee, Wisconsin

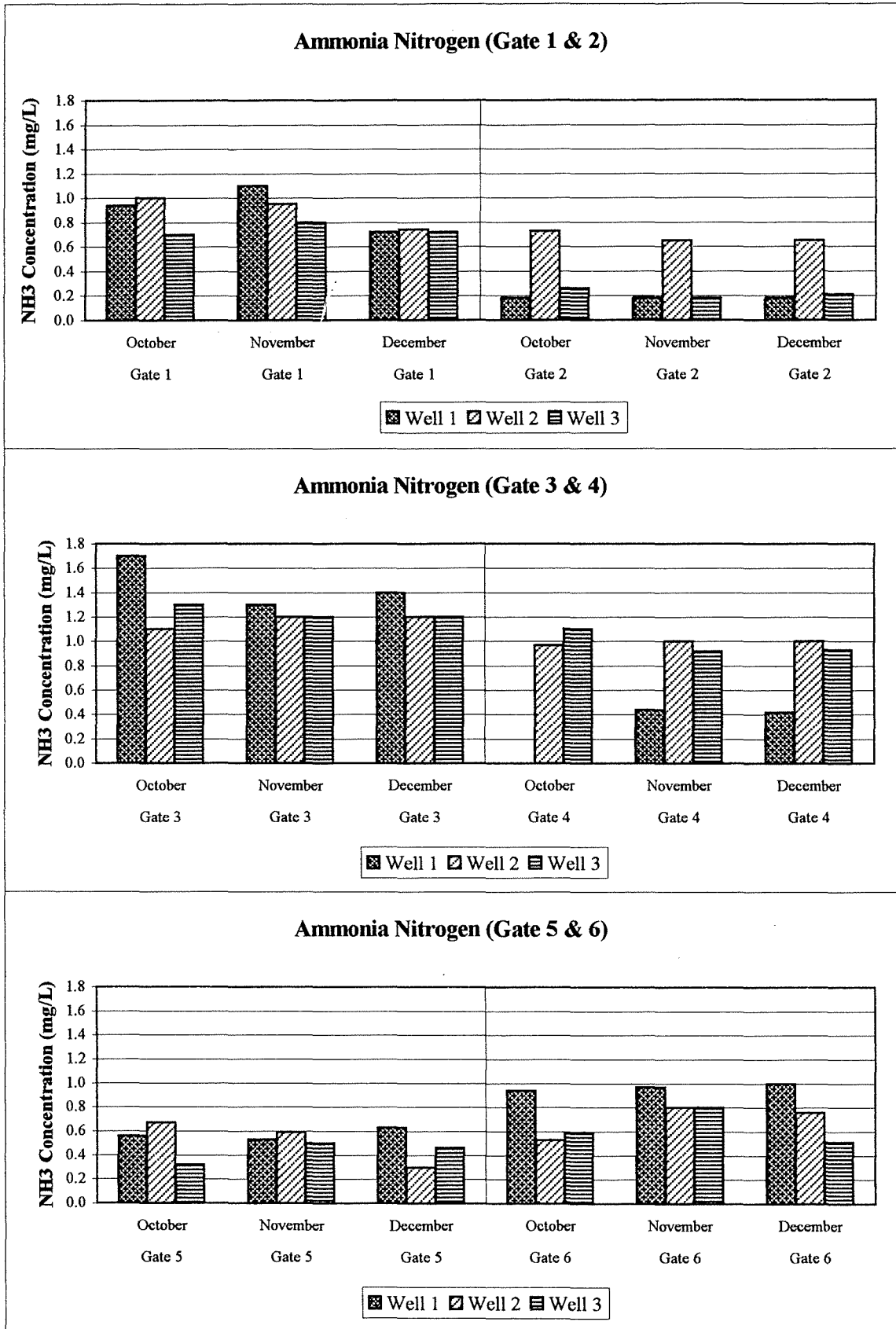


Figure 6
Treatment Performance Monitoring Wells
Fourth Quarter 2001
Moss-American Site
Milwaukee, Wisconsin

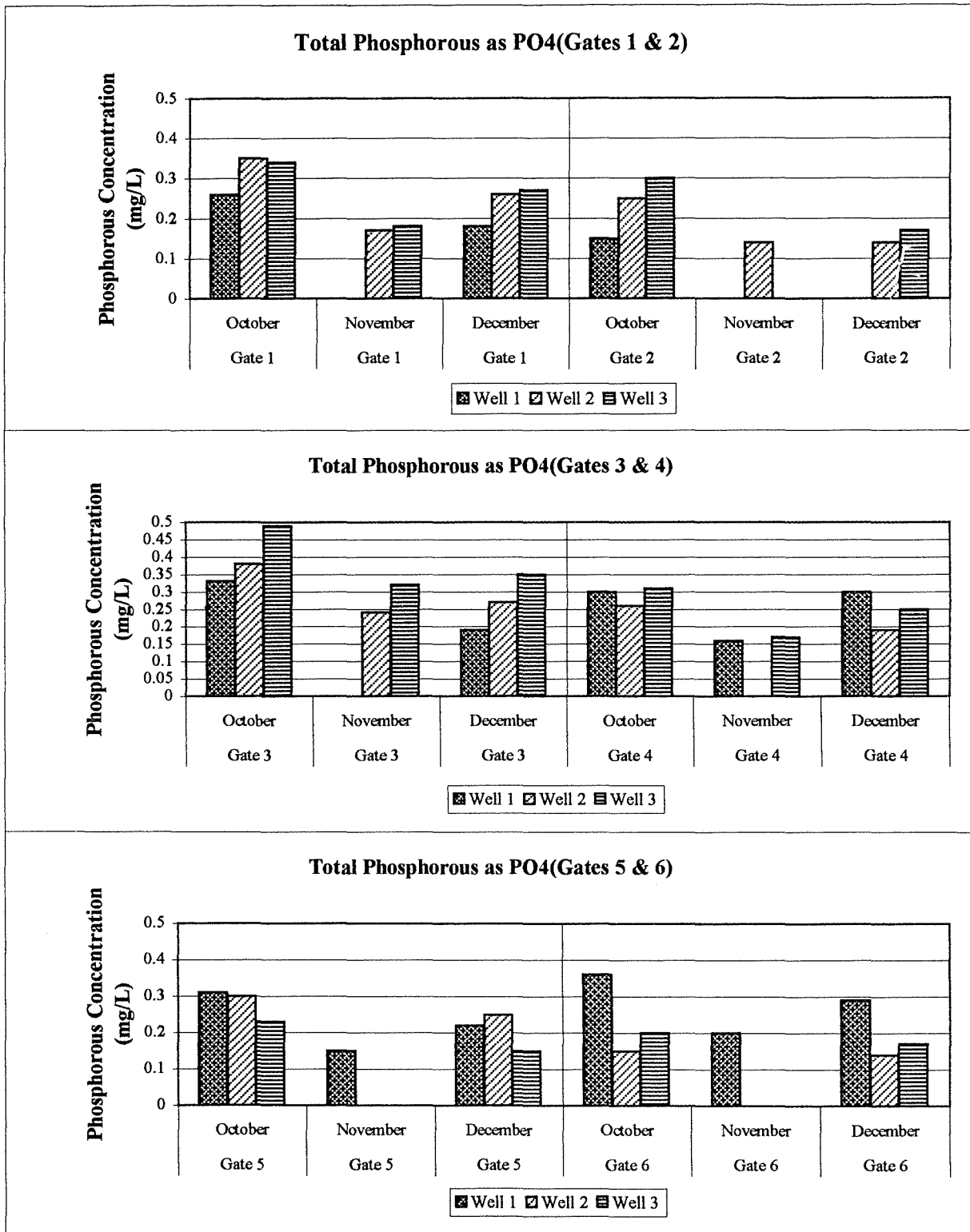


Figure 7
Treatment Performance Monitoring Wells
Fourth Quarter 2001
Moss-American Site
Milwaukee, Wisconsin

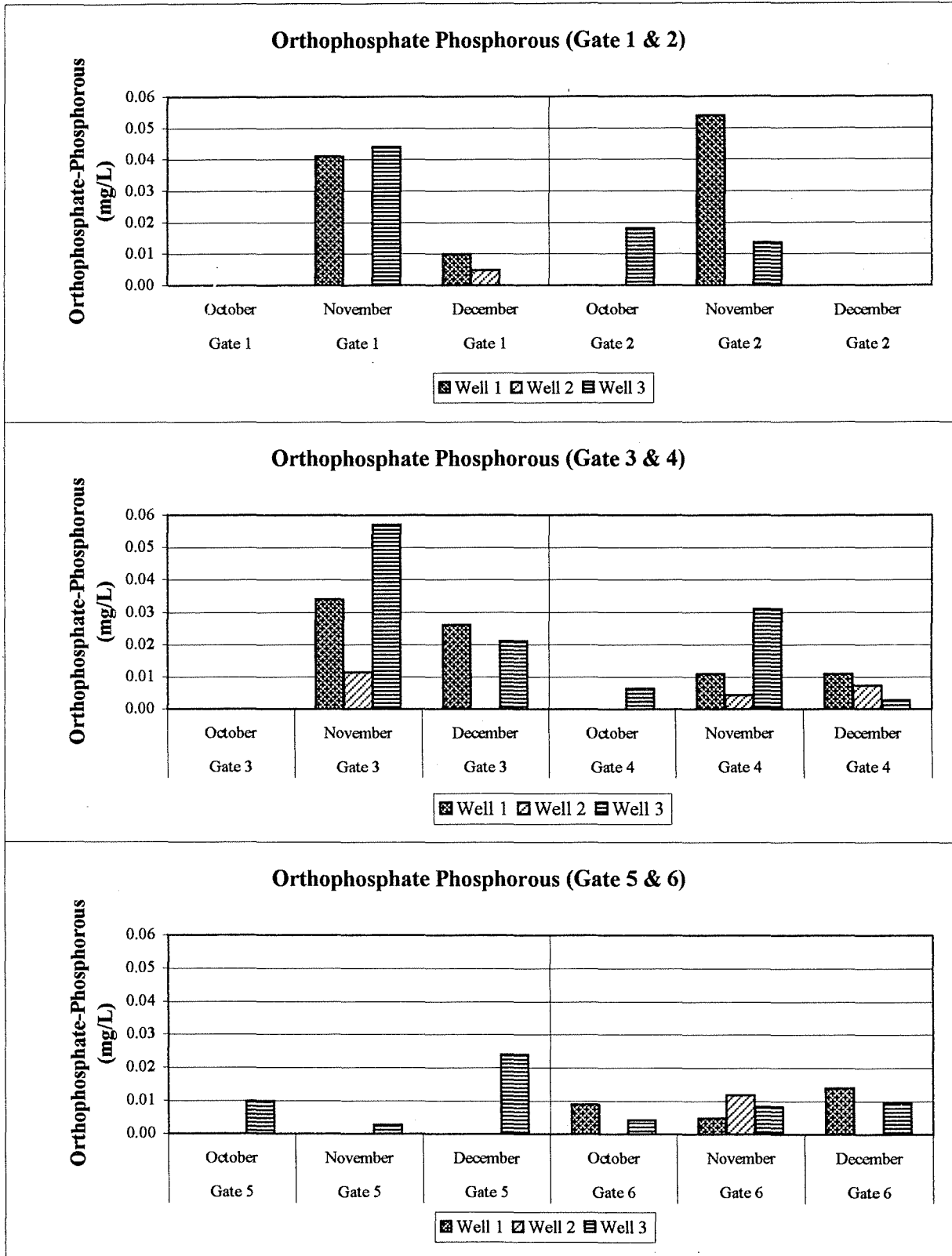


Figure 8
Treatment Performance Monitoring Wells
Fourth Quarter 2001
Moss-American Site
Milwaukee, Wisconsin

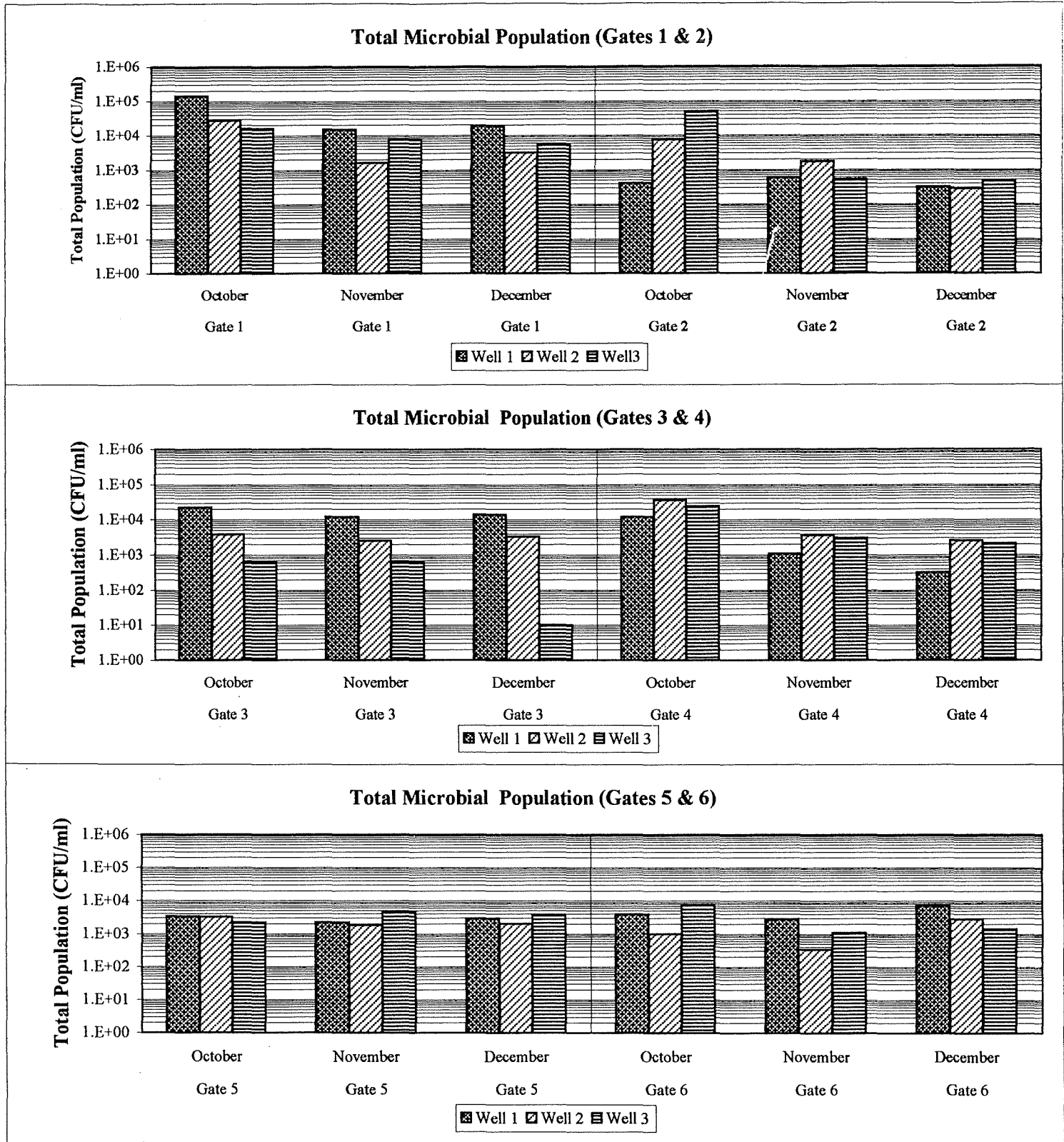


Figure 9
Treatment Performance Monitoring Wells
Fourth Quarter 2001
Moss-American Site
Milwaukee, Wisconsin

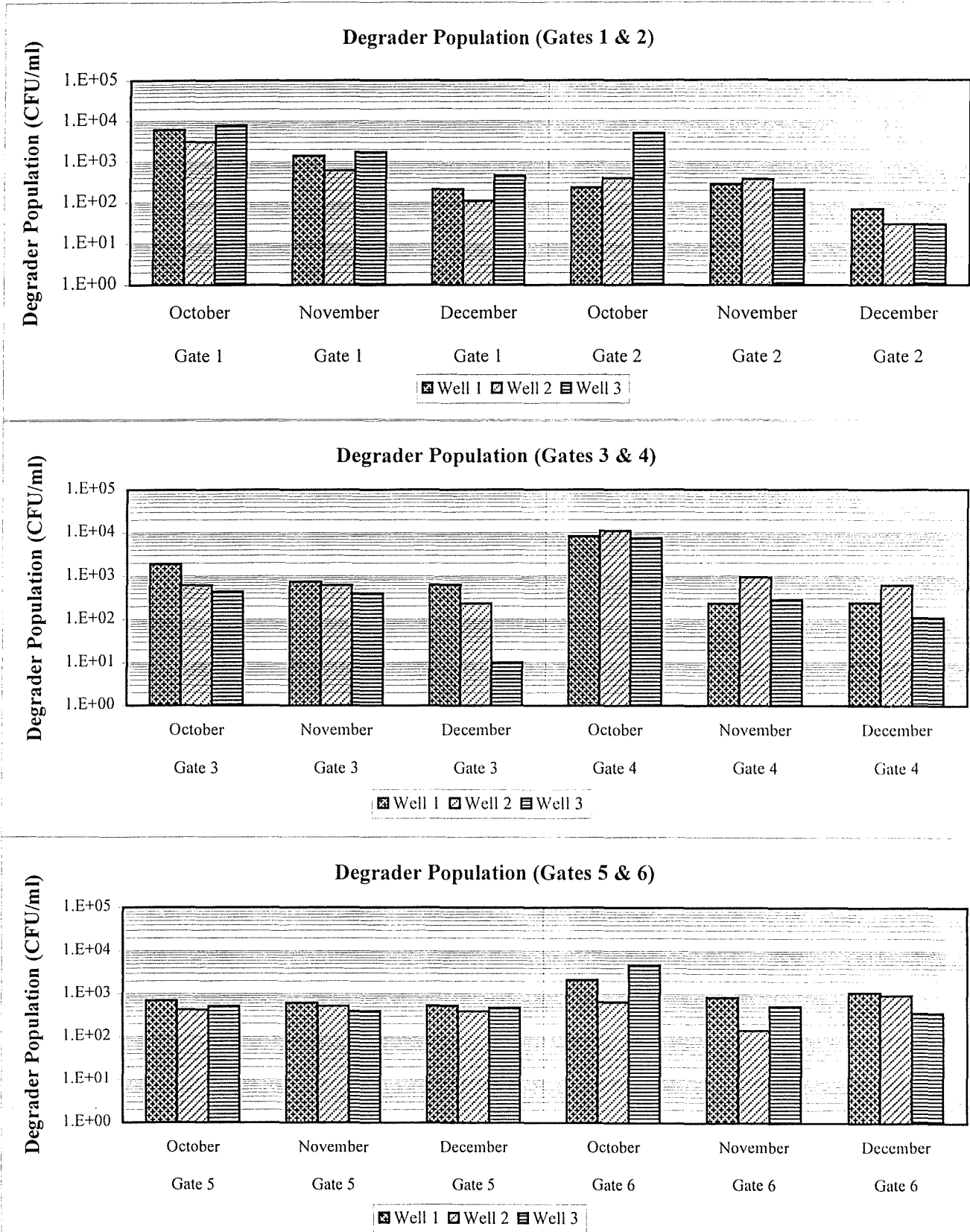
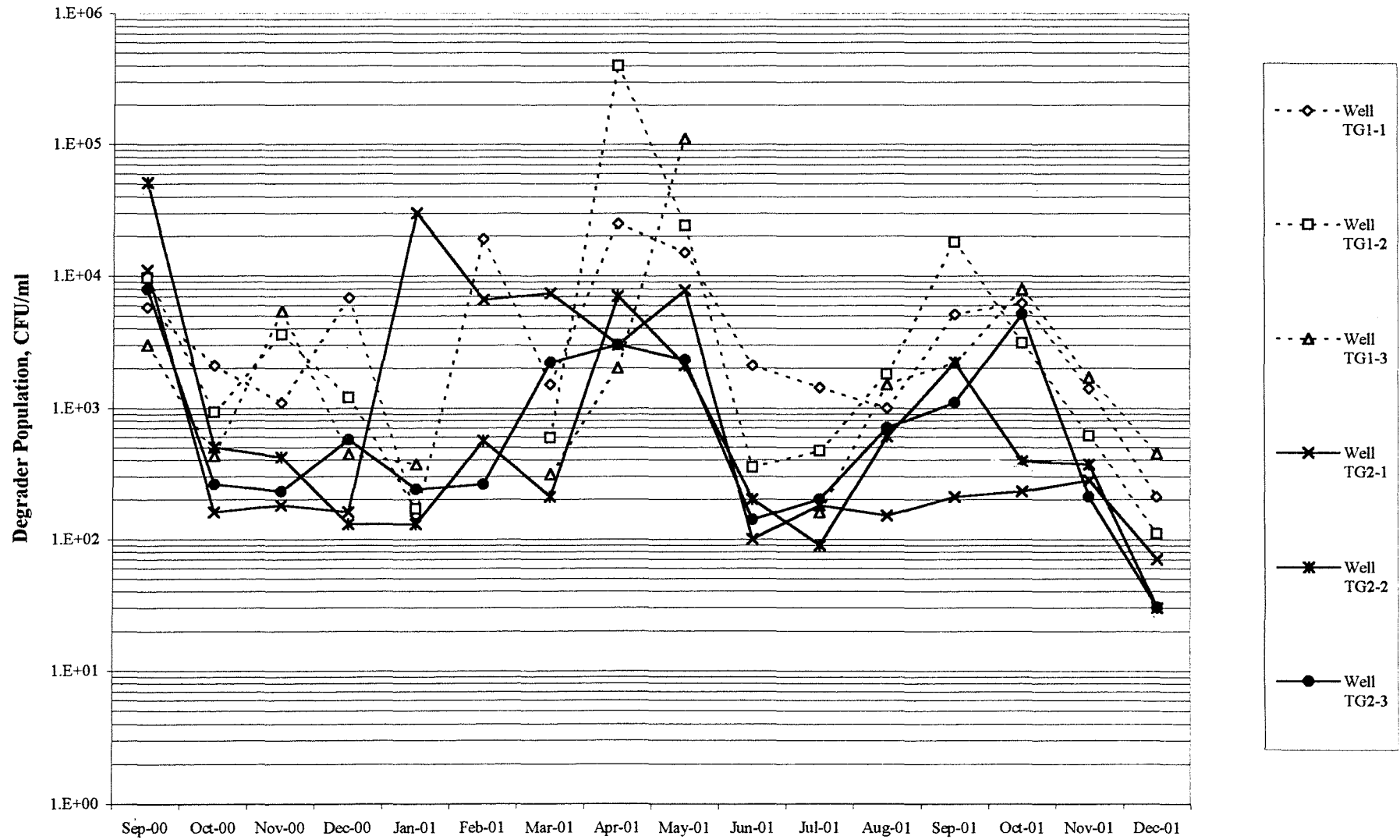


Figure 10

Comparison of Degradar Populations in Treatment Gates 1 and 2 since Q4 2000
Moss-American Site
Milwaukee, Wisconsin



TABLES

Table 1

**Groundwater Elevation Measurements
Shallow Monitoring and Containment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001**

Well ID	Ground Elevation	TOC Elevation	Depth to Water	GW Elevation	Product Thickness (inches)
MW-3S	729.00	731.50	7.74	723.76	ND
MW-5S	723.00	724.70	5.06	719.64	ND
MW-6S	727.00	724.28	3.10	721.18	ND
MW-7S	720.00	721.70	4.66	717.04	ND
MW-9S	720.00	721.71	6.54	715.17	ND
MW-10S	723.00	726.58	5.52	721.06	ND
MW-13S	737.00	738.68	3.44	735.24	ND
MW-20S	716.00	719.94	NM	NM	ND
MW-25S	736.83	739.24	3.58	735.66	ND
MW-26S	732.31	731.66	5.88	725.78	ND
MW-27S	720.59	723.15	4.70	718.45	ND
MW-28S	720.04	722.65	4.38	718.27	ND
MW-29S	720.01	722.39	4.03	718.36	ND
MW-30S	724.50	727.19	4.84	722.35	ND
MW-31S	723.80	726.35	1.87	724.48	ND
MW-32S	719.60	722.62	5.65	716.97	ND
MW-33S	719.10	721.69	5.05	716.64	ND
MW-34S	718.60	721.42	4.61	716.81	10.0
MW-35S	718.90	721.54	4.41	717.13	ND
MW-36S	720.20	723.09	3.26	719.83	ND
MW-37S	720.50	723.13	5.26	717.87	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 able to be measured due to well damage.

ND = Not detected.

Depth to groundwater was measured on 10 December 2001.

Table 2

**Groundwater Elevation Measurements
Treatment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001**

Well ID	Ground Elevation	TOC Elevation	Depth to Water	GW Elevation	Hydraulic Gradient (ft/ft)	Groundwater Velocity (ft/day)	Product Thickness (inches)
TG1-1	720.05	723.18	5.70	717.48	-0.0032	-0.0302	TRACE
TG1-2	719.80	722.60	5.10	717.50			ND
TG1-3	719.30	722.35	4.71	717.64			ND
TG2-1	720.50	723.60	4.83	718.77	0.0206	0.1946	ND
TG2-2	719.90	722.86	4.50	718.36			ND
TG2-3	719.90	722.35	4.61	717.74			ND
TG3-1	718.40	720.95	3.69	717.26	0.0004	0.0038	ND
TG3-2	718.20	720.75	3.32	717.43			ND
TG3-3	717.80	720.30	3.06	717.24			ND
TG4-1	717.60	720.79	3.65	717.14	-0.0018	-0.0170	ND
TG4-2	717.90	720.51	3.37	717.14			ND
TG4-3	717.40	719.93	2.70	717.23			ND
TG5-1	717.60	720.56	3.76	716.80	0.0070	0.0661	ND
TG5-2	717.30	720.24	3.50	716.74			ND
TG5-3	717.00	719.73	3.28	716.45			ND
TG6-1	719.20	721.73	4.65	717.08	0.0026	0.0246	ND
TG6-2	719.20	721.90	5.45	716.45			ND
TG6-3	719.40	722.32	5.37	716.95			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.

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

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 (from top of well casing) was measured on 10 December 2001.

Table 3

**Field-Measured Parameters
Shallow Groundwater and Containment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001**

Well Number	pH (Standard Units)	Specific Conductance ($\mu\Omega/\text{cm}$)	Temperature ($^{\circ}\text{C}$)	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
MW-3S	7.28	0.957	10.64	-45.3	0.88	8.06
MW-5S	7.17	0.875	10.07	-71.9	1.12	3.90
MW-6S	7.58	0.651	10.65	-83.1	0.87	143
MW-7S	6.92	0.952	10.79	-66.7	0.02	17.20
MW-9S	6.92	0.956	11.57	-62.4	0.30	12.60
MW-10S	7.10	0.776	9.98	-75.1	0.34	1.68
MW-13S	7.20	0.917	7.83	-32.4	1.44	4.07
MW-20S	7.01	1.060	8.29	-69.7	NM	2.67
MW-25S	7.13	0.865	8.58	-29.2	0.18	5.25
MW-26S	7.33	0.744	9.83	-38.2	0.38	4.12
MW-27S	6.97	0.897	10.88	-99.6	0.08	44.20
MW-28S	6.92	1.973	10.56	-63.8	0.10	2.18
MW-29S	7.42	0.875	10.62	-70.1	0.56	7.40
MW-30S	7.26	0.844	8.85	-42.4	0.66	1.72
MW-31S	7.26	0.707	10.86	-79.6	0.92	796
MW-32S	6.87	0.986	11.69	-97.2	0.05	14.80
MW-33S	6.82	1.074	11.59	-85.6	0.06	12.50
MW-34S	NA	NA	NA	NA	NA	NA
MW-35S	6.98	1.085	9.86	-36.3	0.14	9.40
MW-36S	7.68	0.617	10.83	-78.3	2.48	60.20
MW-37S	7.54	0.759	11.31	-85.0	0.14	9.07

Table 3 (continued)

**Field-Measured Parameters
Treatment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001**

Well Number	pH (Standard Units)	Specific Conductance ($\mu\Omega/\text{cm}$)	Temperature ($^{\circ}\text{C}$)	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
TG1-1	7.41	1.032	8.68	-108.6	NA	1.11
TG1-2	7.16	1.107	10.10	-91.9	0.09	12.90
TG1-3	7.44	1.052	10.02	-90.2	0.20	12.40
TG2-1	7.15	0.785	10.14	-55.8	0.15	0.96
TG2-2	7.17	0.700	9.86	-83.2	0.17	1.86
TG2-3	7.00	1.120	10.15	-43.5	0.11	1.68
TG3-1	7.04	1.128	9.32	-70.9	5.14	8.65
TG3-2	6.90	0.857	9.40	-87.8	0.11	3.19
TG3-3	6.81	1.131	9.57	-79.4	0.15	3.70
TG4-1	7.23	0.742	10.20	-88.6	0.12	1.10
TG4-2	7.15	0.796	10.58	-79.7	0.12	5.49
TG4-3	7.12	0.835	11.09	-83.7	0.59	3.26
TG5-1	7.09	0.768	10.19	-83.7	0.42	2.27
TG5-2	7.11	0.742	9.38	-88.3	0.25	3.90
TG5-3	7.18	0.765	9.74	-70.3	0.79	5.23
TG6-1	7.31	0.999	10.50	-102.0	0.13	21.90
TG6-2	7.33	0.908	10.74	-74.4	0.38	9.35
TG6-3	6.98	1.239	10.63	-65.1	0.10	5.83

S – Shallow well.

TG – Treatment gate performance monitoring well.

NM – Not measured due to well damage.

NA – Not analyzed due to free product in water.

$\mu\Omega/\text{cm}$ – Micromhos per centimeter.

$^{\circ}\text{C}$ – Degrees Centigrade.

mV – Millivolts.

mg/L – Milligrams per liter.

NTU – Nephelometric turbidity units.

Table 4

Groundwater Sample Analytical Results
Shallow Groundwater Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001

Sample ID:	MW3S-131201-03	MW5S-131201-01	MW6S-121201-05	MW7S-111201-13	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/13/01	12/13/01	12/12/01	12/11/01		
Units of Measure:	ug/L	ug/L	ug/L	ug/L		
Parameters						
VOCs						
Benzene	0.2 U	0.2 U	0.2 U	7.7 J	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	4 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	19 J	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	56 J	124	620
PAHs						
Naphthalene	980	1.0 U	1.0 U	3,300	8.0	40
Acenaphthylene	180	0.8 U	0.8 U	54	NA	NA
Acenaphthene	4 J	0.8 U	0.8 U	67	NA	NA
Fluorene	5	0.2 U	0.2 U	11	80	400
Phenanthrene	0.7	0.08 U	0.08 U	0.3 J	NA	NA
Anthracene	0.04 U	0.04 U	0.04 U	0.04 U	600	3,000
Fluoranthene	0.5	0.04 U	0.04 U	0.07 J	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
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(a)pyrene	0.04 J	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
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA
Chrysene	0.3 J	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA

Table 4 (continued)

**Groundwater Sample Analytical Results
Shallow Groundwater Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001**

Sample ID:	MW9S-121201-10	MW10S-131201-07	MW13S-131201-05	MW20S-131201-08	MW25S-131201-06	MW26S-131201-04	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/12/01	12/13/01	12/13/01	12/13/01	12/13/01	12/13/01		
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	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0	40
Acenaphthalylene	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	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
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(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
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
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 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(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA

Table 4 (continued)

**Groundwater Sample Analytical Results
Shallow Groundwater Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001**

Sample ID:	MW27S-111201-12	MW28S-121201-04	MW29S-121201-07	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater		
Sample Date:	12/11/01	12/12/01	12/12/01		
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	1.0 U	1.0 U	1.0 U	8.0	40
Acenaphthalylene	0.8 U	0.8 U	0.8 U	NA	NA
Acenaphthene	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.08 U	0.08 J	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	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.02	0.2
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
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	NA	NA

Table 4 (continued)

**Groundwater Sample Analytical Results
Containment Performance Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001**

Sample ID:	MW30S-131201-02	MW31S-121201-06	MW32S-111201-11	MW33S-111201-10	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/13/01	12/12/01	12/11/01	12/11/01		
Units of Measure:	ug/L	ug/L	ug/L	ug/L		
Parameters						
VOCs						
Benzene	0.2 U	0.2 U	0.2 U	1.0 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	1.0 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	6.8	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	18	124	620
PAHs						
Naphthalene	1.0 U	1.0 U	1.0 U	2,100	8.0	40
Acenaphthylene	0.8 U	0.8 U	0.8 U	47	NA	NA
Acenaphthene	0.8 U	0.8 U	0.8 U	110	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	32	80	400
Phenanthrene	0.08 U	0.08 U	0.08 U	2	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	0.05 J	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
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
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
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA

Table 4 (continued)

Groundwater Sample Analytical Results
Containment Performance Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001

Sample ID:	MW34S-111201-14	MW35S-111201-15	MW36S-121201-08	MW37S-121201-09	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/11/01	12/11/01	12/12/01	12/12/01		
Units of Measure:	ug/L	ug/L	ug/L	ug/L		
Parameters						
VOCs						
Benzene	6.1 J	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	5.0 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	21 J	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	53 J	0.6 U	0.6 U	0.6 U	124	620
PAHs						
Naphthalene	6,700	1.0 U	1.0 U	1.0 U	8.0	40
Acenaphthylene	100	0.8 U	0.8 U	0.8 U	NA	NA
Acenaphthene	470	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	320	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	770	0.2 J	0.08 U	0.08 U	NA	NA
Anthracene	80	0.1 J	0.04 U	0.04 U	600	3,000
Fluoranthene	320	0.5	0.04 U	0.04 U	80	400
Pyrene	260	0.4 J	0.2 U	0.2 U	50	250
Benzo(a)anthracene	50	0.03 J	0.02 U	0.02 U	NA	NA
Benzo(b)fluoranthene	17 J	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(a)pyrene	19	0.03 J	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	2.0	0.04 U	0.04 U	0.04 U	NA	NA
Indeno(1,2,3-cd)pyrene	10	0.08 U	0.08 U	0.08 U	NA	NA
Benzo(g,h,i)perylene	7	0.1 U	0.1 U	0.1 U	NA	NA
Chrysene	43	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(k)fluoranthene	10	0.02 J	0.02 U	0.02 U	NA	NA

Table 4 (continued)

Groundwater Sample Analytical Results
Treatment Performance Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001

Sample ID:	TG1-1-101201-04	TG1-2-101201-05	TG1-3-101201-06	TG2-1-121201-01	TG2-2-121201-02	TG2-3-121201-03	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/10/01	12/10/01	12/10/01	12/12/01	12/12/01	12/12/01		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	5.7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	1.2 J	0.22 J	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	23	0.67 J	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	31	0.66 J	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs								
Naphthalene	2600	80	0.9 U	1.0 U	1.0 U	0.9 U	8.0	40
Acenaphthylene	54	4 U	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Acenaphthene	170	40	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	80	13	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	55	14	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA
Anthracene	5	2	0.04 U	0.04 U	0.04 U	0.04 U	600	3,000
Fluoranthene	7	3	0.04 J	0.04 U	0.06 J	0.04 U	80	400
Pyrene	4	2 J	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.3	0.1 J	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(b)fluoranthene	0.06 J	0.2 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(a)pyrene	0.05 J	0.09 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.04 U	0.2 U	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.4 U	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.5 U	0.09 U	0.1 U	0.1 U	0.09 U	NA	NA
Chrysene	0.1 J	0.4 U	0.08 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(k)fluoranthene	0.03 J	0.09 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA

Table 4 (continued)

Groundwater Sample Analytical Results
Treatment Performance Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001

Sample ID:	TG3-1-111201-04	TG3-2-111201-05	TG3-3-111201-06	TG4-1-111201-07	TG4-2-111201-08	TG4-3-111201-09	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/11/01	12/11/01	12/11/01	12/11/01	12/11/01	12/11/01		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	0.2 UJ	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 UJ	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 UJ	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 UJ	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs								
Naphthalene	1.0 UJ	0.9 UJ	0.9 U	0.9 U	0.9 U	1.0 U	8.0	40
Acenaphthylene	0.8 UJ	0.8 UJ	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Acenaphthene	0.8 UJ	0.8 UJ	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	0.4 J	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.08 UJ	0.08 UJ	0.1 J	0.08 U	0.1 J	0.08 U	NA	NA
Anthracene	0.09 J	0.04 UJ	0.04 U	0.04 U	0.1 J	0.04 U	600	3,000
Fluoranthene	0.06 J	0.05 J	0.08 J	0.04 U	0.2	0.04 U	80	400
Pyrene	0.2 UJ	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(b)fluoranthene	0.04 UJ	0.04 UJ	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(a)pyrene	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.04 UJ	0.04 UJ	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 UJ	0.08 UJ	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA
Benzo(g,h,i)perylene	0.1 UJ	0.09 UJ	0.09 U	0.09 U	0.09 U	0.1 U	NA	NA
Chrysene	0.08 UJ	0.08 UJ	0.08 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(k)fluoranthene	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA

Table 4 (continued)

Groundwater Sample Analytical Results
Treatment Performance Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001

Sample ID:	TG5-1-111201-01	TG5-2-111201-02	TG5-3-111201-03	TG6-1-101201-01	TG6-2-101201-02	TG6-3-101201-03	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/11/01	12/11/01	12/11/01	12/10/01	12/10/01	12/10/01		
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	0.9 U	0.9 U	1.0 U	1.0 U	1.0 U	0.9 U	8.0	40
Acenaphthylene	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	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	0.05 J	0.04 J	600	3,000
Fluoranthene	0.04 U	0.06 J	0.04 U	0.06 J	0.1 J	0.06 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
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(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
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
Benzo(g,h,i)perylene	0.09 U	0.09 U	0.1 U	0.1 U	0.1 U	0.09 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(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA

Table 4 (continued)

**Groundwater Sample Analytical Results
Field Duplicate Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001**

Sample ID:	MW33S-111201-10-DP	MW9S-121201-10-DP	MW5S-131201-01-DP	MW10S-131201-07-DP	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/11/01	12/12/01	12/13/01	12/13/01		
Units of Measure:	ug/L	ug/L	ug/L	ug/L		
Parameters						
VOCs						
Benzene	1.0 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	1.0 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	6.7	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	17	0.6 U	0.6 U	0.6 U	124	620
PAHs						
Naphthalene	2,000	0.9 U	1.0 U	1.0 U	8.0	40
Acenaphthylene	43	0.8 U	0.8 U	0.8 U	NA	NA
Acenaphthene	100	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	29	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	2	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	0.05 J	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
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
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
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA
Benzo(g,h,i)perylene	0.09 U	0.09 U	0.1 U	0.1 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA

Table 4 (continued)

**Groundwater Sample Analytical Results
Matrix Spike/Matrix Spike Duplicate Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001**

Sample ID:	MW28S-121201-04 MS	MW28S-121201-04 MSD	MW25S-131201-06 MS	MW25S-131201-06 MSD
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater
Sample Date:	12/12/01	12/12/01	12/13/01	12/13/01
Units of Measure:	ug/L	ug/L	ug/L	ug/L
Parameters				
VOCs				
Benzene	22	22	23	23
Toluene	23	22	22	22
Ethylbenzene	24	22	19	18
Total Xylenes	72	67	55	54
PAHs				
Naphthalene	130	160	160	160
Acenaphthylene	140	170	170	160
Acenaphthene	160	180	180	170
Fluorene	16	18	18	17
Phenanthrene	5	6	6	6
Anthracene	3	3	3	3
Fluoranthene	3	3	3	3
Pyrene	18	20	19	18
Benzo(a)anthracene	1	2	1	1
Benzo(b)fluoranthene	1	1	1	1
Benzo(a)pyrene	1	2	2	1
Dibenzo(a,h)anthracene	3	3	3	3
Indeno(1,2,3-cd)pyrene	6	6	6	6
Benzo(g,h,i)perylene	12	12	13	12
Chrysene	6	6	6	5
Benzo(k)fluoranthene	1	1	1	1

Table 4 (continued)

**Groundwater Sample Analytical Results
Field Blank Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001**

Sample ID:	FB-01	FB-02	FB-03	FB-04
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater
Sample Date:	12/12/01	12/12/01	12/13/01	12/13/01
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
Toluene	0.2 U	0.2 U	0.2 U	0.2 U
Ethylbenzene	0.2 U	0.2 U	0.2 U	0.2 U
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U
PAHs				
Naphthalene	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene	0.8 U	0.8 U	1.0 U	1.0 U
Acenaphthene	0.8 U	0.8 U	1.0 U	1.0 U
Fluorene	0.2 U	0.2 U	0.2 U	0.2 U
Phenanthrene	0.08 U	0.08 U	0.1 U	0.1 U
Anthracene	0.04 U	0.04 U	0.05 U	0.05 U
Fluoranthene	0.04 U	0.04 U	0.05 U	0.05 U
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U
Benzo(b)fluoranthene	0.04 U	0.04 U	0.05 U	0.05 U
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U
Dibenzo(a,h)anthracene	0.04 U	0.04 U	0.05 U	0.05 U
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.1 U	0.1 U
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.1 U
Chrysene	0.08 U	0.08 U	0.1 U	0.1 U
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U

Table 4 (continued)

Groundwater Sample Analytical Results

Table Notes

**Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001**

U - Indicates constituent not detected above detection limit. Detection limit indicated.

J - Indicates estimated concentration.

VOC - Volatile Organic Compound.

PAH - Polynuclear Aromatic Hydrocarbon.

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

ES - Enforcement Standard (WDNR).

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

NS - Not sampled due to cold weather.

ug/L - Micrograms per liter.

Bold values indicate concentration exceeding PAL.

Bold and shaded values indicate concentration exceeding PAL and ES.

Table 5

**Concentration Trends in Groundwater Monitoring Wells
First Quarter 1998 through
Fourth Quarter 2001
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
<u>Benzene (ug/L)</u>								
Fourth Quarter (December '98)	3.00 J	NS	0.20 U	---	---	---	---	---
First Quarter (March '99)	5.00	9.00	0.20 U	---	---	---	---	---
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
<u>Naphthalene (ug/L)</u>								
Fourth Quarter (December '98)	1,760	NS	9.30 J	---	---	---	---	---
First Quarter (March '99)	1,330	5,560	19.90	---	---	---	---	---
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

Table 5 (continued)

**Concentration Trends in Groundwater Monitoring Wells
First Quarter 1998 through
Fourth Quarter 2001
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)								
Fourth Quarter (December '98)	316	NS	62.3	---	---	---	---	---
First Quarter (March '99)	271	30.0	65.4	---	---	---	---	---
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	80.0
Benzo(a) pyrene (ug/L)								
Fourth Quarter (December '98)	8.95	NS	1,720	---	---	---	---	---
First Quarter (March '99)	6.10	0.43	2,100	---	---	---	---	---
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

NS - Not sampled.

