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11 September 2001

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

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

Re: Quarterly Groundwater Treatment Performance Monitoring Report, Second Quarter 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 second quarter 2001 groundwater monitoring event for the above-referenced project. In addition, results are presented for the monthly groundwater sampling conducted in April, May, and June 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 the second quarter (April through June 2001) reflect conditions at the site where the funnel and gate groundwater treatment system, including the containment-performance wells and treatment performance wells, are already 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 14 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, MW-29S, and TW-05) and four intermediate groundwater monitoring wells (MW-3I, MW-7I, MW-9I, and MW-20I). Some wells that were previously a 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. Additionally, wells MW-4S and MW-4I were removed during the second quarter of 2001 to prepare for excavation of soils in the vicinity of these wells. The shallow groundwater monitoring wells are sampled on a quarterly basis, and the intermediate groundwater monitoring wells are sampled on a semi-annual basis, coinciding with the first and third quarter sampling events. Additionally, KMC is also required to extend the implementation of the quarterly groundwater monitoring program to include 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 will be calculated at each treatment gate, and will be 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 presented in Figure 1. 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 groundwater, intermediate monitoring, and containment performance 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 (NO_3-N), nitrite-nitrogen (NO_2-N), total Kjeldahl nitrogen (TKN),

ammonia-nitrogen (NH_3-N), total phosphate-phosphorous (PO_4-P), and orthophosphate on a monthly basis. Additionally, quarterly laboratory analyses include biochemical oxygen demand (BOD), chemical oxygen demand (COD), total organic carbon (TOC), BTEX, and the PAHs indicated in the above paragraph.

2 GROUNDWATER MONITORING RESULTS

The second quarter 2001 groundwater monitoring event at the Moss-American site was completed between 25 and 29 June 2001. The second quarter 2001 groundwater remedial system treatment performance monitoring sampling includes data obtained during 25 to 26 April 2001, 30 to 31 May 2001, and 25 to 29 June 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 data measurements, groundwater samples were collected from all the shallow 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 26 June 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 groundwater elevation, calculated hydraulic gradients across the treatment gates, and groundwater flow velocity through the treatment gates are presented in Table 2. The April and May 2001 groundwater elevation data for the treatment performance monitoring wells is available upon request. Figure 1 presents a groundwater elevation contour map that shows the potentiometric surface within the shallow groundwater-bearing zone based on the June 2001 data. An evaluation of these results is presented in the following paragraphs.

As shown in Figure 1, 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 of the potentiometric surface is relatively steep, at approximately 0.0216 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 0.009 ft/ft. The estimated hydraulic gradients within the treatment gates ranged from –0.0030 to 0.0140 ft/ft (Table 2). A negative gradient indicates that the groundwater flow is opposite to the general flow direction. The hydraulic gradient is relatively flat within the treatment gate area, with an overall hydraulic gradient from TG1 to TG6 of approximately 0.001 ft/ft, in an easterly direction. Due to the low hydraulic gradient in the vicinity of the treatment gates, the calculated hydraulic gradients through TG1, TG3, and TG4 is westward, contrary to the overall groundwater flow direction at the site. The apparently reversed hydraulic gradients at TG1, TG3, 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 0.0216 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 0.00216 ft/day. Near the river, using a hydraulic gradient of 0.009 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 0.0373 ft/day. The groundwater flow velocities within the treatment gates are estimated to range from 0.0340 ft/day to 0.1323 ft/day (excluding the erratic data for TG1, TG3, 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 40 shallow monitoring wells screened within the shallow groundwater-bearing. The shallow wells include 14 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, MW-29S and TW-05), eight containment performance monitoring wells (MW-30S, MW-31S, MW-32S, MW-33S, MW-34S, MW-35S, MW-36S and MW-37S), and 18 treatment performance monitoring wells (TG1-1, TG1-2, TG1-3, TG2-1, TG2-2, TG2-3, TG3-1, TG3-2, TG3-3, TG4-1, TG4-2, TG4-3, TG5-1, TG5-2, TG5-3, TG6-1, TG6-2, and TG6-3).

In addition to the investigative groundwater samples collected, four sample duplicate, two matrix spike/matrix spike duplicate (MS/MSD) and five field blank (identified by a FB prefix) samples were collected for quality assurance/quality control (QA/QC) purposes. Trip blanks accompanied each cooler of sample containers from the laboratory to the site and were shipped back to the laboratory within each cooler of 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. The available results of the June 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.

pH

The pH of the groundwater samples collected during second quarter 2001 ranged from 6.68 to 8.02 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.

Redox Potential

The redox potentials of the groundwater samples collected at the site during second quarter 2001 ranged from –890 to +071 millivolts (mV). Redox potential indicates the capability of the groundwater to promote chemical oxidation-reduction processes that consume organic matter and oxidize inorganic 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.

Dissolved Oxygen

DO levels for the groundwater samples collected during second quarter 2001 ranged from 0.55 to 6.8 milligrams per liter (mg/L). This dissolved oxygen range indicates the presence of low to moderate levels of oxygen in the water; however, on a site-wide basis the DO was typically less than 2.0 mg/L. The DO was measured at levels above 2.0 mg/L on two occasions, in well TG1-1 in June 2001 (6.8 mg/L), and in well TG6-3 in June 2001 (2.55 mg/L). 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 of the contaminants from the groundwater. Figure 2 indicates the DO concentrations over time in the treatment performance monitoring wells.

Specific Conductance

The specific conductance, or conductivity, of the groundwater samples collected during second quarter 2001 ranged from 0.036 to 1.57 microohms per centimeter (mΩ/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.

Temperature

Groundwater temperatures ranged from 7.2 to 10.1 degrees centigrade (°C) in April 2001, from 10.6 to 12.2 °C in May 2001, and from 12.2 to 19.2 °C in June 2001. Temperature is an

extremely important factor in bioremediation since microbial growth rates are greatly dependent upon temperature.

Turbidity

Turbidity ranged from 0.18 to 130 nephelometric turbidity units (NTU) during second quarter 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 April, May, and June 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 June 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 are provided as Attachment A.

Groundwater Sample Results

As shown in Table 4, benzene, naphthalene, chrysene, and benzo(a)pyrene were detected at concentrations exceeding their respective PALs and/or ESs in the groundwater samples collected from the shallow monitoring well network. The results are as follows:

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-7S, MW-33S, MW-34S, TG1-1, and TG1-2.

- Chrysene was detected at concentrations exceeding the WDNR PAL of 0.02 µg/L in the groundwater samples collected from wells MW-32S, MW-33S, MW-34S, MW-35S, TG1-1, and TG3-3.

- 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 and TG1-1.

ES Exceedances:

- Benzene was detected at a concentration exceeding the WDNR ES of 5 µg/L in the groundwater sample collected from well MW-34S.

- Naphthalene was detected at concentrations exceeding the WDNR ES of 40 µg/L in the groundwater samples collected from wells MW-7S, MW-33S, MW-34S, TG1-1, and TG1-2.

The detected plume boundary is primarily in an area encompassing eight shallow monitoring wells (MW-7S, MW-32S, MW-33S, MW-34S, MW-35S, TG1-1, TG1-2, and TG3-3). Based on these detected concentrations, the contaminant plume generally indicates a northeasterly trend as indicated in Figure 1, as well as during the previous 13 quarterly groundwater-sampling events. The lateral extent of the groundwater plume appears to be significantly smaller for second quarter 2001 compared to recent quarters.

A summary of the concentration of contaminants at wells that have regularly exceeded PALs and/or ESs during the last thirteen quarters 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-7S, TW-05, MW-32S, and MW-35S. A more accurate trend may be illustrated and a containment performance evaluation performed as additional data for samples collected from the containment performance wells (MW-30S through MW-37S) becomes available during the future quarterly groundwater sampling events.

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, NO_3-N, NO_2-N, TKN, NH_3-N, PO_4-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, NO_3-N, NO_2-N, TKN, NH_3-N, PO_4-P, ORP, BOD, COD, and TOC are presented in Table 6. The results of the treatment performance monitoring well sample analyses are summarized below.

Nitrogen and Phosphorous Compounds

NO_3-N was detected at concentrations ranging from below method detection limits (non-detect) to 0.380 mg/L. NO_2-N was detected at low levels, ranging from non-detect to 0.19 mg/L. TKN was detected at concentrations ranging from non-detect to 6.6 mg/L. NH_3-N was detected at levels ranging from non-detect to 3.3 mg/L. Overall, nitrogen compound concentrations are at relatively low levels. Temporal changes of NO_3-N, NO_2-N, and NH_3-N concentrations in the treatment performance monitoring wells with respect to treatment gate are presented in Figures 3, 4, and 5, respectively.

PO_4-P was detected at concentrations ranging from non-detect to 8.12 mg/L. ORP was detected at concentrations ranging from non-detect to 0.238 mg/L. The temporal changes of PO_4-P and ORP concentrations in the treatment performance monitoring wells with respect to treatment gate are presented in Figures 6 and 7, respectively.

BOD, COD, TOC

BOD concentrations for the samples collected throughout the treatment system range from non-detect to 6.6 mg/L. COD concentrations for the samples collected throughout the treatment system range from 5.4 to 49.8 mg/L. TOC concentrations for the samples collected throughout the treatment system range from 2.1 to 20.1 mg/L. As expected, the treatment gate wells indicate less BOD compared to COD. COD indicates presence of constituents that exert an oxygen demand, including carbon compounds such as the site contaminants in the groundwater, as well as other constituents such as ammonia, sulfurous compounds, and biological material such humic acids and detritus. A significant portion of oxygen demand that is exerted by the constituents measured in the COD test may not be readily biodegradable, and would typically exert the oxygen demand over an extended time period. The oxygen demand exerted by the constituents detected by the COD analysis is catalyzed chemically and thermally. The low BOD indicates low concentrations of material that is readily biodegradable and/or quickly oxidized.

Microbial Enumeration

The monthly mean of the total microbe populations for TG1 and TG2 ranged from 1.8×10^2 to 3.5×10^6 colony forming units per milliliter (CFU/mL) during second quarter 2001. The monthly mean of the total microbe populations for TG3 and TG4 ranged from 6.3×10^2 to 2.7×10^5 CFU/mL during second quarter 2001. The monthly of the total microbe populations for TG5 and TG6 ranged from 1.0×10^3 to 9.2×10^5 CFU/mL during second 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 1.0×10^2 to 4.0×10^5 CFU/mL during second quarter 2001. The monthly mean of the microbe populations for TG3 and TG4 ranged from 1.9×10^2 to 5.8×10^4 CFU/mL during second quarter 2001. The monthly mean of the microbe populations for TG5 and TG6 ranged from 1.1×10^2 to 1.1×10^5 CFU/mL during second quarter 2001. The temporal changes in degrader microbial populations are presented in Figure 9.

3 Evaluation of Pilot Scale Operations

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 groundwater monitoring data presented for the second quarter of 2001 indicate that site augmentation may be required for bioremediation, since the C:N:P ratios in the treatment gate wells indicate a nitrogen and phosphorous deficiency in the groundwater, and the September 2000 through June 2001 DO concentrations in the wells prior to purging indicate an oxygen deficient environment. Degrader levels in the treatment performance wells during second quarter 2001 indicated an upward trend when compared to previous reports. The cause of the increase in microbial levels is uncertain; however, it may be due to warmer weather experienced during the second quarter. In addition to the above concerns, based on the calculated hydraulic gradients and flow velocities through the treatment gates, KMC/WESTON has identified a potential concern associated with the site hydrogeology. 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. KMC/WESTON will continue to monitor and evaluate the site hydrogeology.

Site augmentation began in October 2000 by injecting air into the wells at all treatment gates; however, no significant difference in the oxygen levels measured in the wells has been observed to date. KMC/WESTON believes that the lack of DO in the treatment performance monitoring wells is primarily due to inefficient dispersion of the air injected into the treatment gate. KMC/WESTON installed packers in the injection wells for TG-5 on 7 June 2001 to enhance air injection. Upon insertion, air bubbles were seen in standing water areas near the injection wells, indicating a potential improvement of air dispersion. KMC/WESTON will continue to monitor the DO levels at all treatment gates to determine if installation of the well packers enhances DO levels in the gates. If positive results are obtained, packers may be installed in all injection wells.

Nutrient injection began on 5 July 2001 following completion of the second quarter 2001 groundwater monitoring period. In accordance with the Operations and Maintenance Plan (Final [100 Percent] Design for Groundwater Remedial System, WESTON, 1998), nutrient addition is currently being performed on TG1, and will continue for a minimum of two successive quarters. Nutrient injection is currently being performed using a 10 mg/L potassium nitrate (KNO_3) and 1 mg/L potassium phosphate (KH_2PO_4) solution. Upon evaluation of the performance of TG1 compared to the other gates, based on third and fourth quarter 2001 data, a recommendation regarding the benefits of nutrient addition will be drafted and included in the fourth quarter 2001 report.

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

Very truly yours,

ROY F. WESTON, INC.

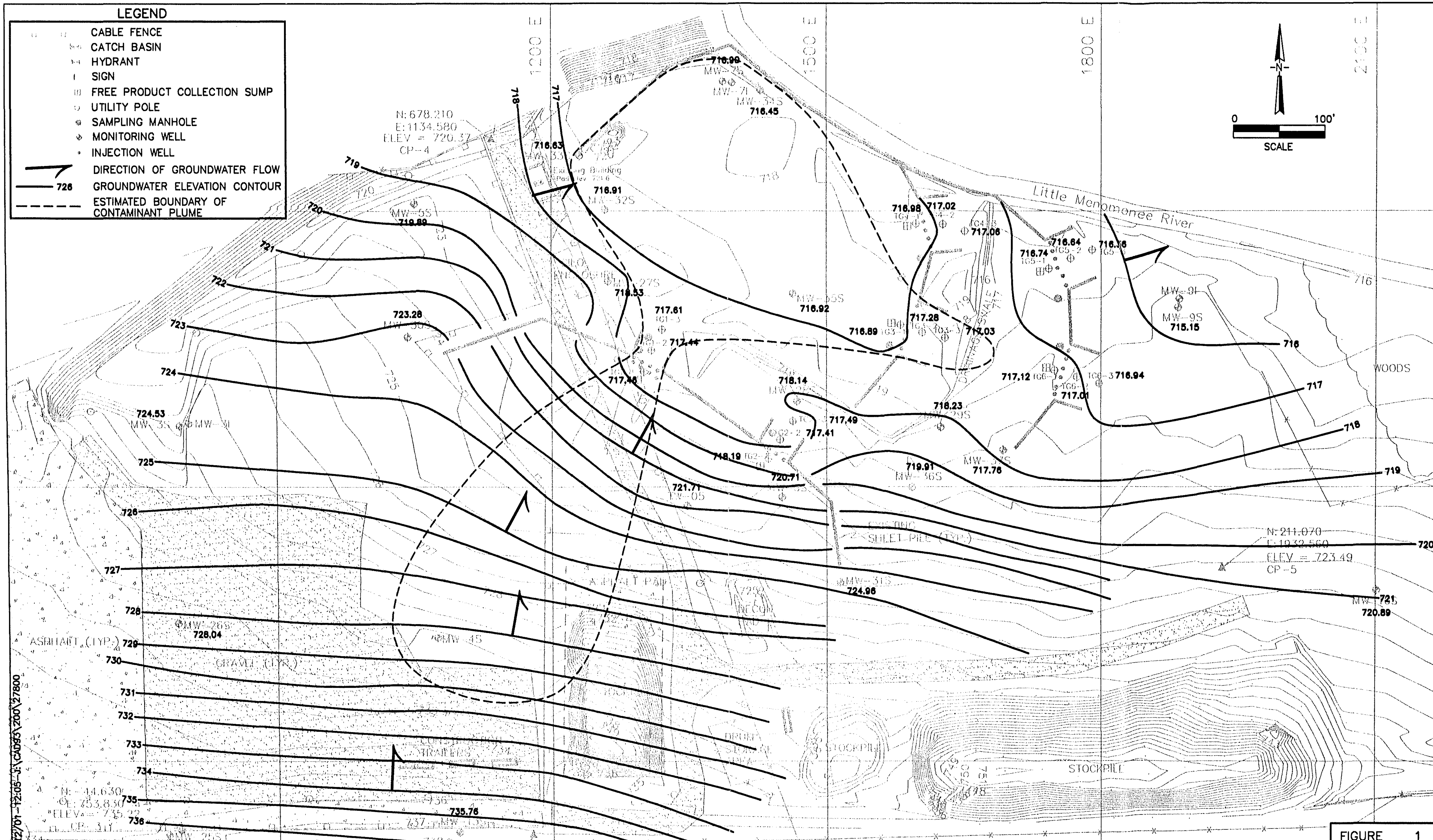
Thomas P. Graan

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

TPG/sk

Attachments

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


LEGEND
CABLE FENCE
CATCH BASIN
HYDRANT
SIGN
FREE PRODUCT COLLECTION SUMP
UTILITY POLE
SAMPLING MANHOLE
MONITORING WELL
INJECTION WELL
DIRECTION OF GROUNDWATER FLOW
726 GROUNDWATER ELEVATION CONTOUR
ESTIMATED BOUNDARY OF CONTAMINANT PLUME
1200 E
1500 E
1800 E
2100 E
N
0
100'
SCALE
Little Menomonee River
WOODS
STOCKPILE
N: 678.210
E: 1134.580
ELEV = 720.37
CP-4
N: 211.070
E: 1932.560
ELEV = 723.49
CP-5
N: -80.570
E: 1177.070
ELEV = 737.17
CP-6
716.99
716.45
716.63
716.91
719.89
718.53
717.61
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716.92
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717.02
717.06
716.64
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716.89
717.28
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717.12
716.94
717.01
723.28
717.46
718.14
718.23
717.49
717.41
718.19
720.71
719.91
717.76
721.71
724.53
724.96
720.89
728.04
735.76
736.22
EXISTING SHEET PILE (TYP.)
ASPHALT (TYP.)
GRAVEL (TYP.)

FIGURE 1

WESTON
MANAGERS DESIGNERS/CONSULTANTS

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

GROUNDWATER ELEVATION CONTOUR MAP – 2ND QTR 2001
KERR McGEE CORPORATION
MOSS-AMERICAN SITE
Milwaukee, Wisconsin

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

Table 1

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

Well ID	Ground Elevation	TOC Elevation	Depth to Water	GW Elevation	Product Thickness
MW-3S	729.00	731.50	6.97	724.53	ND
MW-5S	723.00	724.70	4.81	719.89	ND
MW-6S	727.00	724.28	3.57	720.71	ND
MW-7S	720.00	721.70	4.80	716.90	ND
MW-9S	720.00	721.71	6.56	715.15	ND
MW-10S	723.00	726.58	5.69	720.89	ND
MW-13S	737.00	738.68	2.92	735.76	ND
MW-20S	716.00	719.94	NM	NM	ND
MW-25S	736.83	739.24	3.02	736.22	ND
MW-26S	732.31	731.66	3.62	728.04	ND
MW-27S	720.59	723.15	4.62	718.53	ND
MW-28S	720.04	722.65	4.51	718.14	ND
MW-29S	720.01	722.39	4.16	718.23	ND
TW-05	721.76	724.16	2.45	721.71	ND
MW-30S	724.5	727.19	3.91	723.28	ND
MW-31S	723.8	726.35	1.39	724.96	ND
MW-32S	719.6	722.62	5.71	716.91	ND
MW-33S	719.1	721.69	5.06	716.63	ND
MW-34S	718.6	721.42	4.97	716.45	ND
MW-35S	718.9	721.54	4.62	716.92	ND
MW-36S	720.2	723.09	3.18	719.91	ND
MW-37S	720.5	723.13	5.37	717.76	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 26 June 2001.

Table 2

Groundwater Elevation Measurements
Treatement Performance Monitoring Wells
Moss-American Site
Milwaukee, Wisconsin
First Quarter 2001

Well ID	Ground Elevation	TOC Elevation	Depth to Water	GW Elevation	Hydraulic Gradient (ft/ft)	Groundwater Velocity (ft/day)	Product Thickness
TG1-1	720.05	723.18	5.72	717.46	-0.0030	-0.0283	ND
TG1-2	719.80	722.60	5.16	717.44			ND
TG1-3	719.30	722.35	4.74	717.61			ND
TG2-1	720.50	723.60	5.41	718.19	0.0140	0.1323	ND
TG2-2	719.90	722.86	5.45	717.41			ND
TG2-3	719.90	722.35	4.86	717.49			ND
TG3-1	718.40	720.95	4.06	716.89	-0.0028	-0.0001	ND
TG3-2	718.20	720.75	3.47	717.28			ND
TG3-3	717.80	720.30	3.27	717.03			ND
TG4-1	717.60	720.79	3.81	716.98	-0.0016	0.0000	ND
TG4-2	717.90	720.51	3.49	717.02			ND
TG4-3	717.40	719.93	2.87	717.06			ND
TG5-1	717.60	720.56	3.82	716.74	0.0076	0.0718	ND
TG5-2	717.30	720.24	3.60	716.64			ND
TG5-3	717.00	719.73	3.37	716.36			ND
TG6-1	719.20	721.73	4.61	717.12	0.0036	0.0340	ND
TG6-2	719.20	721.90	4.89	717.01			ND
TG6-3	719.40	722.32	5.38	716.94			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 was measured on 26 March 2001.

Table 3

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

Well Number	pH (Standard Units)	Specific Conductance (mΩ/cm)	Temperature (°C)	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
MW-3S	7.07	0.82	12.9	+018	1.20	8.12
MW-5S	7.17	0.726	12.8	-003	0.85	3.81
MW-6S	7.57	0.55	15.2	-400	1.60	82.4
MW-7S	6.85	0.850	13.0	-057	1.10	23.6
MW-9S	6.89	0.85	13.4	-131	1.30	4.22
MW-10S	7.04	0.69	19.2	-022	1.20	0.18
MW-13S	7.31	0.73	15.8	-151	1.95	43.5
MW-20S	7.08	0.91	12.2	-038	NM	1.50
MW-25S	7.02	0.74	16.5	-151	1.05	0.70
MW-26S	7.33	0.699	15.3	-023	0.95	1.68
MW-27S	6.98	0.73	13.3	-773	0.60	11.72
MW-28S	7.33	0.68	15.1	-885	1.40	1.22
MW-29S	7.23	0.682	15.2	-037	0.75	5.53
TW-05	7.04	0.78	16.4	-890	1.20	0.65
MW-30S	7.12	0.739	15.5	-010	0.90	1.01
MW-31S	7.49	0.62	15.5	-380	1.00	--
MW-32S	7.02	0.753	15.5	-051	1.60	1.88
MW-33S	7.19	0.801	15.2	-047	0.90	0.92
MW-34S	6.84	0.763	13.8	-054	1.30	1.41
MW-35S	7.06	0.959	15.8	-013	1.10	16.32
MW-36S	7.69	0.556	16.0	-047	1.20	85.2
MW-37S	7.34	0.685	15.6	-060	1.35	1.96

Table 3 (continued)

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

Well Number	pH (Standard Units)	Specific Conductance (mΩ/cm)	Temperature (°C)	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
TG1-1	7.39	0.897	17.0	-065	6.80	16.90
TG1-2	7.29	0.989	15.2	-058	1.25	26.8
TG1-3	7.31	0.920	14.9	-055	1.27	20.50
TG2-1	7.40	0.640	16.2	-034	1.25	1.97
TG2-2	7.45	0.632	14.3	-037	1.05	37.30
TG2-3	7.39	0.883	15.5	-048	1.30	2.58
TG3-1	6.68	1.220	15.4	-064	1.10	52.30
TG3-2	6.96	1.010	15.9	-094	1.20	35.60
TG3-3	6.90	1.050	15.0	-021	1.05	130.00
TG4-1	7.30	0.60	15.6	-040	1.20	1.80
TG4-2	7.25	0.635	16.2	-038	0.80	2.08
TG4-3	7.26	0.691	15.3	-014	1.20	1.38
TG5-1	7.33	0.630	15.4	-025	1.25	1.51
TG5-2	7.33	0.727	15.3	-018	1.00	3.10
TG5-3	7.22	0.724	15.2	-009	1.05	12.10
TG6-1	7.30	0.770	15.5	-053	1.30	22.90
TG6-2	7.20	0.960	15.0	-061	1.55	1.22
TG6-3	7.11	1.100	15.2	-043	2.55	49.90

S - Shallow well.
TW - Temporary well (shallow).
TG – Treatment gate performance monitoring well.
NM – Not measured due to well damage.
-- - Data not available.

Table 4

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

Sample ID:	MW-3S-14	MW-5S-14	MW-6S-14	MW-7S-14	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/29/01	6/27/01	6/28/01	6/27/01		
Units of Measure:	ug/L	ug/L	ug/L	ug/L		
Parameters						
VOCs						
Benzene	0.2 U	0.2 U	0.2 U	**2.9** J	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	12	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	38	124	620
PAHs						
Naphthalene	0.8 U	0.8 U	0.8 U	**3200**	8.0	40
Acenaphthalyene	0.8 U	0.8 U	0.8 U	37	NA	NA
Acenaphthene	0.8 U	0.8 U	0.8 U	58	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	8.5	80	400
Phenanthrene	0.07 U	0.07 U	0.07 U	0.93	NA	NA
Anthracene	0.03 U	0.03 U	0.03 U	0.15 J	600	3,000
Fluoranthene	0.03 U	0.03 U	0.03 U	0.073 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
Chrysene	0.06 U	0.06 U	0.06 U	0.06 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.01 U	0.01 U	0.01 U	0.009 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.03 U	0.03 U	0.03 U	0.03 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.09 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.07 U	0.06 U	0.06 U	0.06 U	NA	NA

Table 4 (continued)

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

Sample ID:	MW-9S-14	MW-10S-14	MW-13S-14	MW-20S-14	MW-25S-14	MW-26S-14	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/28/01	6/28/01	6/28/01	6/28/01	6/28/01	6/27/01		
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	0.37 J	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	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	8.0	40
Acenaphthalyene	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	0.07 U	0.07 U	0.088 J	0.07 U	0.07 U	0.07 U	NA	NA
Anthracene	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	600	3,000
Fluoranthene	0.03 U	0.03 U	0.087 J	0.03 U	0.03 U	0.03 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	0.03 J	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.01 U	0.01 U	0.02 J	0.01 U	0.01 U	0.01 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 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
Indeno(1,2,3-cd)pyrene	0.06 U	0.06 U	0.07 U	0.06 U	0.06 U	0.06 U	NA	NA

Table 4 (continued)

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

Sample ID:	MW-27S-14	MW-28S-14	MW-29S-14	TW-05-14	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/29/01	6/29/01	6/27/01	6/29/01		
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	0.5	5
Toluene	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	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs						
Naphthalene	0.8 U	0.8 U	0.8 U	8 J	8.0	40
Acenaphthalyene	0.8 U	0.8 U	0.8 U	9	NA	NA
Acenaphthene	0.8 U	0.8 U	0.8 U	81	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	56	80	400
Phenanthrene	0.07 U	0.07 U	0.07 U	5 U	NA	NA
Anthracene	0.03 U	0.03 U	0.03 U	2.4	600	3,000
Fluoranthene	0.03 U	0.03 U	0.03 U	11	80	400
Pyrene	0.2 U	0.2 U	0.2 U	10	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.13	NA	NA
Chrysene	0.06 U	0.06 U	0.06 U	0.06 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.03 U	0.03 U	0.03 U	0.03 U	NA	NA
Benzo(g,h,I)perylene	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.06 U	0.06 U	0.06 U	0.07 U	NA	NA

Table 4 (continued)

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

Sample ID:	MW-30S-14	MW-31S-14	MW-32S-14	MW-33S-14	MW-34S-14	MW-35S-14	MW-36S-14	MW-37S-14	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/27/01	6/28/01	6/27/01	6/27/01	6/27/01	6/27/01	6/27/01	6/27/01		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters										
VOCs										
Benzene	0.2 U	0.2 U	0.2 U	1 U	**6.8** J	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	1 U	2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	9.3	23	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	24	72	0.6 U	0.6 U	0.6 U	124	620
PAHs										
Naphthalene	0.8 U	0.8 U	0.8 U	**2900**	**5700**	1 J	0.8 U	0.8 U	8.0	40
Acenaphthylene	0.8 U	0.8 U	0.8 U	49	54	0.8 U	0.8 U	0.8 U	NA	NA
Acenaphthene	0.8 U	0.8 U	0.8 U	140	170	1.4 J	0.8 U	0.8 U	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	27	80	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.07 U	0.07 U	0.07 U	1.1	83	0.38	0.07 U	0.073 J	NA	NA
Anthracene	0.03 U	0.03 U	0.03 U	0.038 J	6.3	0.3	0.03 U	0.03 U	600	3,000
Fluoranthene	0.03 U	0.03 U	0.03 U	0.03 U	7.5	0.9	0.03 U	0.03 U	80	400
Pyrene	0.2 U	0.2 U	0.2 U	1	6.1	0.69 J	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	0.22	0.05 J	0.02 U	0.02 U	NA	NA
Chrysene	0.06 U	0.06 U	**0.07** J	**0.07** J	**0.15** J	**0.09** J	0.06 U	0.06 U	0.02	0.2
Benzo(b)fluoranthen	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthen	0.01 U	0.01 U	0.01 U	0.01 U	0.02 J	0.01 U	0.01 U	0.01 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	**0.03** J	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthrac	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyr	0.06 U	0.06 U	0.06 U	0.06 U	0.07 U	0.07 U	0.06 U	0.06 U	NA	NA

Table 4 (continued)

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

Sample ID:	TG1-1-14	TG1-2-14	TG1-3-14	TG2-1-14	TG2-2-14	TG2-3-14	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/25/01	6/25/01	6/25/01	6/25/01	6/25/01	6/25/01		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	**5** J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	1.8 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	21	0.45 J	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	36	0.62 J	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs								
Naphthalene	**2200**	**78**	0.8 U	0.8 U	0.8 U	0.8 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	150	36	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	59	9.6	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	29	15	0.06 U	0.06 U	0.079 J	0.06 U	NA	NA
Anthracene	2.7	2.2	0.03 U	0.03 U	0.032 J	0.03 U	600	3,000
Fluoranthene	2.6	3.7	0.03 U	0.03 U	0.078 J	0.033 J	80	400
Pyrene	1.9	3.4	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.19	0.14	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	**0.12** J	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.026 J	0.01 J	0.009 U	0.009 U	0.009 U	0.009 U	NA	NA
Benzo(a)pyrene	**0.05** J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	NA	NA
Benzo(g,h,i)perylene	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	NA	NA

Table 4 (continued)

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

Sample ID:	TG3-1-14	TG3-2-14	TG3-3-14	TG4-1-14	TG4-2-14	TG4-3-14	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/26/01	6/26/01	6/26/01	6/26/01	6/26/01	6/26/01		
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	0.8 U	0.8 U	0.8 U	6.7 J	0.8 U	0.8 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 J	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	0.62 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.3 J	0.07 U	0.1 J	0.07 U	0.075 J	0.07 U	NA	NA
Anthracene	0.2	0.033 J	0.036 J	0.03 U	0.096 J	0.03 U	600	3,000
Fluoranthene	0.2	0.065 J	0.11 J	0.03 U	0.2	0.03 U	80	400
Pyrene	0.24 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.06 U	0.06 U	0.07 J	0.06 U	0.06 U	0.06 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.01 U	0.01 U	0.01 U	0.009 U	0.009 U	0.009 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.09 U	0.09 U	0.09 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	NA	NA

Table 4 (continued)

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

Sample ID:	TG5-1-14	TG5-2-14	TG5-3-14	TG6-1-14	TG6-2-14	TG6-3-14	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/26/01	6/26/01	6/26/01	6/26/01	6/26/01	6/26/01		
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	3 J	0.8 U	0.8 U	0.8 U	0.8 U	0.8 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	0.07 U	0.07 U	0.06 U	0.07 U	0.07 U	0.06 U	NA	NA
Anthracene	0.03 U	0.036 J	0.03 U	0.03 U	0.03 U	0.03 U	600	3,000
Fluoranthene	0.03 U	0.05 J	0.03 U	0.068 J	0.17 J	0.035 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 J	0.02 U	0.02 J	NA	NA
Chrysene	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.009 U	0.009 U	0.009 U	0.014 J	0.01 U	0.014 J	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 J	0.02 U	0.02 J	0.02	0.2
Dibenzo(a,h)anthracene	0.03 U	0.03 U	0.03 U	0.039 J	0.03 U	0.039 J	NA	NA
Benzo(g,h,i)perylene	0.09 U	0.09 U	0.09 U	0.09 U	0.1 U	0.09 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	NA	NA

Table 4 (continued)

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

Sample ID:	MW-31S-DP	MW-37S-DP	TG5-1-DP	TG6-2-DP	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/28/01	6/27/01	6/26/01	6/26/01		
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	0.5	5
Toluene	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	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs						
Naphthalene	0.8 U	0.8 U	2.6 J	0.8 U	8.0	40
Acenaphthalyene	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	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.07 U	0.07 U	0.07 U	0.07 U	NA	NA
Anthracene	0.03 U	0.03 U	0.03 U	0.051 J	600	3,000
Fluoranthene	0.03 U	0.03 U	0.03 U	0.16 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
Chrysene	0.06 U	0.06 U	0.06 U	0.06 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.01 U	0.01 U	0.009 U	0.01 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.03 U	0.03 U	0.03 U	0.03 U	NA	NA
Benzo(g,h,I)perylene	0.1 U	0.1 U	0.09 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.06 U	0.07 U	0.06 U	0.07 U	NA	NA

Table 4 (continued)

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

Sample ID:	MW-26S-MS	MW-26S-MSD	TG3-3-MS	TG3-3-MSD	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/27/01	6/27/01	6/26/01	6/26/01		
Units of Measure:	ug/L	ug/L	ug/L	ug/L		
Parameters						
VOCs						
Benzene	20	20	21	20	0.5	5
Toluene	20	20	21	21	68.6	343
Ethylbenzene	20	20	20	20	140	700
Total Xylenes	59	58	58	58	124	620
PAHs						
Naphthalene	180	180	150	140	8.0	40
Acenaphthylene	180	180	160	140	NA	NA
Acenaphthene	210	210	180	170	NA	NA
Fluorene	20	20	17	16	80	400
Phenanthrene	6.4	6.5	5.7	5.3	NA	NA
Anthracene	3.4	3.4	3	2.8	600	3,000
Fluoranthene	3.6	3.6	3.4	3.2	80	400
Pyrene	23	23	21	20	50	250
Benzo(a)anthracene	1.8	1.8	1.6	1.5	NA	NA
Chrysene	6.5	6.5	6	5.7	0.02	0.2
Benzo(b)fluoranthene	1.4	1.4	1.3	1.2	0.02	0.2
Benzo(k)fluoranthene	1.4	1.4	1.2	1.2	NA	NA
Benzo(a)pyrene	1.7	1.7	1.5	1.5	0.02	0.2
Dibenzo(a,h)anthracene	3.5	3.5	3.2	3.1	NA	NA
Benzo(g,h,i)perylene	14	14	13	12	NA	NA
Indeno(1,2,3-cd)pyrene	7.0	7.1	6.5	6.1	NA	NA

