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16 October 2002

Received 10/17/2002

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, Q2 2002
Moss-American Site, Milwaukee, Wisconsin

Dear Mr. Hart:

On behalf of Kerr-McGee Chemical, LLC (KMC), Weston Solutions, Inc. (WESTON®), is submitting this report summarizing the results of the second quarter (Q2) 2002 groundwater monitoring event for the above-referenced project. This report also presents results for the monthly groundwater sampling conducted in April, May, and June 2002 for the treatment performance monitoring of the funnel-and-gate groundwater remedial system.

Additionally, responses to Agency comments on the Q3 and Q4 2001 and Q1 2002 groundwater monitoring reports are addressed herein, as well as KMC's proposal for future groundwater monitoring and treatment. Several comments are addressed within the text of this report, and all comment responses are included in Appendix A.

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

Very truly yours,

Weston Solutions, Inc.

A handwritten signature in black ink that reads "Thomas P. Graan".

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

TPG/sk

Attachments

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



**QUARTERLY GROUNDWATER TREATMENT PERFORMANCE
MONITORING REPORT
Q2 2002
MOSS-AMERICAN SITE
MILWAUKEE, WISCONSIN**

October 2002

Prepared for:
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SECTION 1

INTRODUCTION

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 currently includes 13 shallow groundwater monitoring wells (MW-3S, MW-5S, MW-6S, MW-7S, MW-9S, MW-10S, MW-13S, MW-20S, MW-25S, MW-26S, MW-27S, MW-28S, and MW-29S). The locations of all existing groundwater monitoring wells included in the sampling program are indicated on Figure 1-1. 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. Wells MW-4S and MW-4I were removed during early Q3 2001 and well TW-05 was removed during early Q4 2001. The shallow groundwater monitoring wells are sampled on a quarterly basis. Additionally, the quarterly groundwater monitoring program includes sampling of the eight containment performance monitoring wells (MW-30S, MW-31S, MW-32S, MW-33S, MW-34S, MW-35S, MW-36S and MW-37S), which are screened in the shallow groundwater bearing unit underlying the site.

The Quality Assurance Project Plan for Installation of Groundwater Remedial System (QAPP) (WESTON, October 1999) requires KMC to implement a groundwater monitoring program capable of indicating groundwater chemistry before, during, and after treatment. Also, the hydraulic gradient is calculated at each treatment gate, and is used to estimate groundwater flow velocity through the treatment gate remediation system. The monitoring network includes six groundwater treatment gates (TG1 through TG6), with three treatment performance monitoring wells located at each groundwater treatment gate. The treatment performance monitoring well locations are indicated on Figure 1-1. 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 and containment performance groundwater monitoring wells include groundwater elevation, pH, temperature, turbidity, specific conductance, oxidation-reduction (redox) potential, and dissolved oxygen (DO). Required laboratory analyses include benzene, toluene, ethylbenzene, and xylene (BTEX collectively) and the following polynuclear aromatic hydrocarbon (PAH) compounds: acenaphthylene, acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluorene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene.

In accordance with Addendum No. 1 to the QAPP (WESTON, May 2001), the monthly field measurements for samples collected from the treatment performance monitoring wells include groundwater elevation, pH, temperature, specific conductance, redox potential, and DO.

Monthly laboratory analyses required for the treatment performance wells include microbial enumeration, nitrate-nitrogen ($\text{NO}_3\text{-N}$), nitrite-nitrogen ($\text{NO}_2\text{-N}$), total Kjeldahl nitrogen (TKN), ammonia-nitrogen ($\text{NH}_3\text{-N}$), total phosphate-phosphorous ($\text{PO}_4\text{-P}$), and orthophosphate (ORP) on a monthly basis. Additionally, laboratory analyses include biochemical oxygen demand (BOD), chemical oxygen demand (COD), total organic carbon (TOC), BTEX, and the PAHs indicated in the above paragraph on a quarterly basis.

LEGEND

- CABLE FENCE
- ▣ CATCH BASIN
- ▶ HYDRANT
- ⊠ SIGN
- ▣ FREE PRODUCT COLLECTION SUMP
- UTILITY POLE
- SAMPLING MANHOLE
- ⊕ MONITORING WELL
- INJECTION WELL

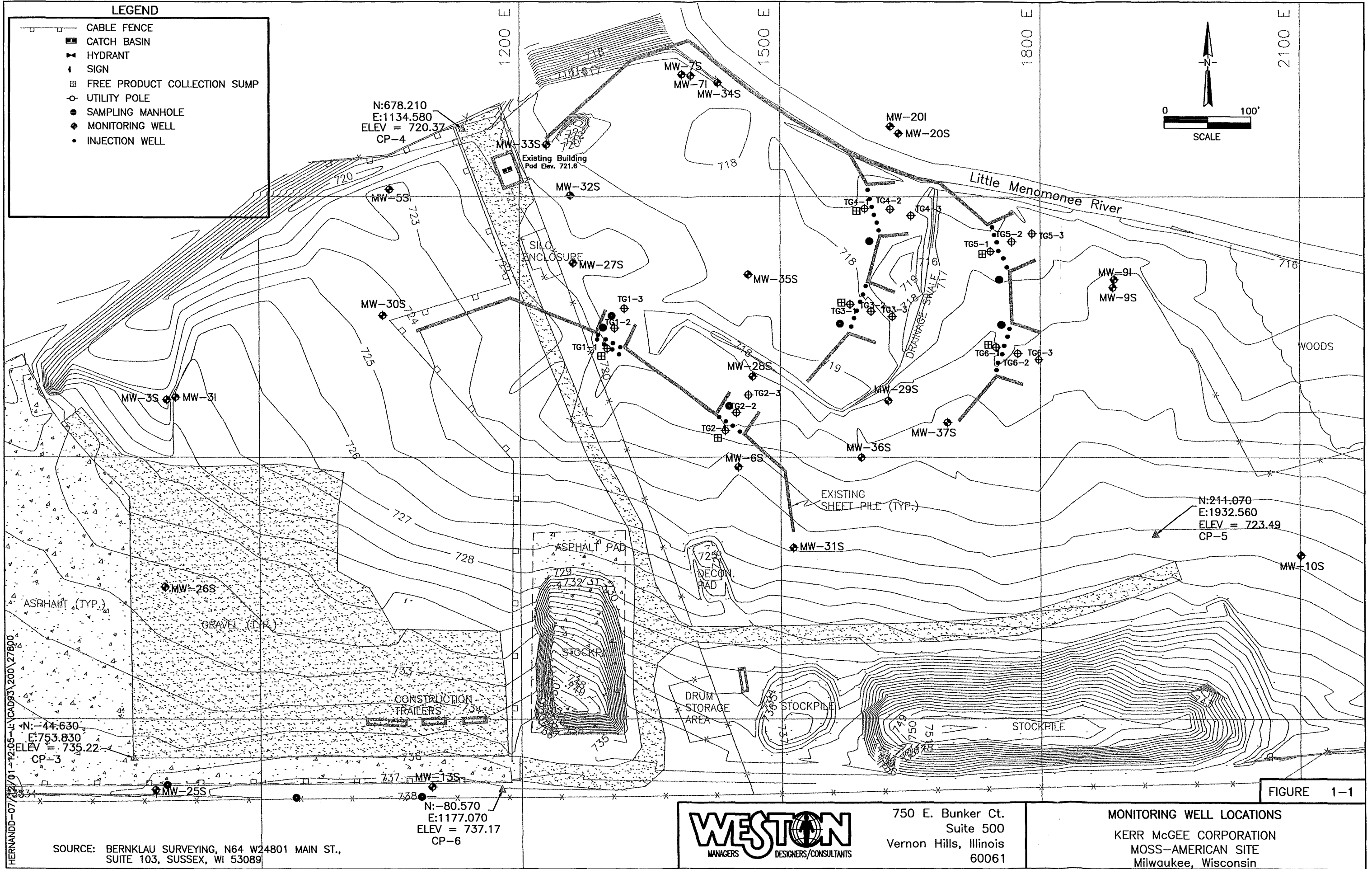


FIGURE 1-1

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



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MONITORING WELL LOCATIONS
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Milwaukee, Wisconsin

SECTION 2

GROUNDWATER MONITORING RESULTS

The Q2 2002 groundwater monitoring event at the Moss-American site was completed between 17 to 20 June 2002. The Q2 2002 groundwater remedial system treatment performance monitoring sampling includes data obtained during 25 to 26 April 2002, 29 to 30 May 2002, and 17 to 20 June 2002. Tasks completed during the field effort for this event included the collection of groundwater elevation and dissolved oxygen data from the shallow groundwater monitoring, containment performance monitoring, and treatment performance monitoring wells referenced in Section 1. Following groundwater elevation and DO measurements, groundwater samples were collected from all the shallow, containment performance, and treatment performance groundwater monitoring wells. The results of the groundwater samples that were collected and analyzed from the shallow wells are described in the following subsections.

2.1 Groundwater Elevation Measurements

The depth to water was measured in each of the shallow groundwater monitoring, containment performance monitoring, and treatment performance monitoring wells on 17 June 2002, 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 2-1. The groundwater level measurements and corresponding groundwater elevations, calculated hydraulic gradients across the treatment gates, and estimated groundwater flow velocities through the treatment gates are presented in Table 2-2. The April and May 2002 groundwater elevation data for the treatment performance monitoring wells is available upon request. Figure 2-1 presents a groundwater elevation contour map that shows the potentiometric surface within the shallow groundwater-bearing zone based on the 17 June 2002 data. Figure 2-2 indicates the potentiometric surface during Q1 2002. An evaluation of the Q2 2002 potentiometric surface map is presented below.

As shown in Figure 2-1, the groundwater within the shallow groundwater-bearing zone generally flows northeastward toward the Little Menomonee River (LMR). In the topographically higher (western) portion of the site, the horizontal hydraulic gradient is relatively steep, at approximately 0.0288 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 0.0059ft/ft. The estimated hydraulic gradients within the treatment gates ranged from 0.0010 to 0.0252 ft/ft (Table 2-2). The hydraulic gradient is relatively flat within the treatment gate area, with an overall hydraulic gradient from TG1 to TG6 of approximately 0.0011 ft/ft, in an easterly direction. It should also be noted that due to the low hydraulic gradient in the vicinity of the treatment gates, the calculated hydraulic gradients through TG1, TG3, TG4, and TG5 are westward, contrary to the overall groundwater flow direction at the site. The apparently reversed hydraulic gradients at TG1, TG3, TG4, and TG5 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 0.0288 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 0.0029 ft/day. Near the river, using a hydraulic gradient of 0.0059 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 0.0551 ft/day. The groundwater flow velocities within the treatment gates are estimated to range from 0.0094 ft/day to 0.2381 ft/day (excluding the erratic data for TG1, TG3, TG4, and TG5). The groundwater flow velocity through each treatment gate is presented in Table 2-2.

2.2 Groundwater Sample Analytical Results

Groundwater samples were collected from a total of 39 shallow monitoring wells screened within the shallow groundwater-bearing unit. The shallow wells sampled include: 13 shallow groundwater monitoring wells remaining from the original quarterly groundwater monitoring program (MW-3S, MW-5S, MW-6S, MW-7S, MW-9S, MW-10S, MW-13S, MW-20S, MW-25S, MW-26S, MW-27S, MW-28S, and MW-29S); eight containment performance monitoring wells (MW-30S, MW-31S, MW-32S, MW-33S, MW-34S, MW-35S, MW-36S and MW-37S); and 18 treatment performance monitoring wells (TG1-1, TG1-2, TG1-3, TG2-1, TG2-2, TG2-3, TG3-1, TG3-2, TG3-3, TG4-1, TG4-2, TG4-3, TG5-1, TG5-2, TG5-3, TG6-1, TG6-2, and TG6-3).

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

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

2.2.1 Field-Measured Parameters

The groundwater samples were measured in the field for pH, specific conductance, temperature, redox potential, dissolved oxygen, and turbidity. The field parameters were collected using a YSI 556 portable water quality meter and a turbidimeter. Due to the presence of free product, groundwater quality parameters were not measured in well MW-34S. 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 Appendix B. The groundwater pH, redox potential, specific conductance, and temperature are monitored during well purging prior to sampling, and the final (stabilized) values for these measurements prior to sample collection are presented in Table 2-3 and Appendix B.

2.2.1.1 pH

The pH of the groundwater samples collected during Q2 2002 ranged from 6.46 to 7.57 pH standard units (S.U.). The pH measurements indicate relatively neutral (7.0 S.U.) conditions. pH is an important factor in determining the feasibility of bioremediation of contaminants in the site groundwater since biological systems typically function only in narrow pH ranges (typically 6.5 to 8.5 S.U.) and microbial growth rates are pH dependant.

2.2.1.2 Redox Potential

The redox potentials of the groundwater samples collected at the site during Q2 2002 ranged from -185.0 to 46.3 millivolts (mV). Of all the field measurements, only 8 of the 39 wells sampled had positive redox potentials, which indicates that reducing conditions are present on a site-wide basis. Redox potential indicates the capability of the groundwater to promote chemical oxidation-reduction processes that consume organic matter and ultimately oxidize organic compounds. Microorganisms typically act as catalysts in oxidation reactions, and as such, the redox potential indicates the potential for the groundwater to oxidize the contaminants present. Since environmental systems are typically not in equilibrium, the redox potential is used as a gross indicator of the state of oxidation-reduction in the system. Oxidation-reduction rates in the system are greater as the redox potential increases in magnitude. A positive redox potential typically indicates conditions where oxidized ionic species (i.e., NO_3^- , SO_4^- , and Fe^{3+}) predominate in comparison to their reduced counterparts (NH_4^+ , S^{2-} , and Fe^{2+} , respectively). Once dissolved oxygen is removed from water (i.e., via biodegradation of organics), oxidized ionic species become electron acceptors in redox processes. As the processes continue under anaerobic conditions, the reduced ionic species concentration increases, resulting in an overall decrease of the water's redox potential.

2.2.1.3 Dissolved Oxygen

DO levels for the groundwater samples collected during Q2 2002 ranged from 0.01 to 2.12 milligrams per liter (mg/L). However, readings indicating DO levels greater than 1.0 mg/L were observed only intermittently in the Performance monitoring wells. Overall, the dissolved oxygen readings indicate the presence of low levels of oxygen in the water, and the system as a whole is considered to be under anaerobic conditions (<1 mg/L DO). DO promotes the growth of aerobic and facultative bacteria, production of readily assimilated nutrients, and provides oxygen, all of which are required to facilitate the oxidation reaction responsible for removal the contaminants

from the groundwater under aerobic conditions. Figure 2-3 indicates the DO concentrations over time in the treatment performance monitoring wells.

2.2.1.4 Specific Conductance

The specific conductance, or conductivity, of the groundwater samples collected during Q2 2002 ranged from 0.553 to 1.106 millimhos per centimeter (mU/cm). Conductivity of water is a measure of the ability of the solution to carry an electrical current that is transported by ions in the solution; therefore, conductivity is used as an indicator of the total dissolved solids (TDS) present in a water sample. As the dissolved solids content of a solution increases, the capacity for the water to transmit electrical current increases. Although conductivity is a measure of the aggregate dissolved solids in the water, it may be correlated to the readily available nutrient levels in the water, since TDS include nitrate, nitrite, ammonium, and phosphate ions.

2.2.1.5 Temperature

Groundwater temperatures ranged from 7.25 to 16.45 °C during Q2 2002. Temperatures measured approximately 6 °C higher in Q2 2002 than that of March 2002, which ranged from 1.36 to 9.23 °C. Temperature is an extremely important factor in bioremediation since microbial growth rates are greatly dependent upon temperature.

2.2.1.6 Turbidity

Turbidity ranged from 0.40 to 790 nephelometric turbidity units (NTU) during Q2 2002; however, turbidity was only measured at levels >20 NTU in six wells during Q2 2002. Turbidity is a measure of the clarity of water, and is used as an indicator of the solids present in a water sample and overall water quality.

2.2.2 Laboratory Analyses

The results of the laboratory analyses performed on the groundwater samples collected during April, May, and June 2002 are provided in Appendices C, D, and E, 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 2002 sampling event was analyzed for BTEX and PAH compounds. The results of these analyses are presented and compared to WDNR PALs and ESs in Table 2-4. Table 2-4 also indicates those parameters that were detected at concentrations exceeding their respective PALs (shown as shaded values). Parameters with concentrations exceeding both PALs and ESs are presented as shaded and bold values in Table 2-4. Exceedences are summarized in the following paragraphs. The laboratory reports that included results of the BTEX and PAH analyses are provided as Appendix E.

Groundwater Sample Results

As shown in Table 2-4, benzene, naphthalene, fluorene, pyrene, benzo(b)fluoranthene, benzo(a)pyrene, and chrysene were detected at concentrations exceeding their respective PALs

and/or ESs in the groundwater samples collected from the shallow monitoring well network. The results are as follows:

PAL Exceedances:

- Benzene was detected at concentrations exceeding the WDNR PAL of 0.5 µg/L in the groundwater samples collected from wells MW-33S, 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-34S and TG6-1.
- Benzo(b)fluoranthene was detected at concentrations exceeding the WDNR PAL of 0.02 µg/L in the groundwater samples collected from wells MW-34S, TG1-1, and TG6-1.
- Benzo(a)pyrene was detected at concentrations exceeding the WDNR PAL of 0.02 µg/L in the groundwater samples collected from wells MW-34S, TG1-1, and TG6-1. A field blank, FB-02, also had a concentration that exceeded the PAL. This exceedance was only by 0.01 µg/L, however.
- Fluorene was detected at concentrations exceeding the WDNR PAL of 80 µg/L in the groundwater samples collected from well MW-34S.
- Pyrene was detected at concentrations exceeding the WDNR PAL of 50 µg/L in the groundwater samples collected from well MW-34S.

ES Exceedances:

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

The detected plume boundary is primarily in an area encompassing five shallow monitoring wells (MW-7S, MW-33S, MW-34S, TG1-1, and TG1-2). Although the groundwater sample collected from well TG6-1 contained benzo(a)pyrene, benzo(b)fluoranthene, and chrysene at concentrations exceeding their respective PALs, TG6-1 was not included within the plume boundary. These detections in well TG6-1 are considered to be anomalous due to the numerous

upgradient and downgradient wells that did not contain constituents at levels exceeding PALs. The majority of PAL and ES exceedances are associated with wells MW-34S and TG1-1, which in previous quarterly investigations contained 10 inches and trace levels of free product respectively. In general, PAH concentrations measured in groundwater samples collected from the rest of the site were at relatively low levels with a few PAL/ES exceedances. Based on these detected concentrations, the contaminant plume generally indicates a northeasterly trend, as indicated in Figure 1-1A, as well as the previous 16 quarterly groundwater-sampling events.

Overall, the lateral extent of the Q2 2002 groundwater contaminant plume is considerably smaller than the past quarter of groundwater sampling. The slight decrease in plume size is likely attributable to seasonal fluctuations in site hydrogeology.

A summary of the concentration of contaminants at wells that have regularly exceeded PALs and/or ESs during the last 12 quarters (3 years) is presented in Table 2-5. Levels of benzene, naphthalene, fluorene, and benzo(a)pyrene fluctuate over wide ranges in these wells without a common pattern; however, these constituents have shown an overall decreasing trend in monitoring wells MW-32S and MW-35S. These constituents had also shown an overall decreasing trend in well MW-4S prior to its removal in Q2 2001. Well MW-7S has shown a decreasing trend for fluorene and benzo(a)pyrene. MW-7S has also shown fluctuating trends for benzene and naphthalene, but overall a general decreasing trend can be observed from the data. Although benzene and benzo(a)pyrene concentrations in MW-33S have been consistently below detection limits, an increasing trend is evident for fluorene and naphthalene. Well MW-34S showed an increasing trend in the concentrations of benzene, naphthalene, fluorene, and benzo(a)pyrene when compared to Q1 2002 data. Well MW-34S contained four inches of free product during Q2 2002, with varying levels of varying free product being found in the well in the recent past. This correlates with the elevated levels of constituents found in MW-34S. Well TG1-1 has shown fluctuating benzene, naphthalene, fluorene, and benzo(a)pyrene concentrations since it was first sampled in Q3 2000; however, TG1-1 showed a decreasing trend in constituent concentrations when compared to Q1 2002.

2.2.2.2 Laboratory Analyses for Treatment Performance Monitoring

The groundwater samples collected from the treatment performance monitoring wells were analyzed for microbial enumeration, NO₃-N, NO₂-N, TKN, NH₃-N, PO₄-P, and ORP on a monthly basis, and analyzed for BOD, COD, TOC, BTEX, and PAHs on a quarterly basis. The analytical results for microbial enumeration, NO₃-N, NO₂-N, TKN, NH₃-N, PO₄-P, ORP, BOD, COD, and TOC are presented in Table 2-6. The analytical results for the treatment performance monitoring groundwater samples are summarized below.

Nitrogen and Phosphorous Compounds

NO₃-N was detected at concentrations ranging from below method detection limits (nondetect) to 0.27 mg/L. NO₂-N was detected at levels ranging from nondetect to 0.044 mg/L. TKN was detected at concentrations ranging from nondetect to 2.2 mg/L. NH₃-N was detected at levels ranging from nondetect to 1.5 mg/L. Temporal changes of NO₃-N, NO₂-N, and NH₃-N concentrations in the treatment performance monitoring wells with respect to treatment gate are presented in Figures 2-4, 2-5, and 2-6, respectively. Overall, nitrogen compound concentrations are at relatively low levels; however, NH₃-N is typically an order of magnitude greater than NO₃-N and NO₂-N concentrations. NH₃-N is slightly higher in the TG3 wells. NO₃-N levels were

non-detect in all the wells for Q2 2002, except for well TG3-1 during May 2002. NO₂-N levels were non-detect in the performance monitoring wells during the second quarter, except for some minor detections in wells TG3-2 and TG3-3 during May 2002 and wells TG1-2 and TG3-2 during June 2002. Higher nitrogen compound concentrations could potentially be due to slightly higher DO levels in the upgradient well at Gate 3 (TG3-1), which might allow for some oxidation of nitrogen.

PO₄-P was detected at concentrations ranging from nondetect to 0.206 mg/L. ORP was detected at concentrations ranging from nondetect to 0.47 mg/L. The temporal changes of PO₄-P and ORP concentrations in the treatment performance monitoring wells with respect to treatment gate are presented in Figures 2-7 and 2-8, respectively. A relatively good level of PO₄-P was found throughout the treatment gates for Q2 2002. ORP levels were minimal in the gates for Q2 2002, except for some anomalous data found in TG4, TG5, and TG6 during May 2002.

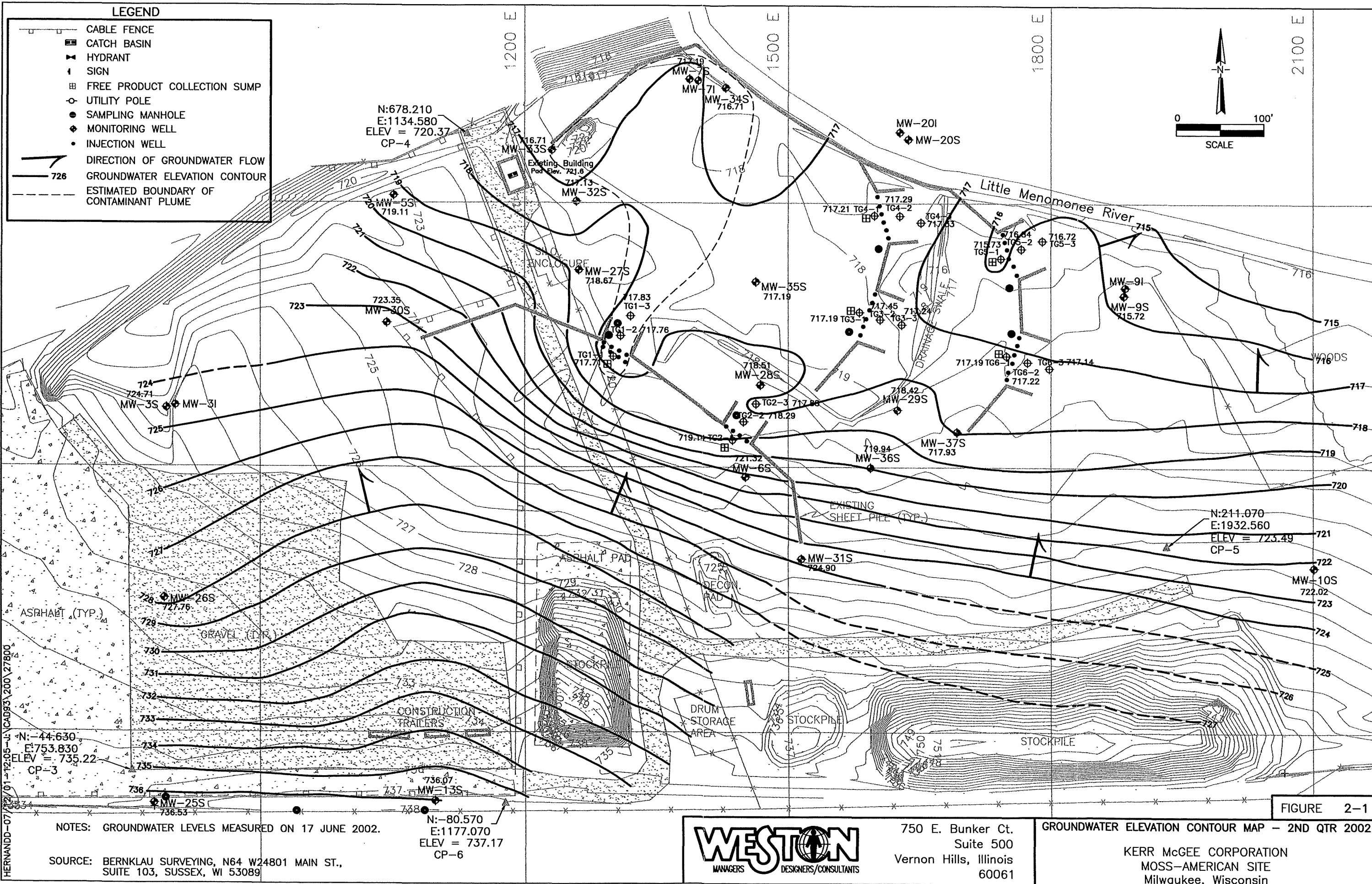
BOD, COD, and TOC

BOD concentrations for the samples collected throughout the treatment system range from non-detect to 6.9 mg/L. COD concentrations for the samples collected throughout the treatment system range from 6.3 to 32.8 mg/L. TOC concentrations for the samples collected throughout the treatment system range from 3.4 to 13.1 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. In support of this, only one well (TG3-3) had a detection for BOD during Q2 2002. The rest of the treatment performance wells were non-detect for BOD.

Microbial Enumeration

The monthly mean of the total microbe populations for TG1 and TG2 ranged from 1.40×10^2 to 2.40×10^4 colony forming units per milliliter (CFU/mL) during second quarter 2002. The monthly mean of the total microbe populations for TG3 and TG4 ranged from 2.60×10^2 to 3.80×10^4 CFU/mL during second quarter 2002. The monthly of the total microbe populations for TG5 and TG6 ranged from 2.70×10^2 to 2.90×10^4 CFU/mL during second quarter 2002. The temporal changes in total microbial populations are presented in Figure 2-9.

The monthly mean of the degrader microbe populations for TG1 and TG2 ranged from <10 to 3.30×10^3 CFU/mL during second quarter 2002. The monthly mean of the microbe populations for TG3 and TG4 ranged from <10 to 1.80×10^3 CFU/mL during second quarter 2002. The monthly mean of the microbe populations for TG5 and TG6 ranged from <10 to 1.20×10^3 CFU/mL during second quarter 2002. The temporal changes in degrader microbial populations are presented in Figure 2-10.



HERNAND-071-1205-J-CAD93\200\27800
 .D93 27800

NOTES: GROUNDWATER LEVELS MEASURED ON 17 JUNE 2002.

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

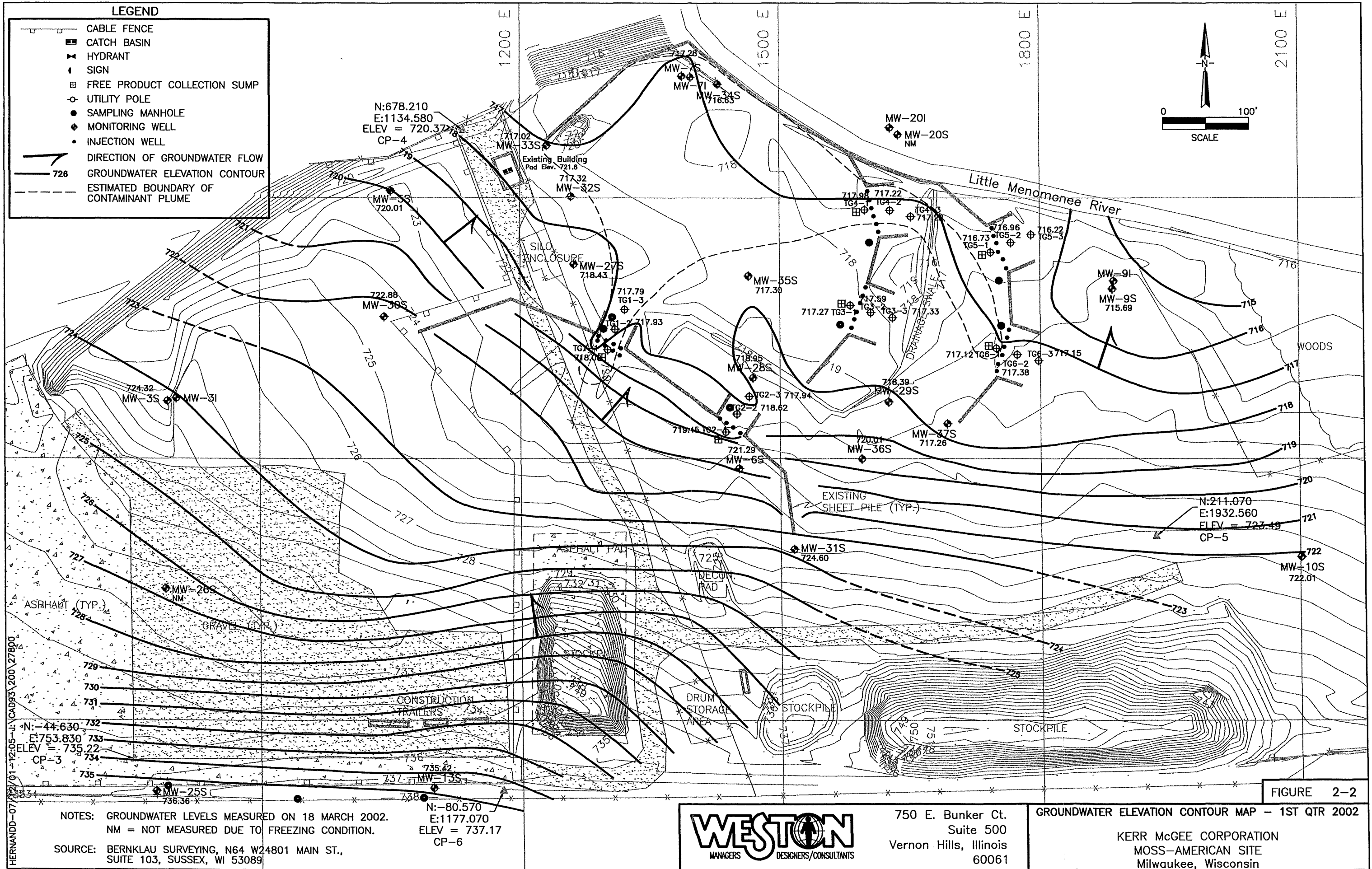
N: -80.570
 E: 1177.070
 ELEV = 737.17
 CP-6



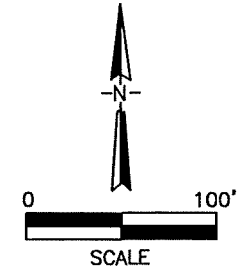
750 E. Bunker Ct.
 Suite 500
 Vernon Hills, Illinois
 60061

FIGURE 2-1 GROUNDWATER ELEVATION CONTOUR MAP - 2ND QTR 2002

KERR MCGEE CORPORATION
 MOSS-AMERICAN SITE
 Milwaukee, Wisconsin



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



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

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



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

FIGURE 2-2
GROUNDWATER ELEVATION CONTOUR MAP - 1ST QTR 2002
 KERR MCGEE CORPORATION
 MOSS-AMERICAN SITE
 Milwaukee, Wisconsin

Figure 2-3

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

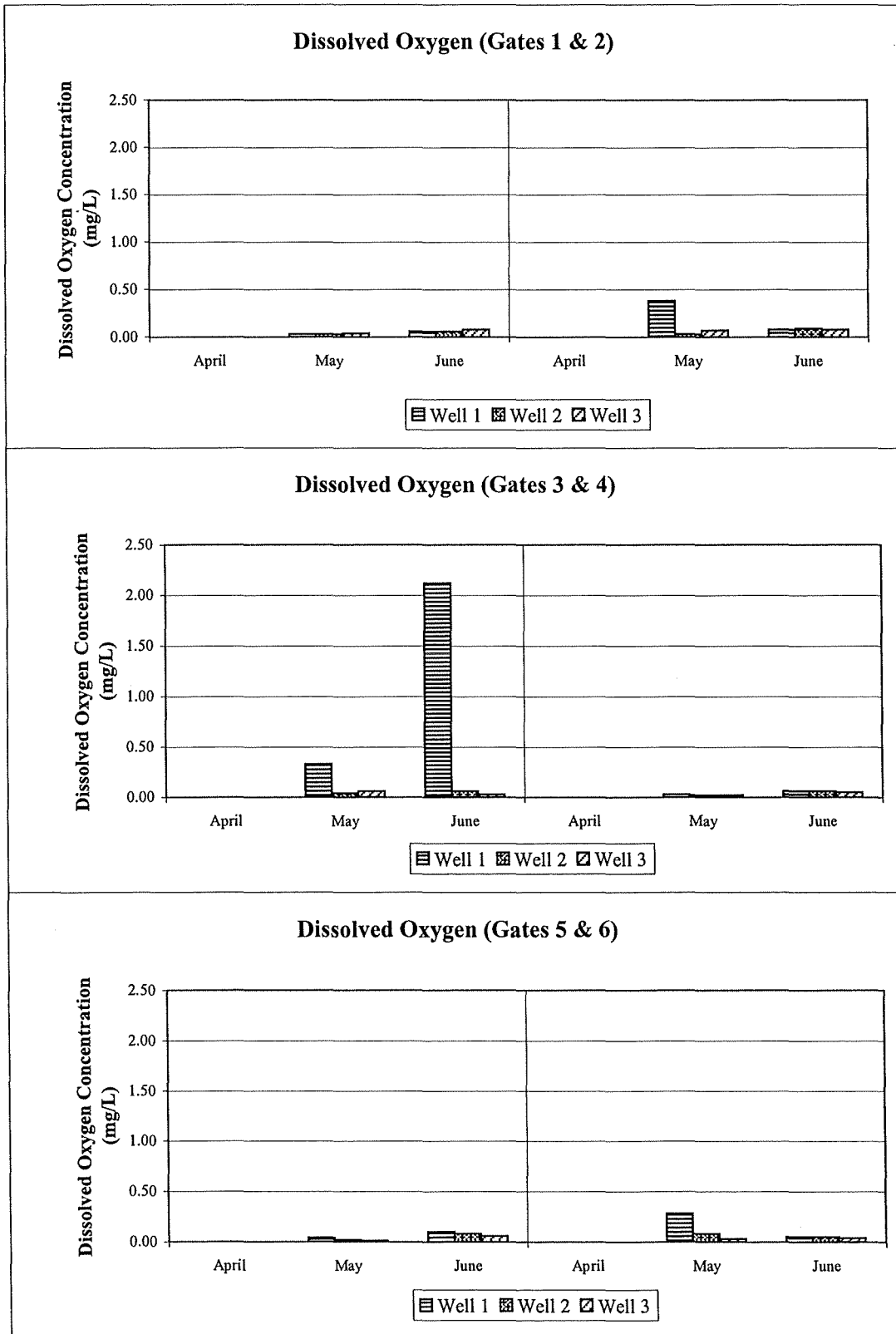


Figure 2-4

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

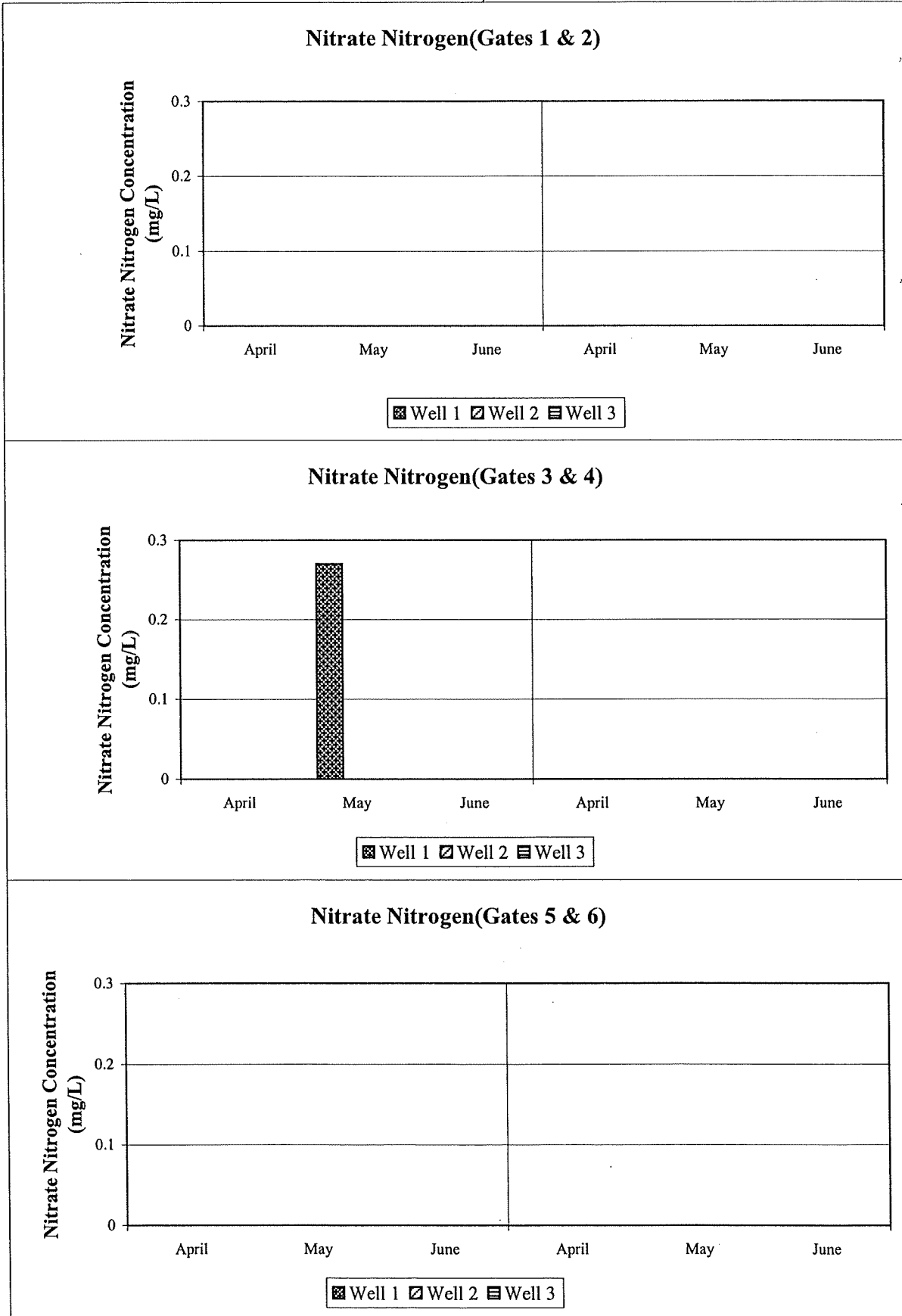


Figure 2-5

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

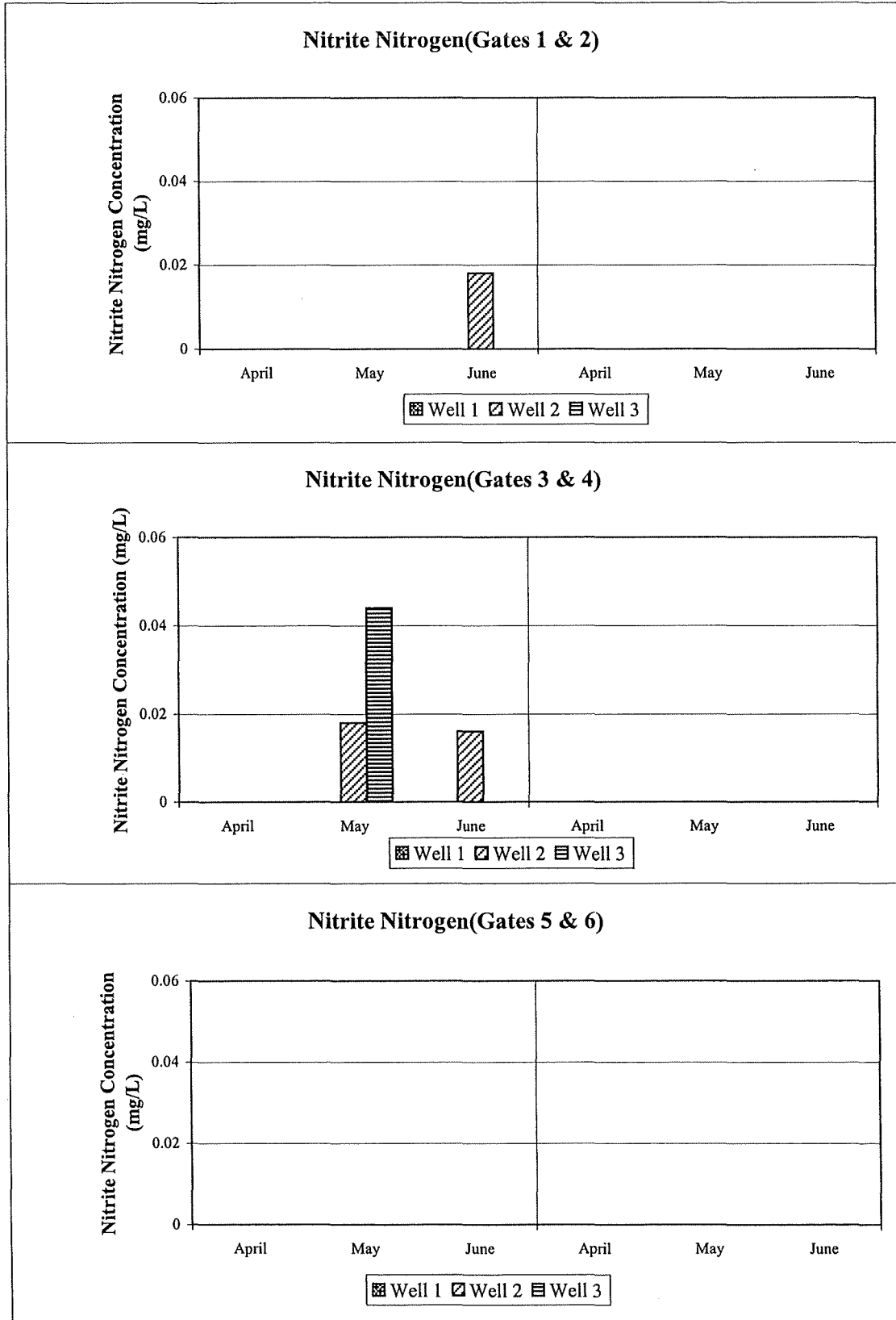


Figure 2-6

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

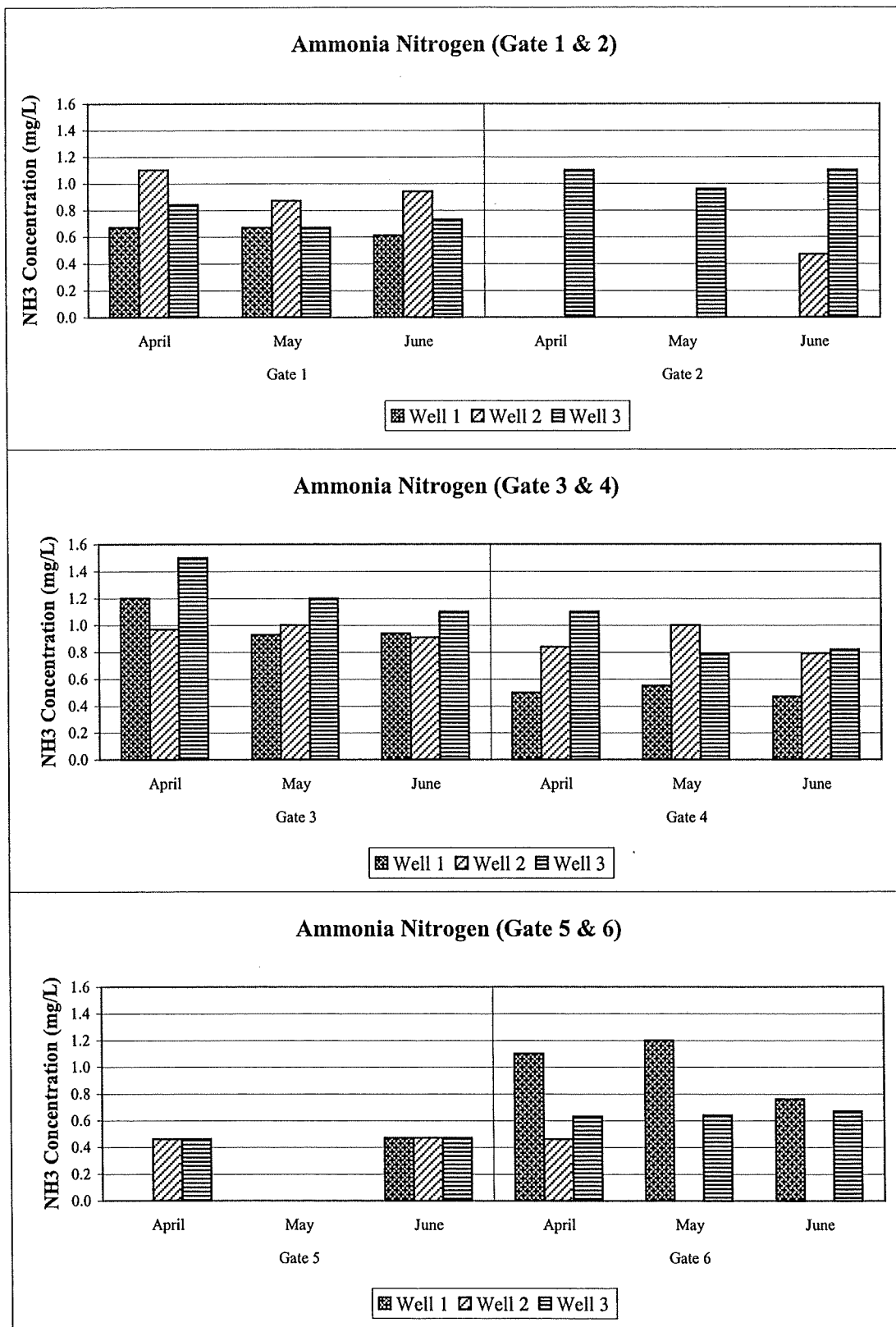


Figure 2-7

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

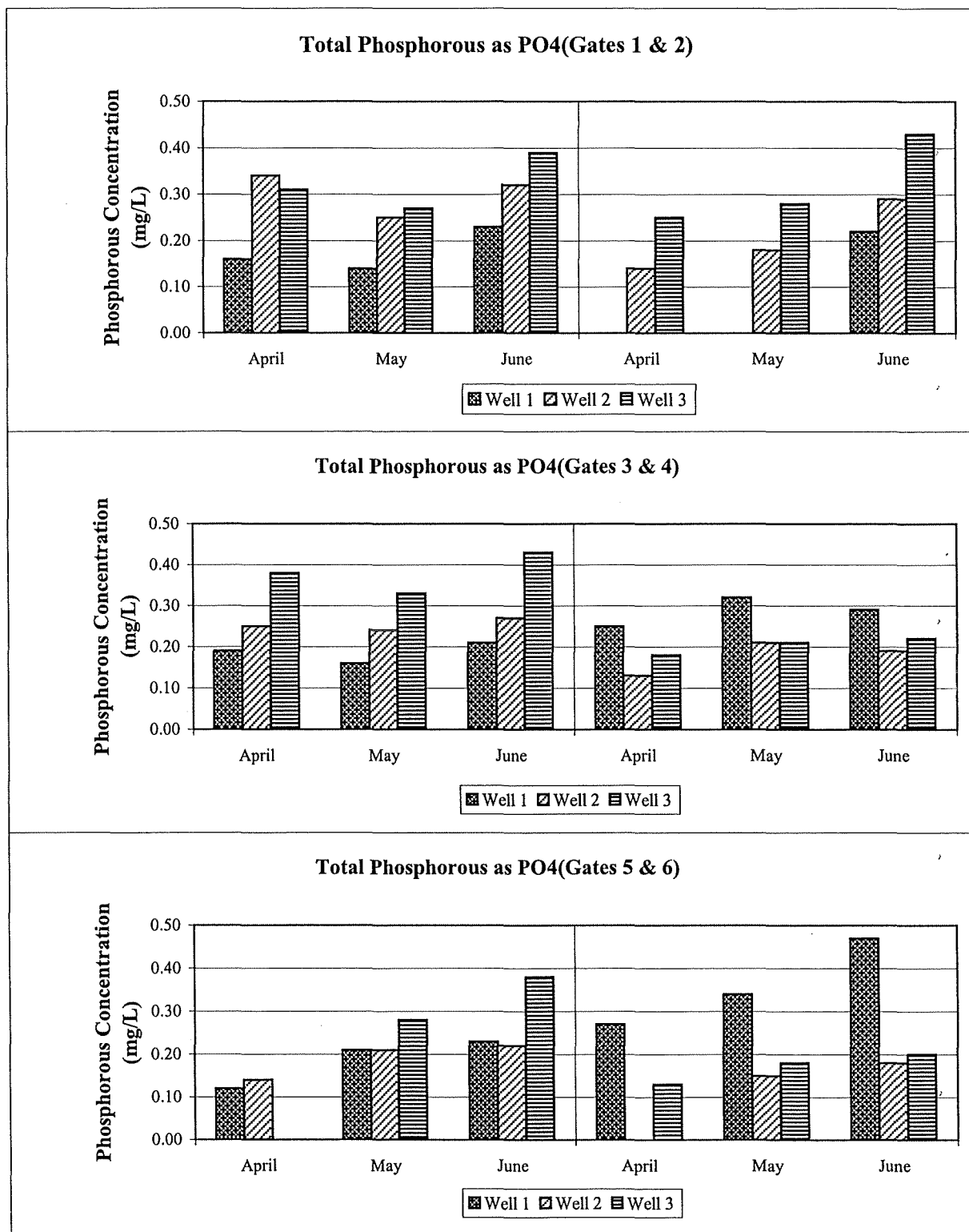


Figure 2-8

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

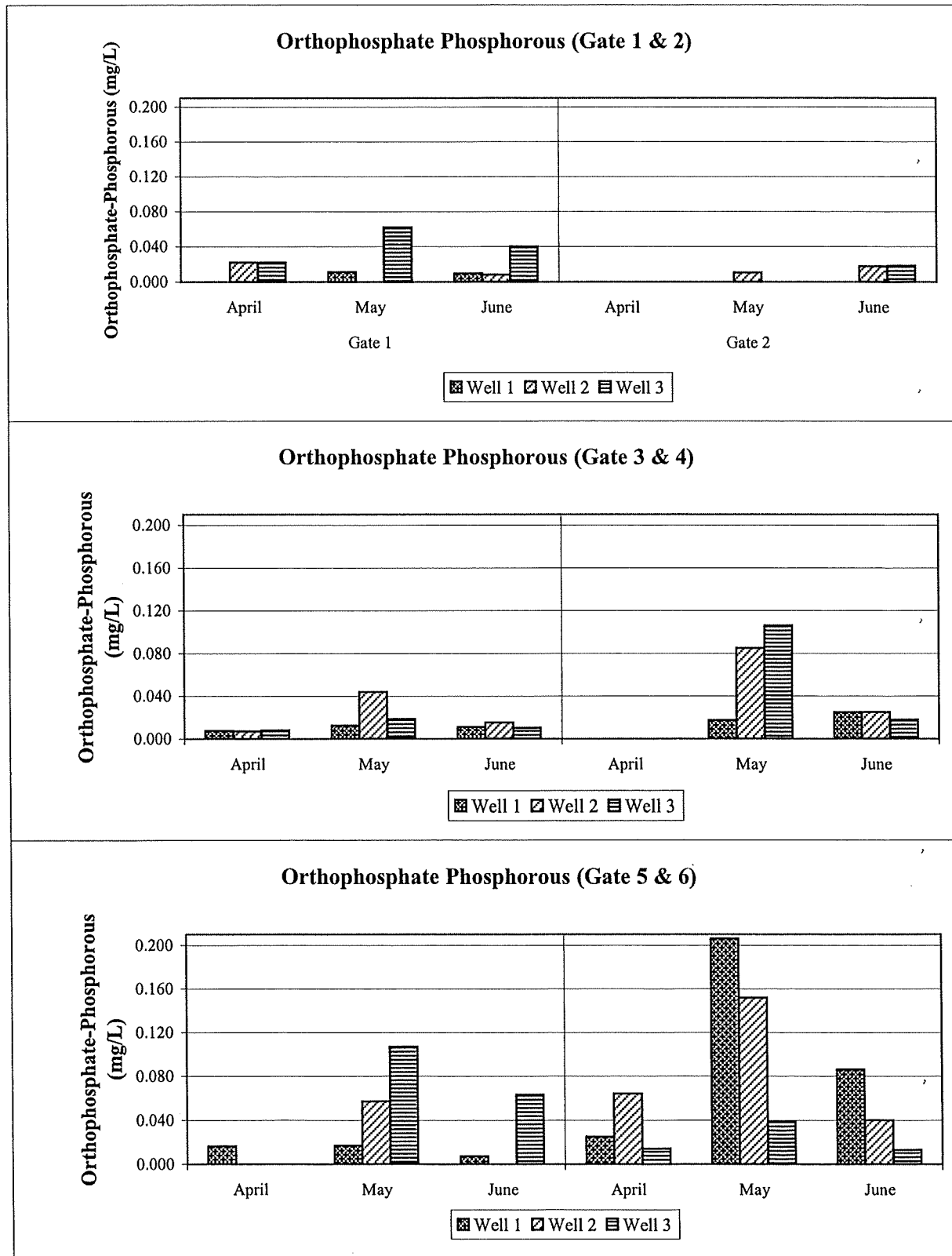
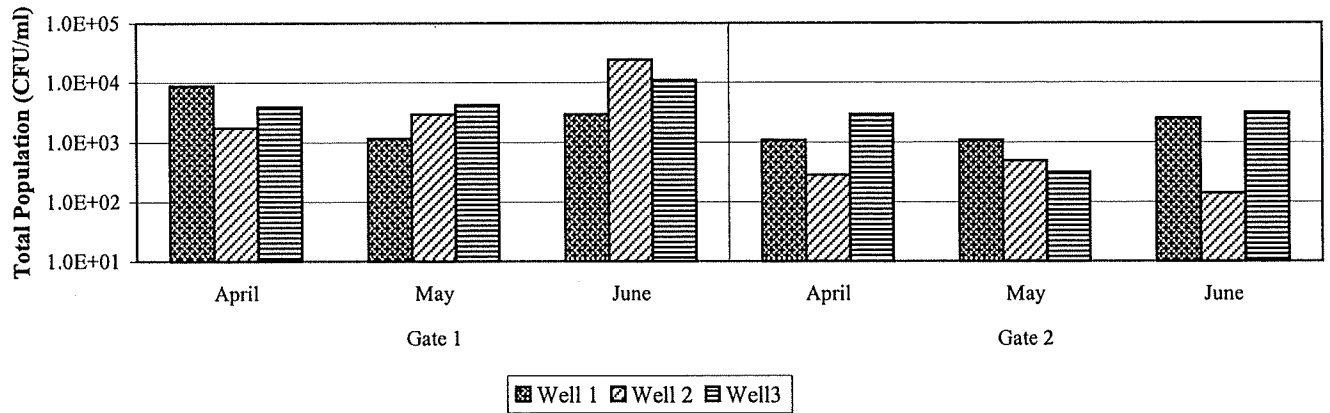