--- - 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
Fourth Quarter 2001**

Parameter (mg/L)	Sample Identification								
	TG1-1			TG1-2			TG1-3		
	October	November	December	October	November	December	October	November	December
Kjeldahl Nitrogen	1.10	1.40	1.10	1.40	1.40	0.99 J	1.10	0.89 J	0.65 J
Nitrite Nitrogen	0.017 J	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	0.94 J	1.10	0.72 J	1.00	0.95 J	0.74 J	0.70 J	0.80 J	0.72 J
Ortho-Phosphate as P	0.0028 U	0.041	0.0099 J	0.0028 U	0.0028 U	0.0048 J	0.0028 U	0.044	0.0028 U
Biochemical Oxygen Demand (BOD)	NA	NA	9.8	NA	NA	5.5 U	NA	NA	4.8 U
Total Organic Carbon (non-purgable)	NA	NA	11.8	NA	NA	10.8	NA	NA	6.4
Total Phosphorous as PO4	0.26	0.13 U	0.18 J	0.35	0.17	0.26	0.34	0.18	0.27
Chemical Oxygen Demand (COD)	NA	NA	44.2	NA	NA	35.8	NA	NA	18.9
Total Microbial Population (mean)	1.40E+05	1.50E+04	1.90E+04	2.70E+04	1.60E+03	3.10E+03	1.60E+04	7.90E+03	5.40E+03
Degrader Microbial Population (mean)	6.20E+03	1.40E+03	2.10E+02	3.10E+03	6.10E+02	1.10E+02	7.90E+03	1.70E+03	4.50E+02
Parameter (mg/L)	TG2-1			TG2-2			TG2-3		
	October	November	December	October	November	December	October	November	December
	October	November	December	October	November	December	October	November	December
Kjeldahl Nitrogen	0.37 J	0.30 U	0.86 J	0.91 J	0.76 J	0.78 J	0.41 J	0.39 J	0.52 J
Nitrite Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 J	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	0.18 J	0.18 J	0.18 J	0.73 J	0.65 J	0.65 J	0.26 J	0.18 J	0.21 J
Ortho-Phosphate as P	0.0028 U	0.054	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0180 J	0.0135 J	0.0028 U
Biochemical Oxygen Demand (BOD)	NA	NA	3.2 U	NA	NA	4.6 U	NA	NA	3.9 U
Total Organic Carbon (non-purgable)	NA	NA	2.2	NA	NA	2.9	NA	NA	7.2
Total Phosphorous as PO4	0.15 J	0.13 U	0.12 U	0.25	0.14 J	0.14 J	0.30	0.13 U	0.17 J
Chemical Oxygen Demand (COD)	NA	NA	5.3 J	NA	NA	7.9 J	NA	NA	20.7
Total Microbial Population (mean)	4.10E+02	5.80E+02	3.10E+02	7.30E+03	1.70E+03	2.70E+02	4.90E+04	5.20E+02	4.70E+02
Degrader Microbial Population (mean)	2.30E+02	2.80E+02	7.00E+01	3.90E+02	3.70E+02	3.00E+01	5.10E+03	2.10E+02	3.00E+01

Table 6 (continued)

Groundwater Sample Analytical Results
Treatment Performance Monitoring Wells - Nutrient and Biological Parameters
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001

Parameter (mg/L)	Sample Identification								
	TG3-1			TG3-2			TG3-3		
	October	November	December	October	November	December	October	November	December
Kjeldahl Nitrogen	2.20	2.00	1.70	1.40	1.40	1.30	1.70	1.70	1.50
Nitrite Nitrogen	0.031 J	0.015 U	0.015 U	0.016 J	0.027 J	0.019 J	0.023 J	0.015 U	0.024 J
Nitrate Nitrogen	0.16	0.14	0.13	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Ammonia Nitrogen	1.7	1.3	1.4	1.1	1.2	1.2	1.3	1.2	1.2
Ortho-Phosphate as P	0.0028 U	0.034	0.026	0.0028 U	0.0114 J	0.0028 U	0.0028 U	0.057	0.021
Biochemical Oxygen Demand (BOD)	NA	NA	4.0 U	NA	NA	12.0	NA	NA	9.3
Total Organic Carbon (non-purgable)	NA	NA	14.2	NA	NA	10.1	NA	NA	12.6
Total Phosphorous as PO4	0.33	0.13 U	0.19 J	0.38	0.24	0.27	0.49	0.32	0.35
Chemical Oxygen Demand (COD)	NA	NA	33.6	NA	NA	26.8	NA	NA	29.3
Total Microbial Population (mean)	2.30E+04	1.20E+04	1.40E+04	3.90E+03	2.50E+03	3.30E+03	6.20E+02	6.20E+02	<10
Degrader Microbial Population (mean)	1.90E+03	7.30E+02	6.20E+02	6.10E+02	6.10E+02	2.30E+02	4.30E+02	3.90E+02	<10
Parameter (mg/L)	TG4-1			TG4-2			TG4-3		
	October	November	December	October	November	December	October	November	December
	October	November	December	October	November	December	October	November	December
Kjeldahl Nitrogen	0.73 J	0.66 J	0.58 J	1.30	1.40	1.20	1.30	1.40	0.30 U
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	0.16 U	0.44 J	0.42 J	0.97 J	1.0	1.0	1.1	0.92 J	0.93 J
Ortho-Phosphate as P	0.0028 U	0.0109 J	0.0109 J	0.0028 U	0.0043 J	0.0074 J	0.0064 J	0.031	0.0028 J
Biochemical Oxygen Demand (BOD)	NA	NA	2.6 U	NA	NA	5.7 U	NA	NA	3.9 U
Total Organic Carbon (non-purgable)	NA	NA	6.5	NA	NA	9.9	NA	NA	9.0
Total Phosphorous as PO4	0.30	0.16	0.30	0.26	0.13 U	0.19 J	0.31	0.17	0.25
Chemical Oxygen Demand (COD)	NA	NA	16.5	NA	NA	23.3	NA	NA	22.2
Total Microbial Population (mean)	1.20E+04	1.10E+03	3.20E+02	3.60E+04	3.60E+03	2.50E+03	2.40E+04	3.00E+03	2.10E+03
Degrader Microbial Population (mean)	8.10E+03	2.30E+02	2.40E+02	1.10E+04	9.30E+02	6.10E+02	7.40E+03	2.80E+02	1.10E+02

Table 6 (continued)

Groundwater Sample Analytical Results
Treatment Performance Monitoring Wells - Nutrient and Biological Parameters
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001

Parameter (mg/L)	Sample Identification								
	TG5-1			TG5-2			TG5-3		
	October	November	December	October	November	December	October	November	December
Kjeldahl Nitrogen	0.85 J	0.51 J	0.70 J	1.00	0.74 J	0.74 J	0.73 J	0.72 J	0.71 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	0.048 J	0.051 J	0.044 J	0.040 U	0.040 U	0.040 U	0.041 J	0.040 U	0.069 J
Ammonia Nitrogen	0.56 J	0.53	0.63 J	0.67 J	0.59 J	0.30 J	0.32 J	0.50 J	0.46 J
Ortho-Phosphate as P	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0099 J	0.0028 J	0.024
Biochemical Oxygen Demand (BOD)	NA	NA	3.2 U	NA	NA	3.1 U	NA	NA	2.8 U
Total Organic Carbon (non-purgable)	NA	NA	5.9	NA	NA	6.3	NA	NA	6.2
Total Phosphorous as PO4	0.31	0.15 J	0.22	0.30	0.13 U	0.25	0.23	0.13 U	0.15 J
Chemical Oxygen Demand (COD)	NA	NA	12.1	NA	NA	14.3	NA	NA	14.7
Total Microbial Population (mean)	3.30E+03	2.20E+03	2.90E+03	3.20E+03	1.80E+03	2.00E+03	2.20E+03	4.60E+03	3.70E+03
Degrader Microbial Population (mean)	6.90E+02	6.10E+02	5.30E+02	4.20E+02	5.20E+02	3.90E+02	5.10E+02	3.90E+02	4.70E+02
	TG6-1			TG6-2			TG6-3		
	October	November	December	October	November	December	October	November	December
Kjeldahl Nitrogen	1.10	1.10	1.20	0.76 J	0.60 J	0.90 J	1.60	0.89 J	0.89 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	0.050 J	0.040 U	0.040 U	0.040 U	0.068 J	0.040 U
Ammonia Nitrogen	0.94 J	0.97 J	1.0	0.53 J	0.80 J	0.76 J	0.59 J	0.80 J	0.51 J
Ortho-Phosphate as P	0.0089 J	0.0048 J	0.0140 J	0.0028 U	0.0119 J	0.0028 U	0.0043 J	0.0084 J	0.0094 J
Biochemical Oxygen Demand (BOD)	NA	NA	2.7 U	NA	NA	2.4 U	NA	NA	2.6 U
Total Organic Carbon (non-purgable)	NA	NA	6.2	NA	NA	7.4	NA	NA	9.8
Total Phosphorous as PO4	0.36	0.20	0.29	0.15 J	0.13 U	0.14 J	0.20	0.13 U	0.17 J
Chemical Oxygen Demand (COD)	NA	NA	17.7	NA	NA	18.1	NA	NA	24.5
Total Microbial Population (mean)	3.90E+03	2.70E+03	7.20E+03	9.70E+02	3.30E+02	2.80E+03	7.60E+03	1.10E+03	1.40E+03
Degrader Microbial Population (mean)	2.14E+03	8.30E+02	1.10E+03	6.40E+02	1.40E+02	9.30E+02	4.70E+03	5.20E+02	3.60E+02

U - Compound not detected above detection limit.

J - Estimated value.

NA - Not analyzed.

mg/L - Milligram per liter.

Table 7

**Calculation of Carbon:Nitrogen:Phosphorous Ratios
Treatment Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2001**

Well	Carbon ¹ , mg/L	Total Nitrogen ² , mg/L	Phosphorous ³ , mg/L	C-N-P Ratio (100-14-1 desired)
TG1-1	11.8	0.72	0.18	100 - 6.1 - 1.5
TG1-2	10.8	0.74	0.0048	100 - 6.9 - 0.0
TG1-3	6.4	0.72	ND	100 - 11.3 - 0.0
TG2-1	2.2	0.18	ND	100 - 8.2 - 0.0
TG2-2	2.9	0.65	ND	100 - 22 - 0.0
TG2-3	7.2	0.21	ND	100 - 2.9 - 0.0
TG3-1	14.2	1.53	0.026	100 - 11 - 0.2
TG3-2	10.1	1.22	ND	100 - 12.1 - 0.0
TG3-3	12.6	1.22	0.021	100 - 9.7 - 0.2
TG4-1	6.5	0.42	0.0109	100 - 6.5 - 0.2
TG4-2	9.9	1.00	0.0074	100 - 10.1 - 0.07
TG4-3	9.0	0.93	0.0028	100 - 10.3 - 0.0
TG5-1	5.9	0.67	ND	100 - 11.4 - 0.0
TG5-2	6.3	0.30	ND	100 - 4.8 - 0.0
TG5-3	6.2	0.53	0.024	100 - 8.5 - 0.4
TG6-1	6.2	1.00	0.0140	100 - 16 - 0.2
TG6-2	7.4	0.76	ND	100 - 10 - 0.0
TG6-3	9.8	0.51	0.17	100 - 5.2 - 1.7
Site Average	8.1	0.74	0.046	100 - 9.6 - 0.3

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
Fourth Quarter 2001

Well Number	Date	Temperature (C)	pH	Specific Conductance (microhms/cm)	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (Ntu)
TG1-1	October-01	12.80	7.15	0.977	-103.3	0.03	NM
	November-01	NA	NA	NA	NA	NA	NA
	December-01	8.68	7.41	1.032	-108.6	NM*	1.11
TG1-2	October-01	13.74	6.96	0.993	-83.9	0.05	NM
	November-01	10.26	7.03	1.131	-73.6	0.05	NM
	December-01	10.10	7.16	1.107	-91.9	0.09	12.90
TG1-3	October-01	14.12	7.19	0.952	-78.7	0.57	NM
	November-01	10.97	7.27	1.036	-66.0	0.08	NM
	December-01	10.02	7.44	1.052	-90.2	0.20	12.40
TG2-1	October-01	13.85	7.25	0.692	-56.1	0.49	NM
	November-01	11.45	7.07	0.785	-46.4	0.12	NM
	December-01	10.14	7.15	0.785	-55.8	0.15	0.96
TG2-2	October-01	13.99	7.05	0.631	-78.8	0.08	NM
	November-01	11.39	7.15	0.712	-80.6	0.07	NM
	December-01	9.86	7.17	0.700	-83.2	0.17	1.86
TG2-3	October-01	14.10	6.96	0.895	-32.4	0.12	NM
	November-01	11.91	6.90	1.023	-17.2	0.06	NM
	December-01	10.15	7.00	1.120	-43.5	0.11	1.68
TG3-1	October-01	14.05	6.78	1.071	-70.0	4.48	NM
	November-01	11.04	6.88	1.144	-63.2	5.24	NM
	December-01	9.32	7.04	1.128	-70.9	5.14	8.65
TG3-2	October-01	14.08	6.96	0.823	-116.0	0.48	NM
	November-01	11.14	6.96	0.904	-91.5	0.04	NM
	December-01	9.40	6.90	0.857	-87.8	0.11	3.19
TG3-3	October-01	14.19	6.77	1.067	-91.2	0.13	NM
	November-01	11.47	6.84	1.171	-86.1	0.05	NM
	December-01	9.57	6.81	1.131	-79.4	0.15	3.70
TG4-1	October-01	13.16	7.17	0.655	-100.0	0.07	NM
	November-01	10.94	7.33	0.728	-100.9	0.05	NM
	December-01	10.20	7.23	0.742	-88.6	0.12	1.10
TG4-2	October-01	14.04	7.10	0.676	-89.5	0.14	NM
	November-01	11.86	7.21	0.814	-92.2	0.05	NM
	December-01	10.58	7.15	0.796	-79.7	0.12	5.49
TG4-3	October-01	13.56	7.07	0.686	-88.2	0.13	NM
	November-01	11.75	7.12	0.814	-84.0	0.07	NM
	December-01	11.09	7.12	0.835	-83.7	0.59	3.26
TG5-1	October-01	14.12	7.16	0.697	-78.3	0.55	NM
	November-01	11.25	7.31	0.707	-80.5	0.36	NM
	December-01	10.19	7.09	0.768	-83.7	0.42	2.27
TG5-2	October-01	14.35	7.17	0.682	-101.4	0.14	NM
	November-01	10.73	7.35	0.688	-95.2	0.08	NM
	December-01	9.38	7.11	0.742	-88.3	0.25	3.90
TG5-3	October-01	14.65	7.48	0.652	-49.2	0.61	NM
	November-01	11.47	7.43	0.745	-61.4	0.09	NM
	December-01	9.74	7.18	0.765	-70.3	0.79	5.23
TG6-1	October-01	14.73	7.29	0.929	-67.6	0.04	NM
	November-01	10.99	7.43	0.952	-77.4	0.06	NM
	December-01	10.50	7.31	0.999	-102.0	0.13	21.90
TG6-2	October-01	14.71	7.20	0.712	-56.3	0.38	NM
	November-01	11.54	7.27	0.880	-54.5	0.17	NM
	December-01	10.74	7.33	0.908	-74.4	0.38	9.35
TG6-3	October-01	14.46	6.77	1.098	-38.6	0.37	NM
	November-01	11.48	6.83	1.232	-38.5	0.09	NM
	December-01	10.63	6.98	1.239	-65.1	0.10	5.83

-- - Data not available.

NM- Not measured. Value only measured quarterly.

NA - Not analyzed due to free product in well.

ATTACHMENT 2

OCTOBER 2001 GROUNDWATER SAMPLE ANALYTICAL RESULTS

Microbac

® Microbac Laboratories, Inc.

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

INDIANA CERTIFICATION NUMBERS: M-45-8

C-45-02

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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: 12/03/01
P.O. Number: Milwaukee, WI/Moss A

Sample ID: 9935-00027
Date Received: 11/02/01
Time Received: 09:00

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-FG6-1-011101-01, 11/1/01 @ 14:45 by BS				
Total Aerobic Bacteria	3,900. cfu/ml	11/02/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	2,140. cfu/ml	11/02/01	DJH	9215B MODIFIED
SUBJECT: MA3-FG6-2-011101-02, 11/1/01 @ 14:55 by BS				
Total Aerobic Bacteria	970. cfu/ml	11/02/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	640. cfu/ml	11/02/01	DJH	9215B MODIFIED
SUBJECT: MA3-FG6-3-011101-03, 11/1/01 @ 15:05 by BS				
Total Aerobic Bacteria	7,600. cfu/ml	11/02/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	4,700. cfu/ml	11/02/01	DJH	9215B MODIFIED
SUBJECT: MA3-FG5-1-011101-04, 11/1/01 @ 16:15 by BS				
Total Aerobic Bacteria	3,300. cfu/ml	11/02/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	690. cfu/ml	11/02/01	DJH	9215B MODIFIED
SUBJECT: MA3-FG5-2-011101-05, 11/1/01 @ 16:25 by BS				
Total Aerobic Bacteria	3,200. cfu/ml	11/02/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	420. cfu/ml	11/02/01	DJH	9215B MODIFIED
SUBJECT: MA3-FG5-3-011101-06, 11/1/01 @ 16:35 by BS				
Total Aerobic Bacteria	2,200. cfu/ml	11/02/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	510. cfu/ml	11/02/01	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: 12/03/01
P.O. Number: Milwaukee, WI/Moss
Sample ID: 9935-00027
Date Received: 11/02/01
Time Received: 09:00

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
------------	---------	------	------	--------

Submitted with Quality by

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WATER • AIR • WASTES • FOOD • PHARMACEUTICALS • NUTRACEUTICALS

CERTIFICATE OF ANALYSIS

Tom Graam
Roy F. Weston, Inc.

Date Reported: 12/03/01
P.O. Number: Milwaukee, WI/Moss An

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

Sample ID: 9935-00036
Date Received: 11/05/01
Time Received: 08:42

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG4-1-021101-01, 11/2/01 @ 09:50 by BS				
Total Aerobic Bacteria	12,000. cfu/ml	11/05/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	8,100. cfu/ml	11/05/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-2-021101-02, 11/2/01 @ 10:00 by BS				
Total Aerobic Bacteria	36,000. cfu/ml	11/05/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	11,000. cfu/ml	11/05/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-3-021101-03, 11/2/01 @ 10:10 by BS				
Total Aerobic Bacteria	24,000. cfu/ml	11/05/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	7,400. cfu/ml	11/05/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-1-021101-04, 11/2/01 @ 11:00 by BS				
Total Aerobic Bacteria	23,000. cfu/ml	11/05/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	1,900. cfu/ml	11/05/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-2-021101-05, 11/2/01 @ 11:10 by BS				
Total Aerobic Bacteria	3,900. cfu/ml	11/05/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	610. cfu/ml	11/05/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-3-021101-06, 11/2/01 @ 11:20 by BS				
Total Aerobic Bacteria	620. cfu/ml	11/05/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	430. cfu/ml	11/05/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-1-021101-07, 11/2/01 @ 13:35 by BS				
Total Aerobic Bacteria	410. cfu/ml	11/05/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	230. cfu/ml	11/05/01	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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CERTIFICATE OF ANALYSIS

Tom Graam
Roy F. Weston, Inc.

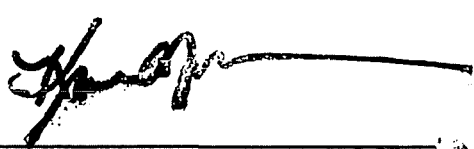
Date Reported: 12/03/01
P.O. Number: Milwaukee, WI/Moss

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

Sample ID: 9935-00036
Date Received: 11/05/01
Time Received: 08:42

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG2-2-021101-08, 11/2/01 @ 13:45 by BS				
Total Aerobic Bacteria	7,300. cfu/ml	11/05/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	390. cfu/ml	11/05/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-3-021101-09, 11/2/01 @ 13:55 by BS				
Total Aerobic Bacteria	49,000. cfu/ml	11/05/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	5,100. cfu/ml	11/05/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-1-021101-10, 11/2/01 Collected by BS				
Total Aerobic Bacteria	140,000. cfu/ml	11/05/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	6,200. cfu/ml	11/05/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-2-021101-11, 11/2/01 Collected by BS				
Total Aerobic Bacteria	27,000. cfu/ml	11/05/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	3,100. cfu/ml	11/05/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-3-021101-12, 11/2/01 Collected by BS				
Total Aerobic Bacteria	16,000. cfu/ml	11/05/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	7,900. cfu/ml	11/05/01	DJH	9215B MODIFIED

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Site Information

Site Name	Moss-America	Date received	2-Nov-01
Location	Milwaukee, WI	Date of this report	27-Nov-01
Consultant	Roy F Weston	Microbac Job Code	9935-27
Proj. Contact	Tom Graan		
Project Ref ID		Number of soil samples	0
Contaminant	btex-pah	Number of gw samples	6

Section I - Summary of Bioremediation Data

Nutrient/physical factors are as suggested by Wisconsin DNR guidelines for site characterization requirements for natural biodegradation.
 Microbial factors are shown according to bio-engineering norms.

Sample ID	Soil microbial populations:		pH	% TON /		C:N	C:P	% moisture / SWHC	% Air-filled pore space
	Exceeds norm for:			% OM	C:N				
	Passive	Active							
	>1E+06	>1E+03	5.5-8.5	>1.5	<40	<120	25-85%	>10%	
Guideline note reference:	1	2	3	4	5	6	7	8	
ma3-tg6-1-011101-1	Summary table not applicable for groundwater.								
ma3-tg6-2-011101-2	Summary table not applicable for groundwater.								
ma3-tg6-3-011101-3	Summary table not applicable for groundwater.								
ma3-tg5-1-011101-4	Summary table not applicable for groundwater.								
ma3-tg5-2-011101-5	Summary table not applicable for groundwater.								
ma3-tg5-3-011101-6	Summary table not applicable for groundwater.								

The nutrient/physical parameters summarized above for unsaturated zone soils, reflect suggested minimum Wisconsin DNR " site characterization requirements for natural biodegradation projects" as presented on pp. 6-10 in Naturally Occurring Biodegradation as a Remedial Action Option for Soil Contamination: Interim Guidance (Revised) dated August 26, 1994. **Microbac stresses that these "suggested guidelines" are only intended to provide a working frame of reference for evaluation.** Each site is unique and requires professional judgement in order to select an appropriate remedial design. We provide this information in recognition that our clients need to work within the guidelines suggested by the state. Further, we hope this will facilitate continued evolution of a working framework for evaluating sites as to the potential for bioremediation whether through site augmentation or natural attenuation.

- ✓ = Sample meets guideline.
- ✗ = Sample does not meet guideline.
- Blank = Below detection limit, not applicable, or not available for that sample.

- NOTES:
- 1) Microbial population levels in soils generally accepted as potentially adequate to support natural biodegradation. These levels are based on bio-engineering norms and not WDNR guidelines.
 - 2) Microbial population levels in soils generally accepted as minimum to serve as an "inoculum" for implementing active bioremediation strategies.
 - 3) See page 7 and 10, WDNR.
 - 4) See pages 8 and 10, WDNR. Total Organic Nitrogen (calculated from TKN minus ammonium nitrogen) divided by % organic matter.
 - 5) See pages 8 and 10, WDNR.
 - 6) See pages 8 and 10, WDNR.
 - 7) See page 6 and 10, WDNR. The suggested optimum range is 50-80% (p. 6).
 - 8) See page 8 and 10, WDNR. WDNR suggests a minimum air-filled porosity in soil of 10% is necessary for adequate oxygen diffusion in the soil gas to support biodegradation.

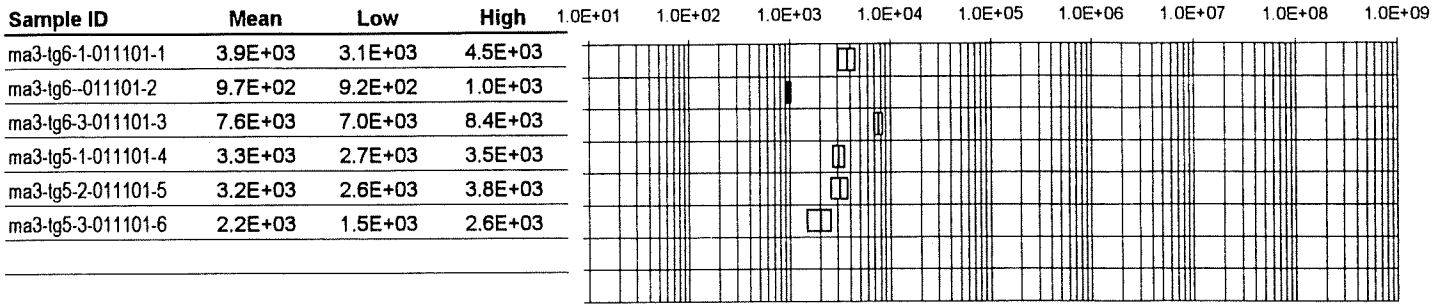
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples

Total populations

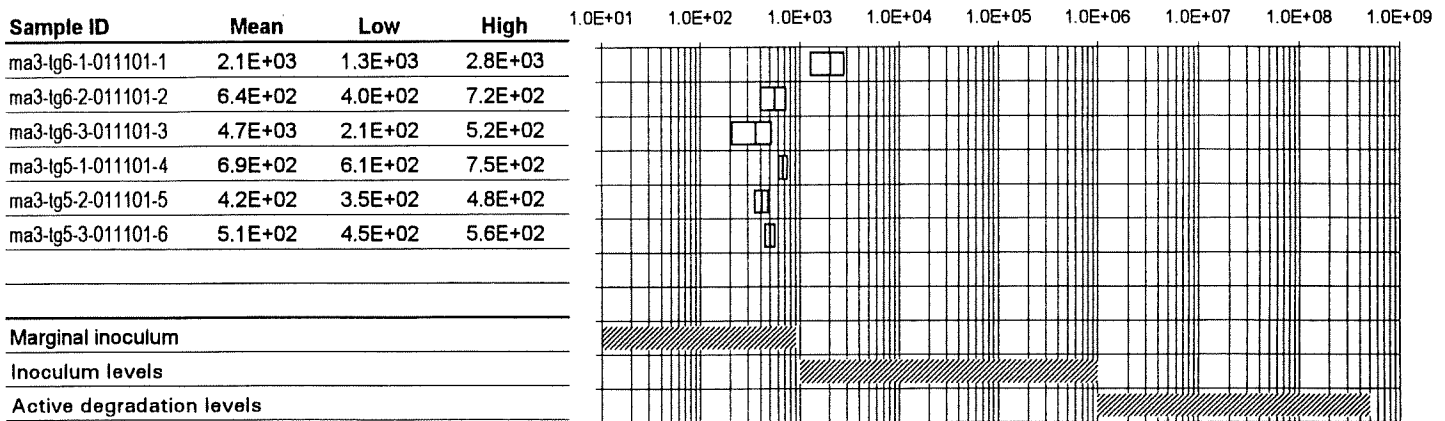
Low and high indicate 95% confidence range



Groundwater Samples

Degrader populations

Low and high indicate 95% confidence range



Marginal inoculum = Degrader populations below 1.0E+03 are indicative of severe limitations. Substantial augmentation of site conditions will likely be required to attain adequate cell mass to attain measurable biotransformation rates.

Inoculum levels = Degrader populations between 1.0E+03 and 1.0E+06 are amenable to site augmentation, but are generally insufficient to attain adequate biotransformation without site augmentation.

Active degradation levels = Degrader populations greater than 1.0E+06 are generally of sufficient magnitude to support measurable biotransformation without site augmentation. However, site augmentation may still be required to attain desirable rates of transformation due to specific site conditions.

Assay conditions

Sample ID	Degrader Media		Temp. (Celsius)	Growth Conditions	DOF **		Percent Degraders
	Carbon source	% Carbon (v/v)			Total	Degrader	
ma3-1g6-1-011101-1	btex-pah	1.0	22	aerobic	0	0	54.9%
ma3-1g6-2-011101-2	btex-pah	1.0	22	aerobic	0	0	66.0%
ma3-1g6-3-011101-3	btex-pah	1.0	22	aerobic	0	0	61.8%
ma3-1g5-1-011101-4	btex-pah	1.0	22	aerobic	0	0	20.9%
ma3-1g5-2-011101-5	btex-pah	1.0	22	aerobic	0	0	13.1%
ma3-1g5-3-011101-6	btex-pah	1.0	22	aerobic	0	0	23.2%

* cfu/ml = colony forming units per ml of groundwater

** DOF = Degrees of freedom is number of replicates minus one. This parameter is used in calculation of 95% confidence intervals.

Site Information

Site Name	Moss-America	Date received	5-Nov-01
Location	Milwaukee, WI	Date of this report	27-Nov-01
Consultant	Roy F Weston	Microbac Job Code	9935-36
Proj. Contact	Tom Graan		
Project Ref ID		Number of soil samples	0
Contaminant	btex-pah	Number of gw samples	6

Section I - Summary of Bioremediation Data

Nutrient/physical factors are as suggested by Wisconsin DNR guidelines for site characterization requirements for natural biodegradation. Microbial factors are shown according to bio-engineering norms.

Sample ID	Soil microbial populations:							
	Exceeds norm for:		pH	% TON / % OM	C:N	C:P	% moisture / SWHC	% Air-filled pore space
	Passive	Active						
	>1E+06	>1E+03	5.5-8.5	>1.5	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
ma3-tg4-1-021101-1	Summary table not applicable for groundwater.							
ma3-tg4-2-021101-2	Summary table not applicable for groundwater.							
ma3-tg4-3-021101-3	Summary table not applicable for groundwater.							
ma3-tg3-1-021101-4	Summary table not applicable for groundwater.							
ma3-tg3-2-021101-5	Summary table not applicable for groundwater.							
ma3-tg3-3-021101-6	Summary table not applicable for groundwater.							

The nutrient/physical parameters summarized above for unsaturated zone soils, reflect suggested minimum Wisconsin DNR "site characterization requirements for natural biodegradation projects" as presented on pp. 6-10 in Naturally Occurring Biodegradation as a Remedial Action Option for Soil Contamination: Interim Guidance (Revised) dated August 26, 1994. **Microbac stresses that these "suggested guidelines" are only intended to provide a working frame of reference for evaluation.** Each site is unique and requires professional judgement in order to select an appropriate remedial design. We provide this information in recognition that our clients need to work within the guidelines suggested by the state. Further, we hope this will facilitate continued evolution of a working framework for evaluating sites as to the potential for bioremediation whether through site augmentation or natural attenuation.

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- NOTES:
- 1) Microbial population levels in soils generally accepted as potentially adequate to support natural biodegradation. These levels are based on bio-engineering norms and not WDNR guidelines.
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 - 3) See page 7 and 10, WDNR.
 - 4) See pages 8 and 10, WDNR. Total Organic Nitrogen (calculated from TKN minus ammonium nitrogen) divided by % organic matter.
 - 5) See pages 8 and 10, WDNR.
 - 6) See pages 8 and 10, WDNR.
 - 7) See page 6 and 10, WDNR. The suggested optimum range is 50-80% (p. 6).
 - 8) See page 8 and 10, WDNR. WDNR suggests a minimum air-filled porosity in soil of 10% is necessary for adequate oxygen diffusion in the soil gas to support biodegradation.

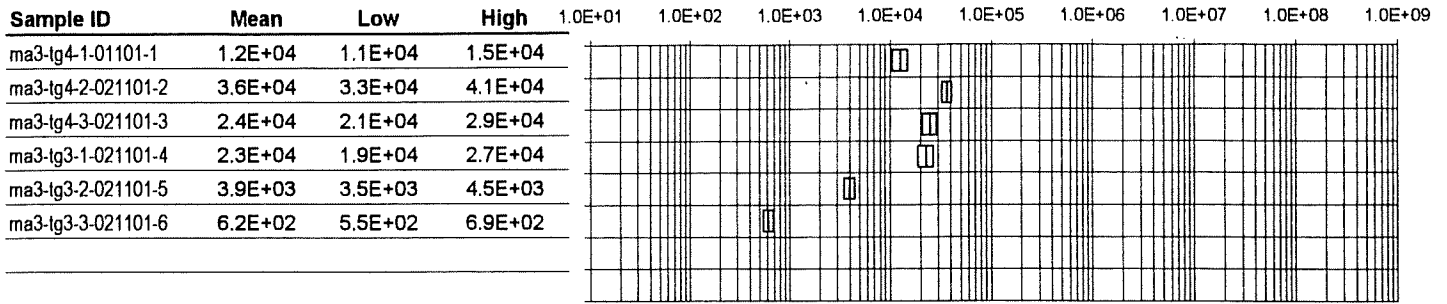
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples

Total populations

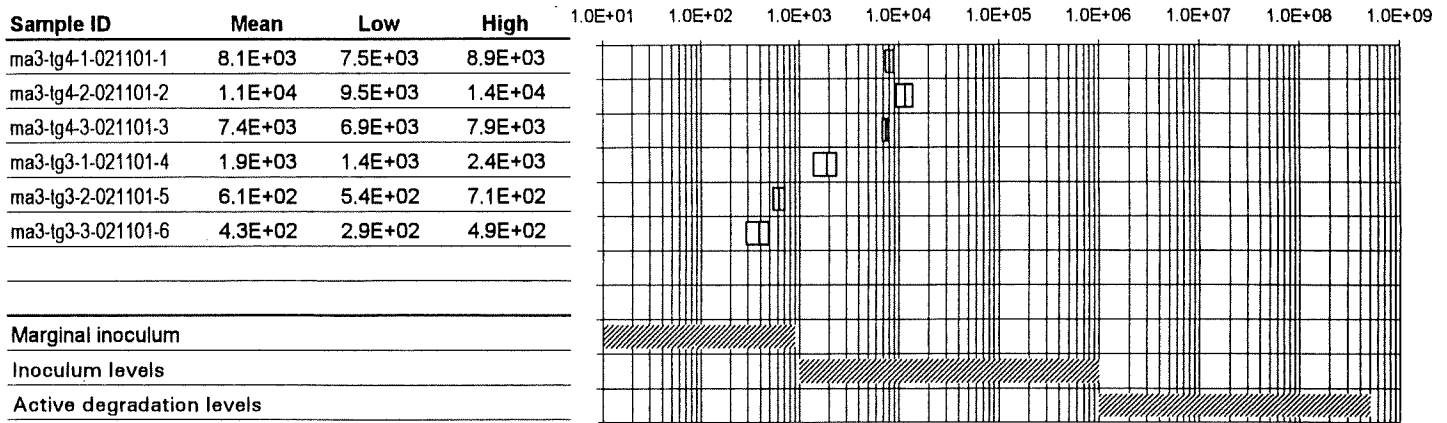
Low and high indicate 95% confidence range



Groundwater Samples

Degrader populations

Low and high indicate 95% confidence range



Marginal inoculum

Inoculum levels

Active degradation levels

Marginal inoculum = Degrader populations below 1.0E+03 are indicative of severe limitations. Substantial augmentation of site conditions will likely be required to attain adequate cell mass to attain measurable biotransformation rates.

Inoculum levels = Degrader populations between 1.0E+03 and 1.0E+06 are amenable to site augmentation, but are generally insufficient to attain adequate biotransformation without site augmentation.

Active degradation levels = Degrader populations greater than 1.0E+06 are generally of sufficient magnitude to support measurable biotransformation without site augmentation. However, site augmentation may still be required to attain desirable rates of transformation due to specific site conditions.

Assay conditions

Sample ID	Degrader Media		Temp. (Celcius)	Growth Conditions	DOF **		Percent Degraders
	Carbon source	% Carbon (v/v)			Total	Degrader	
ma3-ig4-1-021101-1	btex-pah	1.0	22	aerobic	0	0	67.5%
ma3-ig4-2-021101-2	btex-pah	1.0	22	aerobic	0	0	30.6%
ma3-ig4-3-021101-3	btex-pah	1.0	22	aerobic	0	0	30.8%
ma3-ig3-1-021101-4	btex-pah	1.0	22	aerobic	0	0	8.3%
ma3-ig3-2-021101-5	btex-pah	1.0	22	aerobic	0	0	15.6%
ma3-ig3-3-021101-6	btex-pah	1.0	22	aerobic	0	0	69.4%

* cfu/ml = colony forming units per ml of groundwater

** DOF = Degrees of freedom is number of replicates minus one. This parameter is used in calculation of 95% confidence intervals.

Site Information

Site Name	Moss-America	Date received	5-Nov-01
Location	Milwaukee, WI	Date of this report	27-Nov-01
Consultant	Roy F Weston	Microbac Job Code	9935-36
Proj. Contact	Tom Graan		
Project Ref ID		Number of soil samples	0
Contaminant	btex-pah	Number of gw samples	6

Section I - Summary of Bioremediation Data

Nutrient/physical factors are as suggested by Wisconsin DNR guidelines for site characterization requirements for natural biodegradation.
 Microbial factors are shown according to bio-engineering norms.

Sample ID	Soil microbial populations:		pH	% TON / % OM	C:N	C:P	% moisture / SWHC	% Air-filled pore space
	Exceeds norm for: Passive	Active						
	>1E+06	>1E+03	5.5-8.5	>1.5	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
ma3-tg2-1-021101-7	Summary table not applicable for groundwater.							
ma3-tg2-2-021101-8	Summary table not applicable for groundwater.							
ma3-tg2-3-021101-9	Summary table not applicable for groundwater.							
ma3-tg1-1-021101-10	Summary table not applicable for groundwater.							
ma3-tg1-2-021101-11	Summary table not applicable for groundwater.							
ma3-tg1-3-021101-12	Summary table not applicable for groundwater.							

The nutrient/physical parameters summarized above for unsaturated zone soils, reflect suggested minimum Wisconsin DNR "site characterization requirements for natural biodegradation projects" as presented on pp. 6-10 in Naturally Occurring Biodegradation as a Remedial Action Option for Soil Contamination: Interim Guidance (Revised) dated August 26, 1994. **Microbac stresses that these "suggested guidelines" are only intended to provide a working frame of reference for evaluation.** Each site is unique and requires professional judgement in order to select an appropriate remedial design. We provide this information in recognition that our clients need to work within the guidelines suggested by the state. Further, we hope this will facilitate continued evolution of a working framework for evaluating sites as to the potential for bioremediation whether through site augmentation or natural attenuation.

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 - 3) See page 7 and 10, WDNR.
 - 4) See pages 8 and 10, WDNR. Total Organic Nitrogen (calculated from TKN minus ammonium nitrogen) divided by % organic matter.
 - 5) See pages 8 and 10, WDNR.
 - 6) See pages 8 and 10, WDNR.
 - 7) See page 6 and 10, WDNR. The suggested optimum range is 50-80% (p. 6).
 - 8) See page 8 and 10, WDNR. WDNR suggests a minimum air-filled porosity in soil of 10% is necessary for adequate oxygen diffusion in the soil gas to support biodegradation.

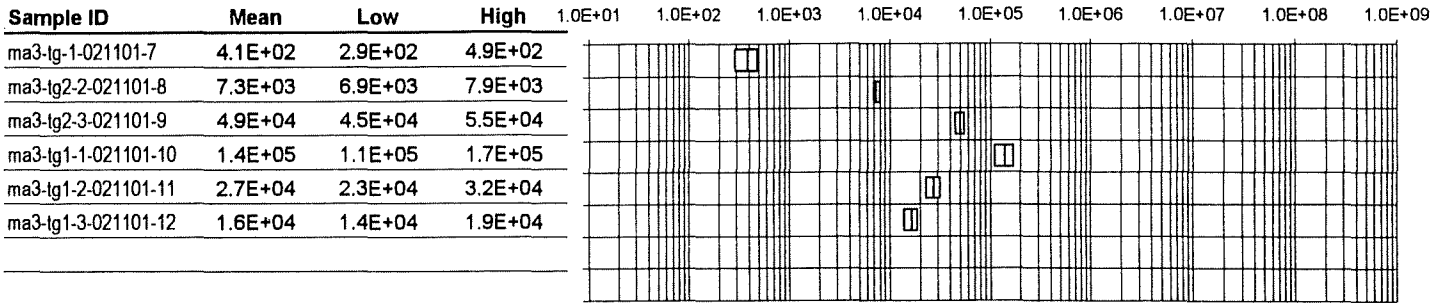
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples

Total populations

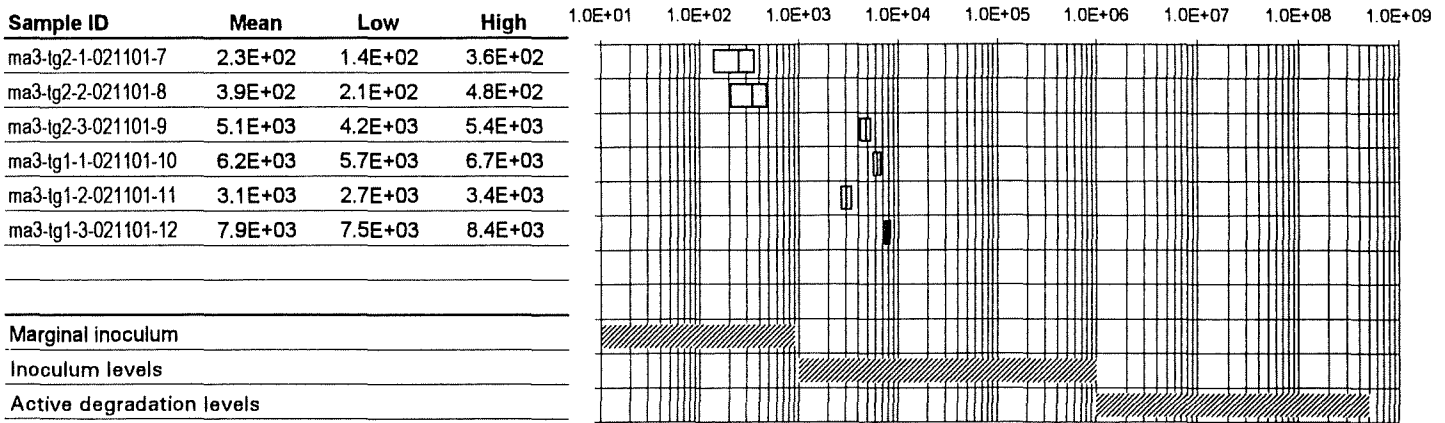
Low and high indicate 95% confidence range



Groundwater Samples

Degrader populations

Low and high indicate 95% confidence range



Marginal inoculum

Inoculum levels

Active degradation levels

Marginal inoculum = Degrader populations below 1.0E+03 are indicative of severe limitations. Substantial augmentation of site conditions will likely be required to attain adequate cell mass to attain measurable biotransformation rates.

Inoculum levels = Degrader populations between 1.0E+03 and 1.0E+06 are amenable to site augmentation, but are generally insufficient to attain adequate biotransformation without site augmentation.

Active degradation levels = Degrader populations greater than 1.0E+06 are generally of sufficient magnitude to support measurable biotransformation without site augmentation. However, site augmentation may still be required to attain desirable rates of transformation due to specific site conditions.

Assay conditions

Sample ID	Degrader Media		Temp. (Celcius)	Growth Conditions	DOF **		Percent Degraders
	Carbon source	% Carbon (v/v)			Total	Degrader	
ma3-1g2-1-021101-7	btex-pah	1.0	22	aerobic	0	0	56.1 %
ma3-1g2-2-021101-8	btex-pah	1.0	22	aerobic	0	0	5.3 %
ma3-1g2-3-021101-9	btex-pah	1.0	22	aerobic	0	0	10.4 %
ma3-1g1-1-021101-10	btex-pah	1.0	22	aerobic	0	0	4.4 %
ma3-1g1-2-021101-11	btex-pah	1.0	22	aerobic	0	0	11.5 %
ma3-1g1-3-021101-12	btex-pah	1.0	22	aerobic	0	0	49.4 %

* cfu/ml = colony forming units per ml of groundwater

** DOF = Degrees of freedom is number of replicates minus one. This parameter is used in calculation of 95% confidence intervals.