Table 4 (continued)

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

Sample ID:	FB-01	FB-02	FB-03	FB-04	FB-05	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/26/01	6/26/01	6/27/01	6/28/01	6/29/01		
Units of Measure:	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	0.5	5
Toluene	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	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs							
Naphthalene	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	8.0	40
Acenaphthalyene	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	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	NA	NA
Anthracene	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	600	3,000
Fluoranthene	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.009 U	0.009 U	0.01 U	0.01 U	0.01 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	NA	NA
Benzo(g,h,I)perylene	0.09 U	0.09 U	0.1 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.06 U	0.06 U	0.07 U	0.07 U	0.07 U	NA	NA

Table 4 (continued)

Groundwater Sample Analytical Results
Table Notes
Moss-American Site
Milwaukee, Wisconsin
Second 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.
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 Second Quarter 2001
Moss-American Site
Milwaukee, Wisconsin

	MW-4S[3]	MW-7S	TW-05	TW-09[1]	MW-32S[2]	MW-33S[2]	MW-34S[2]	MW-35S[2]
Benzene								
First Quarter (March '98)	10.0	5.00	0.20 U	2.00 J	---	---	---	---
Second Quarter (June '98)	8.00	5.00	0.20 U	0.50 J	---	---	---	---
Third Quarter (September '98)	3.00	8.00 J	0.20 U	2.00 U	---	---	---	---
Fourth Quarter (December '98)	3.00 J	NS	0.20 U	2.00 U	---	---	---	---
First Quarter (March '99)	5.00	9.00	0.20 U	0.30 U	---	---	---	---
Second Quarter (June '99	6.00	7.00 J	0.20 U	2.00 U	---	---	---	---
Third Quarter (September '99)	3.00	9.00	0.20 U	0.80 J	---	---	---	---
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
Fourth Quarter (December '00)	2.60	3.40 J	0.20 U	---	0.20 U	8.30 J	2.00 U	0.20 U
First Quarter (March '01)	5.10 J	5.50 J	0.20 U	---	0.20 U	4.00 U	9.80J	0.20 U
Second Quarter (June '01)	---	2.90 J	0.20 U	---	0.20 U	1.00 U	6.80 J	0.20 U
Naphthalene								
First Quarter (March '98)	2,080	6,470	3.51 J	3,080	---	---	---	---
Second Quarter (June '98)	172 J	16.1	15.10 J	11,800	---	---	---	---
Third Quarter (September '98)	863 J	7,140	19.00 J	580 J	---	---	---	---
Fourth Quarter (December '98)	1,760	NS	9.30 J	14,900	---	---	---	---
First Quarter (March '99)	1,330	5,560	19.90	9,500	---	---	---	---
Second Quarter (June '99	940	6,400	3.90 J	11,600	---	---	---	---
Third Quarter (September '99)	418 J	0.80 U	7.90 J	126,000	---	---	---	---
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	---	40.7	1,920	5,980	42.7
Third Quarter (September '00)	810	3,960	15.30 J	---	59.3	2,220	5,720	0.78 U
Fourth Quarter (December '00)	720	3,470	10.00 J	---	1.25 J	1,760	5,050	0.94 J
First Quarter (March '01)	830	3,800	8.60 J	---	0.78 U	2,900	5,900	2.36 J
Second Quarter (June '01)	---	3,200	8.00 J	---	0.80 U	2,900	5,700	1.0 J

Table 3

Concentration Trends in Groundwater Monitoring Wells
First Quarter 1998 through Second Quarter 2001
Moss-American Site
Milwaukee, Wisconsin

	MW-4S[3]	MW-7S	TW-05	TW-09[1]	MW-32S[2]	MW-33S[2]	MW-34S[2]	MW-35S[2]
Fluorene								
First Quarter (March '98)	368	3.30 U	3.30 U	21.0 U	---	---	---	---
Second Quarter (June '98)	50.0	3.60 J	105	3,590	---	---	---	---
Third Quarter (September '98)	323 J	30.0	90.0	3.30 UJ	---	---	---	---
Fourth Quarter (December '98)	316	NS	62.3	4,120	---	---	---	---
First Quarter (March '99)	271	30.0	65.4	4,300	---	---	---	---
Second Quarter (June '99	547	36.5	79.6	5,200	---	---	---	---
Third Quarter (September '99)	651	39.2	136	47,700	---	---	---	---
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
Fourth Quarter (December '00)	217	12.7	40.1	---	0.82 U	15.0	74.0	0.23 J
First Quarter (March '01)	210	10.0	43.0	---	0.17 U	19.0	83.0	0.31 J
Second Quarter (June '01)	---	8.50	56.0	---	0.20 U	27.0	80.0	0.20 U
Benzo(a) pyrene								
First Quarter (March '98)	25.3	0.021 U	2.04	20.3	---	---	---	---
Second Quarter (June '98)	112	25.3	1.63	226	---	---	---	---
Third Quarter (September '98)	7.45 J	0.42	3.40	4.40 J	---	---	---	---
Fourth Quarter (December '98)	8.95	NS	1.72	228	---	---	---	---
First Quarter (March '99)	6.10	0.43	2.10	240	---	---	---	---
Second Quarter (June '99	35.1	0.12 U	1.42	23.0 J	---	---	---	---
Third Quarter (September '99)	40.5	0.022 U	4.33	3,610	---	---	---	---
Fourth Quarter (December '99)	9.70	0.21 U	1.49	---	---	---	---	---
First Quarter (March '00)	8.40	0.21 U	1.44	---	---	---	---	---
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	0.89	---	0.02 U	0.02 U	0.10	0.153
Fourth Quarter (December '00)	0.051 J	0.02 U	0.096 U	---	0.021 U	0.02 U	0.031 J	0.138
First Quarter (March '01)	1.00 U	0.19 U	0.11 U	---	0.019 U	0.20 U	0.23 U	0.023 U
Second Quarter (June '01)	---	0.02 U	0.02 U	---	0.02	0.02 U	0.03 J	0.020 U

NS - Not sampled.

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

J - Estimated concentration.

1 - TW-09 was removed to install the funnel-and-gate groundwater system.

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

3 - MW-4S was removed to prepare for excavation of soils around the vicinity of the well.

Table 6

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

Parameter (mg/L)	Sample Identification								
	TG1-1			TG1-2			TG1-3		
	April	May	June	April	May	June	April	May	June
Kjeldahl Nitrogen	2.10	0.93 J	1.30	3.10	1.10	1.40	1.40	0.88 J	1.30
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	0.069 J	0.040 U	0.040 U	0.060 J	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Ammonia Nitrogen	1.1	1.1	0.84 J	0.68 J	1.0	1.0	0.60 J	1.0	0.75 J
Ortho-Phosphate as P	0.0143 J	0.0028 U	0.052	0.03	0.0166 J	0.103	0.036	0.0131 J	0.074
Biochemical Oxygen Demand (BOD)	NA	NA	5.8 U	NA	NA	3.2 U	NA	NA	2.5 U
Total Organic Carbon (non-purgable)	NA	NA	11.1	NA	NA	9.6	NA	NA	5.0
Total Phosphorous as PO4	1.18	0.14 J	0.13 U	3.54	0.21	0.23	3.56	0.23	0.24
Chemical Oxygen Demand (COD)	NA	NA	40.3	NA	NA	26.4	NA	NA	14.0
Total Microbial Population (mean)	1.58E+05	1.60E+04	4.40E+04	1.70E+06	6.20E+04	8.30E+02	1.44E+05	4.30E+05	---
Degrader Microbial Population (mean)	2.50E+04	1.50E+04	2.10E+03	4.00E+05	2.40E+04	3.50E+02	2.00E+03	1.10E+05	---
	TG2-1			TG2-2			TG2-3		
	April	May	June	April	May	June	April	May	June
Kjeldahl Nitrogen	0.34 J	0.37 J	0.30 U	3.20	0.52 J	0.60 J	3.60	0.39 J	0.34 J
Nitrite Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Nitrate Nitrogen	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Ammonia Nitrogen	0.16 U	0.30 J	0.20 J	0.51 J	0.98 J	0.87 J	0.16 U	0.36 J	0.32 J
Ortho-Phosphate as P	0.037	0.0051 J	0.066	0.0124 J	0.0061 J	0.067	0.039	0.026	0.097
Biochemical Oxygen Demand (BOD)	NA	NA	2.7 U	NA	NA	2.5 U	NA	NA	2.1 U
Total Organic Carbon (non-purgable)	NA	NA	2.1	NA	NA	5.7	NA	NA	4.7
Total Phosphorous as PO4	0.65	0.13 U	0.13 U	2.84	0.13 J	0.18	6.8	0.18	0.22
Chemical Oxygen Demand (COD)	NA	NA	5.4 J	NA	NA	11.6	NA	NA	11.2
Total Microbial Population (mean)	3.50E+06	7.00E+04	1.80E+02	1.25E+05	2.60E+03	2.20E+02	9.10E+04	4.10E+03	2.60E+02
Degrader Microbial Population (mean)	3.00E+03	7.80E+03	1.00E+02	7.00E+03	2.10E+03	2.00E+02	3.00E+03	2.30E+03	1.40E+02

Table 6 (continued)

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

Parameter (mg/L)	Sample Identification								
	TG3-1			TG3-2			TG3-3		
	April	May	June	April	May	June	April	May	June
Kjeldahl Nitrogen	3.20	2.80	2.70	5.30	1.60	1.60	6.10	1.70	1.60
Nitrite Nitrogen	0.078	0.015 U	0.015 U	0.068	0.015 U	0.015 U	0.070	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	1.9	3.3	2.0	1.1	1.2	1.3	1.3	1.3	1.4
Ortho-Phosphate as P	0.0172 J	0.156	0.0028 U	0.026	0.157	0.0028 U	0.0153 J	0.179	0.0028 U
Biochemical Oxygen Demand (BOD)	NA	NA	3.8 U	NA	NA	5.4	NA	NA	6.6
Total Organic Carbon (non-purgable)	NA	NA	20.1	NA	NA	11.1	NA	NA	9.5
Total Phosphorous as PO4	3.53	0.67	0.7	5.58	0.32	0.32	5.21	0.3	0.32
Chemical Oxygen Demand (COD)	NA	NA	49.8	NA	NA	25.1	NA	NA	24.7
Total Microbial Population (mean)	1.53E+05	6.30E+02	7.50E+02	2.04E+05	3.70E+03	1.30E+03	2.70E+05	1.40E+03	1.20E+03
Degrader Microbial Population (mean)	5.00E+03	4.90E+02	2.10E+02	2.00E+03	1.37E+03	4.50E+02	5.00E+03	7.80E+02	2.50E+02
	TG4-1			TG4-2			TG4-3		
	April	May	June	April	May	June	April	May	June
Kjeldahl Nitrogen	2.60	1.20	0.84 J	1.30	1.30	1.20	2.50	1.40	1.30
Nitrite Nitrogen	0.072	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.190	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	1.10	0.60 J	0.73 J	0.75 J	0.95 J	1.0	1.2	1.1	1.2
Ortho-Phosphate as P	0.032	0.072	0.0044 J	0.0081 J	0.044	0.0028 U	0.044	0.057	0.0028 U
Biochemical Oxygen Demand (BOD)	NA	NA	3.1 U	NA	NA	3.2 U	NA	NA	3.3 U
Total Organic Carbon (non-purgable)	NA	NA	5.9	NA	NA	7.3	NA	NA	6.7
Total Phosphorous as PO4	5.40	0.35	0.45	0.59	0.13 U	0.15 J	4.61	0.27	0.21
Chemical Oxygen Demand (COD)	NA	NA	17.8	NA	NA	20.2	NA	NA	16.3
Total Microbial Population (mean)	4.80E+04	8.00E+04	3.20E+03	1.47E+05	4.60E+03	1.30E+03	3.60E+04	3.00E+04	1.70E+04
Degrader Microbial Population (mean)	2.00E+04	5.80E+04	1.90E+02	1.20E+04	2.80E+03	3.70E+02	1.30E+04	4.60E+03	4.30E+03

Table 6 (continued)

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

Parameter (mg/L)	Sample Identification								
	TG5-1			TG5-2			TG5-3		
	April	May	June	April	May	June	April	May	June
Kjeldahl Nitrogen	6.60	0.77 J	0.70 J	5.10	0.83 J	0.75 J	1.10	0.55 J	0.73 J
Nitrite Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.018 J	0.015 U	0.015 U
Nitrate Nitrogen	0.081 J	0.040 U	0.040 U	0.044 J	0.040 U	0.040 U	0.380	0.040 U	0.040 U
Ammonia Nitrogen	0.60 J	0.51 J	0.50 J	0.47 J	0.51 J	0.44 J	0.16 U	0.21 J	0.26 J
Ortho-Phosphate as P	0.0181 J	0.077	0.0028 U	0.02	0.03	0.0028 U	0.067	0.041	0.0028 U
Biochemical Oxygen Demand (BOD)	NA	NA	2.5 U	NA	NA	2.9 U	NA	NA	3.1 U
Total Organic Carbon (non-purgable)	NA	NA	4.3	NA	NA	6	NA	NA	4.5
Total Phosphorous as PO4	4.16	0.27	0.22	5.41	0.15 J	0.13 U	5.14	0.13 U	0.16 J
Chemical Oxygen Demand (COD)	NA	NA	9.3	NA	NA	15.1	NA	NA	11.6
Total Microbial Population (mean)	4.30E+05	1.70E+03	1.40E+05	4.80E+04	4.80E+03	1.90E+04	8.10E+04	4.80E+03	1.00E+03
Degrader Microbial Population (mean)	6.00E+04	4.20E+02	3.20E+04	1.20E+04	2.90E+03	3.90E+03	7.00E+03	1.10E+02	1.40E+02
	TG6-1			TG6-2			TG6-3		
	April	May	June	April	May	June	April	May	June
Kjeldahl Nitrogen	4.80	1.10	0.99 J	6.30	0.71 J	0.74 J	2.00	1.00	1.10
Nitrite Nitrogen	0.027 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	0.220	0.040 U	0.040 U	0.250	0.040 U	0.040 U	0.170	0.040 U	0.040 U
Ammonia Nitrogen	1.00	0.81 J	0.93 J	0.38 J	0.45 J	0.35 J	0.89 J	0.72 J	0.93 J
Ortho-Phosphate as P	0.046	0.16	0.069	0.04	0.207	0.0044 J	0.0148 J	0.238	0.0028 U
Biochemical Oxygen Demand (BOD)	NA	NA	2.9 U	NA	NA	2.3 U	NA	NA	2.4 U
Total Organic Carbon (non-purgable)	NA	NA	4.9	NA	NA	6.0	NA	NA	6.0
Total Phosphorous as PO4	5.86	0.25	0.34	8.12	0.13 U	0.13 U	4.47	0.23	0.28
Chemical Oxygen Demand (COD)	NA	NA	12.9	NA	NA	15.3	NA	NA	16.1
Total Microbial Population (mean)	2.70E+04	1.20E+05	7.20E+03	2.40E+04	3.00E+05	1.60E+03	9.20E+05	1.50E+05	7.10E+04
Degrader Microbial Population (mean)	1.50E+04	3.70E+04	2.80E+02	1.20E+04	1.10E+05	4.70E+02	1.20E+04	7.80E+03	7.10E+02

U - Compound not detected above detection limit.
J - Estimated value.
NA - Not analyzed.
NS - Well not measured due to freezing conditions.
--- - No data due to bottle breakage.

Figure 2
Treatment Performance Monitoring Wells
Second Quarter 2001
Moss-American Site
Milwaukee, Wisconsin

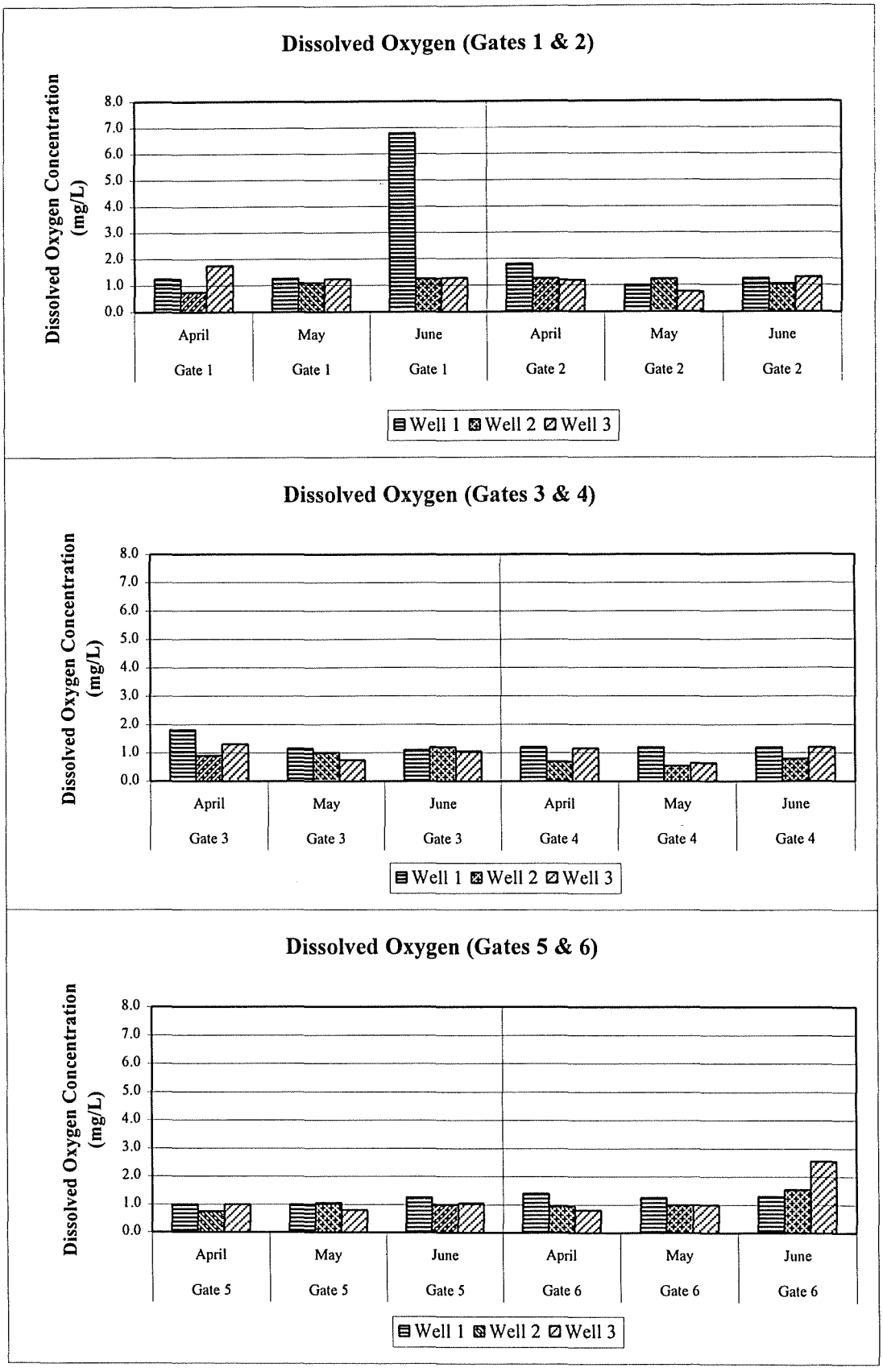


Figure 3

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

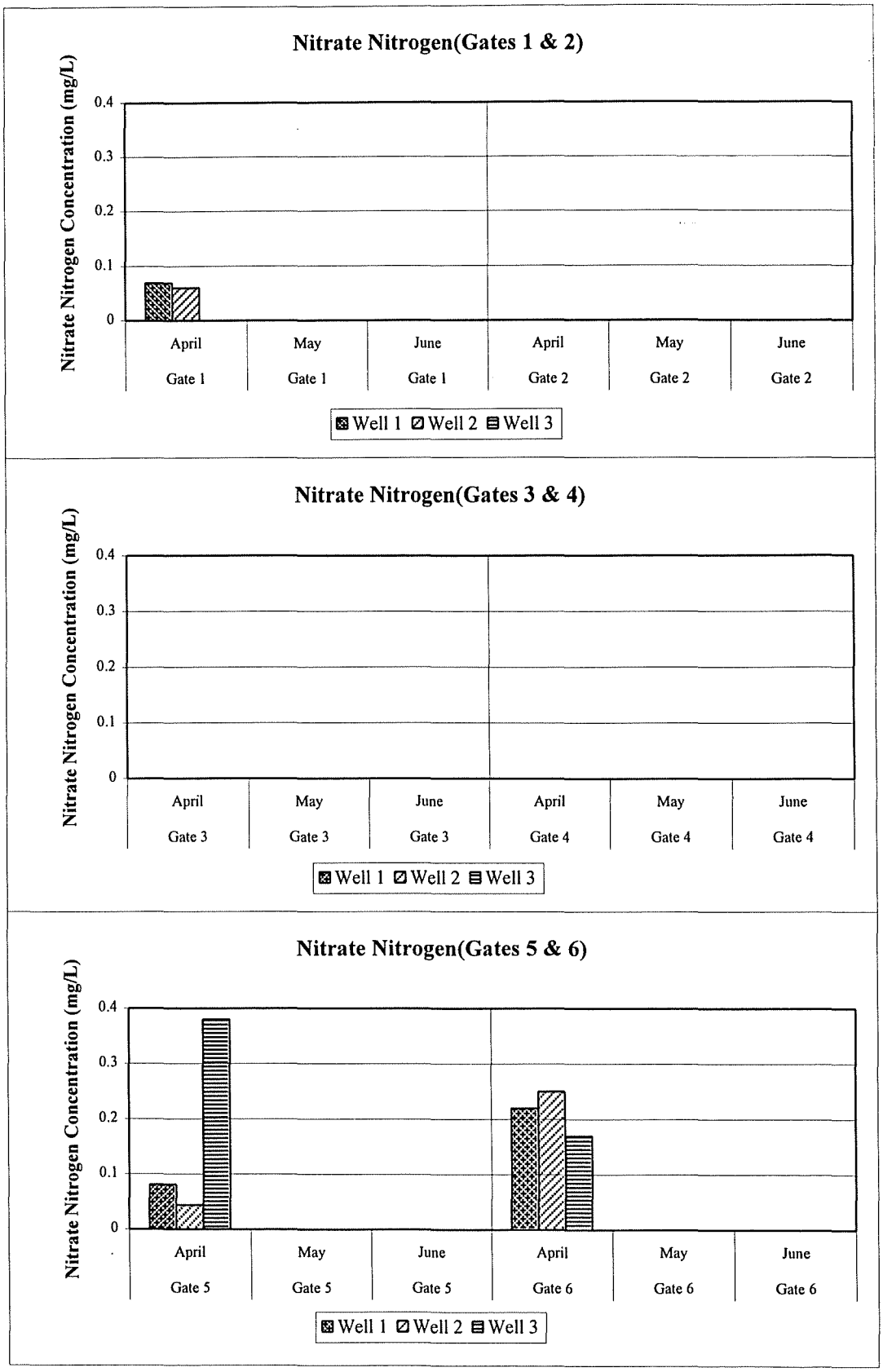
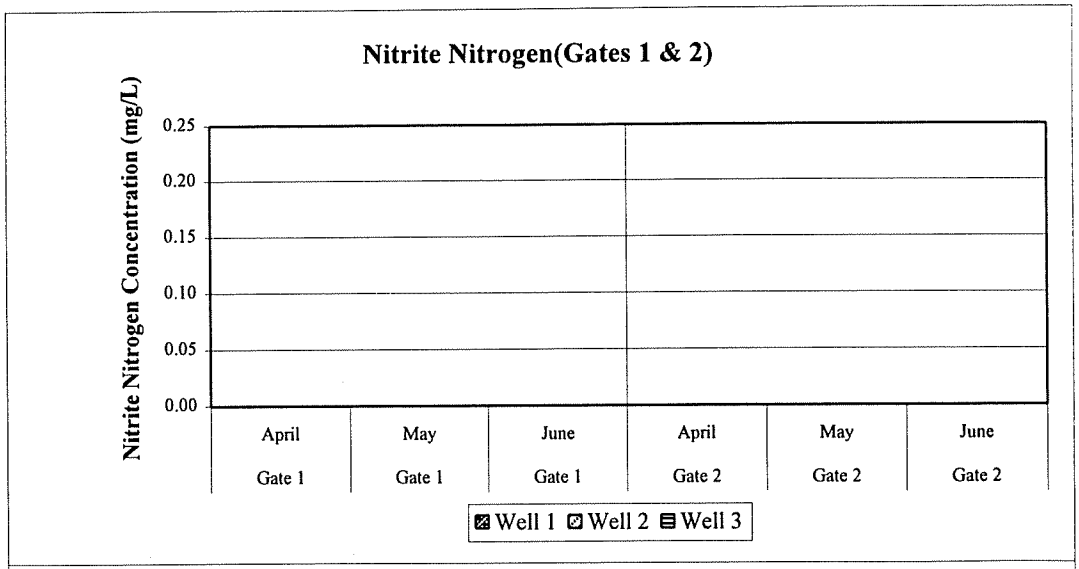
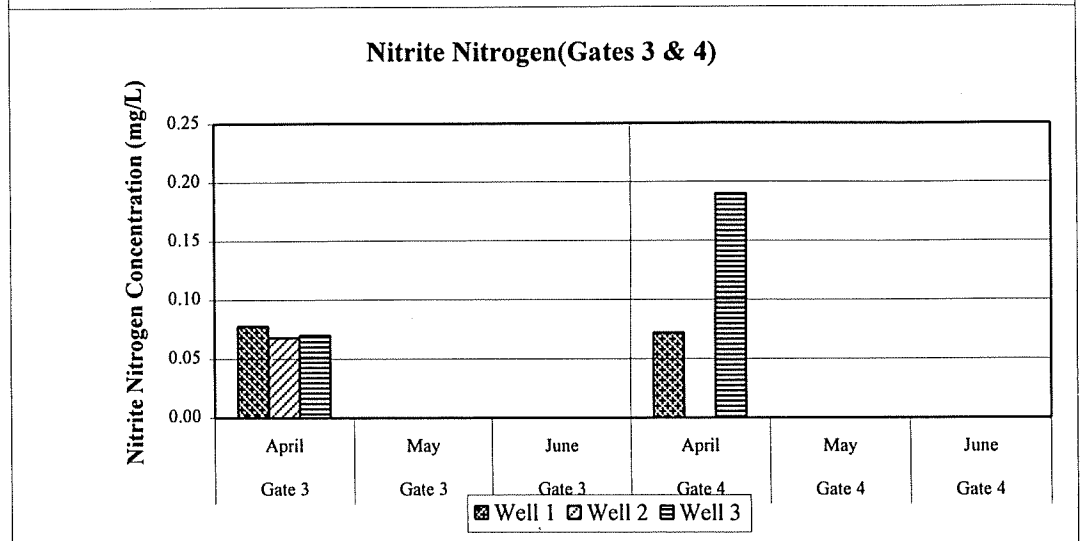


Figure 4

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





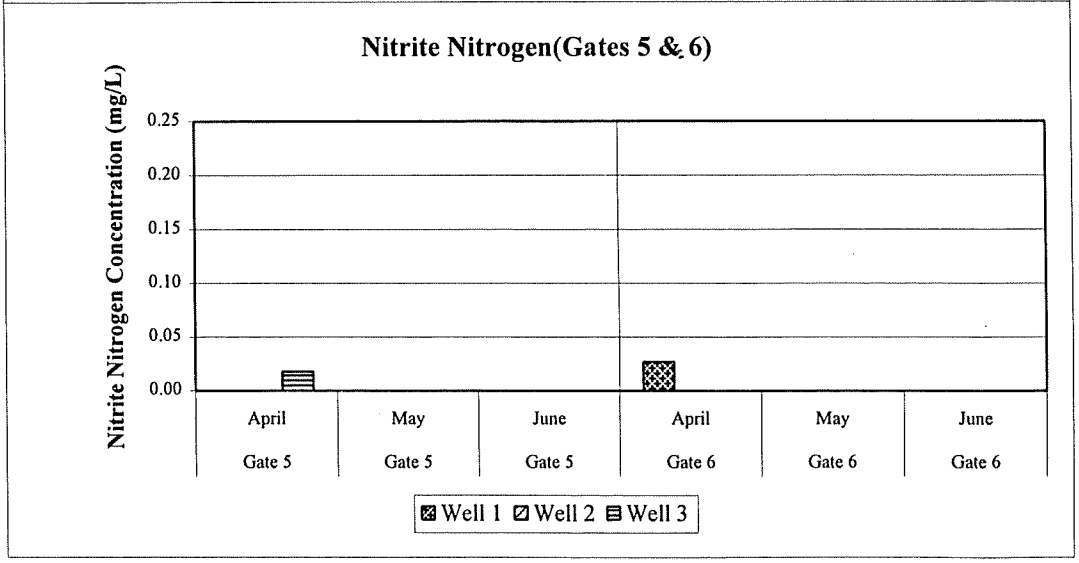


Figure 5
Treatment Performance Monitoring Wells
Second Quarter 2001
Moss-American Site
Milwaukee, Wisconsin

