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26 February 2001

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

Work Order No. 02687-007-003

Re: Quarterly Groundwater Treatment Performance Monitoring Report, Fourth Quarter 2000
Moss-American Site, Milwaukee, Wisconsin

Dear Mr. Hart:

On behalf of the Kerr-McGee Chemical LLC (KMC), Roy F. Weston, Inc. (WESTON®) is submitting this report summarizing the results of the fourth quarter 2000 groundwater monitoring event for the above referenced project. In addition, we present the monthly groundwater sampling of the treatment-gate performance monitoring wells conducted in October, November, and December 2000. A description of the groundwater monitoring program and the results obtained during this monitoring period are presented in the following sections. Also included is a discussion of the laboratory analytical results that have exceeded the Preventive Action Limits (PAL) and Enforcement Standards (ES) promulgated by Wisconsin Department of Natural Resources (WDNR) in NR140.10, Public Health Groundwater Quality Standards.

The groundwater analytical results reported for the fourth quarter (December 2000) reflect conditions at the site where the funnel and gate groundwater treatment system, including the containment-performance wells and treatment-gate performance wells, are already in place. This quarterly groundwater monitoring report presents the results of the shallow and intermediate plume monitoring wells, the eight shallow containment performance wells, and baseline conditions for the 18 treatment-gate performance wells.

1.0 BACKGROUND

In accordance with paragraph 4a of the Remedial Design and Remedial Action Statement of Work (RD/RA SOW), KMC is required to implement a groundwater monitoring program capable of detecting changes in chemical concentrations in the groundwater. As previously agreed, the monitoring network includes 23 groundwater monitoring wells—MW-3S, MW-3I, MW-4S, MW-4I, MW-5S, MW-6S, MW-7S, MW-7I, MW-8S, MW-8I, MW-9S, MW-9I, MW-10S, MW-13S, MW-20S, MW-20I, MW-25S, MW-26S, MW-27S, MW-28S, MW-29S, TW-05, and TW-09. Additionally, KMC is also required to extend the implementation of the above referenced groundwater monitoring program by sampling the eight newly installed containment

performance shallow monitoring wells on a quarterly basis. These wells include MW-30S, MW-31S, MW-32S, MW-33S, MW-34S, MW-35S, MW-36S and MW-37S. These wells together form the new shallow groundwater monitoring well network.

In accordance with the Quality Assurance Project Plan (QAPP) for Installation of Groundwater Remedial System (October 1999), KMC is required to implement a groundwater monitoring program capable of indicating groundwater chemistry before, during, and after treatment. Also, the hydraulic gradient at each treatment gate will be used to evaluate groundwater flow velocity and residence time of groundwater through the treatment gate remediation system. The monitoring network includes six groundwater treatment gates with three monitoring wells located within each groundwater treatment gate. The monitoring well locations are presented in Figure 1. The treatment-gate 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 includes groundwater elevation, pH, temperature, turbidity, specific conductance, redox potential, and dissolved oxygen. Laboratory analyses include BTEX compounds (benzene, toluene, ethylbenzene, and xylene) and 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 the QAPP for Installation and Groundwater Remediation Addendum No. 1 (May 2000), the monthly field measurements for the treatment-gate performance monitoring wells include groundwater elevation, pH, temperature, specific conductance, redox potential, and dissolved oxygen. Quarterly laboratory analyses include microbial enumeration, nitrate-nitrogen, nitrite-nitrogen, Kjeldahl nitrogen, ammonia nitrogen, total phosphate-phosphorous, and orthophosphorous on a monthly basis. Additionally, laboratory analyses include biochemical oxygen demand (BOD), chemical oxygen demand (COD), total organic carbon (TOC), BTEX compounds, and PAH compounds.

2.0 GROUNDWATER MONITORING RESULTS

The fourth quarter 2000 groundwater monitoring event at the Moss-American site was completed between 26 December and 03 January 2001. The fourth quarter 2000 groundwater treatment-gate performance monitoring sampling event includes data obtained in October, November, and December 2000. Tasks completed during the field effort for this event included the collection of groundwater elevation data from the shallow and treatment-gate performance monitoring wells referenced above. Following groundwater elevation data measurements, groundwater samples were collected from all the shallow and intermediate monitoring wells with the exception of monitoring wells TW-09, MW-8S, and MW-8I since these wells were removed during the installation of the funnel and gate groundwater treatment system. 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 monitoring wells mentioned in Section 1.0 of this report. The measurements were conducted on 26 December 2000, prior to the beginning of groundwater sampling. These measurements were used to determine the elevation of the potentiometric surface of the shallow groundwater-bearing zone underlying the site. The water level measurements for the shallow monitoring wells and resulting elevations are presented in Table 1 and Table 2. Figure 1 presents a groundwater elevation contour map that shows the potentiometric surface of the shallow groundwater-bearing zone. An evaluation of these results is presented in the following paragraphs.

As Figure 1 shows, the groundwater within the shallow groundwater-bearing zone generally flows northeastward toward the Little Menomonee River. In the topographically higher, western portion of the site, the horizontal hydraulic gradient of the potentiometric surface is relatively steep at approximately 0.033 feet per foot (ft/ft) from south to north. The gradient flattens near the river, as does the ground surface, with a value of 0.005 ft/ft from east of treatment gate 4 through treatment gate 5 with the groundwater flow turning toward an easterly direction. The calculated hydraulic gradient within the treatment gates range from 0.0024 to 0.0214 ft/ft as listed in Table 2. The hydraulic gradient is relatively flat within the treatment gate area with an overall gradient from treatment gate 1 to treatment gate 6 of 0.001 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 gradient through gates 1 and gate 3 are in a westerly direction contrary to the overall groundwater flow direction. The apparently reversed hydraulic gradient at gates 1 and

3 are most likely due to limitations on measuring and survey equipment which are only accurate to within 0.01 feet whereas the hydraulic gradient is a factor of 0.001 ft/ft at these locations.

The average velocity of groundwater flow within the shallow water-bearing zone can be calculated using the hydraulic gradients presented above, the average hydraulic conductivity used for the shallow water-bearing zone (1.2 feet per day [ft/day]), and the assumed effective porosity of 30 percent. In the western portion of the site the groundwater flow velocity is calculated to be approximately 0.132 ft/day. Near the river, the velocity of groundwater flow is calculated to be approximately 0.020 ft/day. The groundwater flow velocity within the treatment gates ranges from 0.0068 ft/day to 0.0607 ft/day. The groundwater flow velocity at each treatment gate is presented in Table 2.

2.2 GROUNDWATER SAMPLE ANALYTICAL RESULTS

Groundwater samples were collected from a total of forty-one shallow monitoring wells screened within the shallow groundwater-bearing zone. These wells include MW-3S, MW-4S, MW-5S, MW-6S, MW-7S, MW-9S, MW-10S, MW-13S, MW-20S, MW-25S, MW-26S, MW-27S, MW-28S, MW-29S and TW-05; eight containment performance monitoring wells - MW-30S, MW-31S, MW-32S, MW-33S, MW-34S, MW-35S, MW-36S and MW-37S; and eighteen treatment-gate 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, for quality assurance/quality control (QA/QC) purposes, 3 sample duplicates, 2 matrix spike/matrix spike duplicates (MS/MSDs) and 3 field blanks (identified by a FB prefix) were collected. Trip blanks accompanied each cooler of sample bottles from the laboratory to the site and were shipped back to the laboratory within each cooler full of samples. Monitoring wells MW-20S, MW-31S, TG4-1, TG4-3, and TG5-2 could not be sampled during the fourth quarter 2000 groundwater monitoring sampling event due to frozen water encountered in these wells.

Each groundwater sample was measured for the field parameters discussed in Section 1 and analyzed for BTEX and PAH compounds. The results of these measurements and analyses are discussed in the following subsections. Additionally, each treatment-gate performance monitoring well was analyzed for microbial enumeration, nitrate-nitrogen, nitrite-nitrogen, Kjeldahl nitrogen, ammonia nitrogen, total phosphate-phosphorous, orthophosphate-phosphorous, BOD, COD, and TOC.

Dissolved Oxygen (milligrams/Liter)

Dissolved oxygen levels for the groundwater ranged from 0.09 to 4.10 mg/L. The dissolved oxygen value indicates the presence of low to moderate levels of oxygen in the water. A higher oxygen value promotes the growth of bacteria and nutrients that drive the oxidation reaction responsible for removal the contaminants from the groundwater system. Figure 2 indicates the dissolved oxygen concentrations over time at the treatment-gate performance monitoring wells.

Specific Conductance (micromhos/centimeter [mΩ/cm])

The specific conductance, or conductivity, of the groundwater ranged from 0.300 to 1.424 mΩ/cm. Conductivity of water is a measure of the ability of the solution to carry an electrical current that is transported by ions in the solution; therefore, conductivity is used as an indicator of the total dissolved solids present in a water sample. As the dissolved solids content of a solution increases, the capacity for the water to transmit electrical current increases.

Temperature (Degrees Fahrenheit [°F])

Groundwater temperatures ranged from 6.2 to 14.8° C. Temperature is an extremely important factor in bioremediation since microbial growth rates are greatly dependent upon temperature. The drops in overall groundwater temperature in the fourth quarter 2000 negatively influence the microbial populations present in the groundwater treatment system.

Turbidity (nephelometric units [NTU])

Turbidity measurements were not measured in the fourth quarter 2000 due to sub-zero temperatures. The turbidity meter could not be used in the field due to ambient air temperatures below the instrument's operational parameters.

2.2.2 Laboratory Analyses

2.2.2.1 Laboratory Analyses for BTEX and PAH

Each groundwater sample collected during the fourth quarter 2000 monitoring period was analyzed for BTEX and PAH compounds. The results of these analyses are presented in Table 4. Table 4 also indicates those parameters that were detected at concentrations that exceed their respective PALs (shown as bold values). Parameters with concentrations exceeding both PALs and ESs are presented as bold and shaded values in Table 4. Groundwater sampling results during this quarter were also compared to the ES and PAL standards provided by the WDNR for anthracene, fluoranthene, pyrene, chrysene and benzo(b)fluoranthene. These results are summarized in the following paragraphs. The laboratory reports are presented in Attachment A.