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

___ COMPOSITE
___ AUTOMATIC
___ DISCRETE
___ FLOW PROPORTIONED
___ CONTINUOUS
___ TIME TOTAL FLOW

BEGIN: _____ END: _____
DATE _____ DATE _____
TIME _____ TIME _____
FLOW _____ FLOW _____
TECH _____
MLS/Sample _____
Samples _____
INTERVAL _____

P.O. #		CLIENT NAME <i>Wagon</i>		LOCATION/PROJECT <i>Milwaukee, WI / Moss America</i>				ANALYSES REQUESTED <i>Microbial Enumeration</i>										RETURN SAMPLES TO CLIENT		
SAMPLERS (Signature) <i>Bren Schaff</i>		SEND REPORT TO: <i>Tom Grahn</i>				PHONE (847) <i>918-4000</i>														
LAB I.D. # <i>9435-27</i>		Sample Chest # Chest Temp. °C	Sample Temp. at Lab °C		Method of Shipment To Lab: Date _____ Time _____															
SAMPLE LOCATION		COLLECTED DATE TIME		SAMPLE TYPE COMP GRAB MATRIX		NO OF CONTAINERS	CONTAINER TYPE PRESERVATIVE												REMARKS OBSERVATIONS LIST SPECIAL HAZARDS HERE <i>REC'D ON ICE</i>	
<i>MA3-TG6-1-01101-01</i>		<i>1/6/01 1445</i>		<i>X water</i>		<i>1</i>	<i>plastic none</i>													
<i>MA3-TG6-2-01101-02</i>		<i>1455</i>		<i>X water</i>		<i>1</i>	<i>plastic none</i>													
<i>MA3-TG6-3-01101-03</i>		<i>1505</i>		<i>X water</i>		<i>1</i>	<i>plastic none</i>													
<i>MA3-TG5-1-01101-04</i>		<i>1615</i>		<i>X water</i>		<i>1</i>	<i>plastic none</i>													
<i>MA3-TG5-2-01101-05</i>		<i>1625</i>		<i>X water</i>		<i>1</i>	<i>plastic none</i>													
<i>MA3-TG5-3-01101-06</i>		<i>1635</i>		<i>X water</i>		<i>1</i>	<i>plastic none</i>													
Relinquished by: (Signature) <i>Bren Schaff</i>		Date <i>1/6/01</i>	Time <i>1800</i>	Received by: (Signature)				Relinquished by: (Signature)			Date	Time	Received by: (Signature)							
Relinquished by: (Signature)		Date	Time	Received by: (Signature)				Relinquished by: (Signature)			Date	Time	Received by: (Signature)							
Relinquished by: (Signature)		Date	Time	Received for Lab by: (Signature) <i>Tom Grahn</i>				Date <i>1/6/01</i>	Time <i>9:00</i>	Page _____ of _____										

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 542-544 Conkey Street Hammond, Indiana 46324
 219/932-1770 219/932-1721 Fax

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

P.O. #		CLIENT NAME <i>Nestor</i>			LOCATION/PROJECT <i>Milwaukee, WI / Mass American</i>				ANALYSES REQUESTED REMARKS OBSERVATIONS LIST SPECIAL HAZARDS HERE NOTE: ICE MELTED										RETURN SAMPLES TO CLIENT	
SAMPLERS (Signature) <i>Brian Sclaf</i>		SEND REPORT TO: <i>Tom Green</i>			PHONE: (347) 918-4200															
LAB I.D. # <i>9935-36</i>		Sample Chest # <i>17</i>		Sample Temp. at Lab °C <i>17</i> °C		Method of Shipment To Lab: <i>FEDEX</i>														
SAMPLE LOCATION		COLLECTED		SAMPLE TYPE			NO OF CONTAINERS	CONTAINER TYPE PRESERVATIVE												
		DATE	TIME	COMP.	GRAB	MATRIX														
<i>MA3-TG4-1-021101-01</i>		<i>11/2/01</i>	<i>0950</i>		<i>X</i>	<i>water</i>		<i>1</i>	<i>plastic water</i>											
<i>MA3-TG4-2-021101-02</i>			<i>1000</i>		<i>X</i>			<i>1</i>												
<i>MA3-TG4-3-021101-03</i>			<i>1010</i>		<i>X</i>			<i>1</i>												
<i>MA3-TG3-1-021101-04</i>			<i>1100</i>		<i>X</i>			<i>1</i>												
<i>MA3-TG3-2-021101-05</i>			<i>1110</i>		<i>X</i>			<i>1</i>												
<i>MA3-TG3-3-021101-06</i>			<i>1120</i>		<i>X</i>			<i>1</i>												
<i>MA3-TG2-1-021101-07</i>			<i>1335</i>		<i>X</i>			<i>1</i>												
<i>MA3-TG2-2-021101-08</i>		<i>↓</i>	<i>1345</i>		<i>X</i>	<i>↓</i>		<i>(</i>	<i>↓</i>											
Relinquished by: (Signature) <i>Brian Sclaf</i>		Date <i>11/2/01</i>	Time <i>1800</i>	Received by: (Signature)				Relinquished by: (Signature)			Date	Time	Received by: (Signature)							
		<i>1</i>						<i>2</i>					<i>4</i>							
Relinquished by: (Signature)		Date	Time	Received by: (Signature)				Relinquished by: (Signature)			Date	Time	Received by: (Signature)							
		<i>5</i>						<i>6</i>					<i>8</i>							
Relinquished by: (Signature)		Date	Time	Received for Lab by: (Signature)				Date	Time											
		<i>9</i>	<i>11/5/01</i>	<i>0842</i>	<i>[Signature]</i>				<i>11/5/01</i>	<i>0542</i>	Page <u>1</u> of <u>2</u>									



REPRINT

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 784679. Samples arrived at the laboratory on Friday, November 02, 2001.

Client Description

MA3-TG5-1-011101-04 Grab Water Sample
MA3-TG5-2-011101-05 Grab Water Sample
MA3-TG5-3-011101-06 Grab Water Sample
MA3-TG6-1-011101-01 Grab Water Sample
MA3-TG6-2-011101-02 Grab Water Sample
MA3-TG6-3-011101-03 Grab Water Sample

Lancaster Labs Number

3718734
3718735
3718736
3718737
3718738
3718739

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



Lancaster Laboratories

Where quality is a science.

Questions? Contact your Client Services Representative
Melissa A. McDermott 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



REPRINT

Lancaster Laboratories Sample No. WW 3718734

Collected: 11/01/2001 16:15 by BS

Account Number: 07802

Submitted: 11/02/2001 09:20

Kerr-McGee Corporation

Reported: 12/07/2001 at 08:14

P.O. Box 25861

Discard: 01/07/2002

Oklahoma City OK 73125

MA3-TG5-1-011101-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

50104 SDG#: MOA89-01

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result	J	Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.85	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	0.048	J	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.56	J	0.16	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.		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.31		0.13	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	11/07/2001 17:21	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/02/2001 16:40	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2001 12:03	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/02/2001 19:10	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 16:48	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/06/2001 13:30	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05	Nancy J. Shoop	1



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REPRINT

Lancaster Laboratories Sample No. WW 3718735

Collected: 11/01/2001 16:25 by BS

Account Number: 07802

Submitted: 11/02/2001 09:20
 Reported: 12/07/2001 at 08:14
 Discard: 01/07/2002

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

MA3-TG5-2-011101-05 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

50205 SDG#: MOA89-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.0	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	0.67 J	0.16		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.	0.0028		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.30	0.13		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	11/07/2001 17:22		Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/02/2001 16:41		Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2001 12:04		Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45		Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/02/2001 19:10		Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 16:49		Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/06/2001 13:30		Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05		Nancy J. Shoop	1



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REPRINT

Lancaster Laboratories Sample No. WW 3718736

Collected: 11/01/2001 16:35 by BS

Account Number: 07802

Submitted: 11/02/2001 09:20
 Reported: 12/07/2001 at 08:14
 Discard: 01/07/2002

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

MA3-TG5-3-011101-06 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

50306 SDG#: MOA89-03

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.73	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	0.041	J	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.32	J	0.16	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	0.0099	J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.23		0.13	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	11/07/2001 17:24	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/02/2001 16:42	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2001 12:05	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/02/2001 19:10	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 16:50	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/06/2001 13:30	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05	Nancy J. Shoop	1



REPRINT

Lancaster Laboratories Sample No. WW 3718737

Collected: 11/01/2001 14:45 by BS

Account Number: 07802

Submitted: 11/02/2001 09:20

Kerr-McGee Corporation

Reported: 12/07/2001 at 08:14

P.O. Box 25861

Discard: 01/07/2002

Oklahoma City OK 73125

MA3-TG6-1-011101-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

36101 SDG#: MOA89-04

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	0.94 J		0.16	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	0.0089 J		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.36		0.13	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	11/07/2001 17:25		Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/02/2001 16:44		Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2001 12:06		Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45		Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/02/2001 19:10		Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 16:51		Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/06/2001 13:30		Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05		Nancy J. Shoop	1



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REFRINT

Lancaster Laboratories Sample No. WW 3718738

Collected: 11/01/2001 14:55 by BS

Account Number: 07802

Submitted: 11/02/2001 09:20

Reported: 12/07/2001 at 08:14

Discard: 01/07/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG6-2-011101-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

36202 SDG#: MOA89-05

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.76	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	0.050	J	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.53	J	0.16	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.		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.15	J	0.13	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	11/07/2001 17:29	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/02/2001 16:45	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2001 12:08	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/02/2001 19:10	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 16:52	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/06/2001 13:30	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05	Nancy J. Shoop	1



Lancaster Laboratories Sample No. WW 3718739

Collected: 11/01/2001 15:05 by BS

Account Number: 07802

Submitted: 11/02/2001 09:20

Kerr-McGee Corporation

Reported: 12/07/2001 at 08:14

P.O. Box 25861

Discard: 01/07/2002

Oklahoma City OK 73125

MA3-TG6-3-011101-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

36303 SDG#: MOA89-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.6	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	0.59 J	0.16		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	0.0043 J	0.0028		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.20	0.13		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	11/07/2001 17:30	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/02/2001 16:46	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2001 11:54	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/02/2001 19:10	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	2	11/15/2001 11:34	Matthew J. Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/06/2001 13:30	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05	Nancy J. Shoop	1



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Lancaster Laboratories

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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 784895. Samples arrived at the laboratory on Monday, November 05, 2001.

Client Description

Lancaster Labs Number

MA3-TG4-1-021101-01 Grab Water Sample	3720022
MA3-TG4-2-021101-02 Grab Water Sample	3720023
MA3-TG4-3-021101-03 Grab Water Sample	3720024
MA3-TG3-1-021101-04 Grab Water Sample	3720025
MA3-TG3-2-021101-05 Grab Water Sample	3720026
MA3-TG3-3-021101-06 Grab Water Sample	3720027
MA3-TG2-1-021101-07 Grab Water Sample	3720028
MA3-TG2-2-021101-08 Grab Water Sample	3720029
MA3-TG2-3-021101-09 Grab Water Sample	3720030
MA3-TG1-1-021101-10 Grab Water Sample	3720031
MA3-TG1-2-021101-11 Grab Water Sample	3720032
MA3-TG1-3-021101-12 Grab Water Sample	3720033

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



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

Respectfully Submitted,

Erik J. Frederiksen
Group Leader



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Lancaster Laboratories Sample No. WW 3720031

Collected: 11/02/2001 00:00 by BS

Account Number: 07802

Submitted: 11/05/2001 09:25

Kerr-McGee Corporation

Reported: 11/20/2001 at 08:53

P.O. Box 25861

Discard: 12/21/2001

Oklahoma City OK 73125

MA3-TG1-1-021101-10 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3G110 SDG#: MOA89-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.1		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.017 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	0.94 J		0.16	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.		0.0028	mg/l	1
This sample was submitted past the 48 hour holding time for orthophosphate. The low level check standard analyzed on this batch yielded a recovery of 47%. The acceptable range is 50% to 150%. The LCS, and high level check standard were within specifications.							
00345	Total Phosphorus as PO4 water	14265-44-2	0.26		0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date	Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/14/2001	15:00	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/05/2001	19:17	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/14/2001	11:41	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001	07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/06/2001	00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001	16:02	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/07/2001	13:38	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001	16:05	Nancy J. Shoop	1



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Lancaster Laboratories Sample No. WW 3720032

Collected: 11/02/2001 00:00 by BS

Account Number: 07802

Submitted: 11/05/2001 09:25

Kerr-McGee Corporation

Reported: 11/20/2001 at 08:53

P.O. Box 25861

Discard: 12/21/2001

Oklahoma City OK 73125

MA3-TG1-2-021101-11 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3G111 SDG#: MOA89-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.4		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		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	1.0		0.16	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.		0.0028	mg/l	1
This sample was submitted past the 48 hour holding time for orthophosphate. The low level check standard analyzed on this batch yielded a recovery of 47%. The acceptable range is 50% to 150%. The LCS, and high level check standard were within specifications.							
00345	Total Phosphorus as PO4 water	14265-44-2	0.35		0.13	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	11/14/2001 15:01		Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/05/2001 19:18		Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/14/2001 11:45		Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45		Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/06/2001 00:50		Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 16:03		Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/07/2001 13:38		Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05		Nancy J. Shoop	1



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Lancaster Laboratories Sample No. WW 3720033

Collected: 11/02/2001 00:00 by BS

Account Number: 07802

Submitted: 11/05/2001 09:25

Kerr-McGee Corporation

Reported: 11/20/2001 at 08:54

P.O. Box 25861

Discard: 12/21/2001

Oklahoma City OK 73125

MA3-TG1-3-021101-12 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3G112 SDG#: MOA89-18*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.1		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		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	0.70 J		0.16	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.		0.0028	mg/l	1
This sample was submitted past the 48 hour holding time for orthophosphate. The low level check standard analyzed on this batch yielded a recovery of 47%. The acceptable range is 50% to 150%. The LCS, and high level check standard were within specifications.							
00345	Total Phosphorus as PO4 water	14265-44-2	0.34		0.13	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	11/14/2001 15:05	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/05/2001 19:19	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/14/2001 11:46	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/06/2001 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 16:04	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/07/2001 13:38	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05	Nancy J. Shoop	1



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Lancaster Laboratories Sample No. WW 3720028

Collected: 11/02/2001 13:35 by BS

Account Number: 07802

Submitted: 11/05/2001 09:25

Kerr-McGee Corporation

Reported: 11/20/2001 at 08:53

P.O. Box 25861

Discard: 12/21/2001

Oklahoma City OK 73125

MA3-TG2-1-021101-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3G207 SDG#: MOA89-13

CAT No.	Analysis Name	CAS Number	As Received		As Received	Units	Dilution Factor
			Result		Method		
00217	Kjeldahl Nitrogen	7727-37-9	0.37	J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		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	0.18	J	0.16	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.		0.0028	mg/l	1
This sample was submitted past the 48 hour holding time for orthophosphate. The low level check standard analyzed on this batch yielded a recovery of 47%. The acceptable range is 50% to 150%. The LCS, and high level check standard were within specifications.							
00345	Total Phosphorus as PO4 water	14265-44-2	0.15	J	0.13	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	11/14/2001 14:56	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/05/2001 19:13	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/14/2001 11:35	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/06/2001 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 15:57	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/07/2001 13:38	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05	Nancy J. Shoop	1



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Lancaster Laboratories Sample No. **WW 3720029**

Collected: 11/02/2001 13:45 by BS

Account Number: 07802

Submitted: 11/05/2001 09:25

Kerr-McGee Corporation

Reported: 11/20/2001 at 08:53

P.O. Box 25861

Discard: 12/21/2001

Oklahoma City OK 73125

MA3-TG2-2-021101-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3G208 SDG#: MOA89-14

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.91	J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		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	0.73	J	0.16	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.		0.0028	mg/l	1
This sample was submitted past the 48 hour holding time for orthophosphate. The low level check standard analyzed on this batch yielded a recovery of 47%. The acceptable range is 50% to 150%. The LCS, and high level check standard were within specifications.							
00345	Total Phosphorus as PO4 water	14265-44-2	0.25		0.13	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	11/14/2001 14:57	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/05/2001 19:14	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/14/2001 11:38	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/06/2001 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 15:58	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/07/2001 13:38	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05	Nancy J. Shoop	1



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Lancaster Laboratories Sample No. WW 3720030

Collected: 11/02/2001 13:55 by BS

Account Number: 07802

Submitted: 11/05/2001 09:25

Kerr-McGee Corporation

Reported: 11/20/2001 at 08:53

P.O. Box 25861

Discard: 12/21/2001

Oklahoma City OK 73125

MA3-TG2-3-021101-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3G209 SDG#: MOA89-15

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.41	J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.016	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	0.26	J	0.16	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	0.0180	J	0.0028	mg/l	1
This sample was submitted past the 48 hour holding time for orthophosphate. The low level check standard analyzed on this batch yielded a recovery of 47%. The acceptable range is 50% to 150%. The LCS, and high level check standard were within specifications.							
00345	Total Phosphorus as PO4 water	14265-44-2	0.30		0.13	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	11/14/2001 14:58	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/05/2001 19:16	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/14/2001 11:40	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/06/2001 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 15:59	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/07/2001 13:38	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05	Nancy J. Shoop	1



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Lancaster Laboratories Sample No. WW 3720025

Collected: 11/02/2001 11:00 by BS

Account Number: 07802

Submitted: 11/05/2001 09:25

Kerr-McGee Corporation

Reported: 11/20/2001 at 08:53

P.O. Box 25861

Discard: 12/21/2001

Oklahoma City OK 73125

MA3-TG3-1-021101-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3G304 SDG#: MOA89-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	2.2	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.031 J	0.015	mg/l	1
This sample was submitted past the 48 hour holding time for nitrite.						
00220	Nitrate Nitrogen	14797-55-8	0.16	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.7	0.16	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.	0.0028	mg/l	1
This sample was submitted past the 48 hour holding time for orthophosphate. The low level check standard analyzed on this batch yielded a recovery of 47%. The acceptable range is 50% to 150%. The LCS, and high level check standard were within specifications.						
00345	Total Phosphorus as PO4 water	14265-44-2	0.33	0.13	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	11/14/2001 14:50	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/05/2001 19:07	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	3	11/14/2001 11:31	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/06/2001 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 16:58	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/07/2001 13:38	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05	Nancy J. Shoop	1



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Lancaster Laboratories Sample No. WW 3720026

Collected: 11/02/2001 11:10 by BS

Account Number: 07802

Submitted: 11/05/2001 09:25

Kerr-McGee Corporation

Reported: 11/20/2001 at 08:53

P.O. Box 25861

Discard: 12/21/2001

Oklahoma City OK 73125

MA3-TG3-2-021101-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3G305 SDG#: MOA89-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.4		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.016 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		0.16	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.		0.0028	mg/l	1
This sample was submitted past the 48 hour holding time for orthophosphate. The low level check standard analyzed on this batch yielded a recovery of 47%. The acceptable range is 50% to 150%. The LCS, and high level check standard were within specifications.							
00345	Total Phosphorus as PO4 water	14265-44-2	0.38		0.13	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	11/14/2001 14:51	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/05/2001 19:08	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/14/2001 11:32	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/06/2001 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 15:54	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/07/2001 13:38	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05	Nancy J. Shoop	1



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Lancaster Laboratories Sample No. WW 3720027

Collected: 11/02/2001 11:20 by BS

Account Number: 07802

Submitted: 11/05/2001 09:25

Kerr-McGee Corporation

Reported: 11/20/2001 at 08:53

P.O. Box 25861

Discard: 12/21/2001

Oklahoma City OK 73125

MA3-TG3-3-021101-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3G306 SDG#: MOA89-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.7	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.023 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	1.3	0.16	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.	0.0028	mg/l	1
This sample was submitted past the 48 hour holding time for orthophosphate. The low level check standard analyzed on this batch yielded a recovery of 47%. The acceptable range is 50% to 150%. The LCS, and high level check standard were within specifications.						
00345	Total Phosphorus as PO4 water	14265-44-2	0.49	0.13	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	11/14/2001 14:52	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/05/2001 19:12	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/14/2001 11:33	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/06/2001 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 16:58	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/07/2001 13:38	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05	Nancy J. Shoop	1



Lancaster Laboratories Sample No. WW 3720022

Collected: 11/02/2001 09:50 by BS

Account Number: 07802

Submitted: 11/05/2001 09:25

Kerr-McGee Corporation

Reported: 11/20/2001 at 08:53

P.O. Box 25861

Discard: 12/21/2001

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MA3-TG4-1-021101-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3G401 SDG#: MOA89-07

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor	
			Result		Method	Detection Limit		Units
00217	Kjeldahl Nitrogen	7727-37-9	0.73	J	0.30		mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		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.		0.16		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.		0.0028		mg/l	1
This sample was submitted past the 48 hour holding time for orthophosphate. The low level check standard analyzed on this batch yielded a recovery of 47%. The acceptable range is 50% to 150%. The LCS, and high level check standard were within specifications.								
00345	Total Phosphorus as PO4 water	14265-44-2	0.30		0.13		mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Analyst	Dilut Fact
			Trial#	Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/14/2001 14:43		Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/05/2001 19:03		Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/14/2001 11:22		Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45		Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/06/2001 00:50		Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 15:48		Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/07/2001 13:38		Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05		Nancy J. Shoop	1



Lancaster Laboratories Sample No. WW 3720023

Collected: 11/02/2001 10:00 by BS

Account Number: 07802

Submitted: 11/05/2001 09:25

Kerr-McGee Corporation

Reported: 11/20/2001 at 08:53

P.O. Box 25861

Discard: 12/21/2001

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MA3-TG4-2-021101-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3G402 SDG#: MOA89-08

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
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	0.97 J		0.16	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.		0.0028	mg/l	1
This sample was submitted past the 48 hour holding time for orthophosphate. The low level check standard analyzed on this batch yielded a recovery of 47%. The acceptable range is 50% to 150%. The LCS, and high level check standard were within specifications.							
00345	Total Phosphorus as PO4 water	14265-44-2	0.26		0.13	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	11/14/2001 14:47	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/05/2001 19:04	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/14/2001 11:23	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/06/2001 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 16:56	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/07/2001 13:38	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05	Nancy J. Shoop	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 3720024

Collected: 11/02/2001 10:10 by BS

Account Number: 07802

Submitted: 11/05/2001 09:25
 Reported: 11/20/2001 at 08:53
 Discard: 12/21/2001

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

MA3-TG4-3-021101-03 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

3G403 SDG#: MOA89-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.3		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		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		0.16	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	0.0064 J		0.0028	mg/l	1
This sample was submitted past the 48 hour holding time for orthophosphate. The low level check standard analyzed on this batch yielded a recovery of 47%. The acceptable range is 50% to 150%. The LCS, and high level check standard were within specifications.							
00345	Total Phosphorus as PO4 water	14265-44-2	0.31		0.13	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	11/14/2001 14:48	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/05/2001 19:06	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/14/2001 11:30	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/08/2001 07:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/06/2001 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/09/2001 16:57	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/07/2001 13:38	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/08/2001 16:05	Nancy J. Shoop	1



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 Lancaster, PA 17605-2425
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 Acct. # 7802 Sample # 3718734-39

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 Graen</u> P.O. #: _____ Sampler: <u>B Schaefer, S Meyer</u> Quote #: _____ Name of state where samples were collected: <u>WE</u>				Matrix (4) <input type="checkbox"/> Potable (check if applicable) <input type="checkbox"/> NPDES Other: _____		Analyses Requested (5)						For lab use only FSC: _____ SCR #: <u>1158588</u>				
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	NH ₃	TP-PO ₄	TKN	NO ₂	NO ₃	O-PO ₄	Remarks	Temperature of samples upon receipt (if requested) (6)
<u>MA3-TG5-1-011101-04</u>	<u>11/01/01</u>	<u>1615</u>	<u>X</u>			<u>X</u>		<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		
<u>MA3-TG5-2-011101-05</u>	<u>11/01/01</u>	<u>1625</u>	<u>X</u>			<u>X</u>		<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		
<u>MA3-TG5-3-011101-06</u>	<u>11/01/01</u>	<u>1635</u>	<u>X</u>			<u>X</u>		<u>5</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 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>10/24/01</u> Time: <u>1130</u> Relinquished by: <u>[Signature]</u> Date: <u>11/01/01</u> Time: <u>1800</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>[Signature]</u> Date: <u>11/01/01</u> Time: <u>0920</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>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"/>		



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 Acct. # 7802 Sample # 3718734-39

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

Client: <u>Wpston / Kew McGee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Organ</u> P.O.# _____ Sampler: <u>B Schaefer, S Meyer</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) NH3, TKN, TP-P07, O-P04, NO2, NO3						For lab use only FSC: _____ SCR #: <u>1157628</u>				
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-TG6-1-011101-01	11/01/01	1445	X			X		5	X	X	X	X	X	X		
MA3-TG6-2-011101-02	11/01/01	1455	X			X		5	X	X	X	X	X	X		
MA3-TG6-3-011101-03	11/01/01	1505	X			X		5	X	X	X	X	X	X		
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>J. Helmer</u> Date: <u>9/27/01</u> Time: <u>10:00</u> Relinquished by: <u>Brian Schaefer</u> Date: <u>11/01/01</u> Time: <u>18:00</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>W. [Signature]</u> Date: <u>11/21/01</u> Time: <u>09:20</u>										
Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <u>IR 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														



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3720022-33

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

1 Client: Lisa M. Keener Acct. #: _____
 Project Name#: Mass American PWSID #: _____
 Project Manager: Tom Grian P.O.# _____
 Sampler: B. Schaefer, S. Meyer Quote #: _____
 Name of state where samples were collected: WI

Matrix 4
 Potable (check if applicable)
 Water NPDES
 Other

5 Analyses Requested
 NH₃ TKN TP ADY NO₂ NO₃ O-PDY

For lab use only
 FSC: _____
 SCR #: _____

6 Temperature of samples upon receipt (if requested)

Sample Identification	Date Collected	Time Collected	3		Soil	Water	Other	Total # of Containers	5						Remarks	6
			Grab	Composite					NH ₃	TKN	TP ADY	NO ₂	NO ₃	O-PDY		
MA3-TG4-1-021101-01	11/2/01	0950	X			X		5	X	X	X	X	X	X		
MA3-TG4-2-021101-02	11/2/01	1000	X			X		5	X	X	X	X	X	X		
MA3-TG4-3-021101-03	11/2/01	1010	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) 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: Brown & Leaf Date: 11/2/01 Time: 1800
 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: Mass Zork Date: 11/5/01 Time: 0925

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

Client: <u>Lupton/Kerr m. Gee</u> Acct. #:		Matrix 4		Analyses Requested 5						For lab use only					
Project Name/#: <u>Moss American</u> PWSID #:		Soil <input type="checkbox"/> Potable (Check if applicable) <input type="checkbox"/> NPDES <input type="checkbox"/> Other								FSC: _____		SCR #: _____			
Project Manager: <u>Tan Gordon</u> P.O. #:		Total # of Containers		Temperature of samples upon receipt (if requested) 6											
Sampler: <u>B Schaefer, S Meyer</u> Quote #:		Soil <input type="checkbox"/> Water <input type="checkbox"/> Other													
Name of state where samples were collected: <u>WI</u>		Grab 3 Composite													
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	NH3	TKN	TP-P04	O-P04	NO2	NO3	Remarks
<u>MA3-TG3-1-021101-04</u>	<u>11/2/01</u>	<u>1100</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-TG3-2-021101-05</u>	<u>11/2/01</u>	<u>1110</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-TG3-3-021101-06</u>	<u>11/2/01</u>	<u>1120</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 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>347-913-4000</u> Fax #: <u>347-913-4055</u>	Relinquished by:	Date	Time	Received by:	Date	Time			
	Relinquished by: <u>Bleum & Hat</u>	<u>11/2/01</u>	<u>1800</u>						
	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>IER QUOTE</u>	SDG Complete? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Relinquished by:	Date	Time	Received by:	Date	Time
	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 type="checkbox"/> (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 <input type="checkbox"/> No <input type="checkbox"/>	Relinquished by:	Date	Time	Received by: <u>Rejozok</u>	<u>11/5/01</u>	<u>0925</u>
Type IV (CLP)									



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 Acct. # 7802 Sample # 3720022-33

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

Client: <u>Moss Weston/Kerr McGee</u> Acct. #: _____ Project Name/#: <u>Mass American</u> PWSID #: _____ Project Manager: <u>Tom Gran</u> P.O.# _____ Sampler: <u>B Schaefer, S Meyer</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			Analyses Requested 5 MH3 TKN TP-P04 O-P04 NO ₂ NO ₃						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-TG2-1-021101-07	11/2/01	1335	X			X		5	X	X	X	X	X	X		
MA3-TG2-2-021101-08	11/2/01	1345	X			X		5	X	X	X	X	X	X		
MA3-TG2-3-021101-09	11/2/01	1355	X			X		5	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>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: <u>Brian Schaefer</u> Date: <u>11/2/01</u> Time: <u>1800</u> Relinquished by: _____ Date: _____ Time: _____ 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>Paul Zork</u> Date: <u>11/5/01</u> Time: <u>0925</u>	
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 checked="" type="checkbox"/> No <input 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"/>			

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

Client: <u>Winston Kerr McGee</u> Acct. #: _____		Matrix 4		5 Analyses Requested <div style="display: flex; justify-content: space-around; font-size: small;"> MH3TKNTP-PHYD-PHYNO2NO3 </div>						For lab use only FSC: _____ SCR #: _____						
Project Name/#: <u>Moss American</u> PWSID #: _____		Project Manager: <u>Tom Gruan</u> P.O.# _____								Sampler: <u>B Schaefer, S Meyer</u> Quote #: _____		Name of state where samples were collected: <u>WI</u>				
Sample Identification	Date Collected	Time Collected	Grab 3	Composite	Soil	Water <input type="checkbox"/> Potable <input type="checkbox"/> NPDES (Check if applicable)	Other	Total # of Containers							6 Temperature of samples upon receipt (if requested)	
<u>MA3-TG1-1-021101-10</u>	<u>11/2/01</u>		X			Y		5	X	X	X	X	X	X		
<u>MA3-TG1-2-021101-11</u>	<u>11/2/01</u>		X			X		5	X	X	X	X	X	X		
<u>MA3-TG1-3-021101-12</u>	<u>11/2/01</u>		X			X		5	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>SDTAT</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>11/2/01</u> Time: <u>1800</u> Relinquished by: _____ Date: _____ Time: _____ 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>[Signature]</u> Date: <u>11/5/01</u> Time: <u>0925</u>										
8 Data Package Options (please circle if requested)			QC Summary Type VI (Raw Data) <u>PERQUOTE</u> <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 type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>										



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CLIENT: Kerr-McGee Corporation
SDG: MOA89

LANCASTER LABORATORIES
INSTRUMENTAL WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3718734	50104	
3718735	50205	
3718736	50306	
3718737	36101	
3718738	36202	
3718739	36303	
3720022	3G401	
3720023	3G402	
3720024	3G403	
3720025	3G304	
3720026	3G305	
3720027	3G306	
3720028	3G207	
3720029	3G208	
3720030	3G209	
3720031	3G110	
3720032	3G111	
3720033	3G112	

ANALYSIS:

Samples 3720022-33 were submitted past the 48 hour holding time for the nitrite nitrogen analysis.

Dilutions are listed in the table below.

SAMPLE	NITRATE-N	TP as PO4
All LCS	2	2

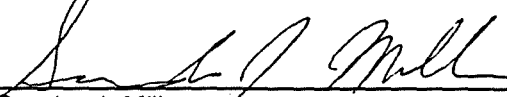
QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

A number of analyte recoveries were out of specification. Refer to the duplicate and matrix spike forms for the specific analyte recoveries outside the QC limits.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:


 Sandra J. Miller Date: 11.23.01
 Specialist/Coordinator

000000



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: MOA89

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3718734	50104	
3718735	50205	
3718736	50306	
3718737	36101	
3718738	36202	
3718739	36303	
3720022	3G401	
3720023	3G402	
3720024	3G403	
3720025	3G304	
3720026	3G305	
3720027	3G306	
3720028	3G207	
3720029	3G208	
3720030	3G209	
3720031	3G110	
3720032	3G111	
3720033	3G112	

ANALYSIS:

No problems were encountered during analysis.

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.

Samples 3720022-33 were submitted past the 48 holding time for the orthophosphate analysis.

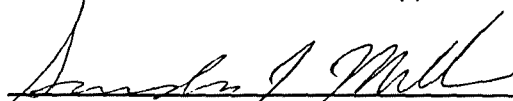
QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The duplicate sample for the ammonia nitrogen analysis was out of specification.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:


Sandra J. Miller
Specialist/Coordinator

Date: 11.23.01

0204

ATTACHMENT 3

NOVEMBER 2001 GROUNDWATER SAMPLE ANALYTICAL RESULTS

Microbac

® Microbac Laboratories, Inc.

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

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

<http://www.microbac.com>

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WATER • AIR • WASTES • FOOD • PHARMACEUTICALS • NUTRACEUTICALS

CERTIFICATE OF ANALYSIS

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

Date Reported: 12/31/01
P.O. Number: MOSS AMERICA
Sample ID: 9935-00362
Date Received: 11/27/01
Time Received: 09:30

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG6-1-261101-01, 11/26/01 @ 14:35 by JK				
Total Aerobic Bacteria	2,700. cfu/ml	11/27/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	830. cfu/ml	11/27/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-2-261101-02, 11/26/01 @ 14:45 by JK				
Total Aerobic Bacteria	330. cfu/ml	11/27/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	140. cfu/ml	11/27/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-3-261101-03, 11/26/01 @ 14:55 by JK				
Total Aerobic Bacteria	1,100. cfu/ml	11/27/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	520. cfu/ml	11/27/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-1-261101-04, 11/26/01 @ 16:00 by JK				
Total Aerobic Bacteria	2,200. cfu/ml	11/27/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	610. cfu/ml	11/27/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-2-261101-05, 11/26/01 @ 16:10 by JK				
Total Aerobic Bacteria	1,800. cfu/ml	11/27/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	520. cfu/ml	11/27/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-3-261101-06, 11/26/01 @ 16:20 by JK				
Total Aerobic Bacteria	4,600. cfu/ml	11/27/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	390. cfu/ml	11/27/01	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: 12/31/01
P.O. Number: MOSS AMERICA
Sample ID: 9935-00362
Date Received: 11/27/01
Time Received: 09:30

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
------------	---------	------	------	--------

Submitted with Quality by _____



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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: 12/31/01
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9935-00391
Date Received: 11/28/01
Time Received: 10:00

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-764-1-271101-01, 11/27/01 @ 09:30 by BS/BM				
Total Aerobic Bacteria	1,100. cfu/ml	11/29/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	230. cfu/ml	11/29/01	DJH	9215B MODIFIED
SUBJECT: MA3-764-2-271101-02, 11/27/01 @ 09:40 by BS/BM				
Total Aerobic Bacteria	3,600. cfu/ml	11/29/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	930. cfu/ml	11/29/01	DJH	9215B MODIFIED
SUBJECT: MA3-764-3-271101-03, 11/27/01 @ 09:50 by BS/BM				
Total Aerobic Bacteria	3,000. cfu/ml	11/29/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	280. cfu/ml	11/29/01	DJH	9215B MODIFIED
SUBJECT: MA3-763-1-271101-04, 11/27/01 @ 10:35 by BS/BM				
Total Aerobic Bacteria	12,000. cfu/ml	11/29/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	730. cfu/ml	11/29/01	DJH	9215B MODIFIED
SUBJECT: MA3-763-2-271101-05, 11/27/01 @ 10:45 by BS/BM				
Total Aerobic Bacteria	2,500. cfu/ml	11/29/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	610. cfu/ml	11/29/01	DJH	9215B MODIFIED
SUBJECT: MA3-763-3-271101-06, 11/27/01 @ 10:55 by BS/BM				
Total Aerobic Bacteria	620. cfu/ml	11/29/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	390. cfu/ml	11/29/01	DJH	9215B MODIFIED
SUBJECT: MA3-762-1-271101-07, 11/27/01 @ 11:50 by BS/BM				
Total Aerobic Bacteria	580. cfu/ml	11/29/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	280. cfu/ml	11/29/01	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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CERTIFICATE OF ANALYSIS

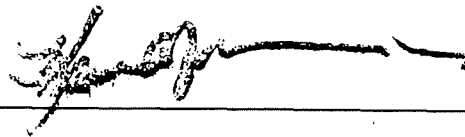
Tom Graam
Roy F. Weston, Inc.
750 East Bunker Court
Suite 500
Vernon Hills, IL 60061-1450

Date Reported: 12/31/01
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9935-00391
Date Received: 11/28/01
Time Received: 10:00

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG2-2-271101-08, 11/27/01 @ 12:00 by BS/BM				
Total Aerobic Bacteria	1,700. cfu/ml	11/29/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	370. cfu/ml	11/29/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-3-271101-09, 11/27/01 @ 12:10 by BS/BM				
Total Aerobic Bacteria	520. cfu/ml	11/29/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	210. cfu/ml	11/29/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-1-271101-10, 11/27/01 @ 15:00 by BS/BM				
Total Aerobic Bacteria	15,000. cfu/ml	11/29/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	1,400. cfu/ml	11/29/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-2-271101-11, 11/27/01 @ 15:10 by BS/BM				
Total Aerobic Bacteria	1,600. cfu/ml	11/29/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	610. cfu/ml	11/29/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-3-271101-12, 11/27/01 @ 15:20 by BS/BM				
Total Aerobic Bacteria	7,900. cfu/ml	11/29/01	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	1,700. cfu/ml	11/29/01	DJH	9215B MODIFIED

Submitted with Quality by _____



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Site Information

Site Name	Moss America	Date received	27-Nov-01
Location	Milwaukee, WI	Date of this report	21-Dec-01
Consultant	Roy F Weston	BioRenewal Job Code	9935-362
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	BTEX, PAH, creosols	Number of gw samples	6

Section I - Summary of Bioremediation Data

Nutrient/physical factors are as suggested by Wisconsin DNR guidelines for site characterization requirements for natural biodegradation.
 Microbial factors are shown according to bio-engineering norms.

Sample ID	Soil microbial populations:		pH	% TON /			% moisture / SWHC	% Air-filled pore space
	Exceeds norm for:			% OM	C:N	C:P		
	Passive	Active						
	>1E+06	>1E+03	5.5-8.5	>1.5%	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
ma3-tg6-1-261101-1	Summary table not applicable for groundwater.							
ma3-tg6-2-261101-2	Summary table not applicable for groundwater.							
ma3-tg6-3-261101-3	Summary table not applicable for groundwater.							
ma3-tg5-1-261101-4	Summary table not applicable for groundwater.							
ma3-tg5-2-261101-5	Summary table not applicable for groundwater.							
ma3-tg5-3-261101-6	Summary table not applicable for groundwater.							

The nutrient/physical parameters summarized above for unsaturated zone soils, reflect suggested minimum Wisconsin DNR "site characterization requirements for natural biodegradation projects" as presented on pp. 6-10 in Naturally Occurring Biodegradation as a Remedial Action Option for Soil Contamination: Interim Guidance (Revised) dated August 26, 1994. **Microbac stresses that these "suggested guidelines" are only intended to provide a working frame of reference for evaluation.** Each site is unique and requires professional judgement in order to select an appropriate remedial design. We provide this information in recognition that our clients need to work within the guidelines suggested by the state. Further, we hope this will facilitate continued evolution of a working framework for evaluating sites as to the potential for bioremediation whether through site augmentation or natural attenuation.

- ✓ = Sample meets guideline.
- ✗ = Sample does not meet guideline.
- Blank = Below detection limit, not applicable, or not available for that sample.

- NOTES:
- 1) Microbial population levels in soils generally accepted as potentially adequate to support natural biodegradation. These levels are based on bio-engineering norms and not WDNR guidelines.
 - 2) Microbial population levels in soils generally accepted as minimum to serve as an "inoculum" for implementing active bioremediation strategies.
 - 3) See page 7 and 10, WDNR.
 - 4) See pages 8 and 10, WDNR. Total Organic Nitrogen (calculated from TKN minus ammonium nitrogen) divided by % organic matter.
 - 5) See pages 8 and 10, WDNR.
 - 6) See pages 8 and 10, WDNR.
 - 7) See page 6 and 10, WDNR. The suggested optimum range is 50-80% (p. 6).
 - 8) See page 8 and 10, WDNR. WDNR suggests a minimum air-filled porosity in soil of 10% is necessary for adequate oxygen diffusion in the soil gas to support biodegradation.

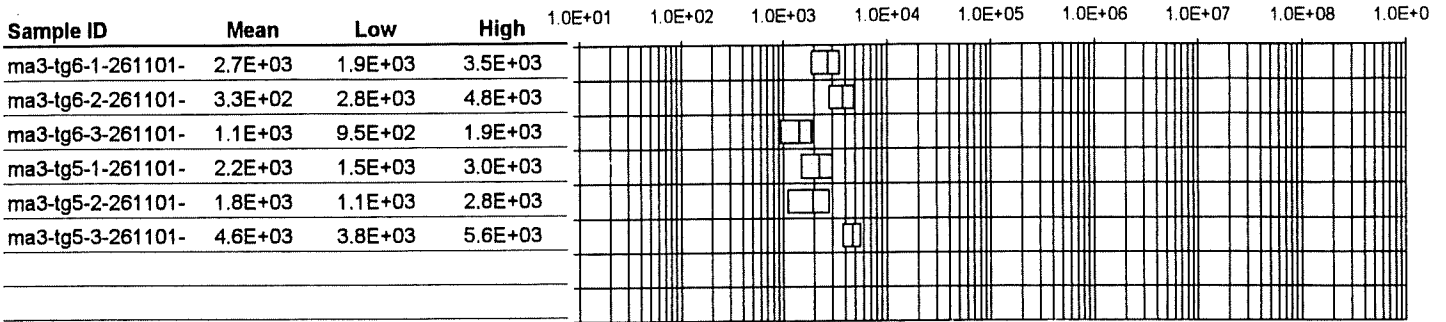
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples

Total populations

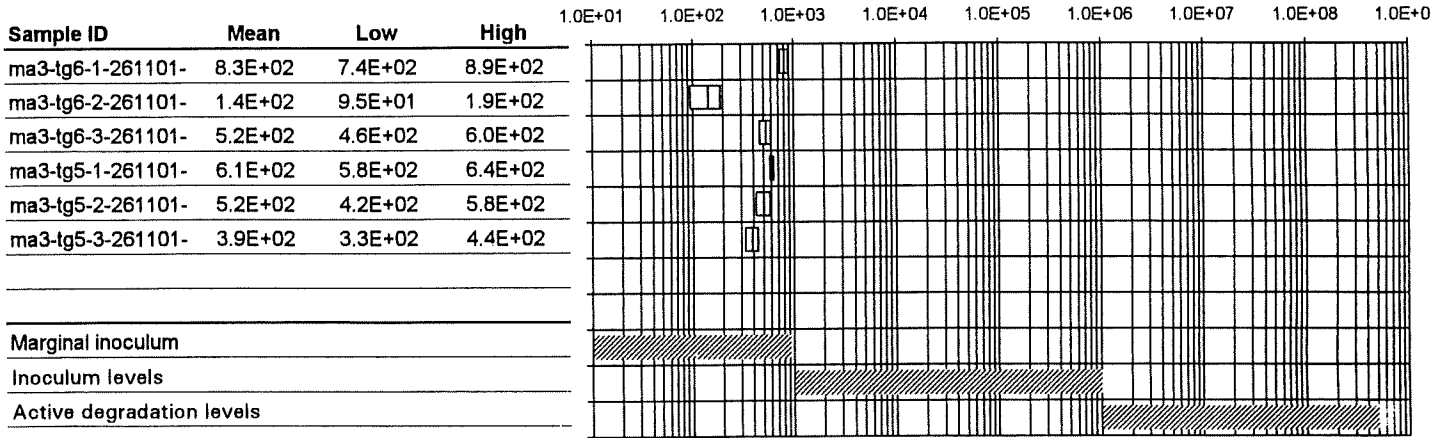
Low and high indicate 95% confidence range



Groundwater Samples

Degrader populations

Low and high indicate 95% confidence range



Marginal inoculum = Degrader populations below 1.0E+03 are indicative of severe limitations. Substantial augmentation of site conditions will likely be required to attain adequate cell mass to attain measurable biotransformation rates.
Inoculum levels = Degrader populations between 1.0E+03 and 1.0E+06 are amenable to site augmentation, but are generally insufficient to attain adequate biotransformation without site augmentation.
Active degradation levels = Degrader populations greater than 1.0E+06 are generally of sufficient magnitude to support measurable biotransformation without site augmentation. However, site augmentation may still be required to attain desirable rates of transformation due to specific site conditions.