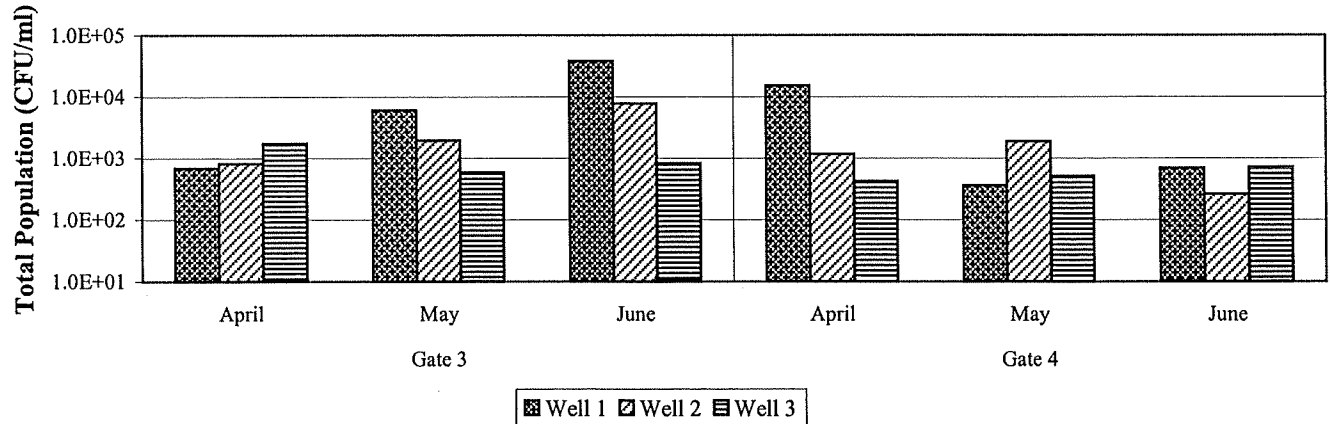
Figure 2-9

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

Total Microbial Population (Gates 1 & 2)



Total Microbial Population (Gates 3 & 4)



Total Microbial Population (Gates 5 & 6)

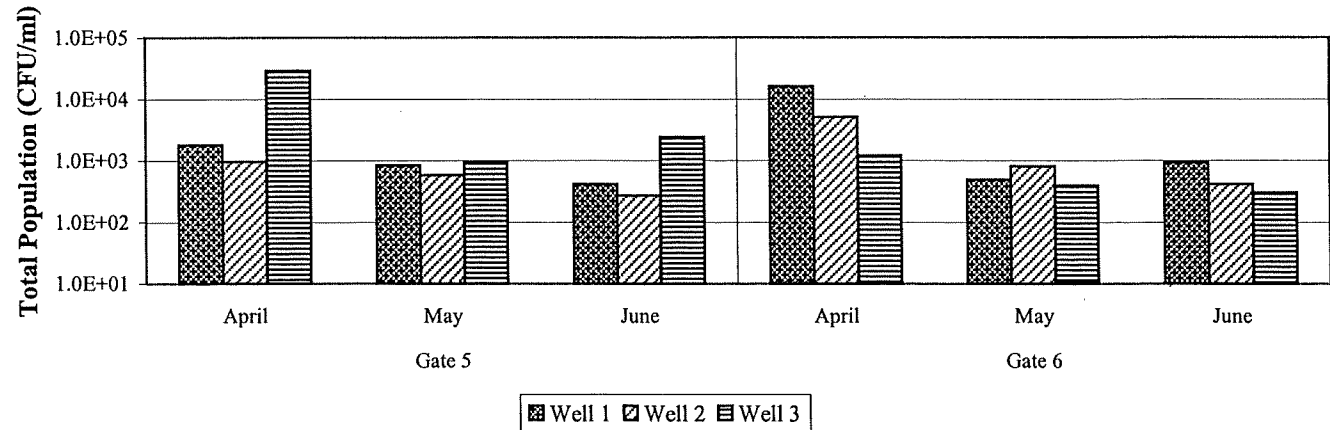


Figure 2-10

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

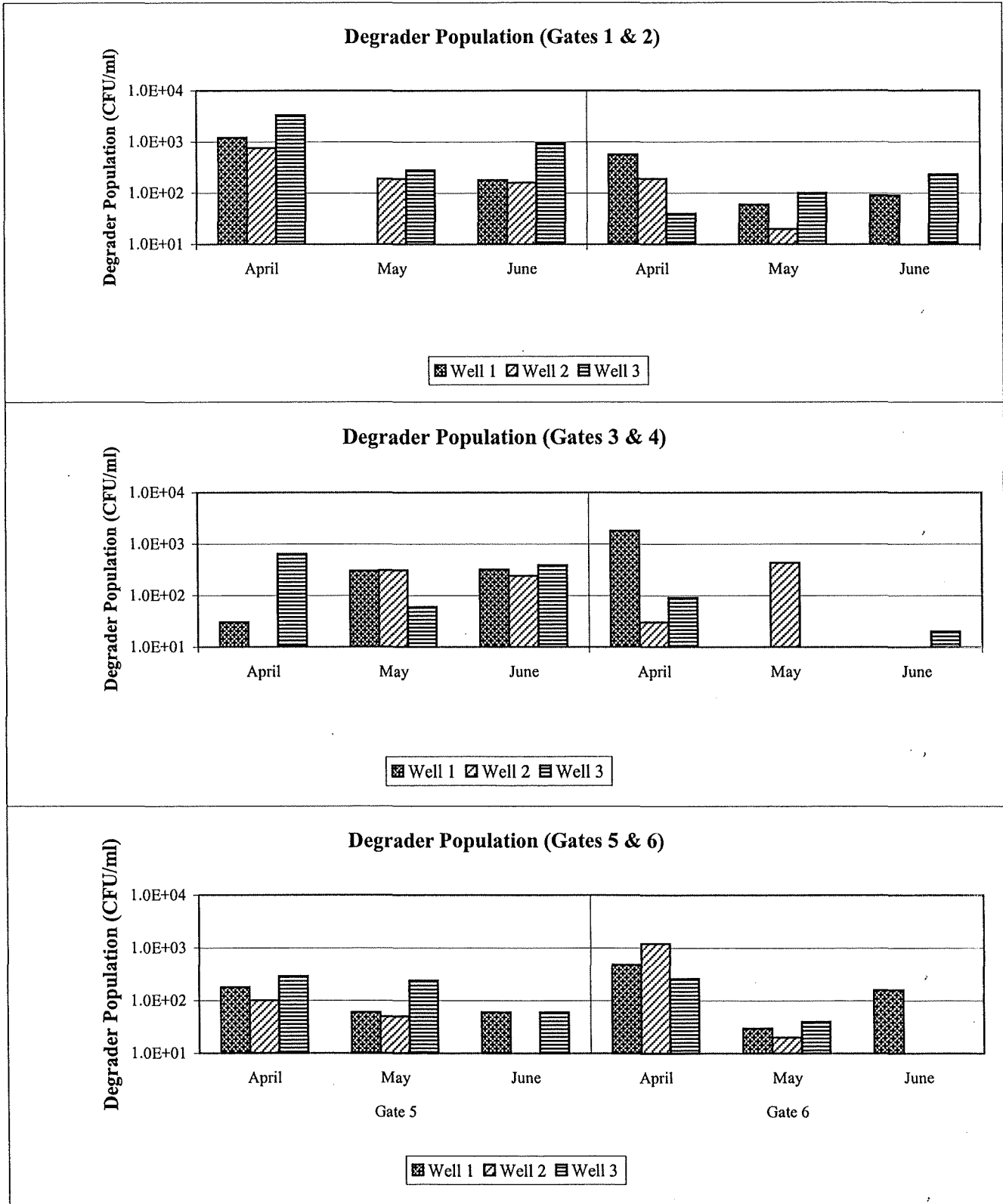


Table 2-1

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

Well ID	Ground Elevation	TOC Elevation	Depth to Water	GW Elevation	Product Thickness
MW-3S	729.00	731.50	6.79	724.71	ND
MW-5S	723.00	724.70	5.59	719.11	ND
MW-6S	727.00	724.28	2.96	721.32	ND
MW-7S	720.00	721.70	4.51	717.19	TRACE
MW-9S	720.00	721.71	5.99	715.72	ND
MW-10S	723.00	726.58	4.56	722.02	ND
MW-13S	737.00	738.68	2.61	736.07	ND
MW-20S	716.00	719.94	NM	NM	ND
MW-25S	736.83	739.24	2.71	736.53	ND
MW-26S	732.31	731.66	3.90	727.76	ND
MW-27S	720.59	723.15	4.48	718.67	ND
MW-28S	720.04	722.65	4.14	718.51	ND
MW-29S	720.01	722.39	3.97	718.42	ND
MW-30S	724.50	727.19	3.84	723.35	ND
MW-31S	723.80	726.35	1.45	724.90	ND
MW-32S	719.60	722.62	5.49	717.13	ND
MW-33S	719.10	721.69	4.98	716.71	ND
MW-34S	718.60	721.42	4.71	716.71	4 "
MW-35S	718.90	721.54	4.35	717.19	ND
MW-36S	720.20	723.09	3.15	719.94	ND
MW-37S	720.50	723.13	5.20	717.93	ND

Notes: All values in feet.

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

TOC = Top of well casing.

GW = Groundwater.

NM = Not measured.

ND = Not detected.

Depth to groundwater was measured on 17 June 2002.

Table 2-2

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

Well ID	Ground Elevation	TOC Elevation	Depth to Water	GW Elevation	Hydraulic Gradient (ft/ft)	Groundwater Velocity (ft/day)	Product Thickness
TG1-1	720.05	723.18	5.47	717.71	-0.0024	-0.0227	TRACE
TG1-2	719.80	722.60	4.84	717.76			ND
TG1-3	719.30	722.35	4.52	717.83			ND
TG2-1	720.50	723.60	4.46	719.14	0.0252	0.2381	ND
TG2-2	719.90	722.86	4.57	718.29			ND
TG2-3	719.90	722.35	4.47	717.88			ND
TG3-1	718.40	720.95	3.76	717.19	-0.0010	-0.0094	ND
TG3-2	718.20	720.75	3.30	717.45			ND
TG3-3	717.80	720.30	3.06	717.24			ND
TG4-1	717.60	720.79	3.58	717.21	-0.0024	-0.0227	ND
TG4-2	717.90	720.51	3.22	717.29			ND
TG4-3	717.40	719.93	2.60	717.33			ND
TG5-1	717.60	720.56	4.83	715.73	-0.0198	-0.1873	ND
TG5-2	717.30	720.24	3.40	716.84			ND
TG5-3	717.00	719.73	3.01	716.72			ND
TG6-1	719.20	721.73	4.54	717.19	0.0010	0.0094	ND
TG6-2	719.20	721.90	4.68	717.22			ND
TG6-3	719.40	722.32	5.18	717.14			ND

Notes: All values in feet.

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

Porosity of soil is assumed to be 0.3.

Hydraulic conductivity of treatment gate material is assumed to be 1E-3 cm/s = 2.8 ft/day.

TOC = Top of the casing.

GW = Groundwater.

ft/day = feet per day.

ND = Not detected.

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

Depth to groundwater was measured on 17 June 2002.

Table 2-3

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

Well Number	pH (Standard Units)	Specific Conductance (mmho/cm)	Temperature (°C)	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
MW-3S	7.16	0.892	13.09	9.5	0.13	3.0
MW-5S	6.88	0.803	13.66	-29.5	0.06	2.4
MW-6S	7.53	0.625	12.91	46.3	0.09	380
MW-7S	6.65	0.869	13.54	-64.6	0.07	38.0
MW-9S	6.60	0.840	13.04	-48.2	0.09	3.2
MW-10S	6.77	0.687	16.45	-21.2	0.09	0.9
MW-13S	7.16	0.834	14.85	29.5	0.46	1.12
MW-20S	6.67	0.917	10.23	-42.3	NM	1.4
MW-25S	7.11	0.740	14.13	24.0	0.24	0.4
MW-26S	7.32	0.762	12.72	27.1	0.07	6.0
MW-27S	6.73	0.731	12.54	-77.2	0.05	6.0
MW-28S	6.72	0.983	13.42	-27.2	0.06	1.3
MW-29S	7.13	0.705	14.71	17.9	0.03	4.3
MW-30S	6.88	0.786	13.98	-11.6	0.07	1.2
MW-31S	7.21	0.651	14.41	17.2	0.18	790
MW-32S	6.59	0.800	14.06	-78.2	0.07	1.3
MW-33S	6.67	0.792	12.89	-76.5	0.07	2.5
MW-34S	NM	NM	NM	NM	NM	NM
MW-35S	6.70	0.978	13.64	-22.0	0.08	6.0
MW-36S	7.34	0.580	13.35	13.8	0.08	87.5
MW-37S	6.65	0.803	14.64	-24.1	0.09	2.0

Table 2-4

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

Sample ID:	MW-3S	MW-5S	MW-6S	MW-7S	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/20/2002	6/20/2002	6/19/2002	6/19/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L		
Parameters						
VOCs						
Benzene	0.2 U	0.2 U	0.2 U	0.43 J	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	1.2 V	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	3.3 V	124	620
PAHs						
Naphthalene	1 U	1 U	0.9 U	3000 V	8	40
Acenaphthylene	0.8 U	0.8 U	0.8 U	48 V	NA	NA
Acenaphthene	0.8 U	0.8 U	0.8 U	52 V	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	7 V	80	400
Phenanthrene	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA
Anthracene	0.04 U	0.04 U	0.04 U	0.04 U	600	3000
Fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 J	0.02	0.2
Dibenz(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.09 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA

Table 2-4 (continued)

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

Sample ID:	MW-9S	MW-10S	MW-13S	MW-20S	MW-25S	MW-26S	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/19/2002	6/19/2002	6/19/2002	6/19/2002	6/19/2002	6/20/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs								
Naphthalene	0.9 U	1 U	1 U	1 U	1 U	1 U	8	40
Acenaphthylene	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Acenaphthene	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA
Anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	600	3000
Fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenz(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.09 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA

Table 2-4 (continued)

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

Sample ID:	MW-27S	MW-28S	MW-29S	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater		
Sample Date:	6/18/2002	6/19/2002	6/19/2002		
Units of Measure:	ug/L	ug/L	ug/L		
Parameters					
VOCs					
Benzene	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	124	620
PAHs					
Naphthalene	1 U	1 U	1 U	8	40
Acenaphthylene	0.8 U	0.8 U	0.8 U	NA	NA
Acenaphthene	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.08 U	0.08 U	0.08 U	NA	NA
Anthracene	0.04 U	0.04 U	0.04 U	600	3000
Fluoranthene	0.04 U	0.04 U	0.04 U	80	400
Pyrene	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenz(a,h)anthracene	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	NA	NA

Table 2-4 (continued)

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

Sample ID:	MW-30S	MW-31S	MW-32S	MW-33S	MW-34S	MW-35S	MW-36S	MW-37S	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/20/2002	6/19/2002	6/18/2002	6/18/2002	6/19/2002	6/19/2002	6/19/2002	6/19/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters										
VOCs										
Benzene	0.2 U	0.2 U	0.2 U	2 J	12 V	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	1.3 J	8.1 J	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	8.7 V	28 V	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	27 V	96 V	0.6 U	0.6 U	0.6 U	124	620
PAHs										
Naphthalene	1 U	1 U	1 U	2900 V	6100 V	0.9 U	1 U	1 U	8	40
Acenaphthylene	0.8 U	0.8 U	0.8 U	64 V	72 V	0.8 U	0.8 U	0.8 J	NA	NA
Acenaphthene	0.8 U	0.8 U	0.8 U	180 V	220 V	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	50 V	120 V	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.08 U	0.08 U	0.08 U	4 V	210 V	0.2 J	0.08 U	0.08 U	NA	NA
Anthracene	0.04 U	0.04 U	0.04 U	0.1 J	22 V	0.2 V	0.04 U	0.04 U	600	3000
Fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	65 V	0.6 V	0.04 U	0.04 U	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	51 V	0.4 J	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	10 V	0.03 J	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.08 U	9 V	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	3 V	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	2 V	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	4 V	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenz(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.2 J	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.09 U	2 V	0.09 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	0.08 U	2 V	0.08 U	0.08 U	0.08 U	NA	NA

Table 2-4 (continued)

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

Sample ID:	TG1-1	TG1-2	TG1-3	TG2-1	TG2-2	TG2-3	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/18/2002	6/18/2002	6/18/2002	6/17/2002	6/17/2002	6/17/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	3.2 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	18 V	0.52 J	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	22 V	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs								
Naphthalene	1500 V	62 V	1 U	1 U	1 U	1 U	8	40
Acenaphthylene	30 U	2 J	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Acenaphthene	150 V	35 V	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	70 V	14 V	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	55 V	13 V	0.08 U	0.08 U	0.08 U	0.1 J	NA	NA
Anthracene	5 V	2 V	0.05 J	0.04 U	0.04 U	0.04 U	600	3000
Fluoranthene	6 V	2 V	0.05 J	0.04 U	0.04 U	0.04 U	80	400
Pyrene	3 V	1 V	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.2 V	0.07 J	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.06 J	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.03 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 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
Dibenz(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA

Table 2-4 (continued)

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

Sample ID:	TG3-1	TG3-2	TG3-3	TG4-1	TG4-2	TG4-3	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/18/2002	6/18/2002	6/18/2002	6/18/2002	6/18/2002	6/18/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs								
Naphthalene	1 U	1 U	1 U	0.9 U	1 U	1 U	8	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	0.4 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.08 U	0.08 U	0.1 J	0.08 U	0.08 U	0.08 U	NA	NA
Anthracene	0.08 J	0.05 J	0.05 J	0.04 U	0.1 J	0.04 U	600	3000
Fluoranthene	0.06 J	0.05 J	0.07 J	0.04 U	0.2 V	0.04 U	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenz(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.09 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA

Table 2-4 (continued)

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

Sample ID:	TG5-1	TG5-2	TG5-3	TG6-1	TG6-2	TG6-3	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/17/2002	6/17/2002	6/17/2002	6/18/2002	6/18/2002	6/18/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs								
Naphthalene	1 U	0.9 U	1 U	1 U	1 U	0.9 U	8	40
Acenaphthylene	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Acenaphthene	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	NA	NA
Fluorene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.08 U	0.08 U	0.08 U	0.2 J	0.08 U	0.08 U	NA	NA
Anthracene	0.04 U	0.05 J	0.04 U	0.09 J	0.05 J	0.05 J	600	3000
Fluoranthene	0.04 U	0.06 J	0.04 U	0.4 V	0.1 J	0.06 J	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.4 J	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.09 J	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.2 J	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.08 J	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.04 J	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.07 J	0.02 U	0.02 U	0.02	0.2
Dibenz(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.09 U	0.1 U	0.2 J	0.1 U	0.09 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	0.1 J	0.08 U	0.08 U	NA	NA

Table 2-4 (continued)

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

Sample ID:	MW-10S-DUP	MW-26S-DUP	MW-31S-DUP	TG3-2-DUP	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/19/2002	6/20/2002	6/19/2002	6/18/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L		
Parameters						
VOCs						
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	0.2 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	1 U	1 U	1 U	1 U	8	40
Acenaphthylene	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	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA
Anthracene	0.04 U	0.04 U	0.04 U	0.04 U	600	3000
Fluoranthene	0.04 U	0.04 U	0.04 U	0.05 J	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.2
Dibenz(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA

Table 2-4 (continued)

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

Sample ID:	MW-29S-MS	MW-29S-MSD	TG3-1-MS	TG3-1-MSD	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/19/2002	6/19/2002	6/18/2002	6/18/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L		
Parameters						
VOCs						
Benzene	23 V	20 V	23 V	23 V	0.5	5
Toluene	23 V	20 V	22 V	23 V	68.6	343
Ethylbenzene	22 V	19 V	22 V	22 V	140	700
Total Xylenes	67 V	59 V	66 V	66 V	124	620
PAHs						
Naphthalene	190 V	190 V	190 V	190 V	8	40
Acenaphthylene	190 V	190 V	190 V	190 V	NA	NA
Acenaphthene	200 V	190 V	200 V	200 V	NA	NA
Fluorene	19 V	18 V	19 V	19 V	80	400
Phenanthrene	6 V	6 V	6 V	6 V	NA	NA
Anthracene	3 V	3 V	3 V	3 V	600	3000
Fluoranthene	3 V	3 V	3 V	3 V	80	400
Pyrene	20 V	19 V	20 V	20 V	50	250
Benzo(a)anthracene	2 V	1 V	1 V	1 V	NA	NA
Chrysene	6 V	6 V	6 V	6 V	0.02	0.2
Benzo(b)fluoranthene	1 V	1 V	1 V	1 V	0.02	0.2
Benzo(k)fluoranthene	1 V	1 V	1 V	1 V	NA	NA
Benzo(a)pyrene	1 V	1 V	1 V	1 V	0.02	0.2
Dibenz(a,h)anthracene	3 V	3 V	3 V	3 V	NA	NA
Benzo(g,h,i)perylene	12 V	12 V	12 V	12 V	NA	NA
Indeno(1,2,3-cd)pyrene	6 V	6 V	6 V	6 V	NA	NA

Table 2-4 (continued)

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

Sample ID:	FB-01	FB-02	FB-03	FB-04	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	6/19/2002	6/19/2002	6/20/2002	6/20/2002		
Units of Measure:	ug/L	ug/L	ug/L	ug/L		
Parameters						
VOCs						
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	0.2 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	1 U	1 U	1 U	1 U	8	40
Acenaphthylene	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	0.02 U	0.2 U	0.2 U	0.2 U	80	400
Phenanthrene	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA
Anthracene	0.04 U	0.04 J	0.04 U	0.04 U	600	3000
Fluoranthene	0.04 U	0.05 J	0.04 U	0.04 U	80	400
Pyrene	0.2 U	0.2 U	0.2 U	0.2 U	50	250
Benzo(a)anthracene	0.02 U	0.02 J	0.02 U	0.02 U	NA	NA
Chrysene	0.08 U	0.08 U	0.08 U	0.08 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.04 U	0.04 U	0.04 U	0.02	0.2
Benzo(k)fluoranthene	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA
Benzo(a)pyrene	0.02 U	0.03 J	0.02 U	0.02 U	0.02	0.2
Dibenz(a,h)anthracene	0.04 U	0.04 U	0.04 U	0.04 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.08 U	0.09 J	0.08 U	0.08 U	NA	NA

Table 2-4 (continued)

Groundwater Sample Analytical Results

Table Notes

**Moss-American Site
Milwaukee, Wisconsin
Second Quarter 2002**

U - Constituent not detected. Detection limit indicated.

J - Estimated concentration.

V - Valid data.

VOC - Volatile Organic Compound.

PAH - Polynuclear Aromatic Hydrocarbon.

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

ES - Enforcement Standard (WDNR).

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

NM - Not measured.

Shaded values indicate concentration exceeding PAL.

Shaded and bold values indicate concentration exceeding PAL and ES.

Table 2-5

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

	MW-4S ¹	MW-7S	TW-05 ³	MW-32S ²	MW-33S ²	MW-34S ²	MW-35S ²	TG1-1 ²
<u>Benzene (ug/L)</u>								
Third Quarter (September '99)	3.00	9.00	0.20 U	---	---	---	---	---
Fourth Quarter (December '99)	2.80	7.10	0.20 U	---	---	---	---	---
First Quarter (March '00)	4.00	5.20	0.20 U	---	---	---	---	---
Second Quarter (June '00)	3.40	4.00 J	0.20 U	0.20 U	1.00 U	9.50 J	0.20 U	---
Third Quarter (September '00)	25.0	4.00 U	0.20 U	0.20 U	1.00 U	8.10 J	0.20 U	2.80
Fourth Quarter (December '00)	2.60	3.40 J	0.20 U	0.20 U	8.30 J	2.00 U	0.20 U	7.00
First Quarter (March '01)	5.10 J	5.50 J	0.20 U	0.20 U	4.00 U	9.80 J	0.20 U	2.80
Second Quarter (June '01)	---	2.90 J	0.20 U	0.20 U	1.00 U	6.80 J	0.20 U	5.00
Third Quarter (September '01)	---	3.70 J	0.20 U	0.20 U	1.00 U	9.00 J	0.20 U	3.10
Fourth Quarter (December '01)	---	7.70 J	---	0.20 U	1.00 U	6.10 J	0.20 U	5.70
First Quarter (March '02)	---	3.6 J	---	0.20 U	1.00 U	8.9 J	0.20 U	4.3 J
Second Quarter (June '02)	---	0.43 J	---	0.20 U	2 J	12.00	0.20 U	3.2 J
<u>Naphthalene (ug/L)</u>								
Third Quarter (September '99)	418 J	0.80 U	7.90 J	---	---	---	---	---
Fourth Quarter (December '99)	790	4,740	9.00 J	---	---	---	---	---
First Quarter (March '00)	1,020	3,950	9.80 J	---	---	---	---	---
Second Quarter (June '00)	364 J	4,260	6.96 J	40.70	1,920	5,980	42.70	---
Third Quarter (September '00)	810	3,960	15.30 J	59.30	2,220	5,720	0.78 U	475
Fourth Quarter (December '00)	720	3,470	10.00 J	1.25 J	1,760	5,050	0.94 J	3,300
First Quarter (March '01)	830	3,800	8.60 J	0.78 U	2,900	5,900	2.36 J	1,890
Second Quarter (June '01)	---	3,200	8.00 J	0.80 U	2,900	5,700	1.00 J	2,200
Third Quarter (September '01)	---	3,700	22.00	1.00 U	2,600	6,200	1.00 J	2,400
Fourth Quarter (December '01)	---	3,300	---	1.00 U	2,100	6,700	1.00 U	2,600
First Quarter (March '02)	---	2,100	---	1.00 U	2,200	5,400	1.00 U	2,400
Second Quarter (June '02)	---	3,000	---	1.00 U	2,900	6,100	0.90 U	1,500

Table 2-5 (continued)

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

	MW-4S ¹	MW-7S	TW-05 ³	MW-32S ²	MW-33S ²	MW-34S ²	MW-35S ²	TG1-1 ²
Fluorene (ug/L)								
Third Quarter (September '99)	651	39.2	136.0	---	---	---	---	---
Fourth Quarter (December '99)	333	24.4	66.6	---	---	---	---	---
First Quarter (March '00)	281	15.8	55.5	---	---	---	---	---
Second Quarter (June '00)	223	12.8	53.2	0.17 U	1.41	89.0	4.92	---
Third Quarter (September '00)	103	14.2	74.6	0.19	5.86	73.0 J	0.17 U	16.2
Fourth Quarter (December '00)	217	12.7	40.1	0.82 U	15.0	74.0	0.23 J	69.2
First Quarter (March '01)	210	10.0	43.0	0.17 U	19.0	83.0	0.31 J	72.0
Second Quarter (June '01)	---	8.5	56.0	0.20 U	27.0	80.0	0.20 U	59.0
Third Quarter (September '01)	---	11.0	60.0	0.20 U	34.0	120.0	0.20 U	410
Fourth Quarter (December '01)	---	11.0	---	0.20 U	32.0	320.0	0.20 U	80
First Quarter (March '02)	---	8.0	---	0.20 U	37.0	80.0	0.20 U	270
Second Quarter (June '02)	---	7.0	---	0.20 U	50.0	120.0	0.20 U	70
Benzo(a) pyrene (ug/L)								
Third Quarter (September '99)	40.50	0.022 U	4.330	---	---	---	---	---
Fourth Quarter (December '99)	9.70	0.21 U	1.490	---	---	---	---	---
First Quarter (March '00)	8.40	0.21 U	1.440	---	---	---	---	---
Second Quarter (June '00)	1.70 J	0.021 U	0.361	0.02 U	0.02 U	2.00 U	0.162	---
Third Quarter (September '00)	6.70 J	0.019 U	0.890	0.02 U	0.02 U	0.10	0.153	0.052
Fourth Quarter (December '00)	0.051 J	0.02 U	0.096 U	0.021 U	0.02 U	0.031 J	0.138	0.19 U
First Quarter (March '01)	1.00 U	0.19 U	0.110 U	0.019 U	0.20 U	0.23 U	0.023 U	0.39U
Second Quarter (June '01)	---	0.02 U	0.020 U	0.02	0.02 U	0.030 J	0.020 U	0.05 J
Third Quarter (September '01)	---	0.02 U	0.020 J	0.02 U	0.02 U	3.00	0.020 J	33.0
Fourth Quarter (December '01)	---	0.02 U	---	0.02 U	0.02 U	19.00	0.030 J	0.050 J
First Quarter (March '02)	---	0.02 U	---	0.02 U	0.02 U	0.20	0.020 U	23
Second Quarter (June '02)	---	0.02 J	---	0.02 U	0.02 U	4.00	0.02 U	0.05 J

--- - No data available.

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

J - Estimated concentration.

ug/L - Micrograms per liter.

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

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

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

Table 2-6

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

Parameter (mg/L)	Sample Identification								
	TG1-1			TG1-2			TG1-3		
	April	May	June	April	May	June	April	May	June
Kjeldahl Nitrogen	0.61 J	1.1	0.97 J	0.72 J	1.4	1.3	0.85 J	1.1	1.1
Nitrite Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.018 J	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	0.67 J	0.67 J	0.61 J	1.1	0.87 J	0.94 J	0.84 J	0.67 J	0.73 J
Ortho-Phosphate as P	0.0066 U	0.0109 J	0.0096 J	0.022	0.0066 U	0.0082 J	0.022	0.062	0.040
Biochemical Oxygen Demand (BOD)	NA	NA	5.6 U	NA	NA	5.1 U	NA	NA	4.5 U
Total Organic Carbon (non-purgable)	NA	NA	9.6	NA	NA	10.9	NA	NA	7.8
Total Phosphorous as PO4	0.16 J	0.14 J	0.23	0.34	0.25	0.32	0.31	0.27	0.39
Chemical Oxygen Demand (COD)	NA	NA	31.6	NA	NA	26.7	NA	NA	23.5
Total Microbial Population (mean)	8.70E+03	1.14E+03	2.90E+03	1.73E+03	2.90E+03	2.40E+04	3.90E+03	4.20E+03	1.10E+04
Degrader Microbial Population (mean)	1.20E+03	1.00E+01	1.80E+02	7.60E+02	1.90E+02	1.60E+02	3.30E+03	2.80E+02	9.30E+02
	TG2-1			TG2-2			TG2-3		
	April	May	June	April	May	June	April	May	June
Kjeldahl Nitrogen	0.30 U	0.58 J	0.48 J	0.34 J	0.69 J	0.75 J	1.2	1.6	2.2
Nitrite Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Nitrate Nitrogen	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Ammonia Nitrogen	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.47 J	1.1	0.96 J	1.1
Ortho-Phosphate as P	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0104 J	0.0177 J	0.0066 U	0.0066 U	0.0181 J
Biochemical Oxygen Demand (BOD)	NA	NA	2.1 U	NA	NA	2.4 U	NA	NA	4.4 U
Total Organic Carbon (non-purgable)	NA	NA	3.8	NA	NA	3.4	NA	NA	12.7
Total Phosphorous as PO4	0.12 U	0.12 U	0.22	0.14 J	0.18 J	0.29	0.25	0.28	0.43
Chemical Oxygen Demand (COD)	NA	NA	8.7	NA	NA	6.3 J	NA	NA	31.0
Total Microbial Population (mean)	1.07E+03	1.07E+03	2.50E+03	2.80E+02	4.90E+02	1.40E+02	2.90E+03	3.10E+02	3.10E+03
Degrader Microbial Population (mean)	5.60E+02	6.00E+01	9.00E+01	1.90E+02	2.00E+01	<10	4.00E+01	1.00E+02	2.30E+02

Table 2-6 (continued)

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

Parameter (mg/L)	Sample Identification								
	TG3-1			TG3-2			TG3-3		
	April	May	June	April	May	June	April	May	June
Kjeldahl Nitrogen	1.2	1.4	1.2	0.72 J	1.5	1.4	0.93 J	1.8	1.8
Nitrite Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	0.018 J	0.016 J	0.015 U	0.044 J	0.015 U
Nitrate Nitrogen	0.040 U	0.27	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Ammonia Nitrogen	1.2	0.93 J	0.94 J	0.97 J	1.0	0.91 J	1.5	1.2	1.1
Ortho-Phosphate as P	0.0076 J	0.0124 J	0.0110 J	0.0071 J	0.044	0.0153 J	0.0081 J	0.0184 J	0.0101 J
Biochemical Oxygen Demand (BOD)	NA	NA	3.3 U	NA	NA	5.5 U	NA	NA	6.9
Total Organic Carbon (non-purgable)	NA	NA	11.7	NA	NA	9.3	NA	NA	13.1
Total Phosphorous as PO4	0.19 J	0.16 J	0.21	0.25	0.24	0.27	0.38	0.33	0.43
Chemical Oxygen Demand (COD)	NA	NA	26.3	NA	NA	23.9	NA	NA	32.8
Total Microbial Population (mean)	6.90E+02	6.00E+03	3.80E+04	8.10E+02	1.93E+03	7.80E+03	1.75E+03	5.90E+02	8.20E+02
Degrader Microbial Population (mean)	3.00E+01	3.00E+02	3.20E+02	1.00E+01	3.10E+02	2.40E+02	6.40E+02	6.00E+01	3.90E+02
Parameter (mg/L)	TG4-1			TG4-2			TG4-3		
	April	May	June	April	May	June	April	May	June
	April	May	June	April	May	June	April	May	June
Kjeldahl Nitrogen	0.40 J	0.65 J	0.91 J	0.71 J	0.91 J	1.2	0.94 J	1.3	1.3
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	0.50 J	0.55 J	0.47 J	0.84 J	1.0	0.79 J	1.1	0.79 J	0.82 J
Ortho-Phosphate as P	0.0066 U	0.0174 J	0.025	0.0066 U	0.085	0.025	0.0066 U	0.106	0.0177 J
Biochemical Oxygen Demand (BOD)	NA	NA	2.9 U	NA	NA	3.6 U	NA	NA	2.9 U
Total Organic Carbon (non-purgable)	NA	NA	7.4	NA	NA	9.0	NA	NA	9.3
Total Phosphorous as PO4	0.25	0.32	0.29	0.13 J	0.21	0.19 J	0.18 J	0.21	0.22
Chemical Oxygen Demand (COD)	NA	NA	15.4	NA	NA	21.1	NA	NA	17.0
Total Microbial Population (mean)	1.53E+04	3.60E+02	6.90E+02	1.17E+03	1.87E+03	2.60E+02	4.20E+02	5.10E+02	7.10E+02
Degrader Microbial Population (mean)	1.80E+03	1.00E+01	1.00E+01	3.00E+01	4.30E+02	<10	9.00E+01	1.00E+01	2.00E+01

Table 2-6 (continued)

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

Parameter (mg/L)	Sample Identification								
	TG5-1			TG5-2			TG5-3		
	April	May	June	April	May	June	April	May	June
Kjeldahl Nitrogen	0.51 J	0.84 J	0.81 J	0.84 J	0.98 J	0.64 J	0.38 J	0.72 J	0.82 J
Nitrite Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Nitrate Nitrogen	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Ammonia Nitrogen	0.46 U	0.46 U	0.47 J	0.46 J	0.46 U	0.47 J	0.46 J	0.46 U	0.47 J
Ortho-Phosphate as P	0.0162 J	0.0169 J	0.0072 J	0.0066 U	0.057	0.0066 U	0.0066 U	0.107	0.063
Biochemical Oxygen Demand (BOD)	NA	NA	1.8 U	NA	NA	1.9 U	NA	NA	2.0 U
Total Organic Carbon (non-purgable)	NA	NA	5.3	NA	NA	5.7	NA	NA	5.2
Total Phosphorous as PO4	0.12 J	0.21	0.23	0.14 J	0.21	0.22	0.12 U	0.28	0.38
Chemical Oxygen Demand (COD)	NA	NA	11.5	NA	NA	15.9	NA	NA	14.3
Total Microbial Population (mean)	1.80E+03	8.30E+02	4.10E+02	9.70E+02	5.80E+02	2.70E+02	2.90E+04	9.30E+02	2.40E+03
Degrader Microbial Population (mean)	1.80E+02	6.00E+01	6.00E+01	1.00E+02	5.00E+01	<10	2.90E+02	2.40E+02	6.00E+01
	TG6-1			TG6-2			TG6-3		
	April	May	June	April	May	June	April	May	June
Kjeldahl Nitrogen	1.1	1.6	1.2	0.65 J	1.1	1.1	0.72 J	1.3	0.96 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	1.1	1.2	0.76 J	0.46 J	0.46 U	0.46 U	0.63 J	0.64 J	0.67 J
Ortho-Phosphate as P	0.025	0.206	0.086	0.064	0.152	0.040	0.0142 J	0.039	0.0129 J
Biochemical Oxygen Demand (BOD)	NA	NA	3.0 U	NA	NA	3.0 U	NA	NA	2.7 U
Total Organic Carbon (non-purgable)	NA	NA	7.0	NA	NA	10.2	NA	NA	9.8
Total Phosphorous as PO4	0.27	0.34	0.47	0.12 U	0.15 J	0.18 J	0.13 J	0.18 J	0.20
Chemical Oxygen Demand (COD)	NA	NA	15.8	NA	NA	22.7	NA	NA	22.3
Total Microbial Population (mean)	1.60E+04	4.90E+02	9.30E+02	5.10E+03	8.00E+02	4.10E+02	1.20E+03	3.90E+02	3.00E+02
Degrader Microbial Population (mean)	4.80E+02	3.00E+01	1.60E+02	1.20E+03	2.00E+01	1.00E+01	2.60E+02	4.00E+01	<10

U - Compound not detected. Detection limit indicated.

J - Estimated value.

NA - Not analyzed.

NS - Well not measured due to freezing conditions.

SECTION 3

EVALUATION OF PILOT SCALE OPERATIONS

Augmentation of the groundwater treatment system was initiated in October 2000 by injecting air at the treatment gates. In late June 2001, nutrient addition was initiated at TG1 using a solution containing potassium nitrate (KNO_3) and potassium phosphate ($KHPO_4$). Based on the hydraulic gradient, effects of nutrient addition and air injection would be observed in treatment performance monitoring wells TG1-2 and TG1-3, which are immediately downgradient of the injection wells. Discussions regarding the effects of the site augmentation activities and are discussed below/

3.1 Dissolved Oxygen

Dissolved oxygen concentrations remained very low in all gates during Q2 2002. The only exception was found in well TG3-1, where a moderate concentration of DO (2.12 mg/L) was measured during June 2002. During the months of April and May 2002, however, TG3-1 had low levels of DO. The cause for the DO anomaly is uncertain. Nonetheless, TG3-1 has had higher levels of DO in the past. Although the DO concentration in this well indicates that oxidizing conditions might exist, the redox potential measured in TG3-1 ranged from -74.2 to -56.0 mV, indicating a reducing environment. Furthermore, the ratio of NO_3-N to NH_3-N was approximately 1:30 during April and June 2002, indicating that nitrogen is primarily present in its reduced state, further signifying that a reducing environment exists in the well. However, TG3-1 did have the only NO_3-N that was recorded during Q2 2002 (0.27 mg/L in May). The $NO_3-N:NH_3-N$ ratio in TG3-1 in May 2002 was 1:5, indicating that some oxidation could have been occurring.

Well packers were installed in the TG5 injection wells in June 2000; however, no discernable change in the DO levels has been observed in the TG5 wells to date. KMC/WESTON attempted to install inflatable bladder packers in TG1 and TG2 injection wells in August 2001; however, KMC/WESTON was unable to properly install the packers due to the injection well configuration. KMC/WESTON will continue to evaluate alternatives for air introduction into the treatment gates.

3.2 Nutrients and pH

Recommended guidelines for bioremediation of contaminants in site groundwater include a pH range of 5.5 to 8.5 S.U., and a minimum carbon-nitrogen-phosphorous (C:N:P) ratio of 100:14:1. The range of pH values measured in the treatment performance monitoring wells (6.46 to 7.57 S.U.) is sufficient to facilitate biological activity. Table 3-1 contains calculated C:N:P ratios for each of the treatment performance monitoring wells. No wells exhibited the desired C:N:P ratio; however, on a site wide basis the C:N:P ratio is 100:7.8:0.3, which is somewhat close to the desired ratio. Nitrogen and phosphorus are the limiting nutrients at the site, except for wells TG5-3 and TG6-1, where nitrogen is the only limiting nutrient.

NO₃-N was not detected at significant levels in any of the TG1 wells during Q2 2002. Gate TG1 had fluctuating levels of PO₄-P during Q2 2002, but had higher levels of PO₄-P at the site. However, gate TG3 also had higher levels of PO₄-P. Orthophosphate in TG1 was low during Q2 2002, with many of the other gates even having higher levels of orthophosphate than gate 1.

3.3 Effects on Bacterial Populations

There was a slight increase in the total bacteria counts in TG1 during Q2 2002. The bacteria levels in TG1 were also slightly higher than those observed in the other treatment gates. Figure 3-1 compares the degrader populations in TG1 and TG2 since Q1 2001. As indicated in Figure 3-1, there has been a trend of general decrease in the total bacteria levels in TG1 and TG2 since Q1 2001. It is not known what is the cause of this bacterial decrease at the site. Since air injection began in October 2000, degrader populations in TG1 have typically been higher than in TG2; however, it is uncertain if this trend is due to air/nutrient injection, presence of higher levels of substrate (contaminants), or a combination of these and/or other factors.

3.4 Hydrogeology

KMC/WESTON identified a potential concern associated with the site hydrogeology in the Q2 2001 monitoring report. This concern is primarily based on the premise that low flow conditions may cause anoxic conditions and may inhibit KMC/WESTON's ability to introduce nutrients and other additives at an optimum level due to poor dispersion from the injection point. Low flow conditions are apparent based on the hydraulic gradient and flow velocities derived. A low flow velocity may be indirectly beneficial as a longer residence time in the treatment gate may allow for more effective biodegradation. No significant change has been observed with site hydrogeology based on the Q1 2002 monitoring results.

3.5 Summary of Overall System Performance and Recommendations for System Modifications

Discontinuation of Nutrient Injection

Based on the nutrient levels observed since June 2001, it is inconclusive whether nutrient addition at TG1 has enhanced biodegradation of contaminants. Although a significant contaminant concentration gradient is observed across the TG1 wells during the past few quarters, similar contaminant concentration gradients were evident prior to implementing the nutrient injection, as indicated in the plot of naphthalene concentrations for Q1 2001, Q2 2001, Q4 2001, Q1 2002, and Q2 2002 (Figure 3-2).

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

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

Reduction of Performance Monitoring Well Sampling Frequency

KMC intends to reduce the groundwater monitoring at the treatment gates from monthly to quarterly beginning in Q1 2003. Based on the monthly monitoring data collected since October 2000, minimal changes in site conditions occur on a monthly basis. Please note that the monthly sampling of the treatment performance wells was intended to last for 18 months (QAPP Addendum I, WESTON, May 2000), and has been performed for 24 months to date (October 2000 through September 2002). KMC/Weston believes that quarterly monitoring could sufficiently track and monitor these slight fluctuations, which nullifies the benefit of performing monthly monitoring. Figures 3-3A-E compare monthly to quarterly trends for various water quality parameters in select wells.

Figure 3-3A shows the temperature data obtained from well TG2-1 since January 2001. As indicated in Figure 3-3A, although monthly data provides greater detail to the temperature trend, the overall trend for monthly versus quarterly data is nearly identical.

Figure 3-3B presents ammonia-nitrogen data obtained from well TG1-2 since October 2000. To demonstrate the similarity of the overall trend observed in this well, trend lines were inserted on the graph. As for the well TG2-1 data presented in Figure 3-3A, the overall trend identified by using monthly versus quarterly is essentially equivalent. Similar results are demonstrated by the bacteria data in well TG6-2 (Figure 3-3C), the total Kjeldahl nitrogen in well TG4-2 (Figure 3-3D), and redox potential in well TG1-2 (Figure 3-3E).