Groundwater Sample Results

As Table 4 shows, primarily benzene, naphthalene, fluorene, pyrene, chrysene, benzo (b)fluoranthene and benzo(a)pyrene were detected at concentrations that exceed their respective PALs and/or ES 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 groundwater samples collected from monitoring wells MW-4S, MW-7S, MW-33S, and TG1-1.
- Naphthalene was detected at concentrations exceeding the WDNR PAL of 8 µg/L in groundwater samples collected from monitoring wells MW-4S, MW-7S, MW-33S, MW-34S, TW-05, TG1-1, and TG1-3.
- Fluorene was detected at concentrations exceeding the WDNR PAL of 80 µg/L in a groundwater sample collected from MW-4S.
- Chrysene was detected at concentrations exceeding WDNR PAL of 0.02 µg/L in groundwater sample collected from MW-4S, MW-28S, MW-34S, and MW-35S.

- Benzo(b)fluoranthene was detected at concentrations exceeding the WDNR PAL of 0.02 µg/L in groundwater samples collected from monitoring wells MW-4S and MW-35S.

- Benzo(a)pyrene was detected at concentrations exceeding the WDNR PAL of 0.02 µg/L in groundwater samples collected from monitoring wells MW-4S, MW-34S, and MW-35S.

ES Exceedances:

- Benzene was detected at concentrations exceeding the WDNR ES of 5 µg/L in groundwater sample MW-33S and TG1-1.

- Naphthalene was detected at concentrations exceeding the WDNR ES of 40 µg/L in groundwater samples collected from monitoring wells MW-33S, MW-34S, TG1-1, and TG4-1.

- Chrysene was detected at concentrations exceeding WDNR ES of 0.2 µg/L in groundwater sample collected from MW-4S, MW-28S, MW-35S, and TG1-3.

The detected plume boundary is primarily in an area encompassing six shallow monitoring wells (MW-4S, MW-7S, TW-05, MW-32S, MW-33S, MW-34S, and MW-35S). Based on these detected concentrations, the width of the contaminant plume generally indicates an easterly trend as indicated in Figure 1 as well as during the previous 11 quarterly groundwater-sampling events.

A summary table of the concentration of contaminants at wells that have regularly exceeded PALs and/or ES during the last ten quarters is presented in Table 5. Levels of 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-4S, MW-7S and TW-05. A more accurate trend may be illustrated and performance evaluation performed as additional data for the containment performance wells (MW-30S through MW-37S) becomes available during the future quarterly groundwater sampling events.

2.2.2.2 Laboratory Analyses for Treatment-Gate Performance Monitoring

The groundwater samples collected from the treatment-gate performance monitoring wells were analyzed for microbial enumeration, nitrate-nitrogen, nitrite-nitrogen, Kjeldahl nitrogen, ammonia nitrogen, total phosphate-phosphorous, orthophosphate-phosphorous, BOD, COD, TOC, as well as BTEXs, and PAHs. The analytical results for nitrate-nitrogen, ammonia nitrogen, total phosphate-phosphorous, orthophosphate-phosphorous, BOD, COD, and TOC are presented in Table 6. The results of the treatment-gate performance monitoring well samples are summarized below.

Nitrogen and Phosphorous Compounds

Nitrate-nitrogen was detected at concentrations ranging from non-detect to 0.54 milligrams per liter (mg/L). Nitrite-nitrogen was detected at low levels ranging from non-detect to 0.171 mg/L. Kjeldahl nitrogen was detected at concentrations ranging from non-detect to 2.5 mg/L. Ammonia nitrogen was detected at levels ranging from non-detect to 1.9 mg/L. Overall nitrogen compound concentrations under baseline conditions are at relatively low levels. Temporal changes in the nitrogen compound concentrations for their respective treatment gate are presented in Figures 3, 4, and 5.

Total phosphate-phosphorous was detected at concentrations ranging from 0 to 0.99 mg/L. Orthophosphate-phosphorous was detected at concentrations ranging from 0.0069 to 0.182 mg/L. The temporal changes in phosphate compound concentrations for the respective treatment gates are presented in Figures 6 and 7.

BOD, COD, TOC

The BOD concentration for the treatment gate system ranges from non-detect to 9.1 mg/L. The COD concentration present in the treatment gate system ranges from 9.5 to 43.1 mg/L. The TOC concentration for the treatment gate system ranges from 4.2 to 17.8 mg/L. Overall the treatment gate wells indicate less BOD demand compared to COD demand. COD demand indicates presence of carbon compounds including the site contaminants in the groundwater. The low BOD demand indicates low concentrations of biological material including the bacteria required to remove the site contaminants.

Microbial Enumeration

The average mean total microbe populations for treatment gates 1 and 2 ranged from 1.8×10^2 to 5.6×10^4 colony forming units per milliliter (CFU/mL) over the three months of data collected. The average mean microbe populations for treatment gates 3 and 4 range from 1.7×10^2 to 2.7×10^4 CFU/mL over the three months of data collected. The average mean microbe populations for treatment gates 5 and 6 range from 2.6×10^2 to 1.4×10^4 CFU/mL over the three months of data collected. The temporal changes in total microbial populations are presented in Figure 8.

The average mean degrader microbe populations for treatment gates 1 and 2 range from 1.3×10^2 to 6.8×10^3 CFU/mL over the three months of data collected. The average mean microbe populations for treatment gates 3 and 4 range from 1.7×10^2 to 2.2×10^3 CFU/mL over the three months of data collected. The average mean microbe populations for treatment gates 5 and 6 range from 8.0×10^1 to 2.6×10^3 CFU/mL over the three months of data collected. The temporal changes in degrader microbial populations are presented in Figure 9.

Evaluation of Bioremediation Treatment Parameters

Degrader microbe populations $<10^3$ CFU/mL are indicative of significant bioremediation limitations and may require augmentation of site conditions (i.e., air injection to increase dissolved oxygen concentration, nutrient and/or bacterial formulation addition, etc.) to meet treatment requirements. Degrader populations between 10^3 and 10^6 CFU/mL are capable of site treatment with slight to moderate augmentation of site conditions. Degrader populations $>10^6$ CFU/mL are generally sufficient to support biotransformation of site contaminants without augmentation of site conditions. Recommended guidelines for bioremediation of contaminants in site groundwater also 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 baseline groundwater monitoring data presented for the fourth quarter of 2000 indicate that site augmentation is required for bioremediation since several wells had degrader counts less than recommended minimum of 10^6 CFU/mL for bioremediation without site augmentation, the C:N:P ratios in the treatment gate wells indicate a nitrogen and phosphorous deficiency in the groundwater, and the September dissolved oxygen concentrations in the wells prior to purging indicate an oxygen deficient environment.

Site augmentation began in October 2000 by injecting air into the wells at all treatment gates. Nutrient augmentation is scheduled to begin after the influence of the air injection on microbe populations have been evaluated. If you have any questions or require additional information, please do not hesitate to call me at (847) 918-4142.

Very truly yours,

ROY F. WESTON, INC.

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

TPG/sk

Attachments

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

Table 1

Groundwater Elevation Measurements
Shallow Monitoring Well Network
Moss American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Well ID	Ground Elevation	TOC Elevation	Depth to Water	GW Elevation	Product Thickness
MW-3S	729.00	731.50	NM	NM	ND
MW-4S	731.00	732.86	5.42	727.44	ND
MW-5S	723.00	724.70	NM	NM	ND
MW-6S	727.00	724.28	3.54	720.74	ND
MW-7S	720.00	721.70	NM	NM	ND
MW-9S	720.00	721.71	NM	NM	ND
MW-10S	723.00	726.58	5.58	721.00	ND
MW-13S	737.00	738.68	4.05	734.63	ND
MW-20S	716.00	719.94	NM	NM	ND
MW-25S	736.83	739.24	4.20	735.04	ND
MW-26S	732.31	731.66	NM	NM	ND
MW-27S	720.59	723.15	NM	NM	ND
MW-28S	720.04	722.65	4.70	717.95	ND
MW-29S	720.01	722.39	4.62	717.77	ND
TW-05	721.76	724.16	2.69	721.47	ND
MW-30S	724.5	727.19	4.76	722.43	ND
MW-31S	723.8	726.35	NM	NM	ND
MW-32S	719.6	722.62	NM	NM	ND
MW-33S	719.1	721.69	5.18	716.51	ND
MW-34S	718.6	721.42	NM	NM	ND
MW-35S	718.9	721.54	4.54	717.00	ND
MW-36S	720.2	723.09	3.56	719.53	ND
MW-37S	720.5	723.13	5.53	717.60	ND

Note: All values in feet
TOC = Top of the casing
GW = Groundwater
NM = Not able to be measured due to freezing conditions.
ND = Not detected
All elevation measurements are with respect to Mean Sea Level (MSL)

Table 1

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Shallow Monitoring Well Network
Moss American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

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MW-6S	727.00	724.28	3.54	720.74	ND
MW-7S	720.00	721.70	NM	NM	ND
MW-9S	720.00	721.71	NM	NM	ND
MW-10S	723.00	726.58	5.58	721.00	ND
MW-13S	737.00	738.68	4.05	734.63	ND
MW-20S	716.00	719.94	NM	NM	ND
MW-25S	736.83	739.24	4.20	735.04	ND
MW-26S	732.31	731.66	NM	NM	ND
MW-27S	720.59	723.15	NM	NM	ND
MW-28S	720.04	722.65	4.70	717.95	ND
MW-29S	720.01	722.39	4.62	717.77	ND
TW-05	721.76	724.16	2.69	721.47	ND
MW-30S	724.5	727.19	4.76	722.43	ND
MW-31S	723.8	726.35	NM	NM	ND
MW-32S	719.6	722.62	NM	NM	ND
MW-33S	719.1	721.69	5.18	716.51	ND
MW-34S	718.6	721.42	NM	NM	ND
MW-35S	718.9	721.54	4.54	717.00	ND
MW-36S	720.2	723.09	3.56	719.53	ND
MW-37S	720.5	723.13	5.53	717.60	ND

Note: All values in feet
TOC = Top of the casing
GW = Groundwater
NM = Not able to be measured due to freezing conditions.
ND = Not detected
All elevation measurements are with respect to Mean Sea Level (MSL)

Table 3

Field-Measured Parameters – Shallow Monitoring Wells
Moss American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Well Number	pH (Standard Units)	Specific Conductance (mΩ/cm)	Temperature (°C)	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
MW-3S	NA	NA	NA	NA	NA	NA
MW-4S	8.11	1.112	8.7	-76.6	NA	NA
MW-5S	NA	NA	NA	NA	NA	NA
MW-6S	NA	NA	NA	NA	NA	NA
MW-7S	NA	NA	NA	NA	NA	NA
MW-9S	NA	NA	NA	NA	NA	NA
MW-10S	NA	NA	NA	NA	NA	NA
MW-13S	NA	NA	NA	NA	NA	NA
MW-20S	NA	NA	NA	NA	NA	NA
MW-25S	8.30	0.950	6.7	-016	NA	NA
MW-26S	NA	NA	NA	NA	NA	NA
MW-27S	NA	NA	NA	NA	NA	NA
MW-28S	7.93	0.852	10.0	-069	NA	NA
MW-29S	NA	NA	NA	NA	NA	NA
TW-05	NA	NA	NA	NA	NA	NA
MW-30S	8.46	0.907	9.8	-130	NA	NA
MW-31S	NA	NA	NA	NA	NA	NA
MW-32S	NA	NA	NA	NA	NA	NA
MW-33S	NA	NA	NA	NA	NA	NA
MW-34S	NA	NA	NA	NA	NA	NA
MW-35S	NA	NA	NA	NA	NA	NA
MW-36S	NA	NA	NA	NA	NA	NA
MW-37S	8.11	1.112	8.7	-076	NA	NA

Table 3 (Cont.)