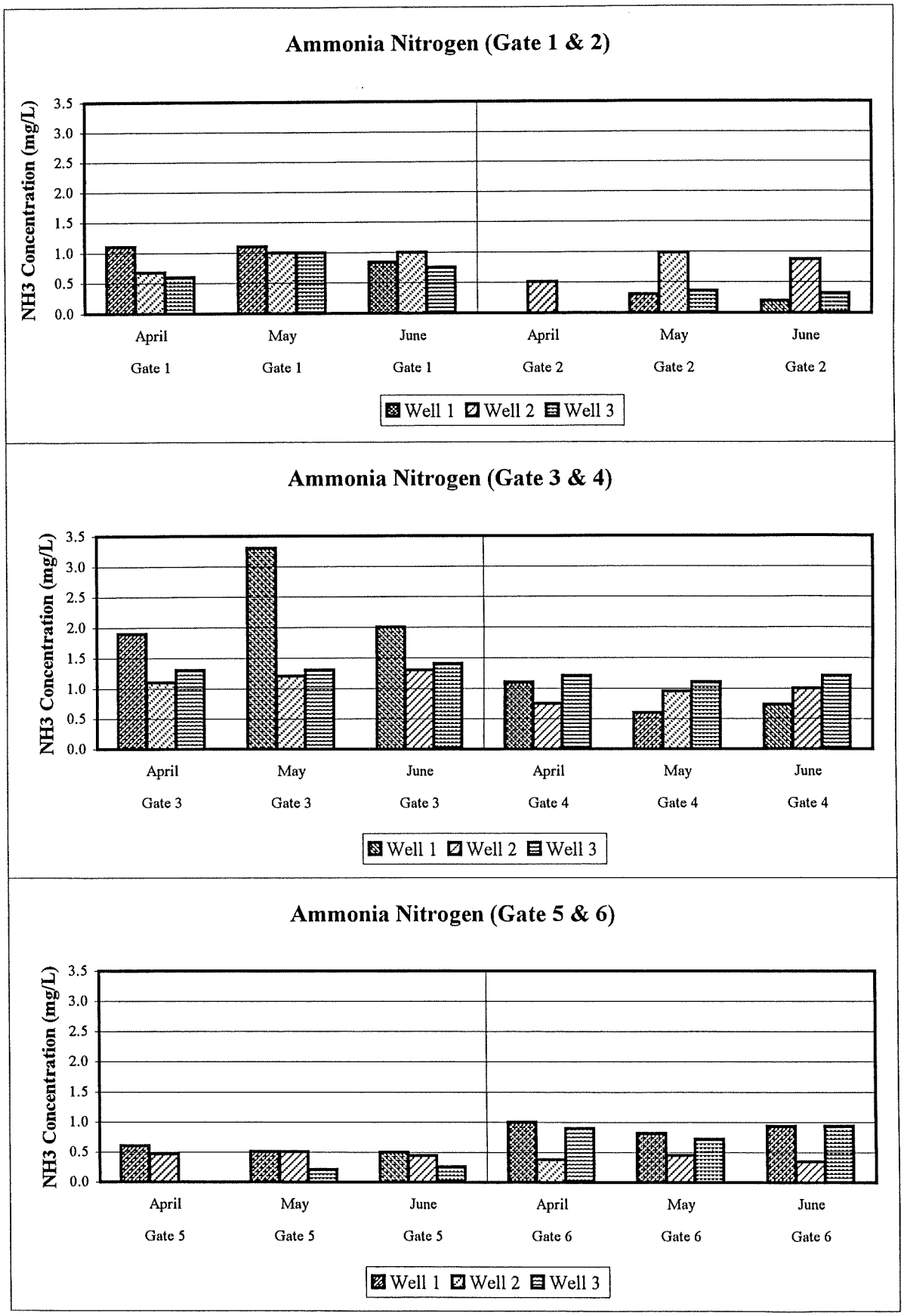


Figure 6

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

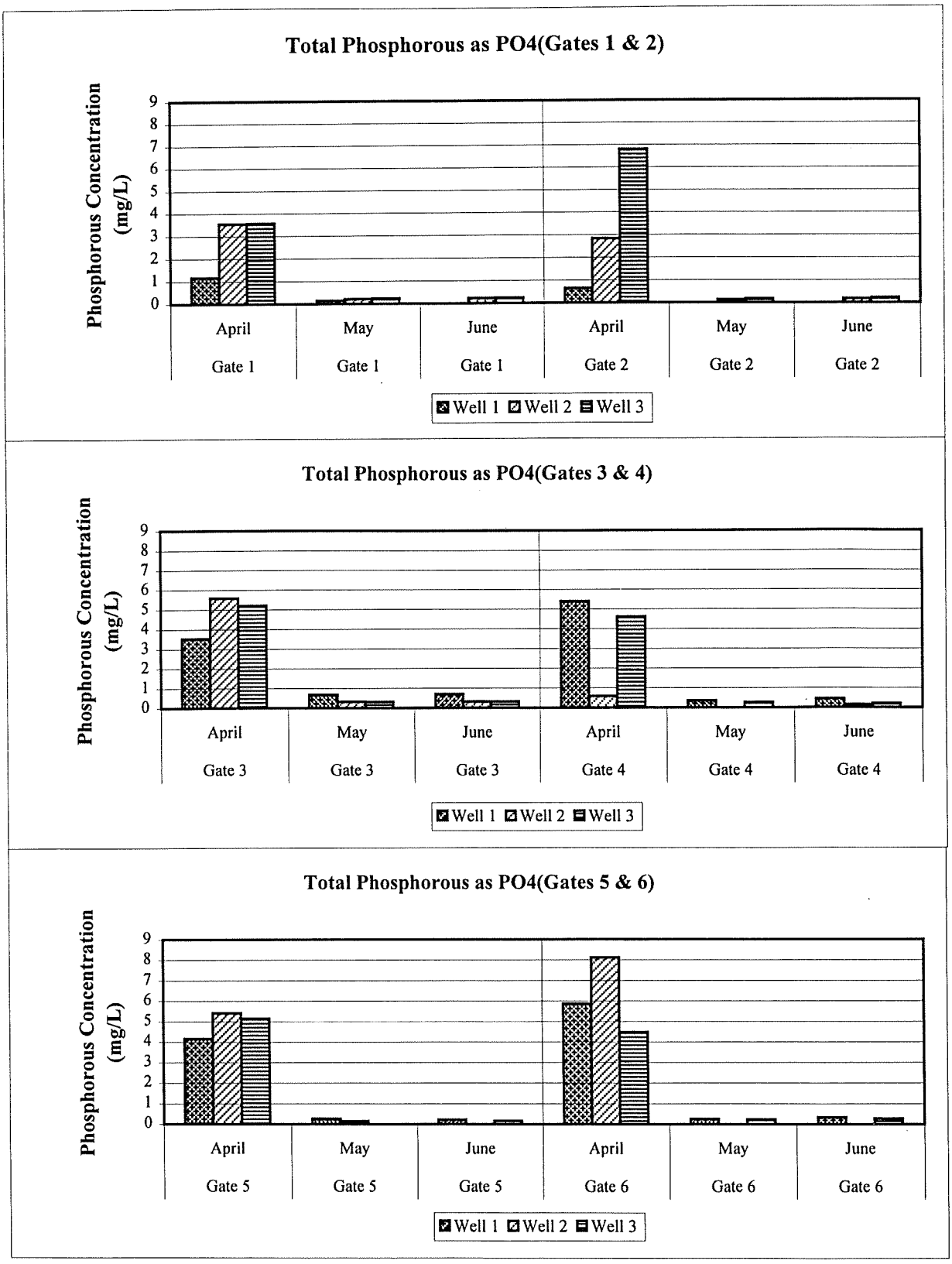


Figure 7

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

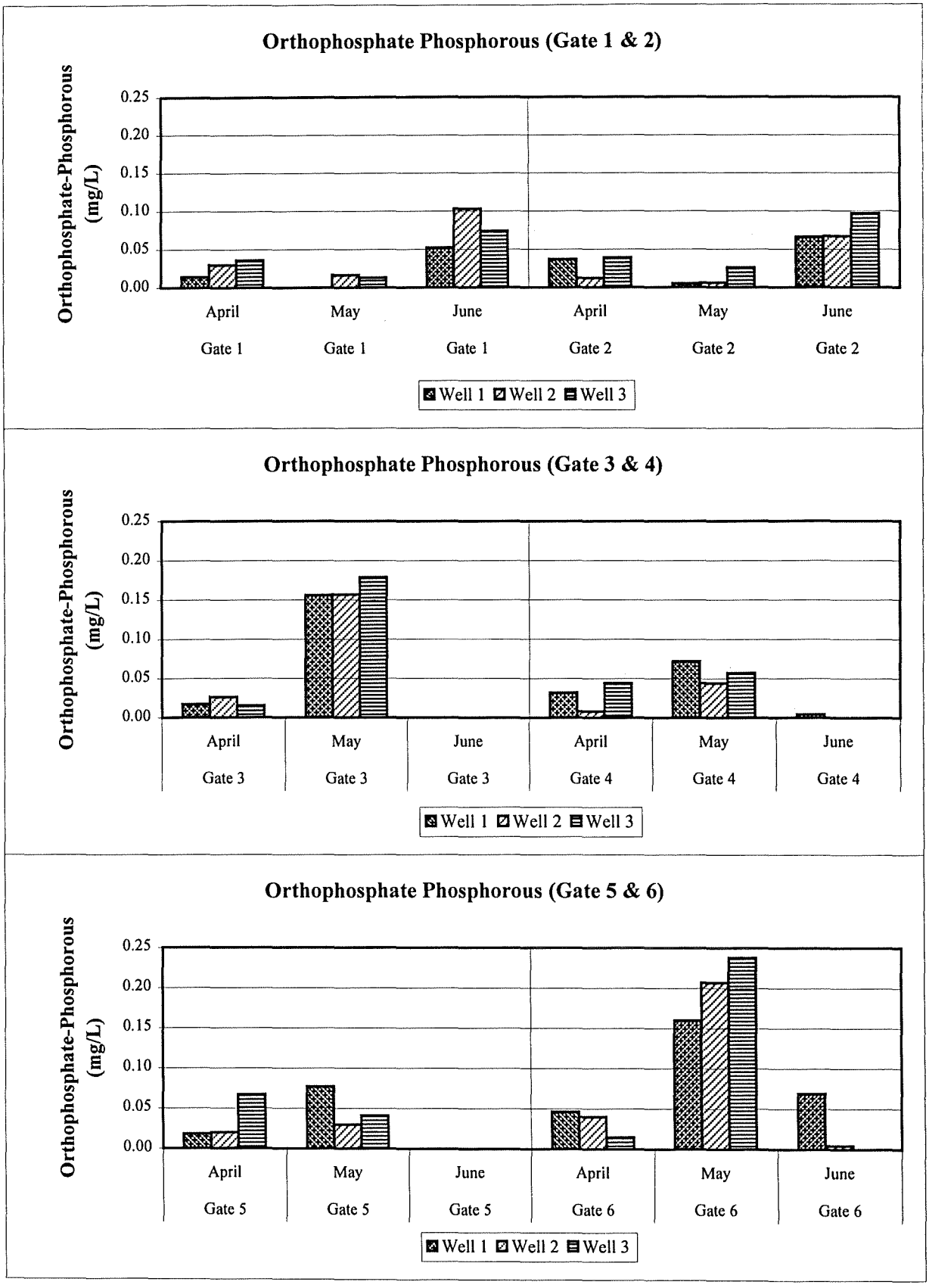


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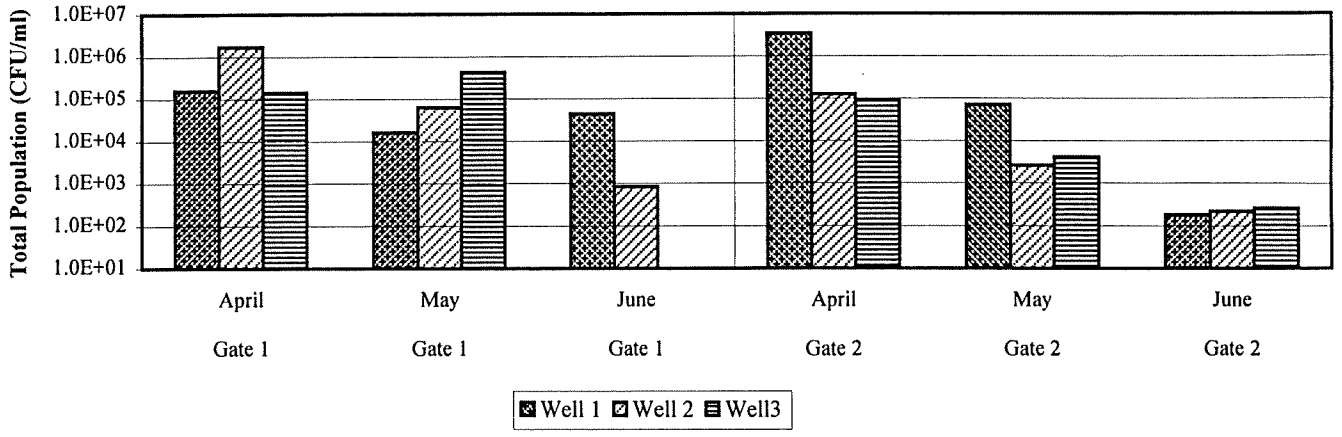
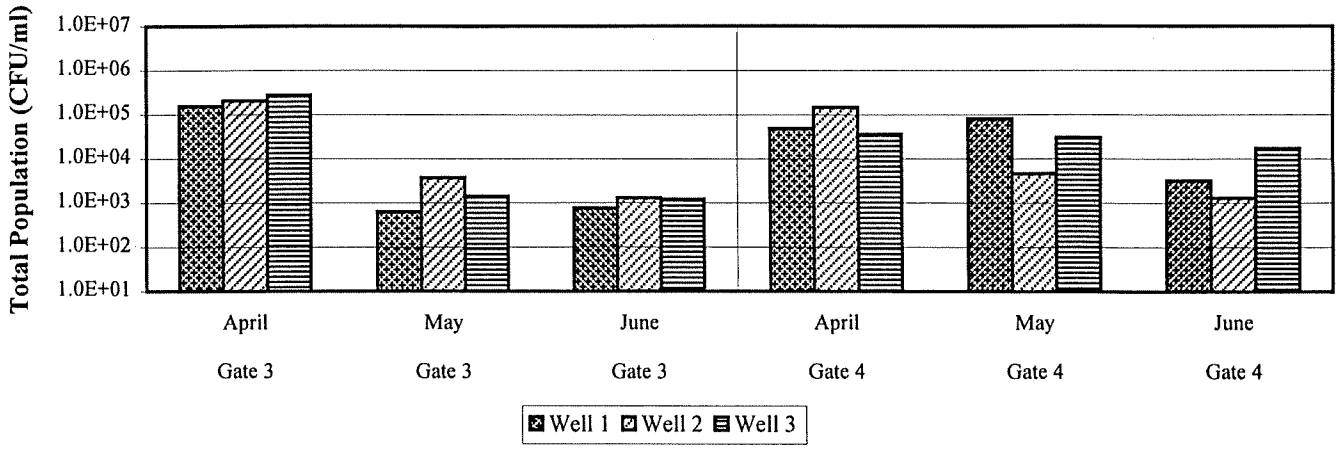
Figure 8

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





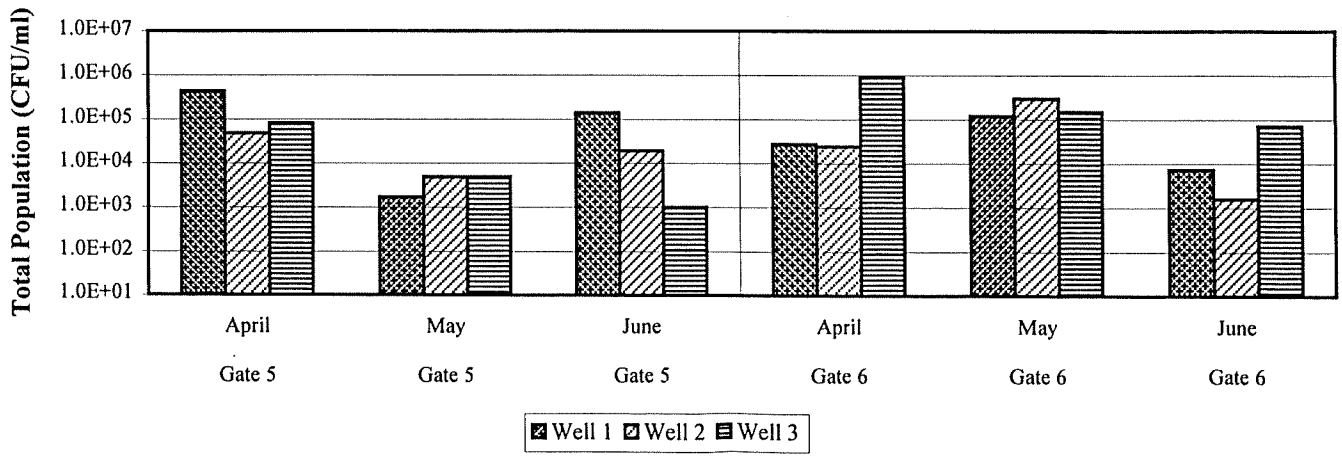
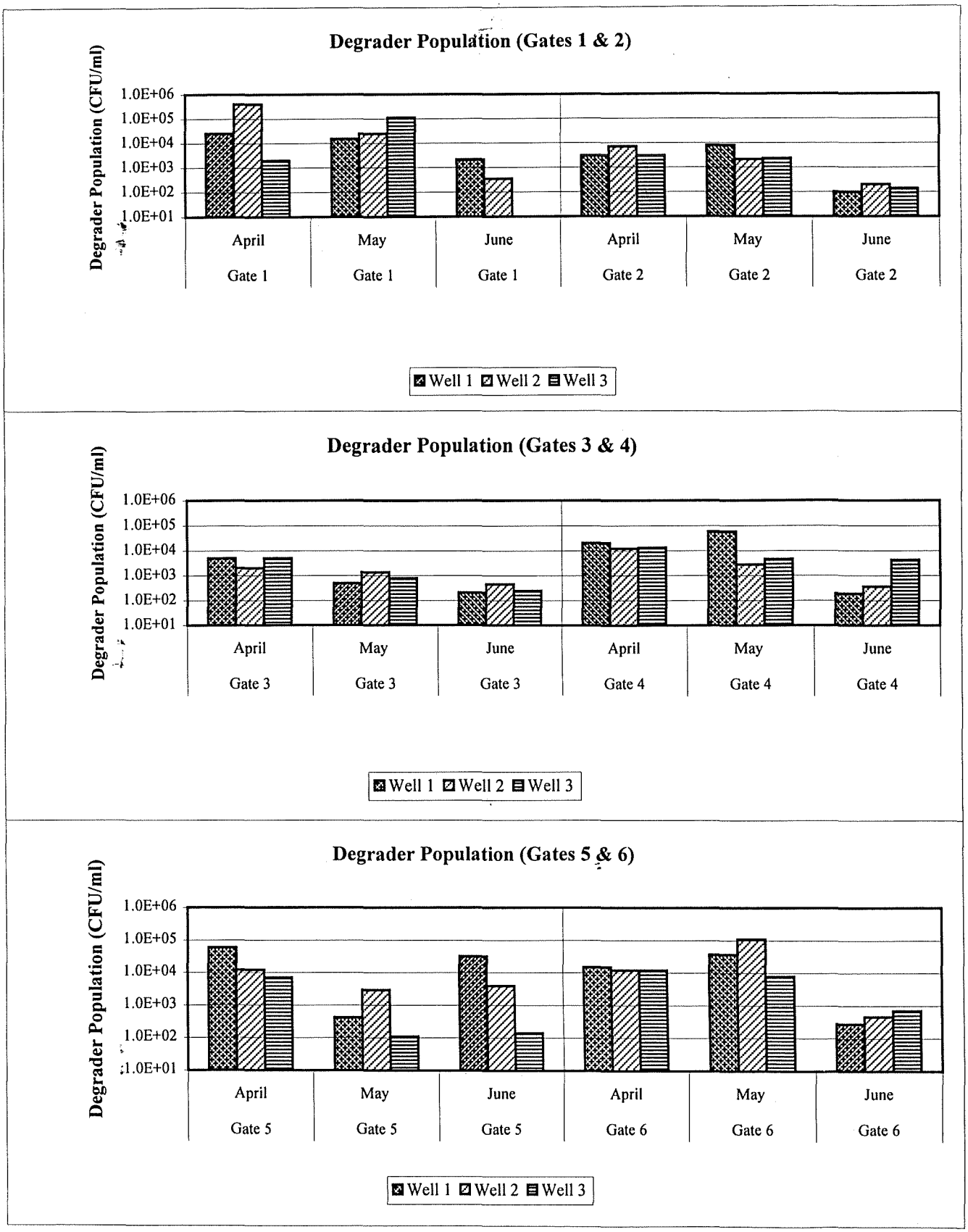


Figure 9

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



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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, Wisonsin
Second Quarter 2001

Well Number	Date	Temperature (C)	pH	Specific Conductance (microohms/cm)	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (Ntu)
TG1-1	April-01	7.7	7.20	1.110	--	1.25	NM
	May-01	11.7	7.40	0.454	-046	1.26	NM
	June-01	17.0	7.39	0.897	-065	6.80	16.90
TG1-2	April-01	8.0	7.14	1.110	-002	0.75	NM
	May-01	12.1	7.29	0.480	-001	1.10	NM
	June-01	15.2	7.29	0.989	-058	1.25	26.8
TG1-3	April-01	7.5	7.29	1.090	-001	1.75	NM
	May-01	12.1	7.69	0.45	71	1.23	NM
	June-01	14.9	7.31	0.920	-055	1.27	20.50
TG2-1	April-01	7.7	7.20	0.780	-001	1.80	NM
	May-01	10.8	7.19	0.036	-037	1.00	NM
	June-01	16.2	7.40	0.640	-034	1.25	1.97
TG2-2	April-01	7.3	7.20	0.760	-001	1.25	NM
	May-01	11.1	7.21	0.037	-053	1.23	NM
	June-01	14.3	7.45	0.632	-037	1.05	37.30
TG2-3	April-01	7.2	7.52	1.130	--	1.18	NM
	May-01	12.0	7.07	0.038	-104	0.75	NM
	June-01	15.5	7.39	0.883	-048	1.30	2.58
TG3-1	April-01	8.7	6.80	1.570	-002	1.80	NM
	May-01	11.0	6.88	0.729	-060	1.15	NM
	June-01	15.4	6.68	1.220	-064	1.10	52.30
TG3-2	April-01	9.0	6.98	1.17	-002	0.90	NM
	May-01	11.9	7.07	0.84	-52	1.01	NM
	June-01	15.9	6.96	1.010	-094	1.20	35.60
TG3-3	April-01	8.9	7.10	1.34	-003	1.30	NM
	May-01	11.9	7.03	0.90	-23	0.74	NM
	June-01	15.0	6.90	1.050	-021	1.05	130.00
TG4-1	April-01	8.1	7.44	0.78	-003	1.20	NM
	May-01	11.1	7.42	0.53	-63	1.20	NM
	June-01	15.6	7.3	0.6	-040	1.2	1.80
TG4-2	April-01	8.2	7.54	0.810	-003	0.70	NM
	May-01	11.1	7.35	0.513	-033	0.55	NM
	June-01	16.2	7.25	0.635	-038	0.80	2.08
TG4-3	April-01	9.2	7.44	0.770	-002	1.15	NM
	May-01	11.1	7.35	0.481	-021	0.65	NM
	June-01	15.3	7.26	0.691	-014	1.2	1.38
TG5-1	April-01	8.7	7.12	0.890	-002	1.00	NM
	May-01	10.8	7.21	0.612	-016	1.00	NM
	June-01	15.4	7.33	0.630	-025	1.25	1.51
TG5-2	April-01	8.5	7.26	0.950	-002	0.75	NM
	May-01	11.5	7.33	0.638	-006	1.05	NM
	June-01	15.3	7.33	0.727	-018	1.0	3.1
TG5-3	April-01	9.7	7.45	0.840	--	1.00	NM
	May-01	12.2	7.69	0.601	-004	0.80	NM
	June-01	15.2	7.22	0.724	-009	1.05	12.1
TG6-1	April-01	8.0	7.52	1.130	-004	1.40	NM
	May-01	11.7	8.02	0.638	-141	1.25	NM
	June-01	15.5	7.30	0.770	-053	1.30	22.90
TG6-2	April-01	10.1	7.02	1.260	-003	0.95	NM
	May-01	10.6	7.04	0.846	-050	1.00	NM
	June-01	15.0	7.20	0.960	-061	1.55	1.22
TG6-3	April-01	9.8	6.80	1.270	-004	0.80	NM
	May-01	11.2	6.89	0.947	+004	1.00	NM
	June-01	15.2	7.11	1.100	-043	2.55	49.90

-- - Data not available.
NM- Not measured. Value only measured quarterly.

ATTACHMENT 2

APRIL 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

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

CERTIFICATE OF ANALYSIS

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

Permit Number

Date Reported: 5/24/01
P.O. Number:
Sample ID: 9928-00333
Date Received: 4/27/01
Time Received: 08:40

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG3-2-260401-02, 4/26/01 @ 10:15 by BS				
Total Aerobic Bacteria	204,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	2,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-3-260401-03, 4/26/01 @ 10:25 by BS				
Total Aerobic Bacteria	270,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	5,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-1-260401-04, 4/26/01 @ 11:30 by BS				
Total Aerobic Bacteria	48,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	20,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-2-260401-05, 4/26/01 @ 11:40 by BS				
Total Aerobic Bacteria	147,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	12,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-3-260401-06, 4/26/01 @ 11:50 by BS				
Total Aerobic Bacteria	36,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	13,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-1-260402-07, 4/26/01 @ 14:30 by BS				
Total Aerobic Bacteria	430,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	60,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-2-260402-08, 4/26/01 @ 14:40 by BS				
Total Aerobic Bacteria	48,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	12,000. cfu/ml	4/30/01	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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INDIANA CERTIFICATION NUMBERS: M-45-6 C-45-02

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CERTIFICATE OF ANALYSIS

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

Date Reported: 5/24/01
P.O. Number:
Sample ID: 9928-00333
Date Received: 4/27/01
Time Received: 08:40

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG5-3-260401-09, 4/26/01 @ 14:50 by BS				
Total Aerobic Bacteria	81,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	7,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-1-260401-10, 4/26/01 @ 15:15 by BS				
Total Aerobic Bacteria	27,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	15,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-2-260401-11, 4/26/01 @ 15:25 by BS				
Total Aerobic Bacteria	24,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	12,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-3-260401-12, 4/26/01 @ 15:35 by BS				
Total Aerobic Bacteria	920,000. cfu/ml	4/30/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	11,000. cfu/ml	4/30/01	DJH	9215B MODIFIED

Submitted with Quality by _____

1428-232

Contact person Tom Graan Sampler Brennan Schaefer

Project name Moss American Project #

Project location Milwaukee, WI
(City) (state)

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

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

Requested analyses (✓)

Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	CEA* (soil/gw) See note ☒ Aerobic, ☐ Anaerobic, ☐ Microaerophillic	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve and hydrometer, ☐ sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	Bacteria / fungi, cat Pcam.
MA3-TG1-1-250101-03		4/25/01	1525		X	—	1				✓						X
MA3-TG1-2-250401-02		4/25/01	1515		X	—	1				✓						X
MA3-TG1-3-250401-01		4/25/01	~~1535~~ 1505		X	—	1				✓						X
MA3-TG2-1-250401-06		4/25/01	1620		X	—	1				✓						X
MA3-TG2-2-250401-05		4/25/01	1610		X	—	1				✓						X
MA3-TG23-250101-04		4/25/01	1600		X	—	1				✓						X
MA3-TG3-1-260101-01		4/26/01	1005		X	—	1				✓						X
MA3-TG3-2-260401-02		4/26/01	1015		X	—	1				✓						X

Relinquished by: Brennan Schaefer

Date/time: 4/26/01 1730

Received by:

Date/time: 4/27/01

Comments: CEA Aerobic per Tom Graan to KA 4/27/01

Sample condition upon arrival: KA

On ice? ☐ Yes, ☐ No

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

Send results to:

Name Tom Graan
Company Roy F. 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

1 of 3

4928-333

Contact person Tom Graan Sampler Brennan Schaefer
Project name Moss American Project # _____
Project location Milwaukee, WI
(City) (state)

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

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

Requested analyses (✓)

Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	CEA* (soil/gw) see note ☒ Aerobic, ☐ Anaerobic, ☐ Microaerophillic	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	Bacteria / Biodegradation Rate
MA3-TG3-3-26-01-03		4/26/01	1025		X	—	1				✓						X
MA3-TG4-1-26-01-04		4/26/01	1130		X	—	1				✓						X
MA3-TG4-2-26-01-05		4/26/01	1140		X	—	1				✓						X
MA3-TG4-3-26-01-06		4/26/01	1150		X	—	1				✓						X
MA3-TG5-1-26-01-07		4/26/01	1430		X	—	1				✓						X
MA3-TG5-2-26-01-08		4/26/01	1440		X	—	1				✓						X
MA3-TG5-3-26-01-09		4/26/01	1450		X	—	1				✓						X
MA3-TG6-1-26-01-10		4/26/01	1515		X	—	1				✓						X

Relinquished by: Brennan Schaefer Date/time: 4/26/01 1730
Received by: _____ Date/time: 4/27/01

Comments: CEA Aerobic per Tom Graan 4/27/01 to VA

Sample condition upon arrival: VA

On ice? ☐ Yes, ☐ No

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

Send results to:
Name Tom Graan
Company Roy F. 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

4123-232

Contact person Tom Groan Sampler Vernon Ricketts

Project name Moss American Project # _____

Project location Milwaukee, WI
(City) (state)

Site contaminant * Creosote, coal tar pitches, BTEX
(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

Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	Requested analyses (✓): CEA* (soil/gw) see note ☒ Aerobic, ☐ Anaerobic, ☐ Microaerophillic	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve and hydrometer, ☐ sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	Bacteria/Biosurf. Param.				
1 MW3-TG6-2-26-4-01-11		4/26/01	1525		X	—	1				✓						X				
3 MW3-TG6-3-26-4-01-12		4/26/01	1535		X	—	1				✓						X				

Relinquished by: Brian Schuster Date/time: 4/26/01 1730

Received by: Date/time: 4/27/01

Comments: CEA Aerobic for Tom Groan to be 4/27/01

Sample condition upon arrival:

On ice? ☐ Yes, ☐ No

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

Send results to:

Name Tom Groan
Company Roy Filtston
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

Hammomd Division - Microbac Laboratories
Bio-Analytical Summary Report

Job Code: **9928-333**

Site Information

Site Name	Moss America	Date received	27-Apr-01
Location	Milwaukee WI	Date of this report	23-May-01
Consultant	Roy F Weston	Microbacl Job Code	**9928-333**
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	PAH, BTEX	Number of gw samples	18

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.

	Soil microbial populations: Exceeds norm for:			% TON /			% moisture /	% Air-filled
Sample ID	**Passive**	**Active**	**pH**	**% OM**	**C:N**	**C:P**	**SWHC**	**pore space**
	>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
tg1-1-250401-3	Summary table not applicable for groundwater.							
tg1-2-250401-2	Summary table not applicable for groundwater.							
tg1-3-25-401-1	Summary table not applicable for groundwater.							
tg2-1-250401-6	Summary table not applicable for groundwater.							
tg2-2-250401-5	Summary table not applicable for groundwater.							
tg2-3-250401-4	Summary table not applicable for groundwater.							
tg3-1-260401-1	Summary table not applicable for groundwater.							
tg3-2-260401-2	Summary table not applicable for groundwater.							

The nutrient/physical parameters summarized abovefor 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. **BioRenewal 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.

Hammomd Division - Microbac Laboratories
Bio-Analytical Summary Report

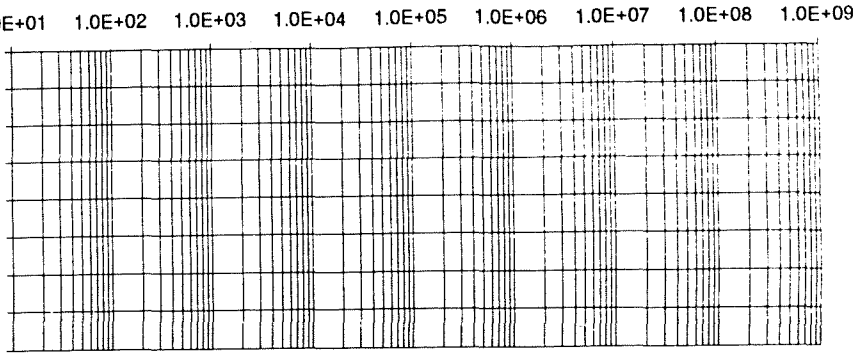
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples
Total populations

Low and high indicate 95% confidence range

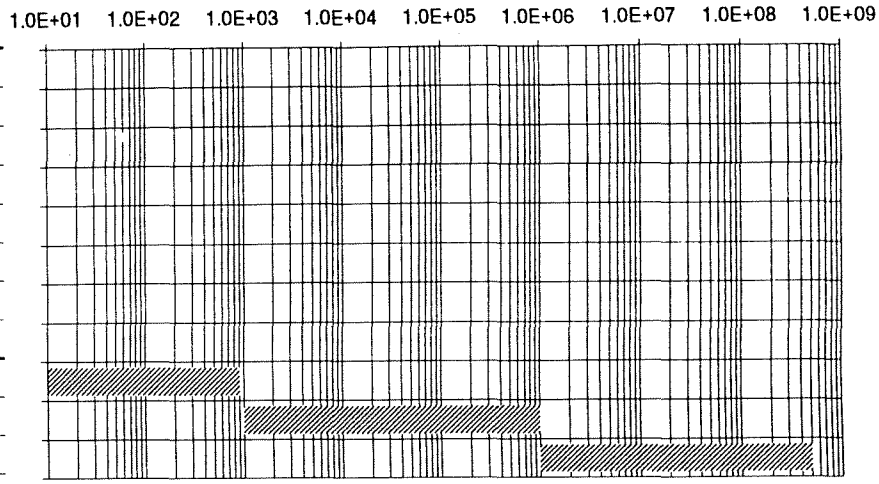
Sample ID	Mean	Low	High
tg1-1-250401-3	1.6E+05	0.0E+00	0.0E+00
tg1-2-250401-2	1.7E+06	0.0E+00	0.0E+00
tg1-3-25-401-1	1.4E+05	0.0E+00	0.0E+00
tg2-1-250401-6	3.5E+06	0.0E+00	0.0E+00
tg2-2-250401-5	1.3E+05	0.0E+00	0.0E+00
tg2-3-250401-4	9.1E+04	0.0E+00	0.0E+00
tg3-1-260401-1	1.5E+05	0.0E+00	0.0E+00
tg3-2-260401-2	2.0E+05	0.0E+00	0.0E+00



Groundwater Samples
Degrader populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
tg1-1-250401-3	2.5E+04	0.0E+00	0.0E+00
tg1-2-250401-2	4.0E+05	0.0E+00	0.0E+00
tg1-3-25-401-1	2.0E+03	0.0E+00	0.0E+00
tg2-1-250401-6	3.0E+03	0.0E+00	0.0E+00
tg2-2-250401-5	7.0E+03	0.0E+00	0.0E+00
tg2-3-250401-4	3.0E+03	0.0E+00	0.0E+00
tg3-1-260401-1	5.0E+03	0.0E+00	0.0E+00
tg3-2-260401-2	2.0E+03	0.0E+00	0.0E+00
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 desireable rates of transformation due to specific site conditions.

Assay conditions

	Degrader Media		Temp.	Growth	DOF **		Percent
Sample ID	Carbon source	% Carbon (v/v)	(Celcius)	Conditions	Total	Degrader	Degraders
tg1-1-250401-3	PAH, BTEX	1.0	22	aerobic	0	0	15.8%
tg1-2-250401-2	PAH, BTEX	1.0	22	aerobic	0	0	23.5%
tg1-3-25-401-1	PAH, BTEX	1.0	22	aerobic	0	0	1.4%
tg2-1-250401-6	PAH, BTEX	1.0	22	aerobic	0	0	0.1%
tg2-2-250401-5	PAH, BTEX	1.0	22	aerobic	0	0	5.6%
tg2-3-250401-4	PAH, BTEX	1.0	22	aerobic	0	0	3.3%
tg3-1-260401-1	PAH, BTEX	1.0	22	aerobic	0	0	3.3%
tg3-2-260401-2	PAH, BTEX	1.0	22	aerobic	0	0	1.0%

* 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.

Hammomd Division - Microbac Laboratories
Bio-Analytical Summary Report

Job Code: **9928-333**

Site Information

Site Name	Moss America	Date received	27-Apr-01
Location	Milwaukee WI	Date of this report	23-May-01
Consultant	Roy F Weston	Microbacl Job Code	**9928-333**
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	PAH, BTEX	Number of gw samples	18

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: Passive	Active	pH	% TON / % OM	C:N	C:P	% moisture / SWHC	% Air-filled pore space
	>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
tg3-3-260401-3	Summary table not applicable for groundwater.							
tg4-1-260401-4	Summary table not applicable for groundwater.							
tg4-2-260401-5	Summary table not applicable for groundwater.							
tg4-3-260401-6	Summary table not applicable for groundwater.							
tg5-1-260401-7	Summary table not applicable for groundwater.							
tg5-2-260401-8	Summary table not applicable for groundwater.							
tg5-3-260401-9	Summary table not applicable for groundwater.							
tg6-1-260401-10	Summary table not applicable for groundwater.							

The nutrient/physical parameters summarized abovefor 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. **BioRenewal 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.