Reduction of Groundwater Monitoring Program Scope

KMC proposes to eliminate shallow monitoring wells MW-3S, MW-10S, MW-13S, MW-25S, MW-26S, and MW-20S and the intermediate wells (MW-3I, MW-7I, MW-9I, and MW-20I) from the groundwater monitoring program. The wells proposed for removal from the monitoring program are indicated on Figure 3-4. Table 3-2 summarizes and shows the BTEX and PAH results for each well proposed for removal since Q3 2000 to present. The last eight rounds of quarterly groundwater monitoring at the site have shown that there have been few instances where contaminants have been detected in the shallow monitoring wells. Typically when these contaminants are detected, they are at very low levels, slightly above the method detection limit for the target compound. The only exception to this is at MW-3S, where benzo(a)pyrene exceeded the PAL, and naphthalene and chrysene exceeded the ES during Q4 2001. This occurrence is an anomaly, however, as all the other quarters of monitoring MW-3S produced results that were non-detect, with a minimal detection of chrysene during Q4 2000. This anomaly is believed to be due to excavation activities that occurred around the MW-3S area during this quarter. The last two quarters of monitoring at the site support the stance of KMC. Also, although there were some PAL exceedences in the intermediate monitoring wells in the late 1990's, PALs have not been exceeded in these wells since Q1 2000. The last two rounds of

monitoring these shallow and intermediate monitoring wells has produced non-detect results for all constituents in the wells that KMC has proposed to remove from the sampling program. KMC proposes to continue monitoring the remaining monitoring wells covered under the groundwater monitoring program at the same frequency they are currently sampled.

Proposed Hydrogeologic Investigation

KMC has also developed a proposal to perform a hydrogeologic study at the site to address issues brought about in U.S. EPA's 20 August 2002 letter. This study will benefit KMC/WESTON in better understanding the site hydrogeology and support possible enhancements and/or modifications of the existing funnel and gate groundwater treatment system. The study will consist of collecting field data consisting of groundwater elevation measurements and conducting slug tests to determine hydraulic conductivity under existing conditions. KMC/WESTON proposes to install ten 1-inch inner diameter groundwater elevation observation points, PZ-01 through PZ-10, shown in Figure 3-5. Table 3-3 shows the location and rationale for each groundwater elevation observation point. Single well permeability tests will be performed in all the newly installed groundwater elevation observation points and in approximately ten existing monitoring wells. In addition, existing monitoring wells will be re-surveyed and a staff gauge will be installed for measuring surface water elevation in the Little Menominee River (LMR). Re-surveying of the existing monitoring wells is necessary to account for conditions such as settlement and subsidence of treatment performance monitoring wells and topographical disturbances caused by recent construction activities. Measurement of surface water elevation is necessary to evaluate the correlation between surface and groundwater elevations. This work will also include construction of a numerical model of the groundwater flow system at the site. This model will be based on existing geologic data and new hydrogeologic data collected. The groundwater flow model will be used to assess the area of influence, provide a better understanding of shallow flow conditions and interactions with surface water bodies resulting from installation of the remedy, gauge the effectiveness of the remedy, and simulate potential system optimization scenarios, such as installation of an additional gate(s) or an extraction/reinjection system.

Figure 3-1

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

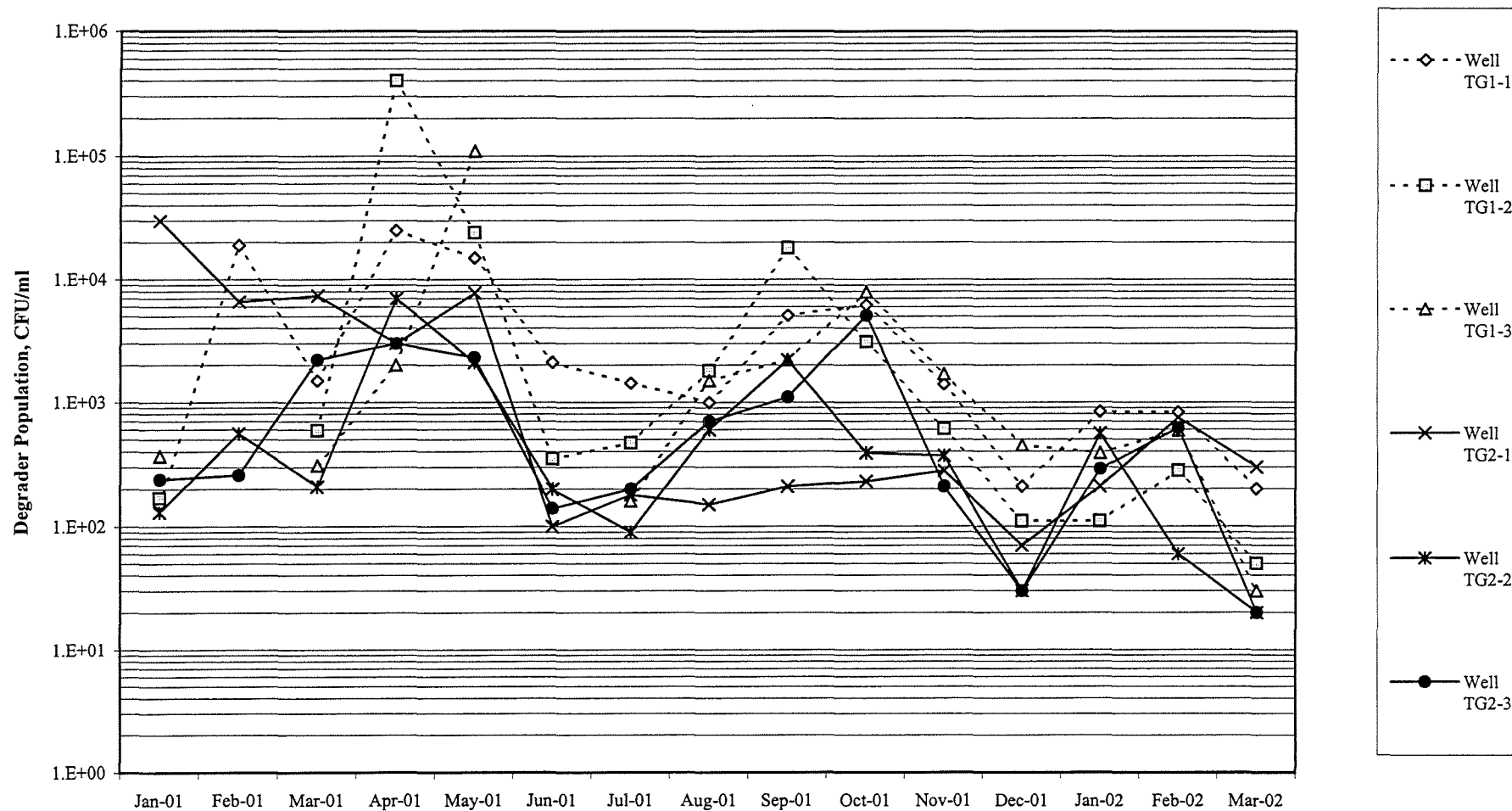


Figure 3-2

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

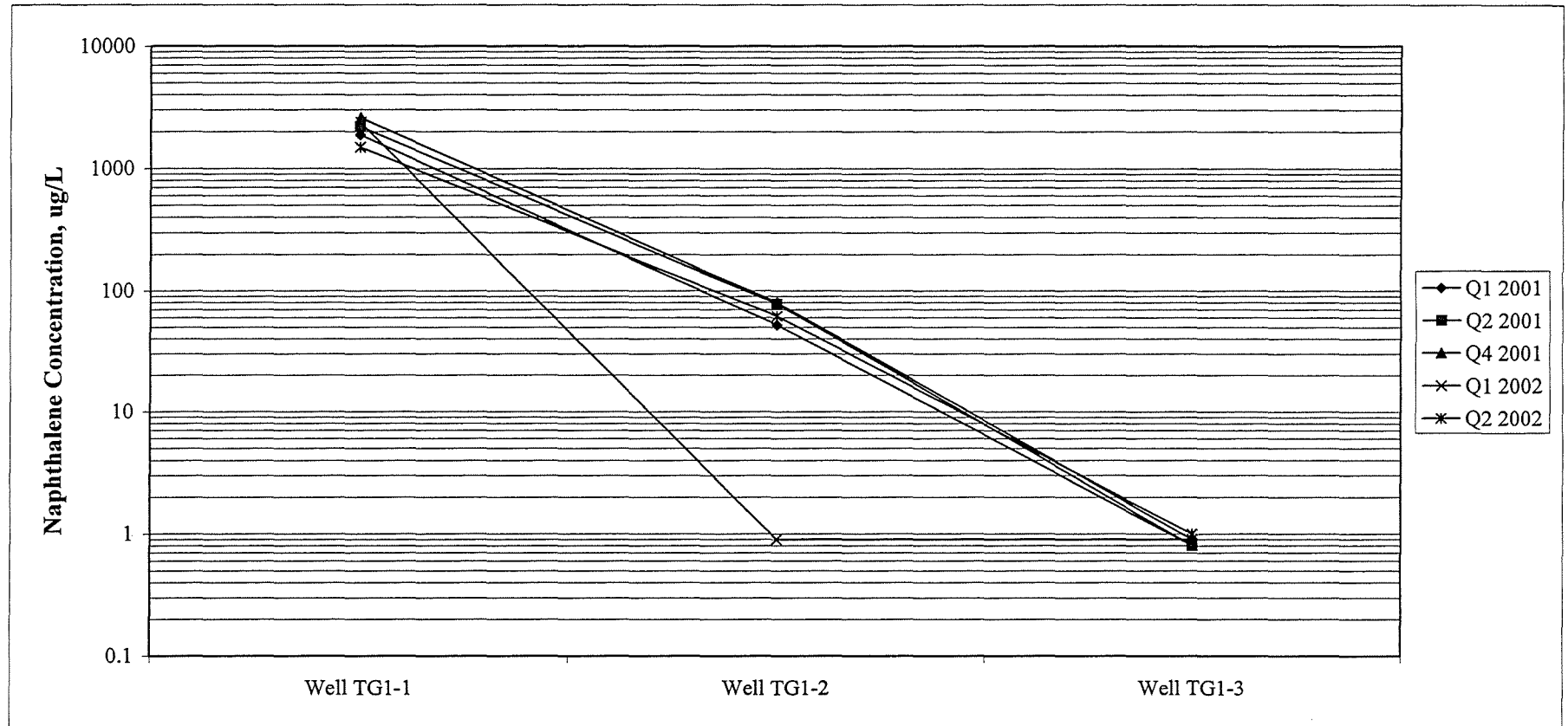


Figure 3-3A
Monthly Versus Quarterly Temperature Data
Well TG2-1

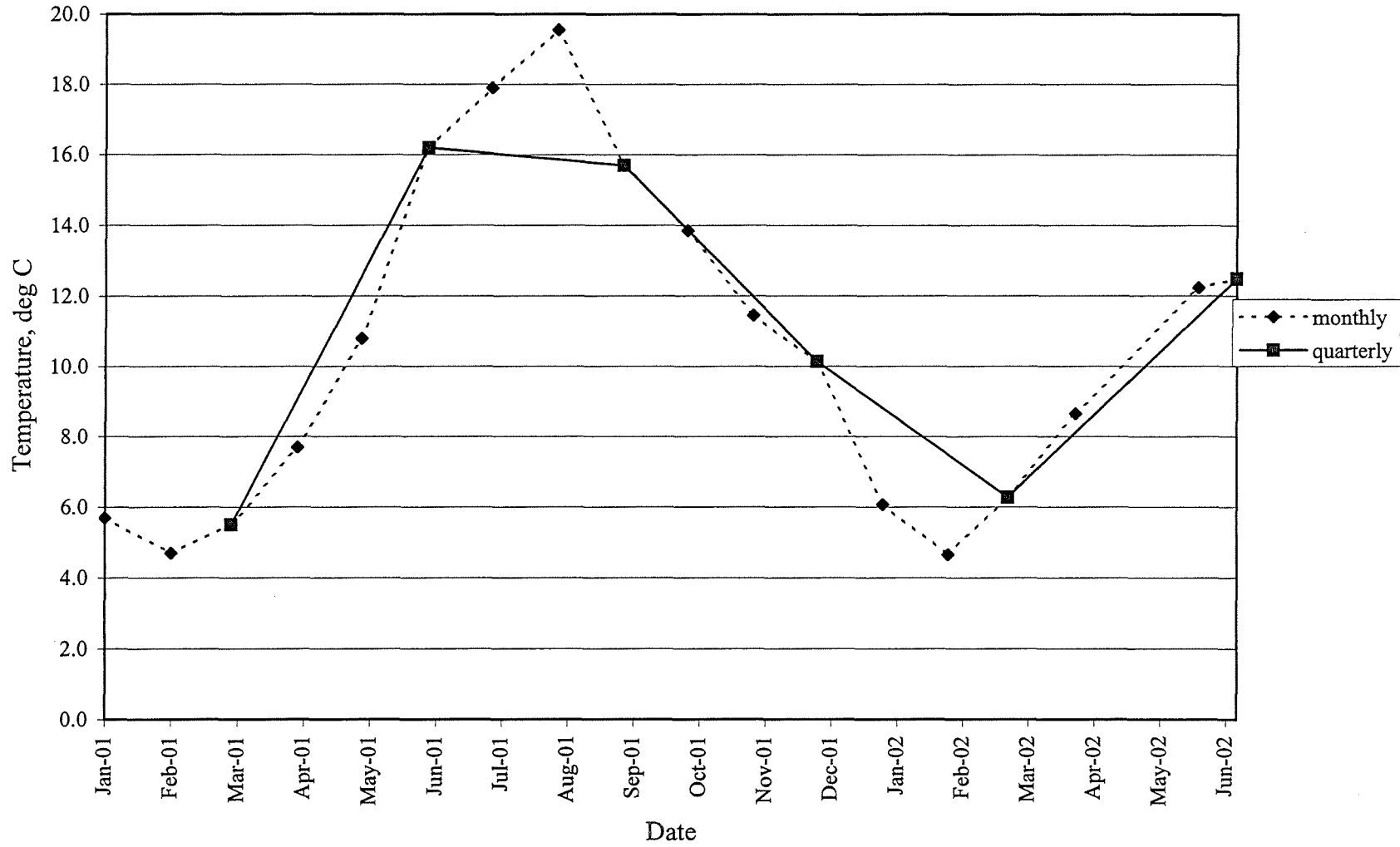


Figure 3-3B
Monthly Versus Quarterly Ammonia Nitrogen Data
Well TG1-2

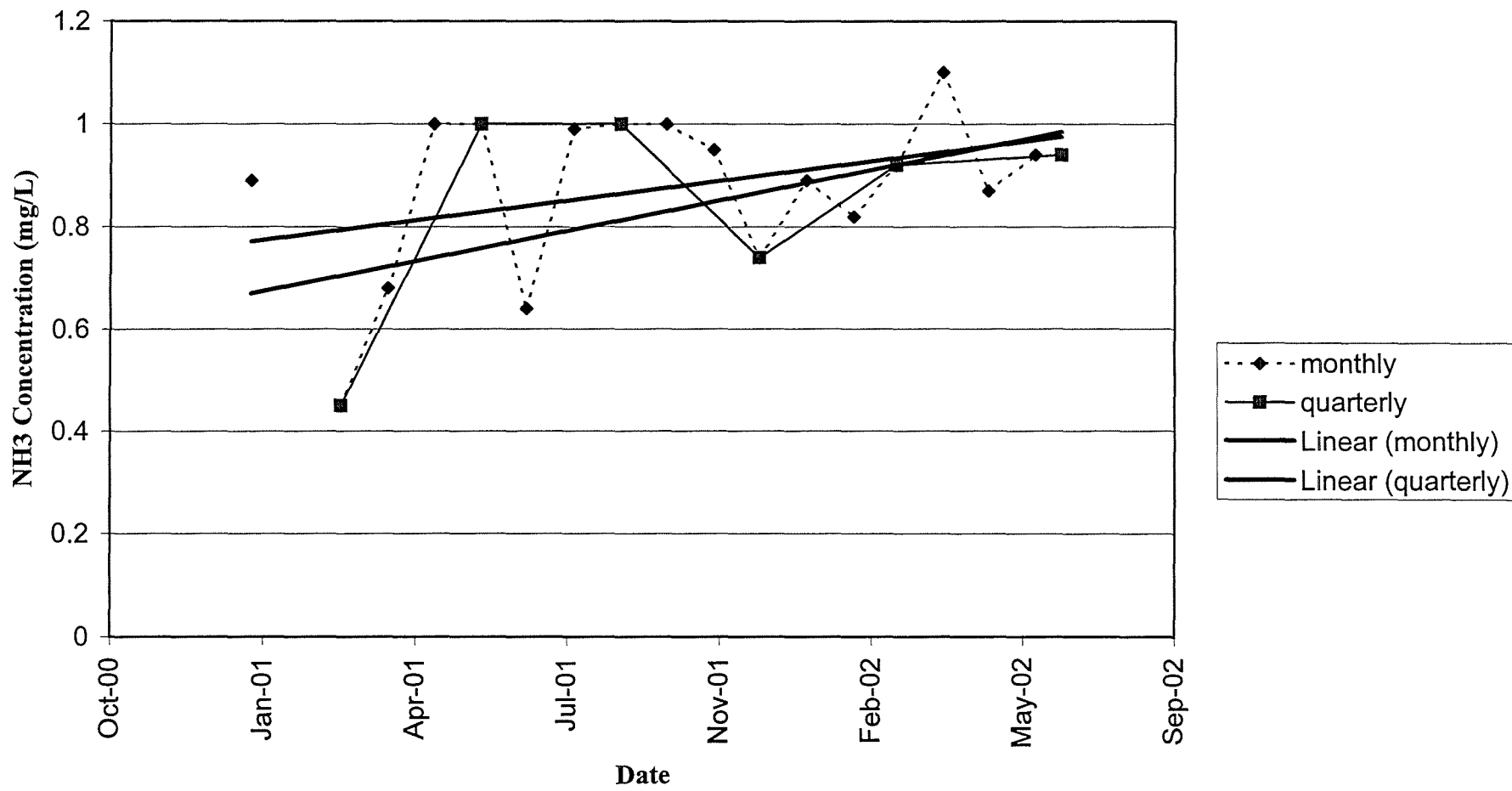


Figure 3-3C
Monthly Versus Quarterly Bacteria Data
Well TG6-2

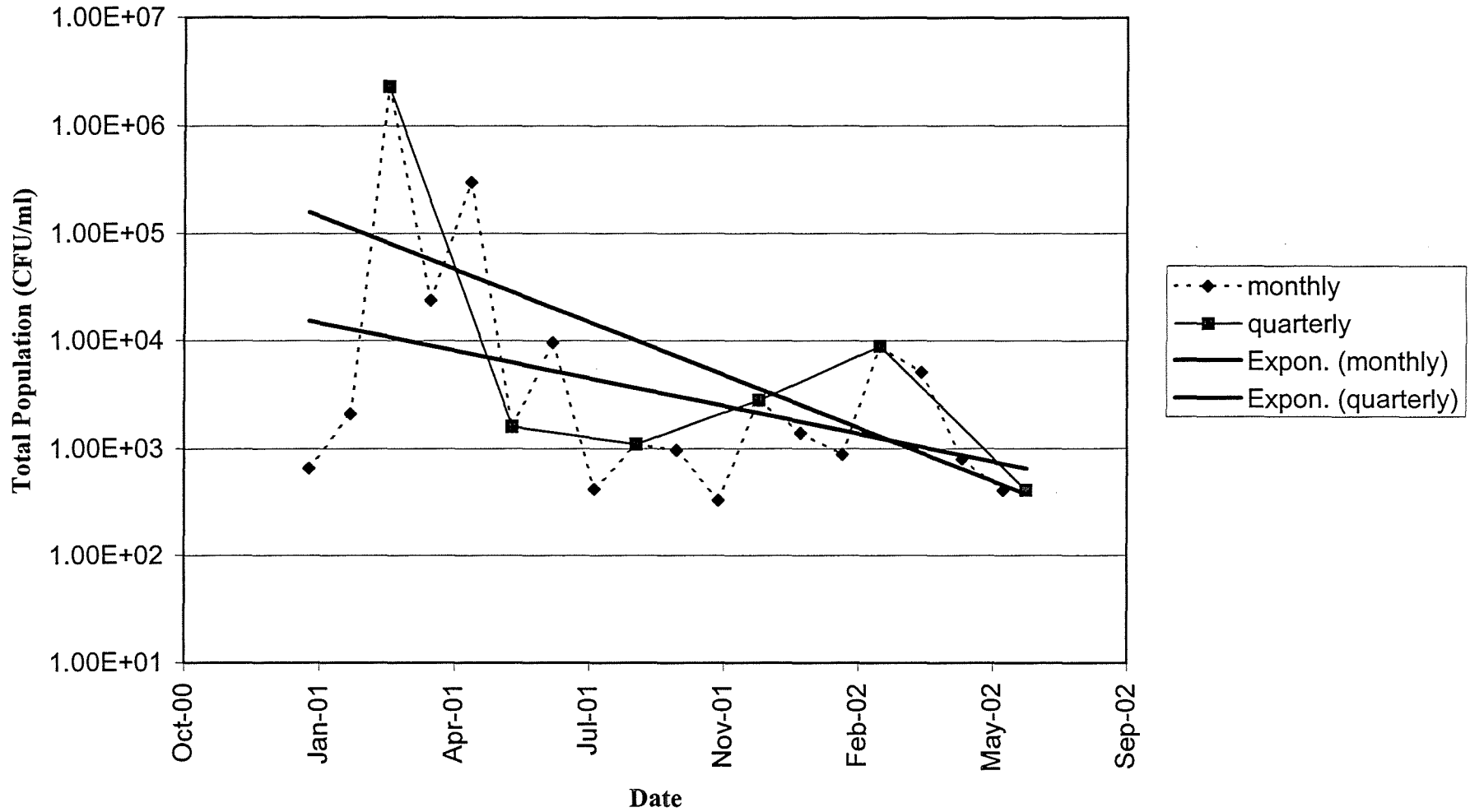


Figure 3-3D
Monthly Versus Quarterly TKN
Well TG4-2

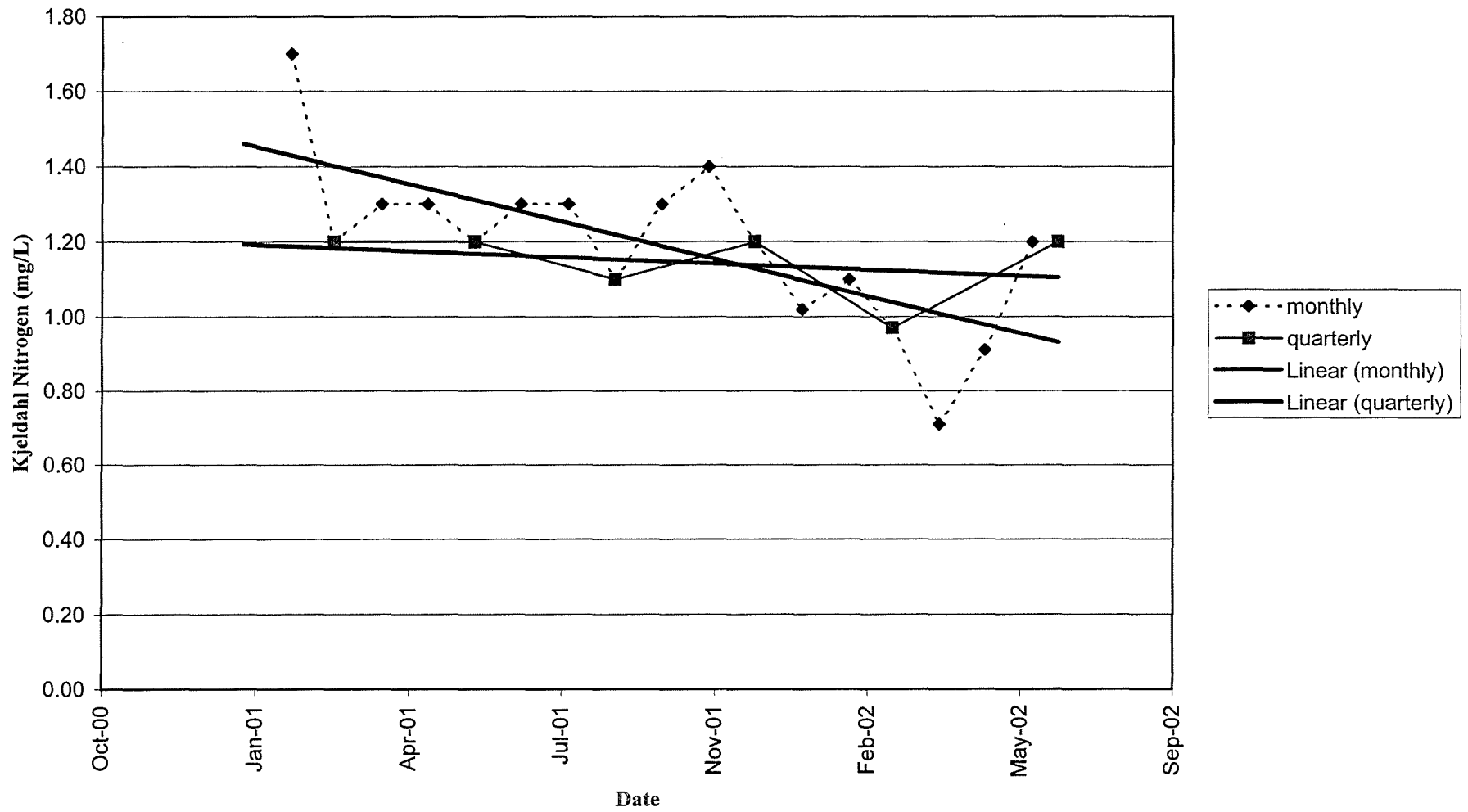


Figure 3-3E
Inverse of Monthly Versus Quarterly Redox Potential
Well TG1-2

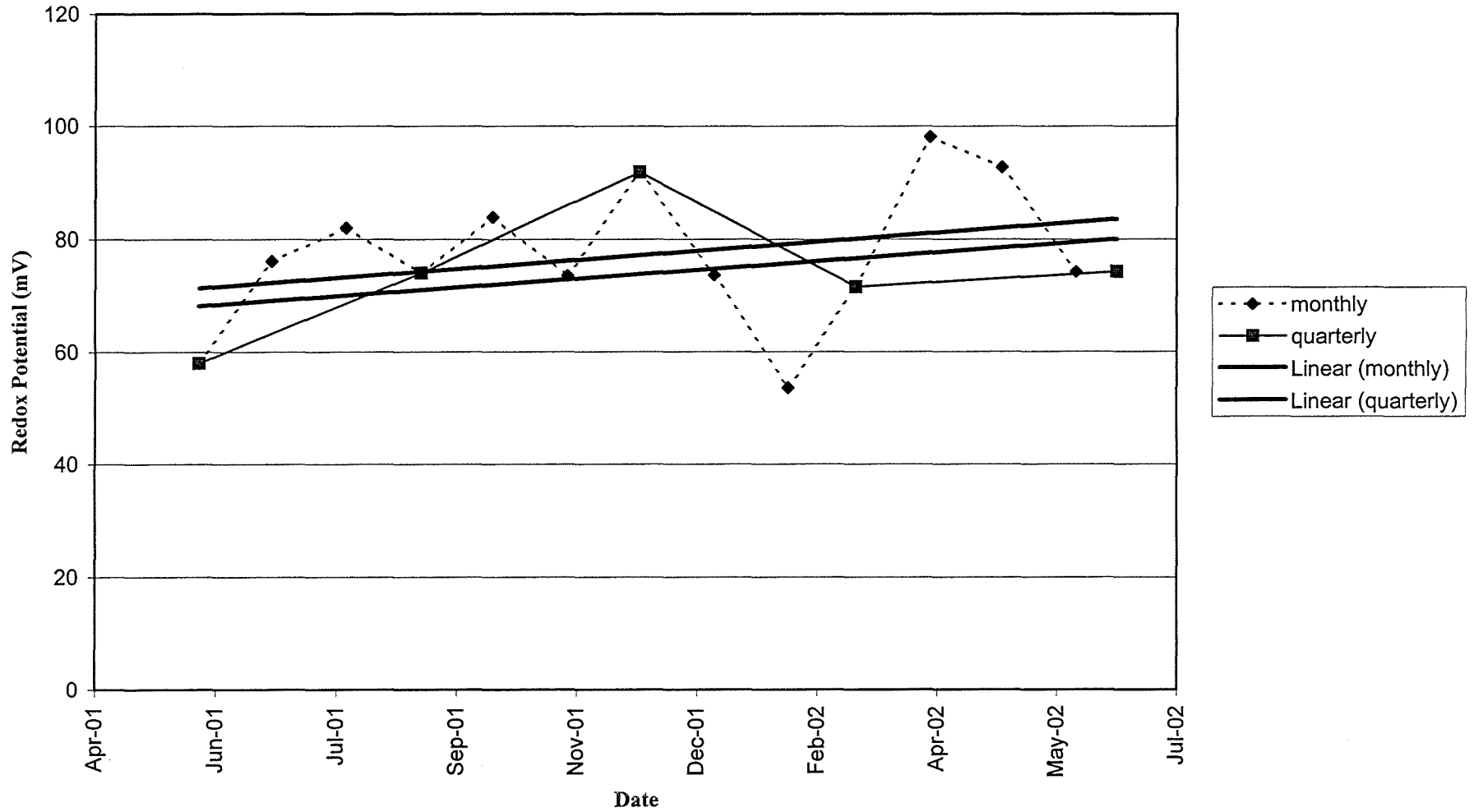


Table 3-1

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

Well	Carbon ¹ , mg/L	Total Nitrogen ² , mg/L	Phosphorous ³ , mg/L	C-N-P Ratio (100-14-1 desired)
TG1-1	9.6	0.61	0.010	100 - 6.4 - 0.1
TG1-2	10.9	0.96	0.008	100 - 8.8 - 0.1
TG1-3	7.8	0.73	0.040	100 - 9.4 - 0.5
TG2-1	3.8	ND	ND	100 - 0.0 - 0.0
TG2-2	3.4	0.47	0.018	100 - 14 - 0.5
TG2-3	12.7	1.1	0.018	100 - 8.7 - 0.1
TG3-1	11.7	0.94	0.011	100 - 8.0 - 0.1
TG3-2	9.3	0.93	0.015	100 - 10 - 0.2
TG3-3	13.1	1.1	0.010	100 - 8.4 - 0.1
TG4-1	7.4	0.47	0.025	100 - 6.4 - 0.3
TG4-2	9.0	0.79	0.025	100 - 8.8 - 0.3
TG4-3	9.3	0.82	0.018	100 - 8.8 - 0.2
TG5-1	5.3	0.47	0.007	100 - 8.9 - 0.1
TG5-2	5.7	0.47	ND	100 - 8.2 - 0.0
TG5-3	5.2	0.47	0.063	100 - 9.0 - 1.2
TG6-1	7.0	0.76	0.086	100 - 11 - 1.2
TG6-2	10.2	ND	0.040	100 - 0.0 - 0.4
TG6-3	9.8	0.67	0.013	100 - 6.8 - 0.1
Site Average	8.4	0.18	0.023	100 - 7.8 - 0.3

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

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

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

ND- Constituents not detected.

Shaded values indicate values less than desired ratio.

Table 3-2 (continued)

**Groundwater Analytical Data for Wells Proposed for Removal From Sampling Program
September 2000 through June 2002
Moss-American Site
Milwaukee, Wisconsin**

	MW-3S								WDNR	WDNR ES,	
	Q3 2000	Q4 2000	Q1 2001	Q2 2001	Q3 2001	Q4 2001	Q1 2002	Q2 2002	PAL, ug/L	ug/L	
VOCs											
Benzene	0.2 U	0.2 U	0.2 U	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	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	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	0.6 U	0.6 U	0.6 U	124	620
PAHs											
Naphthalene	0.81 U	0.77 U	0.79 U	0.80 U	1.00 U	980.00	1.00 U	1.00 U	8.0	40	
Acenaphthylene	0.81 U	0.77 U	0.79 U	0.80 U	0.80 U	180.00	0.80 UJ	0.80 U	NA	NA	
Acenaphthene	0.81 U	0.77 U	0.79 U	0.80 U	0.80 U	4.00 J	0.80 U	0.80 U	NA	NA	
Fluorene	0.17 U	0.16 U	0.17 U	0.20 U	0.20 U	5.00	0.20 U	0.20 U	80	400	
Phenanthrene	0.071 U	0.067 U	0.069 U	0.070 U	0.080 U	0.700	0.080 U	0.080 U	NA	NA	
Anthracene	0.030 U	0.029 U	0.030 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	600	3,000	
Fluoranthene	0.030 U	0.029 U	0.030 U	0.030 U	0.040 U	0.500	0.040 U	0.040 U	80	400	
Pyrene	0.17 U	0.16 U	0.17 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	50	250	
Benzo(a)anthracene	0.020 U	0.019 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	NA	NA	
Chrysene	0.061 U	0.069 J	0.059 U	0.060 U	0.080 U	0.300 J	0.080 U	0.080 U	0.02	0.2	
Benzo(b)fluoranthene	0.039 U	0.037 U	0.038 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.02	0.2	
Benzo(k)fluoranthene	0.0100 U	0.0096 U	0.0099 U	0.0100 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA	
Benzo(a)pyrene	0.020 U	0.019 U	0.020 U	0.020 U	0.020 U	0.040 J	0.020 U	0.020 U	0.02	0.2	
Dibenzo(a,h)anthracene	0.030 U	0.029 U	0.030 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	NA	NA	
Benzo(g,h,i)perylene	0.100 U	0.096 U	0.099 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	NA	NA	
Indeno(1,2,3-cd)pyrene	0.068 U	0.064 U	0.066 U	0.070 U	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA	
Product Thickness (inches)	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	

ND - Not detected.

NA - Not applicable; standard(s) do not exist.

-- - Indicates not analyzed.

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).

Shaded values indicate concentration exceeding PAL.

Shaded and bold values indicate concentration exceeding PAL and ES.

Table 3-2 (continued)

**Groundwater Analytical Data for Wells Proposed for Removal From Sampling Program
September 2000 through June 2002
Moss-American Site
Milwaukee, Wisconsin**

	MW-10S								WDNR PAL, ug/L	WDNR ES, ug/L	
	Q3 2000	Q4 2000	Q1 2001	Q2 2001	Q3 2001	Q4 2001	Q1 2002	Q2 2002			
VOCs											
Benzene	0.2 U	0.2 U	0.2 U	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	0.4 J	1.0	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	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	0.6 U	0.6 U	0.6 U	124	620
PAHs											
Naphthalene	0.80 U	0.82 U	0.86 U	0.80 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	8.0	40
Acenaphthylene	0.80 U	0.82 U	0.86 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	NA	NA
Acenaphthene	0.80 U	0.82 U	0.86 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	NA	NA
Fluorene	0.17 U	0.17 U	0.18 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	80	400
Phenanthrene	0.070 U	0.072 U	0.075 U	0.070 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
Anthracene	0.037 J	0.031 U	0.032 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	600	3,000
Fluoranthene	0.030 U	0.031 U	0.032 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	80	400
Pyrene	0.17 U	0.17 U	0.18 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	50	250
Benzo(a)anthracene	0.020 U	0.021 U	0.022 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	NA	NA
Chrysene	0.060 U	0.062 U	0.065 U	0.060 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.02	0.2
Benzo(b)fluoranthene	0.038 U	0.039 U	0.041 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.02	0.2
Benzo(k)fluoranthene	0.0100 U	0.0100 U	0.0110 U	0.0100 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA
Benzo(a)pyrene	0.020 U	0.021 U	0.022 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.02	0.2
Dibenzo(a,h)anthracene	0.030 U	0.031 U	0.032 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	NA	NA
Benzo(g,h,i)perylene	0.100 U	0.100 U	0.110 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.067 U	0.069 U	0.072 U	0.060 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
<i>Product Thickness (inches)</i>	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA

ND - Not detected.

NA - Not applicable; standard(s) do not exist.

-- - Indicates not analyzed.

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).

Shaded values indicate concentration exceeding PAL.

Shaded and bold values indicate concentration exceeding PAL and ES.

Table 3-2 (continued)

**Groundwater Analytical Data for Wells Proposed for Removal From Sampling Program
September 2000 through June 2002
Moss-American Site
Milwaukee, Wisconsin**

	MW-13S								WDNR	WDNR ES,
	Q3 2000	Q4 2000	Q1 2001	Q2 2001	Q3 2001	Q4 2001	Q1 2002	Q2 2002	PAL, ug/L	ug/L
VOCs										
Benzene	0.2 U	0.2 U	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	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	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	0.6 U	0.6 U	124	620
PAHs										
Naphthalene	0.80 U	0.81 U	0.76 U	0.80 U	1.00 U	1.00 U	1.00 U	1.00 U	8.0	40
Acenaphthylene	0.80 U	0.81 U	0.76 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	NA	NA
Acenaphthene	0.80 U	0.81 U	0.76 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	NA	NA
Fluorene	0.17 U	0.81 U	0.16 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	80	400
Phenanthrene	0.070 U	0.810 U	0.066 U	0.088 J	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
Anthracene	0.075 J	0.051 J	0.028 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	600	3,000
Fluoranthene	0.030 U	0.030 U	0.028 U	0.087 J	0.040 U	0.040 U	0.040 U	0.040 U	80	400
Pyrene	0.17 U	0.17 U	0.16 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	50	250
Benzo(a)anthracene	0.020 U	0.020 U	0.019 U	0.030 J	0.020 U	0.020 U	0.020 U	0.020 U	NA	NA
Chrysene	0.060 U	0.061 U	0.057 U	0.060 U	0.080 U	0.080 U	0.080 U	0.080 U	0.02	0.2
Benzo(b)fluoranthene	0.038 U	0.038 U	0.036 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.02	0.2
Benzo(k)fluoranthene	0.0100 U	0.0100 U	0.0095 U	0.0200 J	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA
Benzo(a)pyrene	0.020 U	0.020 U	0.019 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.02	0.2
Dibenzo(a,h)anthracene	0.030 U	0.030 U	0.028 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	NA	NA
Benzo(g,h,i)perylene	0.100 U	0.100 U	0.095 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.067 U	0.068 U	0.064 U	0.070 U	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
<i>Product Thickness (inches)</i>	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA

ND - Not detected.

NA - Not applicable; standard(s) do not exist.

-- - Indicates not analyzed.

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).

Shaded values indicate concentration exceeding PAL.

Shaded and bold values indicate concentration exceeding PAL and ES.

Table 3-2 (continued)

**Groundwater Analytical Data for Wells Proposed for Removal From Sampling Program
September 2000 through June 2002
Moss-American Site
Milwaukee, Wisconsin**

	MW-20S								WDNR PAL, ug/L	WDNR ES, ug/L	
	Q3 2000	Q4 2000	Q1 2001	Q2 2001	Q3 2001	Q4 2001	Q1 2002	Q2 2002			
VOCs											
Benzene	0.2 U	NS	0.2 U	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	NS	0.2 U	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	NS	0.2 U	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	NS	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs											
Naphthalene	0.76 U	NS	0.81 U	0.80 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	8.0	40
Acenaphthylene	0.76 U	NS	0.81 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	NA	NA
Acenaphthene	0.76 U	NS	0.81 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	NA	NA
Fluorene	0.16 U	NS	0.17 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	80	400
Phenanthrene	0.066 U	NS	0.071 U	0.070 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
Anthracene	0.028 U	NS	0.030 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	600	3,000
Fluoranthene	0.028 U	NS	0.030 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	80	400
Pyrene	0.16 U	NS	0.17 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	50	250
Benzo(a)anthracene	0.019 U	NS	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	NA	NA
Chrysene	0.057 U	NS	0.060 U	0.060 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.02	0.2
Benzo(b)fluoranthene	0.036 U	NS	0.038 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.02	0.2
Benzo(k)fluoranthene	0.0095 U	NS	0.0100 U	0.0100 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA
Benzo(a)pyrene	0.019 U	NS	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.02	0.2
Dibenzo(a,h)anthracene	0.028 U	NS	0.030 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	NA	NA
Benzo(g,h,i)perylene	0.095 U	NS	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.063 U	NS	0.068 U	0.060 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
Product Thickness (inches)	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA

ND - Not detected.

NA - Not applicable; standard(s) do not exist.

-- - Indicates not analyzed.

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).

Shaded values indicate concentration exceeding PAL.

Shaded and bold values indicate concentration exceeding PAL and ES.

Table 3-2 (continued)

**Groundwater Analytical Data for Wells Proposed for Removal From Sampling Program
September 2000 through June 2002
Moss-American Site
Milwaukee, Wisconsin**

	MW-25S								WDNR	WDNR ES,
	Q3 2000	Q4 2000	Q1 2001	Q2 2001	Q3 2001	Q4 2001	Q1 2002	Q2 2002	PAL, ug/L	ug/L
VOCs										
Benzene	0.2 U	0.2 U	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	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	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	0.6 U	0.6 U	124	620
PAHs										
Naphthalene	0.84 U	0.79 U	0.82 U	0.80 U	1.00 U	1.00 U	1.00 U	1.00 U	8.0	40
Acenaphthylene	0.84 U	0.79 U	0.82 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	NA	NA
Acenaphthene	0.84 U	0.79 U	0.82 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	NA	NA
Fluorene	0.18 U	0.79 U	0.17 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	80	400
Phenanthrene	0.074 U	0.790 U	0.072 U	0.070 U	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
Anthracene	0.066 J	0.053 J	0.031 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	600	3,000
Fluoranthene	0.032 U	0.030 U	0.031 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	80	400
Pyrene	0.18 U	0.17 U	0.17 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	50	250
Benzo(a)anthracene	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	NA	NA
Chrysene	0.063 U	0.059 U	0.061 U	0.060 U	0.080 U	0.080 U	0.080 U	0.080 U	0.02	0.2
Benzo(b)fluoranthene	0.040 U	0.038 U	0.039 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.02	0.2
Benzo(k)fluoranthene	0.0110 U	0.0099 U	0.0100 U	0.0100 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA
Benzo(a)pyrene	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.02	0.2
Dibenzo(a,h)anthracene	0.032 U	0.030 U	0.031 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	NA	NA
Benzo(g,h,i)perylene	0.110 U	0.099 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.071 U	0.066 U	0.069 U	0.060 U	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
Product Thickness (inches)	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA

ND - Not detected.

NA - Not applicable; standard(s) do not exist.

-- - Indicates not analyzed.

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).

Shaded values indicate concentration exceeding PAL.

Shaded and bold values indicate concentration exceeding PAL and ES.

Table 3-2 (continued)

**Groundwater Analytical Data for Wells Proposed for Removal From Sampling Program
September 2000 through June 2002
Moss-American Site
Milwaukee, Wisconsin**

	MW-26S								WDNR	WDNR ES,	
	Q3 2000	Q4 2000	Q1 2001	Q2 2001	Q3 2001	Q4 2001	Q1 2002	Q2 2002	PAL, ug/L	ug/L	
VOCs											
Benzene	0.2 U	NS	0.2 U	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	NS	0.2 U	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	NS	0.2 U	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	NS	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs											
Naphthalene	0.83 U	NS	0.80 U	0.80 U	1.00 J	1.00 U	0.90 U	1.00 U	1.00 U	8.0	40
Acenaphthylene	0.83 U	NS	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	NA	NA
Acenaphthene	0.83 U	NS	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	NA	NA
Fluorene	0.18 U	NS	0.17 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	80	400
Phenanthrene	0.073 U	NS	0.070 U	0.070 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
Anthracene	0.031 U	NS	0.030 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	600	3,000
Fluoranthene	0.031 U	NS	0.030 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	80	400
Pyrene	0.18 U	NS	0.17 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	50	250
Benzo(a)anthracene	0.021 U	NS	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	NA	NA
Chrysene	0.062 U	NS	0.060 U	0.060 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.02	0.2
Benzo(b)fluoranthene	0.039 U	NS	0.038 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.02	0.2
Benzo(k)fluoranthene	0.0100 U	NS	0.0100 U	0.0100 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA
Benzo(a)pyrene	0.021 U	NS	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.02	0.2
Dibenzo(a,h)anthracene	0.031 U	NS	0.030 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	NA	NA
Benzo(g,h,i)perylene	0.100 U	NS	0.100 U	0.100 U	0.100 U	0.100 U	0.090 U	0.100 U	0.100 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.070 U	NS	0.067 U	0.060 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
<i>Product Thickness (inches)</i>	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA

ND - Not detected.

NA - Not applicable; standard(s) do not exist.

-- - Indicates not analyzed.

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).

Shaded values indicate concentration exceeding PAL.

Shaded and bold values indicate concentration exceeding PAL and ES.

Table 3-2 (continued)

**Groundwater Analytical Data for Wells Proposed for Removal From Sampling Program
September 2000 through June 2002
Moss-American Site
Milwaukee, Wisconsin**

	MW-3I								WDNR	WDNR ES,
	Q3 1998	Q1 1999	Q3 1999	Q1 2000	Q3 2000	Q1 2001	Q3 2001	Q1 2002	PAL, ug/L	ug/L
VOCs										
Benzene	0.2 U	0.2 U	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	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	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	0.6 U	0.6 U	124	620
PAHs										
Naphthalene	0.77 U	0.81 U	0.76 U	0.78 U	0.76 U	0.76 U	1.00 U	1.00 U	8.0	40
Acenaphthylene	0.77 U	0.81 U	0.76 U	0.78 U	0.76 U	0.76 U	0.80 U	0.80 U	NA	NA
Acenaphthene	0.77 U	0.81 U	0.76 U	0.78 U	0.76 U	0.76 U	0.80 U	0.80 U	NA	NA
Fluorene	0.16 U	0.17 U	0.16 U	0.17 U	0.16 U	0.16 U	0.20 U	0.20 U	80	400
Phenanthrene	0.044 U	0.047 U	0.044 U	0.045 U	0.043 U	0.066 U	0.080 U	0.080 U	NA	NA
Anthracene	0.030 U	0.032 U	0.030 U	0.030 U	0.095 J	0.028 U	0.040 U	0.040 U	600	3,000
Fluoranthene	0.019 U	0.020 U	0.019 U	0.020 U	0.029 U	0.045 J	0.040 U	0.040 U	80	400
Pyrene	0.17 U	0.18 U	0.17 U	0.18 U	0.17 U	0.16 U	0.20 U	0.20 U	50	250
Benzo(a)anthracene	0.017 U	0.018 U	0.017 U	0.018 U	0.017 U	0.019 U	0.020 U	0.020 U	NA	NA
Chrysene	0.158 J	0.060 U	0.056 U	0.058 U	0.056 U	0.057 U	0.080 U	0.080 U	0.02	0.2
Benzo(b)fluoranthene	0.034 U	0.036 U	0.033 U	0.034 U	0.033 U	0.036 U	0.040 U	0.040 U	0.02	0.2
Benzo(k)fluoranthene	0.0260 U	0.0270 U	0.0260 U	0.0260 U	0.0260 U	0.0094 U	0.0200 U	0.0200 U	NA	NA
Benzo(a)pyrene	0.021 U	0.022 U	0.021 U	0.022 U	0.021 U	0.019 U	0.020 U	0.020 U	0.02	0.2
Dibenzo(a,h)anthracene	0.045 U	0.048 U	0.045 U	0.046 U	0.044 U	0.028 U	0.040 U	0.040 U	NA	NA
Benzo(g,h,i)perylene	0.095 U	0.100 U	0.095 U	0.097 U	0.094 U	0.094 U	0.100 U	0.100 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.062 U	0.065 U	0.061 U	0.063 U	0.060 U	0.063 U	0.080 U	0.080 U	NA	NA
Product Thickness (inches)	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA

ND - Not detected.

NS - Not sampled.

NA - Not applicable; standard(s) do not exist.

-- Indicates not analyzed.

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).

Shaded values indicate concentration exceeding PAL.

Shaded and bold values indicate concentration exceeding PAL and ES.

Table 3-2 (continued)

**Groundwater Analytical Data for Wells Proposed for Removal From Sampling Program
September 2000 through June 2002
Moss-American Site
Milwaukee, Wisconsin**

	MW-7I								WDNR	WDNR ES,
	Q3 1998	Q1 1999	Q3 1999	Q1 2000	Q3 2000	Q1 2001	Q3 2001	Q1 2002	PAL, ug/L	ug/L
VOCs										
Benzene	NS	0.2 U	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	NS	0.2 U	NS	NS	0.2 U	0.2 U	0.2 J	0.2 U	68.6	343
Ethylbenzene	NS	0.2 U	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	NS	0.6 U	NS	NS	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs										
Naphthalene	NS	0.79 U	NS	NS	0.76 U	0.83 U	1.00 U	1.00 U	8.0	40
Acenaphthylene	NS	0.79 U	NS	NS	0.76 U	0.83 U	0.80 U	0.90 UJ	NA	NA
Acenaphthene	NS	0.79 U	NS	NS	0.76 U	0.83 U	0.80 U	0.90 U	NA	NA
Fluorene	NS	0.17 U	NS	NS	0.16 U	0.18 U	0.20 U	0.20 U	80	400
Phenanthrene	NS	0.046 U	NS	NS	0.043 U	0.072 U	0.080 U	0.090 U	NA	NA
Anthracene	NS	0.031 U	NS	NS	0.095 J	0.031 U	0.040 U	0.040 U	600	3,000
Fluoranthene	NS	0.020 U	NS	NS	0.029 U	0.031 U	0.040 U	0.040 U	80	400
Pyrene	NS	0.18 U	NS	NS	0.17 U	0.18 U	0.20 U	0.20 U	50	250
Benzo(a)anthracene	NS	0.018 U	NS	NS	0.017 U	0.021 U	0.020 U	0.040 U	NA	NA
Chrysene	NS	0.058 U	NS	NS	0.056 U	0.062 U	0.080 U	0.090 U	0.02	0.2
Benzo(b)fluoranthene	NS	0.035 U	NS	NS	0.033 U	0.039 U	0.040 U	0.040 U	0.02	0.2
Benzo(k)fluoranthene	NS	0.0270 U	NS	NS	0.0260 U	0.0100 U	0.0200 U	0.0200 U	NA	NA
Benzo(a)pyrene	NS	0.022 U	NS	NS	0.021 U	0.021 U	0.020 U	0.020 U	0.02	0.2
Dibenzo(a,h)anthracene	NS	0.047 U	NS	NS	0.044 U	0.031 U	0.040 U	0.040 U	NA	NA
Benzo(g,h,i)perylene	NS	0.098 U	NS	NS	0.094 U	0.100 U	0.100 U	0.100 U	NA	NA
Indeno(1,2,3-cd)pyrene	NS	0.063 U	NS	NS	0.060 U	0.069 U	0.080 U	0.090 U	NA	NA
Product Thickness (inches)	NS	ND	NS	NS	ND	ND	ND	ND	NA	NA

ND - Not detected.
 NA - Not applicable; standard(s) do not exist.
 NS - Not sampled due to sheetpile installation and soil excavation activities in area.
 -- Indicates not analyzed.
 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).
 Shaded values indicate concentration exceeding PAL.
 Shaded and bold values indicate concentration exceeding PAL and ES.