Field-Measured Parameters – Treatment Gate Performance Monitoring Wells
Moss American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Well Number	pH (Standard Units)	Specific Conductance (mΩ/cm)	Temperature (°C)	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
TG1-1	7.63	1.130	9.3	015	1.13	1020
TG1-2	7.49	1.350	8.9	020	0.75	898
TG1-3	7.88	1.250	8.0	076	0.68	1074
TG2-1	7.70	0.910	8.8	136	1.52	476
TG2-2	7.74	0.930	9.0	054	1.97	820
TG2-3	7.58	1.200	7.8	078	0.81	63
TG3-1	7.15	1.000	8.5	-021	1.08	926
TG3-2	7.16	0.924	8.3	-039	0.98	264
TG3-3	7.19	0.910	8.3	-056	0.91	420
TG4-1	7.67	0.309	8.1	-022	0.67	290
TG4-2	7.58	0.667	8.1	-009	0.20	840
TG4-3	7.49	0.716	8.5	-003	0.64	601
TG5-1	7.55	0.562	9.0	106	1.61	706
TG5-2	7.59	0.300	8.1	072	0.90	74
TG5-3	7.60	0.672	9.3	153	1.29	59.2
TG6-1	7.33	0.468	8.4	075	1.20	163
TG6-2	7.39	0.876	9.9	116	1.60	896
TG6-3	7.25	0.517	9.0	143	0.77	414

S - Shallow Well
NM – Not Measured
NA – Not analyzed due to freezing conditions.
TW - Temporary Well (Shallow)
TG – Treatment Gate Performance Monitoring Well

Table 4

Groundwater Sample Analytical Results
Plume Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Sample ID:	MW-3S-12	MW-4S-12	MW-5S-12	MW-6S-12	MW-7S-12	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/28/2000	12/27/2000	12/28/2000	1/3/2001	1/2/2001		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters							
VOCs							
Benzene	0.2 U	**2.6**	0.2 U	0.2 U	**3.4 J**	0.5	5
Toluene	0.2 U	4.1	0.2 U	0.2 U	2 U	68.6	343
Ethylbenzene	0.2 U	5.7	0.2 U	0.2 U	14	140	700
Total Xylenes	0.6 U	10	0.6 U	0.6 U	47	124	620
PAHs							
Naphthalene	0.77 U	**720**	0.77 U	0.81 U	**3470**	8.0	40
Acenaphthalyene	0.77 U	81 J	0.77 U	0.81 U	115 J	NA	NA
Acenaphthene	0.77 U	600	0.77 U	0.81 U	78 J	NA	NA
Fluorene	0.16 U	**217**	0.16 U	0.17 U	12.7	80	400
Phenanthrene	0.067 U	7.7 J	0.067 U	0.071 U	0.08 J	NA	NA
Anthracene	0.029 U	12	0.029 U	0.031 U	0.044 J	600	3,000
Fluoranthene	0.029 U	28	0.029 U	0.031 U	0.03 U	80	400
Pyrene	0.16 U	18.6	0.16 U	0.17 U	0.17 U	50	250
Benzo(a)anthracene	0.019 U	0.638	0.019 U	0.02 U	0.02 U	NA	NA
Chrysene	0.069 J	**0.33**	0.075 J	0.061 U	0.059 U	0.02	0.2
Benzo(b)fluoranthene	0.037 U	**0.067**	0.037 U	0.039 U	0.037 U	0.02	0.2
Benzo(k)fluoranthene	0.0096 U	0.041 J	0.0096 U	0.01 U	0.0099 U	NA	NA
Benzo(a)pyrene	0.019 U	**0.051** J	0.019 U	0.02 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.029 U	0.03 U	0.029 U	0.031 U	0.03 U	NA	NA
Benzo(g,h,i)perylene	0.096 U	0.1 U	0.096 U	0.1 U	0.099 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.064 U	0.069 J	0.064 U	0.068 U	0.066 U	NA	NA

Table 4 (Cont.)

Groundwater Sample Analytical Results
Plume Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Sample ID:	MW-9S-12	MW-10S-12	MW-13S-12	MW-20S-12	MW-25S-12	MW-26S-12	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	1/2/2001	1/3/2001	12/27/2001	12/26/2000	12/27/2000	12/26/2000		
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	NS	0.2 U	NS	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	NS	0.2 U	NS	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	NS	0.2 U	NS	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	NS	0.6 U	NS	124	620
PAHs								
Naphthalene	1.22 J	0.82 U	0.81 U	NS	0.79 U	NS	8.0	40
Acenaphthalyene	0.8 U	0.82 U	0.81 U	NS	0.79 U	NS	NA	NA
Acenaphthene	0.8 U	0.82 U	0.81 U	NS	0.79 U	NS	NA	NA
Fluorene	0.17 U	0.17 U	0.81 U	NS	0.79 U	NS	80	400
Phenanthrene	0.07 J	0.072 U	0.81 U	NS	0.79 U	NS	NA	NA
Anthracene	0.047 U	0.031 U	0.051 J	NS	0.053 J	NS	600	3,000
Fluoranthene	0.03 U	0.031 U	0.03 U	NS	0.03 U	NS	80	400
Pyrene	0.17 U	0.17 U	0.17 U	NS	0.17 U	NS	50	250
Benzo(a)anthracene	0.02 U	0.021 U	0.02 U	NS	0.02 U	NS	NA	NA
Chrysene	0.06 U	0.062 U	0.061 U	NS	0.059 U	NS	0.02	0.2
Benzo(b)fluoranthene	0.038 U	0.039 U	0.038 U	NS	0.038 U	NS	0.02	0.2
Benzo(k)fluoranthene	0.01 U	0.01 U	0.01 U	NS	0.0099 U	NS	NA	NA
Benzo(a)pyrene	0.02 U	0.021 U	0.02 U	NS	0.02 U	NS	0.02	0.2
Dibenzo(a,h)anthracene	0.03 U	0.031 U	0.03 U	NS	0.03 U	NS	NA	NA
Benzo(g,h,i)perylene	0.1 U	0.1 U	0.1 U	NS	0.099 U	NS	NA	NA
Indeno(1,2,3-cd)pyrene	0.067 U	0.069 U	0.068 U	NS	0.066 U	NS	NA	NA

Table 4 (Cont.)

Groundwater Sample Analytical Results
Plume Monitoring Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Sample ID:	MW-27S-12	MW-28S-12	MW-29S-12	TW-05-12	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	1/2/2001	12/28/2000	1/3/2001	1/3/2001		
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	1.17 J	0.86 U	NS	**10 J**	8.0	40
Acenaphthalyene	0.77 U	0.86 U	NS	9.9 J	NA	NA
Acenaphthene	0.77 U	0.86 U	NS	63	NA	NA
Fluorene	0.16 U	0.18 U	NS	40.1	80	400
Phenanthrene	0.067 U	0.075 U	NS	1.37 J	NA	NA
Anthracene	0.035 J	0.032 U	NS	1.1	600	3,000
Fluoranthene	0.029 U	0.032 U	NS	8.1	80	400
Pyrene	0.16 U	0.18 U	NS	6	50	250
Benzo(a)anthracene	0.019 U	0.021 U	NS	0.13 J	NA	NA
Chrysene	0.058 U	**0.36**	NS	0.29 U	0.02	0.2
Benzo(b)fluoranthene	0.037 U	0.041 U	NS	0.18 U	0.02	0.2
Benzo(k)fluoranthene	0.0096 U	0.011 U	NS	0.048 U	NA	NA
Benzo(a)pyrene	0.019 U	0.021 U	NS	0.096 U	0.02	0.2
Dibenzo(a,h)anthracene	0.029 U	0.032 U	NS	0.14 U	NA	NA
Benzo(g,h,I)perylene	0.096 U	0.11 U	NS	0.48 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.064 U	0.072 U	NS	0.32 U	NA	NA

Table 4 (contd.)