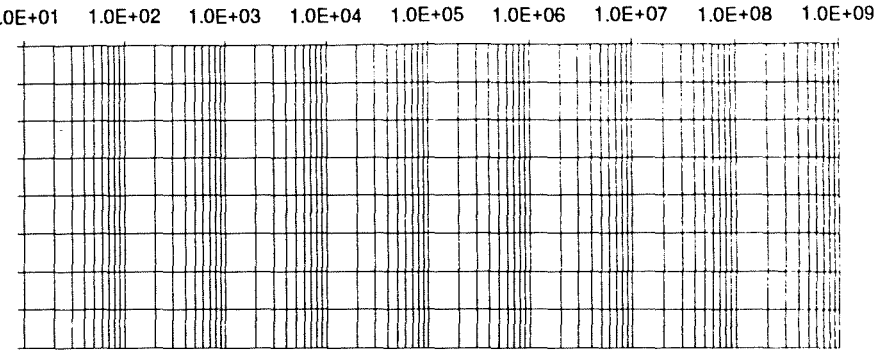
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples
Total populations

Low and high indicate 95% confidence range

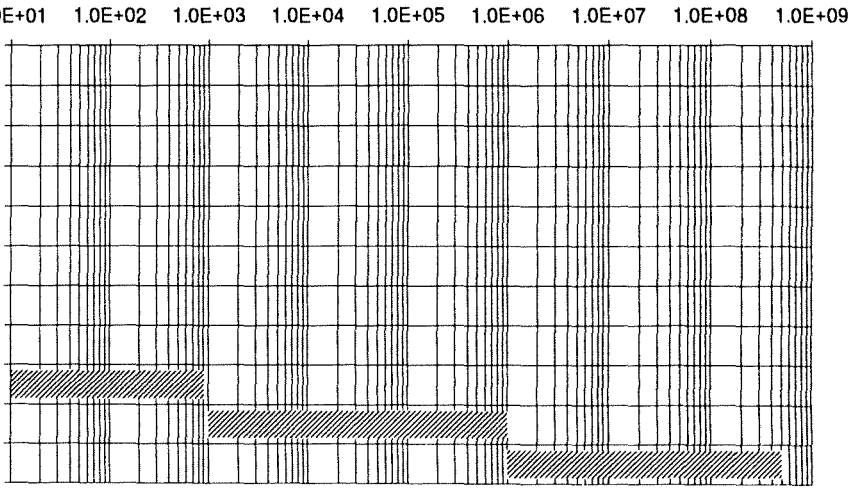
Sample ID	Mean	Low	High
tg3-3-260401-3	2.7E+05	0.0E+00	0.0E+00
tg4-1-260401-4	4.8E+04	0.0E+00	0.0E+00
tg4-2-260401-5	1.5E+05	0.0E+00	0.0E+00
tg4-3-260401-6	3.6E+04	0.0E+00	0.0E+00
tg5-1-260401-7	4.3E+05	0.0E+00	0.0E+00
tg5-2-260401-8	4.8E+04	0.0E+00	0.0E+00
tg5-3-260401-9	8.1E+04	0.0E+00	0.0E+00
tg6-1-260401-10	2.7E+04	0.0E+00	0.0E+00



Groundwater Samples
Degrader populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
tg3-3-260401-3	5.0E+03	0.0E+00	0.0E+00
tg4-1-260401-4	2.0E+04	0.0E+00	0.0E+00
tg4-2-260401-5	1.2E+04	0.0E+00	0.0E+00
tg4-3-260401-6	1.3E+04	0.0E+00	0.0E+00
tg5-1-260401-7	6.0E+04	0.0E+00	0.0E+00
tg5-2-260401-8	1.2E+04	0.0E+00	0.0E+00
tg5-3-260401-9	7.0E+03	0.0E+00	0.0E+00
tg6-1-260401-10	1.5E+04	0.0E+00	0.0E+00
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 desireable rates of transformation due to specific site conditions.

Assay conditions

Sample ID	Degrader Media		Temp.	Growth	DOF **		Percent
	Carbon source	% Carbon (v/v)	(Celcius)	Conditions	Total	Degrader	Degraders
tg3-3-260401-3	PAH, BTEX	1.0	22	aerobic	0	0	1.9%
tg4-1-260401-4	PAH, BTEX	1.0	22	aerobic	0	0	41.7%
tg4-2-260401-5	PAH, BTEX	1.0	22	aerobic	0	0	8.2%
tg4-3-260401-6	PAH, BTEX	1.0	22	aerobic	0	0	36.1%
tg5-1-260401-7	PAH, BTEX	1.0	22	aerobic	0	0	14.0%
tg5-2-260401-8	PAH, BTEX	1.0	22	aerobic	0	0	25.0%
tg5-3-260401-9	PAH, BTEX	1.0	22	aerobic	0	0	8.6%
tg6-1-260401-10	PAH, BTEX	1.0	22	aerobic	0	0	55.6%

* 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.

Hammomd Division - Microbac Laboratories
Bio-Analytical Summary Report

Job Code: **9928-333**

Site Information

Site Name	Moss America	Date received	27-Apr-01
Location	Milwaukee WI	Date of this report	23-May-01
Consultant	Roy F Weston	Microbacl Job Code	**9928-333**
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	PAH, BTEX	Number of gw samples	18

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.

	Soil microbial populations: Exceeds norm for:							
Sample ID	**Passive**	**Active**	**pH**	**% TON / % OM**	**C:N**	**C:P**	**% moisture / SWHC**	**% Air-filled pore space**
	>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
tg6-2-260401-11 Summary table not applicable for groundwater.								
tg6-3-260401-12 Summary table not applicable for groundwater.								

The nutrient/physical parameters summarized abovefor 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. **BioRenewal 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.

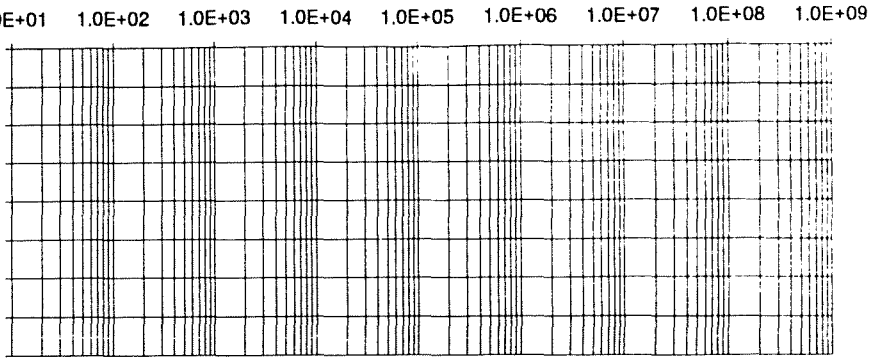
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples
Total populations

Low and high indicate 95% confidence range

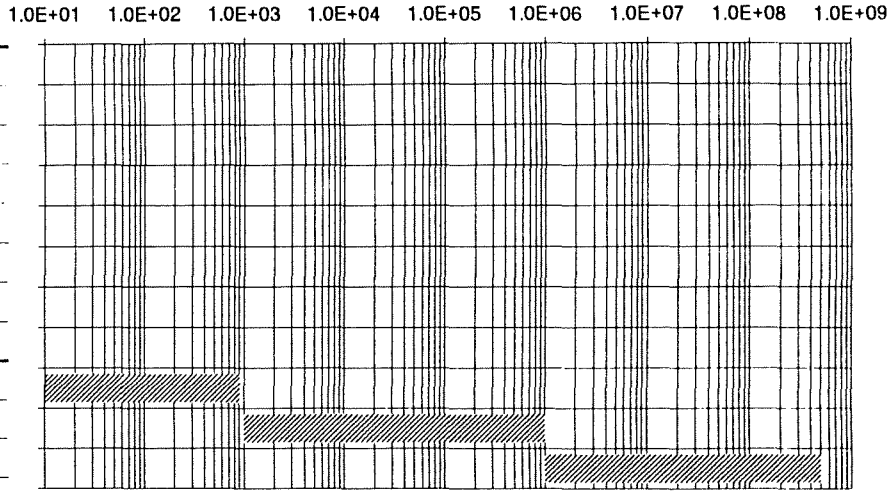
Sample ID	Mean	Low	High
tg6-2-260401-11	2.4E+04	0.0E+00	0.0E+00
tg6-3-260401-12	9.2E+05	0.0E+00	0.0E+00



Groundwater Samples
Degrader populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
tg6-2-260401-11	1.2E+04	0.0E+00	0.0E+00
tg6-3-260401-12	1.2E+04	0.0E+00	0.0E+00



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 desireable rates of transformation due to specific site conditions.

Assay conditions

Sample ID	Degrader Media		Temp.	Growth	DOF **		Percent
	Carbon source	% Carbon (v/v)	(Celcius)	Conditions	Total	Degrader	Degraders
tg6-2-260401-11	PAH, BTEX	1.0	22	aerobic	0	0	50.0%
tg6-3-260401-12	PAH, BTEX	1.0	22	aerobic	0	0	1.3%

* 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.

Lancaster Laboratories
Where quality is a science.

ANALYTICAL RESULTS

Prepared for:

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

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 760361. Samples arrived at the laboratory on Thursday, April 26, 2001.

Client Description	Lancaster Labs Number
MA3-TG1-1-250401-03 Grab Water Sample	3600079
MA3-TG1-2-250401-02 Grab Water Sample	3600080
MA3-TG1-3-250401-01 Grab Water Sample	3600081
MA3-TG2-1-250401-06 Grab Water Sample	3600082
MA3-TG2-2-250401-05 Grab Water Sample	3600083
MA3-TG2-3-250401-04 Grab Water Sample	3600084

METHODOLOGY

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

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

Lancaster Laboratories
Where quality is a science.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300.

Respectfully Submitted,

Kenneth A Bell
Kenneth A. Bell
Sr. Chemist/Coordinator

MEMBER ASTL
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.

Lancaster Laboratories Sample No. WW 3600079

Collected:04/25/2001 15:25 by BS

Account Number: 07802

Submitted: 04/26/2001 09:15
Reported: 05/17/01 at 02:24 PM
Discard: 6/17/01
MA3-TG1-1-250401-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

G1103 SDG#: MOA54-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	2.1	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.069 J	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.1	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0143 J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	1.18	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	2	05/15/2001 19:55	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/26/2001 19:56	Brad M. La Placa	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 10:48	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/02/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2001 22:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	04/28/2001 12:24	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	5	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/27/2001 16:35	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3600080

Collected:04/25/2001 15:15 by BS

Account Number: 07802

Submitted: 04/26/2001 09:15
Reported: 05/17/01 at 02:24 PM
Discard: 6/17/01
MA3-TG1-2-250401-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

G1202 SDG#: MOA54-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	3.1	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.060 J	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.68 J	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.030	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	3.54	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	2	05/15/2001 19:57	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/26/2001 19:57	Brad M. La Placa	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 10:50	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/02/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2001 22:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	04/28/2001 12:27	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	5	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/27/2001 16:35	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3600081

Collected:04/25/2001 15:05 by BS

Submitted: 04/26/2001 09:15
Reported: 05/17/01 at 02:24 PM
Discard: 6/17/01
MA3-TG1-3-250401-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

Account Number: 07802

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

G1301 SDG#: MOA54-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
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	0.60 J	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.036	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	3.56	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	2	05/15/2001 19:58	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/26/2001 19:58	Brad M. La Placa	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 10:51	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/02/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2001 22:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	04/28/2001 12:28	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	5	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/27/2001 16:35	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3600082

Collected:04/25/2001 16:20 by BS

Account Number: 07802

Submitted: 04/26/2001 09:15
Reported: 05/17/01 at 02:24 PM
Discard: 6/17/01
MA3-TG2-1-250401-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

G2106 SDG#: MOA54-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.34 J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	N.D.	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.037	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.65	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	2	05/15/2001 20:22	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/26/2001 20:00	Brad M. La Placa	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 10:52	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/02/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2001 22:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	04/28/2001 12:29	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	5	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/27/2001 16:35	Nancy J. Shoop	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3600083

Collected:04/25/2001 16:10 by BS

Account Number: 07802

Submitted: 04/26/2001 09:15
Reported: 05/17/01 at 02:24 PM
Discard: 6/17/01
MA3-TG2-2-250401-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

G2205 SDG#: MOA54-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	3.2	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.51 J	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0124 J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	2.84	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	2	05/15/2001 20:03	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/26/2001 20:03	Brad M. La Placa	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 10:53	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/02/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2001 22:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	04/28/2001 12:30	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	5	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/27/2001 16:35	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3600084

Collected:04/25/2001 16:00 by BS

Account Number: 07802

Submitted: 04/26/2001 09:15
Reported: 05/17/01 at 02:24 PM
Discard: 6/17/01
MA3-TG2-3-250401-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

G2304 SDG#: MOA54-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	3.6	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	N.D.	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.039	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	6.80	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	2	05/15/2001 20:04	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/26/2001 20:05	Brad M. La Placa	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 10:55	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/02/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2001 22:00	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	04/28/2001 12:31	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	5	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/27/2001 16:35	Nancy J. Shoop	1

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 760361
Reported: 05/17/01 at 02:24 PM

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 01116022601A	Sample number(s): 3600079-3600084							
Ortho-Phosphate as P	0.0081 J	.0028	mg/l	100		91-122		
Batch number: 01116105101A	Sample number(s): 3600079-3600080,3600082-3600084							
Nitrite Nitrogen	N.D.	.015	mg/l	106		90-110		
Batch number: 01116105101B	Sample number(s): 3600081							
Nitrite Nitrogen	N.D.	.015	mg/l	106		90-110		
Batch number: 01117110101B	Sample number(s): 3600079-3600084							
Total Phosphorus as PO4 water	N.D.	.13	mg/l	99		90-110		
Batch number: 01122022101A	Sample number(s): 3600079-3600084							
Ammonia Nitrogen	N.D.	.16	mg/l	97		92-102		
Batch number: 01129106101A	Sample number(s): 3600079-3600084							
Nitrate Nitrogen	N.D.	.04	mg/l	107		89-110		
Batch number: 01135108101A	Sample number(s): 3600079-3600084							
Kjeldahl Nitrogen	N.D.	.3	mg/l	103		90-110		

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 01116022601A	Sample number(s): 3600079-3600084								
Ortho-Phosphate as P	90	92	86-123	2	5	0.762	0.755	1	7
Batch number: 01116105101A	Sample number(s): 3600079-3600080,3600082-3600084								
Nitrite Nitrogen	104		90-110			N.D.	N.D.	200* (1)	6
Batch number: 01116105101B	Sample number(s): 3600081								
Nitrite Nitrogen	104		90-110			N.D.	N.D.	59* (1)	6
Batch number: 01117110101B	Sample number(s): 3600079-3600084								
Total Phosphorus as PO4 water	97		90-110			N.D.	N.D.	15* (1)	2
Batch number: 01122022101A	Sample number(s): 3600079-3600084								
Ammonia Nitrogen	93	93	66-125	0	8	21.6	20.7	4 (1)	7
Batch number: 01129106101A	Sample number(s): 3600079-3600084								
Nitrate Nitrogen	99		90-110			N.D.	N.D.	200* (1)	6
Batch number: 01135108101A	Sample number(s): 3600079-3600084								

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

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

Lancaster Laboratories
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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 760361
Reported: 05/17/01 at 02:24 PM

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Kjeldahl Nitrogen	106		90-110			0.34 J	N.D.	20 (1)	20

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

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

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ANALYTICAL RESULTS

Prepared for:

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

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 760558. Samples arrived at the laboratory on Friday, April 27, 2001.

Client Description	Lancaster Labs Number
MA3-TG3-1-260401-01 Grab Water Sample	3601158
MA3-TG3-2-260401-02 Grab Water Sample	3601159
MA3-TG3-3-260401-03 Grab Water Sample	3601160
MA3-TG4-1-260401-04 Grab Water Sample	3601161
MA3-TG4-2-260401-05 Grab Water Sample	3601162
MA3-TG4-3-260401-06 Grab Water Sample	3601163
MA3-TG5-1-260401-07 Grab Water Sample	3601164
MA3-TG5-2-260401-08 Grab Water Sample	3601165
MA3-TG5-3-260401-09 Grab Water Sample	3601166
MA3-TG6-1-260401-10 Grab Water Sample	3601167
MA3-TG6-2-260401-11 Grab Water Sample	3601168
MA3-TG6-3-260401-12 Grab Water Sample	3601169

METHODOLOGY

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

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

Lancaster Laboratories
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Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300.

Respectfully Submitted,
Kenneth A Bell
Kenneth A. Bell
Sr. Chemist/Coordinator

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

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3601158

Collected:04/26/2001 10:05 by BS

Account Number: 07802

Submitted: 04/27/2001 09:10
Reported: 05/25/2001 at 21:29
Discard: 06/25/2001
MA3-TG3-1-260401-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG311 SDG#: MOA54-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	3.2	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.078	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.9	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0172 J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	3.53	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	05/15/2001 20:05	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/28/2001 08:19	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 11:08	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/02/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2001 09:25	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/08/2001 11:45	Matthew J. Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	3	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/07/2001 16:05	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3601159

Collected:04/26/2001 10:15 by BS

Account Number: 07802

Submitted: 04/27/2001 09:10
Reported: 05/25/2001 at 21:29
Discard: 06/25/2001
MA3-TG3-2-260401-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG322 SDG#: MOA54-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	5.3	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.068	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
00226	Ortho-Phosphate as P	14265-44-2	0.026	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	5.58	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	05/15/2001 20:07	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/28/2001 08:20	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 11:10	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/02/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2001 09:25	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/08/2001 12:07	Matthew J. Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	3	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/07/2001 16:05	Nancy J. Shoop	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3601160

Collected:04/26/2001 10:25 by BS

Account Number: 07802

Submitted: 04/27/2001 09:10
Reported: 05/25/2001 at 21:29
Discard: 06/25/2001
MA3-TG3-3-260401-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG333 SDG#: MOA54-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	6.1	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.070	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.3	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0153 J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	5.21	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	05/15/2001 20:10	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/28/2001 08:21	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 11:11	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/02/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2001 09:25	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/08/2001 11:50	Matthew J. Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	3	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/07/2001 16:05	Nancy J. Shoop	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3601161

Collected:04/26/2001 11:30 by BS

Account Number: 07802

Submitted: 04/27/2001 09:10
Reported: 05/25/2001 at 21:29
Discard: 06/25/2001
MA3-TG4-1-260401-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG414 SDG#: MOA54-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	2.6	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.072	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 matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.032	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	5.40	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	05/15/2001 20:12	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/28/2001 08:23	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 11:12	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/04/2001 07:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2001 09:25	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/08/2001 12:08	Matthew J. Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	3	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/07/2001 16:05	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3601162

Collected:04/26/2001 11:40 by BS

Account Number: 07802

Submitted: 04/27/2001 09:10
Reported: 05/25/2001 at 21:29
Discard: 06/25/2001
MA3-TG4-2-260401-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG425 SDG#: MOA54-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.3	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.75 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0081 J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.59	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	05/15/2001 20:13	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/28/2001 08:24	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 11:16	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/04/2001 07:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2001 09:25	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/08/2001 11:52	Matthew J. Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	3	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/07/2001 16:05	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3601163

Collected:04/26/2001 11:50 by BS

Account Number: 07802

Submitted: 04/27/2001 09:10
Reported: 05/25/2001 at 21:29
Discard: 06/25/2001
MA3-TG4-3-260401-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG436 SDG#: MOA54-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	2.5	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.190	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 matrix QC for this analysis. Therefore, an 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	4.61	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	05/15/2001 20:17	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/28/2001 08:25	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 11:17	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/04/2001 07:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2001 09:25	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/08/2001 11:53	Matthew J. Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	3	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/07/2001 16:05	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3601164

Collected:04/26/2001 14:30 by BS

Account Number: 07802

Submitted: 04/27/2001 09:10
Reported: 05/25/2001 at 21:30
Discard: 06/25/2001
MA3-TG5-1-260401-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG517 SDG#: MOA54-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	6.6	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.081 J	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.60 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0181 J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	4.16	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	05/15/2001 20:18	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/28/2001 08:26	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 14:48	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/04/2001 07:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2001 09:25	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/08/2001 11:54	Matthew J. Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	3	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/07/2001 16:05	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3601165

Collected:04/26/2001 14:40 by BS

Account Number: 07802

Submitted: 04/27/2001 09:10
Reported: 05/25/2001 at 21:30
Discard: 06/25/2001
MA3-TG5-2-260401-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG528 SDG#: MOA54-14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	5.1	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.044 J	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.47 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.020	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	5.41	0.65	mg/l	5

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/15/2001 20:19	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/28/2001 08:28	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 14:50	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/04/2001 07:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2001 09:25	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/08/2001 11:55	Matthew J. Mercer	5
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	3	05/15/2001 14:22	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/07/2001 16:05	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3601166

Collected:04/26/2001 14:50 by BS

Account Number: 07802

Submitted: 04/27/2001 09:10
Reported: 05/25/2001 at 21:30
Discard: 06/25/2001
MA3-TG5-3-260401-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG539 SDG#: MOA54-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.1	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.018 J	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.38	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	N.D.	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.067	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	5.14	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	05/15/2001 19:28	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/28/2001 08:29	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 14:51	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/08/2001 08:00	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2001 09:25	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/08/2001 11:57	Matthew J. Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	3	05/15/2001 13:00	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/07/2001 16:05	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3601167

Collected:04/26/2001 15:15 by BS

Account Number: 07802

Submitted: 04/27/2001 09:10
Reported: 05/25/2001 at 21:30
Discard: 06/25/2001
MA3-TG6-1-260401-10 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG610 SDG#: MOA54-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	4.8	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	0.22	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	0.046	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	5.86	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	05/15/2001 19:29	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/28/2001 08:30	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 14:52	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/08/2001 08:00	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2001 09:25	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	3	05/24/2001 14:59	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	3	05/15/2001 13:00	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/07/2001 16:05	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3601168

Collected:04/26/2001 15:25 by BS

Account Number: 07802

Submitted: 04/27/2001 09:10
Reported: 05/25/2001 at 21:30
Discard: 06/25/2001
MA3-TG6-2-260401-11 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation
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Oklahoma City OK 73125

TG621 SDG#: MOA54-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	6.3	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.25	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.38 J	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.040	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	8.12	0.65	mg/l	5

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/15/2001 19:30	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/28/2001 08:34	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 14:53	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/08/2001 08:00	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2001 09:25	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/08/2001 12:00	Matthew J. Mercer	5
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	3	05/15/2001 13:00	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/07/2001 16:05	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3601169

Collected:04/26/2001 15:35 by BS

Account Number: 07802

Submitted: 04/27/2001 09:10
Reported: 05/25/2001 at 21:30
Discard: 06/25/2001
MA3-TG6-3-260401-12 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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TG632 SDG#: MOA54-18*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	2.0	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.17	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.89 J	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0148 J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	4.47	0.65	mg/l	5

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/15/2001 19:32	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/28/2001 08:35	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/09/2001 14:55	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	05/08/2001 08:00	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2001 09:25	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/08/2001 12:01	Matthew J. Mercer	5
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	3	05/15/2001 13:00	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/07/2001 16:05	Nancy J. Shoop	1

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Quality Control Summary

Client Name: Kerr-McGee Corporation
Group Number: 760558
Reported: 05/25/01 at 09:30 PM

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 01118022601A	Sample number(s): 3601158-3601169							
Ortho-Phosphate as P	0.0048 J	.0028	mg/l	94		91-122		
Batch number: 01118105101A	Sample number(s): 3601158-3601162							
Nitrite Nitrogen	N.D.	.015	mg/l	102		90-110		
Batch number: 01118105101B	Sample number(s): 3601163-3601169							
Nitrite Nitrogen	N.D.	.015	mg/l	102		90-110		
Batch number: 01122022101A	Sample number(s): 3601158-3601160							
Ammonia Nitrogen	N.D.	.16	mg/l	97		92-102		
Batch number: 01124022101A	Sample number(s): 3601161-3601165							
Ammonia Nitrogen	N.D.	.16	mg/l	98	98	92-102	0	2
Batch number: 01127110101A	Sample number(s): 3601158-3601167							
Total Phosphorus as PO4 water	N.D.	.13	mg/l	101		90-110		
Batch number: 01127110101B	Sample number(s): 3601168-3601169							
Total Phosphorus as PO4 water	N.D.	.13	mg/l	101		90-110		
Batch number: 01128022101A	Sample number(s): 3601166-3601169							
Ammonia Nitrogen	N.D.	.16	mg/l	98		92-102		
Batch number: 01129106101B	Sample number(s): 3601158-3601163							
Nitrate Nitrogen	N.D.	.04	mg/l	107		89-110		
Batch number: 01129106103A	Sample number(s): 3601164-3601169							
Nitrate Nitrogen	N.D.	.04	mg/l	103		89-110		
Batch number: 01135108101A	Sample number(s): 3601158-3601161							
Kjeldahl Nitrogen	N.D.	.3	mg/l	103		90-110		
Batch number: 01135108101B	Sample number(s): 3601162-3601165							
Kjeldahl Nitrogen	N.D.	.3	mg/l	103		90-110		
Batch number: 01135108102A	Sample number(s): 3601166-3601169							
Kjeldahl Nitrogen	N.D.	.3	mg/l	110		90-110		

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 01118022601A	Sample number(s): 3601158-3601169								
Ortho-Phosphate as P	92	92	86-123	0	5	0.040	0.039	2 (1)	7
Batch number: 01118105101A	Sample number(s): 3601158-3601162								

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

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 760558
Reported: 05/25/01 at 09:30 PM

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Nitrite Nitrogen	104		90-110			N.D.	N.D.	39* (1)	6
Batch number: 01118105101B	Sample number(s): 3601163-3601169								
Nitrite Nitrogen	84*		90-110			N.D.	N.D.	5 (1)	6
Batch number: 01122022101A	Sample number(s): 3601158-3601160								
Ammonia Nitrogen	93	93	66-125	0	8	21.6	20.7	4 (1)	7
Batch number: 01124022101A	Sample number(s): 3601161-3601165								
Ammonia Nitrogen						23.9	25.4	6	7
Batch number: 01127110101A	Sample number(s): 3601158-3601167								
Total Phosphorus as PO4 water	108		90-110			3.53	3.44	3*	2
Batch number: 01127110101B	Sample number(s): 3601168-3601169								
Total Phosphorus as PO4 water	104		90-110			0.35	0.35	1 (1)	2
Batch number: 01128022101A	Sample number(s): 3601166-3601169								
Ammonia Nitrogen	85	93	66-125	9*	8	14.8	14.9	1	7
Batch number: 01129106101B	Sample number(s): 3601158-3601163								
Nitrate Nitrogen	112*		90-110			0.091 J	0.075 J	18* (1)	6
Batch number: 01129106103A	Sample number(s): 3601164-3601169								
Nitrate Nitrogen	98		90-110			N.D.	N.D.	0 (1)	6
Batch number: 01135108101A	Sample number(s): 3601158-3601161								
Kjeldahl Nitrogen	106		90-110			0.34 J	N.D.	20 (1)	20
Batch number: 01135108101B	Sample number(s): 3601162-3601165								
Kjeldahl Nitrogen	113*		90-110			1.3	1.6	18 (1)	20
Batch number: 01135108102A	Sample number(s): 3601166-3601169								
Kjeldahl Nitrogen	(2)		90-110			32.2	32.1	0	20

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

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For Lancaster Laboratories use only
Acct. # 7802 Sample # 3601158-69

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

(1)
Client: Roy F. Weston Acct. #:
Project Name/#: Moss American PWSID #:
Project Manager: Tom Graan P.O.#
Sampler: Brennan Schaefer Quote #:
Name of state where samples were collected: WI

For lab use only
FSC:
SCR #: 1145336

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix (4): Soil	Water	Other (☐ Potable ☐ NPDES)	Total # of Containers	(5) Analyses Requested: NO3	NO2	TP-PO4	TKN	NH3	O-PO4			Remarks	(6) Temperature of samples upon receipt (if requested)
MA3-TG3-1-260401-01	4/26/01	1005	X			X			X	X	X	X	X	X				
MA3-TG3-2-260401-02		1015	X			X			X	X	X	X	X	X				
MA3-TG3-3-260401-03		1025	X			X			X	X	X	X	X	X				
MA3-TG4-1-260401-04		1130	X			X			X	X	X	X	X	X				
MA3-TG4-2-260401-05		1140	X			X			X	X	X	X	X	X				
MA3-TG4-3-260401-06		1150	X			X			X	X	X	X	X	X				
MA3-TG5-1-260401-07		1430	X			X			X	X	X	X	X	X				
MA3-TG5-2-260401-08		1440	X			X			X	X	X	X	X	X				
MA3-TG5-3-260401-09		1450	X			X			X	X	X	X	X	X				
MA3-TG6-1-260401-10		1515	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:
Rush results requested by (please circle): Phone Fax
Phone #: Fax #:

(8) **Data Package Options** (please circle if requested)
QC Summary Type VI (Raw Data)
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:	Date	Time	Received by:	Date	Time
K. Rickman	10-26-00	1430			
Brennan Schaefer	4/26/01	1730			
			Received by:	4/27/01	0910

Lancaster Laboratories is a subsidiary of Thermo TerraTech Inc., a Thermo Electron Company
2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 (717) 656-2300 Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client 2102 Rev. 6/7/99

Analysis Request/ Environmental Services Chain of Custody

For Lancaster Laboratories use only
Acct. # 7802 Sample # 3601158-69

Lancaster Laboratories
Where quality is a science.

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

(1)
Client: Roy F. Weston Acct. #:
Project Name/#: Moss American PWSID #:
Project Manager: Tom Graan P.O.#
Sampler: Brennon Schaefer Quote #:
Name of state where samples were collected: WI

For lab use only
FSC:
SCR #: 1145336

(2) (3) Matrix (4) (5) Analyses Requested (6)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (☐ Potable ☐ NPDES, Check if applicable)	Other	Total # of Containers	NO3	NO2	TP-PO4	TKN	NH3	O-PO4			Remarks	Temperature of samples upon receipt (if requested)
MA3-TG6-2-260401-11	4/26/01	1525	X			X		5	X	X	X	X	X	X				
MA3-TG6-3-260401-12	4/26/01	1535	X			X		5	X	X	X	X	X	X				

(7) **Turnaround Time Requested** (TAT) (please circle): Normal (circled) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax
Phone #: Fax #:

(8) **Data Package Options** (please circle if requested)
QC Summary Type VI (Raw Data)
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:	Date	Time	Received by:	Date	Time
K. Baker	10/26/00	1430			
Brennon Schaefer	4/26/01	1730			
			[signature]	4/27/01	0920

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ATTACHMENT 3

MAY 2001 GROUNDWATER SAMPLE ANALYTICAL RESULTS

Microbac

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Seaway Division
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 Bankes Court
Suite 500
Vernon Hills, IL 60061

Date Reported: 6/28/01
P.O. Number:
Sample ID: 9930-00005
Date Received: 6/01/01
Time Received: 10:10

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG1-1-300501-03, 5/30/01 @ 16:00 by BS/TH				
Total Aerobic Bacteria	16,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	15,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-2-300501-02, 5/30/01 @ 15:25 by BS/TH				
Total Aerobic Bacteria	62,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	24,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-3-300501-01, 5/30/01 @ 14:50 by BS/TH				
Total Aerobic Bacteria	430,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	110,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-1-300501-05, 5/30/01 @ 16:55 by BS/TH				
Total Aerobic Bacteria	70,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	7,800. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-2-300501-06, 5/30/01 @ 17:00 by BS/TH				
Total Aerobic Bacteria	2,600. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	2,100. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-3-300501-04, 5/30/01 @ 16:45 by BS/TH				
Total Aerobic Bacteria	4,100. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	2,300. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-1-310501-01, 5/30/01 @ 09:30 by BS/TH				
Total Aerobic Bacteria	630. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	490. cfu/ml	6/01/01	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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CERTIFICATE OF ANALYSIS

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

Date Reported: 6/28/01
P.O. Number:
Sample ID: 9930-00005
Date Received: 6/01/01
Time Received: 10:10

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG3-2-310501-02, 5/31/01 @ 09:35 by BS/TH				
Total Aerobic Bacteria	3,700. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	1370. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-3-310501-03, 5/31/01 @ 09:45 by BS/TH				
Total Aerobic Bacteria	1,400. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	780. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-1-310501-04, 5/31/01 @ 10:30 by BS/TH				
Total Aerobic Bacteria	80,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	58,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-2-310501-05, 5/31/01 @ 10:35 by BS/TH				
Total Aerobic Bacteria	4,600. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	2,800. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-3-310501-06, 5/31/01 @ 11:00 by BS/TH				
Total Aerobic Bacteria	30,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	4,600. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-1-310501-07, 5/31/01 @ 11:50 by BS/TH				
Total Aerobic Bacteria	1,700. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	420. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-2-310501-08, 5/31/01 @ 12:10 by BS/TH				
Total Aerobic Bacteria	4,800. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	2,900. cfu/ml	6/01/01	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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CERTIFICATE OF ANALYSIS

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

Date Reported: 6/28/01
P.O. Number:
Sample ID: 9930-00005
Date Received: 6/01/01
Time Received: 10:10

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG5-3-310501-09, 5/31/01 @ 12:20 by BS/TH				
Total Aerobic Bacteria	4,800. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	110. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-1-310501-10, 5/31/01 @ 12:50 by BS/TH				
Total Aerobic Bacteria	120,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	37,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-2-310501-11, 5/31/01 @ 12:55 by BS/TH				
Total Aerobic Bacteria	30,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	110,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-3-310501-12, 5/31/01 @ 13:00 by BS/TH				
Total Aerobic Bacteria	150,000. cfu/ml	6/01/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	7,800. cfu/ml	6/01/01	DJH	9215B MODIFIED

Submitted with Quality by _____

Contact person Tom Graan Sampler [illegible]nnan [illegible]aefe | Tom H[illegible]

Project name Kerr McGee Moss American Project # ______

Project location Milwaukee, WI
(City) (state)

Requested analyses (✓) 4930-5

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

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

Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	CEA* (soil/gw) see note ☐ Aerobic, ☐ Anaerobic, ☐ Microaerophilic	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve and hydrometer, ☐ sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	Microbial Enumeration			
MA3-TG1-1-300501-03		5/30/01	1600		X	—	1										X			
MA3-TG1-2-300501-02		5/30/01	1525		X	—	1										X			
MA3-TG1-3-300501-01		5/30/01	1450		X	—	1										X			
MA3-TG2-1-300501-05		5/30/01	1655		X	—	1										X			
MA3-TG2-2-300501-06		5/30/01	1700		X	—	1										X			
MA3-TG2-3-300501-04		5/30/01	1645		X	—	1										X			
MA3-TG3-1-310501-01		5/31/01	0930		X	—	1													
MA3-TG3-2-310501-02		5/31/01	0935		X	—	1													

Relinquished by:	Date/time:	Comments:	Sample condition upon arrival:
Brenan Schaefer	5/31/01 / 1600		
Received by:	Date/time:		On ice? ☐ Yes, ☐ No

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

Send results to:
Name Tom Graan
Company Roy F. 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

Contact person Tom Gradan Sampler Brennan Schaefer and Tom Hanzely

Project name Kerr McGee Moss American Project # 9430-5

Project location Milwaukee, WI
(City) (state)

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

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

Requested analyses (✓)

Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	CEA* (soil/gw) ☐ Aerobic, ☐ Anaerobic, ☐ Microaerophillic see note	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve and hydrometer, ☐ sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	Microbial Enumeration
MA3 TG3-3 310501-03		5/31/01	0945		X	—	1										X
MA3 TG4-1- 310501-04		5/31/01	1030		X	—	1										X
MA3 TG4-2- 310501-05		5/31/01	1035		X	—	1										X
MA3 TG4-3- 310501-06		5/31/01	1100		X	—	1										X
MA3 TG5-1- 310501-07		5/31/01	1150		X	—	1										X
MA3 TG5-2- 310501-08		5/31/01	1210		X	—	1										X
MA3 TG5-3- 310501-09		5/31/01	1220		X	—	1										X
MA3 TG6-1- 310501-10		5/31/01	1250		X	—	1										X

Relinquished by: Brennan Schaefer — Date/time: 5/31/01 1600

Received by: — Date/time:

Comments:

Sample condition upon arrival:

On ice? ☐ Yes, ☐ No

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

Send results to:

Name Tom Gradan
Company Roy F 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

Contact person Tom Graan Sampler Brian Schaefer and To Ziv

Project name Kerr McGee Mossville Project # 9430-5

Project location Milwaukee, WI
(City) (state)

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

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

Requested analyses (✓)

Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	CEA* (soil/gw) ☐ Aerobic, ☐ Anaerobic, ☐ Microaerophillic See note	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve and hydrometer, ☐ sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	Microbial Enumeration
MW3 TG6-2-310501-11		5/31/01	1255		X	—	1										X
MW3 TG6-3-310501-12		5/31/01	1300		X	—	1										X

Relinquished by: Brian Schaefer

Date/time: 5/31/01 1600

Received by:

Date/time:

Comments:

Sample condition upon arrival:

On ice? ☐ Yes, ☐ No

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

Send results to:

Name Tom Graan
Company Roy Eulson
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

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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 764943. Samples arrived at the laboratory on Thursday, May 31, 2001.