Table 3-2 (continued)

**Groundwater Analytical Data for Wells Proposed for Removal From Sampling Program
September 2000 through June 2002
Moss-American Site
Milwaukee, Wisconsin**

	MW-9I								WDNR	WDNR ES,
	Q3 1998	Q1 1999	Q3 1999	Q1 2000	Q3 2000	Q1 2001	Q3 2001	Q1 2002	PAL, ug/L	ug/L
VOCs										
Benzene	0.2 U	0.2 U	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	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	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	0.6 U	0.6 U	124	620
PAHs										
Naphthalene	0.77 U	0.77 U	0.78 U	0.76 U	0.76 U	0.81 U	3.00 J	1.00 U	8.0	40
Acenaphthylene	0.77 U	0.77 U	0.78 U	0.76 U	0.76 U	0.81 U	2.00 U	0.80 UJ	NA	NA
Acenaphthene	0.77 U	0.77 U	0.78 U	0.76 U	0.76 U	0.81 U	2.00 U	0.80 U	NA	NA
Fluorene	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.17 U	0.40 U	0.20 U	80	400
Phenanthrene	0.044 U	0.044 U	0.045 U	0.044 U	0.043 U	0.071 U	0.200 U	0.080 U	NA	NA
Anthracene	0.030 U	0.030 U	0.030 U	0.029 U	0.029 U	0.030 U	0.080 U	0.040 U	600	3,000
Fluoranthene	0.019 U	0.038 U	0.101 U	0.019 U	0.029 U	0.030 U	0.080 U	0.040 U	80	400
Pyrene	0.17 U	0.17 U	0.18 U	0.17 U	0.17 U	0.17 U	0.40 U	0.20 U	50	250
Benzo(a)anthracene	0.017 U	0.017 U	0.018 U	0.017 U	0.017 U	0.020 U	0.040 U	0.020 U	NA	NA
Chrysene	0.070 J	0.057 U	0.058 U	0.056 U	0.056 U	0.061 U	0.200 U	0.080 U	0.02	0.2
Benzo(b)fluoranthene	0.034 U	0.042 J	0.034 U	0.033 U	0.033 U	0.038 U	0.040 U	0.040 U	0.02	0.2
Benzo(k)fluoranthene	0.0260 U	0.0260 U	0.0260 U	0.0260 U	0.0260 U	0.0100 U	0.0400 U	0.0200 U	NA	NA
Benzo(a)pyrene	0.021 U	0.042 U	0.022 U	0.021 U	0.021 U	0.020 U	0.080 U	0.020 U	0.02	0.2
Dibenzo(a,h)anthracene	0.045 U	0.045 U	0.046 U	0.044 U	0.044 U	0.030 U	0.080 U	0.040 U	NA	NA
Benzo(g,h,i)perylene	0.095 U	0.095 U	0.097 U	0.094 U	0.094 U	0.100 U	0.200 U	0.100 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.062 U	0.062 U	0.063 U	0.061 U	0.060 U	0.068 U	0.200 U	0.080 U	NA	NA
Product Thickness (inches)	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA

ND - Not detected.

NA - Not applicable; standard(s) do not exist.

-- - Indicates not analyzed.

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).

Shaded values indicate concentration exceeding PAL.

Shaded and bold values indicate concentration exceeding PAL and ES.

Table 3-2 (continued)

**Groundwater Analytical Data for Wells Proposed for Removal From Sampling Program
September 2000 through June 2002
Moss-American Site
Milwaukee, Wisconsin**

	MW-20I								WDNR	WDNR ES,
	Q3 1998	Q1 1999	Q3 1999	Q1 2000	Q3 2000	Q1 2001	Q3 2001	Q1 2002	PAL, ug/L	ug/L
VOCs										
Benzene	0.2 U	NS	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	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	68.6	343
Ethylbenzene	0.2 U	NS	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	NS	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs										
Naphthalene	8.3 U	NS	0.79 U	0.80 U	0.76 U	0.87 U	1.00 U	1.00 U	8.0	40
Acenaphthylene	8.3 U	NS	1.35 J	0.80 U	0.76 U	0.87 U	1.00 U	1.00 UJ	NA	NA
Acenaphthene	8.3 U	NS	0.79 U	0.80 U	0.76 U	0.87 U	1.00 U	1.00 U	NA	NA
Fluorene	1.8 U	NS	0.17 U	0.17 U	0.16 U	0.18 U	0.20 U	0.20 U	80	400
Phenanthrene	0.48 U	NS	0.046 U	0.046 U	0.043 U	0.076 U	0.100 U	0.100 U	NA	NA
Anthracene	0.32 U	NS	0.109 J	0.031 U	0.029 U	0.033 U	0.050 U	0.050 U	600	3,000
Fluoranthene	0.23 J	NS	0.020 U	0.022 J	0.029 U	0.033 U	0.050 U	0.050 U	80	400
Pyrene	2.5 J	NS	0.18 U	0.18 U	0.17 U	0.18 U	0.20 U	0.20 U	50	250
Benzo(a)anthracene	0.19 U	NS	0.018 U	0.018 U	0.017 U	0.022 U	0.020 U	0.020 U	NA	NA
Chrysene	1.27 J	NS	0.058 U	0.059 U	0.056 U	0.065 U	0.100 U	0.100 U	0.02	0.2
Benzo(b)fluoranthene	0.36 U	NS	0.035 U	0.035 U	0.033 U	0.041 U	0.050 U	0.050 U	0.02	0.2
Benzo(k)fluoranthene	0.28 U	NS	0.0270 U	0.0270 U	0.0260 U	0.0110 U	0.0200 U	0.0200 U	NA	NA
Benzo(a)pyrene	0.23 U	NS	0.030 J	0.022 U	0.021 U	0.022 U	0.020 U	0.020 U	0.02	0.2
Dibenzo(a,h)anthracene	0.49 U	NS	0.046 U	0.047 U	0.044 U	0.033 U	0.050 U	0.050 U	NA	NA
Benzo(g,h,i)perylene	1.0 U	NS	0.098 U	0.100 U	0.094 U	0.110 U	0.100 U	0.100 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.88 J	NS	0.063 U	0.064 U	0.060 U	0.073 U	0.100 U	0.100 U	NA	NA
Product Thickness (inches)	ND	NS	ND	ND	ND	ND	ND	ND	NA	NA

ND - Not detected.

NA - Not applicable; standard(s) do not exist.

NS - Not sampled.

-- Indicates not analyzed.

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.

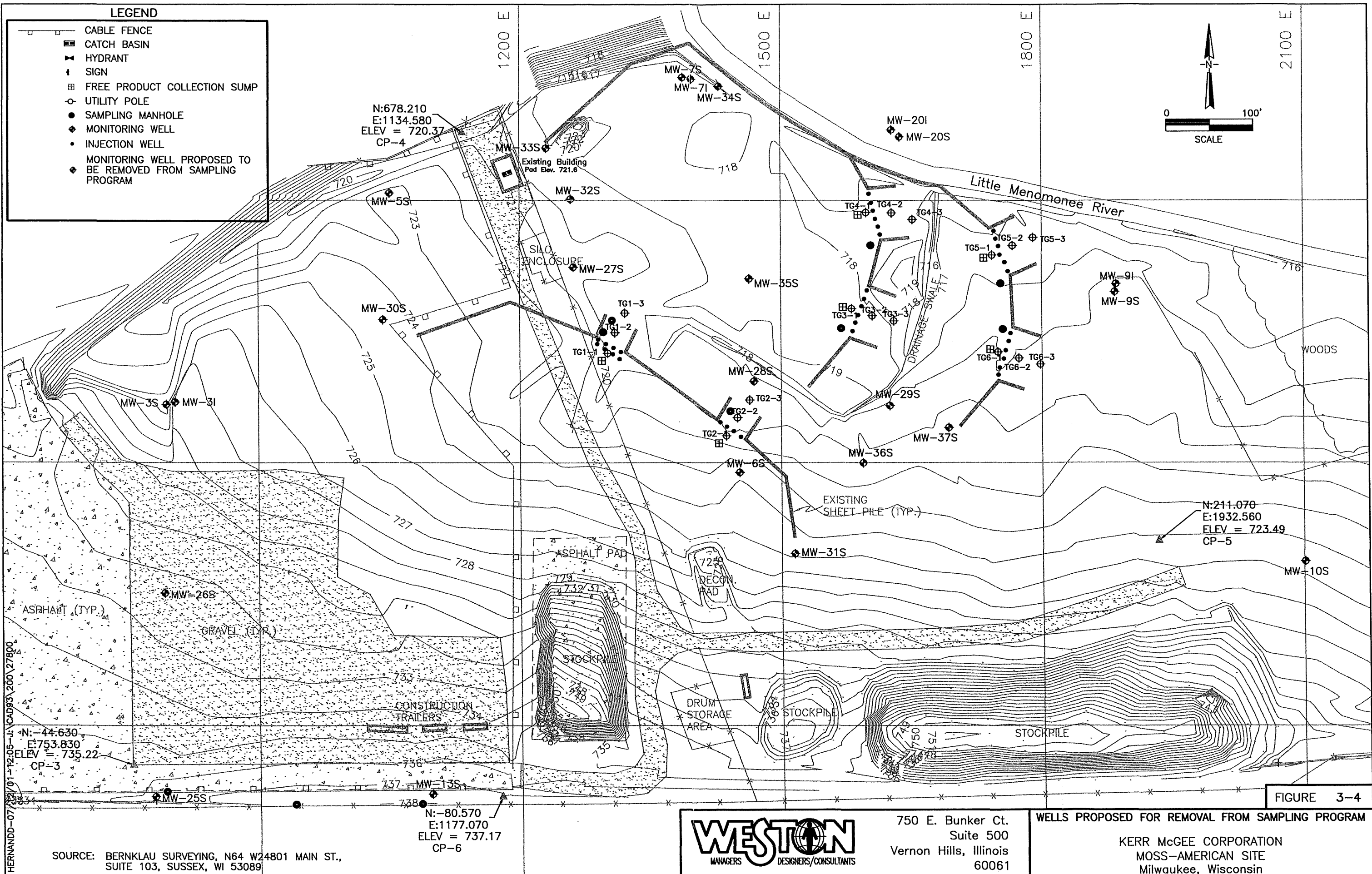
ES - Enforcement Standard (WDNR).

Shaded values indicate concentration exceeding PAL.

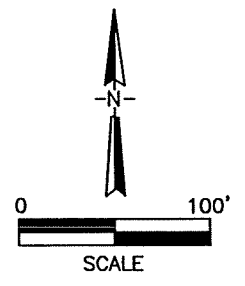
Shaded and bold values indicate concentration exceeding PAL and ES.

Table 3-3
Locations and Rationale for Proposed Groundwater Elevation Observation Point
Moss-American Site
Milwaukee, Wisconsin

Monitoring Station	Location	Rationale
PZ-01	PZ-01 will be located on the west bank of the LMR.	Data from this observation point would help in comparing piezometric surface elevation and the LMR surface water elevation.
PZ-02	PZ-02 is proposed for installation on the backside of the sheetpile cutoff wall north of MW-33S.	Data from this observation point would aid in determining the groundwater flow conditions along the northern boundary of the site.
PZ-03	WESTON proposes to install PZ-03 inside the highly permeable “select fill” (hydraulic conductivity of 10^{-3} centimeters per second [cm/s]) used to backfill excavations T1 and T2.	This observation point will serve as an additional groundwater elevation point (other than MW-35S) in this geologic unit.
PZ-04	PZ-04 will be located on the west bank of the LMR east (downgradient) of MW-09S and MW-09I	Data obtained from this observation point would aid in the understanding of how groundwater is discharging from the funnel-and-gate system and the site as a whole.
PZ-05	PZ-05 will be installed between Monitoring Wells MW-37S and MW-10 in the area of the site southeast of the funnel-and-gate system.	Data provided by this observation point will fill the data gap that exists between MW-37S and MW-10.
PZ-06 – PZ-10	PZ-06 through PZ-10 would be installed in an area that is upgradient of the funnel-and-gate system.	These observation points would reestablish groundwater elevation monitoring points that were lost by removal of groundwater monitoring wells MW-4S and TW-05. These locations would provide elevation of groundwater as it enters the funnel-and-gate system.



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



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

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

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

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

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



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

WELLS PROPOSED FOR REMOVAL FROM SAMPLING PROGRAM

KERR MCGEE CORPORATION
MOSS-AMERICAN SITE
Milwaukee, Wisconsin

FIGURE 3-4

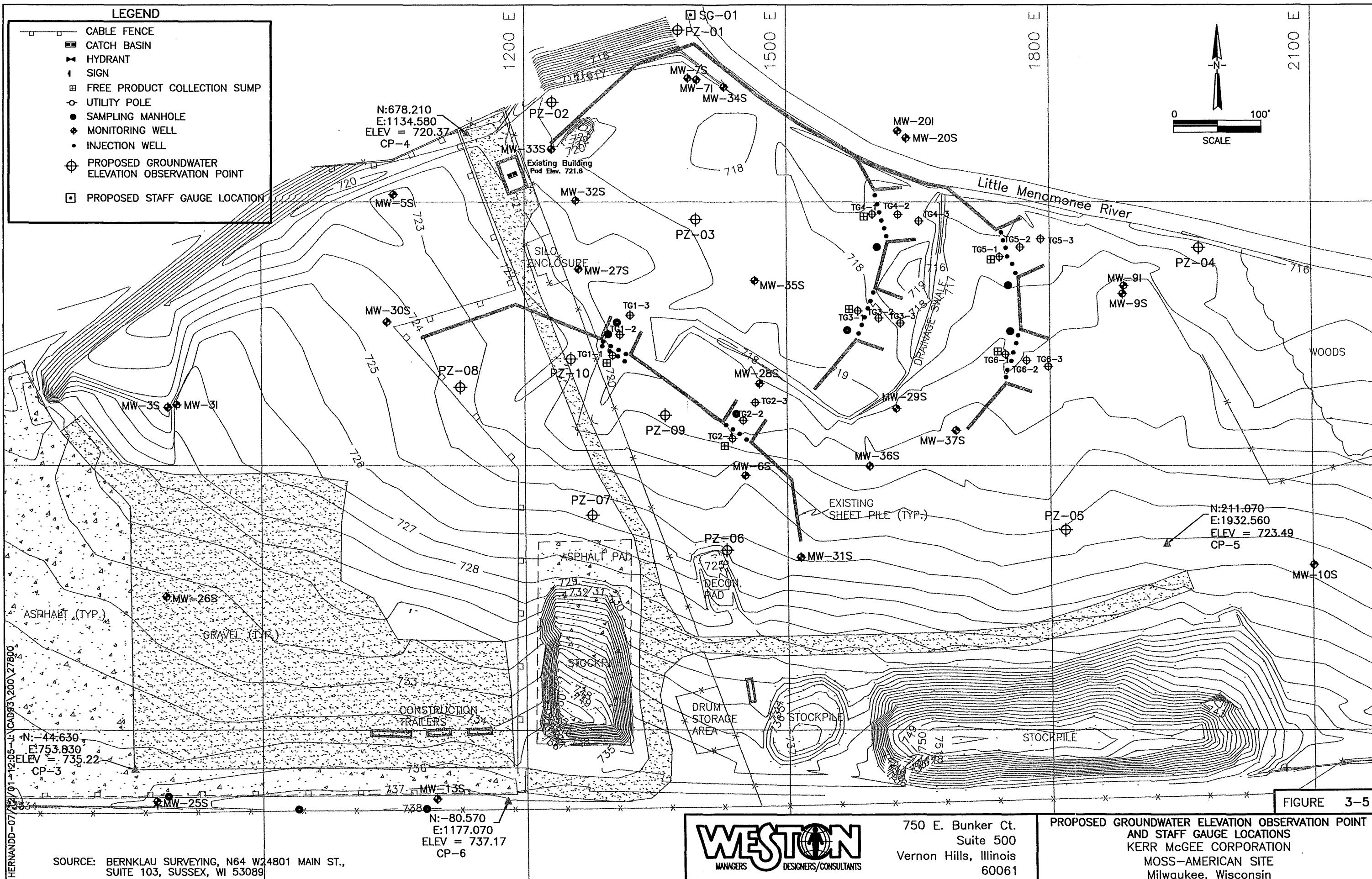


FIGURE 3-5

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



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

PROPOSED GROUNDWATER ELEVATION OBSERVATION POINT AND STAFF GAUGE LOCATIONS
KERR MCGEE CORPORATION
MOSS-AMERICAN SITE
MILWAUKEE, WISCONSIN

APPENDIX A

RESPONSE TO AGENCY COMMENT LETTERS

WDNR: 20 December 2001
30 April 2002
8 August 2002

U.S. EPA: 3 January 2002
20 August 2002

Appendix A

Contained in this attachment are responses to comments on the Q3 and Q4 2001 and Q1 2002 groundwater monitoring reports. Comments on the Q3 2001 report were contained in the Wisconsin Department of Natural Resources (WDNR) letter dated 20 December 2001, comments on the Q4 2001 report were contained in the 30 April 2002 WDNR letter, and comments on the Q1 2002 report were contained in WDNR's 8 August 2002 letter. KMC/WESTON are also in receipt of the United States Environmental Protection Agency (U.S. EPA) letters dated 3 January 2002 (regarding the Q3 2001 report and 20 December 2001 WDNR letter) and 20 August 2002 (regarding the Q1 2002 report and the 8 August 2002 WDNR letter).

Although there are not specific comments requiring responses in U.S. EPA's 3 January 2002 letter, KMC/WESTON concur with the points presented and is taking under consideration the recommendations for future activities associated with the MW-7/33/34 areas. Regarding U.S. EPA's 20 August 2002 letter, issues associated with the hydraulic gradient investigation and system modifications to address groundwater and free product in the vicinity of MW-7S, 33S, and 34S are addressed under KMC's proposal to install groundwater elevation monitoring points and perform hydrogeologic modeling in support of system design modifications, which is outlined in Section 3.5 of the Q2 2002 groundwater monitoring report.

Responses to the specific comments presented in WDNR's letters are provided below.

20 DECEMBER 2001 LETTER

WDNR Comment 1: *We are not aware of when any approval may have been given to reduce the sampling frequency of the intermediate monitoring wells to semi-annual. We would appreciate it if this could be clarified. In general, our preference is to continue with the quarterly sampling of these wells until an appropriate time after sufficient remediation of the site when sampling frequency would be evaluated.*

KMC/WESTON Response: The sampling frequency for the intermediate groundwater monitoring wells was agreed upon in communications between KMC/WESTON and the agencies prior to implementing the groundwater-monitoring plan in 1998. In any event, KMC has submitted proposed modifications to the existing groundwater monitoring program that address sampling of the intermediate wells and several other issues, in Section 3.5 of the Q2 2002 groundwater monitoring report.

WDNR Comment 2: *Insufficient sample volume for Matrix Spike/Matrix Spike Duplicate analysis has been reported in this report. We would expect that enough patience to exercised to allow the recharge of monitoring wells to enable the collection of sufficient sample volumes for all given analytical parameters.*

KMC/WESTON Response: The issue identified by WDNR is with reference to an internal laboratory quality assurance/quality control (QA/QC) protocol, and is not specific to the Moss-American site. Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses are performed on at a frequency of one per twenty investigative samples collected in order to meet the QA/QC requirements set forth in the Quality Assurance Project Plan. In addition to the MS/MSD

analyses requested by KMC/WESTON for samples specific to the Moss-American project, the laboratory also performs MS/MSD analyses for their internal QA/QC program, which are not client-specific and may include analysis of lab-certified samples. The reference to the lack of sample volume simply indicates that there was not sufficient sample volume remaining for the lab to use this media for their internal MS/MSD analysis.

WDNR Comment 3: *MW-34S contained approximately 9 inches of free product and trace amounts of free product were observed in TG-1. We expect that the performance evaluation of the containment performance wells MW-30S and MW-37S should be given immediate attention prior to the next sampling and /or submission of the next quarterly monitoring report.*

KMC/WESTON Response: A containment performance evaluation was performed using the historical data for wells MW-30S and MW-37S, which spans 9 quarters. This data is included in Table A-1. The data show that a constituent concentration exceeded a WDNR Preventative Action Limit (PAL) only once. During Q3 2001, chrysene was detected at 0.09 micrograms per liter ($\mu\text{g/L}$) in the sample collected from MW-37S, exceeding the PAL of 0.02 $\mu\text{g/L}$. During Q3 2001, chrysene was the only target compound detected in the sample collected from MW-37S, and target compounds were not detected in the sample collected from MW-37S during Q4 2001. Other than this occurrence, there were only four instances in which a target compound was detected in MW-37S (acenaphthylene was detected in Q2 2002, anthracene was detected in Q3 and Q4 2000, and phenanthrene was detected in Q2 2001). Similarly, very few detections of target compounds were observed historically in MW-30S. In all of these cases, including the PAL exceedance in Q3 2001, the detected concentrations were only slightly higher than the method detection limit or were estimated values less than the method detection limit. Based on the containment performance evaluation of these wells, it appears that the impacted groundwater is sufficiently contained. In any case, KMC will continue to evaluate contaminant levels in these wells to ensure that containment is sufficient.

WDNR Comment 4: *MW-7S, MW-34S, TW-05 and treatment gates TG1-1 and TG1-2 are heavily contaminated with various PAHs, such as Naphthalene and Chrysene. Kerr McGee should provide a plan to modify their remedial action as appropriate to address this.*

KMC/WESTON Response: KMC/WESTON believe that the wells in question are most appropriately evaluated as two separate areas: the area near MW-07S and MW-34S; and the area near TW-05 and TG1. These areas are discussed below.

Vicinity of TW-05/TG1

Significant reductions in groundwater contaminant levels in the TW-05/TG1 area are anticipated due to the extensive upgradient source removal activities that were performed during 2001; however, due to the magnitude of the hydrogeologic disturbances resulting from the excavation activities, the time required for flow conditions and contaminant levels to become stable is uncertain. U.S. EPA, in its letters dated 3 January 2002 and 20 August 2002, indicates that treatment appears to be effective in TG1 based on the monitoring data. Due to the uncertainty associated with the benefit of nutrient addition, as demonstrated in Figure 3-2, KMC proposes to discontinue nutrient addition at TG1. KMC will assess the quarterly monitoring data in TG1 to confirm that the concentration trend in TG1 remains consistent. If sustained rebound of

containment concentrations is experienced, potentially indicating that nutrient addition was facilitating groundwater treatment, addition of the nutrients will be resumed.

Vicinity of MW-7S/34S

KMC/WESTON believe that the high contaminant levels observed in MW-7S and MW-34S are a result of a plug of dense, nonaqueous-phase liquid (DNAPL) that is moving through the groundwater system. This was evidenced by the small quantity of free product appearing in well MW-34S in recent quarters, which had increased to approximately 10 inches of product by Q4 2001. KMC/WESTON removed the free product from MW-34S during Q1 2002 and monitored the well to determine if product reappeared. As of May 2002, only trace product (i.e., the product that is mixed with sediment in the bottom of the well that is unrecoverable by pumping) was observed; however, 4 inches of free product was observed in MW-34S during June 2002.

To address the elevated levels of contaminants in the MW-7S/34S area, KMC proposes to continue removal of the product on an as-needed basis. The DNAPL that migrated to this area is likely a result of the topography of the underlying clay unit, as this is where free product had historically accumulated and was withdrawn using the free product recovery system. Based on monitoring for DNAPL, KMC will confirm that this occurrence is a plug of DNAPL, as opposed to an unidentified source area. Since it appears that groundwater in the MW-7S/34S area is adequately contained, KMC believes that as-needed free product removal in conjunction with monitoring and evaluation of groundwater contaminant levels is sufficient action, unless future groundwater monitoring results and recurrence of free product warrant implementation of a more aggressive remedial action. As with areas further upgradient, KMC/WESTON anticipate that the contaminant levels in the MW-7S/34S area will also decline as a result of the source removal activities; however, this reduction may not be as immediate as areas further upgradient based on existing flow conditions and the downgradient location of the subject area.

WDNR Comment 5: *Good efforts were made in depicting the estimated boundary of the contaminant plume as presented in figure 1 for the second and third quarter sampling. However, there is still some confusion in determining if the contaminant plume increased this quarter or not if one only looks at the map without reading any accompanying narrative. Two separate plots of the contaminant plume boundary for the different quarters would be helpful to eliminate the confusion.*

KMC/WESTON Response: KMC will provide separate maps for groundwater contaminant plume based on the monitoring results for the current and previous quarters. Please note that this was first implemented for the Q4 2001 report.

WDNR Comment 6: *We would like to see a continuous evaluation of the well packers at TG5 and any successful attempt to place inflatable bladder packers at TG1 and TG2 or any other treatment gate.*

KMC/WESTON Response: The dissolved oxygen (DO) concentrations observed at the site do not indicate that the well packers are effective; however, KMC will continue to investigate other options to increase dispersion of the injected air and/or other enhancements to improve the system's performance.

WDNR Comment 7: *A continuous nutrient addition/augmentation evaluation at TG1 is necessary as stated and we are looking forward to Kerr McGee's recommendation after evaluating the Q3 and Q4 2001 data.*

KMC/WESTON Response: Please refer to the response to Section 3.5 of the Q2 2002 report, comment #4 above, and comment #5 from WDNR's 30 April 2002 letter below.

WDNR Comment 8: *Even though no significant change was observed with site hydrogeology based on the Q3 2001 monitoring results, we still believe that improving the dispersion rates at injection points is critical issue for this site.*

KMC/WESTON Response: Please refer to response to comment #6 (WDNR 20 December 2001 letter) above.

WDNR Comment 9: *We would like to see some possible conclusions made based on degrader populations at TG1 and TG2 based on air injection, presence of higher levels of substrate or a combination of both factors and any other possible factors in the next quarter report or whenever such information becomes available.*

KMC/WESTON Response: Due to the high degree of variance of the data and complex relationship between the monitored parameters, KMC believes that additional monitoring information is required to reach definite conclusions regarding the effectiveness of contaminant biodegradation. KMC will continue to compare the data obtained from treatment gates TG1 and TG2 in an attempt to identify a trend(s) that may help to better understand the biological activity occurring at the site.

30 APRIL 2002 LETTER

WDNR Comment 1: *No response was received addressing comments on the Q3 2001 report.*

KMC/WESTON Response: No response required.

WDNR Comment 2: *MW-34 had 10 inches of free product. We ask that Kerr McGee be required to design a system to recover free product at the affected locations. We are referencing this to our comment #3 on the Q3, 2001 Report.*

KMC/WESTON Response: Please refer to the response to comment #4 of WDNR's 20 December 2001 letter above.

WDNR Comment 3: *Insufficient sample volumes did not allow the analysis for MS/MSD at the following sample locations: MA3-TG2-121201-2, MA3-TG2-3-121202-03, MA3-TG3-111201-06, MA3-TG3-2-111201-5, MA3-TG3-1-111201-4, MA3-TG4-2-111201-08, MA3-TG4-3-111201-09, MA3-TG4-1-111201-07, MA3-TG5-3-111201-03, MA3-TG5-2-111201-02, MA3-TG5-111201-01 (all labelled water grab samples on the lab sheets), MA3-MW7S-111201-13, MW27S-111201-12, MW32S-111201-111201-11, MW33S-111201-10 and 10DP, MW34S-111201-14, MW35S-111201-15 (all labelled water grab samples on the lab sheets), and TB-02 (water sample). We are referencing this comment to our comment #2 of the Q3, 2001 report. This*

appears a repetitive occurrence on this site and points to the need for Weston to revise sampling procedures to obtain sufficient sample volumes.

KMC/WESTON Response: Please refer to the response to comment #2 of WDNR's 20 December 2001 letter above.

WDNR Comment 4: *The holding times of 48 hours were exceeded for the following samples:*

MA3-TG2-2-121201-02 coded TG 22 and MA3-TG2-3-121201-03 coded TG233.

KMC/WESTON Response: KMC/WESTON makes every attempt to ensure that sample holding times are not exceeded, which includes sending shipments of samples on a daily basis when conducting the sampling activities. Daily shipments notwithstanding, overnight couriers may fail to deliver packages quickly enough to meet hold times on occasion, or other circumstances such as overloading of the laboratory with samples may lead to slightly extended holding times.

WDNR Comment 5: *The calculation of Carbon:Nitrogen:Phosphorous ratios in Table 7 showed a desired ratio of 100:14:1 for treatment gates TG1-1 through TG6-3. It is apparent that there is need to give serious consideration to achieving the required ratios especially for treatment gates: TG1-3, TG2-1, TG2-2, TG2-3, TG3-2, TG5-1, TG5-2 and TG6-2. In other words, there is a shortfall in meeting the required ratios for nitrogen and phosphorous on this site. We would like Weston to re-evaluate the need to augment the needed ratios for nitrogen and phosphorous for this site.*

KMC/WESTON Response: KMC/WESTON believes that system-wide implementation of nutrient injection is premature at this point in time, as there is insufficient evidence to conclude that the nutrient addition that has been performed at TG1 has had a beneficial influence on treatment of the impacted groundwater (the concentration trend in TG1 is the same as it was prior to nutrient injection, as shown in Figure 3-2). In addition, TG1 is the only gate with concentrations exceeding PALs. Therefore, it would be unnecessary to implement a system-wide nutrient augmentation program. Please note that the guidance is a C:N:P ratio that is required at the beginning of the biodegradation process, and the data obtained through monitoring is essentially a snapshot at a point in time during the biodegradation process. In addition, the nitrogen and phosphorous data is being compared to total organic carbon, which is an aggregate measurement of numerous carbon sources, natural and otherwise, many of which do not require biodegradation to meet cleanup standards.

WDNR Comment 6: *We note exceedences for both PAL and ES of ch. NR 140 groundwater standards as listed on page 8 and 9 of this report.*

KMC/WESTON Response: No response required.

WDNR Comment 7: *We request that Weston evaluate the need of replacing the casing for MW-20S if this well is to continue to be part of the monitoring network for this site.*

KMC/WESTON Response: The disposition of MW-20S is addressed in the proposed modifications to the existing groundwater monitoring program. Please refer to Section 3.5 of the Q2 2002 report associated with this issue.

8 August 2002 LETTER

WDNR Comment 1: *We noted the following lapses in the referenced report: reversed hydraulic gradients at TG3, TG4 and TG6, prevention action limits (PAL) exceedences on page 8 and enforcement standards (ES) exceedences on page 9 of ch. NR 140 groundwater standards.*

KMC/WESTON Response: No response required.

WDNR Comment 2: *Insufficient sample volumes for Matrix Spike/Matrix Spike Duplicate (MS/MSD): Samples with "lab Sample Number": 3793631, 3793632 and 3793633 did have the MS/MSD analyzed for.*

KMC/WESTON Response: Please refer to the response to comment #2 of WDNR's 20 December 2001 letter above.

WDNR Comment 3: *Proposal to eliminate shallow monitoring wells: MW-3S & I, MW-10S, MW-13S, MW-25S, MW-26S, MW-20S & I, MW-7I, and MW-9I. We will appreciate that you present us a table which summarizes quarterly monitoring results for the named wells beginning from the first quarter after the implementation of the groundwater remedy. In other words, you may want to limit the data from Table 5 of this report to this request (i.e. after implementation of remedy). The Department will be more than at ease to look into any proposal to reduce the frequency of the monitoring of the named monitoring wells if the wells have shown two or more successive events without the detection of contaminants. Some points that the department will look into are the possibilities if such monitoring wells have had more than eight rounds or quarters of groundwater monitoring data which is crucial to the determination of possible alternative concentration limits in cases where it is technically and economically impossible for a site such as this to achieve PAL. In any case, the department may be flexible moving from quarterly to semi-annually to annually monitoring proposals. We should remind you that it is still within the department's discretion to evaluate what is usually termed facility plans modification after remediation. It may not be easy simply eliminating say a well screened in sand when the well was initially nested in both sand and the intermediate water zone for simply structural integrity reasons. The department will appreciate that any request (s) should reference/reflect agreed upon terms of the monitoring plans in the Record of Decision and the Scope of Work for the Record of Decision for this site.*

KMC/WESTON Response: Please refer to the response to comment #1 of WDNR's 20 December 2001 letter, as well as to Section 3.5 of the Q2 2002 report, which presents the case to eliminate these wells from the sampling program.

WDNR Comment 4: *Reduction of the groundwater monitoring at treatment gates from monthly to quarterly. The department may exercise some flexibility to such a proposal if the need/objective/demonstration of the collection of monthly data for the six treatment gates on this site is no longer necessary.*

KMC/WESTON Response: Please refer to Section 3.5 of the Q2 2002 report.

WDNR Comment 5: *We await conclusions that the nutrient addition at TG1 is unnecessary.*

KMC/WESTON Response: Please refer to Section 3.5 of the Q2 2002 report.

Table A-1
Containment Performance Monitoring for Funnel-and-Gate System
Moss-American Site
Milwaukee, Wisconsin

	MW-30									WDNR	WDNR
	Q2 2000	Q3 2000	Q4 2000	Q1 2001	Q2 2001	Q3 2001	Q4 2001	Q1 2002	Q2 2002	PAL	ES
VOCs											
Benzene	0.2 U	0.2 U	0.2 U	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	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	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	0.6 U	0.6 U	0.6 U	124	620
PAHs											
Naphthalene	0.79 U	0.81 U	0.84 U	0.85 U	0.80 U	0.90 U	1.00 U	1.00 U	1.00 U	8.0	40
Acenaphthylene	0.79 U	0.81 U	0.84 U	0.85 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	NA	NA
Acenaphthene	0.79 U	0.80 U	0.84 U	0.85 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	NA	NA
Fluorene	0.17 U	0.17 U	0.18 U	0.18 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	80	400
Phenanthrene	0.069 U	0.071 U	0.073 U	0.074 U	0.070 U	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
Anthracene	0.070 J	0.162 J	0.077 J	0.032 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	600	3,000
Fluoranthene	0.044 J	0.036 J	0.031 U	0.032 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	80	400
Pyrene	0.17 U	0.17 U	0.18 U	0.18 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	50	250
Benzo(a)anthracene	0.020 U	0.020 U	0.021 U	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	NA	NA
Chrysene	0.059 U	0.061 U	0.063 U	0.064 U	0.060 U	0.080 U	0.080 U	0.080 U	0.080 U	0.02	0.2
Benzo(b)fluoranthene	0.037 U	0.038 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.02	0.2
Benzo(k)fluoranthene	0.0099 U	0.0100 U	0.0100 U	0.0110 U	0.0100 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA
Benzo(a)pyrene	0.020 U	0.020 U	0.021 U	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.02	0.2
Dibenzo(a,h)anthracene	0.030 U	0.030 U	0.031 U	0.032 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	NA	NA
Benzo(g,h,i)perylene	0.099 U	0.100 U	0.100 U	0.110 U	0.100 U	0.090 U	0.100 U	0.100 U	0.100 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.066 U	0.068 U	0.070 U	0.071 U	0.060 U	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
<i>Product Thickness (inches)</i>	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	

NOTES:

- All values in micrograms per liter (µg/L).
- ND - Not detected.
- - Indicates not analyzed.
- 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 - WDNR Enforcement Standard.
- Shaded values indicate concentration exceeding PAL.
- Shaded and bold values indicate concentration exceeding PAL and ES.

Table A-1
(continued)
Containment Performance Monitoring for Funnel-and-Gate System
Moss American Site
Milwaukee, Wisconsin

	MW-37									WDNR	WDNR
	Q2 2000	Q3 2000	Q4 2000	Q1 2001	Q2 2001	Q3 2001	Q4 2001	Q1 2002	Q2 2002	PAL	ES
VOCs											
Benzene	--	0.2 U	0.2 U	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	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	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	0.6 U	0.6 U	124	620
PAHs											
Naphthalene	0.79 U	0.78 U	0.86 U	0.91 U	0.80 U	1.00 U	1.00 U	1.00 U	1.00 U	8.0	40
Acenaphthylene	0.79 U	0.78 U	0.86 U	0.91 U	0.80 U	0.80 U	0.80 U	0.80 U ^J	0.80 U ^J	NA	NA
Acenaphthene	0.79 U	0.78 U	0.86 U	0.91 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	NA	NA
Fluorene	0.17 U	0.17 U	0.18 U	0.19 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	80	400
Phenanthrene	0.069 U	0.068 U	0.075 U	0.080 U	0.073 J	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
Anthracene	0.030 U	0.089 J	0.053 J	0.034 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	600	3,000
Fluoranthene	0.030 U	0.029 U	0.032 U	0.034 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	80	400
Pyrene	0.17 U	0.17 U	0.18 U	0.19 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	50	250
Benzo(a)anthracene	0.020 U	0.019 U	0.021 U	0.023 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	NA	NA
Chrysene	0.059 U	0.058 U	0.064 U	0.069 U	0.060 U	0.090 ^J	0.080 U	0.080 U	0.080 U	0.02	0.2
Benzo(b)fluoranthene	0.038 U	0.037 U	0.041 U	0.043 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.02	0.2
Benzo(k)fluoranthene	0.0099 U	0.0097 U	0.0110 U	0.0110 U	0.0100 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA
Benzo(a)pyrene	0.020 U	0.019 U	0.021 U	0.023 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.02	0.2
Dibenzo(a,h)anthracene	0.030 U	0.029 U	0.032 U	0.034 U	0.030 U	0.040 U	0.040 U	0.040 U	0.040 U	NA	NA
Benzo(g,h,i)perylene	0.099 U	0.097 U	0.110 U	0.110 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.066 U	0.065 U	0.072 U	0.077 U	0.060 U	0.080 U	0.080 U	0.080 U	0.080 U	NA	NA
<i>Product Thickness (inches)</i>	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	

NOTES:

All values in micrograms per liter (µg/L).

ND - Not detected.

-- - Indicates not analyzed.

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 - WDNR Enforcement Standard.

Shaded values indicate concentration exceeding PAL.

Shaded and bold values indicate concentration exceeding PAL and ES.

APPENDIX B

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

Appendix B

**Monthly Field - Measured Parameters
for Treatment Performance Monitoring Wells**

Well Number	Date	Temperature (°C)	pH (Standard Units)	Specific Conductance (mmhos/cm)	Redox Potential (mV)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
TG1-1	April-02	8.15	6.95	0.923	-119.6	0.7	--	NM
	May-02	12.63	7.00	0.884	-110.1	0.3	0.03	NM
	June-02	14.32	6.94	0.876	-92.2	--	0.06	12.0
TG1-2	April-02	7.42	6.84	0.921	-98.1	1	--	NM
	May-02	11.93	6.94	0.873	-92.8	0.3	0.03	NM
	June-02	12.47	6.83	0.874	-74.3	--	0.06	2.05
TG1-3	April-02	7.25	6.91	0.947	-96.4	0.6	--	NM
	May-02	12.86	7.13	0.907	-91.2	0.4	0.04	NM
	June-02	12.94	6.93	0.865	-71.7	--	0.08	8.3
TG2-1	April-02	8.65	7.11	0.688	-48.1	0.9	--	NM
	May-02	12.23	6.95	0.676	-44.4	3.3	0.38	NM
	June-02	12.48	6.90	0.727	-47.5	--	0.08	1.73
TG2-2	April-02	7.45	7.03	0.619	-87.5	0.2	--	NM
	May-02	11.13	6.92	0.606	-84.9	0.3	0.03	NM
	June-02	11.69	6.88	0.665	-77.9	--	0.09	0.8
TG2-3	April-02	8.81	6.77	1.106	-86.5	0.4	--	NM
	May-02	12.46	6.66	0.983	-79.1	0.6	0.07	NM
	June-02	13.23	6.69	0.985	-66.0	--	0.08	1.5
TG3-1	April-02	7.93	6.81	0.925	-74.2	0.5	--	NM
	May-02	12.45	6.60	0.860	-56.3	2.8	0.33	NM
	June-02	13.27	6.61	0.865	-56.0	--	2.12	1.8
TG3-2	April-02	7.75	6.93	0.783	-102.3	0.2	--	NM
	May-02	10.64	6.60	0.794	-85.8	0.3	0.04	NM
	June-02	12.48	6.68	0.771	-78.6	--	0.06	5.5
TG3-3	April-02	8.47	6.74	0.967	-97.4	0.4	--	NM
	May-02	11.52	6.46	0.942	-76.9	0.5	0.06	NM
	June-02	13.26	6.50	0.926	-70.9	--	0.03	1.3
TG4-1	April-02	7.60	7.20	0.774	-69.4	2.2	--	NM
	May-02	10.56	7.11	0.831	-93.9	0.3	0.03	NM
	June-02	13.50	6.98	0.740	-79.7	--	0.06	7.8
TG4-2	April-02	7.52	7.27	0.756	-82.9	0.4	--	NM
	May-02	12.59	7.02	0.803	-84.5	0.2	0.02	NM
	June-02	13.25	7.00	0.739	-76.2	--	0.06	0.6
TG4-3	April-02	7.97	7.24	0.685	-105.1	0.5	--	NM
	May-02	12.36	7.11	0.884	-83.5	0.2	0.02	NM
	June-02	13.29	6.94	0.786	-61.8	--	0.05	1.3
TG5-1	April-02	8.49	7.47	0.555	-135.6	0.2	--	NM
	May-02	13.71	7.15	0.724	-71.5	0.3	0.04	NM
	June-02	14.35	7.04	0.740	-60.0	--	0.10	3.0
TG5-2	April-02	7.29	7.35	0.570	-139.5	0.3	--	NM
	May-02	12.31	7.09	0.721	-89.0	0.1	0.02	NM
	June-02	12.96	7.13	0.703	-68.6	--	0.08	1.5
TG5-3	April-02	8.94	7.57	0.553	-130.0	2.1	--	NM
	May-02	14.40	7.24	0.762	-72.0	0.1	0.01	NM
	June-02	12.73	7.16	0.699	-35.2	--	0.06	25.6
TG6-1	April-02	9.56	7.49	0.739	-185.0	0.2	--	NM
	May-02	12.30	7.05	1.020	-151.8	2.5	0.28	NM
	June-02	13.16	6.72	0.930	-98.9	--	0.05	90.0
TG6-2	April-02	8.15	7.16	0.796	-119.6	0.3	--	NM
	May-02	13.45	6.66	1.087	-76.9	0.7	0.087	NM
	June-02	11.27	6.54	0.924	-37.2	--	0.05	1.5
TG6-3	April-02	8.25	7.29	0.768	-120.0	0.5	--	NM
	May-02	11.90	6.59	1.066	-96.7	0.3	0.03	NM
	June-02	12.41	6.61	0.971	-61.7	--	0.04	0.8

NM- Not measured. Value only measured quarterly.

APPENDIX C

APRIL 2002 GROUNDWATER SAMPLE ANALYTICAL RESULTS



ANALYTICAL RESULTS

Prepared for:

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

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 805389. Samples arrived at the laboratory on Friday, April 26, 2002.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
MA3-TG1-1-250402-01 Grab Water Sample	3810968
MA3-TG1-2-250402-02 Grab Water Sample	3810969
MA3-TG1-3-250402-03 Grab Water Sample	3810970
MA3-TG2-1-250402-04 Grab Water Sample	3810971
MA3-TG2-2-250402-05 Grab Water Sample	3810972
MA3-TG2-3-250402-06 Grab Water Sample	3810973
MA3-TG3-1-250402-07 Grab Water Sample	3810974
MA3-TG3-2-250402-08 Grab Water Sample	3810975
MA3-TG3-3-250402-09 Grab Water Sample	3810976
MA3-TG4-1-250402-10 Grab Water Sample	3810977
MA3-TG4-2-250402-11 Grab Water Sample	3810978
MA3-TG4-3-250403-12 Grab Water Sample	3810979

METHODOLOGY

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

1 COPY TO Kerr-McGee Corporation
 1 COPY TO Roy F. Weston
 1 COPY TO Data Package Group

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



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

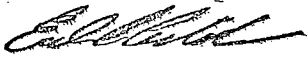


Questions? Contact your Client Services Representative
Carrie A Fleming at (717) 656-2300.

RECEIVED

APR 2 1 2012

Respectfully Submitted,



Erik J. Frederiksen
Group Leader



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



Lancaster Laboratories Sample No. WW 3810968

Collected: 04/25/2002 09:55 by BC

Account Number: 07802

Submitted: 04/26/2002 09:10

Kerr-McGee Corporation

Reported: 05/16/2002 at 11:27

P.O. Box 25861

Discard: 06/16/2002

Oklahoma City OK 73125

MA3-TG1-1-250402-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG111 SDG#: KMA12-01

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.61	J	Detection Limit	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.67	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.16	J	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/01/2002 17:46	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	2	04/29/2002 16:45	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/14/2002 19:12	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2002 18:00	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:12	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	04/29/2002 09:35	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1



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Lancaster Laboratories Sample No. WW 3810969

Collected: 04/25/2002 10:00 by BC

Account Number: 07802

Submitted: 04/26/2002 09:10

Kerr-McGee Corporation

Reported: 05/16/2002 at 11:27

P.O. Box 25861

Discard: 06/16/2002

Oklahoma City OK 73125

MA3-TG1-2-250402-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG122 SDG#: KMA12-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.72 J		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.1		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.022		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.34		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/01/2002 17:47	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	2	04/29/2002 16:46	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/02/2002 15:49	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2002 18:00	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:17	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	04/29/2002 09:35	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1



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Lancaster Laboratories Sample No. WW 3810970

Collected: 04/25/2002 10:10 by BC

Account Number: 07802

Submitted: 04/26/2002 09:10

Kerr-McGee Corporation

Reported: 05/16/2002 at 11:28

P.O. Box 25861

Discard: 06/16/2002

Oklahoma City OK 73125

MA3-TG1-3-250402-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG133 SDG#: KMA12-03

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result	Method	Detection Limit	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.85 J		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.84 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.022		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.31		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/01/2002 17:51	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	2	04/29/2002 16:47	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/10/2002 16:47	Michelle A Hartman	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2002 18:00	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:18	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	04/29/2002 09:35	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1



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Lancaster Laboratories Sample No. WW 3810971

Collected: 04/25/2002 11:10 by BC

Account Number: 07802

Submitted: 04/26/2002 09:10

Reported: 05/16/2002 at 11:28

Discard: 06/16/2002

MA3-TG2-1-250402-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

TG214 SDG#: KMA12-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	N.D.	Detection Limit 0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.						
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	N.D.	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	N.D.	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/01/2002 17:52	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	2	04/29/2002 16:48	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/10/2002 16:49	Michelle A Hartman	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2002 18:00	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:19	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	04/29/2002 09:35	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1





Lancaster Laboratories Sample No. WW 3810972

Collected: 04/25/2002 11:15 by BC

Account Number: 07802

Submitted: 04/26/2002 09:10

Kerr-McGee Corporation

Reported: 05/16/2002 at 11:28

P.O. Box 25861

Discard: 06/16/2002

Oklahoma City OK 73125

MA3-TG2-2-250402-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG225 SDG#: KMA12-05

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result	Method	Detection Limit	Units	
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
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	N.D.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.14 J		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/01/2002 17:53	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/29/2002 16:50	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/13/2002 14:14	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2002 18:00	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:20	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	04/29/2002 09:35	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1

Lancaster Laboratories Sample No. WW 3810973

Collected: 04/25/2002 11:25 by BC

Account Number: 07802

Submitted: 04/26/2002 09:10

Reported: 05/16/2002 at 11:28

Discard: 06/16/2002

MA3-TG2-3-250402-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861 -

Oklahoma City OK 73125

TG236 SDG#: KMA12-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.2		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.1		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.25		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/01/2002 17:54		Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	2	04/29/2002 16:51		Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/03/2002 13:38		Christian C Ehrhart	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00		Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2002 18:00		Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:20		Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	04/29/2002 09:35		Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00		James S Mathiot	1

Lancaster Laboratories Sample No. WW 3810974

Collected: 04/25/2002 13:25 by BC

Account Number: 07802

Submitted: 04/26/2002 09:10

Reported: 05/16/2002 at 11:28

Discard: 06/16/2002

MA3-TG3-1-250402-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861 -

Oklahoma City OK 73125

TG317 SDG#: KMA12-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.2		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.2		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0076 J		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.19 J		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/01/2002 17:58	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	2	04/29/2002 16:52	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/03/2002 13:39	Christian C Ehrhart	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2002 18:00	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:21	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	04/29/2002 09:35	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1



Lancaster Laboratories Sample No. WW 3810975

Collected: 04/25/2002 13:30 by BC

Account Number: 07802

Submitted: 04/26/2002 09:10

Reported: 05/16/2002 at 11:28

Discard: 06/16/2002

MA3-TG3-2-250402-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

TG328 SDG#: KMA12-08

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.72	J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.97	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0071	J	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.25		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/01/2002 17:59	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	2	04/29/2002 16:53	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/04/2002 14:25	Christian C Ehrhart	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2002 18:00	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:22	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	04/29/2002 09:35	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1





Lancaster Laboratories Sample No. WW 3810976

Collected: 04/25/2002 13:40 by BC

Account Number: 07802

Submitted: 04/26/2002 09:10

Reported: 05/16/2002 at 11:28

Discard: 06/16/2002

MA3-TG3-3-250402-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

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P.O. Box 25861
Oklahoma City OK 73125

TG339 SDG#: KMA12-09

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor	
			Result	J	Method	Detection Limit		Units
00217	Kjeldahl Nitrogen	7727-37-9	0.93	J	0.30	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.								
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.5		0.46	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.								
00226	Ortho-Phosphate as P	14265-44-2	0.0081	J	0.0066	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.38		0.12	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/01/2002 18:01	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	2	04/29/2002 16:57	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/02/2002 15:21	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2002 18:00	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:23	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	04/29/2002 09:35	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1



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Lancaster Laboratories Sample No. WW 3810977

Collected: 04/25/2002 14:30 by BC

Account Number: 07802

Submitted: 04/26/2002 09:10

Reported: 05/16/2002 at 11:28

Discard: 06/16/2002

MA3-TG4-1-250402-10 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

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Oklahoma City OK 73125

TG425 SDG#: KMA12-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.40 J		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.50 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.25		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/01/2002 18:02	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	2	04/29/2002 17:01	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/02/2002 15:22	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2002 18:00	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:26	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	04/29/2002 09:35	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1



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Lancaster Laboratories Sample No. WW 3810978

Collected: 04/25/2002 14:35 by BC

Account Number: 07802

Submitted: 04/26/2002 09:10
 Reported: 05/16/2002 at 11:28
 Discard: 06/16/2002

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

MA3-TG4-2-250402-11 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG411 SDG#: KMA12-11

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor	
			Result		Method	Detection Limit		Units
00217	Kjeldahl Nitrogen	7727-37-9	0.71	J		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.			0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.								
00220	Nitrate Nitrogen	14797-55-8	N.D.			0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.84	J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.								
00226	Ortho-Phosphate as P	14265-44-2	N.D.			0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.13	J		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/01/2002 18:03	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	2	04/29/2002 17:02	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/02/2002 15:24	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2002 18:00	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:27	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	04/29/2002 09:35	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1



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Lancaster Laboratories Sample No. WW 3810979

Collected: 04/25/2002 14:45 by BC

Account Number: 07802

Submitted: 04/26/2002 09:10

Reported: 05/16/2002 at 11:28

Discard: 06/16/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG4-3-250403-12 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG432 SDG#: KMA12-12

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result	J	Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.94	J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.1		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.18	J	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/01/2002 18:13	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	2	04/29/2002 17:03	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/02/2002 15:25	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/26/2002 18:00	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:28	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	04/29/2002 11:35	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1



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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 805541. Samples arrived at the laboratory on Saturday, April 27, 2002.