Groundwater Sample Analytical Results
ContaiNSent Performance Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Sample ID:	MW-30S-12	MW-31S-12	MW-32S-12	MW-33S-12	MW-34S-12	MW-35S-12	MW-36S-12	MW-37S-12	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/27/2000	12/26/2000	1/2/2001	1/2/2001	1/2/2001	1/3/2001	1/3/2001	12/27/2000		
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	NS	0.2 U	**8.3 J**	2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	0.2 U	NS	0.2 U	2 U	2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	0.2 U	NS	0.2 U	24	10	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	0.6 U	NS	0.6 U	80	24 J	0.6 U	0.6 U	0.6 U	124	620
PAHs										
Naphthalene	0.84 U	NS	1.25 J	**1760**	**5050**	0.94 J	0.82 U	0.86 U	8.0	40
Acenaphthylene	0.84 U	NS	0.82 U	102 J	143 J	1.82 J	0.82 U	0.86 U	NA	NA
Acenaphthene	0.84 U	NS	0.82 U	85 J	160 J	1.4 J	0.82 U	0.86 U	NA	NA
Fluorene	0.18 U	NS	0.82 U	15	74	0.23 J	0.17 U	0.18 U	80	400
Phenanthrene	0.073 U	NS	0.18 U	0.3	78.2	0.55	0.072 U	0.075 U	NA	NA
Anthracene	0.077 J	NS	0.052 J	0.029 U	5.6	0.31	0.031 U	0.053 J	600	3,000
Fluoranthene	0.031 U	NS	0.031 U	0.064 J	6.4	1.64	0.033 J	0.032 U	80	400
Pyrene	0.18 U	NS	0.18 U	0.17 U	5.01	1.45	0.17 U	0.18 U	50	250
Benzo(a)anthracene	0.021 U	NS	0.021 U	0.02 U	0.192	0.246	0.02 U	0.021 U	NA	NA
Chrysene	0.063 U	NS	0.062 U	0.059 U	**0.185 J**	**0.28 J**	0.061 U	0.064 U	0.02	0.2
Benzo(b)fluoranthene	0.04 U	NS	0.039 U	0.037 U	0.039 U	**0.158**	0.039 U	0.041 U	0.02	0.2
Benzo(k)fluoranthene	0.01 U	NS	0.0101 U	0.0098 U	0.017 J	0.07	0.01 U	0.011 U	NA	NA
Benzo(a)pyrene	0.021 U	NS	0.021 U	0.02 U	**0.031 J**	**0.138**	0.02 U	0.021 U	0.02	0.2
Dibenzo(a,h)anthracene	0.031 U	NS	0.031 U	0.029 U	0.031 U	0.028 U	0.031 U	0.032 U	NA	NA
Benzo(g,h,i)perylene	0.1 U	NS	0.1 U	0.098 U	0.1 U	0.095 U	0.1 U	0.11 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.07 U	NS	0.069 U	0.066 U	0.068 U	0.09 J	0.069 U	0.072 U	NA	NA

Table 4 (Cont.)

Groundwater Sample Analytical Results
Treatment Performance Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Sample ID:	TG1-1-12	TG1-2-12	TG1-3-12	TG2-1-12	TG2-2-12	TG2-3-12	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/28/2000	12/28/2000	12/28/2000	12/28/2000	12/28/2000	12/28/2000		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	5
Toluene	1.9	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	22	0.2 U	0.27 J	0.2 U	0.2 U	0.2 U	140	700
Total Xylenes	41	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	124	620
PAHs								
Naphthalene	**3300**	NS	**11.4**	0.78 U	0.78 U	0.77 U	8.0	40
Acenaphthylene	146	NS	2.27 J	0.78 U	0.78 U	0.77 U	NA	NA
Acenaphthene	170	NS	12	0.78 U	0.78 U	0.77 U	NA	NA
Fluorene	69.2	NS	2.33	0.17 U	0.17 U	0.16 U	80	400
Phenanthrene	34.8	NS	3.82	0.068 U	0.068 U	0.067 U	NA	NA
Anthracene	2.7	NS	0.78	0.029 U	0.029 U	0.029 U	600	3,000
Fluoranthene	1.63 J	NS	1.96	0.036 J	0.055 J	0.03 J	80	400
Pyrene	1.7 J	NS	1.57	0.17 U	0.17 U	0.16 U	50	250
Benzo(a)anthracene	0.19 U	NS	0.068 J	0.02 U	0.019 U	0.019 U	NA	NA
Chrysene	0.57 U	NS	**0.212 J**	0.059 U	0.058 U	0.058 U	0.02	0.2
Benzo(b)fluoranthene	0.36 U	NS	0.041 U	0.037 U	0.037 U	0.037 U	0.02	0.2
Benzo(k)fluoranthene	0.096 U	NS	0.011 U	0.0098 U	0.0097 U	0.0096 U	NA	NA
Benzo(a)pyrene	0.19 U	NS	0.021 U	0.02 U	0.019 U	0.019 U	0.02	0.2
Dibenzo(a,h)anthracene	0.29 U	NS	0.032 U	0.029 U	0.029 U	0.029 U	NA	NA
Benzo(g,h,i)perylene	1 U	NS	0.11 U	0.098 U	0.097 U	0.096 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.64 U	NS	0.071 U	0.065 U	0.065 U	0.064 U	NA	NA

Table 4 (Cont.)

Groundwater Sample Analytical Results
Treatment Performance Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Sample ID:	TG3-1-12	TG3-2-12	TG3-3-12	TG4-1-12	TG4-2-12	TG4-3-12	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/29/2000	12/29/2000	12/29/2000	1/2/2001	1/2/2001	1/2/2001		
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	NS	0.2 U	NS	0.5	5
Toluene	0.2 U	0.2 U	0.2 U	NS	0.2 U	NS	68.6	343
Ethylbenzene	0.2 U	0.2 U	0.2 U	NS	0.2 U	NS	140	700
Total Xylenes	0.6 U	0.6 U	0.6 U	NS	0.6 U	NS	124	620
PAHs								
Naphthalene	0.78 U	0.81 U	0.88 U	NS	2.34 J	NS	8.0	40
Acenaphthylene	0.78 U	0.81 U	0.88 U	NS	0.84 U	NS	NA	NA
Acenaphthene	0.89 J	0.81 U	0.88 U	NS	0.84 U	NS	NA	NA
Fluorene	0.65 J	0.17 U	0.19 U	NS	0.18 U	NS	80	400
Phenanthrene	0.44	0.071 U	0.077 U	NS	0.073 U	NS	NA	NA
Anthracene	0.21	0.03 U	0.033 U	NS	0.092 J	NS	600	3,000
Fluoranthene	0.33	0.046 J	0.065 J	NS	0.23 U	NS	80	400
Pyrene	0.26 J	0.17 U	0.19 U	NS	0.18 J	NS	50	250
Benzo(a)anthracene	0.019 U	0.02 U	0.022 U	NS	0.021 U	NS	NA	NA
Chrysene	0.058 U	**0.067 J**	0.066 U	NS	0.063 U	NS	0.02	0.2
Benzo(b)fluoranthene	0.037 U	0.038 U	0.042 U	NS	0.04 U	NS	0.02	0.2
Benzo(k)fluoranthene	0.0097 U	0.01 U	0.011 U	NS	0.01 U	NS	NA	NA
Benzo(a)pyrene	0.019 U	0.02 U	0.022 U	NS	0.021 U	NS	0.02	0.2
Dibenzo(a,h)anthracene	0.029 U	0.03 U	0.033 U	NS	0.031 U	NS	NA	NA
Benzo(g,h,i)perylene	0.097 U	0.1 U	0.11 U	NS	0.1 U	NS	NA	NA
Indeno(1,2,3-cd)pyrene	0.065 U	0.068 U	0.073 U	NS	0.07 U	NS	NA	NA

Table 4 (Cont.)

Groundwater Sample Analytical Results
Treatment Performance Well Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Sample ID:	TG5-1-12	TG5-2-12	TG5-3-12	TG6-1-12	TG6-2-12	TG6-3-12	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/29/2000	12/29/2000	12/29/2000	1/2/2001	1/2/2001	1/2/2001		
Units of Measure:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Parameters								
VOCs								
Benzene	0.2 U	NS	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	68.6	343
Ethylbenzene	0.2 U	NS	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	124	620
PAHs								
Naphthalene	3.12 J	NS	0.88 U	1.57 J	0.86 U	1.36 J	8.0	40
Acenaphthylene	0.76 U	NS	0.88 U	0.8 U	0.86 U	0.78 U	NA	NA
Acenaphthene	0.76 U	NS	0.88 U	0.8 U	0.86 U	0.78 U	NA	NA
Fluorene	0.16 U	NS	0.19 U	0.17 U	0.18 U	0.17 U	80	400
Phenanthrene	0.066 U	NS	0.077 U	0.07 U	0.076 U	0.068 U	NA	NA
Anthracene	0.028 U	NS	0.033 U	0.032 J	0.052 J	0.051 J	600	3,000
Fluoranthene	0.028 U	NS	0.033 U	0.043 J	0.038 J	0.036 J	80	400
Pyrene	0.16 U	NS	0.19 U	0.17 U	0.18 U	0.17 U	50	250
Benzo(a)anthracene	0.019 U	NS	0.022 U	0.02 U	0.022 U	0.02 U	NA	NA
Chrysene	0.057 U	NS	0.066 U	0.06 U	0.065 U	0.059 U	0.02	0.2
Benzo(b)fluoranthene	0.036 U	NS	0.042 U	0.038 U	0.041 U	0.037 U	0.02	0.2
Benzo(k)fluoranthene	0.0095 U	NS	0.011 U	0.01 U	0.011 U	0.0098 U	NA	NA
Benzo(a)pyrene	0.019 U	NS	0.022 U	0.02 U	0.022 U	0.02 U	0.02	0.2
Dibenzo(a,h)anthracene	0.028 U	NS	0.033 U	0.03 U	0.032 U	0.029 U	NA	NA
Benzo(g,h,i)perylene	0.095 U	NS	0.11 U	0.1 U	0.11 U	0.098 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.064 U	NS	0.074 U	0.067 U	0.072 U	0.065 U	NA	NA

Table 4 (Cont.)

Groundwater Sample Analytical Results
Field Duplicate Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Sample ID:	TG1-1-DP	TG5-1-DP	MW-9S-DP	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater		
Sample Date:	12/28/2000	12/29/2000	1/2/2001		
Units of Measure:	ug/L	ug/L	ug/L		
Parameters					
VOCs					
Benzene	**6.3 J**	0.2 U	0.2 U	0.5	5
Toluene	2 U	0.2 U	0.2 U	68.6	343
Ethylbenzene	20	0.2 U	0.2 U	140	700
Total Xylenes	37	0.6 U	0.6 U	124	620
PAHs					
Naphthalene	**3510**	2.64 J	0.82 U	8.0	40
Acenaphthalyene	154	0.78 U	0.82 U	NA	NA
Acenaphthene	180	0.78 U	0.82 U	NA	NA
Fluorene	72.6	0.17 U	0.18 U	80	400
Phenanthrene	34.9	0.068 U	0.072 U	NA	NA
Anthracene	2.6	0.029 U	0.052 J	600	3,000
Fluoranthene	1.83 J	0.029 U	0.031 U	80	400
Pyrene	1.9 U	0.17 U	0.18 U	50	250
Benzo(a)anthracene	0.22 U	0.019 U	0.021 U	NA	NA
Chrysene	0.67 U	**0.151 J**	0.062 U	0.02	0.2
Benzo(b)fluoranthene	0.43 U	0.037 U	0.039 U	0.02	0.2
Benzo(k)fluoranthene	0.11 U	0.0097 U	0.01 U	NA	NA
Benzo(a)pyrene	0.22 U	0.019 U	0.021 U	0.02	0.2
Dibenzo(a,h)anthracene	0.34 U	0.029 U	0.031 U	NA	NA
Benzo(g,h,I)perylene	1.1 U	0.097 U	0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.75 U	0.065 U	0.069 U	NA	NA

Table 4 (Cont.)