Client Description	Lancaster Labs Number
MA3-TG1-1-300501-03 Grab Water Sample	3623640
MA3-TG1-2-300501-02 Grab Water Sample	3623641
MA3-TG1-3-300501-01 Grab Water Sample	3623642
MA3-TG2-1-300501-05 Grab Water Sample	3623643
MA3-TG2-2-300501-06 Grab Water Sample	3623644
MA3-TG2-3-300501-04 Grab Water Sample	3623645

METHODOLOGY

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

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

Lancaster Laboratories
Where quality is a science.

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

Respectfully Submitted,

Kenneth A Bell
Kenneth A. Bell
Sr. Chemist/Coordinator

MEMBER ACIL
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.

Lancaster Laboratories Sample No. WW 3623640

Collected:05/30/2001 16:00 by BS

Account Number: 07802

Submitted: 05/31/2001 09:35
Reported: 06/21/2001 at 11:49
Discard: 07/22/2001
MA3-TG1-1-300501-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

03XXP SDG#: MOA55-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.93	J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.1		0.16	mg/l	1
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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/07/2001 14:57	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2001 20:50	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/04/2001 16:14	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/04/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2001 09:35	Michele L. Hanby	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 14:54	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/06/2001 08:35	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3623641

Collected:05/30/2001 15:25 by BS

Account Number: 07802

Submitted: 05/31/2001 09:35
Reported: 06/21/2001 at 11:49
Discard: 07/22/2001
MA3-TG1-2-300501-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

02XXP SDG#: MOA55-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.1	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	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 matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0166 J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.21	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	2	06/15/2001 15:57	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2001 20:51	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/04/2001 16:15	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	2	06/20/2001 07:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2001 09:35	Michele L. Hanby	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 14:55	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	3	06/15/2001 10:40	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3623642

Collected:05/30/2001 14:50 by BS

Account Number: 07802

Submitted: 05/31/2001 09:35
Reported: 06/21/2001 at 11:49
Discard: 07/22/2001
MA3-TG1-3-300501-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

01XXP SDG#: MOA55-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.88 J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.0	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0131 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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/07/2001 14:59	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2001 20:57	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/04/2001 16:16	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/04/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2001 09:35	Michele L. Hanby	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 14:56	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/06/2001 08:35	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3623643

Collected:05/30/2001 16:55 by BS

Account Number: 07802

Submitted: 05/31/2001 09:35
Reported: 06/21/2001 at 11:49
Discard: 07/22/2001
MA3-TG2-1-300501-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

01XX5 SDG#: MOA55-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
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
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
00226	Ortho-Phosphate as P	14265-44-2	0.0051 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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/07/2001 15:03	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2001 20:59	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/04/2001 16:18	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/04/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2001 09:35	Michele L. Hanby	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 14:57	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/06/2001 08:35	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3623644

Collected:05/30/2001 17:00 by BS

Account Number: 07802

Submitted: 05/31/2001 09:35
Reported: 06/21/2001 at 11:50
Discard: 07/22/2001
MA3-TG2-2-300501-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

02XX6 SDG#: MOA55-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.52 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	0.98 J	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0061 J	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.13 J	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	06/07/2001 15:04	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2001 21:00	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/04/2001 16:19	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/04/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2001 09:35	Michele L. Hanby	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 14:58	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/06/2001 08:35	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3623645

Collected:05/30/2001 16:45 by BS

Account Number: 07802

Submitted: 05/31/2001 09:35
Reported: 06/21/2001 at 11:50
Discard: 07/22/2001
MA3-TG2-3-300501-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

03XX4 SDG#: MOA55-06*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.39 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	0.36 J	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.026	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/07/2001 15:06	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2001 21:01	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/06/2001 10:53	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/04/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2001 09:35	Michele L. Hanby	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 14:59	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/06/2001 08:35	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 764943
Reported: 06/21/01 at 11:50 AM

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 01151105101B	Sample number(s): 3623640-3623641							
Nitrite Nitrogen	N.D.	.015	mg/l	102		89-110		
Batch number: 01151105102A	Sample number(s): 3623642-3623645							
Nitrite Nitrogen	N.D.	.015	mg/l	104		89-110		
Batch number: 01152022601A	Sample number(s): 3623640-3623645							
Ortho-Phosphate as P	N.D.	.0028	mg/l	99		91-122		
Batch number: 01155022101A	Sample number(s): 3623640,3623642-3623645							
Ammonia Nitrogen	N.D.	.16	mg/l	102		92-102		
Batch number: 01155106102B	Sample number(s): 3623640-3623644							
Nitrate Nitrogen	N.D.	.04	mg/l	103		89-110		
Batch number: 01157106101A	Sample number(s): 3623645							
Nitrate Nitrogen	N.D.	.04	mg/l	103		89-110		
Batch number: 01157108101A	Sample number(s): 3623640							
Kjeldahl Nitrogen	N.D.	.3	mg/l	97		90-110		
Batch number: 01157108101B	Sample number(s): 3623642-3623645							
Kjeldahl Nitrogen	N.D.	.3	mg/l	97		90-110		
Batch number: 01158110101A	Sample number(s): 3623640-3623645							
Total Phosphorus as PO4 water	N.D.	.13	mg/l	102*		29-36		
Batch number: 01166108102A	Sample number(s): 3623641							
Kjeldahl Nitrogen	N.D.	.3	mg/l	91		90-110		
Batch number: 01171022101A	Sample number(s): 3623641							
Ammonia Nitrogen	N.D.	.16	mg/l	95	94	92-102	1	2

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 01151105101B	Sample number(s): 3623640-3623641								
Nitrite Nitrogen	102		90-110			N.D.	N.D.	10* (1)	6
Batch number: 01151105102A	Sample number(s): 3623642-3623645								
Nitrite Nitrogen	102		90-110			N.D.	N.D.	17* (1)	6
Batch number: 01152022601A	Sample number(s): 3623640-3623645								
Ortho-Phosphate as P	96	96	86-123	0	5	0.026	0.021	19* (1)	7
Batch number: 01155022101A	Sample number(s): 3623640,3623642-3623645								

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

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Quality Control Summary

Client Name: Kerr-McGee Corporation
Group Number: 764943
Reported: 06/21/01 at 11:50 AM

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Ammonia Nitrogen	126*	123	66-125	2	8	1.6	0.94 J	51* (1)	7
Batch number: 01155106102B	Sample number(s): 3623640-3623644								
Nitrate Nitrogen	105		90-110			0.061 J	0.053 J	14* (1)	6
Batch number: 01157106101A	Sample number(s): 3623645								
Nitrate Nitrogen	101		90-110			N.D.	N.D.	149* (1)	6
Batch number: 01157108101A	Sample number(s): 3623640								
Kjeldahl Nitrogen	99		90-110			N.D.	0.31 J	21* (1)	20
Batch number: 01157108101B	Sample number(s): 3623642-3623645								
Kjeldahl Nitrogen	99		90-110			0.88 J	0.91 J	3 (1)	20
Batch number: 01158110101A	Sample number(s): 3623640-3623645								
Total Phosphorus as PO4 water	96		90-110			0.17	0.15 J	14* (1)	2
Batch number: 01166108102A	Sample number(s): 3623641								
Kjeldahl Nitrogen	85*		90-110			1.1	1.1	1 (1)	20
Batch number: 01171022101A	Sample number(s): 3623641								
Ammonia Nitrogen						26.8	27.9	4	7

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

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Analysis Request/Environmental Services Chain of Custody

Lancaster Laboratories
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For Lancaster Laboratories use only
Acct. # 7802 Sample # 3623640-45

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

(1)
Client: Roy F. Weston
Project Name/#: MassAmerican
Project Manager: Tom Graan
Sampler: Brennan Schaefer and Tom Henzely
Name of state where samples were collected: Wisconsin
Acct. #:
PWSID #:
P.O.#
Quote #:

For lab use only
FSC:
SCR #: 1153094

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix (4) Soil	Water (☐ Potable ☐ NPDES)	Other	Total # of Containers	(5) Analyses Requested: NO3	NO2	TP-PO4/TKN	O-PO4	NH3				Remarks	(6) Temperature of Samples Received (°C)
MA3-TG1-1-300501-03	5/30/01	1600	X			X		5	X	X	X	X	X					
MA3-TG1-2-300501-02		1525	X			X		5	X	X	X	X	X					
MA3-TG1-3-300501-01		1450	X			X		5	X	X	X	X	X					
MA3-TG2-1-300501-05		1655	X			X		5	X	X	X	X	X					
MA3-TG2-2-300501-06		1700	X			X		5	X	X	X	X	X					
MA3-TG2-3-300501-04		1645	X			X		5	X	X	X	X	X					

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

(8) **Data Package Options** (please circle if requested)
QC Summary
Type I (Tier I)
Type II (Tier II)
Type III (NJ Red. Del.)
Type IV (CLP)
Type VI (Raw Data) PER QUOTE
GLP
Other

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:	Date	Time	Received by:	Date	Time
K. Becker	5-31-01	9:40			
Brennan Schaefer	5-30-01				
			Tammy Herzog	5/31/01	093

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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 765045. Samples arrived at the laboratory on Friday, June 01, 2001.

Client Description	Lancaster Labs Number
MA3-TG3-1-310501-01 Grab Water Sample	3624226
MA3-TG3-2-310501-02 Grab Water Sample	3624227
MA3-TG3-3-310501-03 Grab Water Sample	3624228
MA3-TG4-1-310501-04 Grab Water Sample	3624229
MA3-TG4-2-310501-05 Grab Water Sample	3624230
MA3-TG4-3-310501-06 Grab Water Sample	3624231
MA3-TG5-1-310501-07 Grab Water Sample	3624232
MA3-TG5-2-310501-08 Grab Water Sample	3624233
MA3-TG5-3-310501-09 Grab Water Sample	3624234
MA3-TG6-1-310501-10 Grab Water Sample	3624235
MA3-TG6-2-310501-11 Grab Water Sample	3624236
MA3-TG6-3-310501-12 Grab Water Sample	3624237

METHODOLOGY

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

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

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

Respectfully Submitted,

Erik J. Arenksen
Group Leader

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Lancaster Laboratories Sample No. WW 3624226

Collected:05/31/2001 09:30 by BS

Account Number: 07802

Submitted: 06/01/2001 09:40
Reported: 06/20/2001 at 13:37
Discard: 07/21/2001
MA3-TG3-1-310501-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

31051 SDG#: MOA56-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	2.8	0.30	mg/l	1
	The result obtained for total Kjeldahl nitrogen is less than the result obtained for ammonia nitrogen. The result for both analysis are within the acceptable criteria for duplicate analysis.					
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	3.3	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.156	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.67	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	2	06/09/2001 10:27	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/01/2001 20:11	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	2	06/08/2001 10:10	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/04/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/02/2001 02:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 15:00	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/08/2001 09:10	Cheryl L. Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3624227

Collected:05/31/2001 09:35 by BS

Account Number: 07802

Submitted: 06/01/2001 09:40
Reported: 06/20/2001 at 13:37
Discard: 07/21/2001
MA3-TG3-2-310501-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

31052 SDG#: MOA56-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.6	0.30	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	1.2	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.157	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 Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2001 19:03	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/01/2001 20:12	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/06/2001 11:01	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/04/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/02/2001 02:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 15:02	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2001 14:35	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3624228

Collected:05/31/2001 09:45 by BS

Account Number: 07802

Submitted: 06/01/2001 09:40
Reported: 06/20/2001 at 13:37
Discard: 07/21/2001
MA3-TG3-3-310501-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

31053 SDG#: MOA56-03

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	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.3	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.179	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2001 18:07	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/01/2001 20:13	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/06/2001 11:04	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/04/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/02/2001 02:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 15:03	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2001 14:35	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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

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Lancaster Laboratories Sample No. WW 3624229

Collected:05/31/2001 10:30 by BS

Account Number: 07802

Submitted: 06/01/2001 09:40
Reported: 06/20/2001 at 13:38
Discard: 07/21/2001
MA3-TG4-1-310501-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

31054 SDG#: MOA56-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.2	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.60 J	0.16	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.072	0.0028	mg/l	1
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 Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2001 18:08	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/01/2001 20:15	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/06/2001 11:06	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/04/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/02/2001 02:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 15:04	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2001 14:35	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3624230

Collected:05/31/2001 10:35 by BS

Account Number: 07802

Submitted: 06/01/2001 09:40
Reported: 06/20/2001 at 13:38
Discard: 07/21/2001
MA3-TG4-2-310501-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

31055 SDG#: MOA56-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.3	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.95 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an 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	N.D.	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	06/05/2001 18:09	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/01/2001 20:16	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/06/2001 11:07	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/02/2001 02:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 15:05	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2001 14:35	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3624231

Collected:05/31/2001 11:00 by BS

Account Number: 07802

Submitted: 06/01/2001 09:40
Reported: 06/20/2001 at 13:38
Discard: 07/21/2001
MA3-TG4-3-310501-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

31056 SDG#: MOA56-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
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 matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.057	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.27	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	06/05/2001 18:10	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/01/2001 20:17	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/06/2001 11:08	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/02/2001 02:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 15:08	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2001 14:35	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3624232

Collected:05/31/2001 11:50 by BS

Account Number: 07802

Submitted: 06/01/2001 09:40
Reported: 06/20/2001 at 13:38
Discard: 07/21/2001
MA3-TG5-1-310501-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

31057 SDG#: MOA56-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.77 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 matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.077	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.27	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	06/05/2001 18:12	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/01/2001 20:21	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/06/2001 11:09	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/02/2001 02:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 15:09	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2001 14:35	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3624233

Collected:05/31/2001 12:10 by BS

Account Number: 07802

Submitted: 06/01/2001 09:40
Reported: 06/20/2001 at 13:38
Discard: 07/21/2001
MA3-TG5-2-310501-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

31058 SDG#: MOA56-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.83 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 matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.030	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2001 18:13	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/01/2001 20:22	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/06/2001 11:11	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/02/2001 02:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 15:10	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2001 14:35	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3624234

Collected:05/31/2001 12:20 by BS

Account Number: 07802

Submitted: 06/01/2001 09:40
Reported: 06/20/2001 at 13:38
Discard: 07/21/2001
MA3-TG5-3-310501-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

31059 SDG#: MOA56-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.55 J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.21 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an 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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2001 18:14	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/01/2001 20:23	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/06/2001 11:12	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/02/2001 02:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 15:11	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2001 14:35	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3624235

Collected:05/31/2001 12:50 by BS

Account Number: 07802

Submitted: 06/01/2001 09:40
Reported: 06/20/2001 at 13:38
Discard: 07/21/2001
MA3-TG6-1-310501-10 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

31510 SDG#: MOA56-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.1	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.81 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.160	0.0028	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.25	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	2	06/07/2001 15:34	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/01/2001 20:25	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/06/2001 11:13	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/02/2001 02:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 15:13	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2001 14:35	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3624236

Collected:05/31/2001 12:55 by BS

Account Number: 07802

Submitted: 06/01/2001 09:40
Reported: 06/20/2001 at 13:38
Discard: 07/21/2001
MA3-TG6-2-310501-11 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

31511 SDG#: MOA56-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
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	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.45 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.207	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 Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	2	06/07/2001 15:36	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/01/2001 20:26	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/06/2001 11:14	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/02/2001 02:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	2	06/19/2001 11:31	Matthew J. Mercer	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2001 14:35	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	3	06/18/2001 16:00	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3624237

Collected:05/31/2001 13:00 by BS

Account Number: 07802

Submitted: 06/01/2001 09:40
Reported: 06/20/2001 at 13:38
Discard: 07/21/2001
MA3-TG6-3-310501-12 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

31512 SDG#: MOA56-12*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.0	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	0.72 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.238	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	2	06/07/2001 15:39	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/01/2001 20:27	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/06/2001 11:16	Matthew J. Mercer	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2001 08:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/02/2001 02:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/08/2001 15:15	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2001 14:35	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	2	06/07/2001 11:15	Patricia J. Weirich	1

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Quality Control Summary

Client Name: Kerr-McGee Corporation
Reported: 06/20/01 at 01:38 PM

Group Number: 765045

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 01152105101A	Sample number(s): 3624226-3624231							
Nitrite Nitrogen	N.D.	.015	mg/l	103		89-110		
Batch number: 01152105101B	Sample number(s): 3624232-3624237							
Nitrite Nitrogen	N.D.	.015	mg/l	103		89-110		
Batch number: 01153022601A	Sample number(s): 3624226-3624237							
Ortho-Phosphate as P	N.D.	.0028	mg/l	96		91-122		
Batch number: 01155022101A	Sample number(s): 3624226-3624229							
Ammonia Nitrogen	N.D.	.16	mg/l	102		92-102		
Batch number: 01155108102A	Sample number(s): 3624227-3624233							
Kjeldahl Nitrogen	N.D.	.3	mg/l	110		90-110		
Batch number: 01155108102B	Sample number(s): 3624234-3624237							
Kjeldahl Nitrogen	N.D.	.3	mg/l	110		90-110		
Batch number: 01157022101A	Sample number(s): 3624230-3624237							
Ammonia Nitrogen	N.D.	.16	mg/l	96	96	92-102	0	2
Batch number: 01157106101A	Sample number(s): 3624226-3624229							
Nitrate Nitrogen	N.D.	.04	mg/l	103		89-110		
Batch number: 01157106101B	Sample number(s): 3624230-3624237							
Nitrate Nitrogen	N.D.	.04	mg/l	103		89-110		
Batch number: 01158110101A	Sample number(s): 3624226-3624228							
Total Phosphorus as PO4 water	N.D.	.13	mg/l	102*		29-36		
Batch number: 01158110101B	Sample number(s): 3624229-3624235,3624237							
Total Phosphorus as PO4 water	N.D.	.13	mg/l	102*		29-36		
Batch number: 01159108101A	Sample number(s): 3624226							
Kjeldahl Nitrogen	N.D.	.3	mg/l	102		90-110		
Batch number: 01169110101A	Sample number(s): 3624236							
Total Phosphorus as PO4 water	N.D.	.13	mg/l	105*		29-36		

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 01152105101A	Sample number(s): 3624226-3624231								
Nitrite Nitrogen	98		90-110			N.D.	N.D.	0 (1)	6
Batch number: 01152105101B	Sample number(s): 3624232-3624237								

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

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Lancaster, PA 17605-2425
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Quality Control Summary

Client Name: Kerr-McGee Corporation
Group Number: 765045
Reported: 06/20/01 at 01:38 PM

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Nitrite Nitrogen	102		90-110			N.D.	N.D.	0 (1)	6
Batch number: 01153022601A	Sample number(s): 3624226-3624237								
Ortho-Phosphate as P	90	84*	86-123	4	5	0.238	0.251	5	7
Batch number: 01155022101A	Sample number(s): 3624226-3624229								
Ammonia Nitrogen	126*	123	66-125	2	8	1.6	0.94 J	51* (1)	7
Batch number: 01155108102A	Sample number(s): 3624227-3624233								
Kjeldahl Nitrogen	102		90-110			1.6	1.5	4 (1)	20
Batch number: 01155108102B	Sample number(s): 3624234-3624237								
Kjeldahl Nitrogen	96		90-110			1.0	1.0	1 (1)	20
Batch number: 01157022101A	Sample number(s): 3624230-3624237								
Ammonia Nitrogen						1.1	0.86 J	27* (1)	7
Batch number: 01157106101A	Sample number(s): 3624226-3624229								
Nitrate Nitrogen	101		90-110			N.D.	N.D.	149* (1)	6
Batch number: 01157106101B	Sample number(s): 3624230-3624237								
Nitrate Nitrogen	100		90-110			N.D.	N.D.	44* (1)	6
Batch number: 01158110101A	Sample number(s): 3624226-3624228								
Total Phosphorus as PO4 water	96		90-110			0.17	0.15 J	14* (1)	2
Batch number: 01158110101B	Sample number(s): 3624229-3624235,3624237								
Total Phosphorus as PO4 water	102		90-110			N.D.	N.D.	5* (1)	2
Batch number: 01159108101A	Sample number(s): 3624226								
Kjeldahl Nitrogen	99		90-110			2.8	2.8	2 (1)	20
Batch number: 01169110101A	Sample number(s): 3624236								
Total Phosphorus as PO4 water	99		90-110			N.D.	N.D.	76* (1)	2

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

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Analysis Request/Environmental Services Chain of Custody

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For Lancaster Laboratories use only
Acct. # 1802 Sample # 316422-6-37

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

(1)
Client: Ray F Weston — Acct. #:
Project Name/#: Moss American — PWSID #:
Project Manager: Tom Graan — P.O.#
Sampler: Brenna Schaefer and Tom Hanzely — Quote #:
Name of state where samples were collected: Wisconsin

For lab use only
FSC:
SCR #: 1153094

(2) (3) (4) (5) (6)

Sample Identification	Date Collected	Time Collected	(3) Grab	(3) Composite	(4) Matrix: Soil	(4) Matrix: Water (☐ Potable ☐ NPDES)	(4) Matrix: Other	Total # of Containers	(5) Analyses Requested: NO_3	NO_2	TP-Poly TKN	D-PO_4	NH_3	Remarks	(6) Temperature of sample upon receipt (if applicable)
MA3-TG3-1-310501-01	5/31/01	0930	X		X	X		5	X	X	X	X	X		
MA3-TG3-2-310501-02		0935	X			X		5	X	X	X	X	X		
MA3-TG3-3-310501-03		0945	X			X		5	X	X	X	X	X		
MA3-TG4-1-310501-04		1030	X			X		5	X	X	X	X	X		
MA3-TG4-2-310501-05		1035	X			X		5	X	X	X	X	X		
MA3-TG4-3-310501-06		1100	X			X		5	X	X	X	X	X		
MA3-TG5-1-310501-07		1150	X			X		5	X	X	X	X	X		
MA3-TG5-2-310501-08		1210	X			X		5	X	X	X	X	X		
MA3-TG5-3-310501-09		1220	X			X		5	X	X	X	X	X		
MA3-TG6-1-310501-10		1250	X			X		5	X	X	X	X	X		

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

(8) **Data Package Options** (please circle if requested)
QC Summary — Type VI (Raw Data) PER QUOTE — 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

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
K. Becker	5-24-01	0940			
Brenna Schaefer	5/31/01	1600			

Analysis Request/Environmental Services Chain of Custody

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For Lancaster Laboratories use only
Acct. # 7802 Sample # 3624226-37

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

(1)
Client: Roy F Weston Acct. #:
Project Name/#: Moss American PWSID #:
Project Manager: Tom Graan P.O.#
Sampler: Breanna Schaefer and Tom Hanzely Quote #:
Name of state where samples were collected: Wisconsin

For lab use only
FSC:
SCR #: 1153094

(2) (3) Matrix (4) (5) Analyses Requested (6)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (☐ Potable ☐ NPDES)	Other	Total # of Containers	NO3	NO2	TP-PO4, TKN	O-PO4	NH3				Remarks	Temperature of samples upon receipt (if requested)
MA3-TG 6-2-310501-11	5/31/01	1255	X			X		5	X	X	X	X	X					
MA3-TG 6-3-310501-12	5/31/01	1300	X			X		5	X	X	X	X	X					

(7) **Turnaround Time Requested** (TAT) (please circle): Normal (circled) 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
Type I (Tier I) GLP
Type II (Tier II) Other
Type III (NJ Red. Del.)
Type IV (CLP)

SDG Complete? Yes No (circled)

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

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
K. Becker	5/24/01	940			
Breanna Schaefer	5-31-01	1600			
			[signature]	6/1/01	0940

ATTACHMENT 4

JUNE 2001 GROUNDWATER SAMPLE ANALYTICAL RESULTS

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CERTIFICATE OF ANALYSIS

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

Date Reported: 7/30/01
P.O. Number:
Sample ID: 9930-00376
Date Received: 6/26/01
Time Received: 08:50

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG3-1-250601-03, 6/25/01 @ 17:10 by BS				
Total Aerobic Bacteria	44,000. cfu/ml	6/28/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	2100. cfu/ml	6/28/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-2-250601-02, 6/25/01 @ 17:35 by BS				
Total Aerobic Bacteria	830. cfu/ml	6/28/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	350. cfu/ml	6/28/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-1-250601-06, 6/25/01 @ 19:10 by BS				
Total Aerobic Bacteria	180. cfu/ml	6/28/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	100. cfu/ml	6/28/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-2-250601-04, 6/25/01 @ 18:50 by BS				
Total Aerobic Bacteria	220. cfu/ml	6/28/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	200. cfu/ml	6/28/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-3-250601-05, 6/25/01 @ 19:00 by BS				
Total Aerobic Bacteria	260. cfu/ml	6/28/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	140. cfu/ml	6/28/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-1-260601-02, 6/26/01 @ 09:35 by BS				
Total Aerobic Bacteria	7,200. cfu/ml	6/28/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	280. cfu/ml	6/28/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-2-260601-01, 6/26/01 @ 09:25 by BS				
Total Aerobic Bacteria	1,600. cfu/ml	6/28/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	470. cfu/ml	6/28/01	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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CERTIFICATE OF ANALYSIS

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

Permit Number

Date Reported: 7/30/01
P.O. Number:
Sample ID: 9930-00376
Date Received: 6/26/01
Time Received: 08:50

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG6-3-260601-03, 6/26/01 @ 09:45 by BS				
Total Aerobic Bacteria	71,000. cfu/ml	6/28/01	DJH	9215B MODIFIE
T.Aerobic Degrader Bacteria	710. cfu/ml	6/28/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-1-260601-06, 6/26/01 @ 11:50 by BS				
Total Aerobic Bacteria	750. cfu/ml	6/28/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	210. cfu/ml	6/28/01	DJH	9215B MODIFI
SUBJECT: MA3-TG3-2-260601-05, 6/26/01 @ 11:35 by BS				
Total Aerobic Bacteria	1,300. cfu/ml	6/28/01	DJH	9215B MODIFIE
T.Aerobic Degrader Bacteria	450. cfu/ml	6/28/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-3-260601-04, 6/26/01 @ 11:20 by BS				
Total Aerobic Bacteria	1,200. cfu/ml	6/28/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	250. cfu/ml	6/28/01	DJH	9215B MODIFI
SUBJECT: MA3-TG4-1-260601-07, 6/26/01 @ 14:40 by BS				
Total Aerobic Bacteria	3,200. cfu/ml	6/28/01	DJH	9215B MODIFI
T.Aerobic Degrader Bacteria	190. cfu/ml	6/28/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-2-260601-08, 6/26/01 @ 14:50 by BS				
Total Aerobic Bacteria	1,300. cfu/ml	6/28/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	370. cfu/ml	6/28/01	DJH	9215B MODIFI
SUBJECT: MA3-TG4-3-260601-09, 6/26/01 @ 15:00 by BS				
Total Aerobic Bacteria	17,000. cfu/ml	6/28/01	DJH	9215B MODIFI
T.Aerobic Degrader Bacteria	4,300. cfu/ml	6/28/01	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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CERTIFICATE OF ANALYSIS

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

Date Reported: 7/30/01
P.O. Number:
Sample ID: 9930-00376
Date Received: 6/26/01
Time Received: 08:50

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG5-1-260601-10, 6/26/01 @ 17:30 by BS				
Total Aerobic Bacteria	140,000. cfu/ml	6/28/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	32,000. cfu/ml	6/28/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-2-260601-11, 6/26/01 @ 17:40 by BS				
Total Aerobic Bacteria	19,000. cfu/ml	6/28/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	3,900. cfu/ml	6/28/01	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-3-260601-12, 6/26/01 @ 17:50 by BS				
Total Aerobic Bacteria	1,000. cfu/ml	6/28/01	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	140. cfu/ml	6/28/01	DJH	9215B MODIFIED

Submitted with Quality by _____

MEMBER ACIL

Hammomd Division - Microbac Laboratories
Bio-Analytical Summary Report

Job Code: **9930-376b**

Site Information

Site Name	Moss America	Date received	27-Jun-01
Location	Milwaukee, WI	Date of this report	19-Jul-01
Consultant	Roy F Weston	Microbacl Job Code	**9930-376**
Proj. Contact	Tom Graan		
Project Ref ID		Number of soil samples	0
Contaminant	btex-pah	Number of gw samples	18

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.

	Soil microbial populations: Exceeds norm for:			% TON /			% moisture /	% Air-filled
Sample ID	**Passive**	**Active**	**pH**	**% OM**	**C:N**	**C:P**	**SWHC**	**pore space**
	>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-tg6-3-260601-03	Summary table not applicable for groundwater.							
ma3-tg3-1-260601-06	Summary table not applicable for groundwater.							
ma3-tg3-2-260601-05	Summary table not applicable for groundwater.							
ma3-tg3-3-260601-04	Summary table not applicable for groundwater.							
ma3-tg4-1-260601-07	Summary table not applicable for groundwater.							
ma3-tg4-2-260601-08	Summary table not applicable for groundwater.							
ma3-tg4-3-260601-09	Summary table not applicable for groundwater.							
ma3-tg5-1-260601-10	Summary table not applicable for groundwater.							

The nutrient/physical parameters summarized abovefor 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. **BioRenewal 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.

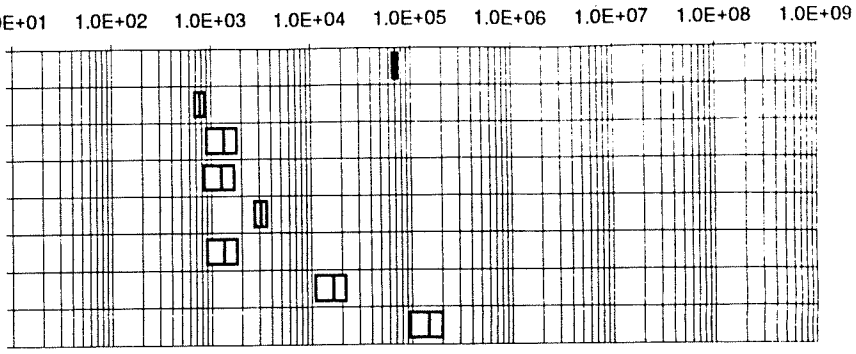
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples
Total populations

Low and high indicate 95% confidence range

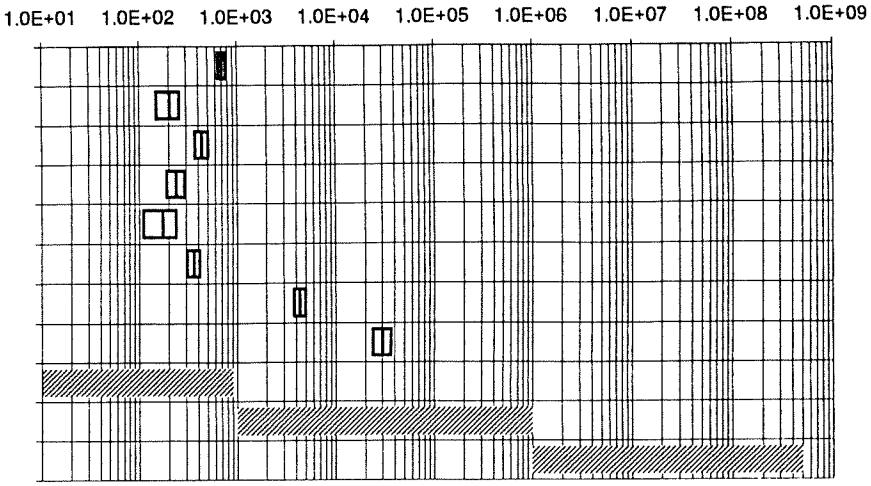
Sample ID	Mean	Low	High
ma3-tg6-3-26060	7.1E+04	6.7E+04	7.5E+04
ma3-tg3-1-26060	7.5E+02	6.9E+02	8.6E+02
ma3-tg3-2-26060	1.3E+03	9.0E+02	1.8E+03
ma3-tg3-3-26060	1.2E+03	8.5E+02	1.7E+03
ma3-tg4-1-26060	3.2E+03	2.7E+03	3.6E+03
ma3-tg4-2-26060	1.3E+03	9.0E+02	1.8E+03
ma3-tg4-3-26060	1.7E+04	1.1E+04	2.2E+04
ma3-tg5-1-26060	1.4E+05	9.5E+04	2.0E+05



Groundwater Samples
Degrader populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
ma3-tg6-3-26060	7.1E+02	6.5E+02	7.8E+02
ma3-tg3-1-26060	2.1E+02	1.5E+02	2.6E+02
ma3-tg3-2-26060	4.5E+02	3.7E+02	5.1E+02
ma3-tg3-3-26060	2.5E+02	1.9E+02	2.9E+02
ma3-tg4-1-26060	1.9E+02	1.1E+02	2.4E+02
ma3-tg4-2-26060	3.7E+02	3.1E+02	4.2E+02
ma3-tg4-3-26060	4.3E+03	3.8E+03	5.0E+03
ma3-tg5-1-26060	3.2E+04	2.4E+04	3.7E+04
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 desireable rates of transformation due to specific site conditions.