Client Description

MA3-TG6-1-260402-01 Grab Water Sample
MA3-TG6-2-260402-02 Grab Water Sample
MA3-TG6-3-260402-03 Grab Water Sample
MA3-TG5-1-260402-04 Grab Water Sample
MA3-TG5-2-260402-05 Grab Water Sample
MA3-TG5-3-260402-06 Grab Water Sample

Lancaster Labs Number

3811744
3811745
3811746
3811747
3811748
3811749

METHODOLOGY

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

1 COPY TO Kerr-McGee Corporation
1 COPY TO Roy F. Weston
1 COPY TO Data Package Group

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



Lancaster Laboratories, Inc.
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Lancaster Laboratories

Where quality is a science.
Questions? Contact your Client Services Representative
Carrie A. Fleming at (717) 656-2300.

Respectfully Submitted,

Ramona V Goss
Ramona V. Goss
Manager



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

Lancaster Laboratories Sample No. WW 3811744

Collected: 04/26/2002 10:40 by BC

Account Number: 07802

Submitted: 04/27/2002 10:00

Kerr-McGee Corporation

Reported: 05/30/2002 at 08:20

P.O. Box 25861

Discard: 06/30/2002

Oklahoma City OK 73125

MA3-TG6-1-260402-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

M311- SDG#: KMA12-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	1.1	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.						
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.1	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.025	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.27	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/06/2002 17:49	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/29/2002 18:17	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/07/2002 12:43	Christian C Ehrhart	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2002 09:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:29	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	05/02/2002 14:40	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1



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REPRINT

Lancaster Laboratories Sample No. WW 3811745

Collected: 04/26/2002 10:45 by BC

Account Number: 07802

Submitted: 04/27/2002 10:00

Kerr-McGee Corporation

Reported: 05/30/2002 at 08:20

P.O. Box 25861

Discard: 06/30/2002

Oklahoma City OK 73125

MA3-TG6-2-260402-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

M3222 SDG#: KMA12-14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.65 J		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.46 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.064		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/06/2002 17:52	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/29/2002 18:18	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/07/2002 12:44	Christian C Ehrhart	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2002 09:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:30	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	05/02/2002 14:40	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1



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Lancaster Laboratories Sample No. WW 3811746

Collected: 04/26/2002 10:55 by BC

Account Number: 07802

Submitted: 04/27/2002 10:00

Kerr-McGee Corporation

Reported: 05/30/2002 at 08:20

P.O. Box 25861

Discard: 06/30/2002

Oklahoma City OK 73125

MA3-TG6-3-260402-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

M6323 SDG#: KMA12-15

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.72	J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.63	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0142	J	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.13	J	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/06/2002 17:54	Venia B. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/29/2002 18:19	Venia B. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/07/2002 12:46	Christian C. Ehrhart	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L. Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2002 09:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:31	Venia B. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	05/02/2002 14:40	Nancy J. Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S. Mathiot	1



Lancaster Laboratories Sample No. WW 3811747

Collected: 04/26/2002 11:50 by BC

Account Number: 07802

Submitted: 04/27/2002 10:00

Kerr-McGee Corporation

Reported: 05/30/2002 at 08:20

P.O. Box 25861

Discard: 06/30/2002

Oklahoma City OK 73125

MA3-TG5-1-260402-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

M3511 SDG#: KMA12-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.51 J	0.30		mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015		mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040		mg/l	1
00221	Ammonia Nitrogen	7664-41-7	N.D.	0.46		mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0162 J	0.0066		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.12 J	0.12		mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/06/2002 17:55	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/29/2002 18:21	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/07/2002 12:47	Christian C Ehrhart	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2002 09:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:31	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	05/02/2002 14:40	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1



REPRINT

Lancaster Laboratories Sample No. WW 3811748

Collected: 04/26/2002 11:55

by BC

Account Number: 07802

Submitted: 04/27/2002 10:00

Kerr-McGee Corporation

Reported: 05/30/2002 at 08:21

P.O. Box 25861

Discard: 06/30/2002

Oklahoma City OK 73125

MA3-TG5-2-260402-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

M3522 SDG#: KMA12-17

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result	J	Method Detection Limit	Units	
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
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.46	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.14	J	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/06/2002 17:56	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/29/2002 18:22	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/07/2002 12:48	Christian C Ehrhart	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2002 09:30	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:32	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	05/02/2002 14:40	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1



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REPRINT

Lancaster Laboratories Sample No. WW 3811749

Collected: 04/26/2002 12:05 by BC

Account Number: 07802

Submitted: 04/27/2002 10:00

Kerr-McGee Corporation

Reported: 05/30/2002 at 08:21

P.O. Box 25861

Discard: 06/30/2002

Oklahoma City OK 73125

MA3-TG5-3-260402-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

M3533 SDG#: KMA12-18

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method Detection Limit	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.38	J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
This sample was analyzed past the 48 hour hold time for nitrite nitrogen.							
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.46	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	05/06/2002 17:57	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	04/29/2002 18:23	Venia B McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	05/13/2002 13:57	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	04/30/2002 08:00	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	04/28/2002 09:30	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	05/01/2002 14:33	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	05/02/2002 14:40	Nancy J Shoop	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	04/30/2002 10:00	James S Mathiot	1



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RECEIVED

For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3810968-79

p. 1063

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

1 Client: Kerr McGee Acct. #: _____
 Project Name/#: Mass American PWSID #: _____
 Project Manager: Tom Green P.O.# _____
 Sampler: B. Crawford, T. Williams Quote #: _____
 Name of state where samples were collected: WI

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

5 Analyses Requested
 Total # of Containers

For lab use only
 FSC: _____
 SCR #: 1164759

3 Composite

2 Sample Identification	Date Collected	Time Collected	3 Grab	Composite	Soil	Water	Other	Total # of Containers	NH3	TKN	TP-PO4	O-PO4	NO2	NO3	Remarks	Temperature of samples upon receipt (if requested)
MA3-TG1-1-250402-01	4/25/02	0955	X			X		5	X	X	X	X	X	X		
MA3-TG1-2-250402-02	4/25/02	1000	X			X		5	X	X	X	X	X	X		
MA3-TG1-3-250402-03	4/25/02	1010	X			X		5	X	X	X	X	X	X		
MA3-TG2-1-250402-04	4/25/02	1110	X			X		5	X	X	X	X	X	X		

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

8 Data Package Options (please circle if requested)
 QC Summary Type VI (Raw Data) PER QUOTE SDG Complete? Yes No
 Type I (Tier I) GLP
 Type II (Tier II) Other Site-specific QC required? Yes No
 Type III (NJ Red. Del.) Internal Chain of Custody required? Yes No
 Type IV (CLP)

Relinquished by: [Signature] Date: 4/17/02 Time: 10:00 Received by: _____ Date: _____ Time: _____
 Relinquished by: [Signature] Date: 4/25/02 Time: 1700 Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

Kathy Bentley 4-26-02 0910



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3810968-79

p. 2 of 3

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

1. Client: <u>Lerr McGee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Grant</u> P.O.# _____ Sampler: <u>B. Crawford, T. Williams</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>			Matrix 4 <input type="checkbox"/> Potable (check if applicable) <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other		5. Analyses Requested NH ₃ TKN TP-POL O-POL NO ₂ NO ₃						For lab use only FSC: _____ SCR #: <u>1164759</u>		
Sample Identification	Date Collected	Time Collected	3. Grab Composite	Soil	Total # of Containers	NH ₃	TKN	TP-POL	O-POL	NO ₂	NO ₃	Remarks	Temperature of samples upon receipt (if requested)
MA3-TG2-2-250402-05	4/25/02	1115	X	X	5	X	X	X	X	X	X		
MA3-TG2-3-250402-06	4/25/02	1125	X	X	5	X	X	X	X	X	X		
MA3-TG3-1-250402-07	4/25/02	1325	X	X	5	X	X	X	X	X	X		
MA3-TG3-2-250402-08	4/25/02	1330	X	X	5	X	X	X	X	X	X		

7. Turnaround Time Requested (TAT) (please circle): Normal <input type="radio"/> Rush <input type="radio"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="radio"/> Fax <input type="radio"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: <u>S. Muckle</u> Date: <u>4/17/02</u> Time: <u>10:00</u> Relinquished by: <u>Beryl Chel</u> Date: <u>4/25/02</u> Time: <u>1700</u> Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: <u>Kathy Binkley</u> Date: <u>4-26-02</u> Time: <u>0910</u>	
8. Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <u>PER QUOTE</u> SDG Complete? Yes <input type="radio"/> No <input checked="" type="radio"/> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)		Site-specific QC required? Yes <input type="radio"/> No <input type="radio"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="radio"/> No <input type="radio"/>			



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Acct. # 7802 Sample # 3810968-79

0.3 of c

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

Client: <u>Kerr McBree</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Green</u> P.O.# _____ Sampler: <u>B. Crawford, T. Williams</u> Quote #: _____ Name of state where samples were collected: <u>WT</u>	Matrix 4	Analyses Requested 5		For lab use only FSC: _____ SCR #: _____
	<input type="checkbox"/> Potable (check if applicable) <input type="checkbox"/> NPDES Other: _____	Total # of Containers	NH ₃ TKN TP-P04 O-P04 NO ₂ NO ₃	Temperature of samples upon receipt (if requested)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Analyses Requested	Remarks
MA3-TG3-3-250402-09	4/25/02	1340	X			X		5	X X X X X X	
MA3-TG4-1-250402-10	4/25/02	1430	X			X		5	X X X X X X	
MA3-TG4-2-250402-11	4/25/02	1435	X			X		5	X X X X X X	
MA3-TG4-3-250402-12	4/25/02	1445	X			X		5	X X X X X X	

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input type="checkbox"/> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>	Relinquished by: <u>Bryant C. Ford</u> Date: <u>4/25/02</u> Time: <u>1700</u>	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____
8 Data Package Options (please circle if requested)	SDG Complete? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
QC Summary Type VI (Raw Data) <u>PER QUOTE</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CLP)	Site-specific QC required? Yes <input type="checkbox"/> No <input type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>		
	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	Relinquished by: _____ Date: _____ Time: _____
	Relinquished by: _____ Date: _____ Time: _____	Received by: <u>Kathy Binkley</u> Date: <u>4/26/02</u> Time: <u>0910</u>	Relinquished by: _____ Date: _____ Time: _____

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 2802 Sample # 381744-9

f. 1062

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

1 Client: <u>Kerr McGee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Green</u> P.O.# _____ Sampler: <u>B. Crawford/T. Williams</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>				Matrix 4 <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Other <input type="checkbox"/> Potable (check if applicable) <input type="checkbox"/> NPDES (check if applicable)		5 Analyses Requested NH ₃ TKN TP-PO ₄ D-PO ₄ NO ₂ NO ₃						For lab use only FSC: _____ SCR #: _____ Temperature of samples upon receipt (if requested)		
2 Sample Identification		Date Collected	Time Collected	3 Grab Composite	4 Matrix	5 Analyses Requested						Remarks	Temperature of samples upon receipt (if requested)	
<u>MA3-TG6-1-260402-01</u>		<u>4/26/02</u>	<u>1040</u>	<u>X</u>	<u>X</u>	<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		
<u>MA3-TG6-2-260402-02</u>		<u>4/26/02</u>	<u>1045</u>	<u>X</u>	<u>X</u>	<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		
<u>MA3-TG6-3-260402-03</u>		<u>4/26/02</u>	<u>1055</u>	<u>X</u>	<u>X</u>	<u>5</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		

7 Turnaround Time Requested (TAT) (please circle): Normal Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>STD TAT</u> Rush results requested by (please circle): Phone Fax Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: <u>Bandy Ghd</u> Date: <u>4/26/02</u> Time: <u>1600</u> Received by: _____ Date: _____ Time: _____	
8 Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <u>PER QUOTE</u> SDG Complete? Yes <u>No</u> 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: _____		Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____	
Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____		Relinquished by: _____ Date: _____ Time: _____ Received by: <u>Kathy Binkley</u> <u>427 027000</u>	



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Acct. # 7802 Sample # 3811744-9

p. 2 of 2

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

1 Client: <u>Kerr McBee</u> Acct. #: _____ Project Name/#: <u>Mass American</u> PWSID #: _____ Project Manager: <u>Tom Green</u> P.O.# _____ Sampler: <u>B. Crawford/T. Williams</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>			4 Matrix <input type="checkbox"/> Potable <input type="checkbox"/> Water <input type="checkbox"/> NPEDES <input type="checkbox"/> Other		5 Analyses Requested NH ₃ TKN TP-PO ₄ O-PO ₄ NO ₂ NO ₃						For lab use only FSC: _____ SCR#: _____					
Sample Identification	Date Collected	Time Collected	3 Grab	Composite	Soil	Water	Other	Total # of Containers	NH ₃	TKN	TP-PO ₄	O-PO ₄	NO ₂	NO ₃	Remarks	Temperature of samples upon receipt (if requested)
MA3-TG5-1-260402-04	4/26/02	1150	X			X		5	X	X	X	X	X			
MA3-TG5-2-260402-05	4/26/02	1155	X			X		5	X	X	X	X	X			
MA3-TG5-3-260402-06	4/26/02	1205	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) <u>PER QUOTE</u>	SDG Complete? Yes <input type="radio"/> No <input checked="" type="radio"/>
Type I (Tier I)	GLP	Site-specific QC required? Yes <input type="radio"/> No <input type="radio"/> (If yes, indicate QC sample and submit triplicate volume.)
Type II (Tier II)	Other	
Type III (NJ Red. Del.)		
Type IV (CLP)		
Internal Chain of Custody required? Yes <input type="radio"/> No <input type="radio"/>		

Relinquished by: <u>B. Crawford</u>	Date: <u>4/26/02</u>	Time: <u>1600</u>	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by: <u>Kately Binkley</u>	Date: <u>4-27-02</u>	Time: <u>1000</u>



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: KMA12

LANCASTER LABORATORIES

INSTRUMENTAL WET CHEMISTRY

SAMPLE NUMBERS:

Sample #	Sample Code	Comments
3810968	TG111	
3810969	TG122	
3810970	TG133	
3810971	TG214	
3810972	TG225	
3810973	TG236	
3810974	TG317	
3810975	TG328	
3810976	TG339	
3810977	TG425	
3810978	TG411	
3810979	TG432	
3811744	M311-	
3811745	M3222	
3811746	M6323	
3811747	M3511	
3811748	M3522	
3811749	M3533	

ANALYSIS:

Samples 3810968-78 and 3811744-49 were analyzed past the 48 hour hold time for nitrite nitrogen analysis.

Dilutions are listed in the table below.

SAMPLE	NITRATE-N	TKN	TP as PO4
All LCS	2		2
P810138 B,D,S		5	

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

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

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Caroline S. Cammarano for Date: 5/20/02
 Sandra J. Miller
 Specialist/Coordinator



CLIENT: Kerr-Gee Corporation
SDG: KMA12

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3810968	TG111	
3810969	TG122	
3810970	TG133	
3810971	TG214	
3810972	TG225	
3810973	TG236	
3810974	TG317	
3810975	TG328	
3810976	TG339	
3810977	TG425	
3810978	TG411	
3810979	TG432	
3811744	M311-	
3811745	M3222	
3811746	M6323	
3811747	M3511	
3811748	M3522	
3811749	M3533	

ANALYSIS:

No problems were encountered during analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The spike and spike duplicate samples (3811749) for the orthophosphate as P analysis were out of specification.

Site-Specific MS/MSD samples were not submitted for the ammonia nitrogen analysis. A LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Gabriela Elvado for:

Sandra J. Miller
Specialist/Coordinator

Date:

5/3/02

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CERTIFICATE OF ANALYSIS

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

Date Reported: 5/22/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9940-00359
Date Received: 4/26/02
Time Received: 08:50

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG1-1-250402-01, 4-25-02 @ 09:55 by BCTW				
Total Aerobic Bacteria	8,700. cfu/ml	4/26/02	NMC	9215B MODIFIED
T.Aerobic Degradar Bacteria	1,200. cfu/ml	4/26/02	NMC	9215B MODIFIED
SUBJECT: MA3-TG1-2-250402-02, 4-25-02 @ 10:00 by BCTW				
Total Aerobic Bacteria	1,730. cfu/ml	4/26/02	NMC	9215B MODIFIED
T.Aerobic Degradar Bacteria	760. cfu/ml	4/26/02	NMC	9215B MODIFIED
SUBJECT: MA3-TG1-3-250402-03, 04/25/02 @ 10:10 BY BCTW				
Total Aerobic Bacteria	3,900. cfu/ml	4/26/02	NMC	9215B MODIFIED
T.Aerobic Degradar Bacteria	3,300. cfu/ml	4/26/02	NMC	9215B MODIFIED
SUBJECT: MA3-TG2-1-250402-04, 4/25/02 @ 11:10 BY BCTW				
Total Aerobic Bacteria	1,070. cfu/ml	4/26/02	NMC	9215B MODIFIED
T.Aerobic Degradar Bacteria	560. cfu/ml	4/26/02	NMC	9215B MODIFIED
SUBJECT: MA3-TG2-2-250402-05, 04/25/02 @ 11:15 BY BCTW				
Total Aerobic Bacteria	280. cfu/ml	4/26/02	NMC	9215B MODIFIED
T.Aerobic Degradar Bacteria	190. cfu/ml	4/26/02	NMC	9215B MODIFIED
SUBJECT: MA3-TG2- ³ 1 -250402-06, 04/25/02 @ 11:25 BY BCTW				
Total Aerobic Bacteria	2,900. cfu/ml	4/26/02	NMC	9215B MODIFIED
T.Aerobic Degradar Bacteria	40. cfu/ml	4/26/02	NMC	9215B MODIFIED
SUBJECT: MA3-TG3-1-250402-07, 04/25/02 @ 13:25 BY BCTW				
Total Aerobic Bacteria	690. cfu/ml	4/26/02	NMC	9215B MODIFIED
T.Aerobic Degradar Bacteria	30. cfu/ml	4/26/02	NMC	9215B MODIFIED

*** Certificate Continues On Next Page ***

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CERTIFICATE OF ANALYSIS

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

Date Reported: 5/22/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: -9940-00359
Date Received: 4/26/02
Time Received: 08:50

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: NA3-TG3-2-250402-08, 04/25/02 @ 13:30 BYV BCTW				
Total Aerobic Bacteria	810. cfu/ml	4/26/02	NMC	9215B MODIFIED
T.Aerobic Degradar Bacteria	10. cfu/ml	4/26/02	NMC	9215B MODIFIED
SUBJECT: NA3-TG3-3-250402-10, 04/25/02 @ 13:40 BY BCTW				
Total Aerobic Bacteria	1,750. cfu/ml	4/26/02	NMC	9215B MODIFIED
T.Aerobic Degradar Bacteria	640. cfu/ml	4/26/02	NMC	9215B MODIFIED
SUBJECT: NA3-TG4-1-250402-10, 04/25/02 @ 14:30 BY BCTW				
Total Aerobic Bacteria	15,300. cfu/ml	4/26/02	NMC	9215B MODIFIED
T.Aerobic Degradar Bacteria	1,800. cfu/ml	4/26/02	NMC	9215B MODIFIED
SUBJECT: NA3-TG4-2-250402-11, 04/25/02 @ 14:35 BY BCTW				
Total Aerobic Bacteria	1,170. cfu/ml	4/26/02	NMC	9215B MODIFIED
T.Aerobic Degradar Bacteria	30. cfu/ml	4/26/02	NMC	9215B MODIFIED
SUBJECT: NA3-TG4- ^{2-85,09/10/02} 3250402-12, 04/25/02 @ 14:45 BY BCFW				
Total Aerobic Bacteria	420. cfu/ml	4/26/02	NMC	9215B MODIFIED
T.Aerobic Degradar Bacteria	90. cfu/ml	4/26/02	NMC	9215B MODIFIED

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

Date Reported: 5/22/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9940-00359
Date Received: 4/26/02
Time Received: 08:50

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
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This document has been reviewed and is electronically signed by:

Karen A. Ziolkowski
Laboratory Director

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CERTIFICATE OF ANALYSIS

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

Date Reported: 5/28/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9940-00375
Date Received: 4/29/02
Time Received: 14:40

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG6-1-260402-01, 4/26/02 @ 10:40 by BC				
Total Aerobic Bacteria	16,000. cfu/ml	4/30/02	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	480. cfu/ml	4/30/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-2-260402-02, 4/26/02 @ 10:45 by Bc				
Total Aerobic Bacteria	5,100. cfu/ml	4/30/02	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	1,200. cfu/ml	4/30/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-3-260402-03, 4/26/02 @ 10:55 by BC				
Total Aerobic Bacteria	1,200. cfu/ml	4/30/02	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	260. cfu/ml	4/30/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5- ^{← 8509/10/02} 260402-04, 4/26/02 @ 11:50 by BC				
Total Aerobic Bacteria	1,800. cfu/ml	4/30/02	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	180. cfu/ml	4/30/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-2-260402-05, 4/26/02 @ 11:55 by BC				
Total Aerobic Bacteria	970. cfu/ml	4/30/02	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	100. cfu/ml	4/30/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-3-260402-06, 4/26/02 @ 12:05 by BC				
Total Aerobic Bacteria	29,000. cfu/ml	4/30/02	DJH	9215B MODIFIED
T.Aerobic Degrader Bacteria	290. cfu/ml	4/30/02	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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CERTIFICATE OF ANALYSIS

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

Date Reported: 5/28/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9940-00375
Date Received: 4/29/02
Time Received: 14:40

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
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This document has been reviewed and is electronically signed by:

Karen A. Ziolkowski
Laboratory Director

Conducted by Ray Date 4/25/02 Sample # 250402-01

Project name Moss American Project # _____

Project location Milwaukee, WI (City) (state)

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

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

Requested analyses (✓)

Sample ID	Lab use only	Date	Time	(✓)		Sample depth	#			Additional comments	CEA* (soil/gw) see note <input type="checkbox"/> Aerobic, <input type="checkbox"/> Anaerobic, <input type="checkbox"/> Microaerophilic	Standard nutrient panel (soil/gw) incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) <input type="checkbox"/> sieve and hydrometer, <input type="checkbox"/> sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core		Soil moisture at field capacity	Bulk density (soil)	Microbial Enumeration
				Soil	GW		Jars	Vials	Core						Soil moisture at field capacity	Bulk density (soil)			
1 250402-01		4/25/02	0955		X		X			WM-CEAAERO								X	
2 250402-02		4/25/02	1000		X		X											X	
3 250402-03		4/25/02	1010		X		X											X	
4 250402-04		4/25/02	1110		X		X											X	
5 250402-05		4/25/02	1115		X		X											X	
6 250402-06		4/25/02	1125		X		X											X	
7 250402-07		4/25/02	1325		X		X											X	
8 250402-08		4/25/02	1330		X		X											X	

Relinquished by: <u>Roy L. C. Ford</u>	Date/time: <u>4/25/02 1700</u>	Comments:	Sample condition upon arrival:
Received by: <u>R. McDonald</u>	Date/time: <u>4-26-02 8:50</u>		

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

Send results to:
 Name Tom Green
 Company Roy F. Weston, Inc.
 Address 750 E. Bunker Ct., Ste 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

4-26-02

MHO-071

Contact person Tom Green Sampler D. G. ... / J. Williams

Project name Mass American Project # _____

Project location Milwaukee, WI (City) (state)

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

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

Requested analyses (✓)

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

Sample ID	Lab use only	Date	Time	(✓)		Sample depth	(#)			Additional comments
				Soil	GW		Jars	Vials	Core	
9 MA3-TG3-3 250402-09		4/25/02	1340		✓		✓			
10 MA3-TG4-1 250402-10		4/25/02	1430		✓		✓			
11 MA3-TG4-2 250402-11		4/25/02	1435		✓		✓			
12 MA3-TG4-3 250402-12		4/25/02	1445		✓		✓			

Relinquished by: <u>Randy C. ...</u>	Date/time: 4/25/02 1700	Comments:	Sample condition upon arrival:
Received by: <u>A. Mc ...</u>	Date/time: 4-26-02 8:50		

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

Send results to:
 Name Tom Green
 Company Roy F. Weston, Inc
 Address 750 E. Bunker Ct., Ste 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

100 - 01/1/02

Company 16, 5700 Sampler new no. 1.1 w. 11.0

Project name Moss American Project # _____

Project location Milwaukee, WI (City) (state)

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

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

M-10-510
 Requested analyses (✓)

Sample ID	Lab use only	Date	Time	Soil		Sample depth	Jars			Additional comments	GEA* (soil/gw) see note <input checked="" type="checkbox"/> Aerobic, <input type="checkbox"/> Anaerobic, <input type="checkbox"/> Microaerophilic	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) <input type="checkbox"/> sieve and hydrometer, <input type="checkbox"/> sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core		MICROBIAL ENUMERATION
				Soil	GW		Jars	Vials	Core						Soil moisture at field capacity	Bulk density (soil)	
1) MA3-TG6-1-260402-01		4/26/02	1040	X	✓		X										X
2) MA3-TG6-2-260402-02		4/26/02	1045	X	✓		X										X
3) MA3-TG6-3-260402-03		4/26/02	1055	X	✓		X										X
4) MA3-TG5-1-260402-04		4/26/02	1150	X	✓		X										X
5) MA3-TG5-2-260402-05		4/26/02	1155	X	✓		X										X
6) MA3-TG5-3-260402-06		4/26/02	1205	X	✓		X										X

Relinquished by: Bryant Cofod
 Received by: Michael Sedo

Date/time: 4/26/02 1600
 Date/time: 4/29/02 1440

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 F. Weston, Inc.
 Address 750 E. Bunker Ct., Ste 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

APPENDIX D

MAY 2002 GROUNDWATER SAMPLE ANALYTICAL RESULTS



ANALYTICAL RESULTS

Prepared for:

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

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 809294. Samples arrived at the laboratory on Thursday, May 30, 2002.

Client Description

MA3-TG4-1-290502-07 Grab Water Sample
MA3-TG4-2-290502-08 Grab Water Sample
MA3-TG4-3-290502-09 Grab Water Sample
MA3-TG5-1-290502-04 Grab Water Sample
MA3-TG5-2-290502-05 Grab Water Sample
MA3-TG5-3-290502-06 Grab Water Sample
MA3-TG6-1-290502-01 Grab Water Sample
MA3-TG6-2-290502-02 Grab Water Sample
MA3-TG6-3-290502-03 Grab Water Sample

Lancaster Labs Number

3827667
3827668
3827669
3827670
3827671
3827672
3827673
3827674
3827675

METHODOLOGY

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

1 COPY TO Kerr-McGee Corporation
1 COPY TO Roy F. Weston
1 COPY TO Data Package Group

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



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



Lancaster Laboratories

Where quality is a science.
Questions? Contact your Client Services Representative
Carrie A Fleming at (717) 656-2300.

Respectfully Submitted,



Erik J. Frederiksen
Group Leader



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



REPRINT

Lancaster Laboratories Sample No. WW 3827667

Collected: 05/29/2002 17:10 by MC

Account Number: 07802

Submitted: 05/30/2002 09:20

Kerr-McGee Corporation

Reported: 06/27/2002 at 12:05

P.O. Box 25861

Discard: 07/28/2002

Oklahoma City OK 73125

MA3-TG4-1-290502-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

A3207 SDG#: KMA13-01

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method Detection Limit	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.65	J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.55	J	0.46	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0174	J	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.32		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 17:07	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/30/2002 17:11	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/11/2002 14:25	Timothy M Petree	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2002 06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	05/31/2002 04:40	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/04/2002 18:19	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/05/2002 09:12	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/31/2002 11:25	Cheryl L Robinson	1



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REPRINT

Lancaster Laboratories Sample No. WW 3827668

Collected: 05/29/2002 17:15 by MC

Account Number: 07802

Submitted: 05/30/2002 09:20

Kerr-McGee Corporation

Reported: 06/27/2002 at 12:06

P.O. Box 25861

Discard: 07/28/2002

Oklahoma City OK 73125

MA3-TG4-2-290502-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

A3208 SDG#: KMA13-02

CAT No.	Analysis Name	CAS Number	As Received		Units	Dilution Factor
			As Received Result	Method Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.91 J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.0	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.085	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.21	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 17:14	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/30/2002 17:12	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/11/2002 14:10	Timothy M Petree	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2002 10:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	05/31/2002 04:40	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/04/2002 18:20	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/05/2002 09:12	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/31/2002 11:25	Cheryl L Robinson	1



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Lancaster Laboratories Sample No. WW 3827669

Collected: 05/29/2002 17:20 by MC

Account Number: 07802

Submitted: 05/30/2002 09:20

Kerr-McGee Corporation

Reported: 06/27/2002 at 12:06

P.O. Box 25861

Discard: 07/28/2002

Oklahoma City OK 73125

MA3-TG4-3-290502-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

A3209 SDG#: KMA13-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	1.3	Detection Limit	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.79 J		mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.106		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.21		mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 17:15	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/30/2002 17:13	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/11/2002 14:11	Timothy M Petree	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2002 10:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	05/31/2002 04:40	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/04/2002 17:34	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/05/2002 09:12	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/31/2002 11:25	Cheryl L Robinson	1



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Lancaster Laboratories Sample No. WW 3827670

Collected: 05/29/2002 15:10 by MC

Account Number: 07802

Submitted: 05/30/2002 09:20

Kerr-McGee Corporation

Reported: 06/27/2002 at 12:06

P.O. Box 25861

Discard: 07/28/2002

Oklahoma City OK 73125

MA3-TG5-1-290502-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

A3204 SDG#: KMA13-04

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Detection Limit	
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	N.D.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0169	J	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.21		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 17:17	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/30/2002 17:17	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/11/2002 14:13	Timothy M Petree	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2002 10:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	05/31/2002 04:40	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/04/2002 17:35	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/05/2002 09:12	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/31/2002 11:25	Cheryl L Robinson	1





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Lancaster Laboratories Sample No. WW 3827671

Collected: 05/29/2002 15:15 by MC

Account Number: 07802

Submitted: 05/30/2002 09:20

Kerr-McGee Corporation

Reported: 06/27/2002 at 12:06

P.O. Box 25861

Discard: 07/28/2002

Oklahoma City OK 73125

MA3-TG5-2-290502-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

A3205 SDG#: KMA13-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.98 J		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	N.D.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.057		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.21		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 17:18	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/30/2002 17:18	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/11/2002 14:14	Timothy M Petree	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2002 10:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	05/31/2002 04:40	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/04/2002 18:21	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/05/2002 09:12	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/31/2002 11:25	Cheryl L Robinson	1



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



REPRINT

Lancaster Laboratories Sample No. WW 3827672

Collected: 05/29/2002 15:20 by MC Account Number: 07802

Submitted: 05/30/2002 09:20 Kerr-McGee Corporation

Reported: 06/27/2002 at 12:06 P.O. Box 25861

Discard: 07/28/2002 Oklahoma City OK 73125

MA3-TG5-3-290502-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

A3206 SDG#: KMA13-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.72 J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	N.D.	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.107	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.28	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 17:19	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/30/2002 17:20	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/11/2002 14:15	Timothy M Petree	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2002 10:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	05/31/2002 04:40	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/04/2002 18:23	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/05/2002 09:12	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/31/2002 11:25	Cheryl L Robinson	1





REPRINT

Lancaster Laboratories Sample No. WW 3827673

Collected: 05/29/2002 11:40 by MC

Account Number: 07802

Submitted: 05/30/2002 09:20

Kerr-McGee Corporation

Reported: 06/27/2002 at 12:06

P.O. Box 25861

Discard: 07/28/2002

Oklahoma City OK 73125

MA3-TG6-1-290502-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

A3201 SDG#: KMA13-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.6	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	0.46		mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.206	0.0066		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.34	0.12		mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 17:20	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/30/2002 17:21	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/11/2002 14:16	Timothy M Petree	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2002 10:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	05/31/2002 04:40	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/04/2002 17:41	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/05/2002 09:12	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/31/2002 11:25	Cheryl L Robinson	1



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



REPRINT

Lancaster Laboratories Sample No. WW 3827674

Collected: 05/29/2002 11:45 by MC

Account Number: 07802

Submitted: 05/30/2002 09:20

Kerr-McGee Corporation

Reported: 06/27/2002 at 12:06

P.O. Box 25861

Discard: 07/28/2002

Oklahoma City OK 73125

MA3-TG6-2-290502-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

A3202 SDG#: KMA13-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.1		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	N.D.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.152		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.15 J		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 17:22	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/30/2002 17:22	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/11/2002 14:18	Timothy M Petree	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2002 10:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	05/31/2002 04:40	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/04/2002 18:24	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/05/2002 09:12	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/31/2002 11:25	Cheryl L Robinson	1



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REPRINT

Lancaster Laboratories Sample No. WW 3827675

Collected: 05/29/2002 11:50 by MC

Account Number: 07802

Submitted: 05/30/2002 09:20

Kerr-McGee Corporation

Reported: 06/27/2002 at 12:06

P.O. Box 25861

Discard: 07/28/2002

Oklahoma City OK 73125

MA3-TG6-3-290502-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

A3203 SDG#: KMA13-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	1.3	Detection Limit	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.64 J		mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.039		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.18 J		mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 17:25	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/30/2002 17:26	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/11/2002 14:21	Timothy M Petree	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/06/2002 10:15	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	05/31/2002 04:40	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/04/2002 18:24	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	06/05/2002 09:12	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	05/31/2002 11:25	Cheryl L Robinson	1





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 809465. Samples arrived at the laboratory on Friday, May 31, 2002.

Client Description

MA3-TG3-1-300502-01 Grab Water Sample
MA3-TG3-2-300502-02 Grab Water Sample
MA3-TG3-3-300502-03 Grab Water Sample
MA3-TG2-1-300502-04 Grab Water Sample
MA3-TG2-2-300502-05 Grab Water Sample
MA3-TG2-3-300502-06 Grab Water Sample
MA3-TG1-1-300502-07 Grab Water Sample
MA3-TG1-2-300502-08 Grab Water Sample
MA3-TG1-3-300502-09 Grab Water Sample

Lancaster Labs Number

3828388
3828389
3828390
3828391
3828392
3828393
3828394
3828395
3828396

METHODOLOGY

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

1 COPY TO Kerr-McGee Corporation
1 COPY TO Roy F. Weston
1 COPY TO Data Package Group


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





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

Respectfully Submitted,



Erik J. Frederiksen
Group Leader



Lancaster Laboratories Sample No. WW 3828388

Collected: 05/30/2002 09:10 by MC

Account Number: 07802

Submitted: 05/31/2002 09:20

Reported: 06/19/2002 at 16:00

Discard: 07/20/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG3-1-300502-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3311- SDG#: KMA13-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.4		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.27		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.93 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0124 J		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.16 J		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 14:59	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2002 12:29	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/18/2002 14:25	Nicole M Kepley	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/11/2002 06:25	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2002 03:55	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	2	06/10/2002 14:06	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	06/03/2002 15:40	Nancy J Shoop	1





Lancaster Laboratories Sample No. WW 3828389

Collected: 05/30/2002 09:15 by MC

Account Number: 07802

Submitted: 05/31/2002 09:20
 Reported: 06/19/2002 at 16:00
 Discard: 07/20/2002

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 P.O. Box 25861
 Oklahoma City OK 73125

MA3-TG3-2-300502-02 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

3322- SDG#: KMA13-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.5		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.018 J		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.0		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.044		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.24		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 15:01	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2002 12:30	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/18/2002 14:26	Nicole M Kepley	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/11/2002 06:25	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2002 03:55	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	2	06/10/2002 14:07	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	06/03/2002 15:40	Nancy J Shoop	1





Lancaster Laboratories Sample No. WW 3828390

Collected: 05/30/2002 09:20 by MC

Account Number: 07802

Submitted: 05/31/2002 09:20

Kerr-McGee Corporation

Reported: 06/19/2002 at 16:01

P.O. Box 25861

Discard: 07/20/2002

Oklahoma City OK 73125

MA3-TG3-3-300502-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3333- SDG#: KMA13-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.8		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.044 J		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.2		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0184 J		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.33		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 15:02		Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2002 12:31		Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/18/2002 14:30		Nicole M Kepley	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/11/2002 06:25		Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2002 03:55		Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	2	06/10/2002 14:08		Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2002 09:40		Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	06/03/2002 15:40		Nancy J Shoop	1





Lancaster Laboratories Sample No. WW 3828391

Collected: 05/30/2002 10:15 by MC

Account Number: 07802

Submitted: 05/31/2002 09:20

Reported: 06/19/2002 at 16:01

Discard: 07/20/2002

MA3-TG2-1-300502-04 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

3214- SDG#: KMA13-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.58 J	0.30		mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015		mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040		mg/l	1
00221	Ammonia Nitrogen	7664-41-7	N.D.	0.46		mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.	0.0066		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.12		mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 15:03	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2002 12:35	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/18/2002 14:31	Nicole M Kepley	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/11/2002 06:25	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2002 03:55	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	2	06/10/2002 14:09	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	06/03/2002 15:40	Nancy J Shoop	1





Lancaster Laboratories Sample No. WW 3828392

Collected: 05/30/2002 10:20 by MC Account Number: 07802

Submitted: 05/31/2002 09:20
 Reported: 06/19/2002 at 16:01
 Discard: 07/20/2002

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MA3-TG2-2-300502-05 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

3225- SDG#: KMA13-14

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result	J	Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.69	J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	N.D.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0104	J	0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.18	J	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 15:04	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2002 12:36	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/18/2002 14:32	Nicole M Kepley	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/11/2002 06:25	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2002 03:55	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	2	06/10/2002 14:11	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	06/03/2002 15:40	Nancy J Shoop	1





Lancaster Laboratories Sample No. WW 3828393

Collected: 05/30/2002 10:25 by MC

Account Number: 07802

Submitted: 05/31/2002 09:20

Kerr-McGee Corporation

Reported: 06/19/2002 at 16:01

P.O. Box 25861

Discard: 07/20/2002

Oklahoma City OK 73125

MA3-TG2-3-300502-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3236- SDG#: KMA13-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.6		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.96 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.28		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 15:06	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2002 12:37	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/18/2002 14:34	Nicole M Kepley	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/11/2002 06:25	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2002 03:55	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	2	06/10/2002 14:14	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	06/03/2002 15:40	Nancy J Shoop	1



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 Lancaster, PA 17605-2425
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Lancaster Laboratories Sample No. WW 3828394

Collected: 05/30/2002 12:20 by MC

Account Number: 07802

Submitted: 05/31/2002 09:20

Kerr-McGee Corporation

Reported: 06/19/2002 at 16:01

P.O. Box 25861

Discard: 07/20/2002

Oklahoma City OK 73125

MA3-TG1-1-300502-07 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3117- SDG#: KMA13-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.1		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.67 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0109 J		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.14 J		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 15:07	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2002 12:39	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/18/2002 14:37	Nicole M Kepley	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/11/2002 06:25	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2002 03:55	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	2	06/10/2002 14:15	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	06/03/2002 15:40	Nancy J Shoop	1



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 Lancaster, PA 17605-2425
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Lancaster Laboratories Sample No. WW 3828395

Collected: 05/30/2002 12:25 by MC

Account Number: 07802

Submitted: 05/31/2002 09:20

Reported: 06/19/2002 at 16:01

Discard: 07/20/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG1-2-300502-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3128- SDG#: KMA13-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.4		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.87 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.25		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002	15:11	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2002	12:40	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/18/2002	14:41	Nicole M Kepley	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/11/2002	06:25	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2002	03:55	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	2	06/10/2002	14:16	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2002	09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	06/03/2002	15:40	Nancy J Shoop	1



Analysis Report



Lancaster Laboratories Sample No. WW 3828396

Collected: 05/30/2002 12:30 by MC

Account Number: 07802

Submitted: 05/31/2002 09:20

Reported: 06/19/2002 at 16:01

Discard: 07/20/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG1-3-300502-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

3139- SDG#: KMA13-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.1		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.67 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.062		0.0066	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.27		0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/05/2002 15:14	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	05/31/2002 12:41	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/18/2002 14:42	Nicole M Kepley	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/11/2002 06:25	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/01/2002 03:55	Daniel S Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	2	06/10/2002 14:17	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/04/2002 09:40	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	06/03/2002 15:40	Nancy J Shoop	1





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 Acct. # 7802 Sample # 3827667-75

p. 1062

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

1 Client: Kerr-McGee Acct. #: _____
 Project Name/#: Moss America PWSID #: _____
 Project Manager: Tom Graan P.O.# _____
 Sampler: MC Quote #: _____
 Name of state where samples were collected: WI

Matrix 4
 Soil Potable Water NPDES Other

5 Analyses Requested
NA3
TKN & TP PO4
NO3
NO2
O-PO4

For lab use only
 FSC: _____
 SCR #: _____

6 Temperature of samples upon receipt (if requested)

2 Sample Identification	Date Collected	Time Collected	3 Grab	Composite	Soil	Potable Water	NPDES	Other	Total # of Containers	Analyses Requested	Remarks
MAB-TG4-1-290502-07	5/26/02	1710	X		X				5		Date of collection on bottles is 5-29-02.
MAB-TG4-2-290502-08		1715	X		X				5		
MAB-TG4-3-290502-09		1720	X		X				5		
MAB-TG5-1-290502-04		1510	X		X				5		VAD 5-30-02
MAB-TG5-2-290502-05		1515	X		X				1		
MAB-TG5-3-290502-06		1520	X		X				1		
MAB-TG6-1-290502-01		1140	X		X				1		
MAB-TG6-2-290502-02		1145	X		X				1		
MAB-TG6-3-290502-03		1150	X		X				1		

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 #: _____

Relinquished by: [Signature] Date: 5/29/02 Time: 1835 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____ Received by: Kathy Binkley Date: 5-30-02 Time: 0920

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



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3827667-95

p. 2062

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

Client: _____ Acct. #: _____
 Project Name/#: Kerr-McBee Moss Aronza PWSID #: _____
 Project Manager: Tom Graen P.O.# _____
 Sampler: me Quote #: _____
 Name of state where samples were collected: WI

Matrix **4**
 Potable (Grab) NPDES (applicable)
 Soil Water Other

5 Analyses Requested
MH3
TKN
TP
PO4
NO3
NO2

For lab use only
 FSC: _____
 SCR #: _____

6 Temperature of samples upon receipt (if requested)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks
MA3-TG5-2-290502-05	5/26/02	1515	X		X			4	Date of collection on bottles via 5-29-02 VAO 5-30-02
MA3-TG5-3-290502-06		1520	X		X		4		
MA3-TG6-1-290502-01		1140	X		X		4		
MA3-TG6-2-290502-02		1145	X		X		4		
MA3-TG6-3-290502-03		1150	X		X		4		

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 #: _____

Relinquished by: [Signature] Date: 5/29/02 Time: 1829
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: Kathy Binkley Date: 5-30-02 Time: 0920

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



JUN 26 2002

For Lancaster Laboratories use only

Acct. # 7802 Sample # 3878388-96

p.1063

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

1 Client: <u>Kerr-McGee/R.F. Weston</u> Acct. #: _____ Project Name/#: <u>Kerr-McGee Moss American</u> PWSID #: _____ Project Manager: <u>Tom Gincan</u> P.O.# _____ Sampler: <u>M. Cash 76 & Y. Hagiwara</u> Quote #: _____ Name of state where samples were collected: <u>WV</u>				4 Matrix <input type="checkbox"/> Potable (check if applicable) <input type="checkbox"/> NPDES <input type="checkbox"/> Other		5 Analyses Requested <u>NH3 (H2SO4)</u> <u>TKN ATP PO4 (H2SO4)</u> <u>NO3 (H2SO4)</u> <u>NO2</u> <u>O-PO4</u>					For lab use only FSC: _____ SCR #: _____					
2 Sample Identification		Date Collected	Time Collected	3 Grab	3 Composite	Soil	Water	Other	Total # of Containers	Remarks					6 Temperature of samples upon receipt (if requested)	
MAS-TG3-1-300502-01		5/30/02	0910	✓					5	1	1	1	1	1		
MAS-TG3-2-300502-02		↓	0915	✓					5	1	1	1	1	1		
MAS-TG3-3-300502-03		↓	0920	✓					5	1	1	1	1	1		

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: _____ Rush results requested by (please circle): Phone <input type="checkbox"/> Fax <input type="checkbox"/> Phone #: _____ Fax #: _____				Relinquished by: <u>[Signature]</u> Date: <u>5/30/02</u> Time: <u>1240</u> Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____	
8 Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) <input type="checkbox"/> Type I (Tier I) GLP <input type="checkbox"/> Type II (Tier II) Other <input type="checkbox"/> Type III (NJ Red. Del.) <input type="checkbox"/> Type IV (CLP) <input type="checkbox"/>			SDG Complete? Yes <input type="checkbox"/> No <input type="checkbox"/> Site-specific QC required? Yes <input type="checkbox"/> No <input type="checkbox"/> (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes <input type="checkbox"/> No <input type="checkbox"/>		Received by: <u>Kathy Binkley</u> Date: <u>5/31/02</u> Time: <u>0920</u>		



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3828388-96

p. 2 of 3

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

Client: Kerr-McGree / RF Weston Acct. #: _____
 Project Name/#: Kerr-McGree Moss America PWSID #: _____
 Project Manager: Tom Groman P.O.# _____
 Sampler: A. Castillo & Y. Hagiwara Quote #: _____
 Name of state where samples were collected: WI

Matrix (4): Soil Potable Water Other (Greener/NPDES applicable)
 Total # of Containers: _____

Analyses Requested (5): NH₃ (H₂SO₄)
TKN RTP PO₄ (H₂SO₄)
NO₃ (H₂SO₄)
NO₂
D-PO₄

For lab use only
 FSC: _____
 SCR #: _____

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

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Potable Water	Other	Total # of Containers	Remarks
MA3-TG2-1-300502-04	5/30/02	1015	✓			✓		5	
MA3-TG2-2-300502-05		1020	✓			✓		5	
MA3-TG2-3-300502-06		1025	✓			✓		5	
MA3-TG1-1-300502-07		1220	✓			✓		1	
MA3-TG1-2-300502-08		1225	✓			✓		1	
MA3-TG1-3-300502-09		1230	✓			✓		1	

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) SDG Complete? Yes No
 Type I (Tier I) GLP
 Type II (Tier II) Other Site-specific QC required? Yes No
 (If yes, indicate QC sample and submit triplicate volume.)
 Type III (NJ Red. Del.)
 Type IV (CLP) Internal Chain of Custody required? Yes No

Relinquished by: [Signature] Date: 5/30/02 Time: 1540
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: Kathy Binkley Date: 5-31-02 Time: 0920

Analysis Request/Environmental Services Chain of Custody



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 Acct. # 7802 Sample # 3828388-96

P. 303

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

Client: <u>Kerr-Mcgee/RW Weston</u> Acct. #: _____ Project Name/#: <u>Kerr-Mcgee Moss Amanca</u> PWSID #: _____ Project Manager: <u>Tom Grean</u> P.O.# _____ Sampler: <u>M. Cashillo & Y. Higwara</u> Quote #: _____ Name of state where samples were collected: <u>WA</u>			Matrix 4 <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Water <input type="checkbox"/> Other	Total # of Containers 4	Analyses Requested 5 <u>NH₃ (H₂SO₄)</u> <u>TKN (H₂SO₄)</u> <u>NO₃ (H₂SO₄)</u> <u>NO₂</u> <u>PO₄</u>	For lab use only FSC: _____ SCR #: _____ Temperature of samples upon receipt (if requested)				
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Analyses Requested	Remarks
MA3-TG1-1-300502-07	5/30/02	1220	✓			✓		4	1 1 1 1	
MA3-TG1-2-300502-08	↓	1225	✓			✓		4	1 1 1 1	
MA3-TG1-3-300502-09	↓	1230	✓			✓		4	1 1 1 1	

7 Turnaround Time Requested (TAT) (please circle): Normal <input type="radio"/> Rush <input type="radio"/> (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: _____ Rush results requested by (please circle): Phone _____ Fax _____ Phone #: _____ Fax #: _____	Relinquished by:	Date	Time	Received by:	Date	Time
	<i>[Signature]</i>	5/31/02	1540			
	Relinquished by:	Date	Time	Received by:	Date	Time
	Relinquished by:	Date	Time	Received by:	Date	Time
	Relinquished by:	Date	Time	Received by:	Date	Time
	Relinquished by:	Date	Time	Received by:	Date	Time

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



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: KMA13

LANCASTER LABORATORIES
INSTRUMENTAL WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3827667	A3207	
3827668	A3208	
3827669	A3209	
3827670	A3204	
3827671	A3205	
3827672	A3206	
3827673	A3201	
3827674	A3202	
3827675	A3203	
3828388	3311-	
3828389	3322-	
3828390	3333-	
3828391	3214-	
3828392	3225-	
3828393	3236-	
3828394	3117-	
3828395	3128-	
3828396	3139-	

ANALYSIS:

All LCS were analyzed at a dilution factor of 2 for the total phosphorus as PO4 analysis.