Groundwater Sample Analytical Results
Matrix Spike - Matrix Spike Duplicate Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Sample ID:	TG5-3-MS	TG5-3-MSD	MW-10S-MS	MW-10S-MSD	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater		
Sample Date:	12/29/2000	12/29/2000	1/3/2001	1/3/2001		
Units of Measure:	ug/L	ug/L	ug/L	ug/L		
Parameters						
VOCs						
Benzene	**22**	**22**	**22**	**22**	0.5	5
Toluene	23	22	23	22	68.6	343
Ethylbenzene	23	22	23	22	140	700
Total Xylenes	68	67	69	67	124	620
PAHs						
Naphthalene	**190**	**168**	**125**	**136**	8.0	40
Acenaphthylene	201	179	156	163	NA	NA
Acenaphthene	200	180	160	160	NA	NA
Fluorene	20.2	18.1	16.7	17.4	80	400
Phenanthrene	6.07	5.4	5.52	5.69	NA	NA
Anthracene	2.61	2.34	2.72	2.83	600	3,000
Fluoranthene	3.66	3.23	3.07	3.22	80	400
Pyrene	22.2	19.9	18.8	19.5	50	250
Benzo(a)anthracene	1.79	1.59	1.48	1.55	NA	NA
Chrysene	**7.37**	**6.41**	**5.83**	**6.13**	0.02	0.2
Benzo(b)fluoranthene	**1.41**	**1.24**	**1.21**	**1.27**	0.02	0.2
Benzo(k)fluoranthene	1.34	1.2	1.14	1.2	NA	NA
Benzo(a)pyrene	**1.62**	**1.45**	**1.24**	**1.3**	0.02	0.2
Dibenzo(a,h)anthracene	3.47	3.12	2.89	3.06	NA	NA
Benzo(g,h,i)perylene	13	11.7	10.7	11.4	NA	NA
Indeno(1,2,3-cd)pyrene	6.78	6.1	5.73	6.07	NA	NA

Table 4 (Cont.)

Groundwater Sample Analytical Results
Field Blank Samples
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Sample ID:	FB-01	FB-02	FB-03	WDNR PAL, ug/L	WDNR ES, ug/L
Sample Matrix:	Groundwater	Groundwater	Groundwater		
Sample Date:	12/28/2000	12/29/2000	1/2/2001		
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	0.85 U	0.79 U	0.77 U	8.0	40
Acenaphthalyene	0.85 U	0.79 U	0.77 U	NA	NA
Acenaphthene	0.85 U	0.79 U	0.77 U	NA	NA
Fluorene	0.18 U	0.17 U	0.16 U	80	400
Phenanthrene	0.074 U	0.069 U	0.068 U	NA	NA
Anthracene	0.032 U	0.03 U	0.037 J	600	3,000
Fluoranthene	0.032 U	0.03 U	0.029 U	80	400
Pyrene	0.18 U	0.17 U	0.16 U	50	250
Benzo(a)anthracene	0.021 U	0.02 U	0.019 U	NA	NA
Chrysene	0.063 U	0.059 U	**0.066 J**	0.02	0.2
Benzo(b)fluoranthene	0.04 U	0.037 U	0.037 U	0.02	0.2
Benzo(k)fluoranthene	0.011 U	0.0098 U	0.0097 U	NA	NA
Benzo(a)pyrene	0.021 U	0.02 U	0.019 U	0.02	0.2
Dibenzo(a,h)anthracene	0.032 U	0.03 U	0.029 U	NA	NA
Benzo(g,h,I)perylene	0.11 U	0.098 U	0.097 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.071 U	0.066 U	0.065 U	NA	NA

Table 4 (Cont.)

Groundwater Sample Analytical Results
Table Notes
Moss-American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

U - Indicates constituent not detected above detection limit. Detection limit indicated.
J - Indicates estimated concentration.
VOC - Volatile Organic Compound.
PAH - Polynuclear Aromatic Hydrocarbon.
PAL - Wisconsin Department of Natural Resources (WDNR) Preventative Action Limit.
ES = Enforcement Standard (WDNR).
NA - Not Applicable. PAL or ES not available for this parameter.
NS - Not sampled due to cold weather.
Bold values indicate concentration exceeding PAL.
Bold and shaded values indicate concentration exceeding PAL and ES.

Table 5

Concentration Trends in Groundwater Samples
Four Quarters of 1998 and 1999, Three Quarters of 2000
Moss-American Site
Milwaukee, Wisconsin

	MW-4S	MW-7S	TW-05	TW-09[1]	MW-32S[2]	MW-33S[2]	MW-34S[2]	MW-35S[2]
Benzene								
First Quarter (March '98)	10.00	5.00	0.20 U	2.00 J	NS	NS	NS	NS
Second Quarter (June '98)	8.00	5.00	0.20 U	0.50 J	NS	NS	NS	NS
Third Quarter (September '98)	3.00	8.00 J	0.20 U	2.00 U	NS	NS	NS	NS
Fourth Quarter (December '98)	3.00 J	NS	0.20 U	2.00 U	NS	NS	NS	NS
First Quarter (March '99)	5.00	9.00	0.20 U	0.30 U	NS	NS	NS	NS
Second Quarter (June '99	6.00	7.00 J	0.20 U	2.00 U	NS	NS	NS	NS
Third Quarter (September '99)	3.00	9.00	0.20 U	0.80 J	NS	NS	NS	NS
Fourth Quarter (December '99)	2.80	7.10	0.20 U	---	NS	NS	NS	NS
First Quarter (March '00)	4.00	5.20	0.20 U	---	NS	NS	NS	NS
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)	25.00	ND	ND	---	ND	ND	8.10 J	ND
Fourth Quarter (December '00)	2.60	3.4 J	0.20 U	--	0.20 U	8.3 J	2 U	0.20 U
Naphthalene								
First Quarter (March '98)	2,080.00	6,470.00	3.51 J	3,080.00	NS	NS	NS	NS
Second Quarter (June '98)	172.00 J	16.10	15.10 J	11,800.00	NS	NS	NS	NS
Third Quarter (September '98)	863.00 J	7,140.00	19.00 J	580.00 J	NS	NS	NS	NS
Fourth Quarter (December '98)	1,760.00	NS	9.30 J	14,900.00	NS	NS	NS	NS
First Quarter (March '99)	1,330.00	5,560.00	19.90	9,500.00	NS	NS	NS	NS
Second Quarter (June '99	940.00	6,400.00	3.90 J	11,600.00	NS	NS	NS	NS
Third Quarter (September '99)	418.00 J	0.80 U	7.90 J	126,000.00	NS	NS	NS	NS
Fourth Quarter (December '99)	790.00	4,740.00	9.00 J	---	NS	NS	NS	NS
First Quarter (March '00)	1,020.00	3,950.00	9.80 J	---	NS	NS	NS	NS
Second Quarter (June '00)	364.00 J	4,260.00	6.96 J	---	40.70	1,920.00	5,980.00	42.70
Third Quarter (September '00)	810.00	3,960.00	15.30 J	---	59.30	2,220.00	5,720.00	ND
Fourth Quarter (December '00)	720.00	3,470.00	10.00 J	--	1.25 J	1,760.00	5,050.00	0.94 J

Table 5 (Cont.)

Concentration Trends in Groundwater Samples
Four Quarters of 1998 and 1999, Three Quarters of 2000
Moss-American Site
Milwaukee, Wisconsin

	MW-4S	MW-7S	TW-05	TW-09[1]	MW-32S[2]	MW-33S[2]	MW-34S[2]	MW-35S[2]
Fluorene								
First Quarter (March '98)	368.00	3.30 U	3.3 U	21.00 U	NS	NS	NS	NS
Second Quarter (June '98)	50.00	3.60 J	105.00	3,590.00	NS	NS	NS	NS
Third Quarter (September '98)	323.00 J	30.00	90.00	3.30 UJ	NS	NS	NS	NS
Fourth Quarter (December '98)	316.00	NS	62.30	4,120.00	NS	NS	NS	NS
First Quarter (March '99)	271.00	30.00	65.40	4,300.00	NS	NS	NS	NS
Second Quarter (June '99	547.00	36.50	79.60	5,200.00	NS	NS	NS	NS
Third Quarter (September '99)	651.00	39.20	136.00	47,700.00	NS	NS	NS	NS
Fourth Quarter (December '99)	333.00	24.40	66.60	---	NS	NS	NS	NS
First Quarter (March '00)	281.00	15.80	55.50	---	NS	NS	NS	NS
Second Quarter (June '00)	223.00	12.80	53.20	---	0.17 U	1.41	89.00	4.92
Third Quarter (September '00)	103.00	14.20	74.60	---	0.19	5.86	73.00 J	ND
Fourth Quarter (December '00)	217.00	12.70	40.10	--	0.82 U	15.00	74.00	0.23 J
Benzo(a) pyrene								
First Quarter (March '98)	25.30	0.021 U	2.04	20.30	NS	NS	NS	NS
Second Quarter (June '98)	112.00	25.30	1.63	226.00	NS	NS	NS	NS
Third Quarter (September '98)	7.45 J	0.42	3.40	4.40 J	NS	NS	NS	NS
Fourth Quarter (December '98)	8.95	NS	1.72	228.00	NS	NS	NS	NS
First Quarter (March '99)	6.10	0.43	2.10	240.00	NS	NS	NS	NS
Second Quarter (June '99	35.10	0.12 U	1.42	23.00 J	NS	NS	NS	NS
Third Quarter (September '99)	40.50	0.022 U	4.33	3,610.00	NS	NS	NS	NS
Fourth Quarter (December '99)	9.70	0.21 U	1.49	---	NS	NS	NS	NS
First Quarter (March '00)	8.40	0.21 U	1.44	---	NS	NS	NS	NS
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	ND	0.89	---	0.02 U	0.02 U	0.10	0.153
Fourth Quarter (December '00)	0.051 J	0.02 U	0.096 U	--	0.021 U	0.02 U	0.031 J	0.138