Assay conditions

	Degrader Media		Temp.	Growth	DOF **		Percent
Sample ID	Carbon source	% Carbon (v/v)	(Celcius)	Conditions	Total	Degrader	Degraders
ma3-tg6-3-26060	btex-pah	1.0	22	aerobic	0	0	1.0%
ma3-tg3-1-26060	btex-pah	1.0	22	aerobic	0	0	28.0%
ma3-tg3-2-26060	btex-pah	1.0	22	aerobic	0	0	34.6%
ma3-tg3-3-26060	btex-pah	1.0	22	aerobic	0	0	20.8%
ma3-tg4-1-26060	btex-pah	1.0	22	aerobic	0	0	5.9%
ma3-tg4-2-26060	btex-pah	1.0	22	aerobic	0	0	28.5%
ma3-tg4-3-26060	btex-pah	1.0	22	aerobic	0	0	25.3%
ma3-tg5-1-26060	btex-pah	1.0	22	aerobic	0	0	22.9%

* 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.

Hammomd Division - Microbac Laboratories
Bio-Analytical Summary Report

Job Code: **9930-376c**

Site Information

Site Name	Moss America	Date received	27-Jun-01
Location	Milwaukee, WI	Date of this report	19-Jul-01
Consultant	Roy F Weston	Microbacl Job Code	**9930-376**
Proj. Contact	Tom Graan		
Project Ref ID		Number of soil samples	0
Contaminant	btex-pah	Number of gw samples	18

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.

	Soil microbial populations: Exceeds norm for:							
Sample ID	**Passive**	**Active**	**pH**	**% TON / % OM**	**C:N**	**C:P**	**% moisture / SWHC**	**% Air-filled pore space**
	>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-tg5-2-260601-11	Summary table not applicable for groundwater.							
ma3-tg5-3-260601-12	Summary table not applicable for groundwater.							

The nutrient/physical parameters summarized abovefor 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. **BioRenewal 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.

Hammomd Division - Microbac Laboratories
Bio-Analytical Summary Report

Job Code: **9930-376c**

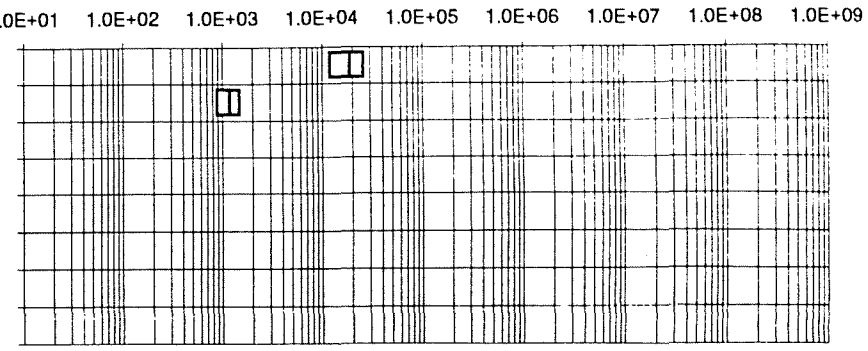
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples
Total populations

Low and high indicate 95% confidence range

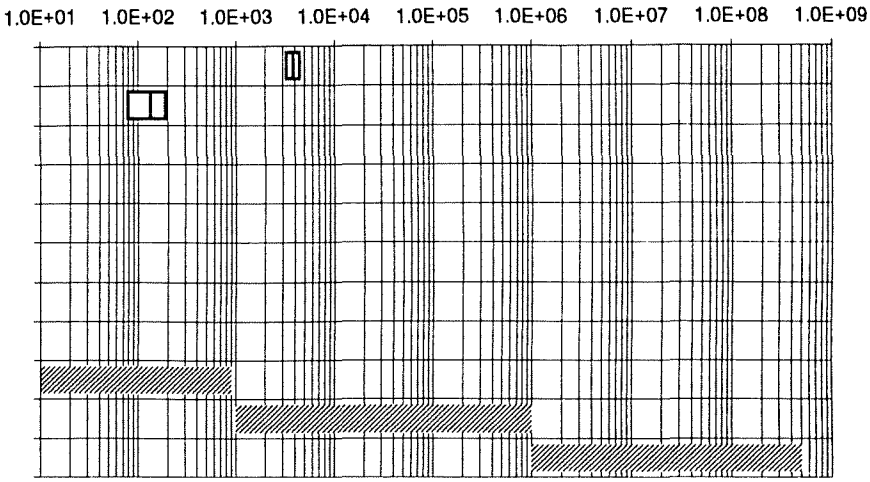
Sample ID	Mean	Low	High
ma3-tg5-2-26060	1.9E+04	1.2E+04	2.6E+04
ma3-tg5-3-26060	1.0E+03	8.9E+02	1.5E+03



Groundwater Samples
Degrader populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
ma3-tg5-2-26060	3.9E+03	3.3E+03	4.5E+03
ma3-tg5-3-26060	1.4E+02	8.0E+01	1.9E+02
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 desireable rates of transformation due to specific site conditions.

Assay conditions

Sample ID	Degrader Media: Carbon source	Degrader Media: % Carbon (v/v)	Temp. (Celcius)	Growth Conditions	DOF ** Total	DOF ** Degrader	Percent Degraders
ma3-tg5-2-26060	btex-pah	1.0	22	aerobic	0	0	20.5%
ma3-tg5-3-26060	btex-pah	1.0	22	aerobic	0	0	14.0%

* 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.

Hammomd Division - Microbac Laboratories
Bio-Analytical Summary Report

Job Code: **9930-376**

Site Information

Site Name	Moss America	Date received	27-Jun-01
Location	Milwaukee, WI	Date of this report	19-Jul-01
Consultant	Roy F Weston	Microbacl Job Code	**9930-376**
Proj. Contact	Tom Graan		
Project Ref ID		Number of soil samples	0
Contaminant	btex-pah	Number of gw samples	18

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.

	Soil microbial populations: Exceeds norm for:							
Sample ID	**Passive**	**Active**	**pH**	**% TON / % OM**	**C:N**	**C:P**	**% moisture / SWHC**	**% Air-filled pore space**
	>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-tg1-1-250601-3	Summary table not applicable for groundwater.							
ma3-tg1-2-250601-2	Summary table not applicable for groundwater.							
ma3-tg1-3-250601-1	Summary table not applicable for groundwater.							
ma3-tg2-1-250601-6	Summary table not applicable for groundwater.							
ma3-tg2-2-250601-4	Summary table not applicable for groundwater.							
ma3-tg2-3-250601-5	Summary table not applicable for groundwater.							
ma3-tg6-1-260601-2	Summary table not applicable for groundwater.							
ma3-tg6-2-260601-1	Summary table not applicable for groundwater.							

The nutrient/physical parameters summarized abovefor 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. **BioRenewal 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.
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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.

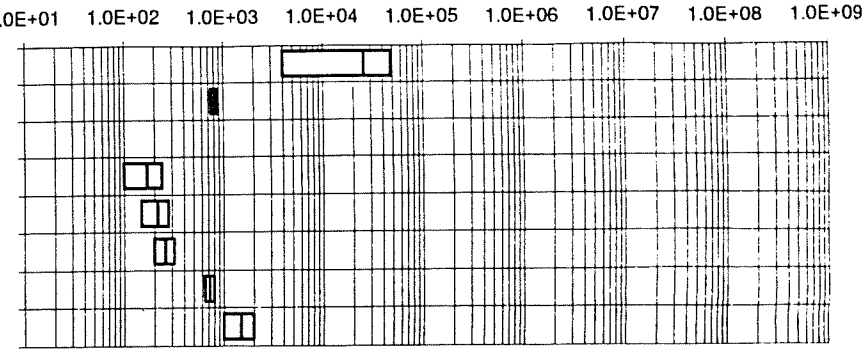
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples
Total populations

Low and high indicate 95% confidence range

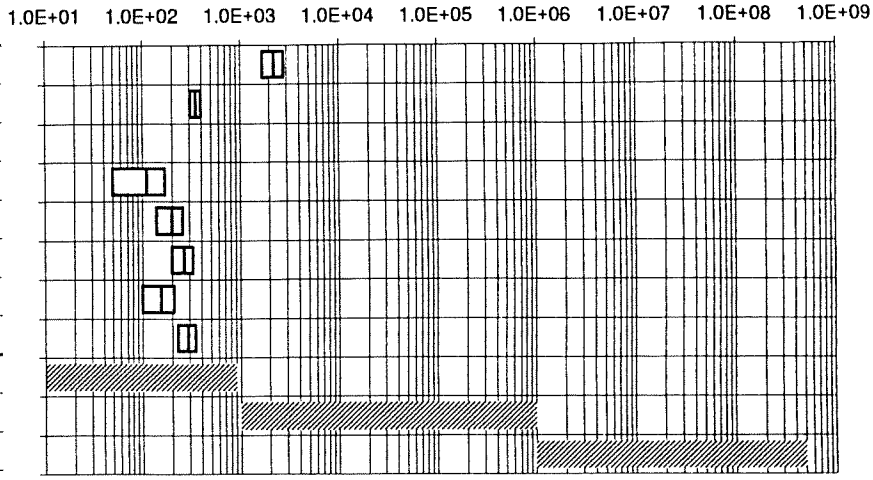
Sample ID	Mean	Low	High
ma3-tg1-1-25060	4.4E+04	4.0E+03	4.8E+04
ma3-tg1-2-25060	8.3E+02	7.5E+02	8.9E+02
ma3-tg1-3-25060	NA	NA	NA
ma3-tg2-1-25060	1.8E+02	1.0E+02	2.4E+02
ma3-tg2-2-25060	2.2E+02	1.5E+02	2.8E+02
ma3-tg2-3-25060	2.6E+02	2.0E+02	3.2E+02
ma3-tg6-1-26060	7.2E+03	6.5E+02	8.0E+02
ma3-tg6-2-26060	1.6E+03	1.0E+03	2.0E+03



Groundwater Samples
Degrader populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
ma3-tg1-1-25060	2.1E+03	1.7E+03	2.8E+03
ma3-tg1-2-25060	3.5E+02	3.1E+02	4.0E+02
ma3-tg1-3-25060	NA	NA	NA
ma3-tg2-1-25060	1.0E+02	5.0E+01	1.7E+02
ma3-tg2-2-25060	2.0E+02	1.4E+02	2.6E+02
ma3-tg2-3-25060	2.6E+02	2.0E+02	3.3E+02
ma3-tg6-1-26060	1.4E+02	1.0E+02	2.1E+02
ma3-tg6-2-26060	2.8E+02	2.3E+02	3.5E+02
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 desireable rates of transformation due to specific site conditions.

Assay conditions

	Degrader Media		Temp.	Growth	DOF **		Percent
Sample ID	Carbon source	% Carbon (v/v)	(Celcius)	Conditions	Total	Degrader	Degraders
ma3-tg1-1-25060	btex-pah	1.0	22	aerobic	0	0	4.8%
ma3-tg1-2-25060	btex-pah	1.0	22	aerobic	0	0	42.2%
ma3-tg1-3-25060	btex-pah	1.0	22	aerobic	0	0	NA
ma3-tg2-1-25060	btex-pah	1.0	22	aerobic	0	0	55.6%
ma3-tg2-2-25060	btex-pah	1.0	22	aerobic	0	0	90.9%
ma3-tg2-3-25060	btex-pah	1.0	22	aerobic	0	0	100.0%
ma3-tg6-1-26060	btex-pah	1.0	22	aerobic	0	0	1.9%
ma3-tg6-2-26060	btex-pah	1.0	22	aerobic	0	0	17.5%

* 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.

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

DATE _____ TIME _____ FLOW _____ TOTAL FLOW _____

EN
DATE _____ TIME _____ FLOW _____ INTERVAL _____

TEMP _____
TECH _____
MLS/Sample _____
Samples _____

P.O. #	CLIENT NAME	LOCATION/PROJECT
	Roy F Weston	Milwaukee, WI / MassAmerican

SAMPLERS (Signature)	SEND REPORT TO:	PHONE
Brian Schaefer	Tom Graan	(847) 918-4000

LAB I.D. #	Sample Chest # / Chest Temp. °C	Sample Temp. at Lab °C	Method of Shipment To Lab: Date / Time
9930-376			

C.O.C. #1 of 2

	SAMPLE LOCATION	COLLECTED DATE	COLLECTED TIME	SAMPLE TYPE COMP.	SAMPLE TYPE GRAB	SAMPLE TYPE MATRIX	NO OF CONTAINERS	CONTAINER TYPE / PRESERVATIVE	ANALYSES REQUESTED: Microbial Enumeration	REMARKS / OBSERVATIONS / LIST SPECIAL HAZARDS HERE	RETURN SAMPLES TO CLIENT
1	MA3-TG1-1-250601-03	6/25/01	1740		X	W	1	vial not preserved	X		
2	MA3-TG1-2-250601-02	6/25/01	1735		X	W	1		X		
3	MA3TG1-3-250601-01	6/25/01	1645		X	W	1		X	SAMPLE BOTTLE WAS BROKE A BOTTOM UPON ARRIVAL	
4	MA3-TG2-1-250601-06	6/25/01	1910		X	W	1		X		
5	MA3-TG2-2-250601-04	6/25/01	1850		X	W	1		X		
6	MA3-TG2-3-250601-05	6/25/01	1900		X	W	1		X		
7	MA3-TG6-1-260601-02	6/26/01	0935		X	W	1		X		
8	MA3-TG6-2-260601-01	6/26/01	0925		X	W	1		X		

	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
1	Brian Schaefer	6/26/01	1930	2	3			4
5				6	7			8
9				Received for Lab by: (Signature)	Date: 6/27/01	Time: 8:50		

Page _____ of _____

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

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

P.O. #	CLIENT NAME	LOCATION/PROJECT
	Roy F Weston	Milwaukee, WI / Moss American

SAMPLERS (Signature): Brian Schaefer

SEND REPORT TO: Tom Graan
PHONE (847) 918-4000

LAB I.D. #: 9930-376
Sample Chest # . Chest Temp. °C
Sample Temp. at Lab °C
Method of Shipment To Lab: Date Time

C.O.C. #2 of 2

ANALYSES REQUESTED: Microbial Enumeration

	SAMPLE LOCATION	COLLECTED DATE	COLLECTED TIME	SAMPLE TYPE COMP.	SAMPLE TYPE GRAB	SAMPLE TYPE MATRIX	NO OF CONTAINERS	CONTAINER TYPE PRESERVATIVE	Microbial Enumeration	REMARKS OBSERVATIONS LIST SPECIAL HAZARDS HERE	RETURN SAMPLES TO CLIENT
9	MA3-TG6-3-260601-03	6/26/01	0945		X	W	1	Vial/ nonpreserved	X		
10	MA3-TG3-1-260601-06	6/26/01	1150		X	W	1		X		
11	MA3-TG3-2-260601-05	6/26/01	1135		X	W	1		X		
12	MA3-TG3-3-260601-04	6/26/01	1120		X	W	1		X		
13	MA3-TG4-1-260601-07	6/26/01	1440		X	W	1		X		
14	MA3-TG4-2-260601-08	6/26/01	1450		X	W	1		X		
15	MA3-TG4-3-260601-09	6/26/01	1500		X	W	1		X		
16	MA3-TG5-1-260601-10	6/26/01	1730		X	W	1		X		
17	MA3-TG5-2-260601-11	6/26/01	1740		X	W	1		X		
18	MA3-TG5-3-260601-12	6/26/01	1750		X	W	1		X		

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by (Signature)
1 Brian Schaefer	6/26/01	1930	2	3			4
5			6	7			8
9			Received for Lab by: (Signature)		Date	Time	

Page ___ of ___

Lancaster Laboratories
Where quality is a science.

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 768050. Samples arrived at the laboratory on Wednesday, June 27, 2001.

Client Description	Lancaster Labs Number
TB-01 Water Sample	3638098
MA3-TG6-1-260601-02 Grab Water Sample	3638099
MA3-TG6-2-260601-01 Grab Water Sample	3638100
MA3-TG6-2-260601-01-DP Grab Water Sample	3638101
MA3-TG6-3-260601-03 Grab Water Sample	3638102
MA3-TG3-1-260601-06 Grab Water Sample	3638103
MA3-TG3-2-260601-05 Grab Water Sample	3638104
MA3-TG3-3-260601-04 Unspiked Grab Water Sample	3638105
MA3-TG3-3-260601-04-MS Matrix Spike Grab Water	3638106
MA3-TG3-3-260601-04-MSD Matrix Spike Dup. Grab	3638107
FB-01 Grab Water Sample	3638108
MA3-TG4-1-260601-07 Grab Water Sample	3638109
MA3-TG4-2-260601-08 Grab Water Sample	3638110
MA3-TG4-3-260601-09 Grab Water Sample	3638111
MA3-TG5-1-260601-10 Grab Water Sample	3638112
MA3-TG5-1-260601-10-DP Grab Water Sample	3638113
MA3-TG5-2-260601-11 Grab Water Sample	3638114
MA3-TG5-3-260601-12 Grab Water Sample	3638115
FB-02 Grab Water Sample	3638116
MA3-TG1-3-250601-01 Grab Water Sample	3638117
MA3-TG1-2-250601-02 Grab Water Sample	3638118
MA3-TG1-1-250601-03 Grab Water Sample	3638119
MA3-TG2-2-250601-04 Grab Water Sample	3638120
MA3-TG2-3-250601-05 Grab Water Sample	3638121
MA3-TG2-1-250601-06 Grab Water Sample	3638122

METHODOLOGY

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

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

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

Respectfully Submitted,

Erik J. Frederiksen
Group Leader

MEMBER ACIL
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.

Lancaster Laboratories Sample No. WW 3638119

Collected:06/25/2001 17:40 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
MA3-TG1-1-250601-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

1-103 SDG#: MOA60-20

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.3	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.84 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.052	0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	5.8	mg/l	1
	This sample was not submitted with sufficient time for the analysis to be completed within the 48 hour hold time for BOD.					
00273	Total Organic Carbon	n.a.	11.1	0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	40.3	1.7	mg/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	5.0 J	1.0	ug/l	5
00777	Toluene	108-88-3	1.8 J	1.0	ug/l	5
00778	Ethylbenzene	100-41-4	21.	1.0	ug/l	5
00779	Total Xylenes	1330-20-7	36.	3.0	ug/l	5
	Due to dilution of the sample made necessary by the high level of non-target compounds, normal reporting limits were not attained.					
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	2,200.	8.	ug/l	10
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	150.	0.8	ug/l	1
00784	Fluorene	86-73-7	59.	2.0	ug/l	10
00785	Phenanthrene	85-01-8	29.	0.60	ug/l	10

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3638119

Collected:06/25/2001 17:40 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
MA3-TG1-1-250601-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

1-103 SDG#: MOA60-20

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
00789	Anthracene	120-12-7	2.7		0.030	ug/l	1
00807	Fluoranthene	206-44-0	2.6		0.030	ug/l	1
00811	Pyrene	129-00-0	1.9		0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.19		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.040	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.		0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.060	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.09	ug/l	1
07409	Chrysene	218-01-9	0.12	J	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.026	J	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 15:14	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/27/2001 12:43	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 13:30	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/27/2001 14:30	Michele L. Hanby	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 12:19	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:32	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/11/2001 05:45	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 03:46	Melissa Mann	5
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 09:49	Timothy Trees	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/07/2001 23:57	Timothy Trees	10
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 03:46	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 09:45	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3638119

Collected:06/25/2001 17:40 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
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MA3-TG1-1-250601-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

1-103 SDG#: MOA60-20

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

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3638118

Collected:06/25/2001 17:35 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
MA3-TG1-2-250601-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

1-202 SDG#: MOA60-19

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
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
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.103		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		3.2	mg/l	1
	This sample was not submitted with sufficient time for the analysis to be completed within the 48 hour hold time for BOD.						
00273	Total Organic Carbon	n.a.	9.6		0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".						
00345	Total Phosphorus as PO4 water	14265-44-2	0.23		0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	26.4		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	0.45	J	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	0.62	J	0.60	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	78.		0.8	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	36.		0.8	ug/l	1
00784	Fluorene	86-73-7	9.6		0.20	ug/l	1
00785	Phenanthrene	85-01-8	15.		0.070	ug/l	1
00789	Anthracene	120-12-7	2.2		0.030	ug/l	1
00807	Fluoranthene	206-44-0	3.7		0.030	ug/l	1
00811	Pyrene	129-00-0	3.4		0.20	ug/l	1

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Lancaster Laboratories Sample No. WW 3638118

Collected:06/25/2001 17:35 by BS

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
MA3-TG1-2-250601-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

Account Number: 07802

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

1-202 SDG#: MOA60-19

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00812	Benzo(a)anthracene	56-55-3	0.14	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.010 J	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 15:08	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/27/2001 12:42	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 12:53	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/27/2001 14:30	Michele L. Hanby	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 12:11	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:31	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/11/2001 05:45	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 23:41	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 09:26	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 23:41	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 08:35	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638117

Collected:06/25/2001 16:45 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
MA3-TG1-3-250601-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

1-301 SDG#: MOA60-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.3	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.75 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.074	0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.5	mg/l	1
	This sample was not submitted with sufficient time for the analysis to be completed within the 48 hour hold time for BOD.					
00273	Total Organic Carbon	n.a.	5.0	0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	0.24	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	14.0	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.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.060	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.033 J	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	ug/l	1

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Lancaster Laboratories Sample No. WW 3638117

Collected:06/25/2001 16:45 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
MA3-TG1-3-250601-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

1-301 SDG#: MOA60-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 15:07	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/27/2001 12:40	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 12:52	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/27/2001 14:30	Michele L. Hanby	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 12:02	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:31	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/11/2001 05:45	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 23:06	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 09:04	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 23:06	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 08:35	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638122

Collected:06/25/2001 19:10 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
MA3-TG2-1-250601-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

2-106 SDG#: MOA60-23*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	N.D.	0.30	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	0.20 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.066	0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.7	mg/l	1
	This sample was not submitted with sufficient time for the analysis to be completed within the 48 hour hold time for BOD.					
00273	Total Organic Carbon	n.a.	2.1	0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	5.4 J	1.7	mg/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.060	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	ug/l	1

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Lancaster Laboratories Sample No. WW 3638122

Collected:06/25/2001 19:10 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
MA3-TG2-1-250601-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

2-106 SDG#: MOA60-23*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	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	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 15:18	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/27/2001 12:47	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 13:34	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/03/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/27/2001 14:30	Michele L. Hanby	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 12:43	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:35	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/11/2001 05:45	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 01:26	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 00:03	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 01:26	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 09:45	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638120

Collected:06/25/2001 18:50 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
MA3-TG2-2-250601-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

2-204 SDG#: MOA60-21

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
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	0.87	J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.067		0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.5	mg/l	1
	This sample was not submitted with sufficient time for the analysis to be completed within the 48 hour hold time for BOD.						
00273	Total Organic Carbon	n.a.	5.7		0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".						
00345	Total Phosphorus as PO4 water	14265-44-2	0.18		0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	11.6		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		0.8	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.		0.20	ug/l	1
00785	Phenanthrene	85-01-8	0.079	J	0.070	ug/l	1
00789	Anthracene	120-12-7	0.032	J	0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.078	J	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.20	ug/l	1

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Lancaster Laboratories Sample No. WW 3638120

Collected:06/25/2001 18:50 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
MA3-TG2-2-250601-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

2-204 SDG#: MOA60-21

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 15:16	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/27/2001 12:44	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 13:32	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/03/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/27/2001 14:30	Michele L. Hanby	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 12:27	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:33	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/11/2001 05:45	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 00:16	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 10:11	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 00:16	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 09:45	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638121

Collected:06/25/2001 19:00 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
MA3-TG2-3-250601-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

2-305 SDG#: MOA60-22

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.34 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	0.32 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.097	0.0028	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.1	mg/l	1
	This sample was not submitted with sufficient time for the analysis to be completed within the 48 hour hold time for BOD.					
00273	Total Organic Carbon	n.a.	4.7	0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	0.22	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	11.2	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
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.033 J	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	ug/l	1

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Lancaster Laboratories Sample No. WW 3638121

Collected:06/25/2001 19:00 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
MA3-TG2-3-250601-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

2-305 SDG#: MOA60-22

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	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	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 15:17	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/27/2001 12:45	Matthew J. Mercer	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 13:33	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/03/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/27/2001 14:30	Michele L. Hanby	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 12:35	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:34	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/11/2001 05:45	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 00:51	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/04/2001 23:41	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 00:51	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 09:45	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:00	John A. Myers	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638103

Collected:06/26/2001 11:50 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001
MA3-TG3-1-260601-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3-106 SDG#: MOA60-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	2.7		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	2.0		0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an 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 within the holding time for orthophosphate on 06/28/01 and yielded a result of 0.61 mg/L. However, that result was greater than that of the total phosphorus and so, the analysis was repeated on 07/06/01. The repeated trial yielded a result of N.D. mg/L. The second trial is being reported per client request.						
00235	Biochemical Oxygen Demand	n.a.	N.D.		3.8	mg/l	1
00273	Total Organic Carbon	n.a.	20.1		0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".						
00345	Total Phosphorus as PO4 water	14265-44-2	0.70		0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	49.8		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	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.		0.8	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	0.8	J	0.8	ug/l	1
00784	Fluorene	86-73-7	0.62	J	0.20	ug/l	1
00785	Phenanthrene	85-01-8	0.30	J	0.070	ug/l	1

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Lancaster Laboratories Sample No. WW 3638103

Collected:06/26/2001 11:50 by BS

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001
MA3-TG3-1-260601-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

Account Number: 07802

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

3-106 SDG#: MOA60-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00789	Anthracene	120-12-7	0.2	0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.2	0.030	ug/l	1
00811	Pyrene	129-00-0	0.24 J	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 14:48	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/28/2001 08:52	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 12:38	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	2	07/06/2001 06:30	Kenneth A. Bell	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 09:45	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:15	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/09/2001 06:00	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 18:56	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 04:11	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 18:56	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 08:35	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638104

Collected:06/26/2001 11:35 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001
MA3-TG3-2-260601-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3-205 SDG#: MOA60-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.6	0.30	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	1.3	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an 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 within the holding time for orthophosphate on 06/28/01 and yielded a result of 0.81 mg/L. However, that result was greater than that of the total phosphorus and so, the analysis was repeated on 07/06/01. The repeated trial yielded a result of N.D. mg/L. The second trial is being reported per client request.					
00235	Biochemical Oxygen Demand	n.a.	5.4	0.80	mg/l	1
00273	Total Organic Carbon	n.a.	11.1	0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	0.32	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	25.1	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
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1

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Lancaster Laboratories Sample No. WW 3638105

Collected:06/26/2001 11:20 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001
MA3-TG3-3-260601-04 Unspiked Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3-304 SDG#: MOA60-08BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00789	Anthracene	120-12-7	0.036 J	0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.11 J	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.070	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	0.07 J	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 14:51	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/28/2001 08:54	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 12:41	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	2	07/06/2001 06:30	Kenneth A. Bell	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 10:17	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:19	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/09/2001 06:00	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 15:25	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 01:33	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 15:25	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 08:35	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638106

Collected:06/26/2001 11:20 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001

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

MA3-TG3-3-260601-04-MS Matrix Spike Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

3-304 SDG#: MOA60-08MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	21.	0.20	ug/l	1
00777	Toluene	108-88-3	21.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	20.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	58.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	150.	0.8	ug/l	1
00782	Acenaphthylene	208-96-8	160.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	180.	0.8	ug/l	1
00784	Fluorene	86-73-7	17.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	5.7	0.070	ug/l	1
00789	Anthracene	120-12-7	3.0	0.030	ug/l	1
00807	Fluoranthene	206-44-0	3.4	0.030	ug/l	1
00811	Pyrene	129-00-0	21.	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.6	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.3	0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.5	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.2	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	6.5	0.070	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	13.	0.1	ug/l	1
07409	Chrysene	218-01-9	6.0	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.2	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 16:01	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 01:56	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 16:01	Melissa Mann	n.a.

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

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Lancaster Laboratories Sample No. WW 3638106

Collected:06/26/2001 11:20 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001

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

MA3-TG3-3-260601-04-MS Matrix Spike Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

3-304 SDG#: MOA60-08MS

03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1

MEMBER ACIL
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.

Lancaster Laboratories Sample No. WW 3638107

Collected:06/26/2001 11:20 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001
MA3-TG3-3-260601-04-MSD Matrix Spike Dup. Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3-304 SDG#: MOA60-08MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	20.	0.20	ug/l	1
00777	Toluene	108-88-3	21.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	20.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	58.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	140.	0.8	ug/l	1
00782	Acenaphthylene	208-96-8	140.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	170.	0.8	ug/l	1
00784	Fluorene	86-73-7	16.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	5.3	0.070	ug/l	1
00789	Anthracene	120-12-7	2.8	0.030	ug/l	1
00807	Fluoranthene	206-44-0	3.2	0.030	ug/l	1
00811	Pyrene	129-00-0	20.	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.5	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.2	0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.5	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.1	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	6.1	0.070	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	12.	0.1	ug/l	1
07409	Chrysene	218-01-9	5.7	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.2	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 16:36	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 02:18	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 16:36	Melissa Mann	n.a.

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Lancaster Laboratories Sample No. WW 3638107

Collected:06/26/2001 11:20 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001
MA3-TG3-3-260601-04-MSD Matrix Spike Dup. Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3-304 SDG#: MOA60-08MSD

03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1

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Lancaster Laboratories Sample No. WW 3638109

Collected:06/26/2001 14:40 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG4-1-260601-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

4-107 SDG#: MOA60-10

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.84	J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.73	J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.0044	J	0.0028	mg/l	1
	This sample was analyzed within the holding time for orthophosphate on 06/28/01 and yielded a result of 0.293 mg/L. However, that result was greater than that of the total phosphorus and so, the analysis was repeated on 07/06/01. The repeated trial yielded a result of 0.0044 mg/L. The second trial is being reported per client request.						
00235	Biochemical Oxygen Demand	n.a.	N.D.		3.1	mg/l	1
00273	Total Organic Carbon	n.a.	5.9		0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".						
00345	Total Phosphorus as PO4 water	14265-44-2	0.45		0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	17.8		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	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	6.7	J	0.8	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.		0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.070	ug/l	1

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Lancaster Laboratories Sample No. WW 3638109

Collected:06/26/2001 14:40 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG4-1-260601-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

4-107 SDG#: MOA60-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 14:54	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/28/2001 08:56	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 12:42	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	2	07/06/2001 06:30	Kenneth A. Bell	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 10:42	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:21	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/11/2001 05:45	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 02:36	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 05:41	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 02:36	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 08:35	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638110

Collected:06/26/2001 14:50 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG4-2-260601-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

4-208 SDG#: MOA60-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
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 matrix QC for this analysis. Therefore, an 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 within the holding time for orthophosphate on 06/28/01 and yielded a result of 0.458 mg/L. However, that result was greater than that of the total phosphorus and so, the analysis was repeated on 07/06/01. The repeated trial yielded a result of N.D.mg/L. The second trial is being reported per client request.					
00235	Biochemical Oxygen Demand	n.a.	N.D.	3.2	mg/l	1
00273	Total Organic Carbon	n.a.	7.3	0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	0.15 J	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	20.2	1.7	mg/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1

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Collected:06/26/2001 14:50 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG4-2-260601-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

4-208 SDG#: MOA60-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	0.075 J	0.070	ug/l	1
00789	Anthracene	120-12-7	0.096 J	0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.2	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 14:58	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/28/2001 08:57	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 12:43	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	2	07/06/2001 06:30	Kenneth A. Bell	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 10:50	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:22	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/11/2001 05:45	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 13:14	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 06:04	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 13:14	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 08:35	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Collected:06/26/2001 14:50 by BS

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG4-2-260601-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

Account Number: 07802

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4-208 SDG#: MOA60-11

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Lancaster Laboratories Sample No. WW 3638111

Collected:06/26/2001 15:00 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG4-3-260601-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

4-309 SDG#: MOA60-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.3	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.2	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an 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 within the holding time for orthophosphate on 06/28/01 and yielded a result of 0.569 mg/L. However, that result was greater than that of the total phosphorus and so, the analysis was repeated on 07/06/01. The repeated trial yielded a result of N.D. mg/L. The second trial is being reported per client request.					
00235	Biochemical Oxygen Demand	n.a.	N.D.	3.3	mg/l	1
00273	Total Organic Carbon	n.a.	6.7	0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	0.21	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	16.3	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.	0.8	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1

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Collected:06/26/2001 15:00 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG4-3-260601-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

4-309 SDG#: MOA60-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 14:59	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/28/2001 09:01	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 12:44	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	2	07/06/2001 06:30	Kenneth A. Bell	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 10:58	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:23	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/11/2001 05:45	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 13:49	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 06:26	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 13:49	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 08:35	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638111

Collected:06/26/2001 15:00 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG4-3-260601-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

4-309 SDG#: MOA60-12

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Lancaster Laboratories Sample No. WW 3638112

Collected:06/26/2001 17:30 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG5-1-260601-10 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

5-110 SDG#: MOA60-13

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
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	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 matrix QC for this analysis. Therefore, an 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 within the holding time for orthophosphate on 06/28/01 and yielded a result of 0.512 mg/L. However, that result was greater than that of the total phosphorus and so, the analysis was repeated on 07/06/01. The repeated trial yielded a result of N.D. mg/L. The second trial is being reported per client request.						
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.5	mg/l	1
00273	Total Organic Carbon	n.a.	4.3		0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".						
00345	Total Phosphorus as PO4 water	14265-44-2	0.22		0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	9.3		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	3.0	J	0.8	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1

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Lancaster Laboratories Sample No. WW 3638112

Collected:06/26/2001 17:30 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG5-1-260601-10 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

5-110 SDG#: MOA60-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 15:01	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/28/2001 09:02	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 12:46	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	2	07/06/2001 06:30	Kenneth A. Bell	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 11:22	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:24	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/11/2001 05:45	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 14:24	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 06:49	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 14:24	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 08:35	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638112

Collected:06/26/2001 17:30 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG5-1-260601-10 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

5-110 SDG#: MOA60-13

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

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Lancaster Laboratories Sample No. WW 3638113

Collected:06/26/2001 17:30 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG5-1-260601-10-DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

5-1DP SDG#: MOA60-14FD

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	2.6 J	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 18:32	Deborah S. Garrison	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 07:11	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 18:32	Deborah S. Garrison	n.a.