Assay conditions

Sample ID	Degrader Media		Temp. (Celcius)	Growth Conditions	DOF **		Percent Degraders
	Carbon source	% Carbon (v/v)			Total	Degrader	
ma3-tg6-1-261101-	btex,pah,creosol	1.0	22	aerobic	0	0	30.7%
ma3-tg6-2-261101-	btex,pah,creosol	1.0	22	aerobic	0	0	42.4%
ma3-tg6-3-261101-	btex,pah,creosol	1.0	22	aerobic	0	0	47.3%
ma3-tg5-1-261101-	btex,pah,creosol	1.0	22	aerobic	0	0	27.7%
ma3-tg5-2-261101-	btex,pah,creosol	1.0	22	aerobic	0	0	28.9%
ma3-tg5-3-261101-	btex,pah,creosol	1.0	22	aerobic	0	0	8.5%

* cfu/ml = colony forming units per ml of groundwater

** DOF = Degrees of freedom is number of replicates minus one. This parameter is used in calculation of 95% confidence intervals.

Site Information

Site Name	Moss America	Date received	28-Nov-01
Location	Milwaukee, WI	Date of this report	21-Dec-01
Consultant	Roy F Weston	BioRenewal Job Code	9935-391
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	BTEX, PAH, creosols	Number of gw samples	12

Section I - Summary of Bioremediation Data

Nutrient/physical factors are as suggested by Wisconsin DNR guidelines for site characterization requirements for natural biodegradation.
 Microbial factors are shown according to bio-engineering norms.

Sample ID	Soil microbial populations:		pH	% TON / % OM	C:N	C:P	% moisture / SWHC	% Air-filled pore space
	Exceeds norm for:							
	Passive	Active						
	>1E+06	>1E+03	5.5-8.5	>1.5%	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
ma3-tg4-1-271101-1	Summary table not applicable for groundwater.							
ma3-tg4-2-271101-2	Summary table not applicable for groundwater.							
ma3-tg4-3-271101-3	Summary table not applicable for groundwater.							
ma3-tg3-1-271101-4	Summary table not applicable for groundwater.							
ma3-tg3-2-271101-5	Summary table not applicable for groundwater.							
ma3-tg3-3-271101-6	Summary table not applicable for groundwater.							

The nutrient/physical parameters summarized above for unsaturated zone soils, reflect suggested minimum Wisconsin DNR "site characterization requirements for natural biodegradation projects" as presented on pp. 6-10 in Naturally Occurring Biodegradation as a Remedial Action Option for Soil Contamination: Interim Guidance (Revised) dated August 26, 1994. **Microbac stresses that these "suggested guidelines" are only intended to provide a working frame of reference for evaluation.** Each site is unique and requires professional judgement in order to select an appropriate remedial design. We provide this information in recognition that our clients need to work within the guidelines suggested by the state. Further, we hope this will facilitate continued evolution of a working framework for evaluating sites as to the potential for bioremediation whether through site augmentation or natural attenuation.

✓ = Sample meets guideline.

✗ = Sample does not meet guideline.

Blank = Below detection limit, not applicable, or not available for that sample.

- NOTES:
- 1) Microbial population levels in soils generally accepted as potentially adequate to support natural biodegradation. These levels are based on bio-engineering norms and not WDNR guidelines.
 - 2) Microbial population levels in soils generally accepted as minimum to serve as an "inoculum" for implementing active bioremediation strategies.
 - 3) See page 7 and 10, WDNR.
 - 4) See pages 8 and 10, WDNR. Total Organic Nitrogen (calculated from TKN minus ammonium nitrogen) divided by % organic matter.
 - 5) See pages 8 and 10, WDNR.
 - 6) See pages 8 and 10, WDNR.
 - 7) See page 6 and 10, WDNR. The suggested optimum range is 50-80% (p. 6).
 - 8) See page 8 and 10, WDNR. WDNR suggests a minimum air-filled porosity in soil of 10% is necessary for adequate oxygen diffusion in the soil gas to support biodegradation.

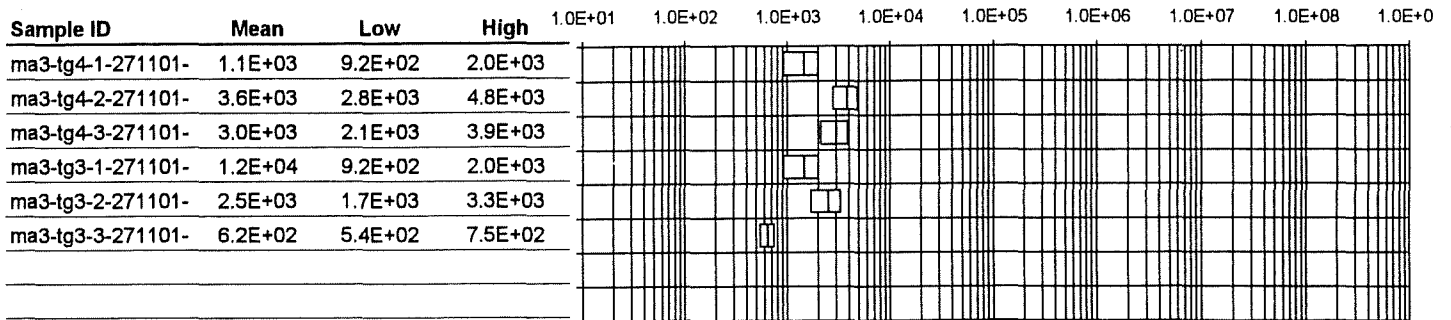
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples

Total populations

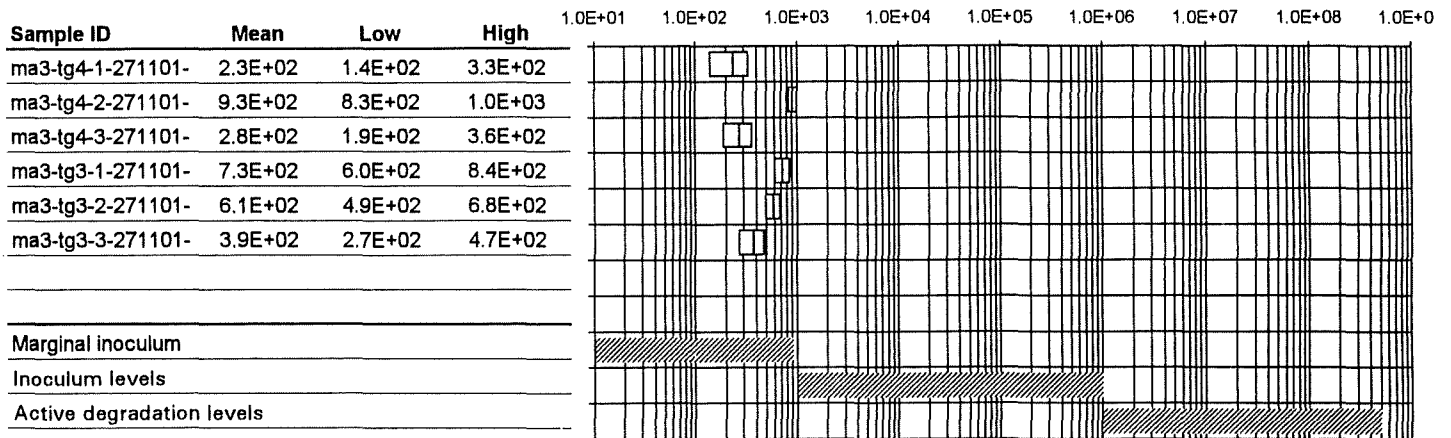
Low and high indicate 95% confidence range



Groundwater Samples

Degrader populations

Low and high indicate 95% confidence range



Marginal inoculum = Degrader populations below 1.0E+03 are indicative of severe limitations. Substantial augmentation of site conditions will likely be required to attain adequate cell mass to attain measurable biotransformation rates.
Inoculum levels = Degrader populations between 1.0E+03 and 1.0E+06 are amenable to site augmentation, but are generally insufficient to attain adequate biotransformation without site augmentation.
Active degradation levels = Degrader populations greater than 1.0E+06 are generally of sufficient magnitude to support measurable biotransformation without site augmentation. However, site augmentation may still be required to attain desirable rates of transformation due to specific site conditions.

Assay conditions

Sample ID	Degrader Media		Temp. (Celcius)	Growth Conditions	DOF **		Percent Degraders
	Carbon source	% Carbon (v/v)			Total	Degrader	
ma3-tg4-1-271101-	btex,pah,creosol	1.0	22	aerobic	0	0	20.9%
ma3-tg4-2-271101-	btex,pah,creosol	1.0	22	aerobic	0	0	25.8%
ma3-tg4-3-271101-	btex,pah,creosol	1.0	22	aerobic	0	0	9.3%
ma3-tg3-1-271101-	btex,pah,creosol	1.0	22	aerobic	0	0	6.1%
ma3-tg3-2-271101-	btex,pah,creosol	1.0	22	aerobic	0	0	24.4%
ma3-tg3-3-271101-	btex,pah,creosol	1.0	22	aerobic	0	0	62.9%

* cfu/ml = colony forming units per ml of groundwater

** DOF = Degrees of freedom is number of replicates minus one. This parameter is used in calculation of 95% confidence intervals.

Site Information

Site Name	Moss America	Date received	28-Nov-01
Location	Milwaukee, WI	Date of this report	21-Dec-01
Consultant	Roy F Weston	BioRenewal Job Code	9935-391
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	BTEX, PAH, creosols	Number of gw samples	12

Section I - Summary of Bioremediation Data

Nutrient/physical factors are as suggested by Wisconsin DNR guidelines for site characterization requirements for natural biodegradation.
 Microbial factors are shown according to bio-engineering norms.

Sample ID	Soil microbial populations:		pH	% TON /		C:N	C:P	% moisture / SWHC	% Air-filled pore space
	Exceeds norm for:			% OM	C:N				
	Passive	Active							
	>1E+06	>1E+03	5.5-8.5	>1.5%	<40	<120	25-85%	>10%	
Guideline note reference:	1	2	3	4	5	6	7	8	
ma3-tg2-1-271101-7	Summary table not applicable for groundwater.								
ma3-tg2-2-271101-8	Summary table not applicable for groundwater.								
ma3-tg2-3-271101-9	Summary table not applicable for groundwater.								
ma3-tg1-1-271101-10	Summary table not applicable for groundwater.								
ma3-tg1-2-271101-11	Summary table not applicable for groundwater.								
ma3-tg1-3-271101-12	Summary table not applicable for groundwater.								

The nutrient/physical parameters summarized above for unsaturated zone soils, reflect suggested minimum Wisconsin DNR "site characterization requirements for natural biodegradation projects" as presented on pp. 6-10 in Naturally Occurring Biodegradation as a Remedial Action Option for *Soil Contamination: Interim Guidance (Revised)* dated August 26, 1994. **Microbac stresses that these "suggested guidelines" are only intended to provide a working frame of reference for evaluation.** Each site is unique and requires professional judgement in order to select an appropriate remedial design. We provide this information in recognition that our clients need to work within the guidelines suggested by the state. Further, we hope this will facilitate continued evolution of a working framework for evaluating sites as to the potential for bioremediation whether through site augmentation or natural attenuation.

- ✓ ■ Sample meets guideline.
- ✗ ■ Sample does not meet guideline.
- Blank ■ Below detection limit, not applicable, or not available for that sample.

- NOTES:
- 1) Microbial population levels in soils generally accepted as potentially adequate to support natural biodegradation. These levels are based on bio-engineering norms and not WDNR guidelines.
 - 2) Microbial population levels in soils generally accepted as minimum to serve as an "inoculum" for implementing active bioremediation strategies.
 - 3) See page 7 and 10, WDNR.
 - 4) See pages 8 and 10, WDNR. Total Organic Nitrogen (calculated from TKN minus ammonium nitrogen) divided by % organic matter.
 - 5) See pages 8 and 10, WDNR.
 - 6) See pages 8 and 10, WDNR.
 - 7) See page 6 and 10, WDNR. The suggested optimum range is 50-80% (p. 6).
 - 8) See page 8 and 10, WDNR. WDNR suggests a minimum air-filled porosity in soil of 10% is necessary for adequate oxygen diffusion in the soil gas to support biodegradation.

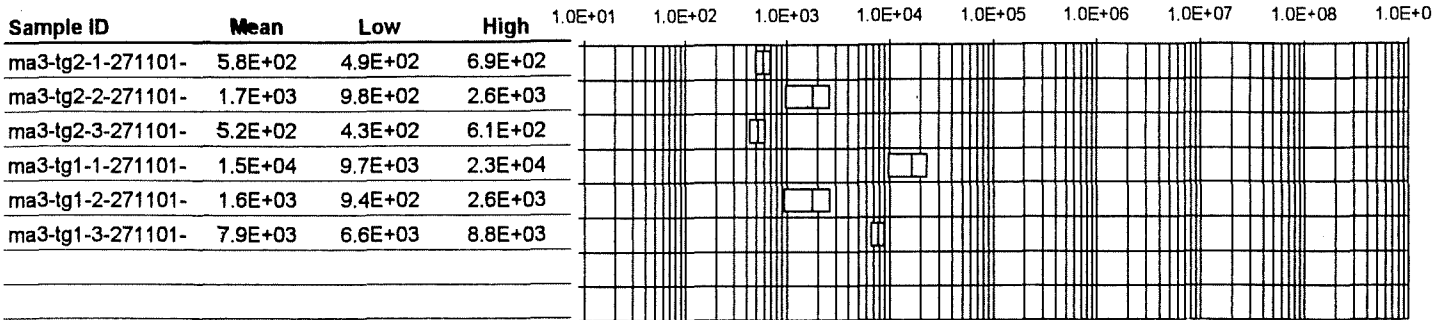
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples

Total populations

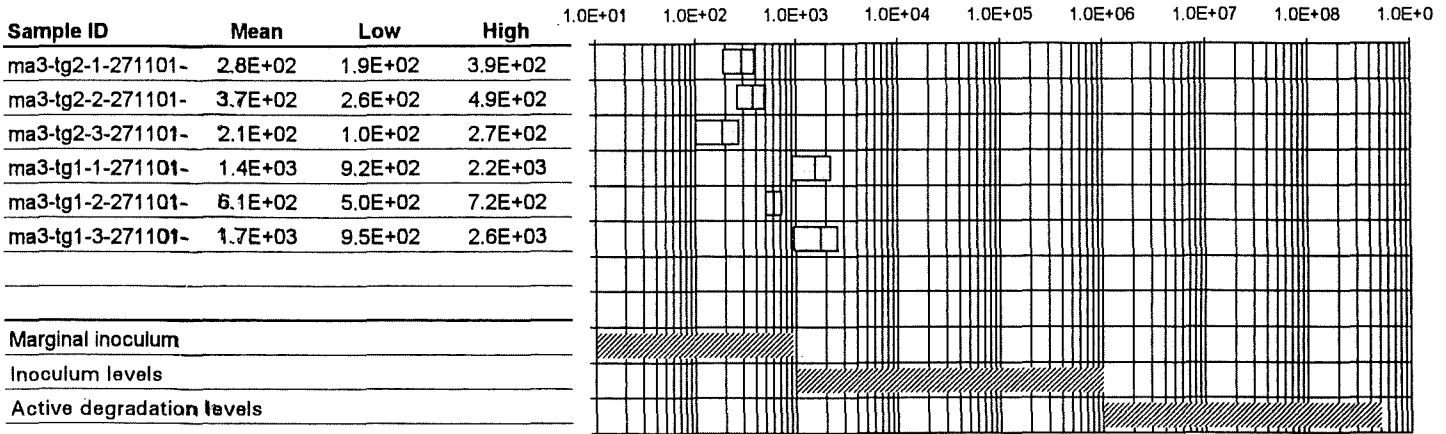
Low and high indicate 95% confidence range



Groundwater Samples

Degrader populations

Low and high indicate 95% confidence range



Marginal inoculum

Inoculum levels

Active degradation levels

Marginal inoculum = Degrader populations below 1.0E+03 are indicative of severe limitations. Substantial augmentation of site conditions will likely be required to attain adequate cell mass to attain measurable biotransformation rates.

Inoculum levels = Degrader populations between 1.0E+03 and 1.0E+06 are amenable to site augmentation, but are generally insufficient to attain adequate biotransformation without site augmentation.

Active degradation levels = Degrader populations greater than 1.0E+06 are generally of sufficient magnitude to support measurable biotransformation without site augmentation. However, site augmentation may still be required to attain desirable rates of transformation due to specific site conditions.

Assay conditions

Sample ID	Degrader Media		Temp. (Celsius)	Growth Conditions	DOF **		Percent Degraders
	Carbon source	% Carbon (v/v)			Total	Degrader	
ma3-tg2-1-271101-	btex,pah,creosol	1.0	22	aerobic	0	0	48.3%
ma3-tg2-2-271101-	btex,pah,creosol	1.0	22	aerobic	0	0	21.8%
ma3-tg2-3-271101-	btex,pah,creosol	1.0	22	aerobic	0	0	40.4%
ma3-tg1-1-271101-	btex,pah,creosol	1.0	22	aerobic	0	0	9.3%
ma3-tg1-2-271101-	btex,pah,creosol	1.0	22	aerobic	0	0	38.1%
ma3-tg1-3-271101-	btex,pah,creosol	1.0	22	aerobic	0	0	21.5%

* cfu/ml = colony forming units per ml of groundwater

** DOF = Degrees of freedom is number of replicates minus one. This parameter is used in calculation of 95% confidence intervals.

Contact person Tom Graun ; Sar B. C. Wolfe & M. J. Prank

Project name Mass American Project # _____

Project location Milwaukee WI (City) (State)

Site contaminant * Creosote PAHs
 (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		Microbial Fuel Cell				
				Soil	GW		Jars	Vials	Core						Soil moisture at field capacity	Bulk density (soil)					
9135-391 MA3-TG4-1- 271101-01		11/27/01	0930		X	-	X									X					
MA3-TG4-2- 271101-02		11/27/01	0940		X	-	X									X					
MA3-TG4-3- 271101-03		11/27/01	0950		X	-	X									X					
MA3-TG3-1- 271101-04		11/27/01	1035		X	-	X									X					
MA3-TG3-2- 271101-05		11/27/01	1045		X	-	X									X					
MA3-TG3-3- 271101-06		11/27/01	1055		X	-	X									X					
MA3-TG2-1- 271101-07		11/27/01	1055		X	-	X									X					
MA3-TG2-2- 271101-08		11/27/01	1200		X	-	X									X					

Relinquished by: [Signature] Date/time: 11/27/01 1700 Comments: _____ Sample condition upon arrival: _____

Received by: [Signature] Date/time: 11/28/01 10:00 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. Welton
 Address 750 E. Bunke 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



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 787717. Samples arrived at the laboratory on Tuesday, November 27, 2001.

Client Description

MA3-TG6-1-261101-01 Grab Water Sample
MA3-TG6-2-261101-02 Grab Water Sample
MA3-TG6-3-261101-03 Grab Water Sample
MA3-TG5-1-261101-04 Grab Water Sample
MA3-TG5-2-261101-05 Grab Water Sample
MA3-TG5-3-261101-06 Grab Water Sample

Lancaster Labs Number

3733339
3733340
3733341
3733342
3733343
3733344

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



Lancaster Laboratories

Where quality is a science.

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

Respectfully Submitted,

Erik J. Frederiksen
Group Leader



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 3733342

Collected: 11/26/2001 16:00 by BS

Account Number: 07802

Submitted: 11/27/2001 10:00

Kerr-McGee Corporation

Reported: 12/17/2001 at 16:34

P.O. Box 25861

Discard: 01/17/2002

Oklahoma City OK 73125

MA3-TG5-1-261101-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG514 SDG#: MOA92-04

CAT No.	Analysis Name	CAS Number	As Received		As Received	Units	Dilution Factor
			Result		Method		
00217	Kjeldahl Nitrogen	7727-37-9	0.51	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	0.051	J	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.53	J	0.16	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.		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.15	J	0.13	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	12/03/2001 16:52	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/27/2001 14:12	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/05/2001 19:01	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/05/2001 07:50	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/27/2001 23:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 13:46	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/29/2001 09:25	Cheryl L. Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



Lancaster Laboratories, Inc.
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Lancaster Laboratories Sample No. **WW 3733343**

Collected: 11/26/2001 16:10 by BS

Account Number: 07802

Submitted: 11/27/2001 10:00

Kerr-McGee Corporation

Reported: 12/17/2001 at 16:34

P.O. Box 25861

Discard: 01/17/2002

Oklahoma City OK 73125

MA3-TG5-2-261101-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG525 SDG#: MOA92-05

CAT No.	Analysis Name	CAS Number	As Received		As Received	Units	Dilution Factor
			Result		Method		
00217	Kjeldahl Nitrogen	7727-37-9	0.74	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	0.59	J	0.16	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.		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.13	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	12/03/2001 16:55	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/27/2001 14:13	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/10/2001 16:01	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/05/2001 07:50	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/27/2001 23:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 13:46	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/29/2001 09:25	Cheryl L. Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. WW 3733344

Collected: 11/26/2001 16:20 by BS

Account Number: 07802

Submitted: 11/27/2001 10:00

Kerr-McGee Corporation

Reported: 12/17/2001 at 16:34

P.O. Box 25861

Discard: 01/17/2002

Oklahoma City OK 73125

MA3-TG5-3-261101-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG536 SDG#: MOA92-06*

CAT No.	Analysis Name	CAS Number	As Received		As Received	Units	Dilution Factor
			Result		Method Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.72	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	0.16	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	0.0028	J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.13	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	12/03/2001 16:57	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/27/2001 14:15	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/10/2001 16:02	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/05/2001 07:50	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/27/2001 23:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 13:49	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/29/2001 09:25	Cheryl L. Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. WW 3733339

Collected: 11/26/2001 14:35 by BS

Account Number: 07802

Submitted: 11/27/2001 10:00

Kerr-McGee Corporation

Reported: 12/17/2001 at 16:34

P.O. Box 25861

Discard: 01/17/2002

Oklahoma City OK 73125

MA3-TG6-1-261101-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG611 SDG#: MOA92-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.1		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	0.97 J		0.16	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	0.0048 J		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.20		0.13	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	12/03/2001 16:45	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/27/2001 14:08	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/29/2001 17:28	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/05/2001 07:50	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/27/2001 23:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 13:41	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/29/2001 09:25	Cheryl L. Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. **WW 3733340**

Collected: 11/26/2001 14:45 by BS

Account Number: 07802

Submitted: 11/27/2001 10:00

Kerr-McGee Corporation

Reported: 12/17/2001 at 16:34

P.O. Box 25861

Discard: 01/17/2002

Oklahoma City OK 73125

MA3-TG6-2-261101-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG622 SDG#: MOA92-02

CAT No.	Analysis Name	CAS Number	As Received		As Received	Units	Dilution Factor
			Result		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	0.80	J	0.16	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	0.0119	J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.13	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	12/03/2001 16:49	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/27/2001 14:10	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/12/2001 17:28	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/05/2001 07:50	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/27/2001 23:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 13:44	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/29/2001 09:25	Cheryl L. Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



Lancaster Laboratories Sample No. WW 3733341

Collected: 11/26/2001 14:55 by BS

Account Number: 07802

Submitted: 11/27/2001 10:00

Kerr-McGee Corporation

Reported: 12/17/2001 at 16:34

P.O. Box 25861

Discard: 01/17/2002

Oklahoma City OK 73125

MA3-TG6-3-261101-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG633 SDG#: MOA92-03

CAT No.	Analysis Name	CAS Number	As Received		As Received	Units	Dilution Factor
			Result		Method Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.89	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	0.068	J	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.80	J	0.16	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	0.0084	J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.13	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	12/03/2001 16:50		Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/27/2001 14:11		Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/05/2001 17:25		Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/05/2001 07:50		Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/27/2001 23:00		Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 13:45		Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/29/2001 09:25		Cheryl L. Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15		James S. Mathiot	1



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 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425
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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 787879. Samples arrived at the laboratory on Wednesday, November 28, 2001.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
MA3-TG1-1-271101-10 Grab Water Sample	3733988
MA3-TG1-2-271101-11 Grab Water Sample	3733989
MA3-TG1-3-271101-12 Grab Water Sample	3733990
MA3-TG2-1-271101-07 Grab Water Sample	3733991
MA3-TG2-2-271101-08 Grab Water Sample	3733992
MA3-TG2-3-271101-09 Grab Water Sample	3733993
MA3-TG3-1-271101-04 Grab Water Sample	3733994
MA3-TG3-2-271101-05 Grab Water Sample	3733995
MA3-TG3-3-271101-06 Grab Water Sample	3733996
MA3-TG4-1-271101-01 Grab Water Sample	3733997
MA3-TG4-2-271101-02 Grab Water Sample	3733998
MA3-TG4-3-271101-03 Grab Water Sample	3733999

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



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Melissa A. McDermott at (717) 656-2300.

Respectfully Submitted,

Erik J. Frederiksen
Group Leader



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



Lancaster Laboratories Sample No. WW 3733988

Collected: 11/27/2001 15:00 by BS

Account Number: 07802

Submitted: 11/28/2001 09:30

Kerr-McGee Corporation

Reported: 12/13/2001 at 13:20

P.O. Box 25861

Discard: 01/13/2002

Oklahoma City OK 73125

MA3-TG1-1-271101-10 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

1127- SDG#: MOA92-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.4		0.30	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		0.16	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	0.041		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.13	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	12/03/2001 17:04	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2001 09:00	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/10/2001 16:16	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/05/2001 07:50	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/29/2001 01:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 13:51	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/30/2001 09:00	James S. Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. **WW 3733989**

Collected: 11/27/2001 15:10 by BS

Account Number: 07802

Submitted: 11/28/2001 09:30

Kerr-McGee Corporation

Reported: 12/13/2001 at 13:20

P.O. Box 25861

Discard: 01/13/2002

Oklahoma City OK 73125

MA3-TG1-2-271101-11 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

1227- SDG#: MOA92-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.4		0.30	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	0.95 J		0.16	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.		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.17		0.13	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	12/03/2001 17:10	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2001 09:01	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/10/2001 16:17	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/05/2001 07:50	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/29/2001 01:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 13:52	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/30/2001 09:00	James S. Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. WW 3733990

Collected: 11/27/2001 15:20 by BS

Account Number: 07802

Submitted: 11/28/2001 09:30

Kerr-McGee Corporation

Reported: 12/13/2001 at 13:20

P.O. Box 25861

Discard: 01/13/2002

Oklahoma City OK 73125

MA3-TG1-3-271101-12 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

1327- SDG#: MOA92-09

CAT No.	Analysis Name	CAS Number	As Received		As Received	Units	Dilution Factor
			Result	J	Method		
00217	Kjeldahl Nitrogen	7727-37-9	0.89	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	0.16	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	0.044		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.18		0.13	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	12/03/2001 17:12	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2001 09:05	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/10/2001 16:18	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/05/2001 07:50	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/29/2001 01:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 13:53	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/30/2001 09:00	James S. Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. **WW 3733991**

Collected: 11/27/2001 11:50 by BS

Account Number: 07802

Submitted: 11/28/2001 09:30

Kerr-McGee Corporation

Reported: 12/13/2001 at 13:20

P.O. Box 25861

Discard: 01/13/2002

Oklahoma City OK 73125

MA3-TG2-1-271101-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

2127- SDG#: MOA92-10

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	0.18 J		0.16	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	0.054		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.13	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	12/03/2001 17:13	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2001 09:06	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/10/2001 16:22	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/05/2001 07:50	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/29/2001 01:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 13:54	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/30/2001 09:00	James S. Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. **WW 3733992**

Collected: 11/27/2001 12:00 by BS

Account Number: 07802

Submitted: 11/28/2001 09:30

Kerr-McGee Corporation

Reported: 12/13/2001 at 13:21

P.O. Box 25861

Discard: 01/13/2002

Oklahoma City OK 73125

MA3-TG2-2-271101-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

2227- SDG#: MOA92-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.76 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	0.65 J		0.16	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.		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.14 J		0.13	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	12/03/2001 17:14	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2001 09:07	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/10/2001 16:23	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/05/2001 07:50	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/29/2001 01:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 13:57	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/30/2001 09:00	James S. Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. WW 3733993

Collected: 11/27/2001 12:10 by BS

Account Number: 07802

Submitted: 11/28/2001 09:30

Kerr-McGee Corporation

Reported: 12/13/2001 at 13:21

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Discard: 01/13/2002

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MA3-TG2-3-271101-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

2327- SDG#: MOA92-12

CAT No.	Analysis Name	CAS Number	As Received		As Received	Units	Dilution Factor
			Result		Method Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.39	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	0.18	J	0.16	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	0.0135	J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.13	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	12/03/2001 17:15	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2001 09:09	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/11/2001 12:40	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/05/2001 07:50	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/29/2001 01:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 13:57	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/30/2001 09:00	James S. Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. WW 3733994

Collected: 11/27/2001 10:35 by BS

Account Number: 07802

Submitted: 11/28/2001 09:30
Reported: 12/13/2001 at 13:21
Discard: 01/13/2002

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MA3-TG3-1-271101-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

3127- SDG#: MOA92-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	2.0	Detection Limit	mg/l	1
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	1.3	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.034	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	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	12/03/2001 17:16		Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2001 08:59		Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/10/2001 16:24		Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/06/2001 06:45		Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/29/2001 01:00		Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 14:00		Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/30/2001 09:00		James S. Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15		James S. Mathiot	1



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Lancaster Laboratories Sample No. WW 3733995

Collected: 11/27/2001 10:45 by BS

Account Number: 07802

Submitted: 11/28/2001 09:30

Kerr-McGee Corporation

Reported: 12/13/2001 at 13:21

P.O. Box 25861

Discard: 01/13/2002

Oklahoma City OK 73125

MA3-TG3-2-271101-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3227- SDG#: MOA92-14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.4		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.027 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		0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0114 J		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.24		0.13	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	12/03/2001 17:18	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2001 08:57	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/10/2001 16:28	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/06/2001 06:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/29/2001 01:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 14:01	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/30/2001 09:00	James S. Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. **WW 3733996**

Collected: 11/27/2001 10:55 by BS

Account Number: 07802

Submitted: 11/28/2001 09:30

Kerr-McGee Corporation

Reported: 12/13/2001 at 13:21

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Discard: 01/13/2002

Oklahoma City OK 73125

MA3-TG3-3-271101-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3327- SDG#: MOA92-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	1.7	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	1.2	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.057	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.32	0.13	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	12/03/2001 17:19	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2001 08:56	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/10/2001 16:29	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/06/2001 06:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/29/2001 01:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 14:02	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/30/2001 09:00	James S. Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. **WW 3733997**

Collected: 11/27/2001 09:30 by BS

Account Number: 07802

Submitted: 11/28/2001 09:30

Kerr-McGee Corporation

Reported: 12/13/2001 at 13:21

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Discard: 01/13/2002

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MA3-TG4-1-271101-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

4127- SDG#: MOA92-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.66 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	0.44 J	0.16		mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0109 J	0.0028		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.16	0.13		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	12/03/2001 17:20		Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2001 08:52		Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/10/2001 16:31		Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/06/2001 06:45		Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/29/2001 01:00		Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 14:03		Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/30/2001 09:00		James S. Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15		James S. Mathiot	1



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Lancaster Laboratories Sample No. WW 3733998

Collected: 11/27/2001 09:40 by BS

Account Number: 07802

Submitted: 11/28/2001 09:30

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Reported: 12/13/2001 at 13:21

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Discard: 01/13/2002

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MA3-TG4-2-271101-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

4227- SDG#: MOA92-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.4		0.30	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	1.0		0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0043 J		0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.13	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	12/03/2001 17:21	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2001 08:54	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/10/2001 16:32	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/06/2001 06:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/29/2001 01:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 14:04	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/30/2001 09:00	James S. Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. WW 3733999

Collected: 11/27/2001 09:50 by BS

Account Number: 07802

Submitted: 11/28/2001 09:30

Kerr-McGee Corporation

Reported: 12/13/2001 at 13:21

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Discard: 01/13/2002

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MA3-TG4-3-271101-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

4327- SDG#: MOA92-18*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.4	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	0.16		mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.031	0.0028		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.17	0.13		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	12/03/2001 17:28	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2001 08:55	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/10/2001 16:33	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/06/2001 06:45	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/29/2001 01:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/29/2001 14:05	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/30/2001 09:00	James S. Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/29/2001 09:15	James S. Mathiot	1



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Analysis Request/Environmental Services Chain of Custody

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DEC 26 2001

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Acct. # 7802 Sample # 3733339-44

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

Client: <u>Kerr McGee/Western</u> Acct. #: _____ Project Name/#: <u>Mass Americans</u> PWSID #: _____ Project Manager: <u>Tom Grogan</u> P.O.# _____ Sampler: <u>B Schacter, B Majchzrak</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 TKN TP-P04 O-P04 NH3 NO2 NO3						For lab use only FSC: _____ SCR #: <u>1159698</u>					
Sample Identification	Date Collected	Time Collected	Grab 3	Composite	Soil	Water	Other	Total # of Containers							Temperature of samples upon receipt (if requested) 6		
<u>MA3-TG6-1-261101-01</u>	<u>11/26/01</u>	<u>1435</u>	<u>Y</u>			<u>X</u>		<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>			
<u>MA3-TG6-2-261101-02</u>	<u>11/26/01</u>	<u>1445</u>	<u>X</u>			<u>X</u>		<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>			
<u>MA3-TG6-3-261101-03</u>	<u>11/26/01</u>	<u>1455</u>	<u>X</u>			<u>X</u>		<u>5</u>	<u>X</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: <u>STD TAT</u> Rush results requested by (please circle): Phone Fax Phone #: <u>547-918-4000</u> Fax #: <u>547-918-4055</u>			Relinquished by: <u>[Signature]</u> Date: <u>11/19/01</u> Time: <u>0410</u>			Relinquished by: <u>[Signature]</u> Date: <u>11/26/01</u> Time: <u>1800</u>			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: <u>[Signature]</u> Date: <u>11/27/01</u> Time: <u>1000</u>		
Data Package Options (please circle if requested)			SDG Complete? Yes <u>NO</u>			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____		
QC Summary Type VI (Raw Data) <u>PER ROUTE</u>			Yes <u>NO</u>			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____		
Type I (Tier I) GLP			Site-specific QC required? Yes No			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____		
Type II (Tier II) Other			(If yes, indicate QC sample and submit triplicate volume.)			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____		
Type III (NJ Red. Del.)			Internal Chain of Custody required? Yes No			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____		
Type IV (CLP)						Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____			Relinquished by: _____ Date: _____ Time: _____		

RECEIVED

For Lancaster Laboratories use only



DEC 26 2001

Acct. # 7802 Sample # 3733988-99

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

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

Matrix (4): Potable (Check if applicable), Water, NPDES, Soil, Other

Analyses Requested (5): NH3, TKN, TP-P04, O-P04, NO2, NH3

For lab use only: FSC: _____, SCR #: _____

Sample Identification	Date Collected	Time Collected	Grab (3)		Soil	Water	Other	Total # of Containers	Analyses Requested (5)						Remarks	Temperature of samples upon receipt (if requested) (6)
			Grab	Composite					NH3	TKN	TP-P04	O-P04	NO2	NH3		
MAB-TG1-1-271101-10	1/27/01	1500	X			X		5	X	X	X	X	X	X	* Free indur present in well	
MAB-TG1-2-271101-11	1/27/01	1510	X			X		5	X	X	X	X	X	X		
MAB-TG1-3-271101-12	1/27/01	1520	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 #: 847-918-4035

8 Data Package Options (please circle if requested)

QC Summary	Type VI (Raw Data) <u>PERVAITE</u>	SDG Complete? <u>Yes</u> No
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: [Signature] Date: 1/27/01 Time: 1700

Received by: [Signature] Date: 1/27/01 Time: 0950



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3733988-99

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

Client: <u>Kerr McGee/Weston</u> Acct. #: _____ Project Name/#: <u>M&S American</u> PWSID #: _____ Project Manager: <u>Tom Green</u> P.O.# _____ Sampler: <u>B Schaefer, B Majchzak</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>				Matrix (4) <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Potable (Check if applicable) <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other		Analyses Requested (5)						For lab use only FSC: _____ SCR #: <u>1159698</u>				
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	NH ₃	TKN	TP-P ₀₄	O-P ₀₄	NO ₂	NO ₃	Remarks	Temperature of samples upon receipt (if requested)
<u>MA3-TG3-1-271101-04</u>	<u>11/27/01</u>	<u>1035</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		5	x	x	x	x	x	x		
<u>MA3-TG3-2-271101-05</u>	<u>1/27/01</u>	<u>1045</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		5	x	x	x	x	x	x		
<u>MA3-TG3-3-271101-06</u>	<u>11/27/01</u>	<u>1055</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 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>11/19/01</u> Time: <u>0410</u> Relinquished by: <u>[Signature]</u> Date: <u>11/27/01</u> Time: <u>1700</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: <u>[Signature]</u> Date: <u>11/28/01</u> Time: <u>0930</u>		(9)	
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 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"/>						



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CLIENT: Kerr-McGee Corporation
SDG: MOA92

LANCASTER LABORATORIES

INSTRUMENTAL WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3733339	TG611	
3733340	TG622	
3733341	TG633	
3733342	TG514	
3733343	TG525	
3733344	TG536	
3733988	1127-	
3733989	1227-	
3733990	1327-	
3733991	2127-	
3733992	2227-	
3733993	2327-	
3733994	3127-	
3733995	3227-	
3733996	3327-	
3733997	4127-	
3733998	4227-	
3733999	4327-	

ANALYSIS:

Dilutions are listed in the table below.

SAMPLE	NITRATE-N	TKN	TP as PO4
All LCS	2		2
P732961 S		2	

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The matrix spike sample for the nitrite nitrogen (3733344) analysis was out of specifications.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Sandra J. Miller for _____ Date: 12/26/01
 Sandra J. Miller
 Specialist/Coordinator

0001500



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CLIENT: Kerr-McGee Corporation
SDG: MOA92

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

Table with 3 columns: Sample #, Sample Code, Comments. Lists sample numbers 3733339 through 4327- and P735513 through P735515 with corresponding codes and comments like BKG/DF5, MS/DF5, MSD/DF5.

ANALYSIS:

Dilutions for the ammonia nitrogen analysis are listed in the comments section above.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The duplicate sample (P734532) for the ammonia nitrogen analysis was out of specification.

The duplicate sample (3733999) for the orthophosphate as P analysis was out of specification.

Site-specific MS/MSD samples were not submitted for the ammonia nitrogen (01339022101) 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:

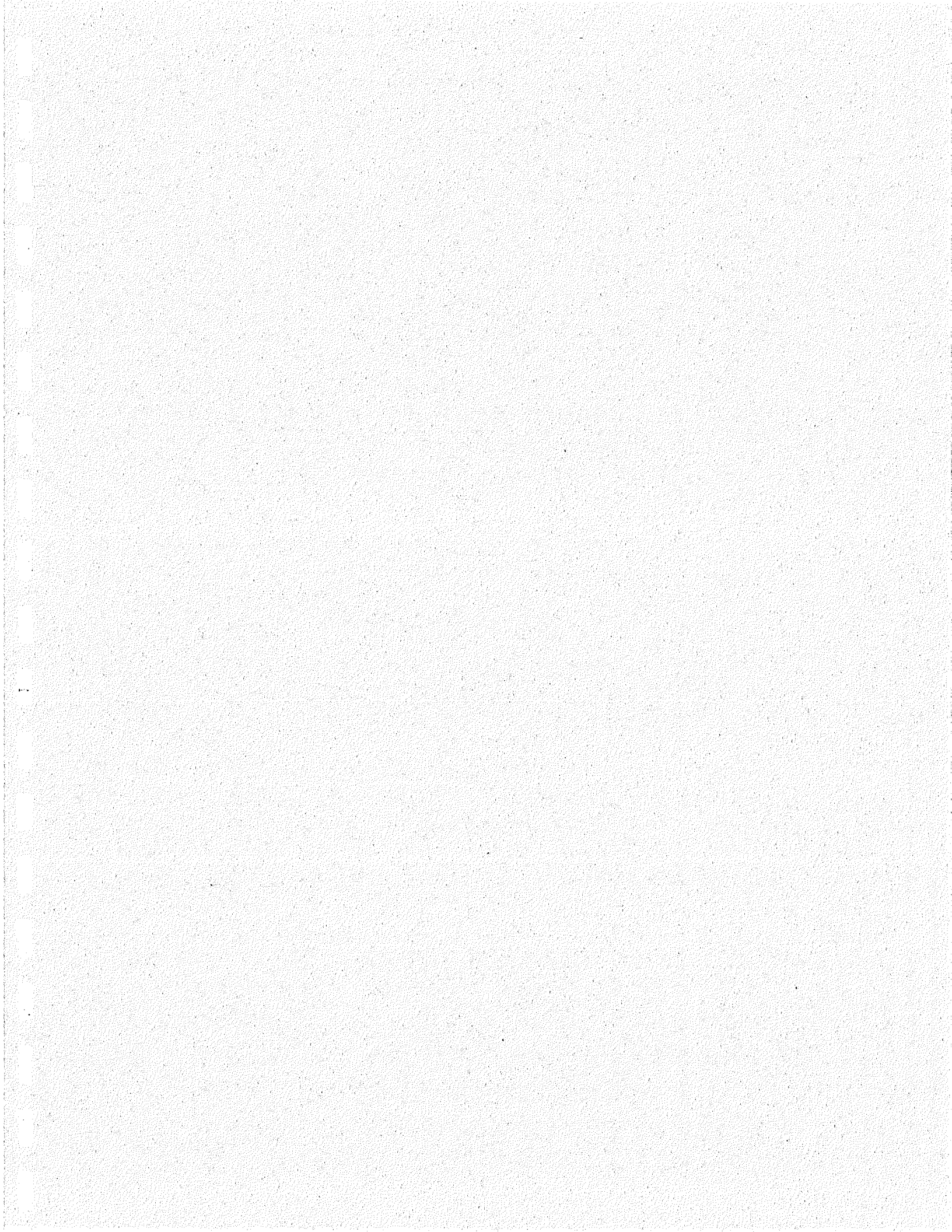
Signature of Sandra J. Miller, Specialist/Coordinator

Date: 12-12-01

Vertical stamp or mark on the right side of the page.