NS - Not Sampled

U - Constituent not detected; method detection limit (MDL) of th eanalysis reported

J - Estimated Concentration

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

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

Table 6
Treatment Peformance Monitoring Nutrient a Biological Parameter Analytical Summary
Kerr-McGee Moss American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Parameter (mg/L)	Sample Identification								
	TG1-1			TG1-2			TG1-3		
	October	November	December	October	November	December	October	November	December
Kjeldahl Nitrogen	0.63 U	1.49 J	1.6 J	0.75 J	1.33 J	1.07 J	0.63 U	1.08 J	1.23 J
Nitrite Nitrogen	0.015 U	0.015 U	0.151	0.015 U	0.015 U	0.171	0.015 U	0.015 U	0.13
Nitrate Nitrogen	0.030 U	0.54	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U
Ammonia Nitrogen	0.53 J	0.83 J	1.4 J	0.80 J	0.92 J	0.67 J	0.59 J	0.59 J	0.59 J
Ortho-Phosphate as P	0.037	0.0184 J	0.0114 J	0.161	0.0087 J	0.032	0.182	0.028	0.0174 J
Biochemical Oxygen Demand (BOD)	NA	NA	9.1	NA	NA	2.9 U	NA	NA	5.8 U
Total Organic Carbon (non-purgable)	NA	NA	15	NA	NA	10.6	NA	NA	11.4
Total Phosphorous as PO4	0.13 J	0.22	0.13 U	0.19 J	0.23	0	0.18 J	0.31	0.13 U
Chemical Oxygen Demand (COD)	NA	NA	37.8	NA	NA	13	NA	NA	22.8
Total Microbial Population (mean)	1.10E+04	1.10E+03	8.10E+03	6.10E+03	3.60E+03	5.60E+04	1.10E+04	5.40E+03	5.40E+04
Degrader Microbial Population (mean)	2.10E+03	1.10E+03	6.80E+03	9.30E+02	3.60E+03	1.20E+03	4.30E+02	5.40E+03	4.40E+02
	TG2-1			TG2-2			TG2-3		
	October	November	December	October	November	December	October	November	December
Kjeldahl Nitrogen	0.63 U	0.63 U	0.63 U	0.81 J	1.12 J	0.85 J	0.63 U	0.77 J	0.64 J
Nitrite Nitrogen	0.015 U	0.015 U	0.166	0.015 U	0.015 U	0.145	0.015 U	0.015 U	0.015 U
Nitrate Nitrogen	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U
Ammonia Nitrogen	0.15 U	0.15 U	0.21 J	0.77 J	0.68 J	0.59 J	0.33 J	0.27 J	0.16 U
Ortho-Phosphate as P	0.0098 J	0.0141 J	0.0069 J	0.0168 J	0.0104 J	0.0144 J	0.041	0.038	0.037
Biochemical Oxygen Demand (BOD)	NA	NA	2.8 U	NA	NA	4.4 U	NA	NA	2.8 U
Total Organic Carbon (non-purgable)	NA	NA	3.9	NA	NA	6	NA	NA	5.6
Total Phosphorous as PO4	0.13 J	0.13 U	0.13 U	0.15 J	0.21	0.13 U	0.16 J	0.22	0.13 U
Chemical Oxygen Demand (COD)	NA	NA	3.9 J	NA	NA	0.13 U	NA	NA	10.6
Total Microbial Population (mean)	7.70E+02	1.80E+02	6.50E+02	1.00E+04	4.20E+02	3.80E+03	7.00E+03	2.30E+02	6.80E+02
Degrader Microbial Population (mean)	1.60E+02	1.80E+02	1.60E+02	5.00E+02	4.20E+02	1.30E+02	2.60E+02	2.30E+02	5.70E+02

Table 6 (Cont.)
Treatment Peformance Monitoring Nutrient a Biological Parameter Analytical Summary
Kerr-McGee Moss American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Parameter (mg/L)	Sample Identification								
	TG3-1			TG3-2			TG3-3		
	October	November	December	October	November	December	October	November	December
Kjeldahl Nitrogen	2.2	2.4 J	2.5	1.34 J	1.69 J	1.64 J	0.94 J	1.32 J	1.36 J
Nitrite Nitrogen	0.015 U	0.066	0.159	0.015 U	0.015 U	0.176	0.015 U	0.106	0.155
Nitrate Nitrogen	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	.0.041 J
Ammonia Nitrogen	1.6	1.6	1.7	1.2	1.2	1.2	0.95 J	1.2	1.2
Ortho-Phosphate as P	0.032	0.0104 J	0.0099 J	0.031	0.0061 J	0.0149 J	0.04	0.0061 J	0.0079 J
Biochemical Oxygen Demand (BOD)	NA	NA	3.3 U	NA	NA	0.67	NA	NA	4.3
Total Organic Carbon (non-purgable)	NA	NA	17.8	NA	NA	9.6	NA	NA	8.6
Total Phosphorous as PO4	0.38	0.63	0.29	0.20 J	0.35	0.13 U	0.16 J	0.35	0.13 U
Chemical Oxygen Demand (COD)	NA	NA	43.1	NA	NA	25.7	NA	NA	20.9
Total Microbial Population (mean)	4.40E+03	4.90E+02	7.20E+03	2.80E+03	2.20E+02	7.30E+03	8.20E+02	1.70E+02	2.10E+04
Degrader Microbial Population (mean)	1.80E+03	4.90E+02	1.50E+03	5.20E+02	2.20E+02	2.20E+03	5.70E+02	1.70E+02	1.90E+03
	TG4-1			TG4-2			TG4-3		
	October	November	December	October	November	December	October	November	December
Kjeldahl Nitrogen	1.52 J	1.43 J	NS	1.51 J	1.38 J	1.47 J	1.91 J	1.80 J	NS
Nitrite Nitrogen	0.015 U	0.022 J	NS	0.015 U	0.015 U	0.015 U	0.015 U	0.109	NS
Nitrate Nitrogen	0.030 U	0.030 U	NS	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	NS
Ammonia Nitrogen	1.9	1.1	NS	1.3	1.6	1	1.5	1.5	NS
Ortho-Phosphate as P	0.0179 J	0.0104 J	NS	0.064	0.0071 J	0.049	0.0163 J	0.0087 J	NS
Biochemical Oxygen Demand (BOD)	NA	NA	NS	NA	NA	4.0 U	NA	NA	NS
Total Organic Carbon (non-purgable)	NA	NA	NS	NA	NA	7.2	NA	NA	NS
Total Phosphorous as PO4	0.99	0.78	NS	0.14 J	0.16	0.13 U	0.26	0.33	NS
Chemical Oxygen Demand (COD)	NA	NA	NS	NA	NA	18.6	NA	NA	NS
Total Microbial Population (mean)	4.30E+03	4.00E+02	NS	7.60E+03	3.20E+02	1.10E+04	2.70E+04	2.80E+02	NS
Degrader Microbial Population (mean)	6.00E+02	4.00E+02	NS	5.40E+02	3.20E+02	6.20E+02	4.70E+02	2.80E+02	NS

Table 6 (Cont.)
Treatment Peformance Monitoring Nutrient a Biological Parameter Analytical Summary
Kerr-McGee Moss American Site
Milwaukee, Wisconsin
Fourth Quarter 2000

Parameter (mg/L)	Sample Identification								
	TG5-1			TG5-2			TG5-3		
	October	November	December	October	November	December	October	November	December
Kjeldahl Nitrogen	1.35 J	0.97 J	1.6 U	0.67 J	0.90 J	NS	0.63 U	0.64 J	0.68 J
Nitrite Nitrogen	0.015 U	0.015 U	0.153	0.015 U	0.015 U	NS	0.032 J	0.015 U	0.184
Nitrate Nitrogen	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	NS	0.046 J	0.11	0.030 U
Ammonia Nitrogen	1.4	0.62 J	0.44 J	0.89 J	0.65 J	NS	0.39 J	0.56 J	0.41 J
Ortho-Phosphate as P	0.029	0.0056 U	0.0099 J	0.033	0.0087 J	NS	0.094	0.0179 J	0.049
Biochemical Oxygen Demand (BOD)	NA	NA	2.6 U	NA	NA	NS	NA	NA	4.1 U
Total Organic Carbon (non-purgable)	NA	NA	4.2	NA	NA	NS	NA	NA	4.9
Total Phosphorous as PO4	0.25	0.27	0.13 U	0.13 J	0.15 J	NS	0.14 J	0.19	0.35
Chemical Oxygen Demand (COD)	NA	NA	9.5	NA	NA	NS	NA	NA	14.6
Total Microbial Population (mean)	2.80E+03	3.80E+03	2.00E+03	3.50E+03	1.41E+04	NS	4.40E+03	1.73E+03	5.30E+03
Degrader Microbial Population (mean)	3.80E+02	2.60E+03	3.70E+02	4.70E+02	5.40E+03	NS	2.50E+02	3.90E+02	6.60E+02
	TG6-1			TG6-2			TG6-3		
	October	November	December	October	November	December	October	November	December
Kjeldahl Nitrogen	0.79 J	1.69 J	1.56 J	0.63 U	0.63 U	0.63 U	0.73 J	1.02 J	1.06 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	0.030 U	0.030 U	0.030 U	0.030 U	0.14	0.42	0.030 U	0.030 U	0.030 U
Ammonia Nitrogen	1.2	1.4	1.3	0.39 J	0.41 J	0.24 J	0.15 U	0.74 J	0.62 J
Ortho-Phosphate as P	0.041	0.0125 J	0.043	0.028	0.0114 J	0.029	0.028	0.0071 J	0.144
Biochemical Oxygen Demand (BOD)	NA	NA	3.0 U	NA	NA	2.3 U	NA	NA	2.6 U
Total Organic Carbon (non-purgable)	NA	NA	6.5	NA	NA	4.3	NA	NA	7.5
Total Phosphorous as PO4	0.12 U	0.2	0.13 U	0.12 U	0.13 U	0.13 U	0.16 J	0.26	0.13 U
Chemical Oxygen Demand (COD)	NA	NA	17	NA	NA	10.3	NA	NA	17.8
Total Microbial Population (mean)	2.40E+03	1.18E+03	1.10E+04	1.10E+03	1.30E+03	3.80E+03	5.20E+02	2.60E+02	9.70E+02
Degrader Microbial Population (mean)	3.50E+02	1.10E+02	2.70E+02	3.20E+02	5.40E+02	1.40E+02	2.60E+02	1.90E+02	8.00E+01

U - Compound not detected above detection limit.
J - Estimated value.
NA - Not analyzed.
NS - Well not measured due to being frozen.