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

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Lancaster Laboratories Sample No. WW 3638113

Collected:06/26/2001 17:30 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG5-1-260601-10-DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

5-1DP SDG#: MOA60-14FD

03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1

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

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Lancaster Laboratories Sample No. WW 3638114

Collected:06/26/2001 17:40 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG5-2-260601-11 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

5-211 SDG#: MOA60-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.75 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
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an 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 within the holding time for orthophosphate on 06/28/01 and yielded a result of 0.675 mg/L. However, that result was greater than that of the total phosphorus and so, the analysis was repeated on 07/06/01. The repeated trial yielded a result of N.D. mg/L. The second trial is being reported per client request.					
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.9	mg/l	1
00273	Total Organic Carbon	n.a.	6.0	0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	15.1	1.7	mg/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1

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Lancaster Laboratories Sample No. WW 3638114

Collected:06/26/2001 17:40 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG5-2-260601-11 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

5-211 SDG#: MOA60-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00789	Anthracene	120-12-7	0.036 J	0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.050 J	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 15:02	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/28/2001 09:03	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 12:47	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	2	07/06/2001 06:30	Kenneth A. Bell	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 11:30	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:25	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/11/2001 05:45	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 19:08	Deborah S. Garrison	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 07:34	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 19:08	Deborah S. Garrison	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 08:35	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638115

Collected:06/26/2001 17:50 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG5-3-260601-12 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

5-312 SDG#: MOA60-16

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
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	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 matrix QC for this analysis. Therefore, an 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 within the holding time for orthophosphate on 06/28/01 and yielded a result of 0.760 mg/L. However, that result was greater than that of the total phosphorus and so, the analysis was repeated on 07/06/01. The repeated trial yielded a result of N.D. mg/L. The second trial is being reported per client request.						
00235	Biochemical Oxygen Demand	n.a.	N.D.		3.1	mg/l	1
00273	Total Organic Carbon	n.a.	4.5		0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".						
00345	Total Phosphorus as PO4 water	14265-44-2	0.16	J	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	11.6		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		0.8	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.		0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.060	ug/l	1

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Lancaster Laboratories Sample No. WW 3638115

Collected:06/26/2001 17:50 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
MA3-TG5-3-260601-12 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

5-312 SDG#: MOA60-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 15:03	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/28/2001 09:04	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 12:48	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	2	07/06/2001 06:30	Kenneth A. Bell	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 11:54	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:30	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/11/2001 05:45	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 22:43	Deborah S. Garrison	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 07:56	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 22:43	Deborah S. Garrison	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 08:35	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638099

Collected:06/26/2001 09:35 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:01
Discard: 08/18/2001
MA3-TG6-1-260601-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

6-102 SDG#: MOA60-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.99 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	0.93 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.069	0.0028	mg/l	1
	This sample was analyzed within the holding time for orthophosphate on 06/28/01 and yielded a result of 0.550 mg/L. However, that result was greater than that of the total phosphorus and so, the analysis was repeated on 07/06/01. The repeated trial yielded a result of 0.069 mg/L. The second trial is being reported per client request.					
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.9	mg/l	1
00273	Total Organic Carbon	n.a.	4.9	0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	0.34	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	12.9	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
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1

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Lancaster Laboratories Sample No. WW 3638099

Collected:06/26/2001 09:35 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:01
Discard: 08/18/2001
MA3-TG6-1-260601-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

6-102 SDG#: MOA60-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.068 J	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.02 J	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	0.02 J	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	0.039 J	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.014 J	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 14:45	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/28/2001 08:48	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 12:32	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	2	07/06/2001 06:30	Kenneth A. Bell	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 09:21	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:12	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/09/2001 06:00	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 03:11	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 02:41	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 03:11	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 08:35	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638100

Collected:06/26/2001 09:25 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001
MA3-TG6-2-260601-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

6-201 SDG#: MOA60-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.74 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	0.35 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0044 J	0.0028	mg/l	1
	This sample was analyzed within the holding time for orthophosphate on 06/28/01 and yielded a result of 1.05 mg/L. However, that result was greater than that of the total phosphorus and so, the analysis was repeated on 07/06/01. The repeated trial yielded a result of 0.0044 mg/L The second trial is being reported per client request.					
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.3	mg/l	1
00273	Total Organic Carbon	n.a.	6.0	0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	15.3	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
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1

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Lancaster Laboratories Sample No. WW 3638100

Collected:06/26/2001 09:25 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001
MA3-TG6-2-260601-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

6-201 SDG#: MOA60-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.17 J	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 14:46	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/28/2001 08:49	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 12:33	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	2	07/06/2001 06:30	Kenneth A. Bell	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 09:29	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:13	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/09/2001 06:00	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 17:11	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 03:03	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 17:11	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 08:35	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638101

Collected:06/26/2001 09:25 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001
MA3-TG6-2-260601-01-DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

6-2DP SDG#: MOA60-04FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	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.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	0.051 J	0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.16 J	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.070	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 17:46	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 03:26	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 17:46	Melissa Mann	n.a.

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Lancaster Laboratories Sample No. WW 3638101

Collected:06/26/2001 09:25 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001
MA3-TG6-2-260601-01-DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

6-2DP SDG#: MOA60-04FD

03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1

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Lancaster Laboratories Sample No. WW 3638102

Collected:06/26/2001 09:45 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001
MA3-TG6-3-260601-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

6-303 SDG#: MOA60-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.1	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	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
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an 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 within the holding time for orthophosphate on 06/28/01 and yielded a result of 0.89 mg/L. However, that result was greater than that of the total phosphorus and so, the analysis was repeated on 07/06/01. The repeated trial yielded a result of N.D. mg/L. The second trial is being reported per client request.					
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.4	mg/l	1
00273	Total Organic Carbon	n.a.	6.0	0.60	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	0.28	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	16.1	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
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.060	ug/l	1

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Lancaster Laboratories Sample No. WW 3638102

Collected:06/26/2001 09:45 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:02
Discard: 08/18/2001
MA3-TG6-3-260601-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

6-303 SDG#: MOA60-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.035 J	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/28/2001 14:47	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/28/2001 08:51	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	07/05/2001 12:37	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	07/02/2001 09:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	2	07/06/2001 06:30	Kenneth A. Bell	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/27/2001 23:44	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/28/2001 09:37	Nicole Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	07/03/2001 11:42	Matthew J. Mercer	1
01553	Chemical Oxygen Demand	EPA 410.2	1	07/09/2001 06:00	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 18:21	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 03:48	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 18:21	Melissa Mann	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/28/2001 08:35	James S. Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	07/02/2001 15:45	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3638098

Collected: n.a.

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:01
Discard: 08/18/2001
TB-01 Water Sample
Moss American Superfund Site - Milwaukee, WI

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

626TB SDG#: MOA60-01TB

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/5030B	1	06/28/2001 16:08	Deborah S. Garrison	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 16:08	Deborah S. Garrison	n.a.

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Lancaster Laboratories Sample No. WW 3638108

Collected:06/26/2001 13:30 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
FB-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

626F1 SDG#: MOA60-09FB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 22:31	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 05:19	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 22:31	Melissa Mann	n.a.

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Lancaster Laboratories Sample No. WW 3638108

Collected:06/26/2001 13:30 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:03
Discard: 08/18/2001
FB-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

626F1 SDG#: MOA60-09FB

03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1

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Lancaster Laboratories Sample No. WW 3638116

Collected:06/26/2001 18:30 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
FB-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

262F2 SDG#: MOA60-17FB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/28/2001 16:44	Deborah S. Garrison	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 08:19	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/28/2001 16:44	Deborah S. Garrison	n.a.

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Lancaster Laboratories Sample No. WW 3638116

Collected:06/26/2001 18:30 by BS

Account Number: 07802

Submitted: 06/27/2001 09:00
Reported: 07/18/2001 at 12:04
Discard: 08/18/2001
FB-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

262F2 SDG#: MOA60-17FB

03337	PAH Water Extraction	SW-846 3510C	1	06/28/2001 10:45	Shawn M. Neiss	1

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 768050
Reported: 07/18/01 at 12:04 PM

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 01178022601A	Sample number(s): 3638117-3638122							
Ortho-Phosphate as P	N.D.	.0028	mg/l	99		91-122		
Batch number: 01178023502A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638112,3638114-3638115,3638117-3638122							
Biochemical Oxygen Demand				101	97	85-115	5	7
Batch number: 01178105101A	Sample number(s): 3638117-3638122							
Nitrite Nitrogen	N.D.	.015	mg/l	99		90-110		
Batch number: 01179070011A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638110							
Total Organic Carbon	N.D.	.6	mg/l	98		85-115		
Batch number: 01179070011B	Sample number(s): 3638111-3638112,3638114-3638115,3638117-3638122							
Total Organic Carbon	N.D.	.6	mg/l	98		85-115		
Batch number: 01179105101A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638112							
Nitrite Nitrogen	N.D.	.015	mg/l	100		90-110		
Batch number: 01179105101B	Sample number(s): 3638114-3638115							
Nitrite Nitrogen	N.D.	.015	mg/l	100		90-110		
Batch number: 01179108101A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638112							
Kjeldahl Nitrogen	N.D.	.3	mg/l	101		90-110		
Batch number: 01179108101B	Sample number(s): 3638114-3638115,3638117-3638118							
Kjeldahl Nitrogen	N.D.	.3	mg/l	101		90-110		
Batch number: 01179108102A	Sample number(s): 3638119-3638122							
Kjeldahl Nitrogen	N.D.	.3	mg/l	92		90-110		
Batch number: 01179A55	Sample number(s): 3638099-3638109,3638117-3638122							
Benzene	N.D.	.2	ug/l	96		80-118		
Toluene	N.D.	.2	ug/l	100		82-119		
Ethylbenzene	N.D.	.2	ug/l	100		81-119		
Total Xylenes	N.D.	.6	ug/l	99		82-120		
Batch number: 01179A66	Sample number(s): 3638098,3638113-3638116							
Benzene	N.D.	.2	ug/l	100	105	80-118	6	30
Toluene	N.D.	.2	ug/l	96	102	82-119	6	30
Ethylbenzene	N.D.	.2	ug/l	98	104	81-119	5	30
Total Xylenes	N.D.	.6	ug/l	97	102	82-120	5	30
Batch number: 01179WAB026	Sample number(s): 3638099-3638120							
Naphthalene	N.D.	.8	ug/l	64		45-111		
Acenaphthylene	N.D.	.8	ug/l	70		60-114		
Acenaphthene	N.D.	.8	ug/l	81		50-120		
Fluorene	N.D.	.2	ug/l	80		64-117		
Phenanthrene	N.D.	.07	ug/l	90		75-114		
Anthracene	N.D.	.03	ug/l	93		53-112		
Fluoranthene	N.D.	.03	ug/l	105		75-120		

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

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Quality Control Summary

Client Name: Kerr-McGee Corporation
Group Number: 768050
Reported: 07/18/01 at 12:04 PM

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Pyrene	N.D.	.2	ug/l	100		80-125		
Benzo(a)anthracene	N.D.	.02	ug/l	103		73-117		
Benzo(b)fluoranthene	N.D.	.04	ug/l	102		71-123		
Benzo(a)pyrene	N.D.	.02	ug/l	99		61-127		
Dibenz(a,h)anthracene	N.D.	.03	ug/l	103		71-121		
Indeno(1,2,3-cd)pyrene	N.D.	.07	ug/l	104		73-125		
Benzo(g,h,i)perylene	N.D.	.1	ug/l	102		70-125		
Chrysene	N.D.	.06	ug/l	97		68-125		
Benzo(k)fluoranthene	N.D.	.01	ug/l	101		75-118		
Batch number: 01179WAD026	Sample number(s): 3638121-3638122							
Naphthalene	N.D.	.8	ug/l	82	77	45-111	7	30
Acenaphthylene	N.D.	.8	ug/l	88	82	60-114	7	30
Acenaphthene	N.D.	.8	ug/l	100	98	50-120	2	30
Fluorene	N.D.	.2	ug/l	95	90	64-117	6	30
Phenanthrene	N.D.	.07	ug/l	103	99	75-114	4	30
Anthracene	N.D.	.03	ug/l	108	104	53-112	4	30
Fluoranthene	N.D.	.03	ug/l	117	116	75-120	1	30
Pyrene	N.D.	.2	ug/l	110	110	80-125	0	30
Benzo(a)anthracene	N.D.	.02	ug/l	113	114	73-117	1	30
Benzo(b)fluoranthene	N.D.	.04	ug/l	111	110	71-123	0	30
Benzo(a)pyrene	N.D.	.02	ug/l	115	114	61-127	1	30
Dibenz(a,h)anthracene	N.D.	.03	ug/l	112	113	71-121	0	30
Indeno(1,2,3-cd)pyrene	N.D.	.07	ug/l	112	114	73-125	2	30
Benzo(g,h,i)perylene	N.D.	.1	ug/l	112	112	70-125	0	30
Chrysene	N.D.	.06	ug/l	106	107	68-125	0	30
Benzo(k)fluoranthene	N.D.	.01	ug/l	110	110	75-118	0	30
Batch number: 01180A55	Sample number(s): 3638110-3638112							
Benzene	N.D.	.2	ug/l	90	94	80-118	4	30
Toluene	N.D.	.2	ug/l	95	97	82-119	2	30
Ethylbenzene	N.D.	.2	ug/l	93	96	81-119	3	30
Total Xylenes	N.D.	.6	ug/l	93	96	82-120	3	30
Batch number: 01183022101A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638112,3638114-3638115,3638117-3638119							
Ammonia Nitrogen	N.D.	.16	mg/l	96	94	92-102	2	2
Batch number: 01183110101A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638112							
Total Phosphorus as PO4 water	N.D.	.13	mg/l	101*		29-36		
Batch number: 01183110101B	Sample number(s): 3638114-3638115,3638117-3638122							
Total Phosphorus as PO4 water	N.D.	.13	mg/l	101*		29-36		
Batch number: 01184022101A	Sample number(s): 3638120-3638122							
Ammonia Nitrogen	N.D.	.16	mg/l	96	97	92-102	1	2
Batch number: 01186106102A	Sample number(s): 3638099-3638100,3638102-3638103							
Nitrate Nitrogen	N.D.	.04	mg/l	108		89-110		
Batch number: 01186106102B	Sample number(s): 3638104-3638105,3638109-3638112,3638114-3638115,3638117-3638118							

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

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 768050
Reported: 07/18/01 at 12:04 PM

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Nitrate Nitrogen	N.D.	.04	mg/l	108		89-110		
Batch number: 01186106103A	Sample number(s): 3638119-3638122							
Nitrate Nitrogen	N.D.	.04	mg/l	108		89-110		
Batch number: 01187022601A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638112,3638114-3638115							
Ortho-Phosphate as P	N.D.	.0028	mg/l	93		91-122		
Batch number: 01190155301A	Sample number(s): 3638099-3638100,3638102-3638105							
Chemical Oxygen Demand				99		75-123		
Batch number: 01192155301A	Sample number(s): 3638109-3638112,3638114-3638115,3638117-3638122							
Chemical Oxygen Demand				98		75-123		

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 01178022601A	Sample number(s): 3638117-3638122								
Ortho-Phosphate as P	104	98	86-123	5	5	0.097	0.124	24* (1)	7
Batch number: 01178023502A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638112,3638114-3638115,3638117-3638122								
Biochemical Oxygen Demand	107	103	66-123	3	8	198.	203.	2	11
Batch number: 01178105101A	Sample number(s): 3638117-3638122								
Nitrite Nitrogen	103		90-110			N.D.	N.D.	200* (1)	6
Batch number: 01179070011A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638110								
Total Organic Carbon	99		73-129			9.5	9.6	1 (1)	1
Batch number: 01179070011B	Sample number(s): 3638111-3638112,3638114-3638115,3638117-3638122								
Total Organic Carbon	101		73-129			6.7	6.7	0 (1)	1
Batch number: 01179105101A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638112								
Nitrite Nitrogen	107		90-110			N.D.	N.D.	93* (1)	6
Batch number: 01179105101B	Sample number(s): 3638114-3638115								
Nitrite Nitrogen	100		90-110			N.D.	N.D.	0 (1)	6
Batch number: 01179108101A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638112								
Kjeldahl Nitrogen	102		90-110			1.6	1.7	5 (1)	20
Batch number: 01179108101B	Sample number(s): 3638114-3638115,3638117-3638118								
Kjeldahl Nitrogen	98		90-110			0.73 J	0.70 J	3 (1)	20
Batch number: 01179108102A	Sample number(s): 3638119-3638122								

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 768050
Reported: 07/18/01 at 12:04 PM

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Kjeldahl Nitrogen	85*	84*	90-110	1	20	N.D.	N.D.	69* (1)	20
Batch number: 01179A55	Sample number(s): 3638099-3638109,3638117-3638122								
Benzene	104	102	66-140	2	30				
Toluene	105	104	72-138	1	30				
Ethylbenzene	100	99	71-138	1	30				
Total Xylenes	97	96	69-140	1	30				
Batch number: 01179A66	Sample number(s): 3638098,3638113-3638116								
Benzene	97	93	66-140	4	30				
Toluene	88	88	72-138	0	30				
Ethylbenzene	77	83	71-138	7	30				
Total Xylenes	76	82	69-140	8	30				
Batch number: 01179WAB026	Sample number(s): 3638099-3638120								
Naphthalene	74	68	59-108	9	30				
Acenaphthylene	78	72	38-134	7	30				
Acenaphthene	92	86	48-127	7	30				
Fluorene	87	81	61-122	8	30				
Phenanthrene	94	87	67-122	7	30				
Anthracene	97	91	61-107	7	30				
Fluoranthene	109	102	64-126	7	30				
Pyrene	104	98	74-118	6	30				
Benzo(a)anthracene	108	102	54-130	6	30				
Benzo(b)fluoranthene	105	100	59-132	5	30				
Benzo(a)pyrene	102	97	36-147	6	30				
Dibenz(a,h)anthracene	107	102	69-122	5	30				
Indeno(1,2,3-cd)pyrene	108	102	71-128	5	30				
Benzo(g,h,i)perylene	104	99	62-131	6	30				
Chrysene	99	94	49-140	5	30				
Benzo(k)fluoranthene	104	99	72-120	5	30				
Batch number: 01180A55	Sample number(s): 3638110-3638112								
Benzene	100		66-140						
Toluene	102		72-138						
Ethylbenzene	101		71-138						
Total Xylenes	101		69-140						
Batch number: 01183022101A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638112,3638114-3638115,3638117-3638119								
Ammonia Nitrogen						1.4	1.4	0 (1)	7
Batch number: 01183110101A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638112								
Total Phosphorus as PO4 water	95		90-110			0.32	0.29	7* (1)	2
Batch number: 01183110101B	Sample number(s): 3638114-3638115,3638117-3638122								
Total Phosphorus as PO4 water	107		90-110			N.D.	N.D.	8* (1)	2
Batch number: 01184022101A	Sample number(s): 3638120-3638122								
Ammonia Nitrogen						19.9	20.3	2	7

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Quality Control Summary

Client Name: Kerr-McGee Corporation
Group Number: 768050
Reported: 07/18/01 at 12:04 PM

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 01186106102A	Sample number(s): 3638099-3638100,3638102-3638103								
Nitrate Nitrogen	103		90-110			N.D.	N.D.	47* (1)	6
Batch number: 01186106102B	Sample number(s): 3638104-3638105,3638109-3638112,3638114-3638115,3638117-3638118								
Nitrate Nitrogen	102		90-110			N.D.	N.D.	60* (1)	6
Batch number: 01186106103A	Sample number(s): 3638119-3638122								
Nitrate Nitrogen	108		90-110			N.D.	N.D.	15* (1)	6
Batch number: 01187022601A	Sample number(s): 3638099-3638100,3638102-3638105,3638109-3638112,3638114-3638115								
Ortho-Phosphate as P	93	98	86-123	5	5	0.0044 J	0.0044 J	0 (1)	7
Batch number: 01190155301A	Sample number(s): 3638099-3638100,3638102-3638105								
Chemical Oxygen Demand	98	98	61-132	0	5	47.8	47.8	0	8
Batch number: 01192155301A	Sample number(s): 3638109-3638112,3638114-3638115,3638117-3638122								
Chemical Oxygen Demand	93	91	61-132	1	5	40.3	41.1	2	8

Surrogate Quality Control

Analysis Name: BTEX (8021)
Batch number: 01179A55

	Trifluorotoluene-P
3638099	106
3638100	106
3638101	110
3638102	106
3638103	106
3638104	110
3638105	105
3638106	111
3638107	109
3638108	106
3638109	110
3638117	106
3638118	106
3638119	107
3638120	106
3638121	106
3638122	106
Blank	106
LCS	105
MS	111
MSD	109

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

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 768050
Reported: 07/18/01 at 12:04 PM

Surrogate Quality Control

Limits: 69-134

Analysis Name: BTEX (8021)
Batch number: 01179A66

	Trifluorotoluene-P
3638098	96
3638113	96
3638114	96
3638115	95
3638116	96
Blank	94
LCS	96
LCSD	96
MS	96
MSD	97
Limits:	69-134

Analysis Name: PAH's in Water by HPLC
Batch number: 01179WAB026

	Nitrobenzene	Triphenylene
3638099	113	92
3638100	107	89
3638101	107	90
3638102	116	93
3638103	116	93
3638104	108	89
3638105	113	89
3638106	117	96
3638107	106	88
3638108	111	91
3638109	102	85
3638110	107	89
3638111	116	94
3638112	115	96
3638113	115	93
3638114	110	88
3638115	118	98
3638116	124	98
3638117	114	93
3638118	116	99
3638119	118	105
3638120	110	89
Blank	114	92
LCS	111	92
MS	117	96
MSD	106	88
Limits:	29-136	33-139

Analysis Name: PAH's in Water by HPLC
Batch number: 01179WAD026

	Nitrobenzene	Triphenylene

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

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 768050
Reported: 07/18/01 at 12:04 PM

Surrogate Quality Control

3638121	127	98
3638122	126	98
Blank	127	103
LCS	127	105
LCSD	129	103
Limits:	29-136	33-139

Analysis Name: BTEX (8021)
Batch number: 01180A55

	Trifluorotoluene-P
3638110	106
3638111	111
3638112	106
Blank	106
LCS	106
LCSD	106
MS	105
Limits:	69-134

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

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Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only
Acct. # 7802 Sample # 3638098-122

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

(1)
Client: Roy Fweston Acct. #:
Project Name/#: Moss American / Kerr McGee PWSID #:
Project Manager: Tom Graan P.O.#:
Sampler: Brennan Schaefer, Ilona Plume, Stuart Finkel Quote #:
Name of state where samples were collected: Wisconsin

For lab use only
FSC:
SCR #: 1153928

C.O.C. # 1 of 2

(2) (3) Matrix (4) (5) Analyses Requested (6)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (Potable / NPDES)	Other	Total # of Containers	BTEX	PAH	NO3	NO2	TP, PO4, TKN, COD	TOC	NH3	O-PO4, BOD	Remarks
~~TB-01~~	~~6/26/01~~	~~1845~~	X			X		2	X	X NO PAH	MAU1806		NO sample received			MAU1806 6/28/01	5 coolers in set
A3-TG6-1-260601-02	↓	0935	X			X		11	X	X	X	X	X	X	X	X	
A3-TG6-2-260601-01		0925	X			X		11	X	X	X	X	X	X	X	X	
A3-TG6-2-260601-01-DP		0925	X			X		5	X	X							
A3-TG6-3-260601-03		0945	X			X		11	X	X	X	X	X	X	X	X	
A3-TG3-1-260601-06		1150	X			X		11	X	X	X	X	X	X	X	X	
~~A3-TG3-1-260601-06-MS/MSD~~		~~1150~~	X			X		~~10~~	~~X~~	~~X~~	wrong sample identified as QC MAU1806 6/28/01						
A3-TG3-2-260601-05		1135	X			X		11	X	X	X	X	X	X	X	X	
A3-TG3-3-260601-04		1120	X			X		11	X	X	X	X	X	X	X	X	QC for BTEX + PAH
FB-01	↓	1330	X			X		5	X	X							

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

(8) **Data Package Options** (please circle if requested)
QC Summary Type VI (Raw Data) PER QUOTE
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:	Date	Time	Received by:	Date	Time
[signature]	6/26/01	0600			
[signature]	6/26/01	1930			
			Kathy Brinkley	6-27-01	0900

(9)

Analysis Request/Environmental Services Chain of Custody

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For Lancaster Laboratories use only
Acct. # 7802 Sample # 3638098-122

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

(1)
Client: Roy F Weston Acct. #:
Project Name/#: Moss American/Ker McGee PWSID #:
Project Manager: Tom Graan P.O.#
Sampler: Brenna Schaefer, Ilona Plume, Stuart Finkel Quote #:
Name of state where samples were collected: Wisconsin

For lab use only
FSC:
SCR #: 1153928

C.O.C #1 of 2

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix (4) Soil	Water	Other	Total # of Containers	(5) Analyses Requested: BTEX	PAH	NO3	NO2	TP-PO4, TKN, COD	TOC	NH3	O-PO4 BOD	Remarks	(6) Temperature of samples upon receipt (°C)
MA3-TG4-1-260601-07	6/26/01	1440	X			X		11	X	X	X	X	X	X	X	X	5 coolers in set	
MA3-TG4-2-260601-08	6/26/01	1450	X			X		11	X	X	X	X	X	X	X	X		
MA3-TG4-3-260601-09		1500	X			X		11	X	X	X	X	X	X	X	X		
MA3-TG5-1-260601-10		1730	X			X		11	X	X	X	X	X	X	X	X		
MA3-TG5-1-260601-10-DP		1730	X			X		5	X	X								
MA3-TG5-2-260601-11 (S)		1740	X			X		11	X	X	X	X	X	X	X	X		
MA3-TG5-3-260601-12		1750	X			X		11	X	X	X	X	X	X	X	X		
FB-02		1830	X			X		5	X	X								

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

(8) **Data Package Options** (please circle if requested)
QC Summary
Type I (Tier I)
Type II (Tier II)
Type III (NJ Red. Del.)
Type IV (CLP)
Type VI (Raw Data) PER QUOTE
GLP
Other

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:	Date	Time	Received by:	Date	Time (9)
Sherry Man	6/26/01	0600			
Brenna Schaefer	6/26/01	1930			
			Kathy Binkley	6-27-01	0900

Analysis Request/Environmental Services Chain of Custody

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For Lancaster Laboratories use only
Acct. # 7802 Sample # 3638098-122

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

(1)
Client: Roy F Weston Acct. #:
Project Name/#: Moss American / Kerr McGee PWSID #:
Project Manager: Tom Graan P.O.#
Sampler: Brennan Shaefer and Stuart Finkel Quote #:
Name of state where samples were collected: Wisconsin

For lab use only
FSC:
SCR #: 1153928

(2) (3) Matrix (4) (5) Analyses Requested (6)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (☐ Potable ☐ NPDES)	Other	Total # of Containers	NO3	NO2	TP-PO4, TKN, COD	TOC	NH3	BTEX	O-PO4, BOD	PAH	Remarks	Temperature of samples upon receipt (if requested)
A3-TG1-3-250601-01	6/25/01	1645	X			X		11	X	X	X	X	X	X	X	X		
MA3-TG1-2-250601-02		1735	X			X		11	X	X	X	X	X	X	X	X		
MA3-TG1-1-250601-03		1740	X			X		11	X	X	X	X	X	X	X	X		
MA3-TG2-2-250601-04		1850	X			X		11	X	X	X	X	X	X	X	X		
MA3-TG2-3-250601-05		1900	X			X		11	X	X	X	X	X	X	X	X		
MA3-TG2-1-250601-06		1910	X			X		11	X	X	X	X	X	X	X	X		
TB-01		2000	X			X		2						X				

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

(8) **Data Package Options** (please circle if requested)
QC Summary — Type VI (Raw Data) PER QUOTE
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:	Date	Time	Received by:	Date	Time
[signature]	6/20/01	0600			
[signature]	6/25/01	2000			
			Kathy Binkley 6-27-01		0900

(9)

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ANALYTICAL RESULTS

Prepared for:

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

(405)270-2602

RECEIVED
JUL 17 2001

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 768169. Samples arrived at the laboratory on Thursday, June 28, 2001.

Client Description	Lancaster Labs Number
MA3-MW33S-270601-02 Grab Water Sample	3638944
MA3-MW32S-270601-01 Grab Water Sample	3638945
MA3-MW34S-270601-04 Grab Water Sample	3638946
MA3-MW7S-270601-03 Grab Water Sample	3638947
MA3-MW35S-270601-05 Grab Water Sample	3638948
MA3-MW36S-270601-06 Grab Water Sample	3638949
MA3-MW29S-270601-07 Grab Water Sample	3638950
MA3-MW37S-270601-08 Grab Water Sample	3638951
MA3-MW37S-270601-08DP Grab Water Sample	3638952
MA3-MW30S-270601-09 Grab Water Sample	3638953
MA3-MW05S-270601-10 Grab Water Sample	3638954
MA3-MW26S-270601-11 Unspiked Grab Water Sample	3638955
MA3-MW26S-270601-11MS Matrix Spike Grab Water	3638956
MA3-MW26S-270601-11MSD Matrix Spike Dup Grab Water	3638957
MA3-FB03-270601-12 Grab Water Sample	3638958
MA3-TB02-270601-13 Water Sample	3638959

METHODOLOGY

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

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

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

Respectfully Submitted,

Thomas C Lehman

Thomas C. Lehman
Group Leader

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Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3638944

Collected:06/27/2001 09:30 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:13
Discard: 08/11/2001
MA3-MW33S-270601-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW33S SDG#: MOA61-01

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	9.3	1.0	ug/l	5
00779	Total Xylenes	1330-20-7	24.	3.0	ug/l	5
	Due to dilution of the sample made necessary by the high level of non-target compounds, normal reporting limits were not attained.					
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	2,900.	20.	ug/l	20
00782	Acenaphthylene	208-96-8	49.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	140.	0.8	ug/l	1
00784	Fluorene	86-73-7	27.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	1.1	0.070	ug/l	1
00789	Anthracene	120-12-7	0.038 J	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	1.0	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	ug/l	1

Laboratory Chronicle

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

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Lancaster Laboratories Sample No. WW 3638944

Collected:06/27/2001 09:30 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:13
Discard: 08/11/2001
MA3-MW33S-270601-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW33S SDG#: MOA61-01

08213	BTEX (8021)	SW-846 8021B/5030B	1	06/30/2001 03:32	Melissa Mann	5
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 12:27	Timothy Trees	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/07/2001 22:38	Timothy Trees	20
01146	GC VOA Water Prep	SW-846 5030B	1	06/30/2001 03:32	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638945

Collected:06/27/2001 09:45 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:13
Discard: 08/11/2001
MA3-MW32S-270601-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW32S SDG#: MOA61-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	0.07 J	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/30/2001 01:49	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/06/2001 07:07	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/30/2001 01:49	Melissa Mann	n.a.

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Lancaster, PA 17605-2425
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Lancaster Laboratories Sample No. WW 3638945

Collected:06/27/2001 09:45 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:13
Discard: 08/11/2001
MA3-MW32S-270601-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW32S SDG#: MOA61-02

03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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

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Lancaster Laboratories Sample No. WW 3638946

Collected:06/27/2001 11:05 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:13
Discard: 08/11/2001
MA3-MW34S-270601-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW34S SDG#: MOA61-03

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	6.8	J	2.0	ug/l	10
00777	Toluene	108-88-3	N.D.		2.0	ug/l	10
00778	Ethylbenzene	100-41-4	23.		2.0	ug/l	10
00779	Total Xylenes	1330-20-7	72.		6.0	ug/l	10
	Due to dilution of the sample made necessary by the high level of non-target compounds, normal reporting limits were not attained.						
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	5,700.		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	86-73-7	80.		3.0	ug/l	20
00785	Phenanthrene	85-01-8	83.		1.0	ug/l	20
00789	Anthracene	120-12-7	6.3		0.030	ug/l	1
00807	Fluoranthene	206-44-0	7.5		0.030	ug/l	1
00811	Pyrene	129-00-0	6.1		0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.22		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.040	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.		0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.070	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	0.15	J	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.02	J	0.01	ug/l	1

Laboratory Chronicle

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

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

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Lancaster Laboratories Sample No. WW 3638946

Collected:06/27/2001 11:05 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:13
Discard: 08/11/2001
MA3-MW34S-270601-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW34S SDG#: MOA61-03

08213	BTEX (8021)	SW-846 8021B/5030B	1	06/30/2001 02:23	Melissa Mann	10
00774	PAH's in Water by HPLC	SW-846 8310	1	07/06/2001 07:30	Timothy Trees	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/07/2001 23:04	Timothy Trees	20
01146	GC VOA Water Prep	SW-846 5030B	1	06/30/2001 02:23	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638947

Collected:06/27/2001 10:50 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:13
Discard: 08/11/2001
MA3-MW7S-270601-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW7-S SDG#: MOA61-04

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)						
00776	Benzene	71-43-2	2.9	J	2.0	ug/l	10
00777	Toluene	108-88-3	N.D.		2.0	ug/l	10
00778	Ethylbenzene	100-41-4	12.		2.0	ug/l	10
00779	Total Xylenes	1330-20-7	38.		6.0	ug/l	10
	Due to dilution of the sample made necessary by the high level of non-target compounds, normal reporting limits were not attained.						
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	3,200.		20.	ug/l	20
00782	Acenaphthylene	208-96-8	37.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	58.		0.8	ug/l	1
00784	Fluorene	86-73-7	8.5		0.20	ug/l	1
00785	Phenanthrene	85-01-8	0.93		0.070	ug/l	1
00789	Anthracene	120-12-7	0.15	J	0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.073	J	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.20	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.		0.040	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.		0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.060	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.		0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.009	ug/l	1

Laboratory Chronicle

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

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Lancaster Laboratories Sample No. WW 3638947

Collected:06/27/2001 10:50 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:13
Discard: 08/11/2001
MA3-MW7S-270601-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW7-S SDG#: MOA61-04

08213	BTEX (8021)	SW-846 8021B/5030B	1	06/30/2001 02:58	Melissa Mann	10
00774	PAH's in Water by HPLC	SW-846 8310	1	07/06/2001 07:52	Timothy Trees	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/07/2001 23:31	Timothy Trees	20
01146	GC VOA Water Prep	SW-846 5030B	1	06/30/2001 02:58	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638948

Collected:06/27/2001 11:10 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW35S-270601-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW35S SDG#: MOA61-05

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	1.0	J	0.8	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	1.4	J	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.20	ug/l	1
00785	Phenanthrene	85-01-8	0.38		0.070	ug/l	1
00789	Anthracene	120-12-7	0.3		0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.9		0.030	ug/l	1
00811	Pyrene	129-00-0	0.69	J	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.05	J	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.040	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	0.033	J	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.070	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	0.09	J	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 19:31	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/06/2001 11:11	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 19:31	Melissa Mann	n.a.