ATTACHMENT 4

DECEMBER 2001 GROUNDWATER SAMPLE ANALYTICAL RESULTS



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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: 1/30/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9936-00128
Date Received: 12/11/01
Time Received: 08:45

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG6-1-101201-01, 12/10/01 @ 14:50 by BS/TH				
Total Aerobic Bacteria	7,200. cfu/ml	12/11/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	1,100. cfu/ml	12/11/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-2-101201-02, 12/10/01 @ 15:00 by BS/TH				
Total Aerobic Bacteria	2,800. cfu/ml	12/11/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	930. cfu/ml	12/11/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-3-101201-03, 12/10/01 @ 15:10 by BS/TH				
Total Aerobic Bacteria	1,400. cfu/ml	12/11/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	360. cfu/ml	12/11/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-1-101201-04, 12/10/01 @ 16:45 by BS/TH				
Total Aerobic Bacteria	19,000. cfu/ml	12/11/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	210. cfu/ml	12/11/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-2-101201-05, 12/10/01 @ 16:55 by BS/TH				
Total Aerobic Bacteria	3,100. cfu/ml	12/11/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	110. cfu/ml	12/11/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-3-101201-06, 12/10/01 @ 17:05 by BS/TH				
Total Aerobic Bacteria	5,400. cfu/ml	12/11/01	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	450. cfu/ml	12/11/01	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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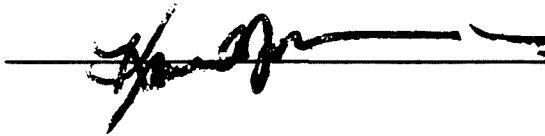
Tom Graam
Roy F. Weston, Inc.
750 East Bunker Court
Suite 500
Vernon Hills, IL 60061-1450

Date Reported: 1/30/02
P.O. Number: 0018581 MOSS AMERIC
Sample ID: 9936-00128
Date Received: 12/11/01
Time Received: 08:45

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
------------	---------	------	------	--------

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

Date Reported: 1/03/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9936-00161
Date Received: 12/11/01
Time Received: 08:40

Permit Number

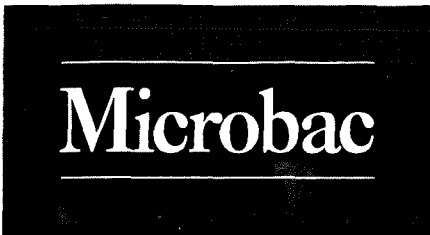
PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG5-1-111201-01, 12/11/01 @ 09:15 by Client				
Total Aerobic Bacteria	2,900. cfu/ml	12/12/02	DJH	9215B MODIFIE
T.Aerobic Degradar Bacteria	530. cfu/ml	12/12/02	DJH	9215B MODIFIE
SUBJECT: MA3-TG5-2-111201-02, 12/11/01 @ 09:25 by Client				
Total Aerobic Bacteria	2,000. cfu/ml	12/12/02	DJH	9215B MODIFIE
T.Aerobic Degradar Bacteria	390. cfu/ml	12/12/02	DJH	9215B MODIFIE
SUBJECT: MA3-TG5-3-111201-03, 12/11/01 @ 09:35 by Client				
Total Aerobic Bacteria	3,700. cfu/ml	12/12/02	DJH	9215B MODIFIE
T.Aerobic Degradar Bacteria	470. cfu/ml	12/12/02	DJH	9215B MODIFIE
SUBJECT: MA3-TG3-1-111201-04, 12/11/01 @ 10:55 by Client				
Total Aerobic Bacteria	14,000. cfu/ml	12/12/02	DJH	9215B MODIFIE
T.Aerobic Degradar Bacteria	620. cfu/ml	12/12/02	DJH	9215B MODIFIE
SUBJECT: MA3-TG3-2-111201-05, 12/11/01 @ 11:05 by Client				
Total Aerobic Bacteria	3,300. cfu/ml	12/12/02	DJH	9215B MODIFIE
T.Aerobic Degradar Bacteria	230. cfu/ml	12/12/02	DJH	9215B MODIFIE
SUBJECT: MA3-TG3-3-111201-06, 12/11/01 @ 11:15 by Client				
Total Aerobic Bacteria	<10. cfu/ml	12/12/02	DJH	9215B MODIFIE
T.Aerobic Degradar Bacteria	<10. cfu/ml	12/12/02	DJH	9215B MODIFIE
SUBJECT: MA3-TG4-1-111201-07, 12/11/01 @ 13:15 by Client				
Total Aerobic Bacteria	320. cfu/ml	12/12/02	DJH	9215B MODIFI
T.Aerobic Degradar Bacteria	240. cfu/ml	12/12/02	DJH	9215B MODIFI

*** Certificate Continues On Next Page ***

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

Date Reported: 1/03/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9936-00161
Date Received: 12/11/01
Time Received: 08:40

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG4-2-111201-08, 12/11/01 @ 13:25 by Client				
Total Aerobic Bacteria	2,500. cfu/ml	12/12/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	610. cfu/ml	12/12/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-3-111201-09, 12/11/01 @ 13:35 by Client				
Total Aerobic Bacteria	2,100. cfu/ml	12/12/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	110. cfu/ml	12/12/02	DJH	9215B MODIFIED

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

Date Reported: 1/03/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9936-00181
Date Received: 12/13/01
Time Received: 10:25

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG2-1-121201-01, 12/12/01 @ 09:15 by Client				
Total Aerobic Bacteria	310. cfu/ml	12/13/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	70. cfu/ml	12/13/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-2-121201-02, 12/12/01 @ 09:25 by Client				
Total Aerobic Bacteria	270. cfu/ml	12/13/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	30. cfu/ml	12/13/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-3-121201-03, 12/12/01 @ 09:35 by Client				
Total Aerobic Bacteria	470. cfu/ml	12/13/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	30. cfu/ml	12/13/02	DJH	9215B MODIFIED

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Site Information

Site Name	Moss America	Date received	11-Dec-01
Location	Milwaukee, WI	Date of this report	2-Jan-02
Consultant	Roy F Weston	BioRenewal Job Code	9936-128
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	btex,pah,creosote	Number of gw samples	6

Section I - Summary of Bioremediation Data

Nutrient/physical factors are as suggested by Wisconsin DNR guidelines for site characterization requirements for natural biodegradation.
 Microbial factors are shown according to bio-engineering norms.

Sample ID	Soil microbial populations:		pH	% TON /			% moisture /	% Air-filled pore space
	Exceeds norm for:			% OM	C:N	C:P		
	Passive	Active						
	>1E+06	>1E+03	5.5-8.5	>1.5%	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
ma3-tg6-1-101201-01	Summary table not applicable for groundwater.							
ma3-tg6-2-101201-2	Summary table not applicable for groundwater.							
ma3-tg6-3-101201-3	Summary table not applicable for groundwater.							
ma3-tg1-1-101201-4	Summary table not applicable for groundwater.							
ma3-tg1-2-101201-5	Summary table not applicable for groundwater.							
ma3-tg1-3-101201-6	Summary table not applicable for groundwater.							

The nutrient/physical parameters summarized above for unsaturated zone soils, reflect suggested minimum Wisconsin DNR "site characterization requirements for natural biodegradation projects" as presented on pp. 6-10 in Naturally Occurring Biodegradation as a Remedial Action Option for *Soil Contamination: Interim Guidance (Revised)* dated August 26, 1994. **Microbac stresses that these "suggested guidelines" are only intended to provide a working frame of reference for evaluation.** Each site is unique and requires professional judgement in order to select an appropriate remedial design. We provide this information in recognition that our clients need to work within the guidelines suggested by the state. Further, we hope this will facilitate continued evolution of a working framework for evaluating sites as to the potential for bioremediation whether through site augmentation or natural attenuation.

- ✓ = Sample meets guideline.
- x = Sample does not meet guideline.
- Blank = Below detection limit, not applicable, or not available for that sample.

- NOTES:
- 1) Microbial population levels in soils generally accepted as potentially adequate to support natural biodegradation. These levels are based on bio-engineering norms and not WDNR guidelines.
 - 2) Microbial population levels in soils generally accepted as minimum to serve as an "inoculum" for implementing active bioremediation strategies.
 - 3) See page 7 and 10, WDNR.
 - 4) See pages 8 and 10, WDNR. Total Organic Nitrogen (calculated from TKN minus ammonium nitrogen) divided by % organic matter.
 - 5) See pages 8 and 10, WDNR.
 - 6) See pages 8 and 10, WDNR.
 - 7) See page 6 and 10, WDNR. The suggested optimum range is 50-80% (p. 6).
 - 8) See page 8 and 10, WDNR. WDNR suggests a minimum air-filled porosity in soil of 10% is necessary for adequate oxygen diffusion in the soil gas to support biodegradation.

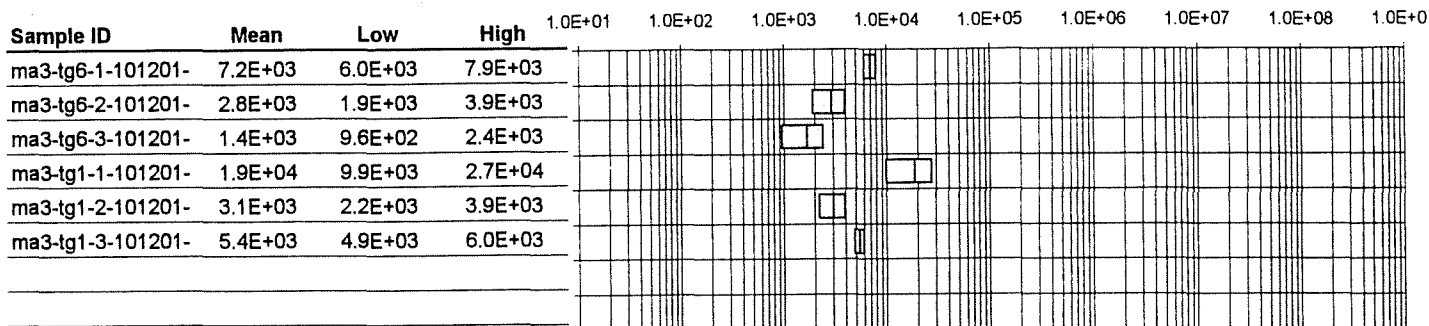
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples

Total populations

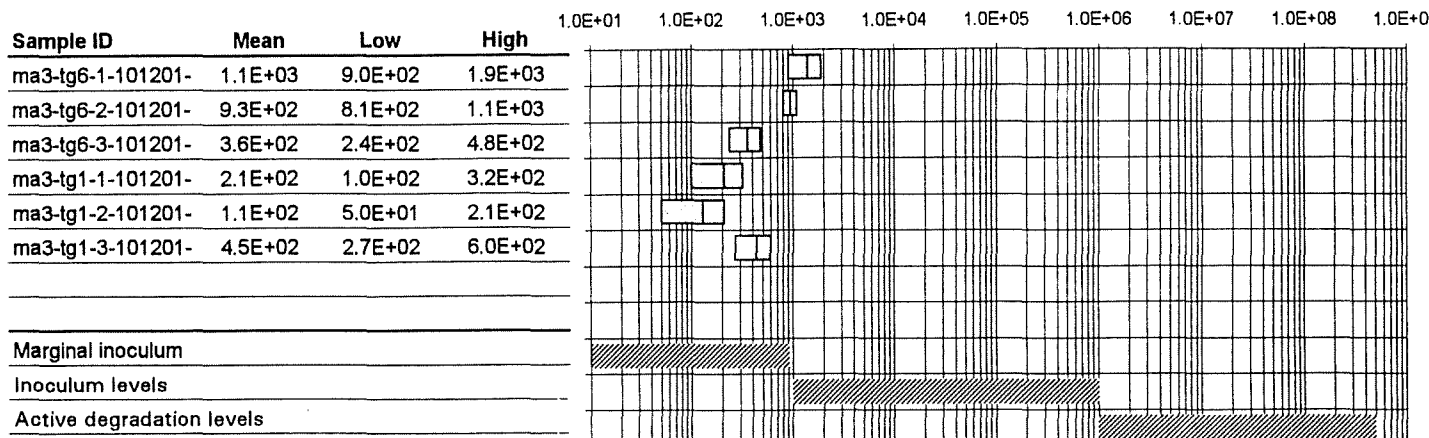
Low and high indicate 95% confidence range



Groundwater Samples

Degrader populations

Low and high indicate 95% confidence range



Marginal inoculum = Degrader populations below 1.0E+03 are indicative of severe limitations. Substantial augmentation of site conditions will likely be required to attain adequate cell mass to attain measurable biotransformation rates.
Inoculum levels = Degrader populations between 1.0E+03 and 1.0E+06 are amenable to site augmentation, but are generally insufficient to attain adequate biotransformation without site augmentation.
Active degradation levels = Degrader populations greater than 1.0E+06 are generally of sufficient magnitude to support measurable biotransformation without site augmentation. However, site augmentation may still be required to attain desirable rates of transformation due to specific site conditions.

Assay conditions

Sample ID	Degrader Media		Temp. (Celcius)	Growth Conditions	DOF **		Percent Degraders
	Carbon source	% Carbon (v/v)			Total	Degrader	
ma3-tg6-1-101201-	btex,pah,creosote	1.0	22	aerobic	0	0	15.3%
ma3-tg6-2-101201-	0	1.0	22	aerobic	0	0	33.2%
ma3-tg6-3-101201-	0	1.0	22	aerobic	0	0	25.7%
ma3-tg1-1-101201-	0	1.0	22	aerobic	0	0	1.1%
ma3-tg1-2-101201-	0	1.0	22	aerobic	0	0	3.5%
ma3-tg1-3-101201-	0	1.0	22	aerobic	0	0	8.3%

* cfu/ml = colony forming units per ml of groundwater

** DOF = Degrees of freedom is number of replicates minus one. This parameter is used in calculation of 95% confidence intervals.

Site Information

Site Name	Moss America	Date received	12-Dec-02
Location	Milwaukee, WI	Date of this report	2-Jan-02
Consultant	Roy F Weston	BioRenewal Job Code	9936-161
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	btex,pah,creosote	Number of gw samples	9

Section I - Summary of Bioremediation Data

Nutrient/physical factors are as suggested by Wisconsin DNR guidelines for site characterization requirements for natural biodegradation. Microbial factors are shown according to bio-engineering norms.

Sample ID	Soil microbial populations:		pH	% TON /			% moisture / SWHC	% Air-filled pore space
	Exceeds norm for:			% OM	C:N	C:P		
	Passive	Active						
	>1E+06	>1E+03	5.5-8.5	>1.5%	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
ma3-tg5-1-111201-1	Summary table not applicable for groundwater.							
ma3-tg5-2-111201-2	Summary table not applicable for groundwater.							
ma3-tg5-3-111201-3	Summary table not applicable for groundwater.							
ma3-tg3-1-111201-4	Summary table not applicable for groundwater.							
ma3-tg3-2-111201-5	Summary table not applicable for groundwater.							
ma3-tg3-3-111201-6	Summary table not applicable for groundwater.							

The nutrient/physical parameters summarized above for unsaturated zone soils, reflect suggested minimum Wisconsin DNR "site characterization requirements for natural biodegradation projects" as presented on pp. 6-10 in Naturally Occurring Biodegradation as a Remedial Action Option for *Soil Contamination: Interim Guidance (Revised)* dated August 26, 1994. Microbac stresses that these "suggested guidelines" are only intended to provide a working frame of reference for evaluation. Each site is unique and requires professional judgement in order to select an appropriate remedial design. We provide this information in recognition that our clients need to work within the guidelines suggested by the state. Further, we hope this will facilitate continued evolution of a working framework for evaluating sites as to the potential for bioremediation whether through site augmentation or natural attenuation.

✓ = Sample meets guideline.

✗ = Sample does not meet guideline.

Blank = Below detection limit, not applicable, or not available for that sample.

- NOTES:
- 1) Microbial population levels in soils generally accepted as potentially adequate to support natural biodegradation. These levels are based on bio-engineering norms and not WDNR guidelines.
 - 2) Microbial population levels in soils generally accepted as minimum to serve as an "inoculum" for implementing active bioremediation strategies.
 - 3) See page 7 and 10, WDNR.
 - 4) See pages 8 and 10, WDNR. Total Organic Nitrogen (calculated from TKN minus ammonium nitrogen) divided by % organic matter.
 - 5) See pages 8 and 10, WDNR.
 - 6) See pages 8 and 10, WDNR.
 - 7) See page 6 and 10, WDNR. The suggested optimum range is 50-80% (p. 6).
 - 8) See page 8 and 10, WDNR. WDNR suggests a minimum air-filled porosity in soil of 10% is necessary for adequate oxygen diffusion in the soil gas to support biodegradation.

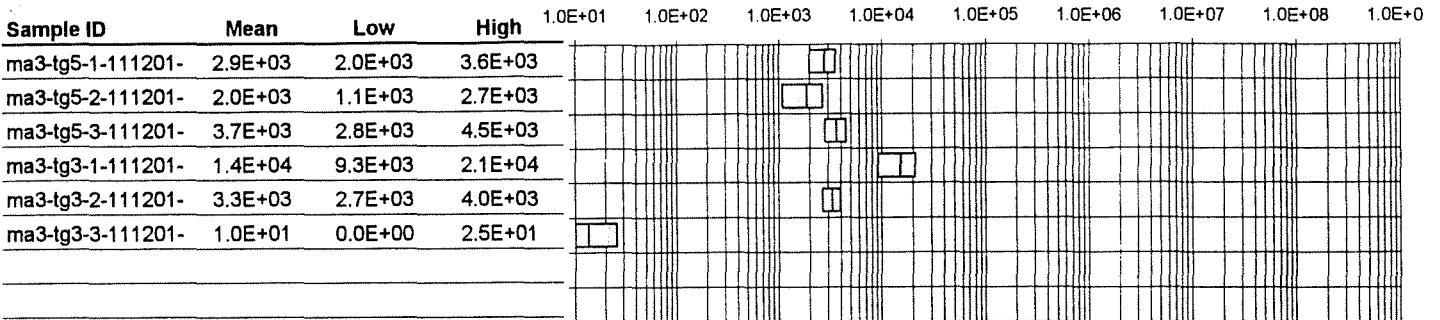
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples

Total populations

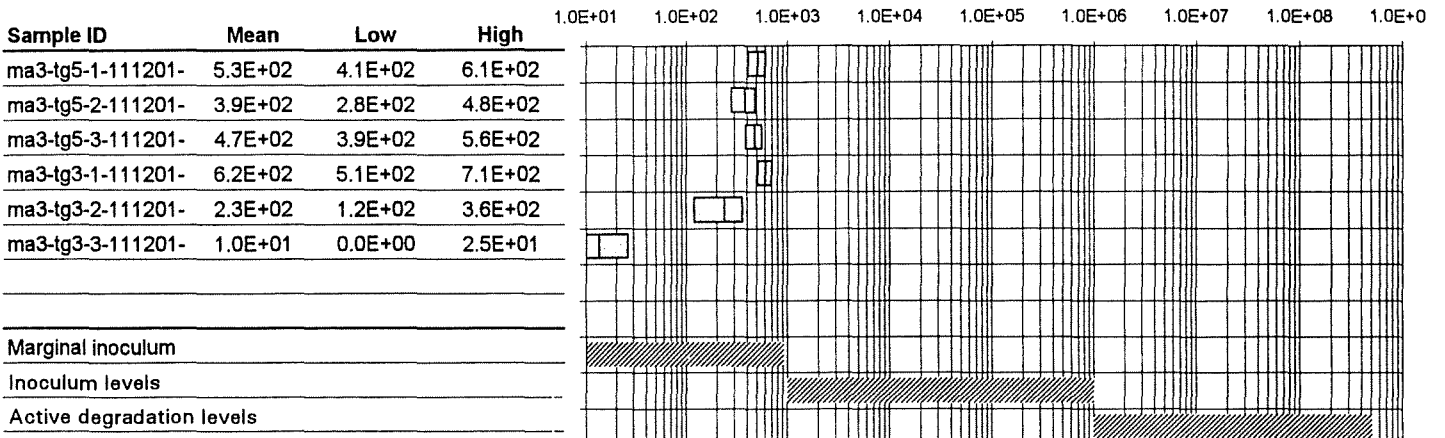
Low and high indicate 95% confidence range



Groundwater Samples

Degrader populations

Low and high indicate 95% confidence range



Marginal inoculum

Inoculum levels

Active degradation levels

Marginal Inoculum = Degrader populations below 1.0E+03 are indicative of severe limitations. Substantial augmentation of site conditions will likely be required to attain adequate cell mass to attain measurable biotransformation rates.

Inoculum levels = Degrader populations between 1.0E+03 and 1.0E+06 are amenable to site augmentation, but are generally insufficient to attain adequate biotransformation without site augmentation.

Active degradation levels = Degrader populations greater than 1.0E+06 are generally of sufficient magnitude to support measurable biotransformation without site augmentation. However, site augmentation may still be required to attain desirable rates of transformation due to specific site conditions.

Assay conditions

Sample ID	Degrader Media		Temp. (Celsius)	Growth Conditions	DOF **		Percent Degraders
	Carbon source	% Carbon (v/v)			Total	Degrader	
ma3-tg5-1-111201-	btex,pah,creosote	1.0	22	aerobic	0	0	18.3%
ma3-tg5-2-111201-	btex,pah,creosote	1.0	22	aerobic	0	0	19.5%
ma3-tg5-3-111201-	btex,pah,creosote	1.0	22	aerobic	0	0	12.7%
ma3-tg3-1-111201-	btex,pah,creosote	1.0	22	aerobic	0	0	4.4%
ma3-tg3-2-111201-	btex,pah,creosote	1.0	22	aerobic	0	0	7.0%
ma3-tg3-3-111201-	btex,pah,creosote	1.0	22	aerobic	0	0	100.0%

* cfu/ml = colony forming units per ml of groundwater

** DOF = Degrees of freedom is number of replicates minus one. This parameter is used in calculation of 95% confidence intervals.

Site Information

Site Name	Moss America	Date received	12-Dec-02
Location	Milwaukee, WI	Date of this report	2-Jan-02
Consultant	Roy F Weston	BioRenewal Job Code	9936-161
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	btex,pah,creosote	Number of gw samples	9

Section I - Summary of Bioremediation Data

Nutrient/physical factors are as suggested by Wisconsin DNR guidelines for site characterization requirements for natural biodegradation. Microbial factors are shown according to bio-engineering norms.

Sample ID	Soil microbial populations:		pH	% TON /			% moisture / SWHC	% Air-filled pore space
	Exceeds norm for: Passive	Active		% OM	C:N	C:P		
	>1E+06	>1E+03	5.5-8.5	>1.5%	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
ma3-tg4-1-111201-7	Summary table not applicable for groundwater.							
ma3-tg4-2-111201-8	Summary table not applicable for groundwater.							
ma3-tg4-3-111201-9	Summary table not applicable for groundwater.							

The nutrient/physical parameters summarized above for unsaturated zone soils, reflect suggested minimum Wisconsin DNR " site characterization requirements for natural biodegradation projects" as presented on pp. 6-10 in Naturally Occurring Biodegradation as a Remedial Action Option for Soil Contamination: Interim Guidance (Revised) dated August 26, 1994. **Microbac stresses that these "suggested guidelines" are only intended to provide a working frame of reference for evaluation.** Each site is unique and requires professional judgement in order to select an appropriate remedial design. We provide this information in recognition that our clients need to work within the guidelines suggested by the state. Further, we hope this will facilitate continued evolution of a working framework for evaluating sites as to the potential for bioremediation whether through site augmentation or natural attenuation.

- ✓ = Sample meets guideline.
- x = Sample does not meet guideline.
- Blank = Below detection limit, not applicable, or not available for that sample.

- NOTES:
- 1) Microbial population levels in soils generally accepted as potentially adequate to support natural biodegradation. These levels are based on bio-engineering norms and not WDNR guidelines.
 - 2) Microbial population levels in soils generally accepted as minimum to serve as an "inoculum" for implementing active bioremediation strategies.
 - 3) See page 7 and 10, WDNR.
 - 4) See pages 8 and 10, WDNR. Total Organic Nitrogen (calculated from TKN minus ammonium nitrogen) divided by % organic matter.
 - 5) See pages 8 and 10, WDNR.
 - 6) See pages 8 and 10, WDNR.
 - 7) See page 6 and 10, WDNR. The suggested optimum range is 50-80% (p. 6).
 - 8) See page 8 and 10, WDNR. WDNR suggests a minimum air-filled porosity in soil of 10% is necessary for adequate oxygen diffusion in the soil gas to support biodegradation.

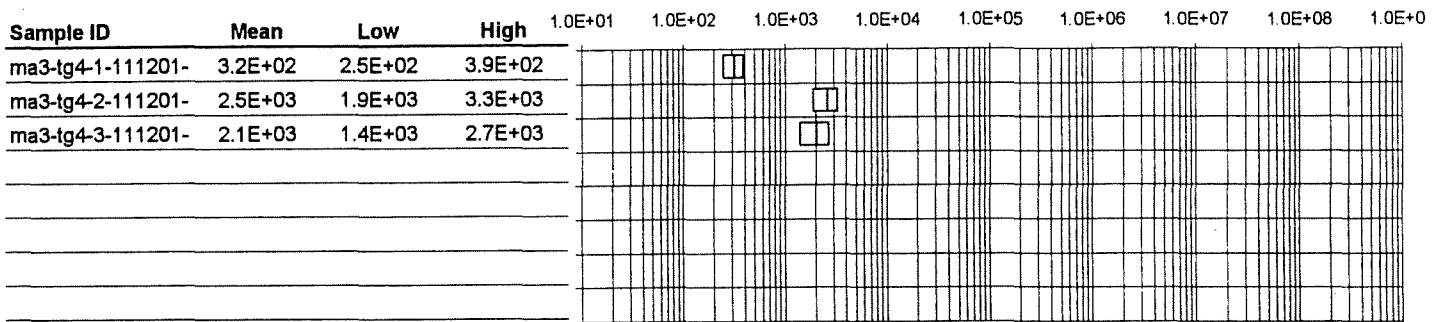
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples

Total populations

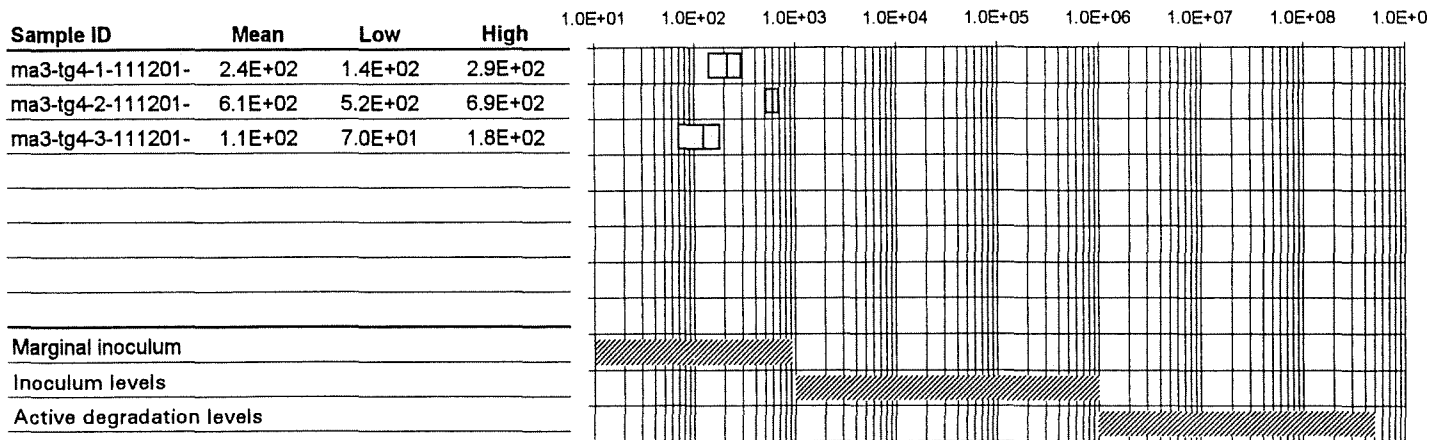
Low and high indicate 95% confidence range



Groundwater Samples

Degrader populations

Low and high indicate 95% confidence range



Marginal inoculum

Inoculum levels

Active degradation levels

Marginal inoculum = Degrader populations below 1.0E+03 are indicative of severe limitations. Substantial augmentation of site conditions will likely be required to attain adequate cell mass to attain measurable biotransformation rates.

Inoculum levels = Degrader populations between 1.0E+03 and 1.0E+06 are amenable to site augmentation, but are generally insufficient to attain adequate biotransformation without site augmentation.

Active degradation levels = Degrader populations greater than 1.0E+06 are generally of sufficient magnitude to support measurable biotransformation without site augmentation. However, site augmentation may still be required to attain desirable rates of transformation due to specific site conditions.

Assay conditions

Sample ID	Degrader Media		Temp. (Celcius)	Growth Conditions	DOF **		Percent Degraders
	Carbon source	% Carbon (v/v)			Total	Degrader	
ma3-tg4-1-111201-	btex,pah,creosote	1.0	22	aerobic	0	0	75.0%
ma3-tg4-2-111201-	btex,pah,creosote	1.0	22	aerobic	0	0	24.4%
ma3-tg4-3-111201-	btex,pah,creosote	1.0	22	aerobic	0	0	5.2%

* cfu/ml = colony forming units per ml of groundwater

** DOF = Degrees of freedom is number of replicates minus one. This parameter is used in calculation of 95% confidence intervals.

Site Information

Site Name	Moss America	Date received	13-Dec-02
Location	Milwaukee, WI	Date of this report	3-Jan-02
Consultant	Roy F Weston	BioRenewal Job Code	9936-181
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	btex,pah,creosote	Number of gw samples	3

Section I - Summary of Bioremediation Data

Nutrient/physical factors are as suggested by Wisconsin DNR guidelines for site characterization requirements for natural biodegradation. Microbial factors are shown according to bio-engineering norms.

Sample ID	Soil microbial populations:		pH	% TON /			% moisture / SWHC	% Air-filled pore space
	Exceeds norm for:			% OM	C:N	C:P		
	Passive	Active						
	>1E+06	>1E+03	5.5-8.5	>1.5%	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
ma3-tg2-1-121201-1	Summary table not applicable for groundwater.							
ma3-tg2-2-121201-2	Summary table not applicable for groundwater.							
ma3-tg2-3-121201-3	Summary table not applicable for groundwater.							

The nutrient/physical parameters summarized above for unsaturated zone soils, reflect suggested minimum Wisconsin DNR " site characterization requirements for natural biodegradation projects" as presented on pp. 6-10 in Naturally Occurring Biodegradation as a Remedial Action Option for *Soil Contamination: Interim Guidance (Revised)* dated August 26, 1994. **Microbac stresses that these "suggested guidelines" are only intended to provide a working frame of reference for evaluation.** Each site is unique and requires professional judgement in order to select an appropriate remedial design. We provide this information in recognition that our clients need to work within the guidelines suggested by the state. Further, we hope this will facilitate continued evolution of a working framework for evaluating sites as to the potential for bioremediation whether through site augmentation or natural attenuation.

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- NOTES:
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 - 5) See pages 8 and 10, WDNR.
 - 6) See pages 8 and 10, WDNR.
 - 7) See page 6 and 10, WDNR. The suggested optimum range is 50-80% (p. 6).
 - 8) See page 8 and 10, WDNR. WDNR suggests a minimum air-filled porosity in soil of 10% is necessary for adequate oxygen diffusion in the soil gas to support biodegradation.

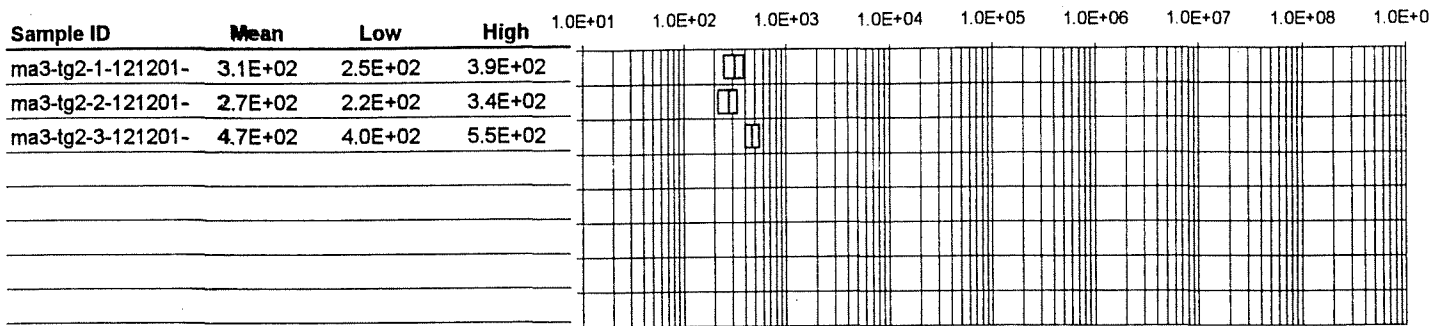
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples

Total populations

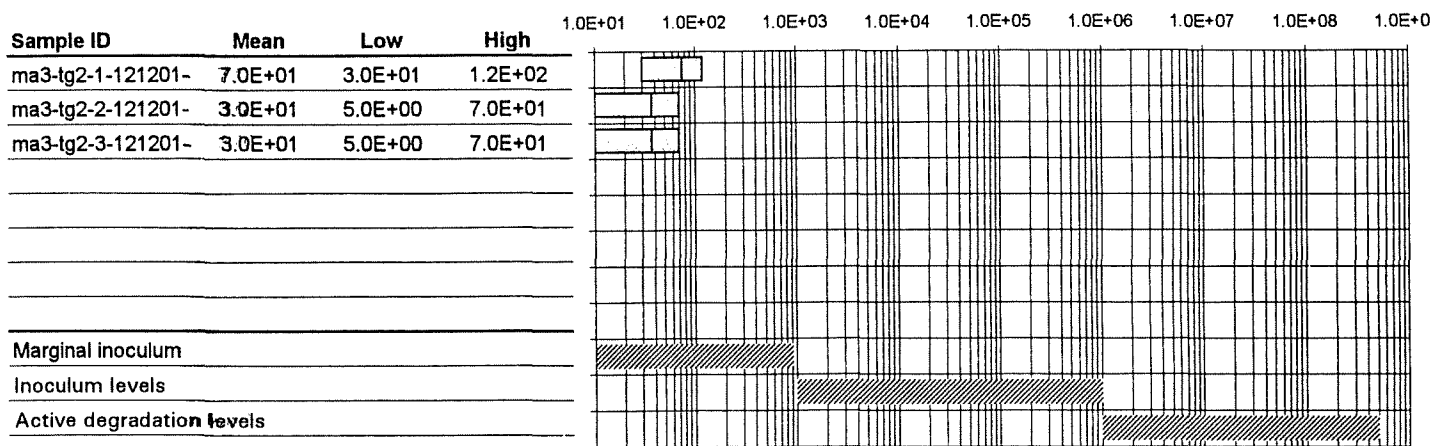
Low and high indicate 95% confidence range



Groundwater Samples

Degrader populations

Low and high indicate 95% confidence range



Marginal inoculum = Degrader populations below 1.0E+03 are indicative of severe limitations. Substantial augmentation of site conditions will likely be required to attain adequate cell mass to attain measurable biotransformation rates.

Inoculum levels = Degrader populations between 1.0E+03 and 1.0E+06 are amenable to site augmentation, but are generally insufficient to attain adequate biotransformation without site augmentation.

Active degradation levels = Degrader populations greater than 1.0E+06 are generally of sufficient magnitude to support measurable biotransformation without site augmentation. However, site augmentation may still be required to attain desirable rates of transformation due to specific site conditions.

Assay conditions

Sample ID	Degradable Media		Temp. (Celsius)	Growth Conditions	DOF **		Percent Degradation
	Carbon source	% Carbon (v/v)			Total	Degrader	
ma3-tg2-1-121201-	btex,pah,creosote	1.0	22	aerobic	0	0	22.6%
ma3-tg2-2-121201-	btex,pah,creosote	1.0	22	aerobic	0	0	11.1%
ma3-tg2-3-121201-	btex,pah,creosote	1.0	22	aerobic	0	0	6.4%

* cfu/ml = colony forming units per ml of groundwater

** DOF = Degrees of freedom is number of replicates minus one. This parameter is used in calculation of 95% confidence intervals.

Contact person Tom Brown Sample B-102 T-204
 Project name Nass American Project # _____
 Project location Millwaukee, WI
 (City) (State)

1170 120
 Requested analyses (✓)

Site contaminant * PAH, Creosote
 (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	
NA3-TG6-1-12/10/01		12/10/01	1450		X	-	X			
NA3-TG6-2-12/10/01			1500		X	-	X			
NA3-TG6-3-12/10/01			1510		X	-	X			
NA3-TG6-1-12/10/01			1645		X	-	X			
NA3-TG6-2-12/10/01			1655		X	-	X			
NA3-TG6-3-12/10/01			1705		X	-	X			

Relinquished by: [Signature] Date/time: 12/10/01 / 1830 Comments: _____ Sample condition upon arrival: _____
 Received by: [Signature] Date/time: 12/10/01 0845 On Ice? Yes, No

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

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

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

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

Contact person Tom Green Sampler B. Schulte, J. Hanzely, B. Mays, K. Zuk
 Project name Miss American Project # _____
 Project location Milwaukee, WI (City) (state)

Site contaminant * PAH, creosote
 (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 (✓)										
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		

Sample ID	Lab use only	Date	Time	Soil		Sample depth	Jars			Additional comments
				(✓)	(#)		Vials	Core		
9936-161 MAB-TG5-1- 11201-01		12/11/01	0915		X	-	X			
MAB-TG5-2- 11201-02		12/11/01	0925		X	-	X			
MAB-TG5-3- 11201-03		12/11/01	0935		X	-	X			
MAB-TG3-1- 11201-04		12/11/01	1055		X	-	X			
MAB-TG3-2- 11201-05		12/11/01	1105		X	-	X			
MAB-TG3-3- 11201-06		12/11/01	1115		X	-	X			
MAB-TG4-1- 11201-07		12/11/01	1315		X	-	X			
MAB-TG4-2- 11201-08		12/11/01	1325		X	-	X			

Relinquished by: [Signature] Date/time: 12/11/01 / 1730 Comments: _____ Sample condition upon arrival: _____
 Received by: [Signature] Date/time: 12/12/01 8:40 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 WRiston
 Address 750E. Barker Court, SHELBY, IN
 City Shelbyville State IN Zip 46161
 Phone 317-276-4000 Fax 317-276-4033

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

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

Contact person Tom Coan Sample 6: etc, anzi, Amis
 Project name Mass American Project # _____
 Project location Milwaukee, WI (City) (state)

Site contaminant * PAH, creosote
 (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 (✓)

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)	Microbial Enumeration	Intact core	

Sample ID	Lab use only	Date	Time	(✓)		Sample depth	Jars	(#)		Additional comments
				Soil	Gw			Vials	Core	
<u>W3-T24-3</u> <u>11201-09</u>		<u>12/11/01</u>	<u>1335</u>		<u>X</u>	<u>—</u>	<u>X</u>			

Relinquished by: <u>Gran S. Lutz</u>	Date/time: <u>12-11-01 / 1730</u>	Comments:	Sample condition upon arrival:
Received by:	Date/time:		On ice? <input 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 Coan
 Company WESTON
 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

Microbac

CHAIN OF CUSTODY RECORD

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

COMPOSITE
 AUTOMATIC
 DISCRETE
 FLOW PROPORTIONED
 CONTINUOUS
 TIME TOTAL FLOW

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

P.O. #		CLIENT NAME <i>Wpston</i>			LOCATION/PROJECT <i>Milwaukee, WI / Max American</i>				ANALYSES REQUESTED REMARKS OBSERVATIONS LIST SPECIAL HAZARDS HERE								RETURN SAMPLES TO CLIENT					
SAMPLERS (Signature) <i>Mark S. Lay</i>		SEND REPORT TO: <i>Tom Craven</i>						PHONE (847) <i>918-4000</i>														
LAB I.D. # <i>9436-181</i>		Sample Chest # Chest Temp. °C		Sample Temp. at Lab °C		Method of Shipment To Lab: Date _____ Time _____																
SAMPLE LOCATION		COLLECTED		SAMPLE TYPE			NO. OF CONTAINERS	CONTAINER TYPE PRESERVATIVE										<i>Microbac Laboratory</i>				
		DATE	TIME	COMP.	GRAB	MATRIX																
<i>NA3-TG2-1-121201-01</i>		<i>12/12/01</i>	<i>0915</i>			<i>water</i>	<i>1</i>	<i>jar none</i>														
<i>NA3-TG2-2-121201-02</i>		<i>12/12/01</i>	<i>0925</i>		<i>X</i>	<i>water</i>	<i>1</i>	<i>jar none</i>														
<i>NA3-TG2-3-121201-03</i>		<i>12/12/01</i>	<i>0945</i>		<i>X</i>	<i>water</i>	<i>1</i>	<i>jar none</i>														
Relinquished by: (Signature) <i>Mark S. Lay</i>		Date <i>12/12/01</i>	Time <i>16:00</i>	Received by: (Signature)				Relinquished by: (Signature)		Date	Time	Received by: (Signature)										
		5		6				7				8										
Relinquished by: (Signature)		Date	Time	Received by: (Signature)				Relinquished by: (Signature)		Date	Time	Received by: (Signature)										
Relinquished by: (Signature)		Date	Time	Received for Lab by: (Signature) <i>Tom Craven</i>				Date <i>12/13/01</i>	Time <i>10:05</i>	Page _____ of _____												

**Moss American
Milwaukee, Wisconsin
SDG# MOA95**

6 water samples – PAHs (SW846 8310)

Lab ID	Lab Code	Sample ID (MA3)	Sample Date	Analysis Date
3741872	36121	TG6-1-101201-01	12/10/01	12/15/01
3741873	36122	TG6-2-101201-02	12/10/01	12/15/01
3741874	36123	TG6-3-101201-03	12/10/01	12/15/01
3741875	31124	TG1-1-101201-04	12/10/01	12/15/01
3741876	31125	TG1-2-101201-05	12/10/01	12/15/01
3741877	31126	TG1-3-101201-06	12/10/01	12/15/01

1. Holding Times

All samples were extracted (12/13) and analyzed within required holding times.

2. Method Blank

One method blank was associated with the samples. The method blank was free of contamination.