Figure 2
Kerr-McGee/Moss-American
Treatment Performance Monitoring
Fourth Quarter 2000

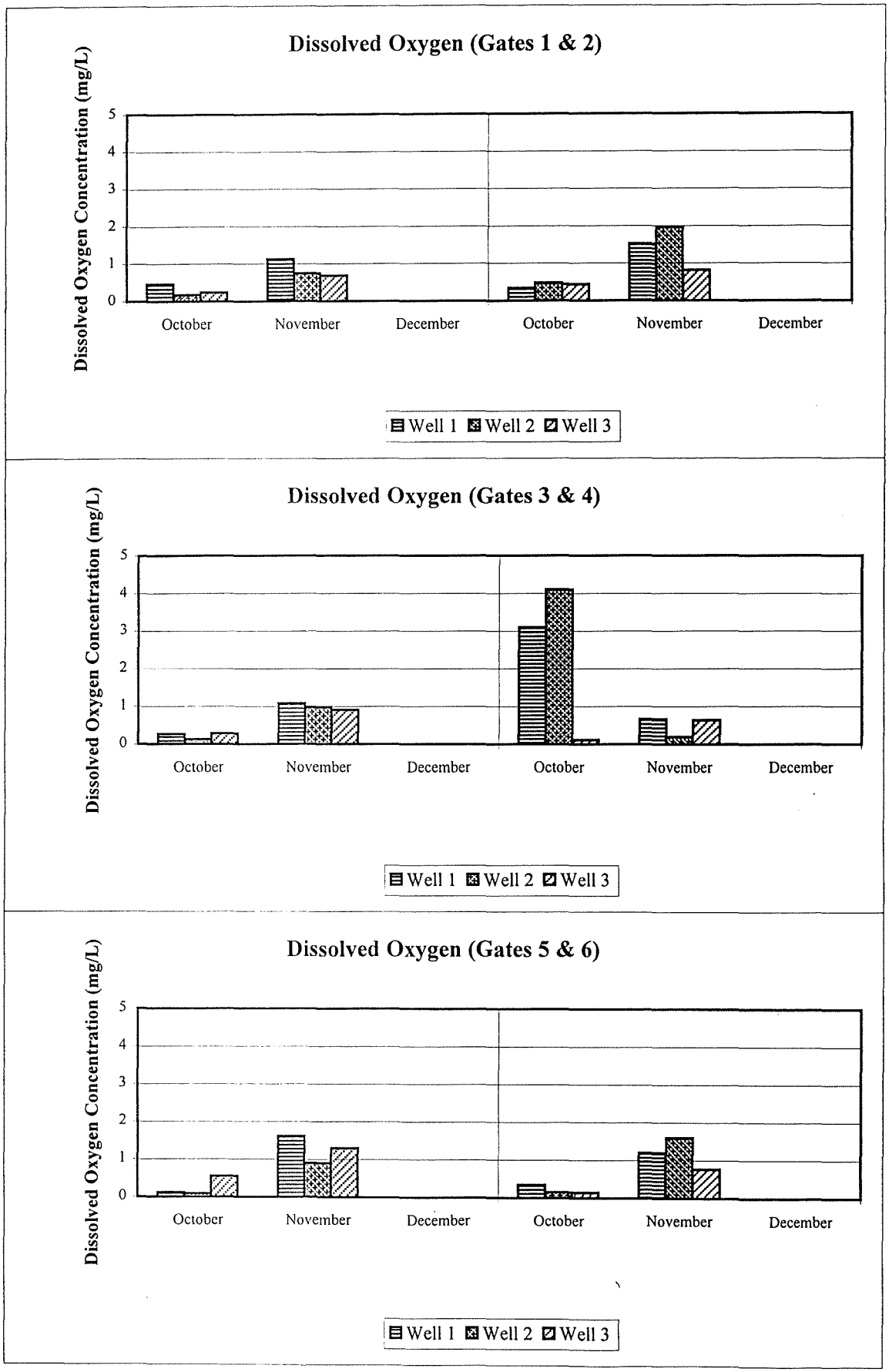


Figure 3
Kerr-McGee/Moss American
Treatment Performance Monitoring
Fourth Quarter 2000

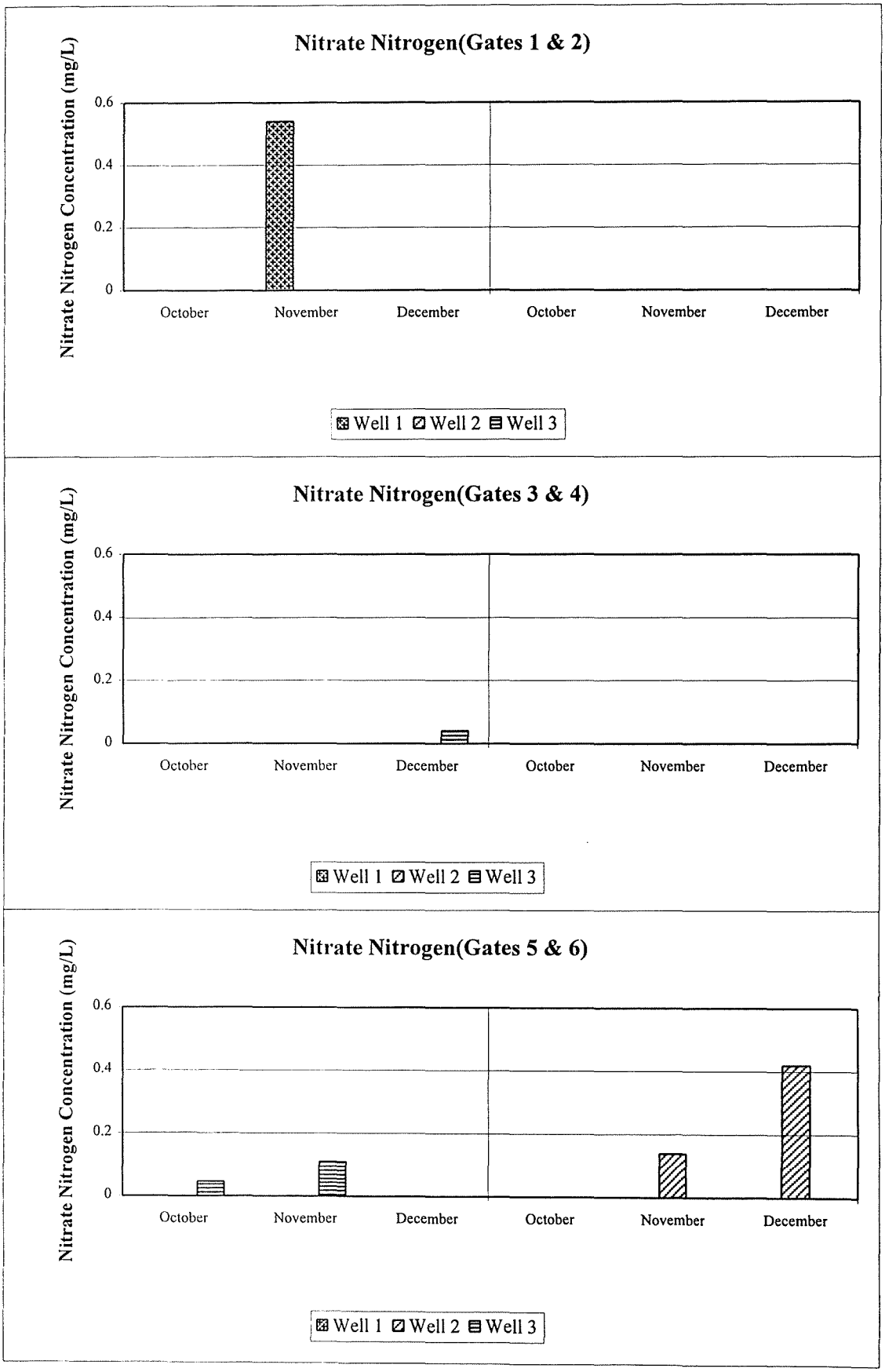


Figure 4
Kerr-McGee/Moss American
Treatment Performance Monitoring
Fourth Quarter 2000