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Lancaster Laboratories Sample No. WW 3638948

Collected:06/27/2001 11:10 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW35S-270601-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW35S SDG#: MOA61-05

03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638949

Collected:06/27/2001 12:00 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW36S-270601-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW36S SDG#: MOA61-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 20:05	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/06/2001 11:33	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 20:05	Melissa Mann	n.a.

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Collected:06/27/2001 12:00 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW36S-270601-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW36S SDG#: MOA61-06

03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638950

Collected:06/27/2001 11:50 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW29S-270601-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW-29 SDG#: MOA61-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 20:40	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/06/2001 11:56	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 20:40	Melissa Mann	n.a.

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Collected:06/27/2001 11:50 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW29S-270601-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW-29 SDG#: MOA61-07

03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638951

Collected:06/27/2001 12:10 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW37S-270601-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW-37 SDG#: MOA61-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	0.073 J	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 21:14	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/06/2001 12:18	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 21:14	Melissa Mann	n.a.

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Collected:06/27/2001 12:10 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW37S-270601-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW-37 SDG#: MOA61-08

03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638952

Collected:06/27/2001 12:10 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW37S-270601-08DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW37D SDG#: MOA61-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.070	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 21:49	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/06/2001 12:41	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 21:49	Melissa Mann	n.a.

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Lancaster Laboratories Sample No. WW 3638952

Collected:06/27/2001 12:10 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW37S-270601-08DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW37D SDG#: MOA61-09

03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638953

Collected:06/27/2001 15:30 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW30S-270601-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW30S SDG#: MOA61-10

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.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 22:23	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/06/2001 13:03	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 22:23	Melissa Mann	n.a.

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Lancaster Laboratories Sample No. WW 3638953

Collected:06/27/2001 15:30 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW30S-270601-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW30S SDG#: MOA61-10

03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638954

Collected:06/27/2001 15:45 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW05S-270601-10 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW05S SDG#: MOA61-11

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.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/30/2001 01:15	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/06/2001 13:26	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/30/2001 01:15	Melissa Mann	n.a.

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Lancaster Laboratories Sample No. WW 3638954

Collected:06/27/2001 15:45 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW05S-270601-10 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW05S SDG#: MOA61-11

03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638955

Collected:06/27/2001 15:55 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW26S-270601-11 Unspiked Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW-26 SDG#: MOA61-12BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.070	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 17:48	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 11:19	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 17:48	Melissa Mann	n.a.

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Collected:06/27/2001 15:55 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW26S-270601-11 Unspiked Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW-26 SDG#: MOA61-12BKG

03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638956

Collected:06/27/2001 15:55 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW26S-270601-11MS Matrix Spike Grab Water
Moss American Superfund Site - Milwaukee, WI

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

MW-26 SDG#: MOA61-12MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	20.	0.20	ug/l	1
00777	Toluene	108-88-3	20.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	20.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	59.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	180.	0.8	ug/l	1
00782	Acenaphthylene	208-96-8	180.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	210.	0.8	ug/l	1
00784	Fluorene	86-73-7	20.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	6.4	0.070	ug/l	1
00789	Anthracene	120-12-7	3.4	0.030	ug/l	1
00807	Fluoranthene	206-44-0	3.6	0.030	ug/l	1
00811	Pyrene	129-00-0	23.	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.8	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.4	0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.7	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.5	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	7.0	0.070	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	14.	0.1	ug/l	1
07409	Chrysene	218-01-9	6.5	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.4	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 18:22	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 11:42	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 18:22	Melissa Mann	n.a.

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Collected:06/27/2001 15:55 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-MW26S-270601-11MS Matrix Spike Grab Water
Moss American Superfund Site - Milwaukee, WI

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

MW-26 SDG#: MOA61-12MS

03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638957

Collected:06/27/2001 15:55 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001

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MA3-MW26S-270601-11MSD Matrix Spike Dup Grab Water
Moss American Superfund Site - Milwaukee, WI

MW-26 SDG#: MOA61-12MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	20.	0.20	ug/l	1
00777	Toluene	108-88-3	20.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	20.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	58.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	180.	0.8	ug/l	1
00782	Acenaphthylene	208-96-8	180.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	210.	0.8	ug/l	1
00784	Fluorene	86-73-7	20.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	6.5	0.070	ug/l	1
00789	Anthracene	120-12-7	3.4	0.030	ug/l	1
00807	Fluoranthene	206-44-0	3.6	0.030	ug/l	1
00811	Pyrene	129-00-0	23.	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.8	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.4	0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.7	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.5	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	7.1	0.070	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	14.	0.1	ug/l	1
07409	Chrysene	218-01-9	6.5	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.4	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/29/2001 18:57	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/05/2001 12:04	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/29/2001 18:57	Melissa Mann	n.a.

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Lancaster Laboratories Sample No. WW 3638957

Collected:06/27/2001 15:55 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001

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Oklahoma City OK 73125

MA3-MW26S-270601-11MSD Matrix Spike Dup Grab Water
Moss American Superfund Site - Milwaukee, WI

MW-26 SDG#: MOA61-12MSD

03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638958

Collected:06/27/2001 16:00 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-FB03-270601-12 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation
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Oklahoma City OK 73125

-FB03 SDG#: MOA61-13FB

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.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.070	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	06/30/2001 00:06	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/06/2001 14:11	Timothy Trees	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/30/2001 00:06	Melissa Mann	n.a.

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Lancaster Laboratories Sample No. WW 3638958

Collected:06/27/2001 16:00 by SF

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:14
Discard: 08/11/2001
MA3-FB03-270601-12 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

-FB03 SDG#: MOA61-13FB

03337	PAH Water Extraction	SW-846 3510C	1	06/29/2001 17:00	Desiree J. Wann	1

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Lancaster Laboratories Sample No. WW 3638959

Collected:06/27/2001 16:05

Account Number: 07802

Submitted: 06/28/2001 09:20
Reported: 07/11/2001 at 13:15
Discard: 08/11/2001
MA3-TB02-270601-13 Water Sample
Moss American Superfund Site - Milwaukee, WI

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

-TB03 SDG#: MOA61-14TB*

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/5030B	1	06/30/2001 00:40	Melissa Mann	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/30/2001 00:40	Melissa Mann	n.a.

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

Lancaster Laboratories
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Quality Control Summary

Client Name: Kerr-McGee Corporation
Group Number: 768169
Reported: 07/11/01 at 01:15 PM

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 01180A53	Sample number(s): 3638944-3638959							
Benzene	N.D.	.2	ug/l	104		80-118		
Toluene	N.D.	.2	ug/l	100		82-119		
Ethylbenzene	N.D.	.2	ug/l	103		81-119		
Total Xylenes	N.D.	.6	ug/l	99		82-120		
Batch number: 01180WAC026	Sample number(s): 3638944-3638958							
Naphthalene	N.D.	.8	ug/l	79		45-111		
Acenaphthylene	N.D.	.8	ug/l	83		60-114		
Acenaphthene	N.D.	.8	ug/l	97		50-120		
Fluorene	N.D.	.2	ug/l	94		64-117		
Phenanthrene	N.D.	.07	ug/l	103		75-114		
Anthracene	N.D.	.03	ug/l	108		53-112		
Fluoranthene	N.D.	.03	ug/l	119		75-120		
Pyrene	N.D.	.2	ug/l	113		80-125		
Benzo(a)anthracene	N.D.	.02	ug/l	117		73-117		
Benzo(b)fluoranthene	N.D.	.04	ug/l	114		71-123		
Benzo(a)pyrene	N.D.	.02	ug/l	111		61-127		
Dibenz(a,h)anthracene	N.D.	.03	ug/l	116		71-121		
Indeno(1,2,3-cd)pyrene	N.D.	.07	ug/l	118		73-125		
Benzo(g,h,i)perylene	N.D.	.1	ug/l	116		70-125		
Chrysene	N.D.	.06	ug/l	108		68-125		
Benzo(k)fluoranthene	N.D.	.01	ug/l	113		75-118		

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 01180A53	Sample number(s): 3638944-3638959								
Benzene	102	99	66-140	3	30				
Toluene	100	100	72-138	0	30				
Ethylbenzene	101	99	71-138	2	30				
Total Xylenes	98	97	69-140	2	30				
Batch number: 01180WAC026	Sample number(s): 3638944-3638958								
Naphthalene	89	90	59-108	0	30				
Acenaphthylene	90	92	38-134	2	30				
Acenaphthene	104	103	48-127	0	30				
Fluorene	100	102	61-122	2	30				
Phenanthrene	107	108	67-122	1	30				
Anthracene	113*	113*	61-107	1	30				
Fluoranthene	120	120	64-126	0	30				
Pyrene	113	113	74-118	0	30				
Benzo(a)anthracene	118	118	54-130	0	30				
Benzo(b)fluoranthene	114	114	59-132	1	30				
Benzo(a)pyrene	111	110	36-147	1	30				
Dibenz(a,h)anthracene	115	116	69-122	0	30				

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

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 768169
Reported: 07/11/01 at 01:15 PM

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Indeno(1,2,3-cd)pyrene	117	118	71-128	0	30				
Benzo(g,h,i)perylene	116	116	62-131	0	30				
Chrysene	109	109	49-140	0	30				
Benzo(k)fluoranthene	113	114	72-120	0	30				

Surrogate Quality Control

Analysis Name: BTEX (8021)
Batch number: 01180A53

	Trifluorotoluene-P
3638944	97
3638945	97
3638946	96
3638947	97
3638948	99
3638949	97
3638950	101
3638951	100
3638952	99
3638953	96
3638954	99
3638955	98
3638956	98
3638957	98
3638958	98
3638959	98
Blank	98
LCS	99
MS	98
MSD	98
Limits:	69-134

Analysis Name: PAH's in Water by HPLC
Batch number: 01180WAC026

	Nitrobenzene	Triphenylene
3638944	130	103
3638945	115	92
3638946	123	104
3638947	118	92
3638948	118	95
3638949	122	94
3638950	120	97
3638951	126	98
3638952	119	91
3638953	117	91

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

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 768169
Reported: 07/11/01 at 01:15 PM

Surrogate Quality Control

3638954	127	101
3638955	126	99
3638956	123	102
3638957	121	104
3638958	120	94
Blank	125	99
LCS	123	100
MS	123	102
MSD	121	104
Limits:	29-136	33-139

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

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

Analysis Request/Environmental Services Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. # 7802 Sample # 3638944-59

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

(1)
Client: Roy F Weston Acct. #:
Project Name/#: Moss American/Kerr McGee PWSID #:
Project Manager: Tom Graan P.O.#
Sampler: Stewart Eckel, Tom Kassdorf, Doug Bilvie Quote #:
Name of state where samples were collected: Wisconsin

For lab use only
FSC:
SCR #: 1153928

COC# 1 of 2

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	(4) Matrix: Soil	Water (Potable ☐ NPDES ☐)	Other	Total # of Containers	(5) Analyses Requested: BTEX	PAH	Remarks	(6)
MA3-MW33S-270601-02	6/27/01	0930	X			X		5	X	X	3 Coolers	
MA3-MW32S-270601-01	6/27/01	0945	X			X		5	X	X		
MA3-MW34S-270601-04	6/27/01	1105	X			X		5	X	X		
MA3-MW 7S-270601-03	6/27/01	1050	X			X		5	X	X		
MA3-MW 35S-270601-05	6/27/01	1110	X			X		5	X	X		
MA3-MW-36S-270601-06	6/27/01	1200	X			X		5	X	X		
MA3-MW-29S-270601-07	6/27/01	1150	X			X		5	X	X		
MA3-MW 37S-270601-08	6/27/01	1210	X			X		5	X	X		
MA3-MW 37S-270601-08 DP	6/27/01	1210	X			X		5	X	X		
MA3-MW 30S-270601-09	6/27/01	1530	X			X		5	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 #: 847-918-4045

(8) **Data Package Options** (please circle if requested)
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)

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:	Date	Time	Received by:	Date	Time (9)
	6/26/01	0000			
	6/27/01	2000			
				6/28/01	0920

Analysis Request/Environmental Services Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. # 7802 Sample # 3638944-59

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

(1)
Client: Roy F Weston Acct. #:
Project Name/#: Moss American/Kerr McGee PWSID #:
Project Manager: Tom Organ P.O.#
Sampler: Stewart Finkel, Jim Kassler, Penny Gilvin Quote #:
Name of state where samples were collected: Wisconsin

(2) Sample Identification | Date Collected | Time Collected | (3) Grab | Composite | Matrix (4): Soil | Potable / NPDES (Check if applicable) Water | Other | Total # of Containers | (5) Analyses Requested: BTEX | PAH | Remarks | (6) Temperature of sample upon receipt (if requested)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	BTEX	PAH	Remarks	Temperature
MA3-MW05S-270601-10	6/27/01	1545	X			X		5	X	X	3 Coolers	
MA3-MW26S-270601-11	6/27/01	1555	X			X		5	X	X		
MA3-MW26S-270601-11 MS/MSD	6/27/01	1555	X			X		10	X	X		
MA3-FB03-270601-12	6/27/01	1600	X			X		5	X	X		
MA3-TB02-270601-13	6/27/01	1605	X			X		2	X			

COC #2 of 2

(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
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:	Date	Time	Received by:	Date	Time
	6/28/01	0000			
	6/27/01	2000			

(9)

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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 768503. Samples arrived at the laboratory on Saturday, June 30, 2001.

Client Description	Lancaster Labs Number
MA3-MW27S-290601-01 Grab Water Sample	3641068
MA3-TW05-290601-02 Grab Water Sample	3641069
MA3-MW28S-290601-03 Grab Water Sample	3641070
MA3-FB05-290601-04 Field Blank Grab Water Sample	3641071
MA3-MW3S-290601-05 Grab Water Sample	3641072
MA3-TB04-290601-06 Trip Blank Water Sample	3641073

METHODOLOGY

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

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

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

Respectfully Submitted,

Charles J. Neslund
Group Leader

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

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3641068

Collected:06/29/2001 09:10 by O/K

Account Number: 07802

Submitted: 06/30/2001 10:00
Reported: 07/17/2001 at 10:27
Discard: 08/17/2001
MA3-MW27S-290601-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

27S-1 SDG#: MOA63-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	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 3641068

Collected:06/29/2001 09:10 by O/K

Account Number: 07802

Submitted: 06/30/2001 10:00
Reported: 07/17/2001 at 10:27
Discard: 08/17/2001
MA3-MW27S-290601-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

27S-1 SDG#: MOA63-01

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	07/02/2001 14:50	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 13:24	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/02/2001 14:50	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

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Lancaster Laboratories Sample No. WW 3641069

Collected:06/29/2001 09:50 by O/K

Account Number: 07802

Submitted: 06/30/2001 10:00
Reported: 07/17/2001 at 10:27
Discard: 08/17/2001
MA3-TW05-290601-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TW502 SDG#: MOA63-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
	Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	8.0	J	0.8	ug/l	1
00782	Acenaphthylene	208-96-8	9.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	81.		0.8	ug/l	1
00784	Fluorene	86-73-7	56.		0.80	ug/l	5
00785	Phenanthrene	85-01-8	N.D.		5.0	ug/l	1
00789	Anthracene	120-12-7	2.4		0.030	ug/l	1
00807	Fluoranthene	206-44-0	11.		0.10	ug/l	5
00811	Pyrene	129-00-0	10.		0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.13		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.070	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.		0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.01	ug/l	1

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

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for phenanthrene. The reporting limit for this compound was raised accordingly.

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Lancaster Laboratories Sample No. WW 3641069

Collected:06/29/2001 09:50 by O/K

Account Number: 07802

Submitted: 06/30/2001 10:00
Reported: 07/17/2001 at 10:27
Discard: 08/17/2001
MA3-TW05-290601-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TW502 SDG#: MOA63-02

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	07/02/2001 15:25	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 13:47	Mark Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 21:21	Mark Clark	5
01146	GC VOA Water Prep	SW-846 5030B	1	07/02/2001 15:25	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

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Lancaster Laboratories Sample No. WW 3641070

Collected:06/29/2001 10:00 by O/K

Account Number: 07802

Submitted: 06/30/2001 10:00
Reported: 07/17/2001 at 10:27
Discard: 08/17/2001
MA3-MW28S-290601-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

28S-3 SDG#: MOA63-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	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 3641070

Collected:06/29/2001 10:00 by O/K

Account Number: 07802

Submitted: 06/30/2001 10:00
Reported: 07/17/2001 at 10:27
Discard: 08/17/2001
MA3-MW28S-290601-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

28S-3 SDG#: MOA63-03

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	07/02/2001 16:35	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 14:32	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/02/2001 16:35	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3641071

Collected:06/29/2001 10:15 by O/K

Account Number: 07802

Submitted: 06/30/2001 10:00
Reported: 07/17/2001 at 10:27
Discard: 08/17/2001

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

MA3-FB05-290601-04 Field Blank Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

FB5-4 SDG#: MOA63-04FB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.070	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	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 3641071

Collected:06/29/2001 10:15 by O/K

Account Number: 07802

Submitted: 06/30/2001 10:00
Reported: 07/17/2001 at 10:27
Discard: 08/17/2001
MA3-FB05-290601-04 Field Blank Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

FB5-4 SDG#: MOA63-04FB

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	07/02/2001 21:13	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 14:54	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/02/2001 21:13	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

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Lancaster Laboratories Sample No. WW 3641072

Collected:06/29/2001 11:20 by O/K

Account Number: 07802

Submitted: 06/30/2001 10:00
Reported: 07/17/2001 at 10:27
Discard: 08/17/2001
MA3-MW3S-290601-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3S--5 SDG#: MOA63-05

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
	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.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.070	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	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 3641072

Collected:06/29/2001 11:20 by O/K

Account Number: 07802

Submitted: 06/30/2001 10:00
Reported: 07/17/2001 at 10:27
Discard: 08/17/2001
MA3-MW3S-290601-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3S--5 SDG#: MOA63-05

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	07/02/2001 17:10	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 15:17	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/02/2001 17:10	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3641073

Collected:06/29/2001 12:00 by O/K

Account Number: 07802

Submitted: 06/30/2001 10:00
Reported: 07/17/2001 at 10:27
Discard: 08/17/2001
MA3-TB04-290601-06 Trip Blank Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TB4-6 SDG#: MOA63-06TB*

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/5030B	1	07/02/2001 14:15	Melissa Mann	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/02/2001 14:15	Melissa Mann	n.a.

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

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Quality Control Summary

Client Name: Kerr-McGee Corporation
Group Number: 768503
Reported: 07/17/01 at 10:27 AM

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 01183A55	Sample number(s): 3641068-3641073							
Benzene	N.D.	.2	ug/l	93	91	80-118	1	30
Toluene	N.D.	.2	ug/l	98	96	82-119	2	30
Ethylbenzene	N.D.	.2	ug/l	95	93	81-119	3	30
Total Xylenes	N.D.	.6	ug/l	94	92	82-120	2	30
Batch number: 01183WAF026	Sample number(s): 3641068-3641072							
Naphthalene	N.D.	.8	ug/l	65	71	45-111	8	30
Acenaphthylene	N.D.	.8	ug/l	73	77	60-114	5	30
Acenaphthene	N.D.	.8	ug/l	81	84	50-120	4	30
Fluorene	N.D.	.2	ug/l	83	88	64-117	6	30
Phenanthrene	N.D.	.07	ug/l	94	97	75-114	3	30
Anthracene	N.D.	.03	ug/l	93	96	53-112	3	30
Fluoranthene	N.D.	.03	ug/l	110	110	75-120	0	30
Pyrene	N.D.	.2	ug/l	102	102	80-125	0	30
Benzo(a)anthracene	N.D.	.02	ug/l	105	104	73-117	1	30
Benzo(b)fluoranthene	N.D.	.04	ug/l	104	105	71-123	1	30
Benzo(a)pyrene	N.D.	.02	ug/l	97	96	61-127	1	30
Dibenz(a,h)anthracene	N.D.	.03	ug/l	108	108	71-121	1	30
Indeno(1,2,3-cd)pyrene	N.D.	.07	ug/l	104	103	73-125	1	30
Benzo(g,h,i)perylene	N.D.	.1	ug/l	101	100	70-125	1	30
Chrysene	N.D.	.06	ug/l	102	102	68-125	0	30
Benzo(k)fluoranthene	N.D.	.01	ug/l	105	104	75-118	1	30

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 01183A55	Sample number(s): 3641068-3641073								
Benzene	99		66-140						
Toluene	105		72-138						
Ethylbenzene	102		71-138						
Total Xylenes	101		69-140						

Surrogate Quality Control

Analysis Name: BTEX (8021)
Batch number: 01183A55

	Trifluorotoluene-P
3641068	106
3641069	107
3641070	107
3641071	108

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

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

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 768503
Reported: 07/17/01 at 10:27 AM

Surrogate Quality Control

3641072	107
3641073	107
Blank	107
LCS	106
LCSD	107
MS	107
Limits:	69-134

Analysis Name: PAH's in Water by HPLC
Batch number: 01183WAF026

	Nitrobenzene	Triphenylene
3641068	113	107
3641069	116	118
3641070	110	102
3641071	115	106
3641072	115	107
Blank	95	95
LCS	104	97
LCSD	102	97
Limits:	29-136	33-139

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

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

Analysis Request/Environmental Services Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. # 7802 Sample # 3641068-73

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

(1)
Client: Roy F. Weston Acct. #:
Project Name/#: Moss American/Kerr-McGee PWSID #:
Project Manager: Tom Graan P.O.#
Sampler: Ogilvie / Kasdorf Quote #:
Name of state where samples were collected: WI

For lab use only
FSC:
SCR #: 115928

(2) (3) (4) (5) (6)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Water	Other	Potable (Check if applicable)	NPDES (Check if applicable)	Total # of Containers	BTEX	PAH	Remarks	Temperature of samples upon receipt (if requested)
MA3-MW27S-290601-01	6/29/01	0910	X			X				5	X	X	1 Cooler Total	
MA3-TW05-290601-02		0950	X			X				5	X	X		
MA3-MW28S-290601-03		1000	X			X				5	X	X		
MA3-FB05-290601-04		1015	X			X				5	X	X		
MA3-MW35-290601-05		1120	X			X				5	X	X		
MA3-TB04-290601-06	↓	1200	X			X				2	X		Trip Blank	

(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 I (Tier I)
Type II (Tier II)
Type III (NJ Red. Del.)
Type IV (CLP)
Type VI (Raw Data) Per Quote
GLP
Other

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:	Date	Time	Received by:	Date	Time
	6/29/01	2000			
	6/29/01	1330			

(9)

Lancaster Laboratories, Inc., 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 (717) 656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

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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 768346. Samples arrived at the laboratory on Friday, June 29, 2001.

Client Description	Lancaster Labs Number
MA3-MW20S-280601-01 Grab Water Sample	3639955
MA3-MW9S-280601-02 Grab Water Sample	3639956
MA3-MW10S-280601-03 Grab Water Sample	3639957
MA3-MW31S-280601-04 Grab Water Sample	3639958
MA3-MW31S-280601-04DP Grab Water Sample	3639959
MA3-MW6S-280601-05 Grab Water Sample	3639960
MA3-FB04-280601-06 Grab Water Sample	3639961
MA3-MW25S-280601-07 Grab Water Sample	3639962
MA3-MW13S-280601-08 Grab Water Sample	3639963
MA3-TB03-280601-09 Water Sample	3639964

METHODOLOGY

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

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

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

Respectfully Submitted,

Charles J. [illegible]
Group Leader

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

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3639955

Collected:06/28/2001 09:00 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:58
Discard: 08/18/2001
MA3-MW20S-280601-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW20S SDG#: MOA62-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	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 3639955

Collected:06/28/2001 09:00 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:58
Discard: 08/18/2001
MA3-MW20S-280601-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW20S SDG#: MOA62-01

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	07/02/2001 22:23	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/11/2001 22:52	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/02/2001 22:23	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3639956

Collected:06/28/2001 10:30 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:58
Discard: 08/18/2001
MA3-MW9S-280601-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW9S- SDG#: MOA62-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	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
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Lancaster Laboratories Sample No. WW 3639956

Collected:06/28/2001 10:30 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:58
Discard: 08/18/2001
MA3-MW9S-280601-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW9S- SDG#: MOA62-02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	07/03/2001 01:17	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 10:24	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/03/2001 01:17	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

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Lancaster Laboratories Sample No. WW 3639957

Collected:06/28/2001 10:45 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:58
Discard: 08/18/2001
MA3-MW10S-280601-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW10S SDG#: MOA62-03

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	0.37	J	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.		0.8	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.		0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.20	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.		0.040	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.		0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.060	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.		0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.009	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 3639957

Collected:06/28/2001 10:45 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:58
Discard: 08/18/2001
MA3-MW10S-280601-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW10S SDG#: MOA62-03

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	07/03/2001 02:27	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 10:46	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/03/2001 02:27	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

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Lancaster Laboratories Sample No. WW 3639958

Collected:06/28/2001 12:00 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:59
Discard: 08/18/2001
MA3-MW31S-280601-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW31S SDG#: MOA62-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1

The vial submitted for volatile analysis did not have a pH < 2 at the time of analysis. Due to the volatile nature of the analytes, it is not appropriate for the laboratory to adjust the pH at the time of sample receipt.

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.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	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

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Lancaster Laboratories Sample No. WW 3639958

Collected:06/28/2001 12:00 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:59
Discard: 08/18/2001
MA3-MW31S-280601-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW31S SDG#: MOA62-04

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

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/5030B	1	07/03/2001 01:52	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 11:09	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/03/2001 01:52	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

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Lancaster Laboratories Sample No. WW 3639959

Collected:06/28/2001 12:00 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:59
Discard: 08/18/2001
MA3-MW31S-280601-04DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

W31SD SDG#: MOA62-05

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
	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.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.009	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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2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

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Lancaster Laboratories Sample No. WW 3639959

Collected:06/28/2001 12:00 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:59
Discard: 08/18/2001
MA3-MW31S-280601-04DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

W31SD SDG#: MOA62-05

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	07/02/2001 22:58	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 11:32	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/02/2001 22:58	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

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Lancaster Laboratories Sample No. WW 3639960

Collected:06/28/2001 12:15 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:59
Discard: 08/18/2001
MA3-MW6S-280601-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW-6S SDG#: MOA62-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	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.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	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 3639960

Collected:06/28/2001 12:15 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:59
Discard: 08/18/2001
MA3-MW6S-280601-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW-6S SDG#: MOA62-06

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	07/02/2001 23:32	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 11:54	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/02/2001 23:32	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

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Lancaster Laboratories Sample No. WW 3639961

Collected:06/28/2001 13:00 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:59
Discard: 08/18/2001
MA3-FB04-280601-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

FB-04 SDG#: MOA62-07FB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.070	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	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 3639961

Collected:06/28/2001 13:00 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:59
Discard: 08/18/2001
MA3-FB04-280601-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

FB-04 SDG#: MOA62-07FB

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	07/02/2001 21:48	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 12:17	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/02/2001 21:48	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

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Lancaster Laboratories Sample No. WW 3639962

Collected:06/28/2001 15:15 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:59
Discard: 08/18/2001
MA3-MW25S-280601-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW25S SDG#: MOA62-08

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
	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.	0.8	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.	0.20	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.030	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.20	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.	0.040	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.	0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.060	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.	0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	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 3639962

Collected:06/28/2001 15:15 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:59
Discard: 08/18/2001
MA3-MW25S-280601-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW25S SDG#: MOA62-08

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	07/03/2001 00:07	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 12:39	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/03/2001 00:07	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

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Lancaster Laboratories Sample No. WW 3639963

Collected:06/28/2001 15:30 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:59
Discard: 08/18/2001
MA3-MW13S-280601-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW-13 SDG#: MOA62-09

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
	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.		0.8	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.		0.20	ug/l	1
00785	Phenanthrene	85-01-8	0.088	J	0.070	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.030	ug/l	1
00807	Fluoranthene	206-44-0	0.087	J	0.030	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.20	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.		0.040	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.		0.030	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.070	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.		0.06	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.02	J	0.01	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 3639963

Collected:06/28/2001 15:30 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:59
Discard: 08/18/2001
MA3-MW13S-280601-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW-13 SDG#: MOA62-09

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	07/03/2001 00:42	Melissa Mann	1
00774	PAH's in Water by HPLC	SW-846 8310	1	07/13/2001 13:02	Mark Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/03/2001 00:42	Melissa Mann	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	07/03/2001 10:25	Amanda E. Wade	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3639964

Collected:06/28/2001 17:00 by MO

Account Number: 07802

Submitted: 06/29/2001 09:15
Reported: 07/18/2001 at 12:59
Discard: 08/18/2001
MA3-TB03-280601-09 Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TB-03 SDG#: MOA62-10TB*

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/5030B	1	07/02/2001 13:40	Melissa Mann	1
01146	GC VOA Water Prep	SW-846 5030B	1	07/02/2001 13:40	Melissa Mann	n.a.

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Quality Control Summary

Client Name: Kerr-McGee Corporation
Group Number: 768346
Reported: 07/18/01 at 12:59 PM

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 01183A55	Sample number(s): 3639955-3639964							
Benzene	N.D.	.2	ug/l	93	91	80-118	1	30
Toluene	N.D.	.2	ug/l	98	96	82-119	2	30
Ethylbenzene	N.D.	.2	ug/l	95	93	81-119	3	30
Total Xylenes	N.D.	.6	ug/l	94	92	82-120	2	30
Batch number: 01183WAF026	Sample number(s): 3639955-3639963							
Naphthalene	N.D.	.8	ug/l	65	71	45-111	8	30
Acenaphthylene	N.D.	.8	ug/l	73	77	60-114	5	30
Acenaphthene	N.D.	.8	ug/l	81	84	50-120	4	30
Fluorene	N.D.	.2	ug/l	83	88	64-117	6	30
Phenanthrene	N.D.	.07	ug/l	94	97	75-114	3	30
Anthracene	N.D.	.03	ug/l	93	96	53-112	3	30
Fluoranthene	N.D.	.03	ug/l	110	110	75-120	0	30
Pyrene	N.D.	.2	ug/l	102	102	80-125	0	30
Benzo(a)anthracene	N.D.	.02	ug/l	105	104	73-117	1	30
Benzo(b)fluoranthene	N.D.	.04	ug/l	104	105	71-123	1	30
Benzo(a)pyrene	N.D.	.02	ug/l	97	96	61-127	1	30
Dibenz(a,h)anthracene	N.D.	.03	ug/l	108	108	71-121	1	30
Indeno(1,2,3-cd)pyrene	N.D.	.07	ug/l	104	103	73-125	1	30
Benzo(g,h,i)perylene	N.D.	.1	ug/l	101	100	70-125	1	30
Chrysene	N.D.	.06	ug/l	102	102	68-125	0	30
Benzo(k)fluoranthene	N.D.	.01	ug/l	105	104	75-118	1	30

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 01183A55	Sample number(s): 3639955-3639964								
Benzene	99		66-140						
Toluene	105		72-138						
Ethylbenzene	102		71-138						
Total Xylenes	101		69-140						

Surrogate Quality Control

Analysis Name: BTEX (8021)
Batch number: 01183A55

	Trifluorotoluene-P
3639955	107
3639956	108
3639957	107
3639958	107

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

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 768346
Reported: 07/18/01 at 12:59 PM

Surrogate Quality Control

3639959	107
3639960	108
3639961	108
3639962	107
3639963	107
3639964	112
Blank	107
LCS	106
LCSD	107
MS	107
Limits:	69-134

Analysis Name: PAH's in Water by HPLC
Batch number: 01183WAF026

	Nitrobenzene	Triphenylene
3639955	110	100
3639956	114	108
3639957	114	107
3639958	51	49
3639959	114	105
3639960	109	103
3639961	113	107
3639962	105	100
3639963	110	105
Blank	95	95
LCS	104	97
LCSD	102	97
Limits:	29-136	33-139

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

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Analysis Request/Chain of Custody

Lancaster Laboratories
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For Lancaster Laboratories use only
Acct. # 7802 Sample # 3639955

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

(1)
Client: Roy F. Weston | Acct. #:
Project Name/#: Mobil American/ Keir-McGee | PWSID #:
Project Manager: Tom Graan | P.O.#
Sampler: Ogilvie / Finkel / Kusdert | Quote #:
Name of state where samples were collected: WI

For lab use only
FSC:
SCR #: 1153928

(2) (3) (4) (5) (6)

Sample Identification	Date Collected	Time Collected	Grab (3)	Composite (3)	Matrix (4): Soil	Potable / NPDES (Check if applicable)	Water	Other	Total # of Containers	BTEX	PAH	Remarks	Temperature of samples upon receipt (if requested)
MA3-MW20S-280601-01	6/28/01	0900	X				X		5	X	X	2 Coolers Total	
MA3-MW9S-280601-02		1030	X				X		5	X	X		
MA3-MW10S-280601-03		1045	X				X		5	X	X		
MA3-MW31S-280601-04		1200	X				X		5	X	X		
MA3-MW31S-280601-04DP		1200	X				X		5	X	X		
MA3-MW6S-280601-05		1215	X				X		5	X	X		
MA3-FB04-280601-06		1300	X				X		5	X	X		
MA3-MW25S-280601-07		1515	X				X		5	X	X		
MA3-MW13S-280601-08		1530	X				X		5	X	X		
MA3-TB03-280601-09		1700	X				X		2	X		Trip Blank	

(7) **Turnaround Time Requested** (TAT) (please circle): (Normal) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: SID 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 | 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:	Date	Time	Received by:	Date	Time
	6/28/01	0900			
	6/28/01	1800			

(9)