3. Surrogate Recovery

Samples 3741872 (28), 3741875 (0), 3741876 (241 D), 3741877 (0), and 3741875 (4452 Dilution) had surrogate recoveries outside control limits. Two surrogates in the same fraction must be outside control limits to warrant qualification.

4. Laboratory Control Sample

All LCS, LCSD, and RPDs were within required control limits.

5. Matrix Spike/Matrix Spike Duplicate

An MS/MSD was not specified with this sample set.

6. Other

Sample 3741875 and 3741876 underwent dilutions.

**Moss American
Milwaukee, Wisconsin
SDG# MOA95
Continued**

7 water samples – BTEX (SW846 8021)

Lab ID	Lab Code	Sample ID (MA3)	Sample Date	Analysis Date
3741872	36121	TG6-1-101201-01	12/10/01	12/13/01
3741873	36122	TG6-2-101201-02	12/10/01	12/13/01
3741874	36123	TG6-3-101201-03	12/10/01	12/13/01
3741875	31124	TG1-1-101201-04	12/10/01	12/12/01
3741876	31125	TG1-2-101201-05	12/10/01	12/12/01
3741877	31126	TG1-3-101201-06	12/10/01	12/12/01
3741878	3112T	Trip Blank	12/10/01	12/13/01

1. Holding Times

All samples were analyzed within the required holding time.

2. Method Blank

The blank results were all non-detect.

3. Surrogate Recoveries

All surrogate recoveries were within required control limits.

4. Laboratory Control Sample

All LCS recoveries were within required control limits.

5. Matrix Spike

An MS/MSD was not specified with this sample set.

6. Internal Standards

All IS recoveries were within required control limits.

7. Trip Blank

Sample 3741878 was designated as the trip blank. All blank results were non-detect.

8. Other

Sample 3741875 underwent a 1 to 5 dilution.

Data Reviewed by: T. Balla

Date: 2/26/02



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 789642. Samples arrived at the laboratory on Tuesday, December 11, 2001.

Client Description

MA3-TG6-1-101201-01 Grab Water Sample
MA3-TG6-2-101201-02 Grab Water Sample
MA3-TG6-3-101201-03 Grab Water Sample
MA3-TG1-1-101201-04 Grab Water Sample
MA3-TG1-2-101201-05 Grab Water Sample
MA3-TG1-3-101201-06 Grab Water Sample
TB-01 Water Sample

Lancaster Labs Number

3741872
3741873
3741874
3741875
3741876
3741877
3741878

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



Lancaster Laboratories

Where quality is a science.

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

Respectfully Submitted,

Victoria M. Martell
Chemist



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 3741872**

Collected: 12/10/2001 14:50 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20

Kerr-McGee Corporation

Reported: 12/28/2001 at 02:51

P.O. Box 25861

Discard: 01/28/2002

Oklahoma City OK 73125

MA3-TG6-1-101201-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

36121 SDG#: MOA95-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.2		0.30	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	1.0		0.16	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	0.0140 J		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.7	mg/l	1
00273	Total Organic Carbon	n.a.	6.2		0.60	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.29		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	17.7		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.		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	0.06 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	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 Sample No. **WW 3741872**

Collected: 12/10/2001 14:50 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20
 Reported: 12/28/2001 at 02:51
 Discard: 01/28/2002

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

MA3-TG6-1-101201-01 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

36121 SDG#: MOA95-01

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	12/16/2001 12:26		Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/12/2001 08:31		Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/18/2001 14:05		Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/15/2001 06:55		Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/12/2001 03:20		Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/11/2001 21:35		Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 13:06		Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 10:48		Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/19/2001 05:40		Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/13/2001 00:21		Anastasia C. Papadoplos	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 04:39		Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/13/2001 00:21		Anastasia C. Papadoplos	n..
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 13:55		Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/13/2001 09:00		John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15		James S. Mathiot	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 3741873**

Collected: 12/10/2001 15:00 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20

Kerr-McGee Corporation

Reported: 12/28/2001 at 02:52

P.O. Box 25861

Discard: 01/28/2002

Oklahoma City OK 73125

MA3-TG6-2-101201-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

36122 SDG#: MOA95-02

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	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	0.76	J	0.16	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.		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.4	mg/l	1
00273	Total Organic Carbon	n.a.	7.4		0.60	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.14	J	0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	18.1		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.		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	0.05	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



Lancaster Laboratories Sample No. WW 3741873

Collected: 12/10/2001 15:00 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20

Kerr-McGee Corporation

Reported: 12/28/2001 at 02:52

P.O. Box 25861

Discard: 01/28/2002

Oklahoma City OK 73125

MA3-TG6-2-101201-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

36122 SDG#: MOA95-02

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.	0.1	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 Fact
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/16/2001 12:27	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/12/2001 08:33	Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/18/2001 14:09	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/15/2001 06:55	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/12/2001 03:20	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/11/2001 21:35	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 13:30	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 10:49	Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/19/2001 05:40	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/13/2001 00:55	Anastasia C. Papadoplos	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 05:18	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/13/2001 00:55	Anastasia C. Papadoplos	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 13:55	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/13/2001 09:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15	James S. Mathiot	1



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



Lancaster Laboratories Sample No. **WW 3741874**

Collected: 12/10/2001 15:10 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20

Kerr-McGee Corporation

Reported: 12/28/2001 at 02:52

P.O. Box 25861

Discard: 01/28/2002

Oklahoma City OK 73125

MA3-TG6-3-101201-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

36123 SDG#: MOA95-03

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.89	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	0.51	J	0.16	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	0.0094	J	0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.6	mg/l	1
00273	Total Organic Carbon	n.a.	9.8		0.60	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.17	J	0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	24.5		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.		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	0.04	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	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 Sample No. **WW 3741874**

Collected: 12/10/2001 15:10 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20
 Reported: 12/28/2001 at 02:52
 Discard: 01/28/2002

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

MA3-TG6-3-101201-03 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

36123 SDG#: MOA95-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
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	12/16/2001 12:28	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/12/2001 08:34	Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/18/2001 14:10	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/15/2001 06:55	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/12/2001 03:20	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/11/2001 21:35	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 13:38	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 10:50	Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/19/2001 05:40	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/13/2001 01:28	Anastasia C. Papadoplos	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 05:56	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/13/2001 01:28	Anastasia C. Papadoplos	n.a
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 13:55	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/13/2001 09:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15	James S. Mathiot	1



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



Lancaster Laboratories Sample No. **WW 3741875**

Collected: 12/10/2001 16:45 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20

Kerr-McGee Corporation

Reported: 12/28/2001 at 02:52

P.O. Box 25861

Discard: 01/28/2002

Oklahoma City OK 73125

MA3-TG1-1-101201-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

31124 SDG#: MOA95-04

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	0.72 J		0.16	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	0.0099 J		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	9.8		0.80	mg/l	1
00273	Total Organic Carbon	n.a.	11.8		0.60	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.	44.2		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	5.7		1.0	ug/l	5
00777	Toluene	108-88-3	1.2 J		1.0	ug/l	5
00778	Ethylbenzene	100-41-4	23.		1.0	ug/l	5
00779	Total Xylenes	1330-20-7	31.		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	2,600.		20.	ug/l	20
00782	Acenaphthylene	208-96-8	54.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	170.		0.8	ug/l	1
00784	Fluorene	96-73-7	90.		3.	ug/l	20
00785	Phenanthrene	85-01-8	55.		2.	ug/l	20
00789	Anthracene	120-12-7	5.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	7.		0.04	ug/l	1



Lancaster Laboratories Sample No. WW 3741875

Collected: 12/10/2001 16:45 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20

Kerr-McGee Corporation

Reported: 12/28/2001 at 02:52

P.O. Box 25861

Discard: 01/28/2002

Oklahoma City OK 73125

MA3-TG1-1-101201-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

31124 SDG#: MOA95-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00811	Pyrene	129-00-0	4.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.3		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.06	J	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	0.05	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.		0.1	ug/l	1
07409	Chrysene	218-01-9	0.1	J	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.03	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.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/16/2001 12:29	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/12/2001 08:35	Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/18/2001 14:14	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/15/2001 06:55	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/12/2001 03:20	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/11/2001 21:35	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 14:03	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 10:51	Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/19/2001 05:40	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/12/2001 22:40	Anastasia C. Papadoplos	5
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 06:35	Mark Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/17/2001 08:07	Mark Clark	20
01146	GC VOA Water Prep	SW-846 5030B	1	12/12/2001 22:40	Anastasia C. Papadoplos	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 13:55	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/13/2001 09:00	John A. Myers	1



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Lancaster Laboratories Sample No. WW 3741875

Collected: 12/10/2001 16:45 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20

Kerr-McGee Corporation

Reported: 12/28/2001 at 02:52

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Discard: 01/28/2002

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MA3-TG1-1-101201-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

31124 SDG#: MOA95-04

08264 Total Phos as PO4 Prep
(water)

EPA 365.1

1

12/13/2001 10:15

James S. Mathiot

1



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Lancaster Laboratories Sample No. WW 3741876

Collected: 12/10/2001 16:55 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20

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Reported: 12/28/2001 at 02:52

P.O. Box 25861

Discard: 01/28/2002

Oklahoma City OK 73125

MA3-TG1-2-101201-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

31125 SDG#: MOA95-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
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	0.74 J	0.16	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	0.0048 J	0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	5.5	mg/l	1
00273	Total Organic Carbon	n.a.	10.8	0.60	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.	35.8	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	0.22 J	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	0.67 J	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	0.66 J	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	80.	5.	ug/l	5
00782	Acenaphthylene	208-96-8	N.D.	4.	ug/l	5
00783	Acenaphthene	83-32-9	40.	4.	ug/l	5
00784	Fluorene	86-73-7	13.	0.8	ug/l	5
00785	Phenanthrene	85-01-8	14.	0.4	ug/l	5
00789	Anthracene	120-12-7	2.	0.2	ug/l	5
00807	Fluoranthene	206-44-0	3.	0.2	ug/l	5
00911	Pyrene	129-00-0	2. J	0.8	ug/l	5
00812	Benzo(a)anthracene	56-55-3	0.1 J	0.09	ug/l	5
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.2	ug/l	5
00823	Benzo(a)pyrene	50-32-8	N.D.	0.09	ug/l	5



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Lancaster Laboratories Sample No. WW 3741876

Collected: 12/10/2001 16:55 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20

Kerr-McGee Corporation

Reported: 12/28/2001 at 02:52

P.O. Box 25861

Discard: 01/28/2002

Oklahoma City OK 73125

MA3-TG1-2-101201-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

31125 SDG#: MOA95-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
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	N.D.	0.4	ug/l	5
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.5	ug/l	5
07409	Chrysene	218-01-9	N.D.	0.4	ug/l	5
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.09	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.

Due to the high concentration of non-target compounds, a dilution was necessary to perform the PAH by HPLC analysis. Therefore, the reporting limits for the HPLC PAH compounds were raised.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/16/2001 12:31	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/12/2001 08:39	Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/14/2001 18:26	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/19/2001 06:20	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/12/2001 03:20	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/11/2001 21:35	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 14:11	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 10:52	Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/19/2001 05:40	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/12/2001 23:14	Anastasia C. Papadoplos	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 07:17	Mark Clark	5
01146	GC VOA Water Prep	SW-846 5030B	1	12/12/2001 23:14	Anastasia C. Papadoplos	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 13:55	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/13/2001 09:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. WW 3741876

Collected: 12/10/2001 16:55 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20

Reported: 12/28/2001 at 02:52

Discard: 01/28/2002

MA3-TG1-2-101201-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

31125 SDG#: MOA95-05



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Lancaster Laboratories Sample No. **WW 3741877**

Collected: 12/10/2001 17:05 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20

Kerr-McGee Corporation

Reported: 12/28/2001 at 02:52

P.O. Box 25861

Discard: 01/28/2002

Oklahoma City OK 73125

MA3-TG1-3-101201-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

31126 SDG#: MOA95-06

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
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	0.72	J	0.16	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.		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		4.8	mg/l	1
00273	Total Organic Carbon	n.a.	6.4		0.60	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.	18.9		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	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	0.04	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 Laboratories Sample No. **WW 3741877**

Collected: 12/10/2001 17:05 by BS

Account Number: 07802

Submitted: 12/11/2001 09:20

Kerr-McGee Corporation

Reported: 12/28/2001 at 02:52

P.O. Box 25861

Discard: 01/28/2002

Oklahoma City OK 73125

MA3-TG1-3-101201-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

31126 SDG#: MOA95-06

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.	0.09	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	Trial#	Analysis	Analyst	Dilution Factor
				Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/16/2001 12:34	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/12/2001 08:40	Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/18/2001 14:17	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/19/2001 06:20	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/12/2001 03:20	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/11/2001 21:35	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 14:19	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 10:53	Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/19/2001 05:40	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/12/2001 23:48	Anastasia C. Papadoplos	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 07:56	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/12/2001 23:48	Anastasia C. Papadoplos	n.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 13:55	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/13/2001-09:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15	James S. Mathiot	1



Lancaster Laboratories Sample No. WW 3741878

Collected: 12/10/2001 18:00

Account Number: 07802

Submitted: 12/11/2001 09:20

Kerr-McGee Corporation

Reported: 12/28/2001 at 02:52

P.O. Box 25861

Discard: 01/28/2002

Oklahoma City OK 73125

TB-01 Water Sample

Moss American Superfund Site - Milwaukee, WI

3112T SDG#: MOA95-07TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	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	12/13/2001 02:02	Anastasia C. Papadopoulos	1



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Analysis Request/Environmental Services Chain of Custody



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REVISED COC

MON 8:50
12/10/01

For Lancaster Laboratories use only
Acct. # 7802 Sample # 374872-78

SENT BY: VERNON HILLS, IL : 12-14-1 : 11:20 : ROY F. WESTON : 917176566766 : # 7 / 8

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

<p>Client: <u>Weston/Kerr McGee</u> Acct. #: _____</p> <p>Project Name: # <u>Mass American</u> PWSID #: _____</p> <p>Project Manager: <u>T. M. Croan</u> P.O. #: _____</p> <p>Sampler: <u>B. Scherke, T. Horzely</u> Quote #: _____</p> <p>Name of state where samples were collected: <u>VA</u></p>	4	5	<p>For lab use only</p> <p>FSC: _____</p> <p>SCR#: _____</p>
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Sample ID	Date	PWSID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774
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Please print. Instructions on reverse side correspond with circled numbers.

Client: Weston/Kerr McGee Acct. #: _____
 Project Name/#: Mass American PWSID #: _____
 Project Manager: Tom Grant P.O.# _____
 Sampler: B. Schaefer, T. Honzely Quote #: _____
 Name of state where samples were collected: VI

Matrix (4)
 Potable (Check if applicable)
 NPDES
 Water
 Other

Analyses Requested (5)
NH3/COD
TKN/TP-P
BOD/DO-PO1
PAH
BTEX BS
NO2
NO3
TOC

For lab use only
 FSC: _____
 SCR#: _____

Temperature of samples upon receipt (if requested) (6)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Analyses Requested							Remarks	Temperature of samples upon receipt (if requested)	
									NH3/COD	TKN/TP-P	BOD/DO-PO1	PAH	BTEX BS	NO2	NO3			TOC
<u>MA3-TG6-1-101201-01</u>	<u>12/10/01</u>	<u>1450</u>	<u>X</u>			<u>X</u>		<u>11</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		
<u>MA3-TG6-2-101201-02</u>	<u>12/10/01</u>	<u>1500</u>	<u>X</u>			<u>X</u>		<u>11</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		
<u>MA3-TG6-3-101201-03</u>	<u>12/10/01</u>	<u>1510</u>	<u>X</u>			<u>X</u>		<u>11</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>BS</u>	

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) PER QUOTE Yes NO
 Type I (Tier I) GLP
 Type II (Tier II) Other
 Type III (NJ Red. Del.)
 Type IV (CLP)

SDG Complete? Yes NO
 Site-specific QC required? Yes No
 (If yes, indicate QC sample and submit triplicate volume.)
 Internal Chain of Custody required? Yes No

Relinquished by: Brian Schaefer Date: 12/10/01 Time: 1830
 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: Ucinio Date: 12/11/01 Time: 0920

Cooler #2

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3741872-78

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

Client: <u>Wester/Kerr McGee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Green</u> P.O.# _____ Sampler: <u>B Schaefer, T Henzely</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 BTX PAH VAS COD TKN TP-124 C-P24 BOD NO ₂ NO ₃ TOL										For lab use only FSC: _____ SCR#: _____					
Sample Identification	Date Collected	Time Collected	Grab (3)	Composite	Soil	Water	Other	Total # of Containers											Temperature of samples upon receipt (if requested) (6)		
TB-01	12/10/01	1800	X			X		2	X												
MA3-TG1-1-101201-04	12/10/01	1645	X			X		11	X	X	X	X	X	X	X	X	X				
MA3-TG6-3-101201-03	12/10/01	1510	X			X		11	X	X	X	X	X	X	X	X					
MA3-TG6-1-101201-01	12/10/01	1450	X			X		3	X												
MA3-TG6-2-101201-02	12/10/01	1500	X			X		3	X												
MA3-TG1-2-101201-05	12/10/01	1655	X			X		3	X												
MA3-TG1-3-101201-06	12/10/01	1705	X			X		3	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>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: <u>Bren & Lay</u> Date: <u>12/10/01</u> Time: <u>1830</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>PERQUISITE</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)		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____			
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>McDermid</u> <u>12/11/01</u> <u>0930</u>			



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3741872-78

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

Client: Wiston/Ker McGee Acct. #: _____
 Project Name/#: Mass American PWSID #: _____
 Project Manager: Tom Green P.O. #: _____
 Sampler: B Schate, T Henzely Quote #: _____
 Name of state where samples were collected: WI

Matrix (4)
 Potable (Check if applicable)
 Water NPDES
 Soil Other

Total # of Containers

Analyses Requested (5)
NH3 COD
TKN TP PO4
BOD10-PO4
NO2
NO3
PAH
BTEX-S
TOL

For lab use only
 FSC: _____
 SCR #: 1158588

Temperature of samples upon receipt (if requested) (6)

Sample Identification	Date Collected	Time Collected	Grab (3)	Composite	Soil	Water	Other	Total # of Containers	Analyses Requested	Remarks	Temperature of samples upon receipt (if requested)
MAB TGI-1-101201-04	12/1/01	1615	Y			X		11	X X X X X X X X		
MAB TGI-2-101201-05	12/1/01	1655	X			X		11	X X X X X X X X		
MAB TGI-3-101201-06	12/1/01	1755	Y			Y		11	X X 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 5D TAT
 Rush results requested by (please circle): Phone Fax
 Phone #: 847-913-4000 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: [Signature] Date 10/24/01 Time 1130 Received by: _____ Date _____ Time _____
 Relinquished by: [Signature] Date 12/1/01 Time 1830 Received by: _____ Date _____ Time _____
 Relinquished by: _____ Date _____ Time _____ Received by: _____ Date _____ Time _____
 Relinquished by: _____ Date _____ Time _____ Received by: [Signature] Date 12/11/01 Time 0920

CASE NARRATIVE

Client: Kerr-McGee Corporation
SDG #: MOA95

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>
3741872	36121	X	
3741873	36122	X	
3741874	36123	X	
3741875	31124	X	
3741875DL	31124DL	X	20X Dilution
3741876	31125	X	5X Dilution
3741877	31126	X	

LABORATORY SUBMITTED QC:

SBLKWF346	SBLKWF3461	X	Method Blank
346WFLCS	346WFLCS1	X	Lab Control Sample
346WFLCSD	346WFLCSD1	X	Lab Control Sample Dup

SAMPLE PREPARATION:

No problems were encountered during the extraction of these samples.

ANALYSIS:

The method used for analysis was SW-846 8310.

All samples were analyzed for polynuclear aromatic hydrocarbons by HPLC.

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 the batch level.

Case Narrative
SDG #: MOA95 continued

36125 was analyzed at an initial 5X dilution due to a high concentration of non-target compounds.

Due to concentrations of naphthalene, fluorene, and phenanthrene above calibration range, 36124 was analyzed at a further 20X dilution.

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

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

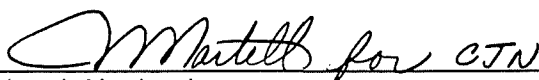
All QC was within specifications.

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:



Charles J. Neslund
Group Leader, GC/MS Semivolatiles

Date: 1-4-02

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
3741872	36121	X	
3741873	36122	X	
3741874	36123	X	
3741875	31124	X	DF 5
3741876	31125	X	
3741877	31126	X	
3741878	3112T	X	

QUALITY CONTROL ANALYSES

BLK6800	X	Method Blank
BLK6801	X	Method Blank
BLK6802	X	Method Blank
3742025	X	Unspiked
3742025MS	X	Matrix Spike
LCS6800	X	Lab Control Sample
LDS6800	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 column. 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 SW846 8021B. A J&W DB-5, 30m, 0.53mm column was used for the analysis of all samples. The surrogate concentration was 30.0⁰UG/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# MOA95

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

Date 1/3/02



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: MOA95

LANCASTER LABORATORIES

INSTRUMENTAL WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3741872	36121	
3741873	36122	
3741874	36123	
3741875	31124	
3741876	31125	
3741877	31126	

ANALYSIS:

Dilutions are listed in the table below.

SAMPLE	NITRATE-N	TP as PO4	TOC
All LCS	2	2	5

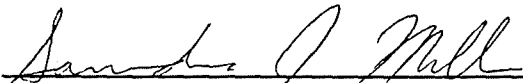
QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

A number of analyte recoveries were out of specification. Refer to the duplicate and matrix spike forms for the specific analyte recoveries outside the QC limits.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

 Date: 12-28-01
 Sandra J. Miller
 Specialist/Coordinator

0186



Where quality is a science.

CLIENT: Kerr – McGee Corporation
SDG: MOA95

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

Sample #	Sample Code	Comments
3741872	36121	
3741873	36122	
3741874	36123	
3741875	31124	
3741876	31125	
3741877	31126	

ANALYSIS:

Dilution factors are listed in the table below:

Samples:	BOD	COD
P742172	DF10 / BKG / DUP	
P740928		DF5 / BKG / DUP

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The % RPD of the LCS/LCSD was out of specification for the biochemical oxygen demand analysis.

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: 12-28-01

0284

**Moss American
Milwaukee, Wisconsin
SDG# MOA96**

15 water samples – PAHs (SW846 8310)

Lab ID	Lab Code	Sample ID (MA3)	Sample Date	Analysis Date
3742846	35-1	TG5-1-111201-01	12/11/01	12/15/01
3742847	35-2	TG5-2-111201-02	12/11/01	12/15/01
3742848	35-3	TG5-3-111201-03	12/11/01	12/15/01
3742849	33-1	TG3-1-111201-04	12/11/01	12/15/01
3742850	33-2	TG3-2-111201-05	12/11/01	12/15/01
3742851	33-3	TG3-3-111201-06	12/11/01	12/15/01
3742852	34-1	TG4-1-111201-07	12/11/01	12/15/01
3742853	34-2	TG4-2-111201-08	12/11/01	12/15/01
3742854	34-3	TG4-3-111201-09	12/11/01	12/15/01
3742855	33310	MW33S-111201-10	12/11/01	12/15/01
3742856	333-D	MW33S-111201-10DP	12/11/01	12/15/01
3742857	33211	MW32S-111201-11	12/11/01	12/15/01
3742858	32712	MW27S-111201-12	12/11/01	12/15/01
3742859	37-13	MW7S-111201-13	12/11/01	12/15/01
3742860	33414	MW34S-111201-14	12/11/01	12/15/01
3742861	33515	MW35S-111201-15	12/11/01	12/15/01

1. Holding Times

All samples were extracted (12/14) and analyzed within required holding times. However, two coolers were received at elevated temperatures. The following samples were received at elevated temperatures TG3-1-111201-04 and TG3-2-111201-05. All compounds associated with these two samples are flagged J for positive results and UJ for non-detects.

2. Method Blank

One method blank was associated with the samples. The method blank was free of contamination.

3. Surrogate Recovery

Samples 35-1, 35-3, 33-1, 33-2, 33-3, 34-1, 33310, 333-D, 33211, 32712, 37-13, 33414, 33515, 33310DL, 333-DDL, 37-13DL, and 33414DL had NBZ 2 surrogate recoveries outside control limits. Two surrogates in the same fraction must be outside control limits to warrant qualification. Several TPE 1 and TPE 2 surrogate recoveries were diluted out.

4. Laboratory Control Sample

All LCS, LCSD, and RPDs were within required control limits.

**Moss American
Milwaukee, Wisconsin
SDG# MOA96
Cont.**

5. Matrix Spike/Matrix Spike Duplicate

An MS/MSD was not specified with this sample set.

6. Other

Samples 33310, 333, 37-13, and 33414 underwent dilutions.

16 water samples – BTEX (SW846 8021)

Lab ID	Lab Code	Sample ID (MA3)	Sample Date	Analysis Date
3742846	35-1	TG5-1-111201-01	12/11/01	12/13/01
3742847	35-2	TG5-2-111201-02	12/11/01	12/13/01
3742848	35-3	TG5-3-111201-03	12/11/01	12/13/01
3742849	33-1	TG3-1-111201-04	12/11/01	12/13/01
3742850	33-2	TG3-2-111201-05	12/11/01	12/13/01
3742851	33-3	TG3-3-111201-06	12/11/01	12/13/01
3742852	34-1	TG4-1-111201-07	12/11/01	12/13/01
3742853	34-2	TG4-2-111201-08	12/11/01	12/13/01
3742854	34-3	TG4-3-111201-09	12/11/01	12/13/01
3742855	33310	MW33S-111201-10	12/11/01	12/13/01
3742856	333-D	MW33S-111201-10DP	12/11/01	12/13/01
3742857	33211	MW32S-111201-11	12/11/01	12/13/01
3742858	32712	MW27S-111201-12	12/11/01	12/13/01
3742859	37-13	MW7S-111201-13	12/11/01	12/13/01
3742860	33414	MW34S-111201-14	12/11/01	12/13/01
3742861	33515	MW35S-111201-15	12/11/01	12/13/01
3742862	MATB2	Trip Blank	12/11/01	12/13/01

1. Holding Times

All samples were analyzed within the required holding time.

2. Method Blank

The blank results were all non-detect.

3. Surrogate Recoveries

All surrogate recoveries were within required control limits.

4. Laboratory Control Sample

All LCS recoveries were within required control limits.

**Moss American
Milwaukee, Wisconsin
SDG# MOA96
Cont.**

5. Matrix Spike

An MS/MSD was not specified with this sample set.

6. Internal Standards

All IS recoveries were within required control limits.

7. Trip Blank

Sample 3742862 was designated as the trip blank. All blank results were non-detect.

8. Other

Samples 3742855, 3742856, 3742860, and 3742859 underwent dilutions.

Data Reviewed by: T. Balla

Date: 3/12/02



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 789861. Samples arrived at the laboratory on Wednesday, December 12, 2001.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
MA3-TG5-1-111201-01 Grab Water Sample	3742846
MA3-TG5-2-111201-02 Grab Water Sample	3742847
MA3-TG5-3-111201-03 Grab Water Sample	3742848
MA3-TG3-1-111201-04 Grab Water Sample	3742849
MA3-TG3-2-111201-05 Grab Water Sample	3742850
MA3-TG3-3-111201-06 Grab Water Sample	3742851
MA3-TG4-1-111201-07 Grab Water Sample	3742852
MA3-TG4-2-111201-08 Grab Water Sample	3742853
MA3-TG4-3-111201-09 Grab Water Sample	3742854
MA3-MW33S-111201-10 Grab Water Sample	3742855
MA3-MW33S-111201-10-DP Grab Water Sample	3742856
MA3-MW32S-111201-11 Grab Water Sample	3742857
MA3-MW27S-111201-12 Grab Water Sample	3742858
MA3-MW7S-111201-13 Grab Water Sample	3742859
MA3-MW34S-111201-14 Grab Water Sample	3742860
MA3-MW35S-111201-15 Grab Water Sample	3742861
TB-02 Water Sample	3742862

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



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

Respectfully Submitted,

Victoria M. Martell
Chemist



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 3742846

Collected: 12/11/2001 09:15 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:23

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG5-1-111201-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

35-1- SDG#: MOA96-01

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.70	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	0.044	J	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.63	J	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		3.2	mg/l	1
00273	Total Organic Carbon	n.a.	5.9		0.60	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.	12.1		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.		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



Lancaster Laboratories Sample No. WW 3742846

Collected: 12/11/2001 09:15 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00
 Reported: 12/29/2001 at 20:23
 Discard: 01/29/2002

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

MA3-TG5-1-111201-01 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

35-1- SDG#: MOA96-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
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	12/16/2001 13:59		Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/13/2001 08:16		Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/24/2001 13:46		Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/19/2001 06:20		Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/13/2001 00:15		Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/12/2001 21:55		Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 16:44		Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 10:53		Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/19/2001 05:40		Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/13/2001 19:33		K. Robert James	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 11:08		Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/13/2001 19:33		K. Robert James	n.a
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 15:43		Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00		John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15		James S. Mathiot	1



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



Lancaster Laboratories Sample No. WW 3742847

Collected: 12/11/2001 09:25 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:23

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG5-2-111201-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

35-2- SDG#: MOA96-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.74 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	0.30 J	0.16	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.	0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	3.1	mg/l	1
00273	Total Organic Carbon	n.a.	6.3	0.60	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.25	0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	14.3	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.	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	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	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 Laboratories Sample No. WW 3742847

Collected: 12/11/2001 09:25 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:23

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG5-2-111201-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

35-2- SDG#: MOA96-02

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.		0.09	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	12/16/2001 14:01	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/13/2001 08:17	Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/24/2001 13:47	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/19/2001 06:20	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/13/2001 00:15	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/12/2001 21:55	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 17:25	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 10:58	Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/19/2001 05:40	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/13/2001 20:06	K. Robert James	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 11:47	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/13/2001 20:06	K. Robert James	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 15:43	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15	James S. Mathiot	1



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



Lancaster Laboratories Sample No. **WW 3742848**

Collected: 12/11/2001 09:35 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG5-3-111201-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

35-3- SDG#: MOA96-03

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.71	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	0.069	J	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.46	J	0.16	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	0.024		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.8	mg/l	1
00273	Total Organic Carbon	n.a.	6.2		0.60	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.15	J	0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	14.7		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.		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



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



Lancaster Laboratories Sample No. **WW 3742848**

Collected: 12/11/2001 09:35 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG5-3-111201-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

35-3- SDG#: MOA96-03

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	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/16/2001 14:04	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/13/2001 08:19	Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/24/2001 13:48	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/19/2001 06:20	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/13/2001 00:15	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/12/2001 21:55	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 17:33	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 10:59	Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/19/2001 05:40	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/13/2001 20:38	K. Robert James	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 12:25	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/13/2001 20:38	K. Robert James	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 15:43	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. **WW 3742849**

Collected: 12/11/2001 10:55 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG3-1-111201-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

33-1- SDG#: MOA96-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.7		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.13		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.4		0.16	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	0.026		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		4.0	mg/l	1
00273	Total Organic Carbon	n.a.	14.2		0.60	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.	33.6		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.	J	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.	J	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	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	0.09	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	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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JB

LANS



Lancaster Laboratories Sample No. WW 3742849

Collected: 12/11/2001 10:55 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00
 Reported: 12/29/2001 at 20:24
 Discard: 01/29/2002

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

MA3-TG3-1-111201-04 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

33-1- SDG#: MOA96-04

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	12/16/2001 14:05	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/13/2001 08:20	Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/27/2001 15:07	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/19/2001 06:20	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/13/2001 00:15	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/12/2001 21:55	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 17:41	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 11:00	Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/19/2001 05:40	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/13/2001 21:10	K. Robert James	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 13:04	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/13/2001 21:10	K. Robert James	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 15:43	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15	James S. Mathiot	1



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TB

14-12-01



Lancaster Laboratories Sample No. WW 3742850

Collected: 12/11/2001 11:05 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG3-2-111201-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

33-2- SDG#: MOA96-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
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	Trial#	Analysis Date and Time	Analyst	Dilut. or Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/16/2001 14:07	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/13/2001 08:22	Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/27/2001 15:08	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/19/2001 06:20	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/13/2001 00:15	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/12/2001 21:55	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 17:49	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 11:01	Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/19/2001 05:40	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/13/2001 21:42	K. Robert James	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 13:42	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/13/2001 21:42	K. Robert James	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 15:43	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15	James S. Mathiot	1

TB

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



Lancaster Laboratories Sample No. WW 3742851

Collected: 12/11/2001 11:15 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG3-3-111201-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

33-3- SDG#: MOA96-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.5		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.024 J		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.2		0.16	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	0.021		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	9.3		0.80	mg/l	1
00273	Total Organic Carbon	n.a.	12.6		0.60	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.35		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	29.3		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.		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	0.1 J		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.08 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 Laboratories Sample No. WW 3742851

Collected: 12/11/2001 11:15 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00
 Reported: 12/29/2001 at 20:24
 Discard: 01/29/2002

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 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG3-3-111201-06 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

33-3- SDG#: MOA96-06

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.		0.09	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	12/16/2001 14:08	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/13/2001 08:27	Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/27/2001 15:09	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/19/2001 06:20	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/13/2001 00:15	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/12/2001 21:55	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 17:57	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 11:02	Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/20/2001 05:30	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/13/2001 22:14	K. Robert James	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 14:21	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/13/2001 22:14	K. Robert James	n.a.
01460	Total Kjeldahl Nitrogen. Digest	EPA 351.2	1	12/14/2001 15:43	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. WW 3742852

Collected: 12/11/2001 13:15 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG4-1-111201-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

34-1- SDG#: MOA96-07

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	0.42 J		0.16	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	0.0109 J		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.6	mg/l	1
00273	Total Organic Carbon	n.a.	6.5		0.60	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.30		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	16.5		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.		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 Sample No. **WW 3742852**

Collected: 12/11/2001 13:15 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG4-1-111201-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

34-1- SDG#: MOA96-07

CAT No.	Analysis Name	CAS Number	As Received	As Received	Units	Dilution Factor
			Result	Method		
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	12/16/2001 14:09	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/13/2001 08:29	Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/27/2001 15:10	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/19/2001 06:20	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/13/2001 00:15	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/12/2001 21:55	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 18:05	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 11:04	Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/20/2001 05:30	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/13/2001 22:47	K. Robert James	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 15:00	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/13/2001 22:47	K. Robert James	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 15:43	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15	James S. Mathiot	1



Lancaster Laboratories Sample No. WW 3742853

Collected: 12/11/2001 13:25 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG4-2-111201-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

34-2- SDG#: MOA96-08

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	1.0		0.16	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	0.0074 J		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		5.7	mg/l	1
00273	Total Organic Carbon	n.a.	9.9		0.60	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.	23.3		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.		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	0.1 J		0.08	ug/l	1
00789	Anthracene	120-12-7	0.1 J		0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.2		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 Sample No. WW 3742853

Collected: 12/11/2001 13:25 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG4-2-111201-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

34-2- SDG#: MOA96-08

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	12/16/2001 14:10	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/13/2001 08:30	Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/27/2001 15:12	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/19/2001 06:20	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/13/2001 00:15	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/12/2001 21:55	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 18:13	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 11:07	Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/20/2001 05:30	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/13/2001 23:19	K. Robert James	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 16:17	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/13/2001 23:19	K. Robert James	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 15:43	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15	James S. Mathiot	1



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 Lancaster, PA 17605-2425
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Lancaster Laboratories Sample No. WW 3742854

Collected: 12/11/2001 13:35 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG4-3-111201-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

34-3- SDG#: MOA96-09

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	0.93 J		0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0028 J		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		3.9	mg/l	1
00273	Total Organic Carbon	n.a.	9.0		0.60	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.25		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	22.2		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.		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



Lancaster Laboratories Sample No. WW 3742854

Collected: 12/11/2001 13:35 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00
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 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG4-3-111201-09 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

34-3- SDG#: MOA96-09

CAT No.	Analysis Name	CAS Number	As Received	As Received	Units	Dilution Factor
			Result	Method		
07409	Chrysene	218-01-9	N.D.		ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		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
				Date and Time		Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/16/2001 14:12	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/13/2001 08:31	Timothy M. Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/18/2001 14:15	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	2	12/27/2001 06:20	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/13/2001 00:15	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/12/2001 21:55	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/13/2001 18:21	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/17/2001 11:08	Venia M. McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/20/2001 05:30	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 02:00	K. Robert James	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 16:55	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 02:00	K. Robert James	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 15:43	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/13/2001 10:15	James S. Mathiot	1



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Lancaster Laboratories Sample No. WW 3742855

Collected: 12/11/2001 14:20 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW33S-111201-10 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

33310 SDG#: MOA96-10

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.	1.0	ug/l	5
00777	Toluene	108-88-3	N.D.	1.0	ug/l	5
00778	Ethylbenzene	100-41-4	6.8	1.0	ug/l	5
00779	Total Xylenes	1330-20-7	18.	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	2,100.	20.	ug/l	20
00782	Acenaphthylene	208-96-8	47.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	110.	0.8	ug/l	1
00784	Fluorene	86-73-7	32.	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	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
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.



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Lancaster Laboratories Sample No. WW 3742855

Collected: 12/11/2001 14:20 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW33S-111201-10 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

33310 SDG#: MOA96-10

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

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 05:13	K. Robert James	5
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 17:34	Mark Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/17/2001 08:49	Mark Clark	20
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 05:13	K. Robert James	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1



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Lancaster Laboratories Sample No. WW 3742856

Collected: 12/11/2001 14:20 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW33S-111201-10-DP Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

333-D SDG#: MOA96-11

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.	1.0	ug/l	5
00777	Toluene	108-88-3	N.D.	1.0	ug/l	5
00778	Ethylbenzene	100-41-4	6.7	1.0	ug/l	5
00779	Total Xylenes	1330-20-7	17.	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	2,000.	20.	ug/l	20
00782	Acenaphthylene	208-96-8	43.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	100.	0.8	ug/l	1
00784	Fluorene	86-73-7	29.	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	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
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.



Lancaster Laboratories Sample No. WW 3742856

Collected: 12/11/2001 14:20 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:24

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW33S-111201-10-DP Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

333-D SDG#: MOA96-11

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

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 07:22	K. Robert James	5
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 18:12	Mark Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/17/2001 09:32	Mark Clark	20
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 07:22	K. Robert James	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1



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Lancaster Laboratories Sample No. WW 3742857

Collected: 12/11/2001 14:30 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:25

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW32S-111201-11 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

33211 SDG#: MOA96-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	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.



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Lancaster Laboratories Sample No. WW 3742857

Collected: 12/11/2001 14:30 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:25

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW32S-111201-11 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

33211 SDG#: MOA96-12

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Diluti Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 10:23	K. Robert James	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 18:51	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 10:23	K. Robert James	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1



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Lancaster Laboratories Sample No. WW 3742858

Collected: 12/11/2001 14:40 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:25

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW27S-111201-12 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

32712 SDG#: MOA96-13

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
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
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Lancaster Laboratories Sample No. WW 3742858

Collected: 12/11/2001 14:40 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:25

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW27S-111201-12 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

32712 SDG#: MOA96-13

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 04:41	K. Robert James	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 19:29	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 04:41	K. Robert James	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1



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



Lancaster Laboratories Sample No. **WW 3742859**

Collected: 12/11/2001 15:40 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:25

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW7S-111201-13 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

37-13 SDG#: MOA96-14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	7.7 J	4.0	ug/l	20
00777	Toluene	108-88-3	N.D.	4.0	ug/l	20
00778	Ethylbenzene	100-41-4	19. J	4.0	ug/l	20
00779	Total Xylenes	1330-20-7	56. J	12.	ug/l	20

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	3,300.	50.	ug/l	50
00782	Acenaphthylene	208-96-8	54.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	67.	0.8	ug/l	1
00784	Fluorene	86-73-7	11.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	0.3 J	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
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 Sample No. WW 3742859

Collected: 12/11/2001 15:40 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:25

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW7S-111201-13 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

37-13 SDG#: MOA96-14

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

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 07:53	K. Robert James	20
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 20:08	Mark Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/17/2001 10:14	Mark Clark	50
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 07:53	K. Robert James	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1



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Lancaster Laboratories Sample No. WW 3742860

Collected: 12/11/2001 15:50 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:25

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW34S-111201-14 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

33414 SDG#: MOA96-15

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	6.1 J	5.0	ug/l	25
00777	Toluene	108-88-3	N.D.	5.0	ug/l	25
00778	Ethylbenzene	100-41-4	21. J	5.0	ug/l	25
00779	Total Xylenes	1330-20-7	53. J	15.	ug/l	25

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	6,700.	100.	ug/l	100
00782	Acenaphthylene	208-96-8	100.	4.	ug/l	5
00783	Acenaphthene	83-32-9	470.	4.	ug/l	5
00784	Fluorene	86-73-7	320.	20.	ug/l	100
00785	Phenanthrene	85-01-8	770.	8.	ug/l	100
00789	Anthracene	120-12-7	80.	4.	ug/l	100
00807	Fluoranthene	206-44-0	320.	4.	ug/l	100
00811	Pyrene	129-00-0	260.	20.	ug/l	100
00812	Benzo(a)anthracene	56-55-3	50.	2.	ug/l	100
00818	Benzo(b)fluoranthene	205-99-2	17. J	4.	ug/l	100
00823	Benzo(a)pyrene	50-32-8	19.	0.1	ug/l	5
00895	Dibenz(a,h)anthracene	53-70-3	2.	0.2	ug/l	5
00898	Indeno(1,2,3-cd)pyrene	193-39-5	10.	0.4	ug/l	5
00907	Benzo(g,h,i)perylene	191-24-2	7.	0.5	ug/l	5
07409	Chrysene	218-01-9	43.	0.4	ug/l	5
07410	Benzo(k)fluoranthene	207-08-9	10.	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.



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Lancaster Laboratories Sample No. WW 3742860

Collected: 12/11/2001 15:50 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:25

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW34S-111201-14 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

33414 SDG#: MOA96-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
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Due to the high concentration of non-target compounds, a dilution was necessary to perform the PAH by HPLC analysis. Therefore, the reporting limits for the HPLC PAH compounds were raised.

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 08:26	K. Robert James	25
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 20:50	Mark Clark	5
00774	PAH's in Water by HPLC	SW-846 8310	1	12/17/2001 10:56	Mark Clark	100
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 08:26	K. Robert James	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1



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Lancaster Laboratories Sample No. WW 3742861

Collected: 12/11/2001 16:00 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:25

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW35S-111201-15 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

33515 SDG#: MOA96-16

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.	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	0.2 J	0.08	ug/l	1
00789	Anthracene	120-12-7	0.1 J	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.5	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	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.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.02 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.



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Lancaster Laboratories Sample No. WW 3742861

Collected: 12/11/2001 16:00 by BS

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:25

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW35S-111201-15 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

33515 SDG#: MOA96-16

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 03:36	K. Robert James	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/15/2001 21:28	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 03:36	K. Robert James	n.a
03337	PAH Water Extraction	SW-846 3510C	1	12/14/2001 10:00	John A. Myers	1



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Lancaster Laboratories Sample No. WW 3742862

Collected: 12/11/2001 16:30

Account Number: 07802

Submitted: 12/12/2001 09:00

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:25

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

TB-02 Water Sample

Moss American Superfund Site - Milwaukee, WI

MATB2 SDG#: MOA96-17TB*

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	12/13/2001 16:21	K. Robert James	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/13/2001 16:21	K. Robert James	n.a.