The LCS (6/11/02) was analyzed at a dilution factor of 2 and (6/18/02) at a dilution factor of 5 for the nitrate nitrogen analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

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

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Date: 6-25-02

Sandra J. Miller
Specialist/Coordinator

4-01513



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: KMA13

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3827667	A3207	
3827668	A3208	
3827669	A3209	
3827670	A3204	
3827671	A3205	
3827672	A3206	
3827673	A3201	
3827674	A3202	
3827675	A3203	
3828388	3311-	
3828389	3322-	
3828390	3333-	
3828391	3214-	
3828392	3225-	
3828393	3236-	
3828394	3117-	
3828395	3128-	
3828396	3139-	

ANALYSIS:

No problems were encountered during analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

QC was within specification.

Site-specific MS/MSD samples were not submitted for the ammonia nitrogen (batch 02157022102 & 02162022101) analysis. A LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Catherine L. Conway for _____ Date: 6/20/02
Sandra J. Miller
Specialist/Coordinator

0211

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CERTIFICATE OF ANALYSIS

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

Date Reported: 6/21/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9941-00409
Date Received: 5/31/02
Time Received: 09:00

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG3-1-300502-01, 05/30/02 @ 09:10				
Total Aerobic Bacteria	6,000. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	300. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-2-300502-02, 05/30/02 @ 09:15				
Total Aerobic Bacteria	1,930. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	310. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-3-300502-03, 05/30/02 @ 09:20				
Total Aerobic Bacteria	590. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	60. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-1-300502-04, 05/30/02 @ 10:15				
Total Aerobic Bacteria	1,070 cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	60. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-2-300502-05, 05/30/02 @ 10:20				
Total Aerobic Bacteria	490. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	20. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-3-300502-06, 05/30/02 @ 10:25				
Total Aerobic Bacteria	310. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	100. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-1-300502-07, 05/30/02 @ 12:20				
Total Aerobic Bacteria	1,140. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	10. cfu/ml	5/31/02	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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CERTIFICATE OF ANALYSIS

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

Date Reported: 6/21/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9941-00409
Date Received: 5/31/02
Time Received: 09:00

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG1-2-300502-08,05/30/02 @ 12:25				
Total Aerobic Bacteria	2,900. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	190. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-3-300502-09,05/30/02 @ 12:30				
Total Aerobic Bacteria	4,200. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	280. cfu/ml	5/31/02	DJH	9215B MODIFIED

This document has been reviewed and is electronically signed by:

Karen A. Ziolkowski
Laboratory Director

Microbac

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CERTIFICATE OF ANALYSIS

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

Date Reported: 6/21/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9941-00385
Date Received: 5/30/02
Time Received: 10:00

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG6-1-290502-01, 05/26/02 @ 11:40 by MC				
Total Aerobic Bacteria	490. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	30. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-2-290502-02, 05/26/02 @ 11:45 by MC				
Total Aerobic Bacteria	800. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	20. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-3-290502-02, 05/26/02 @ 11:50 by MC				
Total Aerobic Bacteria	390. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	40. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-1-290502-04, 05/26/02 @ 15:10 by MC				
Total Aerobic Bacteria	830. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	60. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-2-290502-05, 05/26/02 @ 15:15 by MC				
Total Aerobic Bacteria	580. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	50. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-3-290502-06, 05/26/02 @ 15:20 by MC				
Total Aerobic Bacteria	930. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	240. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-1-290502-07, 05/26/02 @ 17:10 by MC				
Total Aerobic Bacteria	360. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	10. cfu/ml	5/31/02	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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CERTIFICATE OF ANALYSIS

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

Date Reported: 6/21/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9941-00385
Date Received: 5/30/02
Time Received: 10:00

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG4-2-290502-08, 05/26/02 @ 17:15 by MC				
Total Aerobic Bacteria	1,870. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	430. cfu/ml	5/31/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-3-290502-09, 05/26/02 @ 17:20 by MC				
Total Aerobic Bacteria	510. cfu/ml	5/31/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	10. cfu/ml	5/31/02	DJH	9215B MODIFIED

This document has been reviewed and is electronically signed by:

Karen A. Ziolkowski
Laboratory Director



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Acct. # _____

Sample # _____

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

1 Client: _____ Acct. #: _____ Project Name/#: <u>Kerr-McGee Moss America</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>M. Castillo & Y. Haginara</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>				Matrix 4 <input type="checkbox"/> Potable (Grass/Fertilizer applicable) <input type="checkbox"/> Water (NPDES applicable) <input type="checkbox"/> Other		5 Analyses Requested Microbial Enumeration				For lab use only FSC: _____ SCR#: _____			
2 Sample Identification		Date Collected	Time Collected	3 Grab Composite	Soil	Water	Other	Total # of Containers	Remarks Cooler Reid 4°C				Temperature of samples upon receipt (if requested)
MA3-TG3-1-300502-01		5/30/02	0910	✓	✓	✓	✓	1	BTEX / PAH				
MA3-TG3-2-300502-02			0915	✓	✓	✓	✓	1					
MA3-TG3-3-300502-03			0920	✓	✓	✓	✓	1					
MA3-TG2-1-300502-04			1015	✓	✓	✓	✓	1					
MA3-TG2-2-300502-05			1020	✓	✓	✓	✓	1					
MA3-TG2-3-300502-06			1025	✓	✓	✓	✓	1					
MA3-TG1-1-300502-07			1220	✓	✓	✓	✓	1					
MA3-TG1-2-300502-08			1225	✓	✓	✓	✓	1					
MA3-TG1-3-300502-09			1230	✓	✓	✓	✓	1					
7 Turnaround Time Requested (TAT) (please circle): <u>Normal</u> 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 #: _____				Relinquished by: <u>Yoshie Haginara</u> Date: <u>5/30/02</u> Time: <u>1500</u>		Received by: _____ Date: _____ Time: _____		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____			
8 Data Package Options (please circle if requested)				SDG Complete? Yes No		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	
QC Summary Type VI (Raw Data) 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: _____		Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____			

over



mc Microbac

9941-385

For Lancaster Laboratories use only

Acct. # _____ Sample # _____

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

Client: _____ Acct. #: _____
 Project Name/ #: Kerr-McGee Moss American PWSID #: _____
 Project Manager: Tom Graan P.O.# _____
 Sampler: mc Quote #: _____
 Name of state where samples were collected: Milwaukee, WI

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

5 Analyses Requested
Microbial Enumeration

For lab use only
 FSC: _____
 SCR #: _____

6 Temperature of samples upon receipt (if requested)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks
MA3-TG6-1-290502-01	5/26/02	1140	X		X			1	
MA3-TG6-2-290502-02		1145	X		X			1	
MA3-TG6-3-290502-03		1150	X		X			1	
MA3-TG5-1-290502-04		1570	X		X			1	
MA3-TG5-2-290502-025		1515	X		X			1	
MA3-TG5-3-290502-036		1520	X		X			1	
MA3-TG4-1-290502-07		1710	X		X			1	
MA3-TG4-2-290502-08		1715	X		X			1	
MA3-TG4-3-290502-09		1720	X		X			1	

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 #: _____

Relinquished by: [Signature] Date: 5/29/02 Time: 1314
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: [Signature] Date: 5/30/02 Time: 10:02

8 Data Package Options (please circle if requested)

QC Summary Type VI (Raw Data) SDG Complete? Yes No

Type I (Tier I) GLP

Type II (Tier II) Other Site-specific QC required? Yes No
 (If yes, indicate QC sample and submit triplicate volume.)

Type III (NJ Red. Del.)

Type IV (CLP) Internal Chain of Custody required? Yes No

APPENDIX E

JUNE 2002 GROUNDWATER SAMPLE ANALYTICAL RESULTS

I have reviewed the analytical data provided by Lancaster Laboratories for the Moss American Site in Milwaukee, Wisconsin upon the information that was provided by the laboratory.

The water samples were analyzed for Polynuclear Aromatic Hydrocarbons PAHs, Petroleum analyses (BETX), Kjeldahl Nitrogen, Nitrite Nitrogen, Nitrate Nitrogen, Ammonia Nitrogen, Ortho-Phosphate, Biochemical Oxygen Demand, Total Organic Carbon, Total Phosphorus, Chemical Oxygen Demand.

A summary of the data validation is provided below for samples delivery group SDG# KMA15 only for PAH, and BETX.

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

Moss American Site

SDG # KMA15

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>
MA3-TG2-1-170602-01	3837346	Water	06/17/02	06/20/02	06/21/02
MA3-TG2-2-170602-02	3837347	Water	06/17/02	06/20/02	06/21/02
MA3-TG2-3-170602-03	3837348	Water	06/17/02	06/20/02	06/21/02
MA3-TG5-1-170602-04	3837349	Water	06/17/02	06/20/02	06/21/02
MA3-TG5-2-170602-05	3837350	Water	06/17/02	06/20/02	06/21/02
MA3-TG5-3-170602-06	3837351	Water	06/17/02	06/20/02	06/21/02
MA3-MW-3S-200602-01	3839872	Water	06/20/02	06/25/02	06/27/02
MA3-MW-26S-200602-02	3839873	Water	06/20/02	06/25/02	06/27/02
MA3-MW-5S-200602-03	3839874	Water	06/20/02	06/25/02	06/27/02
MA3-MW-30S-200602-04	3839875	Water	06/20/02	06/25/02	06/27/02
FB-03	3839876	Water	06/20/02	06/25/02	06/27/02
FB-04	3839877	Water	06/20/02	06/25/02	06/27/02
MA3-MW-26S-200602-02DUP	3839878	Water	06/20/02	06/25/02	06/27/02

2. Holding Times:

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

3. Method Blank:

Two method blanks associated with this SDG. SBLKWB1712 was extracted on 06/20/02 and analyzed on 06/21/02 with samples (3837346 thru 3837351). SBLKWB1752 was extracted on 06/25/02 and analyzed on 06/27/02 with (3839872 thru 3839878). Both method blanks SBLKWB1712, and SBLKWB1752 result were free of contamination.

4. Surrogate:

All method blanks and the investigated samples had surrogate recoveries within the required quality control limits and were reported from the ultraviolet detector.

5. Matrix Spike/Matrix Spike Duplicate Recovery:

Sufficient sample volume was not available to perform MS/MSD. Therefore, two batches of LCS/LCSD were performed and associated with the samples.

6. Laboratory Control Sample:

Two laboratory control samples were associated with this SDG. 1712WBLCS/1712WBLCSD was analyzed with (3837346 thru 3837351). 1752WGLCS/LCSD was analyzed with (3839872 thru 3839878). Both 1712WBLCS/1712WBLCSD, and 1752WGLCS/LCSD recoveries were within the quality control limits. Also, the RPD% values were acceptable.

7. Initial and Continuing Calibration:

The initial calibration, calibration verification, retention time were all with the acceptance control limits, except the initial calibration file ID/HP03456.i/02jun18.b/m8310b.m RSD for acenaphthylene was (131.42%) and the file ID/HP03456.i/02jun26.b/m8310b.m was (113.15%) on fluorescence detector. Also, the continuing calibration file ID 02169B1-14R.d was (-80.24%), file ID 02169B1-25R.d was (-87.65%), file ID 02177B-11R.d was (-78.61%), file ID 02177B-22R.d was (-59.56%), file ID 02177B-33R.d was (-55.38%) for acenaphthylene from fluorescence detector. No action was taken because the results were reported for acenaphthylene from ultraviolet detector and all the results were acceptable.

VOLATILE-BETX by GC/MS (U.S. EPA Method 8021B)

Moss American Site

SDG # KMA15

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>
MA3-TG2-1-170602-01	3837346	Water	06/17/02	06/20/02	06/20/02
MA3-TG2-2-170602-02	3837347	Water	06/17/02	06/20/02	06/20/02
MA3-TG2-3-170602-03	3837348	Water	06/17/02	06/20/02	06/20/02
MA3-TG5-1-170602-04	3837349	Water	06/17/02	06/20/02	06/20/02
MA3-TG5-2-170602-05	3837350	Water	06/17/02	06/20/02	06/20/02
MA3-TG5-3-170602-06	3837351	Water	06/17/02	06/20/02	06/20/02
MA3-TB-170602	3837352	Water	06/17/02	06/19/02	06/19/02
MA3-TB-200602	3839871	Water	06/20/02	06/25/02	06/25/02
MA3-MW-3S-200602-01	3839872	Water	06/20/02	06/25/02	06/25/02
MA3-MW-26S-200602-02	3839873	Water	06/20/02	06/25/02	06/25/02
MA3-MW-5S-200602-03	3839874	Water	06/20/02	06/25/02	06/25/02
MA3-MW-30S-200602-04	3839875	Water	06/20/02	06/25/02	06/25/02
FB-03	3839876	Water	06/20/02	06/25/02	06/25/02
FB-04	3839877	Water	06/20/02	06/25/02	06/25/02
MA3-MW-26S-200602-02DUP	3839878	Water	06/20/02	06/25/02	06/25/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

Three method blanks BLK1630, BLK1632, and BLK1643 were associated with the SDG. BLK1630 was analyzed on 06/19/02 with (3837346 thru 3837352). BLK1632 was analyzed on 06/20/02 with (3837346MS). BLK1643 was analyzed on 06/25/02 with (3839871 thru 3839878). All the method blanks BLK1630, BLK1632, and BLK1643 results were free of contamination.

4. Matrix Spike Recovery:

Sufficient sample volume was not available to perform MS/MSD. Therefore, MS was performed on sample (MA3- TG2-1-170602-01/3837346) applies to all the samples (3837346 thru 3837352, and 3839871 thru 3839878). The matrix spike recoveries were within the acceptance quality control limits.

5. Laboratory Control Sample Recovery:

Two laboratories control sample/laboratories control sample duplicate associated with this SDG. LCS/LCSD1630 applies to the following samples: (3837346 thru 3837352). LCS/LCSD1643 applies to the following samples (3839871 thru 3839878). Both LCS/LCSD recoveries were within the quality control limits. Also, the RPD% values were acceptable.

6. Surrogate:

All method blanks and the investigated samples had surrogate recoveries within the required quality control limits (71-130%).

7. Initial, Continuing Calibration, and Internal Standards:

The initial calibration, continuing calibration verification and the internal standards results were all acceptable.

Data Reviewed By: Tania Balikji-Shammo

Date: 07/23/02



ANALYTICAL RESULTS

Prepared for:

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

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 811611. Samples arrived at the laboratory on Tuesday, June 18, 2002.

Client Description

MA3-TG2-1-170602-01 Grab Water Sample
MA3-TG2-2-170602-02 Grab Water Sample
MA3-TG2-3-170602-03 Grab Water Sample
MA3-TG5-1-170602-04 Grab Water Sample
MA3-TG5-2-170602-05 Grab Water Sample
MA3-TG5-3-170602-06 Grab Water Sample
MA3-TB-170602 Water Sample

Lancaster Labs Number

3837346
3837347
3837348
3837349
3837350
3837351
3837352

METHODOLOGY

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

1 COPY TO Kerr-McGee Corporation
1 COPY TO Roy F. Weston
1 COPY TO Data Package Group

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



Lancaster Laboratories

Where quality is a science.

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

Respectfully Submitted,

Michele A. Jarosick

Michele A. Jarosick
Senior Chemist



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

0311-1510

Analysis Report



Lancaster Laboratories Sample No. WW 3837346

Collected: 06/17/2002 14:45 by JK

Account Number: 07802

Submitted: 06/18/2002 09:00

Reported: 06/27/2002 at 17:22

Discard: 07/28/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG2-1-170602-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3TG21 SDG#: KMA15-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	0.48 J		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	N.D.		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.071		0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.1	mg/l	1
00273	Total Organic Carbon	n.a.	3.8		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.22		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	8.7		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1

1
4



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



Lancaster Laboratories Sample No. WW 3837346

Collected: 06/17/2002 14:45 by JK

Account Number: 07802

Submitted: 06/18/2002 09:00

Kerr-McGee Corporation

Reported: 06/27/2002 at 17:22

P.O. Box 25861

Discard: 07/28/2002

Oklahoma City OK 73125

MA3-TG2-1-170602-01 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3TG21 SDG#: KMA15-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Detection Limit	
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:15	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 08:57	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/26/2002 13:33	Michelle A Bolton	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/25/2002 06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/18/2002 21:20	Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:25	Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/18/2002 23:48	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	2	06/25/2002 15:22	Nicole M Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:25	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/26/2002 06:28	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/20/2002 03:06	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/21/2002 16:43	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/20/2002 03:06	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/21/2002 09:20	James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/20/2002 16:00	Elia R Botrous	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30	James S Mathiot	1

50115





Lancaster Laboratories Sample No. WW 3837347

Collected: 06/17/2002 15:00 by JK

Account Number: 07802

Submitted: 06/18/2002 09:00

Reported: 06/27/2002 at 17:22

Discard: 07/28/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG2-2-170602-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3TG22 SDG#: KMA15-02

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
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	0.47	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0177	J	0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.094		0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.4	mg/l	1
00273	Total Organic Carbon	n.a.	3.4		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.29		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	6.3	J	1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1





Lancaster Laboratories Sample No. WW 3837347

Collected: 06/17/2002 15:00 by JK

Account Number: 07802

Submitted: 06/18/2002 09:00

Reported: 06/27/2002 at 17:22

Discard: 07/28/2002

MA3-TG2-2-170602-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

3TG22 SDG#: KMA15-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:16	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 08:59	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/26/2002 13:34	Michelle A Bolton	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/25/2002 06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/18/2002 21:20	Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:26	Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/18/2002 23:48	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	2	06/25/2002 15:30	Nicole M Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:26	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/26/2002 06:28	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/20/2002 03:40	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/21/2002 17:21	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/20/2002 03:40	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/21/2002 09:20	James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/20/2002 16:00	Elia R Botrous	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30	James S Mathiot	1

0
0
1
7





Lancaster Laboratories Sample No. WW 3837348

Collected: 06/17/2002 14:50 by JK

Account Number: 07802

Submitted: 06/18/2002 09:00

Reported: 06/27/2002 at 17:22

Discard: 07/28/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG2-3-170602-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

3TG23 SDG#: KMA15-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	2.2		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.1		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0181 J		0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.140		0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		4.4	mg/l	1
00273	Total Organic Carbon	n.a.	12.7		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.43		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	31.0		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
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774 PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	N.D.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	0.1 J		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.02	ug/l	1



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



Lancaster Laboratories Sample No. WW 3837348

Collected: 06/17/2002 14:50 by JK

Account Number: 07802

Submitted: 06/18/2002 09:00

Kerr-McGee Corporation

Reported: 06/27/2002 at 17:22

P.O. Box 25861

Discard: 07/28/2002

Oklahoma City OK 73125

MA3-TG2-3-170602-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3TG23 SDG#: KMA15-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received	Units	Dilution Factor
				Method		
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:17	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 09:00	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/26/2002 13:36	Michelle A Bolton	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/25/2002 06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/18/2002 21:20	Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:28	Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/18/2002 23:48	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	2	06/25/2002 15:38	Nicole M Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:28	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/26/2002 06:28	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/20/2002 04:13	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/21/2002 18:00	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/20/2002 04:13	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/21/2002 09:20	James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/20/2002 16:00	Elia R Botrous	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30	James S Mathiot	1

0019



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



Lancaster Laboratories Sample No. WW 3837349

Collected: 06/17/2002 16:30 by JK

Account Number: 07802

Submitted: 06/18/2002 09:00

Reported: 06/27/2002 at 17:22

Discard: 07/28/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG5-1-170602-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

3TG51 SDG#: KMA15-04

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result	Method	Detection Limit	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.81 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	0.47 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0072 J		0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.074		0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		1.8	mg/l	1
00273	Total Organic Carbon	n.a.	5.3		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.23		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	11.5		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1





Lancaster Laboratories Sample No. WW 3837349

Collected: 06/17/2002 16:30 by JK

Account Number: 07802

Submitted: 06/18/2002 09:00
 Reported: 06/27/2002 at 17:22
 Discard: 07/28/2002

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

MA3-TG5-1-170602-04 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

3TG51 SDG#: KMA15-04

CAT No.	Analysis Name	CAS Number	As Received	As Received	Units	Dilution Factor
			Result	Method		
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		ug/l	1
07409	Chrysene	218-01-9	N.D.		ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis	Analyst	Dilution Factor
				Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:19	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 09:01	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/26/2002 13:37	Michelle A Bolton	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/25/2002 06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/18/2002 21:20	Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:29	Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/18/2002 23:48	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	2	06/25/2002 15:46	Nicole M Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:29	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/26/2002 06:28	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/20/2002 04:46	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/21/2002 18:39	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/20/2002 04:46	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/21/2002 09:20	James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/20/2002 16:00	Elia R Botrous	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30	James S Mathiot	1

0021





Lancaster Laboratories Sample No. **WW 3837350**

Collected: 06/17/2002 16:30 by JK

Account Number: 07802

Submitted: 06/18/2002 09:00

Reported: 06/27/2002 at 17:22

Discard: 07/28/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG5-2-170602-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

3TG52 SDG#: KMA15-05

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.64	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	0.47	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	N.D.		0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.072		0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		1.9	mg/l	1
00273	Total Organic Carbon	n.a.	5.7		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.22		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	15.9		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	0.05	J	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.06	J	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1





Lancaster Laboratories Sample No. WW 3837350

Collected: 06/17/2002 16:30 by JK

Account Number: 07802

Submitted: 06/18/2002 09:00

Kerr-McGee Corporation

Reported: 06/27/2002 at 17:22

P.O. Box 25861

Discard: 07/28/2002

Oklahoma City OK 73125

MA3-TG5-2-170602-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3TG52 SDG#: KMA15-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:20	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 09:05	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/26/2002 13:38	Michelle A Bolton	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/25/2002 06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/18/2002 21:20	Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:30	Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/18/2002 23:48	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	2	06/25/2002 15:54	Nicole M Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:30	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/26/2002 06:28	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/20/2002 05:20	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/21/2002 19:17	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/20/2002 05:20	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/21/2002 09:20	James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/20/2002 16:00	Elia R Botrous	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30	James S Mathiot	1

06/27/02





Lancaster Laboratories Sample No. WW 3837351

Collected: 06/17/2002 16:30 by JK

Account Number: 07802

Submitted: 06/18/2002 09:00

Reported: 06/27/2002 at 17:23

Discard: 07/28/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG5-3-170602-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3TG53 SDG#: KMA15-06

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.82	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	0.47	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.063		0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.122		0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.0	mg/l	1
00273	Total Organic Carbon	n.a.	5.2		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.38		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	14.3		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo (b) fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.		0.04	ug/l	1

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Lancaster Laboratories Sample No. WW 3837351

Collected: 06/17/2002 16:30 by JK

Account Number: 07802

Submitted: 06/18/2002 09:00

Kerr-McGee Corporation

Reported: 06/27/2002 at 17:23

P.O. Box 25861

Discard: 07/28/2002

Oklahoma City OK 73125

MA3-TG5-3-170602-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

3TG53 SDG#: KMA15-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date	Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002	16:21	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002	09:06	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/26/2002	13:42	Michelle A Bolton	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/25/2002	06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/18/2002	21:20	Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002	15:31	Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/18/2002	23:48	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	2	06/25/2002	16:02	Nicole M Kepley	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002	15:31	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/26/2002	06:28	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/20/2002	05:54	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/21/2002	19:56	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/20/2002	05:54	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/21/2002	09:20	James S Mathiot	1
03337	PAH Water Extraction	SW-846 3510C	1	06/20/2002	16:00	Elia R Botrous	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002	10:30	James S Mathiot	1



L11111111

Analysis Report



Page 1 of 1

Lancaster Laboratories Sample No. WW 3837352

Collected: 06/17/2002 17:25

Account Number: 07802

Submitted: 06/18/2002 09:00

Kerr-McGee Corporation

Reported: 06/27/2002 at 17:23

P.O. Box 25861

Discard: 07/28/2002

Oklahoma City OK 73125

MA3-TB-170602 Water Sample

Moss American Superfund Site - Milwaukee, WI

3TB62 SDG#: KMA15-07TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received	Units	Dilution Factor
				Method		
				Detection Limit		
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	06/19/2002 20:58	Matthew E Barton	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/19/2002 20:58	Matthew E Barton	n.a.



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

06/22/02



ANALYTICAL RESULTS

Prepared for:

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

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 812203. Samples arrived at the laboratory on Friday, June 21, 2002.

Client Description

MA3-TB-200602 Water Sample
MA3-MW-3S-200602-01 Grab Water Sample
MA3-MW-26S-200602-02 Grab Water Sample
MA3-MW-5S-200602-03 Grab Water Sample
MA3-MW-30S-200602-04 Grab Water Sample
FB-03 Grab Water Sample
FB-04 Grab Water Sample
MA3-MW-26S-200602-02DUP Grab Water Sample

Lancaster Labs Number

3839871
3839872
3839873
3839874
3839875
3839876
3839877
3839878

METHODOLOGY

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

1 COPY TO Kerr-McGee Corporation
1 COPY TO Roy F. Weston
1 COPY TO Data Package Group

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

8
0
0
2
7



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

Respectfully Submitted,

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



Lancaster Laboratories Sample No. WW 3839871

Collected: 06/20/2002 10:40

Account Number: 07802

Submitted: 06/21/2002 09:00
Reported: 06/28/2002 at 12:15
Discard: 07/29/2002
MA3-TB-200602 Water Sample
Moss American Site - WI

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

MA3T- SDG#: KMA15-08TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	06/25/2002 09:48	Linda C Pape	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/25/2002 09:48	Linda C Pape	n.a.



062209

Analysis Report



Lancaster Laboratories Sample No. WW 3839872

Collected: 06/20/2002 09:00

Account Number: 07802

Submitted: 06/21/2002 09:00

Kerr-McGee Corporation

Reported: 06/28/2002 at 12:15

P.O. Box 25861

Discard: 07/29/2002

Oklahoma City OK 73125

MA3-MW-3S-200602-01 Grab Water Sample
Moss American Site - WI

MA33S SDG#: KMA15-09

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.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
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Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

Analysis Report



Page 2 of 2

Lancaster Laboratories Sample No. WW 3839872

Collected: 06/20/2002 09:00

Account Number: 07802

Submitted: 06/21/2002 09:00

Kerr-McGee Corporation

Reported: 06/28/2002 at 12:15

P.O. Box 25861

Discard: 07/29/2002

Oklahoma City OK 73125

MA3-MW-3S-200602-01 Grab Water Sample

Moss American Site - WI

MA33S	SDG#: KMA15-09						
08213	BTEX (8021)	SW-846 8021B	1	06/25/2002 11:29	Linda C Pape	1	
00774	PAH's in Water by HPLC	SW-846 8310	1	06/27/2002 08:20	Mark A Clark	1	
01146	GC VOA Water Prep	SW-846 5030B	1	06/25/2002 11:29	Linda C Pape	n.a.	
03337	PAH Water Extraction	SW-846 3510C	1	06/25/2002 10:00	John A Myers	1	



Lancaster Laboratories Sample No. WW 3839873

Collected: 06/20/2002 09:05

Account Number: 07802

Submitted: 06/21/2002 09:00

Kerr-McGee Corporation

Reported: 06/28/2002 at 12:15

P.O. Box 25861

Discard: 07/29/2002

Oklahoma City OK 73125

MA3-MW-26S-200602-02 Grab Water Sample

Moss American Site - WI

MA26S SDG#: KMA15-10

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

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
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Lancaster Laboratories, Inc.
 2425 New Holland Pike
 PO Box 12425
 Lancaster, PA 17605-2425
 717 556 2200 Fax 717 556 2684



Lancaster Laboratories Sample No. WW 3839873

Collected: 06/20/2002 09:05

Account Number: 07802

Submitted: 06/21/2002 09:00

Reported: 06/28/2002 at 12:15

Discard: 07/29/2002

MA3-MW-26S-200602-02 Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA26S	SDG#: KMA15-10					
08213	BTEX (8021)	SW-846 8021B	1	06/25/2002 12:03	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/27/2002 08:58	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/25/2002 12:03	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/25/2002 10:00	John A Myers	1

06/28/02

Analysis Report



Page 1 of 2

Lancaster Laboratories Sample No. WW 3839874

Collected: 06/20/2002 10:05

Account Number: 07802

Submitted: 06/21/2002 09:00

Kerr-McGee Corporation

Reported: 06/28/2002 at 12:16

P.O. Box 25861

Discard: 07/29/2002

Oklahoma City OK 73125

MA3-MW-5S-200602-03 Grab Water Sample

Moss American Site - WI

MA35S SDG#: KMA15-11

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

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
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Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

Analysis Report



Page 2 of 2

Lancaster Laboratories Sample No. WW 3839874

Collected: 06/20/2002 10:05

Account Number: 07802

Submitted: 06/21/2002 09:00

Reported: 06/28/2002 at 12:16

Discard: 07/29/2002

MA3-MW-5S-200602-03 Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA35S	SDG#: KMA15-11					
08213	BTEX (8021)	SW-846 8021B	1	06/25/2002 12:36	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/27/2002 09:37	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/25/2002 12:36	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/25/2002 10:00	John A Myers	1



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

17605-2425

Analysis Report



Lancaster Laboratories Sample No. WW 3839875

Collected: 06/20/2002 10:10

Account Number: 07802

Submitted: 06/21/2002 09:00

Kerr-McGee Corporation

Reported: 06/28/2002 at 12:16

P.O. Box 25861

Discard: 07/29/2002

Oklahoma City OK 73125

MA3-MW-30S-200602-04 Grab Water Sample
Moss American Site - WI

MA30S SDG#: KMA15-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo (b) fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno (1, 2, 3-cd) pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo (g, h, i) perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo (k) fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
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Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425

Analysis Report



Lancaster Laboratories Sample No. WW 3839875

Collected: 06/20/2002 10:10

Account Number: 07802

Submitted: 06/21/2002 09:00

Reported: 06/28/2002 at 12:16

Discard: 07/29/2002

MA3-MW-30S-200602-04 Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA30S	SDG#:	KMA15-12					
08213	BTEX (8021)	SW-846 8021B	1	06/25/2002 13:10	Linda C Pape	1	
00774	PAH's in Water by HPLC	SW-846 8310	1	06/27/2002 10:15	Mark A Clark	1	
01146	GC VOA Water Prep	SW-846 5030B	1	06/25/2002 13:10	Linda C Pape	n.a.	
03337	PAH Water Extraction	SW-846 3510C	1	06/25/2002 10:00	John A Myers	1	



06/28/02



Lancaster Laboratories Sample No. WW 3839876

Collected: 06/20/2002 08:30

Account Number: 07802

Submitted: 06/21/2002 09:00
 Reported: 06/28/2002 at 12:16
 Discard: 07/29/2002
 FB-03 Grab Water Sample
 Moss American Site - WI

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

FB03- SDG#: KMA15-13FB

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

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

Laboratory Chronicle

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



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



Lancaster Laboratories Sample No. WW 3839876

Collected: 06/20/2002 08:30

Account Number: 07802

Submitted: 06/21/2002 09:00

Kerr-McGee Corporation

Reported: 06/28/2002 at 12:16

P.O. Box 25861

Discard: 07/29/2002

Oklahoma City OK 73125

FB-03 Grab Water Sample

Moss American Site - WI

FB03- SDG#: KMA15-13FB

08213 BTEX (8021)
00774 PAH's in Water by HPLC
01146 GC VOA Water Prep
03337 PAH Water Extraction

SW-846 8021B
SW-846 8310
SW-846 5030B
SW-846 3510C

1	06/25/2002 10:22	Linda C Pape	1
1	06/27/2002 10:54	Mark A Clark	1
1	06/25/2002 10:22	Linda C Pape	n.a.
1	06/25/2002 10:00	John A Myers	1



Analysis Report



Lancaster Laboratories Sample No. WW 3839877

Collected: 06/20/2002 09:30

Account Number: 07802

Submitted: 06/21/2002 09:00
 Reported: 06/28/2002 at 12:16
 Discard: 07/29/2002
 FB-04 Grab Water Sample
 Moss American Site - WI

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

FB04- SDG#: KMA15-14FB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

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

Laboratory Chronicle

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



Lancaster Laboratories, Inc.
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 PO Box 12425
 Lancaster, PA 17605-2425
 717.655.3200 Fax 717.655.3201

Analysis Report



Page 2 of 2

Lancaster Laboratories Sample No. WW 3839877

Collected: 06/20/2002 09:30

Account Number: 07802

Submitted: 06/21/2002 09:00

Kerr-McGee Corporation

Reported: 06/28/2002 at 12:16

P.O. Box 25861

Discard: 07/29/2002

Oklahoma City OK 73125

FB-04 Grab Water Sample

Moss American Site - WI

FB04-	SDG#: KMA15-14FB						
08213	BTEX (8021)	SW-846 8021B	1	06/25/2002 10:56	Linda C Pape	1	
00774	PAH's in Water by HPLC	SW-846 8310	1	06/27/2002 11:33	Mark A Clark	1	
01146	GC VOA Water Prep	SW-846 5030B	1	06/25/2002 10:56	Linda C Pape	n.a.	
03337	PAH Water Extraction	SW-846 3510C	1	06/25/2002 10:00	John A Myers	1	

MEMBER
ACIL

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717 656 3300

06241



Lancaster Laboratories Sample No. WW 3839878

Collected: 06/20/2002 09:05

Account Number: 07802

Submitted: 06/21/2002 09:00

Kerr-McGee Corporation

Reported: 06/28/2002 at 12:16

P.O. Box 25861

Discard: 07/29/2002

Oklahoma City OK 73125

MA3-MW-26S-200602-02DUP Grab Water Sample
Moss American Site - WI

26SD- SDG#: KMA15-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1

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

00774 PAH's in Water by HPLC

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

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

Laboratory Chronicle

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



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2601

Analysis Report



Page 2 of 2

Lancaster Laboratories Sample No. WW 3839878

Collected: 06/20/2002 09:05

Account Number: 07802

Submitted: 06/21/2002 09:00

Reported: 06/28/2002 at 12:16

Discard: 07/29/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-MW-26S-200602-02DUP Grab Water Sample

Moss American Site - WI

26SD-	SDG#: KMA15-15					
08213	BTEX (8021)	SW-846 8021B	1	06/25/2002 14:17	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/27/2002 12:11	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/25/2002 14:17	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/25/2002 10:00	John A Myers	1



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

0440508

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3837346-52

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

1 Client: Kerr - McGee Acct. #: _____
 Project Name/ #: MOSS AMERICAN PWSID #: _____
 Project Manager: Tom Grazan P.O. #: _____
 Sampler: Joe Klemm Quote #: _____
 Name of state where samples were collected: WISCONSIN

Sample Identification	Date Collected	Liters Collected	Grip	Composite	Matrix 4					Analyses Requested 5							Remarks
					Soil	Water	Sludge	Top of Containers	BTEX	PAH - B310	NO3	TOC	TKN, TP, PO4 (OD), TP	0-PO4, BOD	NH3	NO2	
MA3-TG2-1-170602-01	6/17/02	1445	X		X				2								
MA3-TG2-2-170602-02	6/17/02	1500	X		X				2								
MA3-TG2-3-170602-03	6/17/02	1450	X		X				3								
MA3-TG5-1-170602-04	6/17/02	1630	X		X				3								
MA3-TG5-2-170602-05	6/17/02	1630	X		X				3								
MA3-TG5-3-170602-06	6/17/02	1630	X		X				3								
MA3-TB-170602	6/17/02	1725	X		X				2								

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: STANDARD
 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) SDG Complete? Yes No
 Type I (Tier I) GLP
 Type II (Tier II) Other
 Type III (NJ Red. Del.) Per Quote
 Type IV (CLP) Quote
 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: Joshie Nagura Date: 6/17/02 Time: 1735 Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3837346-52

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

Client: Kerr - McGree Acct. #: _____
 Project Name #: Moss American PWSID #: _____
 Project Manager: Tom Graan PO #: _____
 Sampler: Joe Klemp Quote #: _____
 Name of state where samples were collected: WI

Sample Identification	Date Collected	Time Collected	Matrix						Analysis Requested						Remarks		
			Gravel	Composite	Soil	Water	Sludge	Other	PAH-8310	NO3	FOC	TEN/TP-PO4/COD/TSS	O-PO4	NH3		BOD	NO2
MA3-TG2-3-170602-03	6/17/02	1450	X		X	X	X										
MA3-TG5-1-170602-04	6/17/02	1630	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: Standard
 Rush results requested by (please circle): Phone: 847-918-4000 Fax: 847-918-4055
 Phone #: _____ Fax #: _____

8. Data Package Options (please circle if requested):
 QC Summary: Type VI (Raw Data) Yes No
 Type I (Tier I): GLP
 Type II (Tier II): Other
 Type III (N/Red. Del.)
 Type IV (CLP) per quote
 Site-specific QC required? Yes No
 Internal Chain of Custody required? Yes No

Relinquished by: [Signature] Date: 6/17/02 Time: 1735 Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: [Signature] Date: _____ Time: _____

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7602 Sample # 3837346-52

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

1 Client: Kerr-McGree Acct. #: _____
 Project Name/#: Moss American PWSID #: _____
 Project Manager: Tom Gorman P.O.#: _____
 Sampler: J. Klemp, A. Grubb & Y. Hagiwara Quote #: _____
 Name of state where samples were collected: WI

Sample Identification	Date Collected	Time Collected	SMA	Composites	Soil	Water/Separable Oil	Sediment	Total Solids	Analyses Requested							Remarks	For lab use only FSC: _____ SCR #: _____
									PAHs-8310	NO3	NO2	TOC	TEN/IP-POLYCOD	D-POLY/BOD	MIB		
MA3-TG5-2-170602-05	6/17/02	1630	X		X	X	8		N	I	I	I	I	I	I		
MA3-TG5-3-170602-06	6/17/02	1630	X		X	X	8		N	I	I	I	I	I	I		

7 Turnaround Time Requested (TAT) (please circle): Normal Rush _____
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: Standard
 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) _____
 Type I (Tier I) GLP _____
 Type II (Tier II) Other _____
 Type III (N1 Red Det) _____
 Type IV (CIP) Per quote
 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



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3839871-78

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

1 Client: Kerr - McGee Acct. #: _____
 Project Name/#: Moss American PWSID #: _____
 Project Manager: Tom Graan P.O.# _____
 Sampler: Kemp, Gubb & Hagin Quote #: _____
 Name of state where samples were collected: WI

Sample Identification	Date Collected	Time Collected	Grab	Composites	Spill	Waste	ENPDES	Other	5 Analyses Requested				Remarks	6
									BTEX	PAH-8310				
MA3-TB-200602	6/20/02	1040	X		X			2	2					
MA3-TB-200602														
MA3-MW-35-200602-01	6/20/02	0900	X		X				3					
MA3-MW-265-200602-02	6/20/02	0905	X		X				3					
MA3-MW-55-200602-03	6/20/02	1005	X		X			5	3	2				
MA3-MW-305-200602-04	6/20/02	1010	X		X			5	3	2				
FB-03	6/20/02	0930	X		X				3					
FB-04	6/20/02	0930	X		X			5	3	2				
MA3-MW-265-200602-02 DUF	6/20/02	0905	X		X				3					

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: Standard
 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)	SDG: Complete?
Type I (Tier I)	GLP	Yes <u>No</u>
Type II (Tier II)	Other	Site-specific QC required? Yes No
Type III (NJ Red: Del)		(If yes, indicate QC sample and submit triplicate volume.)
Type IV (CLP)		Internal Chain of Custody required? Yes No

9 Relinquished by: Goshie Hagin Date: 6/20/02 Time: 1055 Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: Laura Jordan Date: 6/21/02 Time: 0900

Per Quote

Cooper #1

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3839871-78

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

1 Client: Kepp-McGee Acct. #: _____
 Project Name/#: Moss American PWSID #: _____
 Project Manager: Tom Graan P.O.# _____
 Sampler: Klemp, Grubb & Hagiwara Quote #: _____
 Name of state where samples were collected: WI

Sample Identification	Date collected	Time collected	Matrix	Composite	Vol	Wt	No. of samples	Analyses Requested	Remarks
<u>MA3-UW-3S-200602-01</u>	<u>6/20/02</u>	<u>0900</u>	<u>X</u>				<u>2</u>	<u>PAH-8310</u>	
<u>MA3-UW-26S-200602-02</u>	<u>↓</u>	<u>0905</u>	<u>X</u>				<u>2</u>		
<u>MA3-UW-26S-200602-02 DUP</u>	<u>↓</u>	<u>0905</u>	<u>X</u>				<u>2</u>		
<u>EB-03</u>	<u>↓</u>	<u>0830</u>	<u>X</u>				<u>2</u>		

7 Turnaround Time Requested (TAT) (please circle): Normal Rush _____
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: Standard
 Rush results requested by (please circle): Phone Fax
 Phone #: 800-918-4000 Fax #: 847-918-4055

8 Data Package Options (please circle if requested):
 QC Summary Type VI (Raw Data) Yes No _____
 Type I (Tier I) GLP _____
 Type II (Tier II) Other _____
 Type III (NJ Red-Del.) _____
 Type IV (CLP) Per Quote

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

Relinquished by: Goshie Hagiwara Date: 6/20/02 Time: 1055
 Relinquished by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____
 Received by: Laura Jordan Date: 6/21/02 Time: 0900



CASE NARRATIVE

Client: Kerr - McGee Corporation
SDG #: KMA15

LANCASTER LABORATORIES
PAH BY HPLC

SAMPLE NUMBER(S) :

<u>LL #'s</u>	<u>Sample Code</u>	<u>Matrix Water</u>	<u>Comments</u>
3837346	3TG21	X	
3837347	3TG22	X	
3837348	3TG23	X	
3837349	3TG51	X	
3837350	3TG52	X	
3837351	3TG53	X	
3839872	MA33S	X	
3839873	MA26S	X	
3839874	MA35S	X	
3839875	MA30S	X	
3839876	FB03-	X	Client Blank
3839877	FB04-	X	Client Blank
3839878	26SD-	X	

LABORATORY SUBMITTED QC:

SBLKWB171	SBLKWB1712	X	Method Blank
SBLKWB175	SBLKWG1752	X	Method Blank
171WBLCS	171WBLCS2	X	Lab Control Sample
171WBLCS D	171WBLCS D2	X	Lab Control Sample Dup
175WGLCS	175WGLCS2	X	Lab Control Sample
175WGLCS D	175WGLCS D2	X	Lab Control Sample Dup

SAMPLE PREPARATION:

Due to insufficient sample, only 965 mls and 937 mls were used in the extractions of 3TG22 and 3TG53, respectively.

0
0
4

Case Narrative
SDG #: KMA15 continued

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

ANALYSIS:

The method used for analysis was SW-846 8310.

All samples were analyzed for polynuclear aromatic hydrocarbons by HPLC.

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

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

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC was within specifications.

DATA INTERPRETATION:

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

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Christine M. Ratchell for CJN Date: 7-11-03
Charles J. Neslund
Group Leader, GC/MS Semivolatiles

Case Narrative
 SDG# KMA15

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

SAMPLE ANALYSES

LL Sample #	Sample Designation	Matrix Soil Water	Comments
3837346	3TG21	X	
3837346MS	3TG21	X	Matrix Spike
3837347	3TG22	X	
3837348	3TG23	X	
3837349	3TG51	X	
3837350	3TG52	X	
3837351	3TG53	X	
3837352	3TB62	X	
3839871	MA3T-	X	
3839872	MA33S	X	
3839873	MA26S	X	
3839874	MA35S	X	
3839875	MA30S	X	
3839876	FB03-	X	
3839877	FB04-	X	
3839878	26SD-	X	

QUALITY CONTROL ANALYSES

BLK1630	X	Method Blank
BLK1632	X	Method Blank
BLK1643	X	Method Blank
LCS1630	X	Lab Control Sample
LDS1630	X	Lab Control Dup
LCS1643	X	Lab Control Sample
LDS1643	X	Lab Control Dup

SAMPLE PREPARATION

No sample preparation was necessary.

ANALYSIS

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

0192

Case Narrative
SDG# KMA15

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

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

No problems were encountered during analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY

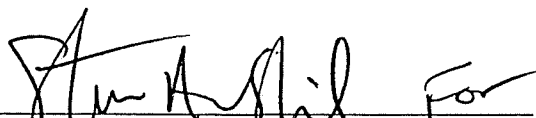
There was no client submitted QC, so Lancaster Laboratories batch QC was referenced. Sufficient sample volume was not available to perform an MSD for this analysis, therefore LCS/LDS was performed to demonstrate precision and accuracy at a batch level.

QC was within specifications.

DATA INTERPRETATION

No explanation is necessary for the data submitted.

Narrative reviewed and approved by:


Steve J. Stabinger, Group Leader

Date 7/11/02

04-01-02



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: KMA15

LANCASTER LABORATORIES

INSTRUMENTAL WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3837346	3TG21	
3837347	3TG22	
3837348	3TG23	
3837349	3TG51	
3837350	3TG52	
3837351	3TG53	
LCS		DF5

ANALYSIS:

Dilution for the total organic carbon analysis is listed in the comments section above.

LCS were analyzed at a dilution factor of 2 for the total phosphorus as P, total phosphorus as PO4 and nitrate nitrogen analyses.

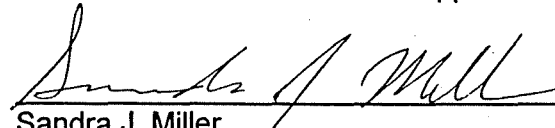
QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

The duplicate samples for the total phosphorus as P and total phosphorus as PO4 analyses were out of specification.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:



Sandra J. Miller
Specialist/Coordinator

Date: 7.3.02

1-800-451-1234



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: KMA15

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3837346	3TG21	
3837347	3TG22	
3837348	3TG23	
3837349	3TG51	
3837350	3TG52	
3837351	3TG53	

ANALYSIS:

No problems were encountered during analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

QC was within specification.

Site-specific MS/MSD samples were not submitted for the ammonia nitrogen analysis.
A LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Sandra J. Miller Date: 7-10-02
Sandra J. Miller
Specialist/Coordinator

I have reviewed the analytical data provided by Lancaster Laboratories for the Moss American Site in Milwaukee, Wisconsin upon the information that was provided by the laboratory.

The water samples were analyzed for Polynuclear Aromatic Hydrocarbons PAHs, Petroleum analyses (BETX), Kjeldahl Nitrogen, Nitrite Nitrogen, Nitrate Nitrogen, Ammonia Nitrogen, Ortho-Phosphate, Biochemical Oxygen Demand, Total Organic Carbon, Total Phosphorus, Chemical Oxygen Demand.

A summary of the data validation is provided below for samples delivery group SDG# KMA16 only for PAH, and BETX.

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

Moss American Site

SDG # KMA16

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>
MA3-TG6-1-180602-01	3838311	Water	06/18/02	06/21/02	06/22/02
MA3-TG6-2-180602-02	3838312	Water	06/18/02	06/24/02	06/25/02
MA3-TG6-3-180602-03	3838313	Water	06/18/02	06/21/02	06/22/02
MA3-MW-27S-180602-13	3838314	Water	06/18/02	06/21/02	06/22/02
MA3- MW-32S-180602-14	3838315	Water	06/18/02	06/21/02	06/22/02
MA3- MW-33S-180602-15	3838316	Water	06/18/02	06/21/02	06/22,24/02
MA3- TG3-1-180602-04	3838317	Water	06/18/02	06/21/02	06/22/02
MA3- TG3-1-180602-04 MS	3838318	Water	06/18/02	06/21/02	06/22/02
MA3- TG3-1-180602-04 MSD	3838319	Water	06/18/02	06/21/02	06/22/02
MA3- TG3-2-180602-05 DUP	3838320	Water	06/18/02	06/21/02	06/22/02
MA3- TG1-1-180602-10	3838322	Water	06/18/02	06/21/02	06/22,24/02
MA3- TG1-2-180602-11	3838323	Water	06/18/02	06/21/02	06/22/02
MA3- TG1-3-180602-12	3838324	Water	06/18/02	06/21/02	06/22/02
MA3- TG3-2-180602-05	3838325	Water	06/18/02	06/21/02	06/22/02
MA3- TG3-3-180602-06	3838326	Water	06/18/02	06/21/02	06/22/02
MA3- TG4-1-180602-07	3838327	Water	06/18/02	06/21/02	06/22/02
MA3- TG4-2-180602-08	3838328	Water	06/18/02	06/21/02	06/22/02
MA3- TG4-3-180602-09	3838329	Water	06/18/02	06/21/02	06/22/02

2. Holding Times:

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

3. Method Blank:

Two method blanks associated with this SDG. SBLKWC1712 was extracted on 06/21/02 and analyzed on 06/22/02 with samples (3838311, 3838313 thru 3838320, 3838322 thru 3838329, 3838316DL, and 3838322DL). SBLKWA1732 was extracted on 06/24/02 and analyzed on 06/25/02 with (3838312). Both method blanks SBLKWC1712, and SBLKWA1732 result were free of contamination.

4. Surrogate:

All method blanks and the investigated samples had surrogate recoveries within the required quality control limits.

5. Matrix Spike/Matrix Spike Duplicate Recovery:

The MS/MSD was performed on sample (MA3- TG3-1-180602-04/3838317) applies to the following samples (3838311, 3838313 thru 3838320, 3838322 thru 3838329, 3838316DL, and 3838322DL). The matrix spike/matrix spike duplicate (3838318MS/3838319MSD) recoveries were all within the acceptance quality control limits. Also, the RPD% values were acceptable. Sufficient sample volume was not available to perform MS/MSD for the analysis of sample (3838312). Therefore, a 1732WALCS/LCSD was performed instead.