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Analysis Request, Environmental Services Chain of Custody



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REVISED COC

10/20/01

For Lancaster Laboratories use only
Acct. # 7802 Sample # 3742840-62

SENT BY: VERNON HILLS, IL 12-14-11 11:18 AM R01 F. REWAVE

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

Client: <u>Walter / Kerr McGee</u> Project Name/#: <u>Mass American</u> Project Manager: <u>Tom Green</u> Sampler: <u>6 Submeter T Horzels, B M, Girard</u> Name of state where samples were collected: <u>WI</u>	Acct. #: PWSID #: PO.#: Quote #: WT	1	2	3	4	5	For lab use only FSC: _____ SCR#: _____
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Sample ID	Date	Time	Y	N	P	M	T	B	D	O	P	O	Y	T	O	L	P	A	H	T	O	T	S	I	N	O	Remarks
MA3-TG4-1-11201-07	12/1/01	1315	X																								
MA3-TG4-2-11201-08	12/1/01	1325	X																								
MA3-TG4-3-11201-09	12/1/01	1335	X																								AS

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>847-716-4000</u> Fax #: <u>847-918-4055</u>	Relinquished by: <u>[Signature]</u> Relinquished by: Relinquished by: Relinquished by:	Date Date Date Date	Time Time Time Time	Received by: Received by: Received by: Received by:	Date Date Date Date	Time Time Time Time
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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>IR QUOTE</u> Type I (Tier I) CLP Type II (Tier II) C:her Type III (NI Red. Del.) Type IV (CLP)	Site-specific QC required? Yes No (If yes, indicate QC sample and submit to indicate volume) Internal Chain of Custody required? Yes No



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3742846-62

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

Client: LVP Gas / Ken McGee Acct. #: _____
 Project Name/#: Whiting American PWSID #: _____
 Project Manager: Tom Green P.O.# _____
 Sampler: B Schuck, T Hanzely, B. H. H. H. H. H. Quote #: _____
 Name of state where samples were collected: WI

Matrix (4)
 Potable (check if applicable)
 Water NPDES
 Other

Analyses Requested (5)

For lab use only
 FSC: _____
 SCR #: _____

Temperature of samples upon receipt (if requested) (6)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks
MAB-TG 3-3-1112.01-06	12/11/01	1115	X			X		3	X
MAB-TG 5-1-1112.01-01	12/11/01	0915	X			X		3	X
MAB-TG 5-2-1112.01-02	12/11/01	0925	X			X		3	X
MAB-TG 5-3-1112.01-03	12/11/01	0935	X			X		3	X
MAB-TG 4-1-1112.01-07	12/11/01	1315	X			X		3	X
MAB-TG 4-2-1112.01-08	12/11/01	1335	X			X		3	X
MAB-TG 4-5-1112.01-09	12/11/01	1335	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 #: 477-918-4222 Fax #: 477-918-4235

8 Data Package Options (please circle if requested)

QC Summary Type VI (Raw Data) PER-26-TF SDG Complete? Yes 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
 (If yes, indicate QC sample and submit triplicate volume.)
 Internal Chain of Custody required? Yes No

Relinquished by: [Signature] Date: 12/11/01 Time: 1335
 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: Kathy Binkley Date: 12-12-01 Time: 0900

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

Client: <u>WPS/ton/Kerr Megee</u> Acct. #: _____		Matrix (4)		Analyses Requested <i>BTEX</i>					For lab use only FSC: _____ SCR #: _____				
Project Name/#: <u>Mass American</u> PWSID #: _____		<input type="checkbox"/> Potable (Check if applicable) <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other							Total # of Containers		Temperature of samples upon receipt (if requested)		
Project Manager: <u>Tan Crain</u> P.O.# _____		Quote #: _____											
Sampler: <u>SS Lively Fitzely, B Mijah</u>		Name of state where samples were collected: <u>WI</u>											
Sample Identification			Date Collected	Time Collected	Grab (3)	Composite	Soil	Water	Other	Total # of Containers	Remarks		Temperature of samples upon receipt (if requested)
TB-02			12/11/01	1630	X			X		2	X		
MA3-MW 335-11201-10			12/11/01	1420	X			X		3	X		
MA3-MW 375-11201-12			12/11/01	1440	X			X		3	X		
MA3-MW 325-11201-11			12/11/01	1430	X			X		3	X		
MA3-MW 333-11201-10-DP			12/11/01	1420	X			X		3	X		
MA3-MW 75-11201-13			12/11/01	1540	X			X		3	X		
MA3-MW 345-11201-14			12/11/01	1550	X			X		3	X		<i>* free product might present in sample</i>
MA3-MW 353-11201-15			12/11/01	1600	X			X		3	X		
MA3-TG3-1-11201-04			12/11/01	1055	X			X		3	X		
MA3-TG3-2-11201-05			12/11/01	1105	X			X		3	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>847-918-4095</u>				Relinquished by: <u>Bruce Sieg</u>		Date: <u>12/11/01</u>	Time: <u>1730</u>	Received by:		Date:	Time:		
8 Data Package Options (please circle if requested)				SDG Complete? Yes <input type="checkbox"/> No <input type="checkbox"/>		Relinquished by:		Date:	Time:	Received by:		Date:	Time:
				QC Summary Type VI (Raw Data) <u>PERMIT</u>		Relinquished by:		Date:	Time:	Received by:		Date:	Time:
				Type I (Tier I) GLP		Relinquished by:		Date:	Time:	Received by:		Date:	Time:
				Type II (Tier II) Other		Relinquished by:		Date:	Time:	Received by:		Date:	Time:
Type III (NJ Red. Del.)		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:		
Type IV (CLP)		Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>		Relinquished by:		Date:	Time:	Received by: <u>Kathy Binkley</u>		Date: <u>12-12-01</u>	Time: <u>0900</u>		



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3742846-62

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

Client: WPSMA/Kerr McGee Acct. #: _____
 Project Name/#: Miss America PWSID #: _____
 Project Manager: Tom Green P.O.# _____
 Sampler: B. S. Luster, T. Hanzely, B. Majchrzak Quote #: _____
 Name of state where samples were collected: WI

Matrix (4)
 Potable (check if applicable)
 NPDES
 Other

Total # of Containers

Analyses Requested (5)
NH3, COP
TKW TP-104
D-PH4 BOD
NH2
NH3
ATX-ES
PAH
TOL

For lab use only
 FSC: _____
 SCR #: _____

Temperature of samples upon receipt (if requested) (6)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Analyses Requested	Remarks	Temperature of samples upon receipt (if requested)
MAB-TG5-1-11201-01	11/11/01	0915	X			X		11	X / X X X X X X X		
MAB-TG5-2-11201-02	12/11/01	0925	X			X		11	X X X X X X X X		
MAB-TG5-3-11201-03	12/11/01	0935	X			X		11	X X X X X X X X	BS	

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 #: 347-7154500 Fax #: 347-9137055

8 Data Package Options (please circle if requested) SDG Complete?
 QC Summary Type VI (Raw Data) REQUIRED Yes NO
 Type I (Tier I) GLP
 Type II (Tier II) Other Site-specific QC required? Yes No
 (If yes, indicate QC sample and submit triplicate volume.)
 Type III (NJ Red. Del.) Internal Chain of Custody required? Yes No
 Type IV (CLP)

Relinquished by: Brian Sulay Date: 12/11/01 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: _____ Date: _____ Time: _____

Kathy Benkeley 12-12-01 0900



Where quality is a science.

For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3742846-62

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

Client: Weston/Kerr McGee Acct. #: _____
 Project Name/#: Miss American PWSID #: _____
 Project Manager: Tom Gorman P.O.#: _____
 Sampler: B. Schaefer, T. Hanzey, B. Wischwan Quote #: _____
 Name of state where samples were collected: WI

Matrix (4) Potable (Check if applicable) NPDES Other

Total # of Containers _____

Analyses Requested (5): NH₃ COD, TKN/TP-PO₄, D-PO₄, BOD, NO₂, NO₃, TOC, ATX-83, PAH

For lab use only
 FSC: _____
 SCR #: _____

Temperature of samples upon receipt (if requested) (6) _____

Sample Identification	Date Collected	Time Collected	Grab Composite		Soil	Water	Other	Total # of Containers	Analyses Requested								Remarks	Temperature of samples upon receipt (if requested)
			(3)	(3)					(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)		
MAB-TG3-1-11201-04	12/11/01	1055	X			X		11	X	X	X	X	X	X	X			
MAB-TG3-2-11201-05	12/11/01	1105	X			X		11	X	X	X	X	X	X	X			
MAB-TG3-3-11201-06	12/11/01	1115	X			X		11	X	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 #: 847-918-9000 Fax #: 847-918-4055

8 Data Package Options (please circle if requested) SDG Complete? Yes NO
 QC Summary Type VI (Raw Data) PER ROUTE
 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. Schaefer Date: 12/11/01 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: Kathy Binkley Date: 12-12-01 Time: 1500

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

Client: <u>Weston / Kerr McLoe</u> Acct. #: _____ Project Name/ #: <u>Mass American</u> PWSID #: _____ Project Manager: <u>Tom Green</u> P.O.# _____ Sampler: <u>B. Schaefer, T. Hanzley, B. Michrzan</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) NH ₄ -COD TKN-TP-PO ₄ BOD ₅ -PO ₄ TOL BTEX-BS PAH TOL-BS-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)
<u>MAB-TG4-1-111201-07</u>			<u>12/11/01</u>	<u>1315</u>	X			X		11	X	X	X	X	X	X	X	X	
<u>MAB-TG4-2-111201-08</u>			<u>12/11/01</u>	<u>1325</u>	X			X		11	X	X	X	X	X	X	X	X	
<u>MAB-TG4-3-111201-09</u>			<u>12/11/01</u>	<u>1335</u>	X			X		11	X	X	X	X	X	X	X	X	<u>BS</u>
Turnaround Time Requested (TAT) (please circle): Normal <u>Normal</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 <u>347-913-4000</u> Fax <u>347-918-4055</u>										Relinquished by:	Date	Time	Received by:	Date	Time				
										<u>Tom Green</u>	<u>12/11/01</u>	<u>1730</u>							
Data Package Options (please circle if requested) 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	Received 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	Received by:	Date	Time				
													<u>Kathy Binkley</u>	<u>12-12-01</u>	<u>0900</u>				



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3742846-62

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

1 Client: W. Stankiewicz, LLC Acct. #: _____
 Project Name/ #: Mass American PWSID #: _____
 Project Manager: Tom Gowan P.O. # _____
 Sampler: B. Schaefer, T. Hanratty, D. M. H. G. R. Z. K. Quote #: _____
 Name of state where samples were collected: WI

Matrix 4
 Potable (Check if applicable)
 Water
 NPDES
 Other

5 Analyses Requested
 NH₃-N
 TN
 TP
 PO₄-P
 NO₂
 NO₃
 PAH
 TOL

For lab use only
 FSC: _____
 SCR #: _____

Sample Identification	Date Collected	Time Collected	3		Soil	Water	Other	Total # of Containers	5							Remarks	Temperature of samples upon receipt (if requested)
			Grab	Composite					NH ₃ -N	TN	TP	PO ₄ -P	NO ₂	NO ₃	PAH		
MAB-TG4-3-11201-07	12/11/01	1335	X			X		4	X	X	X	X	X	X			
MAB-TG5-3-11201-03	12/11/01	0935	X			X		4	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 #: 847-918-9000 Fax #: 847-918-4055

8 Data Package Options (please circle if requested) SDG Complete? Yes No

QC Summary Type VI (Raw Data) PERMITS
 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: [Signature] Date: 12/11/01 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: Kathy Benckley Date: 12-12-01 Time: 0900

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

Client: <u>WPS on/Ke. McGeer</u> Acct. #: _____ Project Name/#: <u>Mass American</u> PWSID #: _____ Project Manager: <u>Tom Gordon</u> P.O.# _____ Sampler: <u>B. Schaefer, T. Hanzely, B. Majcherek</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			Analyses Requested (5) (Handwritten: <u>STP-BS PAH</u>)					For lab use only FSC: _____ SCR #: _____	
(2)		(3)		(4)		(5)		(6)		(9)			
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested)			
<u>MAS-MW 335-11201-10</u>	<u>12/11/01</u>	<u>1420</u>	<u>X</u>			<u>X</u>		<u>5</u>					
<u>MAS-MW 325-11201-11</u>	<u>12/11/01</u>	<u>1430</u>	<u>X</u>			<u>X</u>		<u>5</u>					
<u>MAS-MW 275-11201-12</u>	<u>12/11/01</u>	<u>1440</u>	<u>X</u>			<u>X</u>		<u>5</u>					
<u>MAS-MW 335-11201-10-DP</u>	<u>12/11/01</u>	<u>1420</u>	<u>X</u>			<u>X</u>		<u>5</u>					
<u>MAS-MW 75-11201-13</u>	<u>12/11/01</u>	<u>1540</u>	<u>X</u>			<u>X</u>		<u>5</u>					
<u>MAS-MW 345-11201-14</u>	<u>12/11/01</u>	<u>1550</u>	<u>X</u>			<u>X</u>		<u>5</u>	<u>*Some free product in well, may be same in sample</u>				
<u>MAS-MW 355-11201-15</u>	<u>12/11/01</u>	<u>1600</u>	<u>X</u>			<u>X</u>		<u>5</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>847-915-4000</u> Fax #: <u>847-915-4035</u>		Relinquished by: <u>[Signature]</u> Date: <u>12/11/01</u> Time: <u>1730</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>Kathy Binney</u> Date: <u>12-12-01</u> Time: <u>0900</u>	
--	--	---	--	--	--

(8) Data Package Options (please circle if requested)		SDG Complete? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Type VI (Raw Data) <u>PER RUTIE</u>	Type I (Tier I) <u>GLP</u>	Type II (Tier II) <u>Other</u>	Type III (NJ Red. Del.) _____
Type IV (CLP) _____	Site-specific QC required? Yes <input type="checkbox"/> No <input type="checkbox"/>		Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>

CASE NARRATIVE

Client: Kerr-McGee Corporation
SDG #: MOA96

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>
3742846	35-1-	X	
3742847	35-2-	X	
3742848	35-3-	X	
3742849	33-1-	X	
3742850	33-2-	X	
3742851	33-3-	X	
3742852	34-1-	X	
3742853	34-2-	X	
3742854	34-3-	X	
3742855	33310	X	
3742855DL	33310DL	X	20X Dilution
3742856	333-D	X	
3742856DL	333-DDL	X	20X Dilution
3742857	33211	X	
3742858	32712	X	
3742859	37-13	X	
3742859DL	37-13DL	X	50X Dilution
3742860	33414	X	5X Dilution
3742860DL	33414DL	X	100X Dilution
3742861	33515	X	

LABORATORY SUBMITTED QC:

SBLKWE347	SBLKWE3471	X	Method Blank
347WELCS	347WELCS1	X	Lab Control Sample
347WELCSD	347WELCSD1	X	Lab Control Sample Dup

Case Narrative
SDG #: MOA96 continued

SAMPLE PREPARATION:

No problems were encountered during the extraction of these samples.

ANALYSIS:

The method used for analysis was SW-846 8310.

All samples were analyzed for polynuclear aromatic hydrocarbons by HPLC.

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.

33414 was analyzed at an initial 5X dilution due to the high concentration of non-target compounds.

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>
33310	20X	naphthalene
333-D	20X	naphthalene
37-13	50X	naphthalene
33414	100X	a number of compounds

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

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC was within specifications.

Case Narrative
SDG #: MOA96 continued

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:

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

Date: 1-15-02



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: MOA96

LANCASTER LABORATORIES
INSTRUMENTAL WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3742846	35-1-	
3742847	35-2-	
3742848	35-3-	
3742849	33-1-	
3742850	33-2-	
3742851	33-3-	
3742852	34-1-	
3742853	34-2-	
3742854	34-3-	
All LCS		DF2

ANALYSIS:

Dilutions for the nitrate nitrogen analysis are listed in the comments section above.

The LCS was analyzed at a dilution factor of 5 for the total organic carbon analysis.

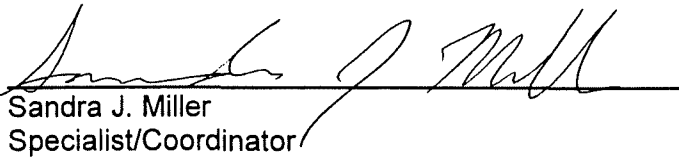
QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

QC was within specification.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

 Date: 1-4-02
 Sandra J. Miller
 Specialist/Coordinator

0170

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
3742846	35-1-	X	
3742846MS	35-1-	X	Matrix Spike
3742847	35-2-	X	
3742848	35-3-	X	
3742849	33-1-	X	
3742850	33-2-	X	
3742851	33-3-	X	
3742852	34-1-	X	
3742853	34-2-	X	
3742854	34-3-	X	
3742855	33310	X	DF 5
3742856	333-D	X	DF 5
3742857	33211	X	
3742858	32712	X	
3742859	37-13	X	DF 20
3742860	33414	X	DF 25
3742861	33515	X	
3742862	MATB2	X	

QUALITY CONTROL ANALYSES

BLK1642	X	Method Blank
BLK1643	X	Method Blank
LCS1642	X	Lab Control Sample
LDS1642	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 column. 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 column was used for the analysis of all samples. The surrogate concentration was 30.0 UG/L.

No problems were encountered during analysis.

Case Narrative
SDG# MOA96

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

QUALITY CONTROL AND NONCONFORMANCE SUMMARY

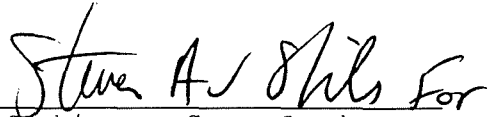
There was no client submitted QC, so Lancaster Laboratories batch QC was referenced. Sufficient sample volume was not available to perform an MSD for this analysis, therefore an LCS/LDS was performed to demonstrate precision and accuracy at a batch level.

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

Date 1/8/02



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: MOA96

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3742846	35-1-	
3742847	35-2-	
3742848	35-3-	
3272849	33-1-	
3742850	33-2-	
3742851	33-3-	
3742852	34-1-	
3742853	34-2-	
3742854	34-3-	
P742635		BKG/DUP/DF10

ANALYSIS:

Dilutions for the biochemical oxygen demand analysis are listed in the comments section above.

Sample P740928 (BKG/DUP) was analyzed at a dilution factor of 5 for the chemical oxygen demand analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

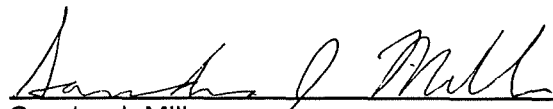
QC was within specification.

Site-specific MS/MSD samples were not submitted for the ammonia nitrogen analyses. 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: 2-5-02
Sandra J. Miller
Specialist/Coordinator

01140

**Moss American
Milwaukee, Wisconsin
SDG# MOA98**

13 water samples – PAHs (SW846 8310)

Lab ID	Lab Code	Sample ID (MA3)	Sample Date	Analysis Date
3743854	TG2-1	TG2-1-121201-01	12/12/01	12/16/01
3743857	MW28S	MW28S-121201-04	12/12/01	12/16/01
3743860	MW6SS	MW6S-121201-05	12/12/01	12/16/01
3743861	MW31S	MW31-101201-06	12/12/01	12/16/01
3743862	MW29S	MW29S-121201-07	12/12/01	12/16/01
3743863	MW36S	MW36S-121201-08	12/12/01	12/16/01
3743864	MW37S	MW37S-121201-09	12/12/01	12/16/01
3743865	MW9S	MW9S-121201-10	12/12/01	12/16/01
3743866	MW9D	MW9SD-121201-10DP	12/12/01	12/16/01
3743867	FB01	FB-01	12/12/01	12/16/01
3743868	FB02	FB-02	12/12/01	12/16/01

1. Holding Times

All samples were extracted (12/15) and analyzed within required holding times.

2. Method Blank

One method blank was associated with the samples. The method blank was free of contamination.

3. Surrogate Recovery

Samples MW28S (0), MW6S (0), MW29S (0), MW36S (0), MW37S (0), MW9SD (0), FB02 (0), and TG2-1 (0) all had zero surrogate recoveries for NBZ2. The NBZ2 and TPE 1 and 2 recoveries were all acceptable. No qualifications are required.

4. Laboratory Control Sample

All LCS, results were within required control limits.

5. Matrix Spike/Matrix Spike Duplicate

Sample MW28S was designated as the MS/MSD. All MS/MSD and RPDs were within control limits.

6. Field Blanks

Samples FB01 and FB02 are field blanks. Both blanks were free of contamination.

**Moss American
Milwaukee, Wisconsin
SDG# MOA98
Continued**

7. Field Duplicates

Samples MW9S and MW9SD are field duplicates. Overall they show good correlation.

14 water samples – BTEX (SW846 8021)

Lab ID	Lab Code	Sample ID (MA3)	Sample Date	Analysis Date
3743854	TG2-1	TG2-1-121201-01	12/12/01	12/14/01
3743855	TG2-2	TG2-2-121201-02	12/12/01	12/14/01
3743856	TG2-3	TG2-3-121201-03	12/12/01	12/14/01
3743857	MW28S	MW28S-121201-04	12/12/01	12/14/01
3743860	MW6SS	MW6S-121201-05	12/12/01	12/14/01
3743861	MW31S	MW31-101201-06	12/12/01	12/14/01
3743862	MW29S	MW29S-121201-07	12/12/01	12/14/01
3743863	MW36S	MW36S-121201-08	12/12/01	12/14/01
3743864	MW37S	MW37S-121201-09	12/12/01	12/14/01
3743865	MW9S	MW9S-121201-10	12/12/01	12/14/01
3743866	MW9D	MW9SD-121201-10DP	12/12/01	12/14/01
3743867	FB01	FB-01	12/12/01	12/14/01
3743868	FB02	FB-02	12/12/01	12/14/01
3743869	03 TB	TB-03	12/12/01	12/14/01

1. Holding Times

All samples were analyzed within the required holding time.

2. Method Blank

The blank results were all non-detect.

3. Surrogate Recoveries

All surrogate recoveries were within required control limits.

4. Laboratory Control Sample

All LCS recoveries were within required control limits.

5. Matrix Spike

Sample MW28S was designated as the MS/MSD. All MS/MSD and RPDs were within control limits.

**Moss American
Milwaukee, Wisconsin
SDG# MOA98
Continued**

6. Internal Standards

All IS recoveries were within required control limits.

7. Trip Blank

Sample 3743869 was designated as the trip blank. All blank results were non-detect.

8. Field Duplicates

Samples MW9S and MW9SD are field duplicates. Overall they show good correlation.

Data Reviewed by: T. Balla

Date: 2/26/02



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 790076. Samples arrived at the laboratory on Thursday, December 13, 2001.

Client Description

Lancaster Labs Number

MA3-TG2-1-121201-01 Grab Water Sample	3743854
MA3-TG2-2-121201-02 Grab Water Sample	3743855
MA3-TG2-3-121201-03 Grab Water Sample	3743856
MA3-MW28S-121201-04 Unspiked Grab Water Sample	3743857
MA3-MW28S-121201-04 Matrix Spike Grab Water Sample	3743858
MA3-MW28S-121201-04 Matrix Spike Duplicate Grab	3743859
MA3-MW6S-121201-05 Grab Water Sample	3743860
MA3-MW31S-121201-06 Grab Water Sample	3743861
MA3-MW29S-121201-07 Grab Water Sample	3743862
MA3-MW36S-121201-08 Grab Water Sample	3743863
MA3-MW37S-121201-09 Grab Water Sample	3743864
MA3-MW9S-121201-10 Grab Water Sample	3743865
MA3-MW9S-121201-10-DP Grab Water Sample	3743866
FB-01 Grab Water Sample	3743867
FB-02 Grab Water Sample	3743868
TB-03 Grab Water Sample	3743869

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



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

Respectfully Submitted,



Victoria M. Martell
Chemist



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 3743854**

Collected: 12/12/2001 09:15 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:50

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG2-1-121201-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG2-1 SDG#: MOA98-01

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.86	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	0.18	J	0.16	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.		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		3.2	mg/l	1
00273	Total Organic Carbon	n.a.	2.2		0.60	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.	5.3	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
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	H.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



Lancaster Laboratories Sample No. **WW 3743854**

Collected: 12/12/2001 09:15 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:50

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG2-1-121201-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG2-1 SDG#: MOA98-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received	Units	Dilution Factor
				Method		
				Detection Limit		
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		
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/16/2001 12:54	Matthew J. Mercer	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/14/2001 09:03	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/27/2001 15:22	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/21/2001 06:10	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/14/2001 00:45	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/13/2001 21:57	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/19/2001 13:01	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/26/2001 13:44	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/20/2001 05:30	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 13:37	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2001 10:57	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 13:37	Melissa Mann	n..
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/14/2001 13:55	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/15/2001 11:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/26/2001 10:40	James S. Mathiot	1



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Lancaster, PA 17605-2425
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Lancaster Laboratories Sample No. WW 3743855

Collected: 12/12/2001 09:25 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:50

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG2-2-121201-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG2-2 SDG#: MOA98-02

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 17:05	Melissa-Ann S. McAlpine	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 17:05	Melissa-Ann S. McAlpine	n.a.



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Lancaster Laboratories Sample No. **WW 3743856**

Collected: 12/12/2001 09:35 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:50

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-TG2-3-121201-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG2-3 SDG#: MOA98-03

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 17:40	Melissa-Ann S. McAlpine	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 17:40	Melissa-Ann S. McAlpine	n.a.



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Lancaster Laboratories Sample No. **WW 3743857**

Collected: 12/12/2001 10:50 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:50

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW28S-121201-04 Unspiked Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

MW285 SDG#: MOA98-04BKG

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	0.08	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	12/14/2001 14:12	Melissa-Ann S. McAlpine	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2001 02:37	Mark Clark	1



Lancaster Laboratories Sample No. WW 3743857

Collected: 12/12/2001 10:50 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:50

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW28S-121201-04 Unspiked Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW285	SDG#: MOA98-04BKG					
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 14:12	Melissa-Ann S. McAlpine	n.a
03337	PAH Water Extraction	SW-846 3510C	1	12/15/2001 11:00	John A. Myers	1



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Lancaster Laboratories Sample No. **WW 3743858**

Collected: 12/12/2001 10:50 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:50

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW28S-121201-04 Matrix Spike Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW285 SDG#: MOA98-04MS

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	22.	0.20	ug/l	1
00777	Toluene	108-88-3	23.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	24.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	72.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	130.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	140.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	160.	0.8	ug/l	1
00784	Fluorene	86-73-7	16.	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	18.	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	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 14:46	Melissa-Ann S. McAlpine	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2001 03:15	Mark Clark	1



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Lancaster Laboratories Sample No. WW 3743858

Collected: 12/12/2001 10:50 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:50

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW28S-121201-04 Matrix Spike Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW285	SDG#: MOA98-04MS					
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 14:46	Melissa-Ann S. McAlpine	n.a
03337	PAH Water Extraction	SW-846 3510C	1	12/15/2001 11:00	John A. Myers	1



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2425 New Holland Pike
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Lancaster, PA 17605-2425
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Lancaster Laboratories Sample No. **WW 3743859**

Collected: 12/12/2001 10:50 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:50

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW28S-121201-04 Matrix Spike Duplicate Grab
Water Sample

Moss American Superfund Site - Milwaukee, WI

MW285 SDG#: MOA98-04MSD

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	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	160.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	170.		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	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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 15:21	Melissa-Ann S. McAlpine	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2001 03:54	Mark Clark	1



Lancaster Laboratories Sample No. WW 3743859

Collected: 12/12/2001 10:50 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Reported: 12/29/2001 at 20:50

Discard: 01/29/2002

MA3-MW28S-121201-04 Matrix Spike Duplicate Grab
Water Sample

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

Moss American Superfund Site - Milwaukee, WI

MW285 SDG#: MOA98-04MSD

01146 GC VOA Water Prep

SW-846 5030B

1 12/14/2001 15:21

Melissa-Ann S.
McAlpine

n.a

03337 PAH Water Extraction

SW-846 3510C

1 12/15/2001 11:00

John A. Myers

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 3743860**

Collected: 12/12/2001 11:00 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:50

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW6S-121201-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW-6S SDG#: MOA98-05

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	12/14/2001 18:14	Melissa-Ann S. McAlpine	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2001 04:32	Mark Clark	1



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Lancaster Laboratories Sample No. WW 3743860

Collected: 12/12/2001 11:00 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

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Reported: 12/29/2001 at 20:50

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MA3-MW6S-121201-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW-6S	SDG#: MOA98-05					
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 18:14	Melissa-Ann S. McAlpine	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	12/15/2001 11:00	John A. Myers	1



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Lancaster Laboratories Sample No. **WW 3743861**

Collected: 12/12/2001 11:10 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:50

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW31S-121201-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW31S SDG#: MOA98-06

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001	18:49	Melissa-Ann S. McAlpine	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2001	05:49	Mark Clark	1



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Lancaster Laboratories Sample No. WW 3743861

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MA3-MW31S-121201-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW31S	SDG#: MOA98-06						
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 18:49	Melissa-Ann S. McAlpine	n.a	
03337	PAH Water Extraction	SW-846 3510C	1	12/15/2001 11:00	John A. Myers	1	



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Lancaster Laboratories Sample No. **WW 3743862**

Collected: 12/12/2001 13:20 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:50

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

MA3-MW29S-121201-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW29S SDG#: MOA98-07

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 19:43	Melissa-Ann S. McAlpine	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2001 06:28	Mark Clark	1



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MA3-MW29S-121201-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW29S	SDG#: MOA98-07					
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 19:43	Melissa-Ann S. McAlpine	n.a
03337	PAH Water Extraction	SW-846 3510C	1	12/15/2001 11:00	John A. Myers	1



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MA3-MW36S-121201-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW36S SDG#: MOA98-08

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 20:17	Melissa-Ann S. McAlpine	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2001 07:06	Mark Clark	1



Lancaster Laboratories Sample No. WW 3743863

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MA3-MW36S-121201-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW36S	SDG#: MOA98-08					
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 20:17	Melissa-Ann S. McAlpine	n.a
03337	PAH Water Extraction	SW-846 3510C	1	12/15/2001 11:00	John A. Myers	1



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Lancaster Laboratories Sample No. **WW 3743864**

Collected: 12/12/2001 13:40 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

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Reported: 12/29/2001 at 20:50

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MA3-MW37S-121201-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW37S SDG#: MOA98-09

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	12/14/2001 20:52	Melissa-Ann S. McAlpine	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2001 07:45	Mark Clark	1



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MA3-MW37S-121201-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW37S	SDG#: MOA98-09						
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 20:52	Melissa-Ann S. McAlpine	n.e	
03337	PAH Water Extraction	SW-846 3510C	1	12/15/2001 11:00	John A. Myers	1	



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Lancaster Laboratories Sample No. **WW 3743865**

Collected: 12/12/2001 14:45 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

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MA3-MW9S-121201-10 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW-9S SDG#: MOA98-10

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 21:27	Melissa-Ann S. McAlpine	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2001 08:23	Mark Clark	1



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Account Number: 07802

Submitted: 12/13/2001 09:20

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MA3-MW9S-121201-10 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW-9S SDG#: MOA98-10

01146 GC VOA Water Prep

SW-846 5030B

1 12/14/2001 21:27

Melissa-Ann S.
McAlpine

n.a

03337 PAH Water Extraction

SW-846 3510C

1 12/15/2001 11:00

John A. Myers

1



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Lancaster Laboratories Sample No. **WW 3743866**

Collected: 12/12/2001 14:45 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:51

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MA3-MW9S-121201-10-DP Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW9SD SDG#: MOA98-11FD

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.	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

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 22:02	Melissa-Ann S. McAlpine	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2001 09:02	Mark Clark	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 3743866

Collected: 12/12/2001 14:45 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Reported: 12/29/2001 at 20:51

Discard: 01/29/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-MW9S-121201-10-DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

MW9SD SDG#: MOA98-11FD

01146 GC VOA Water Prep SW-846 5030B

1 12/14/2001 22:02 Melissa-Ann S. n.a

03337 PAH Water Extraction SW-846 3510C

1 12/15/2001 11:00 John A. Myers 1



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



Lancaster Laboratories Sample No. **WW 3743867**

Collected: 12/12/2001 08:00 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:51

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

FB-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

FB-01 SDG#: MOA98-12FB

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	12/15/2001 01:30	Melissa-Ann S. McAlpine	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2001 09:40	Mark Clark	1



Lancaster Laboratories Sample No. WW 3743867

Collected: 12/12/2001 08:00 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:51

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

FB-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

FB-01 SDG#: MOA98-12FB

01146 GC VOA Water Prep

SW-846 5030B

1 12/15/2001 01:30

Melissa-Ann S.
McAlpine

n.

03337 PAH Water Extraction

SW-846 3510C

1 12/15/2001 11:00

John A. Myers

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 3743868**

Collected: 12/12/2001 08:10 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:51

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

FB-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

FB-02 SDG#: MOA98-13FB

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	12/15/2001 02:05	Melissa-Ann S. McAlpine	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2001 10:19	Mark Clark	1



Lancaster Laboratories Sample No. WW 3743868

Collected: 12/12/2001 08:10 by BS

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:51

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

FB-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

FB-02	SDG#: MOA98-13FB					
01146	GC VOA Water Prep	SW-846 5030B	1	12/15/2001 02:05	Melissa-Ann S. McAlpine	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	12/15/2001 11:00	John A. Myers	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 3743869

Collected: 12/12/2001 15:45

Account Number: 07802

Submitted: 12/13/2001 09:20

Kerr-McGee Corporation

Reported: 12/29/2001 at 20:51

P.O. Box 25861

Discard: 01/29/2002

Oklahoma City OK 73125

TB-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

03-TB SDG#: MOA98-14TB*

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 Factor
				Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	12/14/2001 13:02	Melissa Mann	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/14/2001 13:02	Melissa Mann	n.a.



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

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3743854-69

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

Client: <u>Weston/Kew mchep</u> Project Name/#: <u>Miss American</u> Project Manager: <u>Tom Grain</u> Sampler: <u>B Scheifer, T Hanzely, B Misch</u> Name of state where samples were collected: <u>WI</u>	Acct. #: _____ PWSID #: _____ P.O.# _____ Quote #: _____	Matrix (4)	Total # of Containers	(5) Analyses Requested	For lab use only FSC: _____ SCR #: _____
			<input type="checkbox"/> Potable (Check if applicable) <input type="checkbox"/> NPDES <input type="checkbox"/> Other	(6) Temperature of samples upon receipt (if requested)	

Sample Identification	Date Collected	Time Collected	Grab (3)	Composite	Soil	Water	Other	Total # of Containers	(5) Analyses Requested	Remarks	(6) Temperature of samples upon receipt (if requested)
MA3 - MW 25 - 121201-07	12/12/01	1050	X			X		5	Asbestos, PAH, NH3, COD, TKN, TP, PO4, BOD, O-P, NO2, NO3, TOC		
MA3 - MW 65 - 121201-05	12/12/01	1100	X			X		5	X X		
MA3 - MW 315 - 121201-06	12/12/01	1110	X			X		5	X X		
MA3 - MW 25 - 121201-MS/MSD	12/12/01	1050	X					5	X X		
MA3 - MW 207 - 121201-07-MS/MSD	12/12/01	1050	X			X		10	X X		
MA3 - TC 2-1 - 121201-01	12/12/01	0915	X			X		11	X X X X X X X 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>	Relinquished by: <u>Brian Schief</u>	Date: <u>12/12/01</u>	Time: <u>1600</u>	Received by: _____	Date: _____	Time: _____
Rush results requested by (please circle): Phone <input type="radio"/> Fax <input type="radio"/> Phone #: <u>347-918-4033</u> Fax #: <u>347-918-4055</u>	Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____

(8) Data Package Options (please circle if requested)	SDG Complete? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
QC Summary Type VI (Raw Data) <u>PER QUOTE</u>	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 type="checkbox"/>	Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Type III (NJ Red. Del.)	Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>	Relinquished by: _____	Date: _____	Time: _____	Received by: <u>U. M...</u>	Date: <u>12/13/01</u>	Time: <u>0920</u>
Type IV (CLP)							

Cooler # 2

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

Client: <u>Winston/Ken McLoee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graun</u> P.O. #: _____ Sampler: <u>B Schaefer, T Hanzely, B Major, W Zerk</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 <i>As Text</i>					For lab use only FSC: _____ SCR #: _____					
				Total # of Containers								(6) Temperature of samples upon receipt (if requested)					
Sample Identification		Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Remarks								
<u>MA3-TG2-1-121201-01</u>		<u>12/20/01</u>	<u>0915</u>	<u>X</u>			<u>X</u>		<u>3</u>	<u>X</u>							
<u>MA3-TG2-2-121201-02</u>			<u>0935</u>	<u>X</u>			<u>X</u>		<u>3</u>	<u>X</u>							
<u>MA3-TG2-3-121201-03</u>			<u>0955</u>	<u>X</u>			<u>X</u>		<u>3</u>	<u>X</u>							
<u>MA3-MW65-121201-05</u>			<u>1100</u>	<u>X</u>			<u>X</u>		<u>3</u>	<u>X</u>							
<u>MA3-MW315-121201-06</u>			<u>1110</u>	<u>X</u>			<u>X</u>		<u>3</u>	<u>X</u>							

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>847-918-4053</u>				Relinquished by: <u>Brian Schaefer</u> Date: <u>12/20/01</u> Time: <u>1600</u>		Received by: _____ Date: _____ Time: _____	
Data Package Options (please circle if requested) 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 Red. Del.) Type IV (CLP)				Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	
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>W. Deane</u> <u>12/13/01</u> <u>0920</u>	

Cooler #4



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3743854-69

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 Gray</u> B Schaefer, T Haney, B Mijewicz P.O.# _____ Sampler: <u>B Schaefer, T Haney, B Mijewicz</u> Quote #: _____ Name of state where samples were collected: <u>LI</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 Total # of Containers <u>67</u> <u>PAH</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>MAB-MW295-121201-07</u>	<u>12/12/01</u>	<u>1320</u>	<u>X</u>			<u>X</u>		<u>67</u>	<u>X</u>	<u>X</u>						
<u>MAB-MW365-121201-08</u>	<u>12/12/01</u>	<u>1330</u>	<u>X</u>			<u>X</u>		<u>67</u>	<u>X</u>	<u>X</u>						
<u>MAB-MW375-121201-09</u>	<u>12/12/01</u>	<u>1340</u>	<u>X</u>			<u>X</u>		<u>67</u>	<u>X</u>	<u>X</u>						
<u>MAB-MW95-121201-10</u>	<u>12/12/01</u>	<u>1445</u>	<u>X</u>			<u>X</u>		<u>67</u>	<u>X</u>	<u>X</u>						
<u>MAB-MW95-121201-10-DP</u>	<u>12/12/01</u>	<u>1445</u>	<u>X</u>			<u>X</u>		<u>67</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>347-918-4055</u>			Relinquished by: <u>B Schaefer</u> Date: <u>12/12/01</u> Time: <u>1600</u>		Received by: _____ Date: _____ Time: _____		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____		Relinquished by: _____ Date: _____ Time: _____		Received by: <u>U. Winer</u> Date: <u>12/13/01</u> Time: <u>0920</u>			
(8) Data Package Options (please circle if requested) 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)			SDG Complete? Yes <input checked="" type="checkbox"/> No <input 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: _____	

Cooler #5



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3743854-69

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

Client: <u>Winston/Kerr McCree</u>		Acct. #:		Matrix <u>(4)</u>		(5) Analyses Requested <i>PAH</i>					For lab use only				
Project Name/#: <u>Mass American</u>		PWSID #:		<input type="checkbox"/> Potable (Check if applicable) <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Soil <input type="checkbox"/> Other							FSC:		SCR #:		
Project Manager: <u>Tom Gorman</u>		P.O. #:		Total # of Containers							Temperature of samples upon receipt (if requested)				
Sampler: <u>B Schaefer, T Hanzely, B Mui, Jr</u>		Quote #:		Name of state where samples were collected: <u>WI</u>											
Sample Identification		Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks					
<u>MA3-MW285-121201-04</u>		<u>12/12/01</u>	<u>1050</u>	<u>X</u>			<u>X</u>		<u>2</u>	<u>X</u>					
<u>MA3-MW285-121201-04-MW/MSP</u>		<u>12/12/01</u>	<u>1050</u>	<u>X</u>			<u>X</u>		<u>1</u>	<u>X</u>					
<u>FB-01</u>		<u>12/12/01</u>	<u>0800</u>	<u>X</u>			<u>X</u>		<u>2</u>	<u>X</u>					
<u>FB-02</u>		<u>12/12/01</u>	<u>0810</u>	<u>X</u>			<u>X</u>		<u>2</u>	<u>X</u>					

7 Turnaround Time Requested (TAT) (please circle): Normal <u>Normal</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 <u>Fax</u> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>	Relinquished by:	Date	Time	Received by:	Date	Time			
	<u>Ben Staf</u>	<u>12/12/01</u>	<u>1600</u>						
	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>FERQUITE</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)	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	
						<u>Adriana</u>	<u>12/13/01</u>	<u>0920</u>	
				Relinquished by:	Date	Time	Received by:	Date	Time
				Relinquished by:	Date	Time	Received by:	Date	Time

cooler #3

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3743854-69

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

Client: <u>W. Spitzer/Ken McGee</u> Acct. #: _____ Project Name/#: <u>Miss American</u> PWSID #: _____ Project Manager: <u>Tom Gration</u> P.O.# _____ Sampler: <u>S. Schaefer, T. Hanzely, B. M. [unclear]</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix 4	Total # of Containers <u>6</u>	Analyses Requested (5)	For lab use only FSC: _____ SCR #: _____					
Sample Identification 2	Date Collected	Time Collected	Grab 3	Composite	Soil	Water	Other	Total # of Containers		Temperature of samples upon receipt (if requested) 6
<u>TB-03</u>	<u>12/12/01</u>	<u>1345</u>	<u>0</u>			<u>X</u>		<u>2</u>	<u>X</u>	
<u>MA3-MW295-121201-07</u>		<u>1320</u>	<u>X</u>			<u>X</u>		<u>3</u>	<u>X</u>	
<u>MA3-MW365-121201-08</u>		<u>1330</u>	<u>X</u>			<u>X</u>		<u>3</u>	<u>X</u>	
<u>MA3-MW375-121201-09</u>		<u>1340</u>	<u>X</u>			<u>X</u>		<u>3</u>	<u>X</u>	
<u>MA3-MW45-121201-10</u>		<u>1445</u>	<u>X</u>			<u>X</u>		<u>3</u>	<u>X</u>	
<u>MA3-MW45-121201-10-DF</u>		<u>1445</u>	<u>X</u>			<u>X</u>		<u>3</u>	<u>X</u>	
<u>MA3-MW285-121201-04</u>		<u>1050</u>	<u>X</u>			<u>X</u>		<u>3</u>	<u>X</u>	
<u>MA3-MW285-121201-04-MS/MSD</u>		<u>1050</u>	<u>X</u>			<u>X</u>		<u>6</u>	<u>X</u>	
<u>FB-01</u>		<u>0800</u>	<u>X</u>			<u>X</u>		<u>3</u>	<u>X</u>	
<u>FB-02</u>		<u>0810</u>	<u>X</u>			<u>X</u>		<u>3</u>	<u>X</u>	

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 8 Fax Phone #: <u>347-918-4000</u> Fax #: <u>347-918-4055</u>	Relinquished by: <u>Brian Schaefer</u>	Date <u>12/12/01</u>	Time <u>16:00</u>	Received by: _____	Date _____	Time _____	
Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) 9 <u>PER ROUTE</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)	SDG Complete? Yes 8 No 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: <u>W. Spitzer</u>	Date <u>12/13/01</u>	Time <u>0920</u>

CASE NARRATIVE

Client: Kerr-McGee Corporation
SDG #: MOA98

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>
3743854	TG2-1	X	
3743857	MW285	X	Unspiked
3743858	MW285MS	X	Matrix Spike
3743859	MW285MSD	X	Matrix Spike Dup
3743860	MW-6S	X	
3743861	MW31S	X	
3743862	MW29S	X	
3743863	MW36S	X	
3743864	MW37S	X	
3743865	MW-9S	X	
3743866	MW9SD	X	
3743867	FB-01	X	Client Blank
3743868	FB-02	X	Client Blank

LABORATORY SUBMITTED QC:

SBLKWE348	SBLKWE3481	X	Method Blank
348WELCS	348WELCS1	X	Lab Control Sample

SAMPLE PREPARATION:

No problems were encountered during the extraction of these samples.