6. Laboratory Control Sample:

Two laboratory control samples were associated with this SDG. 1712WCLCS was analyzed with (3838311, 3838313 thru 3838320, 3838322 thru 3838329, 3838316DL, and 3838322DL) and the recoveries were within the quality control limits. 1732WALCS/LCSD were analyzed with (3838312) and the recoveries were within the quality control limits. Also, the RPD% values were acceptable.

7. Initial and Continuing Calibration:

The initial calibration, calibration verification, retention time were all with the acceptance control limits, except the initial calibration file ID/HP03456.i/02jun18.b/m8310b.m for acenaphthylene was (131.42%) on fluorescence detector. Also, the continuing calibration file ID 02169B1-55R.d was (-89.87%), file ID 02169B1-66R.d was (-80.98%), file ID 02169B1-76R.d was (-77.15%), file ID 02169B2-38R.d was (-68.38%), and file ID 02169B2-49R.d was (-72.08%) for acenaphthylene from fluorescence detector. No action was taken because the results were reported for acenaphthylene from ultraviolet detector and all the results were acceptable.

VOLATILE-BETX by GC/MS (U.S. EPA Method 8021B)

Moss American Site

SDG # KMA16

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>
MA3-TG6-1-180602-01	3838311	Water	06/18/02	06/21/02	06/21/02
MA3-TG6-2-180602-02	3838312	Water	06/18/02	06/21/02	06/21/02
MA3-TG6-3-180602-03	3838313	Water	06/18/02	06/21/02	06/21/02
MA3-MW-27S-180602-13	3838314	Water	06/18/02	06/21/02	06/21/02
MA3- MW-32S-180602-14	3838315	Water	06/18/02	06/21/02	06/21/02
MA3- MW-33S-180602-15	3838316	Water	06/18/02	06/21/02	06/21/02
MA3- TG3-1-180602-04	3838317	Water	06/18/02	06/21/02	06/21/02
MA3- TG3-1-180602-04 MS	3838318	Water	06/18/02	06/21/02	06/21/02
MA3- TG3-1-180602-04 MSD	3838319	Water	06/18/02	06/21/02	06/21/02
MA3- TG3-2-180602-05 DUP	3838320	Water	06/18/02	06/21/02	06/21/02
MA3-TB-180602 Trip Blank	3838321	Water	06/18/02	06/21/02	06/21/02
MA3- TG1-1-180602-10	3838322	Water	06/18/02	06/21/02	06/21/02
MA3- TG1-2-180602-11	3838323	Water	06/18/02	06/21/02	06/21/02
MA3- TG1-3-180602-12	3838324	Water	06/18/02	06/21/02	06/21/02
MA3- TG3-2-180602-05	3838325	Water	06/18/02	06/21/02	06/21/02
MA3- TG3-3-180602-06	3838326	Water	06/18/02	06/21/02	06/21/02
MA3- TG4-1-180602-07	3838327	Water	06/18/02	06/21/02	06/21/02
MA3- TG4-2-180602-08	3838328	Water	06/18/02	06/21/02	06/21/02
MA3- TG4-3-180602-09	3838329	Water	06/18/02	06/21/02	06/21/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

Two method blanks BLK1635, and BLK1636 were associated with the SDG. BLK1635 was analyzed on 06/20/02 with (3838311 thru 3838315, 3838317, 3838318MS, 3838319MSD, and 3838321). BLK1636 was analyzed on 06/21/02 with (3838316, 3838320, 3838322 thru 3838329). Both method blanks results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate Recovery:

The MS/MSD was performed on sample (MA3- TG3-1-180602-04/3838317) applies to the following samples (3838311 thru 3838329). The matrix spike/matrix spike duplicate (3838318MS/3838319MSD) recoveries were all within the acceptance quality control limits. Also, the RPD% values were acceptable.

5. Laboratory Control Sample Recovery:

The laboratory control sample/laboratory control sample duplicate recoveries were within the quality control limits. Also, the RPD% values were acceptable.

6. Surrogate:

All method blanks and the investigated samples had surrogate recoveries within the required quality control limits (71-130%).

7. Initial, Continuing Calibration, and Internal Standards:

The initial calibration, continuing calibration verification and the internal standards results were all acceptable.

Data Reviewed By: Tania Balikji-Shammo

Date: 07/23/02



ANALYTICAL RESULTS

Prepared for:

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

405-270-2602

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 811826. Samples arrived at the laboratory on Wednesday, June 19, 2002.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
MA3-TG6-1-180602-01 Grab Water Sample	3838311
MA3-TG6-2-180602-02 Grab Water Sample	3838312
MA3-TG6-3-180602-03 Grab Water Sample	3838313
MA3-MW-27S-180602-13 Grab Water Sample	3838314
MA3-MW-32S-180602-14 Grab Water Sample	3838315
MA3-MW-33S-180602-15 Grab Water Sample	3838316
MA3-TG3-1-180602-04 Unspiked Grab Water Sample	3838317
MA3-TG3-1-180602-04-MS Matrix Spike Grab	3838318
MA3-TG3-1-180602-04-MSD Matrix Spike Duplicate	3838319
MA3-TG3-2-180602-05 Dup Grab Water Sample	3838320
MA3-TB-180602 Trip Blank Water Sample	3838321
MA3-TG1-1-180602-10 Grab Water Sample	3838322
MA3-TG1-2-180602-11 Grab Water Sample	3838323
MA3-TG1-3-180602-12 Grab Water Sample	3838324
MA3-TG3-2-180602-05 Grab Water Sample	3838325
MA3-TG3-3-180602-06 Grab Water Sample	3838326
MA3-TG4-1-180602-07 Grab Water Sample	3838327
MA3-TG4-2-180602-08 Grab Water Sample	3838328
MA3-TG4-3-180602-09 Grab Water Sample	3838329

METHODOLOGY

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

1 COPY TO
1 COPY TO

Kerr-McGee Corporation
Roy F. Weston

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



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



1 COPY TO Data Package Group

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

Respectfully Submitted,

Victoria M. Martell
Victoria M. Martell
Chemist



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

6
5
1
7



Lancaster Laboratories Sample No. WW 3838311

Collected: 06/18/2002 09:25 by JK Account Number: 07802

Submitted: 06/19/2002 09:40
 Reported: 07/01/2002 at 14:30
 Discard: 08/01/2002
 MA3-TG6-1-180602-01 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

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

TG6-1 SDG#: KMA16-01

CAT No.	Analysis Name	CAS Number	As Received		Units	Dilution Factor
			Result	Method		
00217	Kjeldahl Nitrogen	7727-37-9	1.2	Detection Limit	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.76 J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.086	0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.152	0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	3.0	mg/l	1
00273	Total Organic Carbon	n.a.	7.0	0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.47	0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	15.8	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.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	0.2 J	0.08	ug/l	1
00789	Anthracene	120-12-7	0.09 J	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.4	0.04	ug/l	1
00811	Pyrene	129-00-0	0.4 J	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.09 J	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.08 J	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	0.07 J	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	0.1 J	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	0.2 J	0.1	ug/l	1
07409	Chrysene	218-01-9	0.2 J	0.08	ug/l	1



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



Lancaster Laboratories Sample No. WW 3838311

Collected: 06/18/2002 09:25 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40
 Reported: 07/01/2002 at 14:30
 Discard: 08/01/2002

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

MA3-TG6-1-180602-01 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG6-1 SDG#: KMA16-01

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result	J	Method	Units	
07410	Benzo(k) fluoranthene	207-08-9	0.04	J	Detection Limit	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:31	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 18:56	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/28/2002 15:01	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/27/2002 06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/19/2002 20:30	Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:32	Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/19/2002 22:53	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/20/2002 10:24	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:32	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/28/2002 06:15	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 01:30	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 13:31	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 01:30	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/24/2002 14:00	Nancy J Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25	JoElla L Rice	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30	James S Mathiot	1



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



Lancaster Laboratories Sample No. WW 3838312

Collected: 06/18/2002 09:15 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Reported: 07/01/2002 at 14:30

Discard: 08/01/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG6-2-180602-02 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG6-2 SDG#: KMA16-02

CAT No.	Analysis Name	CAS Number	As Received		Units	Dilution Factor
			Result	Method Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.1	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	N.D.	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.040	0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.057	0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	3.0	mg/l	1
00273	Total Organic Carbon	n.a.	10.2	0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.18 J	0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	22.7	1.7	mg/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	0.05 J	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.1 J	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1



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

00020



Lancaster Laboratories Sample No. WW 3838312

Collected: 06/18/2002 09:15 by JK Account Number: 07802

Submitted: 06/19/2002 09:40
 Reported: 07/01/2002 at 14:30
 Discard: 08/01/2002

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

MA3-TG6-2-180602-02 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG6-2 SDG#: KMA16-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:32	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 19:00	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/28/2002 15:02	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/27/2002 06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/19/2002 20:30	Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:33	Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/19/2002 22:53	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/20/2002 10:32	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:33	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/28/2002 06:15	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 02:04	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 21:45	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 02:04	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/24/2002 14:00	Nancy J Shoop	1
03337	PAH Water Extraction	SW-846 3510C	2	06/24/2002 15:00	Sharon L Jones	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30	James S Mathiot	1

0021



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Lancaster Laboratories Sample No. WW 3838313

Collected: 06/18/2002 09:20 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40
 Reported: 07/01/2002 at 14:30
 Discard: 08/01/2002

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

MA3-TG6-3-180602-03 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG6-3 SDG#: KMA16-03

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor	
			Result		Method	Detection Limit		Units
00217	Kjeldahl Nitrogen	7727-37-9	0.96	J	0.30		mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015		mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040		mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.67	J	0.46		mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.								
00226	Ortho-Phosphate as P	14265-44-2	0.0129	J	0.0066		mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.066		0.040		mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.7		mg/l	1
00273	Total Organic Carbon	n.a.	9.8		0.50		mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.20		0.12		mg/l	1
01553	Chemical Oxygen Demand	n.a.	22.3		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.		0.9		ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8		ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8		ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2		ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08		ug/l	1
00789	Anthracene	120-12-7	0.05	J	0.04		ug/l	1
00807	Fluoranthene	206-44-0	0.06	J	0.04		ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2		ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02		ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04		ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02		ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04		ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08		ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.09		ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08		ug/l	1



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00222



Lancaster Laboratories Sample No. WW 3838313

Collected: 06/18/2002 09:20 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Kerr-McGee Corporation

Reported: 07/01/2002 at 14:30

P.O. Box 25861

Discard: 08/01/2002

Oklahoma City OK 73125

MA3-TG6-3-180602-03 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG6-3 SDG#: KMA16-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.02		ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:34		Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 19:01		Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/28/2002 15:03		Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/27/2002 06:30		Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/19/2002 20:30		Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:34		Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/19/2002 22:53		Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/20/2002 10:56		Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:34		Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/28/2002 06:15		Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 02:37		Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 14:48		Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 02:37		Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/24/2002 14:00		Nancy J Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25		JoElla L Rice	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30		James S Mathiot	1



00023



Lancaster Laboratories Sample No. WW 3838314

Collected: 06/18/2002 16:25 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Kerr-McGee Corporation

Reported: 07/01/2002 at 14:31

P.O. Box 25861

Discard: 08/01/2002

Oklahoma City OK 73125

MA3-MW-27S-180602-13 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW27S SDG#: KMA16-04

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 03:11	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 15:27	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 03:11	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25	JoElla L Rice	1



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Lancaster Laboratories Sample No. WW: 3838314

Collected: 06/18/2002 16:25 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Reported: 07/01/2002 at 14:31

Discard: 08/01/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-MW-27S-180602-13 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW27S SDG#: KMA16-04



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Lancaster Laboratories Sample No. WW 3838315

Collected: 06/18/2002 16:35 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Reported: 07/01/2002 at 14:31

Discard: 08/01/2002

MA3-MW-32S-180602-14 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MW32S SDG#: KMA16-05

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 03:44	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 16:06	Mark A Clark	1
01146	GC VOA Water Prep.	SW-846 5030B	1	06/21/2002 03:44	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25	JoElla L Rice	1



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Lancaster Laboratories Sample No. WW 3838315

Collected: 06/18/2002 16:35 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Kerr-McGee Corporation

Reported: 07/01/2002 at 14:31

P.O. Box 25861

Discard: 08/01/2002

Oklahoma City OK 73125

MA3-MW-32S-180602-14 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

MW32S SDG#: KMA16-05

6627



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Lancaster Laboratories Sample No. WW 3838316

Collected: 06/18/2002 16:15 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40
 Reported: 07/01/2002 at 14:31
 Discard: 08/01/2002

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

MA3-MW-33S-180602-15 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

MW33S SDG#: KMA16-06

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	2.0 J	1.0	ug/l	5
00777	Toluene	108-88-3	1.3 J	1.0	ug/l	5
00778	Ethylbenzene	100-41-4	8.7	1.0	ug/l	5
00779	Total Xylenes	1330-20-7	27.	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.	50.	ug/l	50
00782	Acenaphthylene	208-96-8	64.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	180.	0.8	ug/l	1
00784	Fluorene	86-73-7	50.	8.	ug/l	50
00785	Phenanthrene	85-01-8	4.	0.08	ug/l	1
00789	Anthracene	120-12-7	0.1 J	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo (b) fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno (1, 2, 3-cd) pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo (g, h, i) perylene	191-24-2	N.D.	0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo (k) fluoranthene	207-08-9	N.D.	0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 13:43	Linda C Pape	5
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 17:23	Mark A Clark	50
00774	PAH's in Water by HPLC	SW-846 8310	1	06/24/2002 01:20	Mark A Clark	50



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Lancaster Laboratories Sample No. WW 3838316

Collected: 06/18/2002 16:15 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Reported: 07/01/2002 at 14:31

Discard: 08/01/2002

MA3-MW-33S-180602-15 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MW33S	SDG#: KMA16-06					
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 13:43	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25	JoElla L Rice	1



50205



Lancaster Laboratories Sample No. WW 3838317

Collected: 06/18/2002 10:50 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40
 Reported: 07/01/2002 at 14:31
 Discard: 08/01/2002

Kerr-McGee Corporation
 P.O. Box 25861
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MA3-TG3-1-180602-04 Unspiked Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

60204 SDG#: KMA16-07BKG

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result	Method	Detection Limit	Units	
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	0.94	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0110	J	0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.069		0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		3.3	mg/l	1
00273	Total Organic Carbon	n.a.	11.7		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.21		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	26.3		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.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	0.4	J	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	0.08	J	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.06	J	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1



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Lancaster Laboratories Sample No. WW 3838317

Collected: 06/18/2002 10:50 by JK Account Number: 07802

Submitted: 06/19/2002 09:40
 Reported: 07/01/2002 at 14:31
 Discard: 08/01/2002
 MA3-TG3-1-180602-04 Unspiked Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

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

60204 SDG#: KMA16-07BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
07410	Benzo (k) fluoranthene	207-08-9	N.D.		0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002	16:35	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002	19:11	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/28/2002	15:05	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/27/2002	06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/19/2002	20:30	Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002	15:35	Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/19/2002	22:53	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/20/2002	11:04	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002	15:35	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/28/2002	06:15	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002	04:18	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002	11:35	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002	04:18	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/24/2002	14:00	Nancy J Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002	01:25	JoElla L Rice	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002	10:30	James S Mathiot	1



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Lancaster Laboratories Sample No. WW 3838318

Collected: 06/18/2002 10:50 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40
 Reported: 07/01/2002 at 14:31
 Discard: 08/01/2002

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

MA3-TG3-1-180602-04-MS Matrix Spike Grab
 Water Sample
 Moss American Superfund Site - Milwaukee, WI

60204 SDG#: KMA16-07MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	23.	0.20	ug/l	1
00777	Toluene	108-88-3	22.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	22.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	66.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	190.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	190.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	200.	0.8	ug/l	1
00784	Fluorene	86-73-7	19.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	6.	0.08	ug/l	1
00789	Anthracene	120-12-7	3.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	3.	0.04	ug/l	1
00811	Pyrene	129-00-0	20.	0.2	ug/l	1
00812	Benzo (a) anthracene	56-55-3	1.	0.02	ug/l	1
00818	Benzo (b) fluoranthene	205-99-2	1.	0.04	ug/l	1
00823	Benzo (a) pyrene	50-32-8	1.	0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	3.	0.04	ug/l	1
00898	Indeno (1, 2, 3-cd) pyrene	193-39-5	6.	0.08	ug/l	1
00907	Benzo (g, h, i) perylene	191-24-2	12.	0.1	ug/l	1
07409	Chrysene	218-01-9	6.	0.08	ug/l	1
07410	Benzo (k) fluoranthene	207-08-9	1.	0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 04:51	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 12:14	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 04:51	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25	JoElla L Rice	1



Lancaster Laboratories Sample No. WW 3838318

Collected: 06/18/2002 10:50 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Reported: 07/01/2002 at 14:31

Discard: 08/01/2002

MA3-TG3-1-180602-04-MS Matrix Spike Grab

Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

60204 SDG#: KMA16-07MS



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05010505



Lancaster Laboratories Sample No. WW 3838319

Collected: 06/18/2002 10:50 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Reported: 07/01/2002 at 14:31

Discard: 08/01/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG3-1-180602-04-MSD Matrix Spike Duplicate

Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

60204 SDG#: KMA16-07MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	23.	0.20	ug/l	1
00777	Toluene	108-88-3	23.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	22.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	66.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	190.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	190.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	200.	0.8	ug/l	1
00784	Fluorene	86-73-7	19.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	6.	0.08	ug/l	1
00789	Anthracene	120-12-7	3.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	3.	0.04	ug/l	1
00811	Pyrene	129-00-0	20.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	6.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	12.	0.1	ug/l	1
07409	Chrysene	218-01-9	6.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.	0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 05:26	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 12:53	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 05:26	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25	JoElla L Rice	1



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Lancaster Laboratories Sample No. WW 3838319

Collected: 06/18/2002 10:50 by JK

Submitted: 06/19/2002 09:40

Reported: 07/01/2002 at 14:31

Discard: 08/01/2002

MA3-TG3-1-180602-04-MSD Matrix Spike Duplicate

Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

60204 SDG#: KMA16-07MSD

Account Number: 07802

Kerr-McGee Corporation

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Lancaster Laboratories Sample No. WW 3838320

Collected: 06/18/2002 10:55 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40
Reported: 07/01/2002 at 14:31
Discard: 08/01/2002

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Oklahoma City OK 73125

MA3-TG3-2-180602-05 Dup Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

025FD SDG#: KMA16-08FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.05 J	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 08:12	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 18:01	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 08:12	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25	JoElla L Rice	n.a.



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Lancaster Laboratories Sample No. WW 3838320

Collected: 06/18/2002 10:55 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Reported: 07/01/2002 at 14:31

Discard: 08/01/2002

MA3-TG3-2-180602-05 Dup Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

025FD SDG#: KMA16-08FD



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Lancaster Laboratories Sample No. WW 3838321

Collected: 06/18/2002 17:25

Account Number: 07802

Submitted: 06/19/2002 09:40

Kerr-McGee Corporation

Reported: 07/01/2002 at 14:32

P.O. Box 25861

Discard: 08/01/2002

Oklahoma City OK 73125

MA3-TB-180602 Trip Blank Water Sample
Moss American Superfund Site - Milwaukee, WI

TB180 SDG#: KMA16-09TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 00:57	Linda C Pape	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 00:57	Linda C Pape	n.a.





Lancaster Laboratories Sample No. WW 3838322

Collected: 06/18/2002 15:25 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40
 Reported: 07/01/2002 at 14:32
 Discard: 08/01/2002

Kerr-McGee Corporation
 P.O. Box 25861
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MA3-TG1-1-180602-10 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG1-1 SDG#: KMA16-10

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Detection Limit	
00217	Kjeldahl Nitrogen	7727-37-9	0.97	J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.61	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0096	J	0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.074		0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		5.6	mg/l	1
00273	Total Organic Carbon	n.a.	9.6		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.23		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	31.6		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	3.2	J	1.0	ug/l	5
00777	Toluene	108-88-3	N.D.		1.0	ug/l	5
00778	Ethylbenzene	100-41-4	18.		1.0	ug/l	5
00779	Total Xylenes	1330-20-7	22.		3.0	ug/l	5
Due to dilution of the sample made necessary by the high level of non-target compounds, normal reporting limits were not attained.							
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	1,500.		20.	ug/l	20
00782	Acenaphthylene	208-96-8	N.D.		30.	ug/l	1
00783	Acenaphthene	83-32-9	150.		0.8	ug/l	1
00784	Fluorene	86-73-7	70.		4.	ug/l	20
00785	Phenanthrene	85-01-8	55.		2.	ug/l	20
00789	Anthracene	120-12-7	5.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	6.		0.04	ug/l	1
00811	Pyrene	129-00-0	3.		0.2	ug/l	1
00812	Benzo (a) anthracene	56-55-3	0.2		0.02	ug/l	1
00818	Benzo (b) fluoranthene	205-99-2	0.06	J	0.04	ug/l	1
00823	Benzo (a) pyrene	50-32-8	0.05	J	0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.		0.04	ug/l	1



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Lancaster Laboratories Sample No. WW 3838322

Collected: 06/18/2002 15:25 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Kerr-McGee Corporation

Reported: 07/01/2002 at 14:32

P.O. Box 25861

Discard: 08/01/2002

Oklahoma City OK 73125

MA3-TG1-1-180602-10 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG1-1 SDG#: KMA16-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.03 J		0.02	ug/l	1

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for acenaphthylene. The reporting limit for this compound was raised accordingly.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:41	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 19:04	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/28/2002 15:11	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/27/2002 06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/19/2002 20:30	Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:39	Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/19/2002 22:53	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/20/2002 11:28	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:39	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/28/2002 06:15	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 14:17	Linda C Pape	5
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 18:40	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/24/2002 02:02	Mark A Clark	20
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 14:17	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/24/2002 14:00	Nancy J Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25	JoElla L Rice	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30	James S Mathiot	1



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00040



Lancaster Laboratories Sample No. WW 3838323

Collected: 06/18/2002 15:10 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Reported: 07/01/2002 at 14:32

Discard: 08/01/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG1-2-180602-11 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG1-2 SDG#: KMA16-11

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method	Units	
00217	Kjeldahl Nitrogen	7727-37-9	1.3		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.018	J	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.94	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0082	J	0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.104		0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		5.1	mg/l	1
00273	Total Organic Carbon	n.a.	10.9		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.32		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	26.7		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	0.52	J	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	62.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	2.	J	0.8	ug/l	1
00783	Acenaphthene	83-32-9	35.		0.8	ug/l	1
00784	Fluorene	86-73-7	14.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	13.		0.08	ug/l	1
00789	Anthracene	120-12-7	2.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	2.		0.04	ug/l	1
00811	Pyrene	129-00-0	1.		0.2	ug/l	1
00812	Benzo(a) anthracene	56-55-3	0.07	J	0.02	ug/l	1
00818	Benzo(b) fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a) pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz(a,h) anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno(1,2,3-cd) pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i) perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1



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0041



Lancaster Laboratories Sample No. WW 3838323

Collected: 06/18/2002 15:10

by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Reported: 07/01/2002 at 14:32

Discard: 08/01/2002

MA3-TG1-2-180602-11 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

TG1-2 SDG#: KMA16-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
07410	Benzo(k) fluoranthene	207-08-9	N.D.		0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:42		Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 19:07		Nicole M Kopley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/28/2002 15:12		Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/27/2002 06:30		Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/19/2002 20:30		Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:40		Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/19/2002 22:53		Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/20/2002 11:36		Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:40		Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/28/2002 06:15		Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 08:46		Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 19:18		Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 08:46		Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/24/2002 14:00		Nancy J Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25		JoElla L Rice	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30		James S Mathiot	1



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104000



Lancaster Laboratories Sample No. WW 3838324

Collected: 06/18/2002 15:00 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40
 Reported: 07/01/2002 at 14:32
 Discard: 08/01/2002

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

MA3-TG1-3-180602-12 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG1-3 SDG#: KMA16-12

CAT No.	Analysis Name	CAS Number	As Received		Units	Dilution Factor
			As Received Result	Method Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.1	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.73 J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.040	0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.127	0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	4.5	mg/l	1
00273	Total Organic Carbon	n.a.	7.8	0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.39	0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	23.5	1.7	mg/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	0.05 J	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.05 J	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo (b) fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno (1, 2, 3-cd) pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo (g, h, i) perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1

0014-0000



Lancaster Laboratories Sample No. WW 3838324

Collected: 06/18/2002 15:00

by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Reported: 07/01/2002 at 14:32

Discard: 08/01/2002

MA3-TG1-3-180602-12 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

TG1-3 SDG#: KMA16-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
07410	Benzo (k) fluoranthene	207-08-9	N.D.		0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002	16:44	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002	19:09	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/28/2002	15:13	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/27/2002	06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/19/2002	20:30	Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002	15:41	Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/19/2002	22:53	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/20/2002	11:44	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002	15:41	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/28/2002	06:15	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002	10:23	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002	19:57	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002	10:23	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/24/2002	14:00	Nancy J Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002	01:25	JoElla L Rice	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002	10:30	James S Mathiot	1



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0044



Lancaster Laboratories Sample No. WW 3838325

Collected: 06/18/2002 10:55 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Kerr-McGee Corporation

Reported: 07/01/2002 at 14:32

P.O. Box 25861

Discard: 08/01/2002

Oklahoma City OK 73125

MA3-TG3-2-180602-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG3-2 SDG#: KMA16-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.4		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.016	J	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.91	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0153	J	0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.088		0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		5.5	mg/l	1
00273	Total Organic Carbon	n.a.	9.3		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.27		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	23.9		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.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	0.05	J	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.05	J	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1



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LJ-4-03-00



Lancaster Laboratories Sample No: WW 3838325

Collected: 06/18/2002 10:55 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Kerr-McGee Corporation

Reported: 07/01/2002 at 14:32

P.O. Box 25861

Discard: 08/01/2002

Oklahoma City OK 73125

MA3-TG3-2-180602-05 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG3-2 SDG#: KMA16-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
07410	Benzo(k) fluoranthene	207-08-9	N.D.		0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:45		Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 19:10		Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/28/2002 15:15		Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/27/2002 06:30		Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/19/2002 20:30		Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:42		Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/19/2002 22:53		Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/20/2002 11:53		Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:42		Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/28/2002 06:15		Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 10:56		Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 20:36		Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 10:56		Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/24/2002 14:00		Nancy J Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25		JoElla L Rice	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30		James S Mathiot	1



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0000446



Lancaster Laboratories Sample No. WW 3838326

Collected: 06/18/2002 10:50 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40
 Reported: 07/01/2002 at 14:32
 Discard: 08/01/2002

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

MA3-TG3-3-180602-06 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG3-3 SDG#: KMA16-14

CAT No.	Analysis Name	CAS Number	As Received		Units	Dilution Factor
			As Received Result	As Received Method Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.8	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	1.1	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.0101 J	0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.141	0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	6.9	0.80	mg/l	1
00273	Total Organic Carbon	n.a.	13.1	0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.43	0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	32.8	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.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	0.1 J	0.08	ug/l	1
00789	Anthracene	120-12-7	0.05 J	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.07 J	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1



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7-4-00



Lancaster Laboratories Sample No. WW 3838326

Collected: 06/18/2002 10:50 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Kerr-McGee Corporation

Reported: 07/01/2002 at 14:32

P.O. Box 25861

Discard: 08/01/2002

Oklahoma City OK 73125

MA3-TG3-3-180602-06 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG3-3 SDG#: KMA16-14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
07410	Benzo (k) fluoranthene	207-08-9	N.D.	0.02		ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:46		Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 19:02		Nicole M Kopley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/28/2002 15:18		Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/27/2002 06:30		Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/19/2002 20:30		Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:43		Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/19/2002 22:53		Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/20/2002 12:01		Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:43		Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/28/2002 06:15		Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 11:29		Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 21:14		Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 11:29		Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/24/2002 14:00		Nancy J Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25		JoElla L Rice	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30		James S Mathiot	1



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004009



Lancaster Laboratories Sample No. WW 3838327

Collected: 06/18/2002 13:40 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40
 Reported: 07/01/2002 at 14:32
 Discard: 08/01/2002

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

MA3-TG4-1-180602-07 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG4-1 SDG#: KMA16-15

CAT No.	Analysis Name	CAS Number	As Received		As Received		Dilution Factor
			Result		Method Detection Limit	Units	
00217	Kjeldahl Nitrogen	7727-37-9	0.91	J	0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.47	J	0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.025		0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.094		0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.9	mg/l	1
00273	Total Organic Carbon	n.a.	7.4		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.29		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	15.4		1.7	mg/l	1
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.		0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo (b) fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno (1, 2, 3-cd) pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo (g, h, i) perylene	191-24-2	N.D.		0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1



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04000



Lancaster Laboratories Sample No. WW 3838327

Collected: 06/18/2002 13:40

by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Kerr-McGee Corporation

Reported: 07/01/2002 at 14:32

P.O. Box 25861

Discard: 08/01/2002

Oklahoma City OK 73125

MA3-TG4-1-180602-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

TG4-1 SDG#: KMA16-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
07410	Benzo (k) fluoranthene	207-08-9	N.D.	0.02	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	06/24/2002 16:47	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 19:15	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/28/2002 15:20	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/27/2002 06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/19/2002 20:30	Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:44	Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/19/2002 22:53	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/20/2002 12:41	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:44	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/28/2002 06:15	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 12:03	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 21:53	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 12:03	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/24/2002 14:00	Nancy J Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25	JoElla L Rice	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30	James S Mathiot	1



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001100



Lancaster Laboratories Sample No. WW 3838328

Collected: 06/18/2002 13:45 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Reported: 07/01/2002 at 14:33

Discard: 08/01/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-TG4-2-180602-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG4-2 SDG#: KMA16-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.2		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.79 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.025		0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.062		0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		3.6	mg/l	1
00273	Total Organic Carbon	n.a.	9.0		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.19 J		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	21.1		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.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	0.1 J		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1



Lancaster Laboratories Sample No. WW 3838328

Collected: 06/18/2002 13:45 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Kerr-McGee Corporation

Reported: 07/01/2002 at 14:33

P.O. Box 25861

Discard: 08/01/2002

Oklahoma City OK 73125

MA3-TG4-2-180602-08 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG4-2 SDG#: KMA16-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.02	ug/l	1	

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:49		Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 19:16		Nicole M Képley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/28/2002 15:21		Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/27/2002 06:30		Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/19/2002 20:30		Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:45		Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/19/2002 22:53		Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/20/2002 12:49		Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:45		Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/28/2002 06:15		Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 12:36		Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 22:31		Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 12:36		Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/24/2002 14:00		Nancy J Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25		JoElla L Rice	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30		James S Mathiot	1



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0052



Lancaster Laboratories Sample No. WW 3838329

Collected: 06/18/2002 13:50 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40

Kerr-McGee Corporation

Reported: 07/01/2002 at 14:33

P.O. Box 25861

Discard: 08/01/2002

Oklahoma City OK 73125

MA3-TG4-3-180602-09 Grab Water Sample

Moss American Superfund Site - Milwaukee, WI

TG4-3 SDG#: KMA16-17*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
00217	Kjeldahl Nitrogen	7727-37-9	1.3		0.30	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.040	mg/l	1
00221	Ammonia Nitrogen	7664-41-7	0.82 J		0.46	mg/l	1
Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.							
00226	Ortho-Phosphate as P	14265-44-2	0.0177 J		0.0066	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.072		0.040	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		2.9	mg/l	1
00273	Total Organic Carbon	n.a.	9.3		0.50	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.22		0.12	mg/l	1
01553	Chemical Oxygen Demand	n.a.	17.0		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.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo (b) fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.		0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno (1, 2, 3-cd) pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo (g, h, i) perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1



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Lancaster Laboratories Sample No. WW 3838329

Collected: 06/18/2002 13:50 by JK

Account Number: 07802

Submitted: 06/19/2002 09:40
 Reported: 07/01/2002 at 14:33
 Discard: 08/01/2002

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

MA3-TG4-3-180602-09 Grab Water Sample
 Moss American Superfund Site - Milwaukee, WI

TG4-3 SDG#: KMA16-17*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
00217	Kjeldahl Nitrogen	EPA 351.2	1	06/24/2002 16:50	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	06/19/2002 19:17	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	06/28/2002 15:25	Venia B McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	06/27/2002 06:30	Michele L Graham	1
00226	Ortho-Phosphate as P	EPA 365.3	1	06/19/2002 20:30	Daniel S Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	06/20/2002 15:46	Venia B McFadden	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	06/19/2002 22:53	Nicole R Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	06/20/2002 12:57	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	06/20/2002 15:46	Venia B McFadden	1
01553	Chemical Oxygen Demand	EPA 410.2	1	06/28/2002 06:15	Susan A Engle	1
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 13:10	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/22/2002 23:10	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 13:10	Linda C Pape	n.a.
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	06/24/2002 14:00	Nancy J Shoop	1
03337	PAH Water Extraction	SW-846 3510C	1	06/21/2002 01:25	JoElla L Rice	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	06/20/2002 10:30	James S Mathiot	1



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4-10-02



1 of 2

For Lancaster Laboratories use only

Acct. # 7802 Sample # 3838311-29

811826

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

Client: Kerr-McGree Acct. #: _____
 Project Name #: Mass American PWSID #: _____
 Project Manager: Tom Groan P.O. #: _____
 Sampler: Klemp, Grubb & Hagenara Quote #: _____
 Name of state where samples were collected: WI

Matrix: BTEX

Analyses Requested: _____

For lab use only
 FSC: _____
 SCR #: _____

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks
MA3-TB-180602	6/18/02	1725	X		X			2	Trip blank
MA3-TG1-1-180602-10		1525	X		X			3	
MA3-TG1-2-180602-14		1510	X		X			3	
MA3-TG1-3-180602-12		1500	X		X			3	
MA3-TG3-1-180602-04		1050	X		X			3	
MA3-TG3-2-180602-05		1055	X		X			3	
MA3-TG3-3-180602-06		1050	X		X			3	
MA3-TG4-1-180602-07		1340	X		X			3	
MA3-TG4-2-180602-08		1345	X		X			3	
MA3-TG4-3-180602-09		1350	X		X			3	

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

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

Relinquished by: Yoshi Hagenara Date: 6/18/02 Time: 1750 Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: Laura Jordan Date: 6/19/02 Time: 0940

Cooler #5



2 of 2

For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3838311-29

811 826

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

1 Client: Kerr-McGree Acct. #: _____
 Project Name/#: Mass American PWSID #: _____
 Project Manager: Tom Gorman P.O.#: _____
 Sampler: Kemp, Grubb & Tagliavara Quote #: _____
 Name of state where samples were collected: WI

Matrix 4
 Potable (GPA)
 Water
 NPDES
 Other
 Total # of containers

5 Analyses Requested
BTEX

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

2 Sample Identification	Date Collected	Time Collected	3 Grab	Composite	Soil	Water	Other	Total # of containers	Remarks
MA3-TG6-1-180602-01	6/18/02	0925	X		X			3	
MA3-TG6-2-180602-02	6/18/02	0915	X		X			3	
MA3-TG6-3-180602-03	6/18/02	0920	X		X			3	
MA3-MW-275-180602-13	6/18/02	1625	X		X			3	
MA3-MW-325-180602-14	6/18/02	1635	X		X			3	
MA3-MW-335-180602-15	6/18/02	1615	X		X			3	
MA3-TG3-1-180602-04MS	6/18/02	1050	X		X			3	MS
MA3-TG3-1-180602-04MSD	6/18/02	1050	X		X			3	MSD
MA3-TG3-2-180602-05DP	6/18/02	1055	X		X			3	

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: Standard
 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) Yes No SDG Complete? Yes No
 Type I (Tier I) GLP
 Type II (Tier II) Other Site-specific QC required? Yes No
 (If yes, indicate QC sample and submit triplicate volume.)
 Type III (NJ Red. Del.)
 Type IV (CUP) Per Quote Internal Chain of Custody required? Yes No

9 Relinquished by: Joshie Naguara Date: 6/18/02 Time: 1730 Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: Laura Gordon Date: 6/19/02 Time: 0940

Cooler #4



For Lancaster Laboratories use only
 Acct. # 2802 Sample # 3838311-29
 # 811806

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

Client: Kem McGee Acct. #: _____
 Project Name/#: Moss American PWSID #: _____
 Project Manager: Tom Graan P.O.# _____
 Sampler: Klemp, Grubb, Kitagawa Quote #: _____
 Name of state where samples were collected: WI

Matrix 4: Soil Water Potable Wastewater Other _____
 Total # of containers: _____

Analyses Requested 5: PAH-8310, NO3, NO2, TOC, TKN, TP, PO4, COD, D-PO4, BOD, NH3

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

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Potable	Wastewater	Other	Total # of containers	Analyses Requested	Remarks
MA3-MW-27S-180602-13	6/18/02	1625	X			X				2 2		
MA3-MW-32S-180602-14		1635	X			X				2 2		
MA3-MW-33S-180602-15		1615	X			X				2 2		
MA3-TG6-3-180602-03	√	0920	X			X				8 2		

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

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 Det.) Type IV (CLP) Per Quote

SDG Complete? Yes No
 Site-specific QC required? Yes No
 Internal Chain of Custody required? Yes No

Relinquished by: Joshie Naginara Date: 6/18/02 Time: 1755
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: Laura Jordan Date: 6/19/02 Time: 0940

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3838311-24
 # 811826

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

Client: Kern McGee Acct. #: _____
 Project Name/#: Moss American PWSID #: _____
 Project Manager: Tom Grahn P.O.#: _____
 Sampler: R. Klemp, A. Gnebb & Y. Hagiwara Quote #: _____
 Name of state where samples were collected: WI

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix				Analyses Requested							Remarks
					Soil	Potable Water	NPDES	Other	PAH-8310	NO3	NO2	TOC	TKN/TP/PO4/COD/TP	O-PO4	NH3	
MA3-TG3-1-180602-04	6/18/02	1050	X			X		8	2	1	1	1	1	1	1	
MA3-TG3-1-180602-04 MS	6/18/02	1050	X			X		2	2							Matrix Spike
MA3-TG3-1-180602-04 MSD	6/18/02	1050	X			X		2	2							Matrix Spike duplicate

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: Standard
 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) SDG Complete? Yes No
 Type I (Tier I) GLP
 Type II (Tier II) Other Site-specific QC required? Yes No
 Type III (NJ Red. Del.) Internal Chain of Custody required? Yes No
 Type IV (CLP) Per Quote

Relinquished by: <u>Yoshie Hagiwara</u>	Date: <u>6/18/02</u>	Time: <u>1655</u>	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Laura Jordan 6/19/02 0940

811826

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

Client: Kerr McGree Acct. #: _____
 Project Name/#: Moss American PWSID #: _____
 Project Manager: Tom Graan P.O.#: _____
 Sampler: Klemp, Grubb & Hagiwara Quote #: _____
 Name of state where samples were collected: WI

Matrix **4**

Analyses Requested **5**

For lab use only
FSC: _____
SCR #: _____

Sample matrix of sample (upon receipt if requested) **6**

Sample Identification	Date Collected	Time Collected	Grab 3	Composite	Soil	Potable Water <input type="checkbox"/>	Other <input type="checkbox"/>	Total # of containers	PAH-8310	NO3	NO2	TOC	TP, TP-PO4, COD, TP	O-PO4	BOD	NH3	Remarks
MA3-TG3-2-180602-05	6/18/02	1655	X			X		8	2	1	1	1	1	1	1		
MA3-TG3-2-180602-05 DUP	↓	1055	X			X		2	2								
MA3-TG3-3-180602-06	↓	1050	X			X		8	2	1	1	1	1	1	1		

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: Standard
 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) Yes No SDG Complete?
 Type I (Tier I) GLP
 Type II (Tier II) Other
 Type III (NJ Red. Del.)
 Type IV (CLP) Per Quote Internal Chain of Custody required? Yes No

Relinquished by: Goshie Nagura Date: 6/18/02 Time: 1725 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

Laura Jordan 6/19/02 0940

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only



Acct. # 7802 Sample # 3838311-29

811826

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

1 Client: Kerr-McGee Acct. #: _____
 Project Name #: Tom Green for Moss American PWSID #: _____
 Project Manager: Tom Green P.O. #: _____
 Sampler: Kemp, Grubb & Hegl Quote #: _____
 Name of state where samples were collected: WI

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix 4				Analyses Requested 5							Remarks	Temperature of samples upon receipt (if requested) 6
					Soil	Water	Other	Total # of containers	PAH-8310	NO3	NO2	TOC	TKN/TP-Pow/COD/TP	O-Po4-BOD	NH3		
MA3-TG4-1-180602-07	6/18/02	1340	X			X		8	2	1	1	1	1	1	1		
MA3-TG4-2-180602-08	↓	1345	X			X		8	2	1	1	1	1	1	1		

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

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

Relinquished by: Yoshie Nagimura Date: 6/18/02 Time: 1710
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: Janna Jordan Date: 6/19/02 Time: 0940



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3838311-29

811826

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

Client: Kerr McGee Acct. #: _____
 Project Name #: Moss American PWSID #: _____
 Project Manager: Tom Graan P.O. #: _____
 Sampler: Kemp, Grubb & Haglwa Note #: _____
 Name of state where samples were collected: WI

Matrix **4**
 Soil Composite Water Potable Gas Waste NIPDES applicable Other _____

Total # of Containers _____

Analyses Requested **5**
PAH-8310
NO3
NO2
ToC
TKN/TP-Po4/CoDTp
O-Po4/BOD
NH3

For lab use only
 FSC: _____
 SCR #: _____

Signature of Sample Collector (if requested) **6**

Sample Identification	Date Collected	Time Collected	Grab 3	Composite	Soil	Water	Potable Gas	Waste	NIPDES applicable	Other	Total # of Containers	PAH-8310	NO3	NO2	ToC	TKN/TP-Po4/CoDTp	O-Po4/BOD	NH3	Remarks
MA3-TG6-1-180602-01	6/18/02	0925	X			X					8	2	1	1	1	1	1	1	
MA-TG6-2-180602-02	6/18/02	0915	X			X					8	2	1	1	1	1	1	1	

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

Relinquished by: Goshie Nagimura Date: 6/18/02 Time: 1715 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

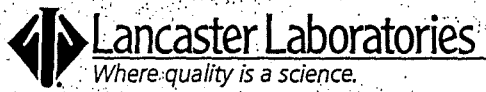
Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____ Received by: Laura Jordan Date: 6/19/02 Time: 0940

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

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3838311-29
 # 811826

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

1 Client: Kerr - McGree Acct. #: _____
 Project Name/#: Moss American PWSID #: _____
 Project Manager: Tom Groah P.O.# _____
 Sampler: J. Klem, A. Grebb & Y. Higginson Date #: _____
 Name of state where samples were collected: WI

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix 4					Analyses Requested 5							Remarks	Temperature of sample upon receipt of request
					Soil	Potable / Drinking Water	NPDES / Wastewater	Other	Total # of containers	PAH-8310	NO3	NO2	TOC	TKN/TP-PO4, COD, TP	O-PO4, BOD	NH3		
MA3-TG1-1-180602-10	6/18/02	1525	X			X			8	2	1	1	1	1	1	1		
MA3-TG1-2-180602-11	6/18/02	1510	X			X			8	2	1	1	1	1	1	1		

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

Relinquished by: <u>Yoshie Higginara</u>	Date: <u>6/18/02</u>	Time: <u>1700</u>	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

8 Data Package Options (please circle if requested):
 QC Summary Type VI (Raw Data) Yes No
 Type I (Tier I) GLP
 Type II (Tier II) Other
 Type III (NJ Red. Del)
 Type IV (CLP) Per Quote

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

Laura Jordan 6/19/02 0940
Cooler #7



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3838311-29
 # 811826

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

1 Client: Kerr-McGree Acct. #: _____
 Project Name/#: Moss American PWSID #: _____
 Project Manager: Tom Groan P.O.#: _____
 Sampler: J. Kemp, A. Grubb & Y. Hagiwara Quote #: _____
 Name of state where samples were collected: WI

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix 4			Total # of containers	Analyses Requested 5							Remarks	For lab use only FSC: _____ SCR #: _____
					Soil	Water	Other		PAH-8310	NO3	NO2	TOC	TFN, TP-P4, COP, TP	O-P4, BOD	NH3		
MA3-TG 1-3-180602-12	6/18/02	1500	X			X		8	2	1	1	1	1	1	1		
MA3-TG 4-3-180602-09	6/18/02	1350	X			X		8	2	1	1	1	1	1	1		

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: Standard
 Rush results requested by (please circle): Phone Fax
 Phone #: 847-918-4600 Fax #: 847-918-4655

Relinquished by: <u>Yoshie Hagiwara</u>	Date: <u>6/18/02</u>	Time: <u>1705</u>	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

8 Data Package Options (please circle if requested)

QC Summary	Type VI (Raw Data)	SDG Complete? Yes <u>No</u>
Type I (Tier I)	GLP	Site-specific QC required? Yes No (If yes, indicate QC sample and submit triplicate volume.)
Type II (Tier II)	Other	
Type III (NJ Red. Det.)		Internal Chain of Custody required? Yes No
Type IV (CLP) <u>Per Quote</u>		

Laura Jordan 6/19/02 0940
Cooler #8

CASE NARRATIVE

Client: Kerr-McGee Corporation
SDG #: KMA16

LANCASTER LABORATORIES
PAH BY HPLC

SAMPLE NUMBER(S) :

<u>LL #'s</u>	<u>Sample Code</u>	<u>Matrix</u> <u>Water</u>	<u>Comments</u>
3838311	TG6-1	X	
3838312	TG6-2	X	
3838313	TG6-3	X	
3838314	MW27S	X	
3838315	MW32S	X	
3838316	MW33S	X	
3838316DL	MW33SDL	X	50X Dilution
3838317	60204	X	Unspiked
3838318	60204MS	X	Matrix Spike
3838319	60204MSD	X	Matrix Spike Dup
3838320	025FD	X	
3838322	TG1-1	X	
3838322DL	TG1-1DL	X	20X Dilution
3838323	TG1-2	X	
3838324	TG1-3	X	
3838325	TG3-2	X	
3838326	TG3-3	X	
3838327	TG4-1	X	
3838328	TG4-2	X	
3838329	TG4-3	X	

LABORATORY SUBMITTED QC:

SBLKWC171	SBLKWC1712	X	Method Blank
SBLKWA173	SBLKWA1732	X	Method Blank
171WCLCS	171WCLCS2	X	Lab Control Sample
173WALCS	173WALCS2	X	Lab Control Sample
173WALCSD	173WALCSD2	X	Lab Control Sample Dup

Case Narrative
SDG #: KMA16 continued

SAMPLE PREPARATION:

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

<u>Sample Code</u>	<u>Volume</u>
TG6-1	983 mls
TG6-2	993 mls
MW32S	985 mls
60204, 60204MS, 60204MSD	990 mls
TG4-2	975 mls

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

ANALYSIS:

The method used for analysis was SW-846 8310.

All samples were analyzed for polynuclear aromatic hydrocarbons by HPLC.

Sufficient sample volume was not available to perform a MS/MSD for the analysis of TG6-2. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

The following samples were analyzed at further dilutions due to target recoveries above calibration range.

<u>Sample Code</u>	<u>Dilution</u>	<u>Compounds</u>
MW33S	50X	naphthalene, fluorene
TG1-1	20X	naphthalene, fluorene, phenanthrene

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

Case Narrative
SDG #: KMA16 continued

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC was within specifications.

DATA INTERPRETATION:

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

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Christine M. Ratcheb for CJN

Date: 7-9-02

Charles J. Neslund
Group Leader, GC/MS Semivolatiles

Case Narrative
 SDG# KMA16

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

SAMPLE ANALYSES

LL Sample #	Sample Designation	Matrix Soil Water	Comments
3838311	TG6-1	X	
3838312	TG6-2	X	
3838313	TG6-3	X	
3838314	MW27S	X	
3838315	MW32S	X	
3838316	MW33S	X	DF 5
3838317	60204	X	
3838318MS	60204	X	Matrix Spike
3838319MSD	60204	X	Matrix Spike Dup
3838320	025FD	X	
3838321	TB180	X	
3838322	TG1-1	X	DF 5
3838323	TG1-2	X	
3838324	TG1-3	X	
3838325	TG3-2	X	
3838326	TG3-3	X	
3838327	TG4-1	X	
3838328	TG4-2	X	
3838329	TG4-3	X	

QUALITY CONTROL ANALYSES

BLK1635	X	Method Blank
BLK1636	X	Method Blank
LCS1635	X	Lab Control Sample
LDS1635	X	Lab Control Dup

SAMPLE PREPARATION

Dilutions were necessary for some samples as noted in the comments section above.

ANALYSIS

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

The method used for analysis was EPA Method SW-846 8021B. A J&W DB-VRX, 75m, 0.45mm column was used for the analysis of all samples.

No problems were encountered during analysis.

Case Narrative
SDG# KMA16

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

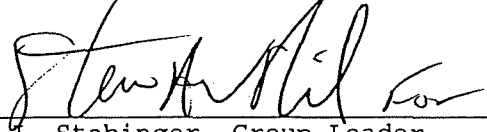
QUALITY CONTROL AND NONCONFORMANCE SUMMARY

Client submitted batch QC was referenced.
All QC was within specifications.

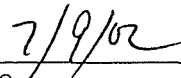
DATA INTERPRETATION

No explanation is necessary for the data submitted.

Narrative reviewed and approved by:



Steve J. Stabinger, Group Leader



Date



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: KMA16

LANCASTER LABORATORIES
INSTRUMENTAL WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3838311	TG6-1	
3838312	TG6-2	
3838313	TG6-3	
3838317	60204	
3838322	TG1-1	
3838323	TG1-2	
3838324	TG1-3	
3838325	TG3-2	
3838326	TG3-3	
3838327	TG4-1	
3838328	TG4-2	
3838329	TG4-3	

ANALYSIS:

LCS were analyzed at a dilution factor of 2 for the nitrate nitrogen, total phosphorus as P and total phosphorus as PO4 analyses.

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

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

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

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:


Sandra J. Miller
Specialist/Coordinator

Date: 7.10.02

00 00 00 00



Where quality is a science.