ANALYSIS:

The method used for analysis was SW-846 8310.

Case Narrative
SDG #: MOA98 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. Ratcheb for CJN Date: 1-15-02
Charles J. Neslund
Group Leader, GC/MS Semivolatiles

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
3743854	TG2-1	X	
3743855	TG2-2	X	
3743856	TG2-3	X	
3743857	MW285	X	
3743858MS	MW285	X	Matrix Spike
3743859MSD	MW285	X	Matrix Spike Dup
3743860	MW-6S	X	
3743861	MW31S	X	
3743862	MW29S	X	
3743863	MW36S	X	
3743864	MW37S	X	
3743865	MW-9S	X	
3743866	MW9SD	X	
3743867	FB-01	X	
3743868	FB-02	X	
3743869	03-TB	X	

QUALITY CONTROL ANALYSES

BLK5114	X	Method Blank
BLK5115	X	Method Blank
LCS5114	X	Lab Control Sample
LDS5114	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 column. 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 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

Client submitted batch QC was referenced.

0
1
4
1

Case Narrative
SDG# MOA98

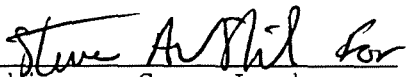
Client : Kerr-McGee Corporation
Project: Moss American Superfund Site
Milwaukee, WI
Volatiles by GC - Water

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

Date 1/8/02



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: MOA98

LANCASTER LABORATORIES

INSTRUMENTAL WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3743854	TG2-1	
LCS		DF2

ANALYSIS:

Dilutions for the nitrate nitrogen and total phosphorus as PO4 analyses are listed in the comments section above.

The LCS was analyzed at a dilution factor of 5 for the total organic carbon analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The duplicate sample for the total Kjeldahl nitrogen analysis was out of specification.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Date: 1.2.02

Sandra J. Miller
Specialist/Coordinator

0
2
4
1



Where quality is a science.

CLIENT: Kerr – McGee Corporation
SDG: MOA98

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3743854	TG2-1	

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:

 Date: 1-4-07
Sandra J. Miller
Specialist/Coordinator

0323

**Moss American
Milwaukee, Wisconsin
SDG# MOA99**

14 water samples – PAHs (SW846 8310)

Lab ID	Lab Code	Sample ID (MA3)	Sample Date	Analysis Date
3744658	TG22	TG2-2-121201-02	12/12/01	12/19/01
3744659	TG233	TG2-3-121201-03	12/12/01	12/20/01
3744660	5S-1	MW5S-131201-01	12/13/01	12/20/01
3744661	5S-1D	MW51-131201-01DP	12/13/01	12/20/01
3744662	30S-2	MW30S-131201-02	12/13/01	12/20/01
3744663	3S-3	MW3S-131201-03	12/13/01	12/20/01
3744664	26S-4	MW26S-131201-04	12/13/01	12/20/01
3744665	13S-5	MW13S-131201-05	12/13/01	12/20/01
3744666	25S-6	MW25S-131201-06	12/13/01	12/20/01
3744669	10S-7	MW10S-131201-07	12/13/01	12/20/01
3744670	10S7D	MW10S-131201-07DP	12/13/01	12/20/01
3744671	20S-8	MW20S-131201-08	12/13/01	12/20/01
3744672	FB03	FB-03	12/13/01	12/20/01
3744673	FB04	FB04	12/13/01	12/20/01

1. Holding Times

All samples were extracted (12/18 and 12/19) and analyzed within required holding times.

2. Method Blank

Two method blank were associated with the samples. The method blanks were free of contamination.

3. Surrogate Recovery

Samples TG22 (11), TG233 (0), MR-1 (0), MR-2 (23), MR-3 (0), MR-4 (13), VES-8 (12), 5S-1 (25), 5S-1D (0), 30S-2 (0) 3S-3 (0), 13S-5 (9), 10S7D (19), 20S-8 (0), FB03 (18), FB04 (0) 3S-3DL (0D)all had surrogate recoveries low outside control limits for NBZ2. The NBZ1 and TPE 1 and 2 recoveries were all acceptable. No qualifications are required.

4. Laboratory Control Sample

All LCS, LCSD, and RPD results were within required control limits.

5. Matrix Spike/Matrix Spike Duplicate

Sample MW25S was designated as the MS/MSD. All MS/MSD and RPDs were within control limits.

**Moss American
Milwaukee, Wisconsin
SDG# MOA99
Continued**

6. Field Blanks

Samples FB03 and FB04 are field blanks. Both blanks were free of contamination.

7. Field Duplicates

Samples MW5S and MW5S-DP and MW10S and MW10S-DP are field duplicates. All results for both field duplicate pairs were non-detect.

13- water samples – BTEX (SW846 8021)

Lab ID	Lab Code	Sample ID (MA3)	Sample Date	Analysis Date
3744660	5S-1	MW5S-131201-01	12/13/01	12/17/01
3744661	5S-1D	MW51-131201-01DP	12/13/01	12/17/01
3744662	30S-2	MW30S-131201-02	12/13/01	12/17/01
3744663	3S-3	MW3S-131201-03	12/13/01	12/17/01
3744664	26S-4	MW26S-131201-04	12/13/01	12/17/01
3744665	13S-5	MW13S-131201-05	12/13/01	12/17/01
3744666	25S-6	MW25S-131201-06	12/13/01	12/17/01
3744669	10S-7	MW10S-131201-07	12/13/01	12/17/01
3744670	10S7D	MW10S-131201-07DP	12/13/01	12/17/01
3744671	20S-8	MW20S-131201-08	12/13/01	12/17/01
3744672	FB03	FB-03	12/13/01	12/17/01
3744673	FB04	FB04	12/13/01	12/17/01
3744674	TB04	TB-04	12/13/01	12/17/01

1. Holding Times

All samples were analyzed within the required holding time.

2. Method Blank

The blank results were all non-detect.

3. Surrogate Recoveries

All surrogate recoveries were within required control limits.

4. Laboratory Control Sample

All LCS recoveries were within required control limits.

5. Matrix Spike

Sample MW25S was designated as the MS/MSD. All MS/MSD and RPDs were within control limits.

**Moss American
Milwaukee, Wisconsin
SDG# MOA99
Continued**

6. Internal Standards

All IS recoveries were within required control limits.

7. Trip Blank

Sample 3744674 was designated as the trip blank. All blank results were non-detect.

8. Field Duplicates

Samples MW5S and MW5S-DP and MW10S and MW10S-DP are field duplicates. All results for both field duplicate pairs were non-detect.

Data Reviewed by: T. Balla

Date: 2/27/02



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 790275. Samples arrived at the laboratory on Friday, December 14, 2001.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
MA3-TG2-2-121201-02 Grab Water Sample	3744658
MA3-TG2-3-121201-03 Grab Water Sample	3744659
MA3-MW5S-131201-01 Grab Water Sample	3744660
MA3-MW5S-131201-01-DP Grab Water Sample	3744661
MA3-MW30S-131201-02 Grab Water Sample	3744662
MA3-MW3S-131201-03 Grab Water Sample	3744663
MA3-MW26S-131201-04 Grab Water Sample	3744664
MA3-MW13S-131201-05 Grab Water Sample	3744665
MA3-MW25S-131201-06 Unspiked Grab Water Sample	3744666
MA3-MW25S-131201-06MS Matrix Spike Grab Water	3744667
MA3-MW25S-131201-06MSD Matrix Spike Dup/Dup Water	3744668
MA3-MW10S-131201-07 Grab Water Sample	3744669
MA3-MW10S-131201-07-DP Grab Water Sample	3744670
MA3-MW20S-131201-08 Grab Water Sample	3744671
FB-03 Grab Water Sample	3744672
FB-04 Grab Water Sample	3744673
TB-04 Water Sample	3744674

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



Lancaster Laboratories

Where quality is a science.

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

Respectfully Submitted.

Victoria M. Martell
Chemist



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 3744658**

Collected: 12/12/2001 09:25 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:26

P.O. Box 25861

Discard: 02/04/2002

Oklahoma City OK 73125

MA3-TG2-2-121201-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG22- SDG#: MOA99-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method		Units	Dilution Factor
					Detection	Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.78	J	0.30		mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		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	0.65	J	0.16		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.		0.0028		mg/l	1
This sample was analyzed past the 48 hr hold time for Orthophosphate due to insufficient time remaining upon receipt at the laboratory.								
00235	Biochemical Oxygen Demand	n.a.	N.D.		4.6		mg/l	1
This sample was submitted past the 48-hour holding time for BOD.								
00273	Total Organic Carbon	n.a.	2.9		0.60		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.14	J	0.12		mg/l	1
01553	Chemical Oxygen Demand	n.a.	7.9	J	1.7		mg/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	190-90-2	N.D.		0.2		ug/l	1
00785	Fluoranthene	85-01-6	N.D.		0.08		ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04		ug/l	1
00807	Fluoranthene	206-44-0	0.06	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	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								



Lancaster Laboratories Sample No. WW 3744658

Collected: 12/12/2001 09:25 by BS Account Number: 07802

Submitted: 12/14/2001 10:00
 Reported: 01/04/2002 at 06:26
 Received: 02/04/2002
 MA3-TG2-2-121201-02 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

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

TG22- SDG#: MOA99-01

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

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	12/20/2001 20:05	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/14/2001 20:49	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	01/03/2002 09:33	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/21/2001 06:10	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/15/2001 04:30	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/14/2001 21:52	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/19/2001 13:17	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/26/2001 13:45	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/20/2001 05:30	Susan A. Engle	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/19/2001 23:21	Mark Clark	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/20/2001 13:15	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/18/2001 09:30	John A. Myers	1
00264	Total Phos as PO4 Prep water	EPA 365.1	1	12/26/2001 10:40	James S. Mathiot	1



Lancaster Laboratories Sample No. WW 3744659

Collected: 12/12/2001 09:35 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:26

P.O. Box 25861

Discard: 02/04/2002

Oklahoma City OK 73125

MA3-TG2-3-121201-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG233 SDG#: MOA99-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.52 J		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		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	0.21 J		0.16	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.		0.0028	mg/l	1
This sample was analyzed past the 48 hr hold time for Orthophosphate due to insufficient time remaining upon receipt at the laboratory.							
00235	Biochemical Oxygen Demand	n.a.	N.D.		3.9	mg/l	1
This sample was submitted past the 48-hour holding time for BOD.							
00273	Total Organic Carbon	n.a.	7.2		0.60	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.17 J		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	20.7		1.7	mg/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	96-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-6	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							



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 3744659

Collected: 12/12/2001 09:35 by BS

Account Number: 07802

Admitted: 12/14/2001 09:25
 Reported: 01/04/2002 at 16:26
 Disposed: 02/04/2002

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

MA3-TG2-3-121201-03 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG233 SDG#: MOA99-02

As Received

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

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	12/20/2001 20:06	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/14/2001 20:51	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	01/03/2002 09:34	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/21/2001 06:10	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/15/2001 04:30	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/14/2001 21:52	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	12/19/2001 13:26	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/26/2001 13:46	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	12/20/2001 05:30	Susan A. Engle	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/20/2001 00:00	Mark Clark	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/20/2001 13:15	Nancy J. Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	12/18/2001 09:30	John A. Myers	1
06264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/26/2001 16:46	James S. Mathitt	1



Lancaster Laboratories Sample No. **WW 3744660**

Collected: 12/13/2001 09:10 by BS

Account Number: 07802

Reported: 01/04/2002 at 16:26
 Disposed: 02/04/2002

Yee-Hi Tee Corporation
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-MW5S-131201-01 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

5S-1- SDG#: MOA99-03

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
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
00824	Benzo(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00825	Benzo(k)fluoranthene	50-32-8	N.D.	0.04	ug/l	1
00826	Benzo(e)pyrene	193-17-8	N.D.	0.04	ug/l	1
00827	Benzo(g,h,i)perylene	191-14-2	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	12/17/2001 02:30	Larry K. Gordon	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/20/2001 10:28	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/17/2001 02:30	Larry K. Gordon	n.a.



Lancaster Laboratories Sample No. WW 3744660

Collected: 12/13/2001 09:10 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:26

P.O. Box 25861

Discard: 02/04/2002

Oklahoma City OK 73125

MA3-MW5S-131201-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

5S-1- SDG#: MOA99-03

03337 PAH Water Extraction

SW-846 3510C

1 12/19/2001 09:15

Joseph S. Feister

1



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



Lancaster Laboratories Sample No. **WW 3744661**

Collected: 12/13/2001 09:10 by BS

Account Number: 07802

Submitted: 12/14/2001 09:15

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:26

P.O. Box 25861

Discard: 02/04/2002

Oklahoma City OK 73125

MA3-MW5S-131201-01-DP Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

ES-1D SDG#: MOA99-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Detection Limit	
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	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.	0.04	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	12/17/2001 03:03	Larry K. Gordon	1
00774	PAH's in Water by HPLC	SW-846 9310	1	12/20/2001 11:06	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/17/2001 03:03	Larry K. Gordon	n.a.



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Lancaster Laboratories Sample No. WW 3744661

Collected: 12/13/2001 09:10 by BS

Account Number: 07802

Submitted: 12/14/2001 01:00

Reported: 01/04/2002 at 16:26

Discard: 02/04/2002

MA3-MW5S-131201-01-DP Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Lancaster Laboratories, Inc.

P.O. Box 25441

Okemos, MI 48864

5S-1D SDG#: MOA99-04

03337 PAH Water Extraction

SW-846 3510C

1 12/19/2001 09:15 Joseph S. Feister

1



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Lancaster, PA 17605-2425
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Lancaster Laboratories Sample No. WW 3744662

Collected: 12/13/2001 10:15 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:27

P.O. Box 25861

Discard: 02/04/2002

Oklahoma City OK 73125

MA3-MW30S-131201-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

30S-2 SDG#: MOA99-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	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
00824	Benzo(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00825	Benzo(a,i)perylene	53-70-3	N.D.	0.04	ug/l	1
00826	Benzo(a,k)fluoranthene	53-70-3	N.D.	0.04	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	12/17/2001 03:35	Larry K. Gordon	1
00774	PAH's in Water by HPLC	SW-846 9310	1	12/20/2001 11:45	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/17/2001 03:35	Larry K. Gordon	n.a.



Lancaster Laboratories Sample No. WW 3744662

Collected: 12/13/2001 10:15 by BS

Account Number: 07802

Submitted: 12/13/2001 09:25

Kerr-Hill Corporation

Reported: 01/04/2002 at 16:27

P.O. Box 48881

Discard: 02/04/2002

Oklahoma City, OK 73128

MA3-MW30S-131201-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

30S-2 SDG#: MOA99-05

03337 PAH Water Extraction

SW-846 3510C

1 12/19/2001 09:15

Joseph S. Feister

1



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Lancaster Laboratories Sample No. **WW 3744663**

Collected: 12/13/2001 10:30 by BS

Account Number: 07602

Submitted: 12/14/2001 09:21
 Reported: 01/04/2002 at 16:27
 Disposed: 02/04/2002

12001
 P.O. Box 12241
 Oklahoma City OK 73125

MA3-MW3S-131201-03 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

3S-3- SDG#: MOA99-06

CAT No.	Analysis Name	CAS Number	As Received	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	980.		5.	ug/l	5
00782	Acenaphthylene	208-96-8	180.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	4. J		0.8	ug/l	1
00784	Fluorene	86-73-7	5.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	0.7		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.5		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	0.04 J		0.02	ug/l	1
00824	Benzo(a,h)anthracene	19-76-3	N.D.		0.04	ug/l	1
00825	Benzo(b,k)fluoranthene	19-77-5	N.D.		0.04	ug/l	1
00826	Benzo(g,h,i)perylene	111-20-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	0.3 J		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	12/17/2001 04:07		Larry K. Gordon	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/20/2001 12:24		Mark Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/20/2001 18:53		Mark Clark	5



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Page 2 of 2

Lancaster Laboratories Sample No. WW 3744663

Collected: 12/13/2001 10:30 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:27

P.O. Box 25861

Discard: 02/04/2002

Oklahoma City OK 73125

MA3-MW3S-131201-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3S-3- SDG#: MOA99-06

01146 GC VOA Water Prep

SW-846 5030B

1 12/17/2001 04:07

Larry K. Gordon

n.a

03337 PAH Water Extraction

SW-846 3510C

1 12/19/2001 09:15

Joseph S. Feister

1



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Lancaster, PA 17605-2425
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Lancaster Laboratories Sample No. WW 3744664

Collected: 12/13/2001 11:15 by BS

Account Number: 07802

Submitted: 12/14/2001 09:23

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:27

P.O. Box 25960

Discard: 02/01/2002

Oklahoma City, OK 73128

MA3-MW26S-131201-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

26S-4 SDG#: MOA99-07

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
00898	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	143-39-5	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	12/17/2001 04:39	Larry K. Gordon	1
00774	PAH's in Water by HPLC	SW-846 9310	1	12/20/2001 13:02	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/17/2001 04:39	Larry K. Gordon	n.a.



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 2425 New Holland Pike
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Lancaster Laboratories Sample No. WW 3744664

Collected: 12/13/2001 11:15 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Reported: 01/04/2002 at 16:27

Discard: 02/04/2002

MA3-MW26S-131201-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kulr-Wissee Corporation

P.O. Box 25861

Oklahoma City OK 73125

26S-4 SDG#: MOA99-07

03337 PAH Water Extraction

SW-846 3510C

1 12/19/2001 09:15

Joseph S. Feister

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 3744665

Collected: 12/13/2001 11:45 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:27

P.O. Box 25861

Discard: 02/04/2002

Oklahoma City OK 73125

MA3-MW13S-131201-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

13S-5 SDG#: MOA99-08

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.	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
00896	Benzo(k)fluoranthene	53-70-3	N.D.	0.04	ug/l	1
00898	Benzo(g)helenanthrene	175-95-8	N.D.	0.06	ug/l	1
00907	Benzo(e)pyrene	192-87-4	N.D.	0.04	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	12/17/2001 05:11	Larry K. Gordon	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/20/2001 14:19	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/17/2001 05:11	Larry K. Gordon	n.a.



Lancaster Laboratories Sample No. WW 3744665

Collected: 12/13/2001 11:45 by BS

Account Number: 07802

Reported: 01/04/2002 at 16:27
Discard: 02/04/2002

Herr-De-De Corporation
P.O. Box 25861
Oklahoma City OK 73125

MA3-MW13S-131201-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

13S-5	SDG#: MOA99-08					
03337	PAH Water Extraction	SW-846 3510C	1	12/19/2001 09:15	Joseph S. Feister	1



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



Lancaster Laboratories Sample No. **WW 3744666**

Collected: 12/13/2001 11:55 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25
 Reported: 01/04/2002 at 16:27
 Discard: 02/04/2002

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

MA3-MW25S-131201-06 Unspiked Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

25S-6 SDG#: MOA99-09BKG

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	Benzo(a,k)anthracene	53-70-3	N.D.	0.04	ug/l	1
00934	Benzo(b)fluoranthene	152-09-1	N.D.	0.04	ug/l	1
00935	Benzo(g,h,i)perylene	192-87-4	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			Dilution Factor
			Trial#	Date and Time	Analyst	
08213	BTEX (8021)	SW-846 8021B	1	12/17/2001 05:44	Larry K. Gordon	1
00774	PAH's in Water by HPLC	SW-846 9310	1	12/20/2001 08:32	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/17/2001 05:44	Larry K. Gordon	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 3744666

Collected: 12/13/2001 11:55 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Reported: 01/04/2002 at 16:27

Discard: 02/04/2002

MA3-MW25S-131201-06 Unspiked Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

25S-6 SDG#: MOA99-09BKG

03337 PAH Water Extraction

SW-846 3510C

1 12/19/2001 09:15 Joseph S. Feister

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 3744667**

Collected: 12/13/2001 11:55 by BS

Account Number: 07802

Submitted: 12/13/2001 0:13
 Reported: 01/04/2002 at 16:27
 Discard: 02/01/2002

Mark McGee
 P.O. Box 15861
 Oklahoma City OK 73125

MA3-MW25S-131201-06MS Matrix Spike Grab Water
 Moss American Superfund Site - Milwaukee, WI

25S-6 SDG#: MOA99-09MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
08213	BTEX (8021)					
00776	Benzene	71-43-2	23.	0.20	ug/l	1
00777	Toluene	108-88-3	22.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	19.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	55.	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	170.	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)perylene	149-30-9	6.	0.08	ug/l	1
07407	Benzo(a,i)perylene	191-11-1	13.	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	12/17/2001 06:15	Larry K. Gordon	1
00774	PAH's in Water by HPLC	SW-846 9310	1	12/20/2001 09:11	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/17/2001 06:15	Larry K. Gordon	n.a.



Lancaster Laboratories Sample No. WW 3744667

Collected: 12/13/2001 11:55 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:27

P.O. Box 25861

Discard: 02/04/2002

Oklahoma City OK 73125

MA3-MW25S-131201-06MS Matrix Spike Grab Water

Moss American Superfund Site - Milwaukee, WI

25S-6 SDG#: MOA99-09MS

03337 PAH Water Extraction

SW-846 3510C

1 12/19/2001 09:15

Joseph S. Feister

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 3744668

Collected: 12/13/2001 11:55 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Ferr-MoGee Corporation

Reported: 01/04/2002 at 16:27

P.O. Box 25961

Discard: 02/04/2002

Oklahoma City OK 73105

MA3-MW25S-131201-06MSD Matrix Spike Dup/Dup Water
Moss American Superfund Site - Milwaukee, WI

25S-6 SDG#: MOA99-09MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	23.	0.20	ug/l	1
00777	Toluene	108-88-3	22.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	18.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	54.	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	160.	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	18.	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	1.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	175-89-5	1.	0.04	ug/l	1
00907	Benzo(g,h,i)perylene	191-14-2	1.	0.04	ug/l	1
07409	Chrysene	218-01-9	5.	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	12/17/2001 06:48	Larry K. Gordon	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/20/2001 09:49	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/17/2001 06:48	Larry K. Gordon	n.a.



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Lancaster Laboratories Sample No. WW 3744668

Collected: 12/13/2001 11:55 by BS

Account Number: 07802

Reported: 01/04/2002 at 16:27
Received: 02/04/2002

P.O. Box 25861
Oklahoma City, OK 73125

MA3-MW25S-131201-06MSD Matrix Spike Dup/Dup Water
Moss American Superfund Site - Milwaukee, WI

25S-6 SDG#: MOA99-09MSD

03337 PAH Water Extraction SW-846 3510C

1 12/19/2001 09:15 Joseph S. Feister

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 3744669**

Collected: 12/13/2001 14:10 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25
 Reported: 01/04/2002 at 16:27
 Discard: 02/04/2002

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

MA3-MW10S-131201-07 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

10S-7 SDG#: MOA99-10

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	Benzo(a,h)anthracene	53-70-3	N.D.	0.02	ug/l	1
00911	Benzo(a,i)perylene	175-97-5	N.D.	0.02	ug/l	1
00912	Benzo(a,k)perylene	175-98-6	N.D.	0.02	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	12/17/2001 08:56	Larry K. Gordon	1
00774	PAH's in Water by HPLC	SW-846 9310	1	12/20/2001 14:58	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/17/2001 08:56	Larry K. Gordon	n.a.



Lancaster Laboratories Sample No. WW 3744669

Collected: 12/13/2001 14:10 by BS

Account Number: 07802

Submitted: 12/14/2001 9:05

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:27

P.O. Box 25861

Discard: 02/04/2002

Oklahoma City OK 73120

MA3-MW10S-131201-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

10S-7 SDG#: MOA99-10

03337 PAH Water Extraction

SW-846 3510C

1 12/19/2001 09:15

Joseph S. Feister

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 3744670**

Collected: 12/13/2001 14:10 by BS

Account Number: 07802

Reported: 01/04/2002 at 16:27
 Discard: 02/01/2002

Method: GC-MS
 P.O. Box 25861
 Oklahoma City OK 73125

MA3-MW10S-131201-07-DP Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

10S7D SDG#: MOA99-11

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.	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)perylene	193-39-9	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-04-1	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#	Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	12/17/2001 09:29	Larry K. Gordon	1
00774	PAH's in Water by HPLC	SW-846 9310	1	12/20/2001 15:36	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/17/2001 09:29	Larry K. Gordon	n.a.



Lancaster Laboratories Sample No. WW 3744670

Collected: 12/13/2001 14:10 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:27

P.O. Box 25861

Discard: 02/04/2002

Oklahoma City OK 73125

MA3-MW10S-131201-07-DP Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

10S7D SDG#: MOA99-11

03337 PAH Water Extraction

SW-846 3510C

1 12/19/2001 09:15 Joseph S. Feister

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 3744671**

Collected: 12/13/2001 15:00 by BS

Account Number: 07802

Reported: 01/04/2002 at 16:27
Discard: 02/04/2002

Mary-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73128

MA3-MW20S-131201-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

20S-8 SDG#: MOA99-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	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	H.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	H.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	H.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	12/17/2001 10:00	Larry K. Gordon	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/20/2001 16:15	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/17/2001 10:00	Larry K. Gordon	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 3744671

Collected: 12/13/2001 15:00 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Reported: 01/04/2002 at 16:27

Discard: 02/01/2002

MA3-MW20S-131201-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

1000
P.O. Box 25861
OK 73125

20S-8 SDG#: MOA99-12
03337 PAH Water Extraction SW-846 3510C 1 12/19/2001 09:15 Joseph S. Feister 1



Lancaster Laboratories Sample No. **WW 3744672**

Collected: 12/13/2001 08:00 by BS

Account Number: 07802

Submitted: 12/14/2001 09:17

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:27

P.O. Box 25861

Discard: 02/04/2002

Oklahoma City OK 73125

FB-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

FB03- SDG#: MOA99-13FB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	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
07408	Benzo(e)pyrene	192-87-3	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.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
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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 3744672

Collected: 12/13/2001 08:00 by BS

Account Number: 07802

Submitted: 12/13/2001 09:25

Reported: 01/04/2002 at 16:27

Discard: 02/04/2002

FB-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Environmental Sciences
P.O. Box 45861
Oklahoma City, OK 73125

FB03-	SDG#: MOA99-13FB					
08213	BTEX (8021)	SW-846 8021B	1	12/17/2001 10:33	Larry K. Gordon	1
10774	PAH's by HPLC	SW-846	1	12/17/2001	Mark Clark	1
31114	GC Volatiles	SW-846	1	12/17/2001	Larry K. Gordon	1
09350	PAH Multi-Residue	SW-846	1	12/17/2001	Joseph S. Feister	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 3744673**

Collected: 12/13/2001 08:10 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Reported: 01/04/2002 at 16:27

Discard: 02/04/2002

FB-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Box 25861
Oklahoma City OK 73185

FB04- SDG#: MOA99-14FB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Concentration 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	Indeno(1,2,3-cd)anthracene	175-97-5	N.D.	0.05	ug/l	1
00896	Benzo(g,h,i)perylene	175-98-6	N.D.	0.05	ug/l	1
00907	Benzo(k)fluoranthene	175-99-7	N.D.	0.05	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.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
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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 3744673

Collected: 12/13/2001 08:10 by BS

Account Number: 07802

Submitted: 12/14/2001 09:25

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:27

P.O. Box 25861

Discard: 02/04/2002

Oklahoma City OK 73125

FB-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

FB04- SDG#: MOA99-14FB

08213	BTEX (8021)	SW-846 8021B
00774	PAH's in Water by HPLC	SW-846 8310
01146	GC MOA Water Prep	SW-846 5030B
03337	PAH Water Extraction	SW-846 3510C

1	12/17/2001 11:05	Larry K. Gordon	1
1	12/20/2001 17:32	Mary Clark	1
1	12/17/2001 11:05	Larry K. Gordon	n.a.
1	12/19/2001 09:15	Joseph S. Feister	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 3744674

Collected: 12/13/2001 16:30

Account Number: 07802

Submitted: 12/14/2001 09:25

Kerr-McGee Corporation

Reported: 01/04/2002 at 16:27

P.O. Box 25861

Discard: 02/04/2002

Oklahoma City OK 73125

TB-04 Water Sample

Moss American Superfund Site - Milwaukee, WI

TB04- SDG#: MOA99-15TB*

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	12/17/2001 01:58	Larry K. Gordon	1
01146	GC VOA Water Prep	SW-846 5030B	1	12/17/2001 01:58	Larry K. Gordon	n.a.



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



REVISED COC ^{10/18/03}
12/10/01

For Lancaster Laboratories use only
Acct # 7802 Sample # 3744058-74

SENT BY: VERNON, HILLS, JL 12-14-11 11:16 AM ROY F. WESTON 9171705067661 2/8

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

Client: <u>Lancaster/Ken McGee</u> Acct #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Green</u> P.O. #: _____ Sampler: <u>B. Schaefer, T. Hanzly, B. Majcherek</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix: <u>4</u> Method: <u>5</u>		For lab use only FSC: _____ SCR#: _____	
		3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100		Remarks MAB- TG2-1-121201-01 MAB- TG2-2-121201-02 MAB- TG2-3-121201-03	

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>5-2-01</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>12/10/01</u> Time: <u>16:20</u> Relinquished by: _____ Date: _____ Time: _____ 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: _____	
8 Data Package Options (please circle if requested): QC Summary Type VI (Raw Data): <u>2</u> SDG Complete? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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 checked="" type="checkbox"/> (if yes, indicate QC sample and submittal rate/volume) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3744658-74

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

Client: <u>Weston/Kerr McLeer</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Craven</u> P.O.# _____ Sampler: <u>B Schaefer, Thinzely, B Majchurzak</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	Analyses Requested (5) NH ₃ COD TKN TP-Pb BOD DO-Pb NO ₂ NO ₃ TOL BTEX-B 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-TG2-1-121201-01	12/12/01	0915	X			X		1	X X X X X X X X X X	
MA3-TG2-2-121201-02	12/12/01	0925	X			X		1	X X X X X X X X X X	
MA3-TG2-3-121201-03	12/12/01	0935	X			X		1	X X X X 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: <u>STD TAT</u> Rush results requested by (please circle): Phone Fax Phone #: <u>347-418-4000</u> Fax #: <u>347-418-4055</u>	Relinquished by: <u>[Signature]</u> Date: <u>12/12/01</u> Time: <u>16:00</u>	Received by: _____ Date: _____ Time: _____	(9)
8 Data Package Options (please circle if requested)	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	(9)
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)	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	
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: <u>Waener</u> Date: <u>12/14/01</u> Time: <u>0925</u>	

Cooper #5

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

Client: <u>Wpston / Ken McGee</u> Acct. #: _____ Project Name/#: <u>Mass American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.#: _____ Sampler: <u>B Schaef, Ttkan zeig, b maj, chris</u> Quote #: _____ Name of state where samples were collected: <u>VT</u>		Matrix (4)	(5)	Analyses Requested	For lab use only FSC: _____ SCR#: _____					
		<input type="checkbox"/> Potable (Check if applicable) <input type="checkbox"/> NPDES <input type="checkbox"/> Other	Total # of Containers	(6)						
(2)	(3)	(4)	(5)	(6)						
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested)
<u>TB-04</u>	<u>12/13/01</u>	<u>1630</u>	X			X		2		
<u>MA3-MW55-131201-01</u>		<u>0910</u>	X			X		3		
<u>MA3-MW55-131201-01 DP</u>		<u>0910</u>	X			X		3		
<u>FB-03</u>		<u>0800</u>	X			X		3		
<u>MA3-MW305-131201-02</u>		<u>1015</u>	X			X		3		
<u>MA3-MW265-131201-04</u>		<u>1115</u>	X			X		3		
<u>MA3-MW105-131201-07-DP</u>		<u>1410</u>	X			X		3		
<u>MA3-MW105-131201-07</u>		<u>1410</u>	X			X		3		
<u>MA3-MW205-131201-08</u>		<u>1500</u>	X			X		3		
<u>FB-04</u>		<u>0810</u>	X			X		3		
(7) Turnaround Time Requested (TAT) (please circle): Normal Rush		Relinquished by: <u>W. B. Schaefer</u> Date: <u>12/13/01</u> Time: <u>1700</u>		Received by: _____ Date: _____ Time: _____						
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u>		Relinquished by: _____ Date: _____ Time: _____		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)		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____						
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> SDG Complete? <u>Yes</u> No		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____						
Type I (Tier I) GLP		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____						
Type II (Tier II) Other		Relinquished by: _____ Date: _____ Time: _____		Received by: <u>W. B. Schaefer</u> Date: <u>12/14/01</u> Time: <u>0925</u>						
Type III (NJ Red. Del.)		Relinquished by: _____ Date: _____ Time: _____								
Type IV (CLP)		Relinquished by: _____ Date: _____ Time: _____								

Cooler #1

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3744658-74

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

Client: <u>Wegon / Kerr McGee</u> Project Name/#: <u>Moss American</u> Project Manager: <u>Tom Graan</u> Sampler: <u>B Schaefer, T Hanzely, B Majchrowski</u> Name of state where samples were collected: <u>WI</u>	Acct. #: _____ PWSID #: _____ P.O.# _____ Quote #: _____	Matrix 4 <input type="checkbox"/> Potable (check if applicable) <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other	Total # of Containers _____	Analyses Requested 5 <div style="text-align: center; font-size: 2em; opacity: 0.5;">BTEX</div>	For lab use only FSC: _____ SCR #: _____
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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 35-131201-03	12/13/01	1030	x			x		3	x	
MA3-MW 135-131201-05		1145	x			y		3	x	
MA3-MW 253-131201-06		1155	x			x		3	x	
MA3-MW 253-131201-06-MS/MS		1155	y			x		6	x	

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 <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>12/13/01</u> Time: <u>1700</u>	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____
Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <input checked="" type="checkbox"/> <u>PERQUOTE</u> <input checked="" type="checkbox"/> No Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)	SDG Complete? <input checked="" type="checkbox"/> No 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>[Signature]</u> Date: <u>12/14/01</u> Time: <u>0925</u>	

Cooler #1



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3744658-74

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

Client: <u>W. Ston / Ken McGee</u> Acct. #: _____ Project Name/#: <u>MOSS American</u> PWSID #: _____ Project Manager: <u>Tom Green</u> P.O.# _____ Sampler: <u>B. Schaefer, T. Horzely, B. Majchrowski</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 BTEX PAH						For lab use only FSC: _____ SCR #: <u>1160359</u>				
				Total # of Containers								Temperature of samples upon receipt (if requested) (6)				
Sample Identification		Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks						Temperature of samples upon receipt (if requested)
<u>MA3-MW55-131201-01</u>		<u>12/13/01</u>	<u>0910</u>	<u>X</u>			<u>X</u>		<u>10</u>	<u>X</u>	<u>X</u>					
<u>MA3-MW55-131201-01-DP</u>		<u>12/13/01</u>	<u>0910</u>	<u>X</u>			<u>X</u>		<u>10</u>	<u>X</u>	<u>X</u>					
<u>FB-03</u>		<u>12/13/01</u>	<u>0800</u>	<u>X</u>			<u>X</u>		<u>10</u>	<u>X</u>	<u>X</u>					
FB-03 <u>FB-04</u>		12/13/01 <u>12/13/01</u>	0810 <u>0810</u>	X <u>X</u>			X <u>X</u>		10 <u>10</u>	X <u>X</u>	X <u>X</u>		<u>BS</u>			
<u>MA3-MW35-131201-02</u>		<u>12/13/01</u>	<u>1015</u>	<u>X</u>			<u>X</u>		<u>10</u>	<u>X</u>	<u>X</u>					
MA3-MW35-131201-03		12/13/01	1230	X			X		10	X	X		<u>BS</u>			
<u>MA3-MW265-131201-04</u>		<u>12/13/01</u>	<u>1115</u>	<u>X</u>			<u>X</u>		<u>10</u>	<u>X</u>	<u>X</u>					
MA3-MW135-131201-05		12/13/01	1145	X			X		10	X	X		<u>BS</u>			
MA3-MW255-131201-06		12/13/01	1155	X			X		10	X	X		<u>BS</u>			
<u>MA3-MW255-131201-06-MS/MSD</u>		<u>12/13/01</u>	<u>1155</u>	<u>X</u>			<u>X</u>		<u>10</u>	<u>X</u>	<u>X</u>		<u>BS</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>12-4-01</u> Time: <u>0930</u> Relinquished by: <u>[Signature]</u> Date: <u>12/13/01</u> Time: <u>1700</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>[Signature]</u> Date: <u>12/14/01</u> Time: <u>0925</u>	
---	--	---	--	---	--

(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? <u>Yes</u> 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"/>	
---	--	---	--

Cooler #3

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

Client: <u>Weston / Ken McGee</u> Acct. #: _____ Project Name/#: <u>Mois American</u> PWSID #: _____ Project Manager: <u>Tom Crum</u> P.O.# _____ Sampler: <u>B Schaefer, T Hanzely, B Michalski</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"/> Water <input type="checkbox"/> Other		Analyses Requested (5) <div style="text-align: center; font-size: 2em; opacity: 0.5;"> STEAR PAH </div>					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-MW 10's - 131201-07-DP</u>	<u>12/13/01</u>	<u>1410</u>	<u>X</u>			<u>X</u>		<u>2</u>	<u>X</u>	<u>X</u>					
<u>MA3-MW 10's - 131201-07</u>	<u>12/13/01</u>	<u>1410</u>	<u>X</u>			<u>X</u>		<u>2</u>	<u>X</u>	<u>X</u>					
<u>MA3-MW 20's - 131201-07</u>	<u>12/13/01</u>	<u>1500</u>	<u>X</u>			<u>X</u>		<u>2</u>	<u>X</u>	<u>X</u>					
<u>FB-01</u>	<u>12/13/01</u>	<u>0810</u>	<u>X</u>			<u>X</u>		<u>2</u>	<u>X</u>	<u>X</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>347-918-4055</u>		Relinquished by: <u>[Signature]</u> Date: <u>12/13/01</u> Time: <u>1700</u>		Received by: _____ Date: _____ Time: _____											
8 Data Package Options (please circle if requested)		SDG Complete? <u>Yes</u> No		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____									
QC Summary Type VI (Raw Data) <u>FERQUOTE</u> Type I (Tier I) GLP Type II (Tier II) Other Typ. 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: _____ Date: _____ Time: _____		Received by: <u>[Signature]</u> Date: <u>12/14/01</u> Time: <u>0925</u>									

Cooper

CASE NARRATIVE

Client: Kerr-McGee Corporation
SDG #: MOA99

LANCASTER LABORATORIES
SEMIVOLATILES BY HPLC

SAMPLE NUMBER(S) :

<u>LL #'s</u>	<u>Sample Code</u>	<u>Matrix</u> <u>Water</u>	<u>Comments</u>
3744658	TG22-	X	
3744659	TG233	X	
3744660	5S-1-	X	
3744661	5S-1D	X	
3744662	30S-2	X	
3744663	3S-3-	X	
3744663DL	3S-3-DL	X	5X Dilution
3744664	26S-4	X	
3744665	13S-5	X	
3744666	25S-6	X	Unspiked
3744667	25S-6MS	X	Matrix Spike
3744668	25S-6MSD	X	Matrix Spike Dup
3744669	10S-7	X	
3744670	10S7D	X	
3744671	20S-8	X	
3744672	FB03-	X	Client Blank
3744673	FB04-	X	Client Blank

LABORATORY SUBMITTED QC:

SBLKWG351	SBLKWG3511	X	Method Blank
SBLKWE352	SBLKWE3521	X	Method Blank
351WGLCS	351WGLCS1	X	Lab Control Sample
351WGLCSD	351WGLCSD1	X	Lab Control Sample Dup
352WELCS	352WELCS1	X	Lab Control Sample

Case Narrative
SDG #: MOA99 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>
FB03-	833 ml
FB04-	786 ml

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.

Sufficient sample volume was not available to perform a MS/MSD for the analysis of TG22- and TG233. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at the batch level.

Due to a concentration of naphthalene above calibration range, 3S-3- was analyzed at a further 5X 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.

Case Narrative
SDG #: MOA99 continued

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Christine M. Ratchiff for CJN

Date: 1-15-02

Charles J. Neslund
Group Leader, GC/MS Semivolatiles

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
3744660	5S-1-	X	
3744661	5S-1D	X	
3744662	30S-2	X	
3744663	3S-3-	X	
3744664	26S-4	X	
3744665	13S-5	X	
3744666	25S-6	X	
3744667MS	25S-6	X	Matrix Spike
3744668MSD	25S-6	X	Matrix Spike Dup
3744669	10S-7	X	
3744670	10S7D	X	
3744671	20S-8	X	
3744672	FB03-	X	
3744673	FB04-	X	
3744674	TB04-	X	

QUALITY CONTROL ANALYSES

BLK1647	X	Method Blank
LCS1647	X	Lab Control Sample
LDS1647	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 column. 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 column was used for the analysis of all samples. The surrogate concentration was 30.0 UG/L.

No problems were encountered during analysis.

Case Narrative
SDG# MOA99

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

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



Date



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: MOA99

LANCASTER LABORATORIES

INSTRUMENTAL WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3744658	TG22-	
3744659	TG233	

ANALYSIS:

Samples 3744658,59 were submitted past the 48 hour holding time for the nitrite nitrogen analysis.

Dilutions are listed in the table below.

SAMPLE	NITRATE-N	TP as PO4	TOC
LCS	2	2	5

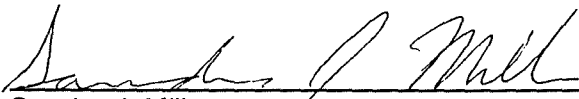
QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The matrix spike sample 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:


 Sandra J. Miller
 Specialist/Coordinator

Date: 1-4-07

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Where quality is a science.

CLIENT: Kerr – McGee Corporation
SDG: MOA99

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3744658	TG22-	
3744659	TG233	

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.

The % RPD of the background and duplicate sample was out of specification for the biochemical oxygen demand analysis.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Sandra J. Miller for _____ Date: 01/02/02
 Sandra J. Miller
 Specialist/Coordinator

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