CLIENT: Kerr-McGee Corporation
SDG: KMA16

LANCASTER LABORATORIES

MISCELLANEOUS WET CHEMISTRY

SAMPLE NUMBERS:

<u>Sample #</u>	<u>Sample Code</u>	<u>Comments</u>
3838311	TG6-1	
3838312	TG6-2	
3838313	TG6-3	
3838317	60204	
3838322	TG1-1	
3838323	TG1-2	
3838324	TG1-3	
3838325	TG3-2	
3838326	TG3-3	
3838327	TG4-1	
3838328	TG4-2	
3838329	TG4-3	

ANALYSIS:

Dilution factors are listed in the table below:

Sample:	Ammonia Nitrogen	BOD
P837655	DF10 / B,D	
P838408		DF10 / B,D

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

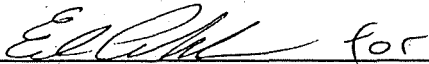
The % RPD of the background and duplicate sample was out of specification for the ammonia nitrogen analysis.

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

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

 for _____ Date: 7/9/02

Sandra J. Miller
Specialist/Coordinator

0548

I have reviewed the analytical data provided by Lancaster Laboratories for the Moss American Site in Milwaukee, Wisconsin upon the information that was provided by the laboratory. The water samples were analyzed for Polynuclear Aromatic Hydrocarbons PAHs, and Petroleum analyses (BETX).

A summary of the data validation is provided below for samples delivery group SDG# KMA18 for PAH, and BETX.

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

Moss American Site

SDG # KMA18

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>
FB-02	3839417	Water	06/19/02	06/23/02	06/24/02
MA3-MW-20S-190602-01	3839418	Water	06/19/02	06/23/02	06/24/02
MA3-MW-34S-190602-02	3839419	Water	06/19/02	06/23/02	06/24,25/02
MA3-MW-7S-190602-03	3839420	Water	06/19/02	06/23/02	06/24,25/02
MA3-MW-35S-190602-04	3839421	Water	06/19/02	06/23/02	06/24/02
MA3-MW-28S-190602-05	3839422	Water	06/19/02	06/23/02	06/24/02
MA3-MW-9S-190602-06	3839423	Water	06/19/02	06/23/02	06/25/02
MA3-MW-10S-190602-07	3839424	Water	06/19/02	06/23/02	06/25/02
MA3-MW-10S-190602-07DUP	3839425	Water	06/19/02	06/23/02	06/25/02
MA3-MW-37S-190602-08	3839426	Water	06/19/02	06/23/02	06/25/02
MA3-MW-29S-190602-09	3839427	Water	06/19/02	06/23/02	06/24/02
MA3-MW-29S-190602-09MS	3839428	Water	06/19/02	06/23/02	06/24/02
MA3-MW-29S-190602-09MSD	3839429	Water	06/19/02	06/23/02	06/24/02
MA3-MW-31S-190602-10	3839430	Water	06/19/02	06/23/02	06/25/02
MA3-MW-31S-190602-10DUP	3839431	Water	06/19/02	06/23/02	06/25/02
MA3-MW-36S-190602-11	3839432	Water	06/19/02	06/23/02	06/25/02
MA3-MW-6S-190602-12	3839433	Water	06/19/02	06/23/02	06/25/02
MA3-MW-13S-190602-13	3839434	Water	06/19/02	06/23/02	06/25/02
MA3-MW-25S-190602-14	3839435	Water	06/19/02	06/23/02	06/25/02
FB01	3839436	Water	06/19/02	06/23/02	06/25/02

2. Holding Times:

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

3. Method Blank:

One method blank was associated with this SDG. SBLKWE1732 was extracted on 06/23/02 and analyzed on 06/24/02 with all the samples (3839417 thru 3839436, 3839419DL, 3839419DL2, and 3839420DL). SBLKWE1732 results were free of contamination.

4. Surrogate:

All method blanks and the investigated samples had surrogate recoveries within the required quality control limits, except was diluted out in 3839419, 3839419DL, 3839419DL2 all the results were reported from UV detector. No action was taken because we need two or more surrogate outside the quality control limit to qualify.

5. Matrix Spike/Matrix Spike Duplicate Recovery:

The MS/MSD was performed on sample (MA3-MW-29S-190602-09/3839427) applies to all the following samples (3839417 thru 3839436). The matrix spike/matrix spike duplicate (3839428MS/3839429MSD) recoveries were all within the acceptance quality control limits. Also, the RPD% values were acceptable.

6. Laboratory Control Sample:

The laboratory control samples 173WELCS2 was associated with this SDG. 173WELCS2 recoveries were within the quality control limits.

7. Initial and Continuing Calibration:

The initial calibration, calibration verification, retention time were all with the acceptance control limits, except the initial calibration file ID/HP03456.i/02jun18.b/m8310b.m for acenaphthylene was (131.42%) on fluorescence detector. Also, the continuing calibration file ID 02169B2-08R.d was (-92.22%), file ID 02169B2-24R.d was (-77.15%), and file ID 02169B2-38R.d was (-68.38%) for acenaphthylene from fluorescence detector. No action was taken because the results were reported for acenaphthylene from ultraviolet detector and all the results were acceptable.

VOLATILE-BETX by GC/MS (U.S. EPA Method 8021B)

Moss American Site

SDG # KMA18

1. Samples:

<u>Client Code</u>	<u>Lab Sample Number</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>
MA3-TB-190602 Trip Blank	3839416	Water	06/19/02	06/21/02	06/21/02
FB-02	3839417	Water	06/19/02	06/21/02	06/21/02
MA3-MW-20S-190602-01	3839418	Water	06/19/02	06/21/02	06/21/02
MA3-MW-34S-190602-02	3839419	Water	06/19/02	06/22/02	06/22/02
MA3-MW-7S-190602-03	3839420	Water	06/19/02	06/22/02	06/22/02
MA3-MW-35S-190602-04	3839421	Water	06/19/02	06/22/02	06/22/02
MA3-MW-28S-190602-05	3839422	Water	06/19/02	06/22/02	06/22/02
MA3-MW-9S-190602-06	3839423	Water	06/19/02	06/22/02	06/22/02
MA3-MW-10S-190602-07	3839424	Water	06/19/02	06/22/02	06/22/02
MA3-MW-10S-190602-07DUP	3839425	Water	06/19/02	06/22/02	06/22/02
MA3-MW-37S-190602-08	3839426	Water	06/19/02	06/24/02	06/24/02
MA3-MW-29S-190602-09	3839427	Water	06/19/02	06/24/02	06/24/02
MA3-MW-29S-190602-09MS	3839428	Water	06/19/02	06/25/02	06/25/02
MA3-MW-29S-190602-09MSD	3839429	Water	06/19/02	06/24/02	06/24/02
MA3-MW-31S-190602-10	3839430	Water	06/19/02	06/24/02	06/24/02
MA3-MW-31S-190602-10DUP	3839431	Water	06/19/02	06/24/02	06/24/02
MA3-MW-36S-190602-11	3839432	Water	06/19/02	06/24/02	06/24/02
MA3-MW-6S-190602-12	3839433	Water	06/19/02	06/24/02	06/24/02
MA3-MW-13S-190602-13	3839434	Water	06/19/02	06/24/02	06/24/02
MA3-MW-25S-190602-14	3839435	Water	06/19/02	06/24/02	06/24/02
FB01	3839436	Water	06/19/02	06/21/02	06/21/02

2. Holding Times:

All samples were analyzed within the required holding times.

3. Method Blank:

Four method blanks BLK1635, BLK1637, BLK1640, and BLK1642 were associated with the SDG. BLK1635 was analyzed on 06/20/02 with (LCS/LCSD1635). BLK1637 was analyzed on 06/21/02 with (3839436). BLK1640 was analyzed on 06/21/02 with (3839416 thru 3839425). BLK1642 was analyzed on 06/24/02 with (3839426 thru 3839435). All the method blanks BLK1635, BLK1637, BLK1640, and BLK1642 results were free of contamination.

4. Matrix Spike/Matrix Spike Duplicate Recovery:

The MS/MSD was performed on sample (MA3-MW-29S-190602-09/3839427) applies to the following samples (3839416 thru 3839436). The matrix spike/matrix spike duplicate (3839428MS/3839429MSD) recoveries were all within the acceptance quality control limits. Also, the RPD% values were acceptable.

5. Laboratory Control Sample Recovery:

The laboratory control sample LCS1640 applies to the following samples (3839416 thru 3839435) and the recoveries were within the quality control limits.

The laboratory control sample/laboratory control sample duplicate LCS/LCSD1635 applies to 3839436 and the recoveries were within the quality control limits. Also, the RPD% values were acceptable.

6. Surrogate:

All method blanks and the investigated samples had surrogate recoveries within the required quality control limits (71-130%).

7. Initial, Continuing Calibration, and Internal Standards:

The initial calibration, continuing calibration verification and the internal standards results were all acceptable.



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 812082. Samples arrived at the laboratory on Thursday, June 20, 2002.

Client Description

Lancaster Labs Number

MA3-TB-190602 Trip Blank Water Sample	3839416
FB-02 Field Blank Grab Water Sample	3839417
MA3-MW-20S-190602-01 Grab Water Sample	3839418
MA3-MW-34S-190602-02 Grab Water Sample	3839419
MA3-MW-7S-190602-03 Grab Water Sample	3839420
MA3-MW-35S-190602-04 Grab Water Sample	3839421
MA3-MW-28S-190602-05 Grab Water Sample	3839422
MA3-MW-9S-190602-06 Grab Water Sample	3839423
MA3-MW-10S-190602-07 Grab Water Sample	3839424
MA3-MW-10S-190602-07DUP Grab Water Sample	3839425
MA3-MW-37S-190602-08 Grab Water Sample	3839426
MA3-MW-29S-190602-09 Unspiked Grab Water Sample	3839427
MA3-MW-29S-190602-09MS Matrix Spike Grab Water	3839428
MA3-MW-29S-190602-09MSD Matrix Spike Dup. Grab	3839429
MA3-MW-31S-190602-10 Grab Water Sample	3839430
MA3-MW-31S-190602-10DUP Grab Water Sample	3839431
MA3-MW-36S-190602-11 Grab Water Sample	3839432
MA3-MW-6S-190602-12 Grab Water Sample	3839433
MA3-MW-13S-190602-13 Grab Water Sample	3839434
MA3-MW-25S-190602-14 Grab Water Sample	3839435
FB01 Grab Water Sample	3839436

METHODOLOGY

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



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



1 COPY TO Kerr-McGee Corporation
1 COPY TO Roy F. Weston
1 COPY TO Data Package Group

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

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

Respectfully Submitted,

Steven A. Skiles
Steven A. Skiles
Sr. Chemist



Lancaster Laboratories Sample No. WW 3839416

Collected: 06/19/2002 17:00

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:27

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-TB-190602 Trip Blank Water Sample

Moss American Site - WI

MA3TB SDG#: KMA18-01TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.	0.20		ug/l	1
00777	Toluene	108-88-3	N.D.	0.20		ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20		ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60		ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 22:22	Linda C Pape	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 22:22	Linda C Pape	n/a.



50111



Lancaster Laboratories Sample No. WW 3839417

Collected: 06/19/2002 16:15 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:27

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

FB-02 Field Blank Grab Water Sample

Moss American Site - WI

FB02F SDG#: KMA18-02FB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	0.04 J	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.05 J	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.02 J	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	0.03 J	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	0.09 J	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 22:56	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/24/2002 20:02	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 22:56	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	0.0012





Lancaster Laboratories Sample No. WW 3839417

Collected: 06/19/2002 16:15 by JK

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:27

Discard: 07/27/2002

FB-02 Field Blank Grab Water Sample

Moss American Site - WI

Account Number: 07802

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

FB02F SDG#: KMA18-02FB



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

051110



Lancaster Laboratories Sample No. WW 3839418

Collected: 06/19/2002 09:20 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:27

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-20S-190602-01 Grab Water Sample

Moss American Site - WI

20S-- SDG#: KMA18-03

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 23:29	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/24/2002 20:40	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 23:29	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	



Lancaster Laboratories, Inc.
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 PO Box 12425
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Lancaster Laboratories Sample No. WW 3839418

Collected: 06/19/2002 09:20 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:27

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-20S-190602-01 Grab Water Sample

Moss American Site - WI

20S-- SDG#: KMA18-03



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

00000000



Lancaster Laboratories Sample No. WW 3839419

Collected: 06/19/2002 09:15 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00
 Reported: 06/26/2002 at 19:27
 Discard: 07/27/2002

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

MA3-MW-34S-190602-02 Grab Water Sample
 Moss American Site - WI

34S-- SDG#: KMA18-04

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	12.	2.0	ug/l	10
00777	Toluene	108-88-3	8.1 J	2.0	ug/l	10
00778	Ethylbenzene	100-41-4	28.	2.0	ug/l	10
00779	Total Xylenes	1330-20-7	96.	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	6,100.	50.	ug/l	50
00782	Acenaphthylene	208-96-8	72.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	220.	0.8	ug/l	1
00784	Fluorene	86-73-7	120.	2.	ug/l	10
00785	Phenanthrene	85-01-8	210.	4.	ug/l	50
00789	Anthracene	120-12-7	22.	0.4	ug/l	10
00807	Fluoranthene	206-44-0	65.	0.4	ug/l	10
00811	Pyrene	129-00-0	51.	2.	ug/l	10
00812	Benzo (a) anthracene	56-55-3	10.	0.2	ug/l	10
00818	Benzo (b) fluoranthene	205-99-2	3.	0.4	ug/l	10
00823	Benzo (a) pyrene	50-32-8	4.	0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	0.2 J	0.04	ug/l	1
00898	Indeno (1, 2, 3-cd) pyrene	193-39-5	2.	0.08	ug/l	1
00907	Benzo (g, h, i) perylene	191-24-2	2.	0.09	ug/l	1
07409	Chrysene	218-01-9	9.	0.08	ug/l	1
07410	Benzo (k) fluoranthene	207-08-9	2.	0.02	ug/l	1

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/22/2002 02:50	Linda C Pape	10



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



Lancaster Laboratories Sample No. WW 3839419

Collected: 06/19/2002 09:15 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:27

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-34S-190602-02 Grab Water Sample

Moss American Site - WI

34S--	SDG#: KMA18-04					
00774	PAH's in Water by HPLC	SW-846 8310	1	06/24/2002 21:19	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 08:18	Mark A Clark	10
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 18:32	Mark A Clark	50
01146	GC VOA Water Prep	SW-846 5030B	1	06/22/2002 02:50	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1



501408

Analysis Report



Lancaster Laboratories Sample No. WW 3839420

Collected: 06/19/2002 10:30 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:28

Discard: 07/27/2002

MA3-MW-7S-190602-03 Grab Water Sample
Moss American Site - WI

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

7S--- SDG#: KMA18-05

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	0.43 J		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	1.2		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	3.3		0.60	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	3,000.		50.	ug/l	50
00782	Acenaphthylene	208-96-8	48.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	52.		0.8	ug/l	1
00784	Fluorene	86-73-7	7.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	0.02 J		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/22/2002 03:24	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/24/2002 21:58	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 09:01	Mark A Clark	50
01146	GC VOA Water Prep	SW-846 5030B	1	06/22/2002 03:24	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1



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



Lancaster Laboratories Sample No. WW 3839420

Collected: 06/19/2002 10:30 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:28

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-7S-190602-03 Grab Water Sample

Moss American Site - WI

7S--- SDG#: KMA18-05



Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717.656.2200 Fax: 717.656.2681



Lancaster Laboratories Sample No. WW 3839421

Collected: 06/19/2002 10:35 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:28

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-35S-190602-04 Grab Water Sample

Moss American Site - WI

35S-- SDG#: KMA18-06

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.	0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	0.2 J	0.08	ug/l	1
00789	Anthracene	120-12-7	0.2	0.04	ug/l	1
00807	Fluoranthene	206-44-0	0.6	0.04	ug/l	1
00811	Pyrene	129-00-0	0.4 J	0.2	ug/l	1
00812	Benzo (a) anthracene	56-55-3	0.03 J	0.02	ug/l	1
00818	Benzo (b) fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno (1, 2, 3-cd) pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo (g, h, i) perylene	191-24-2	N.D.	0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo (k) fluoranthene	207-08-9	N.D.	0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/22/2002 00:03	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/24/2002 22:36	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/22/2002 00:03	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1



06/26/02



Lancaster Laboratories Sample No. WW 3839421

Collected: 06/19/2002 10:35 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:28

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-35S-190602-04 Grab Water Sample

Moss American Site - WI

35S-- SDG#: KMA18-06



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



Lancaster Laboratories Sample No. WW 3839422

Collected: 06/19/2002 10:30 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:28

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-28S-190602-05 Grab Water Sample

Moss American Site - WI

28S-- SDG#: KMA18-07

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	06/22/2002 00:36	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/24/2002 23:53	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/22/2002 00:36	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1





Lancaster Laboratories Sample No. WW 3839422

Collected: 06/19/2002 10:30 by JK

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:28

Discard: 07/27/2002

MA3-MW-28S-190602-05 Grab Water Sample

Moss American Site - WI

Account Number: 07802

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

28S-- SDG#: KMA18-07



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



Lancaster Laboratories Sample No. WW 3839423

Collected: 06/19/2002 11:50 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:28

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-9S-190602-06 Grab Water Sample

Moss American Site - WI

9S--- SDG#: KMA18-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo (b) fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno (1, 2, 3-cd) pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo (g, h, i) perylene	191-24-2	N.D.	0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo (k) fluoranthene	207-08-9	N.D.	0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/22/2002 01:10	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 00:32	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/22/2002 01:10	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1



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

55244



Lancaster Laboratories Sample No. WW 3839423

Collected: 06/19/2002 11:50 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:28

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-9S-190602-06 Grab Water Sample

Moss American Site - WI

9S--- SDG#: KMA18-08



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

502511



Lancaster Laboratories Sample No. **WW 3839424**

Collected: 06/19/2002 11:45 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:28

Discard: 07/27/2002

MA3-MW-10S-190602-07 Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

10S7- SDG#: KMA18-09

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
08213	BTEX (8021)	SW-846 8021B	1	06/22/2002 01:43		Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 01:11		Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/22/2002 01:43		Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30		Joseph S Feister	1



10526



Lancaster Laboratories Sample No. WW 3839424

Collected: 06/19/2002 11:45 by JK

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:28

Discard: 07/27/2002

MA3-MW-10S-190602-07 Grab Water Sample

Moss American Site - WI

Account Number: 07802

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

10S7- SDG#: KMA18-09



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



Lancaster Laboratories Sample No. WW 3839425

Collected: 06/19/2002 11:45 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:28

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-10S-190602-07DUP Grab Water Sample
Moss American Site - WI

107D- SDG#: KMA18-10FD

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/22/2002 02:17	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 01:49	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/22/2002 02:17	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1



Lancaster Laboratories, Inc.
2425 New Holland Pike
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Lancaster Laboratories Sample No. WW 3839425

Collected: 06/19/2002 11:45 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:28

Discard: 07/27/2002

MA3-MW-10S-190602-07DUP Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

107D- SDG#: KMA18-10FD



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

00000000



Lancaster Laboratories Sample No. WW 3839426

Collected: 06/19/2002 11:55 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:28

Discard: 07/27/2002

MA3-MW-37S-190602-08 Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

37S-- SDG#: KMA18-11

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/24/2002 05:11	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 02:28	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/24/2002 05:11	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	





Lancaster Laboratories Sample No. WW 3839426

Collected: 06/19/2002 11:55 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:28

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-37S-190602-08 Grab Water Sample

Moss American Site - WI

37S-- SDG#: KMA18-11



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

Analysis Report



Lancaster Laboratories Sample No. WW 3839427

Collected: 06/19/2002 14:50 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:28

Discard: 07/27/2002

MA3-MW-29S-190602-09 Unspiked Grab Water Sample
Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

29S9- SDG#: KMA18-12BKG

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	06/24/2002 09:04	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/24/2002 18:06	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/24/2002 09:04	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1



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Lancaster Laboratories Sample No. WW 3839427

Collected: 06/19/2002 14:50 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:28

Discard: 07/27/2002

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

MA3-MW-29S-190602-09 Unspiked Grab Water Sample
Moss American Site - WI

29S9- SDG#: KMA18-12BKG



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

00101010

Analysis Report



Lancaster Laboratories Sample No. WW 3839428

Collected: 06/19/2002 14:50 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:29

Discard: 07/27/2002

MA3-MW-29S-190602-09MS Matrix Spike Grab Water

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

29S9- SDG#: KMA18-12MS

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	23.	0.20	ug/l	1
00777	Toluene	108-88-3	23.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	22.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	67.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	190.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	190.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	200.	0.8	ug/l	1
00784	Fluorene	86-73-7	19.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	6.	0.08	ug/l	1
00789	Anthracene	120-12-7	3.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	3.	0.04	ug/l	1
00811	Pyrene	129-00-0	20.	0.2	ug/l	1
00812	Benzo (a) anthracene	56-55-3	2.	0.02	ug/l	1
00818	Benzo (b) fluoranthene	205-99-2	1.	0.04	ug/l	1
00823	Benzo (a) pyrene	50-32-8	1.	0.02	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	3.	0.04	ug/l	1
00898	Indeno (1, 2, 3-cd) pyrene	193-39-5	6.	0.08	ug/l	1
00907	Benzo (g, h, i) perylene	191-24-2	12.	0.1	ug/l	1
07409	Chrysene	218-01-9	6.	0.08	ug/l	1
07410	Benzo (k) fluoranthene	207-08-9	1.	0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/25/2002 03:49	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/24/2002 18:45	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/25/2002 03:49	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1



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 2425 New Holland Pike
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Lancaster Laboratories Sample No. WW 3839428

Collected: 06/19/2002 14:50 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:29

Discard: 07/27/2002

MA3-MW-29S-190602-09MS Matrix Spike Grab Water

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

29S9- SDG#: KMA18-12MS



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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 3839429

Collected: 06/19/2002 14:50 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:29

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-29S-190602-09MSD Matrix Spike Dup. Grab

Moss American Site - WI

29S9- SDG#: KMA18-12MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
08213	BTEX (8021)						
00776	Benzene	71-43-2	20.		0.20	ug/l	1
00777	Toluene	108-88-3	20.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	19.		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	190.		1.	ug/l	1
00782	Acenaphthylene	208-96-8	190.		0.8	ug/l	1
00783	Acenaphthene	83-32-9	190.		0.8	ug/l	1
00784	Fluorene	86-73-7	18.		0.2	ug/l	1
00785	Phenanthrene	85-01-8	6.		0.08	ug/l	1
00789	Anthracene	120-12-7	3.		0.04	ug/l	1
00807	Fluoranthene	206-44-0	3.		0.04	ug/l	1
00811	Pyrene	129-00-0	19.		0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.		0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.		0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.		0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.		0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	6.		0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	12.		0.1	ug/l	1
07409	Chrysene	218-01-9	6.		0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.		0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	06/24/2002 10:11	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/24/2002 19:23	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/24/2002 10:11	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1



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Lancaster Laboratories Sample No. WW 3839429

Collected: 06/19/2002 14:50 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:29

Discard: 07/27/2002

MA3-MW-29S-190602-09MSD Matrix Spike Dup. Grab

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

29S9- SDG#: KMA18-12MSD



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0037



Lancaster Laboratories Sample No. WW 3839430

Collected: 06/19/2002 15:00 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:29

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-31S-190602-10 Grab Water Sample

Moss American Site - WI

31S10 SDG#: KMA18-13

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis			Dilution Factor
			Trial#	Date and Time	Analyst	
08213	BTEX (8021)	SW-846 8021B	1	06/24/2002 05:44	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 03:06	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/24/2002 05:44	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1



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Lancaster Laboratories Sample No. WW 3839430

Collected: 06/19/2002 15:00 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:29

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Discard: 07/27/2002

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MA3-MW-31S-190602-10 Grab Water Sample
Moss American Site - WI

31S10 SDG#: KMA18-13



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Lancaster Laboratories Sample No. WW 3839431

Collected: 06/19/2002 15:00 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:29

Discard: 07/27/2002

MA3-MW-31S-190602-10DUP Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

31S1D SDG#: KMA18-14FD

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	N.D.	1.	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	06/24/2002 06:17	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 03:45	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/24/2002 06:17	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	10040





Lancaster Laboratories Sample No. WW 3839431

Collected: 06/19/2002 15:00 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:29

Discard: 07/27/2002

MA3-MW-31S-190602-10DUP Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

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31S1D SDG#: KMA18-14FD



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Lancaster Laboratories Sample No. WW 3839432

Collected: 06/19/2002 14:55 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:29

Discard: 07/27/2002

MA3-MW-36S-190602-11 Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

36S11 SDG#: KMA18-15

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	06/24/2002 06:51	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 04:23	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/24/2002 06:51	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1



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Lancaster Laboratories Sample No. WW 3839432

Collected: 06/19/2002 14:55 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:29

Discard: 07/27/2002

MA3-MW-36S-190602-11 Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

36S11 SDG#: KMA18-15



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Lancaster Laboratories Sample No. WW 3839433

Collected: 06/19/2002 15:45 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:29

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-6S-190602-12 Grab Water Sample

Moss American Site - WI

6S12- SDG#: KMA18-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
08213	BTEX (8021)			Detection Limit		
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
00774	PAH's in Water by HPLC					
00775	Naphthalene	91-20-3	N.D.	0.9	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	0.8	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.2	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.08	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.04	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.04	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.2	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.02	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.04	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.02	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.08	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.09	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.08	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	06/24/2002 07:24	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 05:02	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/24/2002 07:24	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1





Lancaster Laboratories Sample No. WW 3839433

Collected: 06/19/2002 15:45 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:29

Discard: 07/27/2002

MA3-MW-6S-190602-12 Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

6S12- SDG#: KMA18-16



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

Analysis Report



Lancaster Laboratories Sample No. WW 3839434

Collected: 06/19/2002 16:20 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:29

Discard: 07/27/2002

MA3-MW-13S-190602-13 Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

Oklahoma City OK 73125

13S13 SDG#: KMA18-17

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	06/24/2002 07:58	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 05:41	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/24/2002 07:58	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1



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Lancaster Laboratories Sample No. WW 3839434

Collected: 06/19/2002 16:20 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Reported: 06/26/2002 at 19:29

Discard: 07/27/2002

MA3-MW-13S-190602-13 Grab Water Sample

Moss American Site - WI

Kerr-McGee Corporation

P.O. Box 25861

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13S13 SDG#: KMA18-17



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Lancaster Laboratories Sample No. WW 3839435

Collected: 06/19/2002 16:25 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:29

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-25S-190602-14 Grab Water Sample

Moss American Site - WI

25S14 SDG#: KMA18-18

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	06/24/2002 08:30	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 06:58	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/24/2002 08:30	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1





Lancaster Laboratories Sample No. WW 3839435

Collected: 06/19/2002 16:25 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00

Kerr-McGee Corporation

Reported: 06/26/2002 at 19:29

P.O. Box 25861

Discard: 07/27/2002

Oklahoma City OK 73125

MA3-MW-25S-190602-14 Grab Water Sample

Moss American Site - WI

25S14 SDG#: KMA18-18



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



Lancaster Laboratories Sample No. WW 3839436

Collected: 06/19/2002 16:10 by JK

Account Number: 07802

Submitted: 06/20/2002 09:00
 Reported: 06/26/2002 at 19:30
 Discard: 07/27/2002
 FB01 Grab Water Sample
 Moss American Site - WI

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

FB01C SDG#: KMA18-19FB*

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	06/21/2002 17:38	Linda C Pape	1
00774	PAH's in Water by HPLC	SW-846 8310	1	06/25/2002 07:36	Mark A Clark	1
01146	GC VOA Water Prep	SW-846 5030B	1	06/21/2002 17:38	Linda C Pape	n.a.
03337	PAH Water Extraction	SW-846 3510C	1	06/23/2002 07:30	Joseph S Feister	1





Lancaster Laboratories Sample No. WW 3839436

Collected: 06/19/2002 16:10 by JK

Submitted: 06/20/2002 09:00
Reported: 06/26/2002 at 19:30
Discard: 07/27/2002
FB01 Grab Water Sample
Moss American Site - WI

Account Number: 07802

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

FB01C SDG#: KMA18-19FB*



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

03011



1 of 3

For Lancaster Laboratories use only
 Acct. # 1802 Sample # 3839414-36
 # 812082

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

Client: <u>Kerr-McGee</u> Project Name/#: <u>Moss American</u> Project Manager: <u>Tom Graan</u> Sampler: <u>J. Klemp, A. Grubb & C. Huginaro</u> Name of state where samples were collected: <u>WI</u>	Acct. #: _____ PWSID #: _____ P.O.# _____ Quote #: _____	Matrix (4) <input type="checkbox"/> Soil <input type="checkbox"/> Potable Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other	Total # of Containers (5) BTEX PAH-8310	Analyses Requested (5) (Area with diagonal lines)	For lab use only FSC: _____ SCR #: _____ Temperature of samples upon receipt (if requested) (6)
---	---	---	---	--	--

Sample Identification (2)	Date Collected	Time Collected	Grab	Composite	Soil	Potable Water	NPDES	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested) (6)
MA3-TB-190602	6/19/02	1700	X			X			2	2	
FB-02		1615	X			X			5	3	2
MA3-MW-205-190602-01		0920	X			X			5	3	2
MA3-MW-345-190602-02		0915	X			X			5	3	2
MA3-MW-75-190602-03		1030	X			X			5	3	2
MA3-MW-355-190602-04		1035	X			X			5	3	2
MA3-MW-285-190602-05		1030	X			X			3	3	
MA3-MW-95-190602-06		1150	X			X			3	3	
MA3-MW-105-190602-07		1145	X			X			3	3	
MA3-MW-105-190602-07DP		1145	X			X			3	3	

Turnaround Time Requested (TAT) (please circle): <u>Normal</u> Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>Standard</u> Rush results requested by (please circle): Phone <u>847-918-4050</u> Fax <u>847-918-4055</u> Phone #: <u>847-918-4050</u> Fax #: <u>847-918-4055</u>	Relinquished by: <u>Yoshie Kojima</u> Date: <u>6/19/02</u> Time: <u>1745</u>	Received by: _____ Date: _____ Time: _____	Date _____ Time _____
Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) Yes <u>No</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (CIP) <u>Per</u> Site-specific QC required? Yes No (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes No	Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____	Date _____ Time _____

Quote

Analysis Request/Environmental Services Chain of Custody



2 of 3

For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3839414-36
 # 8120 82

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

1 Client: Kerr-McGee Acct. #: _____
 Project Name/ #: Moss American PWSID #: _____
 Project Manager: Tom Graan P.O. #: _____
 Sampler: Klemp Grubb & Hagiwara Quote #: _____
 Name of state where samples were collected: WI

For lab use only
 FSC: _____
 SCR #: _____

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix 4			Total # of Containers	5	Analyses Requested	Remarks	6 Temperature of samples upon receipt (if requested)
					Soil	Water	Other					
MA3-MW-375-190602-08	6/19/02	1155	X			X		3	3			
MA3-MW-295-190602-09		1450	X			X		3	3			
MA3-MW-295-190602-09 MS		1450	X			X		3	3			
MA3-MW-295-190602-09 MSD		1450	X			X		3	3			
MA3-MW-315-190602-10		1500	X			X		3	3			
MA3-MW-315-190602-10 DP		1500	X			X		3	3			
MA3-MW-365-190602-11		1455	X			X		3	3			
MA3-MW-65-190602-12		1545	X			X		3	3			
MA3-MW-135-190602-13		1620	X			X		3	3			
MA3-MW-255-190602-14		1625	X			X		3	3			

7 Turnaround Time Requested (TAT) (please circle: Normal Rush)
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: Standard
 Rush results requested by (please circle): Phone Fax
 Phone #: 847-918-4000 Fax #: 847-918-4655

Relinquished by: <u>Yoshie Hagiwara</u>	Date: <u>6/19/02</u>	Time: <u>1745</u>	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

8 Data Package Options (please circle if requested)

QC Summary	Type VI (Raw Data)	SDG Complete? Yes No
Type I (Tier I)	GLP	
Type II (Tier II)	Other	Site-specific QC required? Yes No (If yes, indicate QC sample and submit triplicate volume.)
Type III (NJ Red. Del.)		Internal Chain of Custody required? Yes No
Type IV (SLC)	<u>per Quote</u>	

Kathy Binkley
6-20-02 0900

Analysis Request/Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3839414-36

812082

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

Client: <u>Kerr-McGee</u> Acct. #: _____ Project Name/#: <u>Mass American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>Klemp, Grubb & Higginson</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix 4 <input type="checkbox"/> Potable (check if applicable) <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Other	Total # of Containers	Analyses Requested 5 <div style="font-size: 2em; font-weight: bold; transform: rotate(-45deg); display: inline-block;">PAH-8310</div>	For lab use only FSC: _____ SCR #: _____					
Sample Identification	Date Collected	Time Collected	Grab 3	Composite	Soil	Water	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested) 6
MA3-MW-29S-190302-09	6/9/02	1450	X		X			2 2		
MA3-MW-29S-190302-09 MS	↓	1450	X		X			2 2		
MA3-MW-29S-190302-09 MSD	↓	1450	X		X			2 2		
MA3-MW-13S-190302-13	↓	1620	X		X			2 2		
MA3-MW-25S-190302-14	↓	1625	X		X			2 2		

7 Turnaround Time Requested (TAT) (please circle): <u>Normal</u> Rush _____ (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>Standard</u> Rush results requested by (please circle): Phone <u>Fax</u> Phone #: <u>847-918-4000</u> #: <u>847-918-4055</u>	Relinquished by: <u>Yoshie Higginson</u> Date: <u>6/9/02</u> Time: <u>1725</u> Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____	Date: _____ Time: _____ Date: _____ Time: _____ Date: _____ Time: _____ Date: _____ Time: _____
8 Data Package Options (please circle if requested): QC Summary Type VI (Raw Data) Yes <u>No</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red Del.) Type IV (CIP) <u>Per Quote</u>	SDG Complete? Yes <u>No</u> Site-specific QC required? Yes No (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes No	Relinquished by: _____ Date: _____ Time: _____ Received by: <u>Kathy Binkley</u> Date: <u>6-20-02</u> Time: <u>0900</u>	

Analysis Request / Environmental Services Chain of Custody



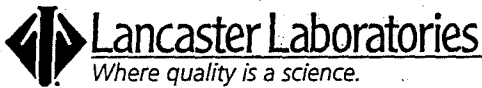
For Lancaster Laboratories use only
 Acct. # 782 Sample # 383941636

#812082

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

Client: <u>Kerr-McGee</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Graan</u> P.O.# _____ Sampler: <u>Klemp, Grubb & Haginara</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix 4	Total # of Containers	Analyses Requested 5 <div style="font-size: 2em; font-weight: bold; text-align: center; padding: 10px;">PAH-8310</div>	For lab use only FSC: _____ SCR #: _____					
2	3	4	5	6	9					
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested)
MA3-MW-9S-190602-06	6/19/02	1150	X		X			2		
MA3-MW-31S-190602-10	↓	1500	X		X			2		
MA3-MW-31S-190602-10 DUP	↓	1500	X		X			2		
MA3-MW-36S-190602-11	↓	1455	X		X			2		
MA3-MW-6S-190602-12	↓	1545	X		X			2		
Turnaround Time Requested (TAT) (please circle): <u>Normal</u> Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>Standard</u> Rush results requested by (please circle): Phone <u>Fax</u> Phone #: <u>847-918-4000</u> Fax #: <u>847-918-4055</u>		Relinquished by: <u>Yoshie Haginara</u>	Date: <u>6/19/02</u>	Time: <u>1920</u>	Received by: _____	Date: _____	Time: _____			
Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) Yes <u>No</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (GLP) <u>Per Quote</u> Site-specific QC required? Yes No (if yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes No		Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____			
		Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____			
		Relinquished by: _____	Date: _____	Time: _____	Received by: <u>Kathy Binkley</u>	Date: <u>6-20-02</u>	Time: <u>0900</u>			

Analysis Request/Environmental Services Chain of Custody



3 of 3

For Lancaster Laboratories use only
 Acct. # 7802 Sample # 3839414-36
 # 812082

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

Client: <u>Kerr-McGree</u> Acct. #: _____ Project Name/#: <u>Moss American</u> PWSID #: _____ Project Manager: <u>Tom Grahn</u> P.O.# _____ Sampler: <u>Klemp, Grubb, Hagiwara</u> Quote #: _____ Name of state where samples were collected: <u>WI</u>		Matrix 4	Total # of Containers	Analyses Requested <div style="font-size: 2em; font-weight: bold; transform: rotate(-45deg); opacity: 0.5;">BTEX</div>	For lab use only FSC: _____ SCR#: _____							
Sample Identification	Date Collected	Time Collected	Grab 3	Composite	Soil	Water	Potable (check if applicable)	NPDES (check if applicable)	Other	Total # of Containers	Remarks	Temperature of samples upon receipt (if requested) 6
<u>EB-01</u>	<u>6/19/02</u>	<u>1610</u>	<u>X</u>			<u>X</u>				<u>3</u>		

Turnaround Time Requested (TAT) (please circle: <u>Normal</u> Rush) (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: <u>Standard</u> Rush results requested by (please circle): Phone <u>Fax</u> Phone #: <u>847-918-4060</u> Fax #: <u>847-918-4055</u>	Relinquished by: <u>Yoshio Hagiwara</u> Relinquished by: _____ Relinquished by: _____ Relinquished by: _____ Relinquished by: _____	Date: <u>6/19/02</u> Date: _____ Date: _____ Date: _____ Date: _____	Time: <u>1745</u> Time: _____ Time: _____ Time: _____ Time: _____	Received by: _____ Received by: _____ Received by: _____ Received by: _____ Received by: _____	Date: _____ Date: _____ Date: _____ Date: _____ Date: _____	Time: _____ Time: _____ Time: _____ Time: _____ Time: _____
Data Package Options (please circle if requested) QC Summary Type VI (Raw Data) Yes <u>No</u> Type I (Tier I) GLP Type II (Tier II) Other Type III (NJ Red. Del.) Type IV (GLP) <u>Per Quote</u> Site-specific QC required? Yes No (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes No	Relinquished by: _____ Relinquished by: _____ Relinquished by: _____ Relinquished by: _____ Relinquished by: _____					

CASE NARRATIVE

Client: Kerr - McGee Corporation
SDG #: KMA18

LANCASTER LABORATORIES
PAH BY HPLC

SAMPLE NUMBER(S) :

<u>LL #'s</u>	<u>Sample Code</u>	<u>Matrix</u> <u>Water</u>	<u>Comments</u>
3839417	FB02F	X	Client Blank
3839418	20S--	X	
3839419	34S--	X	
3839419DL	34S--DL	X	10X Dilution
3839419DL2	34S--DL2	X	50X Dilution
3839420	7S---	X	
3839420DL	7S---DL	X	50X Dilution
3839421	35S--	X	
3839422	28S--	X	
3839423	9S---	X	
3839424	10S7-	X	
3839425	107D-	X	
3839426	37S--	X	
3839427	29S9-	X	Unspiked
3839428	29S9-MS	X	Matrix Spike
3839429	29S9-MSD	X	Matrix Spike Dup
3839430	31S10	X	
3839431	31S1D	X	
3839432	36S11	X	
3839433	6S12-	X	
3839434	13S13	X	
3839435	25S14	X	
3839436	FB01C	X	Client Blank

LABORATORY SUBMITTED QC:

SBLKWE173	SBLKWE1732	X	Method Blank
173WELCS	173WELCS2	X	Lab Control Sample

Case Narrative
SDG #: KMA18 continued

SAMPLE PREPARATION:

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

<u>Sample Code</u>	<u>Volume</u>
20S--	980 mls
107D-	994 mls
31S10	948 mls
36S11	972 mls

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

ANALYSIS:

The method used for analysis was SW-846 8310.

All samples were analyzed for polynuclear aromatic hydrocarbons by HPLC.

The following samples were analyzed at further dilutions due to target recoveries above calibration range.

<u>Sample Code</u>	<u>Dilution</u>	<u>Compounds</u>
34S--	10X	a number of compounds
34S--	50X	naphthalene, phenanthrene
7S---	50X	naphthalene

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

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC was within specifications.

Case Narrative
SDG #: KMA18 continued

DATA INTERPRETATION:

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

No further interpretation is necessary for the data submitted.

Case Narrative Reviewed and Approved by:

Christine M. Ratchell for CJN

Date: 7-11-02

Charles J. Neslund
Group Leader, GC/MS Semivolatiles

Case Narrative
SDG# KMA18

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

SAMPLE ANALYSES

LL Sample #	Sample Designation	Matrix Soil Water	Comments
3839416	MA3TB	X	
3839417	FB02F	X	
3839418	20S--	X	
3839419	34S--	X	DF 10
3839420	7S---	X	
3839421	35S--	X	
3839422	28S--	X	
3839423	9S---	X	
3839424	10S7-	X	
3839425	107D-	X	
3839426	37S--	X	
3839427	29S9-	X	
3839428MS	29S9-	X	Matrix Spike
3839429MSD	29S9-	X	Matrix Spike Dup
3839430	31S10	X	
3839431	31S1D	X	
3839432	36S11	X	
3839433	6S12-	X	
3839434	13S13	X	
3839435	25S14	X	
3839436	FB01C	X	

QUALITY CONTROL ANALYSES

BLK1635	X	Method Blank
BLK1637	X	Method Blank
BLK1640	X	Method Blank
BLK1642	X	Method Blank
LCS1635	X	Lab Control Sample
LDS1635	X	Lab Control Dup
LCS1640	X	Lab Control Sample

SAMPLE PREPARATION

No sample preparation was necessary.

ANALYSIS

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

Case Narrative
SDG# KMA18

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

The method used for analysis was EPA Method SW-846 8021B. A J&W DB-VRX, 75m, 0.45mm column was used for the analysis of all samples.

No problems were encountered during analysis.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY

Client submitted batch QC was referenced.

All QC was within specifications.

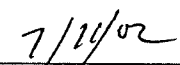
DATA INTERPRETATION

No explanation is necessary for the data submitted.

Narrative reviewed and approved by:



Steve J. Stabinger, Group Leader



Date

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

JUL 19 2002

INDIANA CERTIFICATION NUMBERS: N-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 Bunker Court
Suite 500
Vernon Hills, IL 60061-1450

Date Reported: 7/16/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9942-00292
Date Received: 6/19/02
Time Received: 09:01

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG1-1-180602-10, 6/18/02 @ 15:25 by Client				
Total Aerobic Bacteria	2,900. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	180. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-2-180602-11, 6/18/02 @ 15:10 by Client				
Total Aerobic Bacteria	24,000. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	160. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG1-3-180602-12, 6/18/02 @ 15:00 by Client				
Total Aerobic Bacteria	11,000. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	930. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-1-180602-04, 6/18/02 @ 10:50 by Client				
Total Aerobic Bacteria	38,000. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	320. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-2-180602-05, 6/18/02 @ 10:55 by Client				
Total Aerobic Bacteria	7,800. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	240. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG3-3-180602-06, 6/18/02 @ 10:50 by Client				
Total Aerobic Bacteria	820. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	390. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG4-1-180602-07, 6/18/02 @ 13:40 by Client				
Total Aerobic Bacteria	690. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	10. cfu/ml	6/19/02	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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Sample ID: 9942-00292
Date Received: 6/19/02
Time Received: 09:01

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG4-2-180602-08, 6/18/02 @ 13:45 by Client				
Total Aerobic Bacteria	260. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	<10. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG ⁴⁻³ 4-180602-09, 6/18/02 @ 13:50 by Client <i>6/19/10/02</i>				
Total Aerobic Bacteria	710. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	20. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-1-180602-01, 6/18/02 @ 09:25 by Client				
Total Aerobic Bacteria	930. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	160. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-2-180602-02, 6/18/02 @ 09:15 by Client				
Total Aerobic Bacteria	410. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	10. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG6-3-180602-03, 6/18/02 @ 09:20 by Client				
Total Aerobic Bacteria	300. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradable Bacteria	<10. cfu/ml	6/19/02	DJH	9215B MODIFIED

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Sample ID: 9942-00292
Date Received: 6/19/02
Time Received: 09:01

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
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This document has been reviewed and is electronically signed by:

Karen A. Ziolkowski
Laboratory Director

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

Date Reported: 7/16/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9942-00263
Date Received: 6/18/02
Time Received: 09:19

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: MA3-TG2-1-170602-01, 06/17/02 @ 14:45 by JK				
Total Aerobic Bacteria	2,500. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	90. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-2-170602-02, 06/17/02 @ 15:00 by JK				
Total Aerobic Bacteria	140. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	<10. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG2-3-170602-03, 06/17/02 @ 14:50 by JK				
Total Aerobic Bacteria	3,100. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	230. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-1-170602-04, 06/17/02 @ 16:30 by JK				
Total Aerobic Bacteria	410. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	60. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-2-170602-05, 06/17/02 @ 16:30 by JK				
Total Aerobic Bacteria	270. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	<10. cfu/ml	6/19/02	DJH	9215B MODIFIED
SUBJECT: MA3-TG5-3-170602-06, 06/17/02 @ 16:30 by JK				
Total Aerobic Bacteria	2,400. cfu/ml	6/19/02	DJH	9215B MODIFIED
T.Aerobic Degradar Bacteria	60. cfu/ml	6/19/02	DJH	9215B MODIFIED

*** Certificate Continues On Next Page ***

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Vernon Hills, IL 60061-1450

Date Reported: 7/16/02
P.O. Number: 0018581 MOSS AMERICA
Sample ID: 9942-00263
Date Received: 6/18/02
Time Received: 09:19

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
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This document has been reviewed and is electronically signed by:

Karen A. Ziolkowski
Laboratory Director

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1 of 2

For Lancaster Laboratories use only

Acct. # _____ Sample # _____

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

1 Client: Kerr-McGree/WESTON Acct. #: _____
 Project Name/#: Moss American PWSID #: _____
 Project Manager: Tom Graan P.O.#: _____
 Sampler: Klemp, Conub & Haginara quote #: _____
 Name of state where samples were collected: WI

Matrix 4
 Potable (check if applicable)
 Water
 NPDES
 Other

5 Analyses Requested
Bacterial Enumeration (Total & Degradable)

For lab use only
 FSC: _____
 SCR #: _____

6 temperature of samples upon receipt (if requested)

Sample Identification	Date Collected	Time Collected	3		4			5								Remarks	6	
			Grab	Composite	Soil	Water	Other	Total # of Containers	Analyses Requested									
1 MA3-TG1-1-180602-10	6/18/02	1525	X		X			1	1									
2 MA3-TG1-2-180602-11	6/18/02	1510	X		X			1	1									
3 MA3-TG1-3-180602-12	6/18/02	1500	X		X			1	1									
4 MA3-TG3-1-180602-04	6/18/02	1050	X		X			1	1									
5 MA3-TG3-2-180602-05	6/18/02	1055	X		X			1	1									
6 MA3-TG3-3-180602-06	6/18/02	1050	X		X			1	1									
7 MA3-TG4-1-180602-07	6/18/02	1340	X		X			1	1									
8 MA3-TG4-2-180602-08	6/18/02	1345	X		X			1	1									
9 MA3-TG4-3-180602-09	6/18/02	1350	X		X			1	1									
10 MA3-TG6-1-180602-01	6/18/02	0925	X		X			1	1									

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: Standard
 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) 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: Yoshie Haginara Date: 6/18/02 Time: 1740 Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

Per Quote



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9942-292

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2 of 2

For Lancaster Laboratories use only

Acct. # _____

Sample # _____

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

1 Client: Kerr McGee/WESTON Acct. #: _____
 Project Name/#: Moss American PWSID #: _____
 Project Manager: Tom Graan P.O.# _____
 Sampler: Klemp, Grubb & Hagiwara Quote #: _____
 Name of state where samples were collected: WI

Matrix 4
 Potable (check if applicable)
 Water
 NPDES
 Other

3 Composite

5 Analyses Requested
Bacterial Enumeration (Total & Coliforms)

For lab use only
 FSC: _____
 SCR #: _____

6 temperature of sample upon receipt (if requested)

2 Sample Identification	Date Collected	Time Collected	3 Grab	Composite	Soil	Water	Other	Total # of Containers	Analyses Requested	Remarks	6
MA3-TG6-2-180602-02	6/18/02	0915	X			X		1			
MA3-TG6-3-180602-03	6/18/02	0920	X			X		1			

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

Relinquished by: Yoshie Hagiwara Date: 6/18/02 Time: 1740
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received by: N. McDonald Date: 6/18/02 Time: 9:01

8 Data Package Options (please circle if requested)

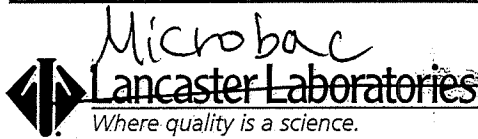
QC Summary Type VI (Raw Data) SDG Complete? Yes No

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

Per Quote



0912-2103

For Lancaster Laboratories use only

Acct. # _____ Sample # _____

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

1 Client: WESTON / Ken McGee Acct. #: _____
 Project Name/#: Tom's Mass American PWSID #: _____
 Project Manager: Tom Graan P.O.# _____
 Sampler: J. Kemp, A. Grubb & Y. He Quote #: _____
 Name of state where samples were collected: WI

Sample Identification	Date Collected	Time Collected	3		4				Total # of Containers	5	Analyses Requested	Remarks	6	
			Grab	Composite	Soil	Water	Other	FSC:					SCR #:	
MA3-TG2-1-170602-01	6/17/02	1445	X		X				1	Microbial Enumeration (Total & Degradable)				
MA3-TG2-2-170602-02		1500	X		X			1						
MA3-TG2-3-170602-03		1450	X		X			1						
MA3-TG5-1-170602-04		1630	X		X			1						
MA3-TG5-2-170602-05		1630	X		X			1						
MA3-TG5-3-170602-06		1630	X		X			1						

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
 Date results are needed: Standard
 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)	SDG Complete?	Yes <u>No</u>
Type I (Tier I)	GLP	Site-specific QC required? Yes No	(If yes, indicate QC sample and submit triplicate volume.)
Type II (Tier II)	Other	Internal Chain of Custody required? Yes No	
Type III (NJ Red. Del.)			
Type IV (CLP)			

Relinquished by: Yoshie Nagura Date: 6/17/02 Time: 1750 Received by: N. McDonald Date: 6/18/02 Time: 9:19

Per quote