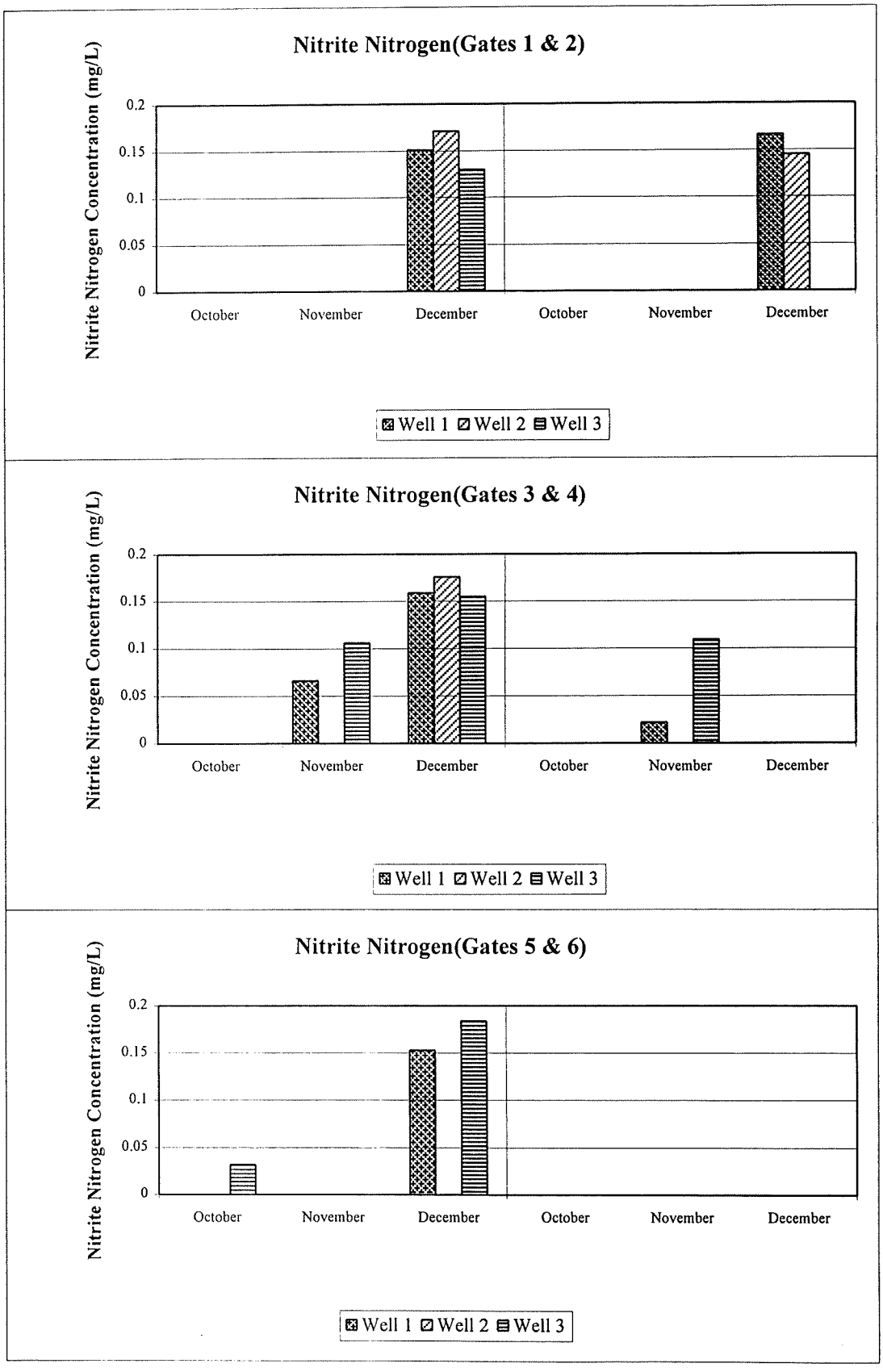


Figure 5
Kerr-McGee/Moss American
Treatment Performance Monitoring
Fourth Quarter 2000

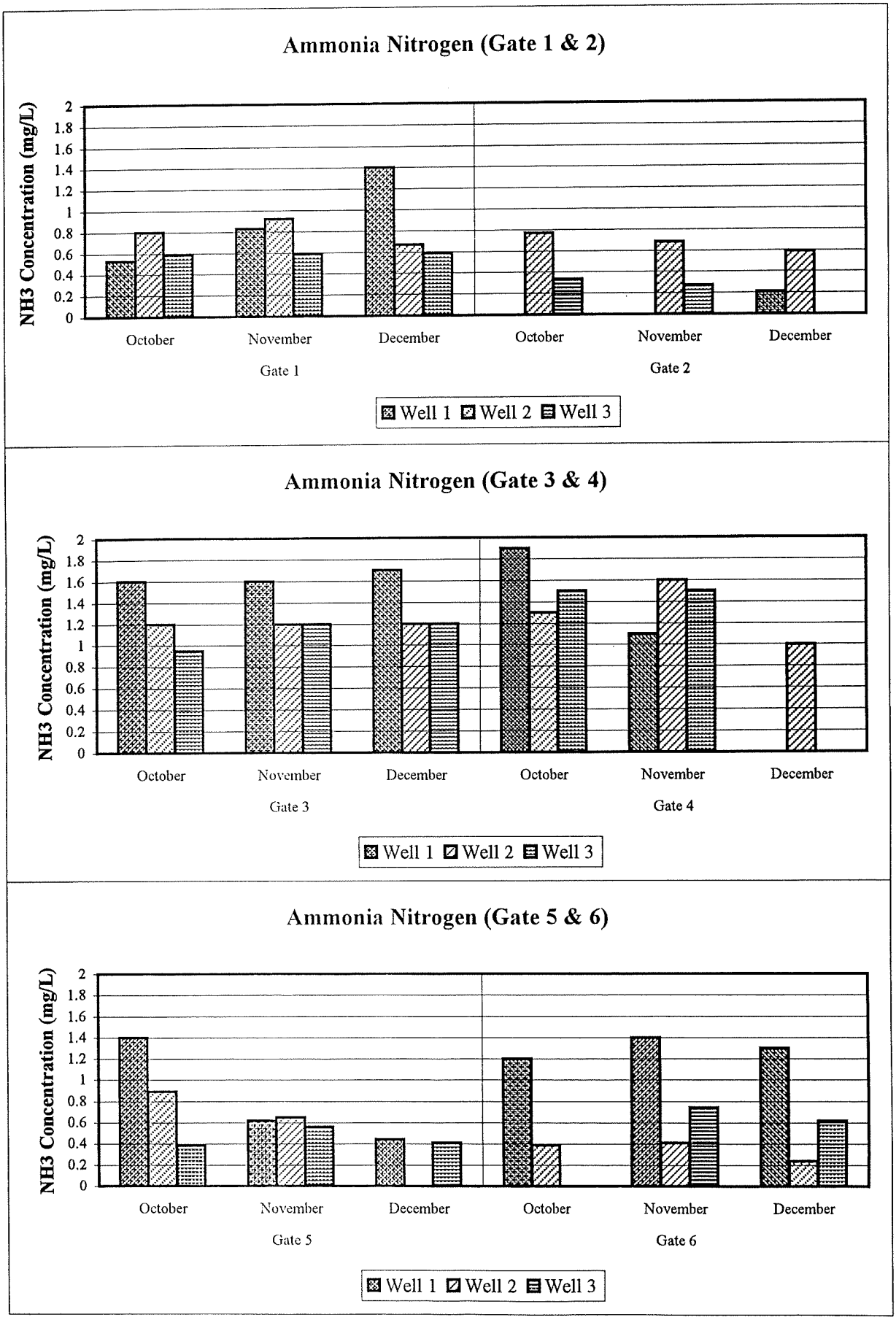


Figure 6
Kerr-McGee/Moss American
Treatment Performance Monitoring
Fourth Quarter 2000

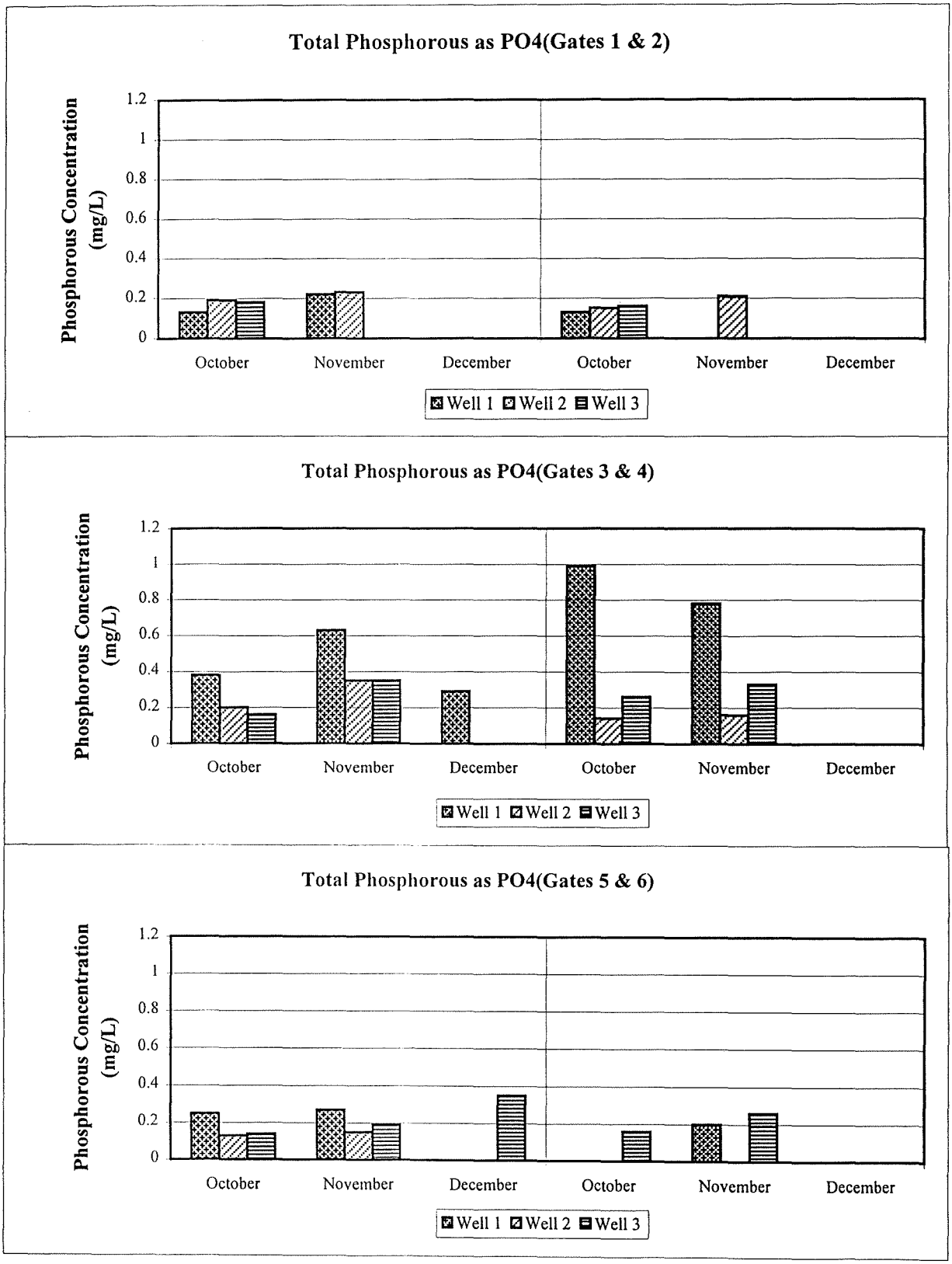


Figure 7
Kerr-McGee/Moss American
Treatment Performance Monitoring
Fourth Quarter 2000

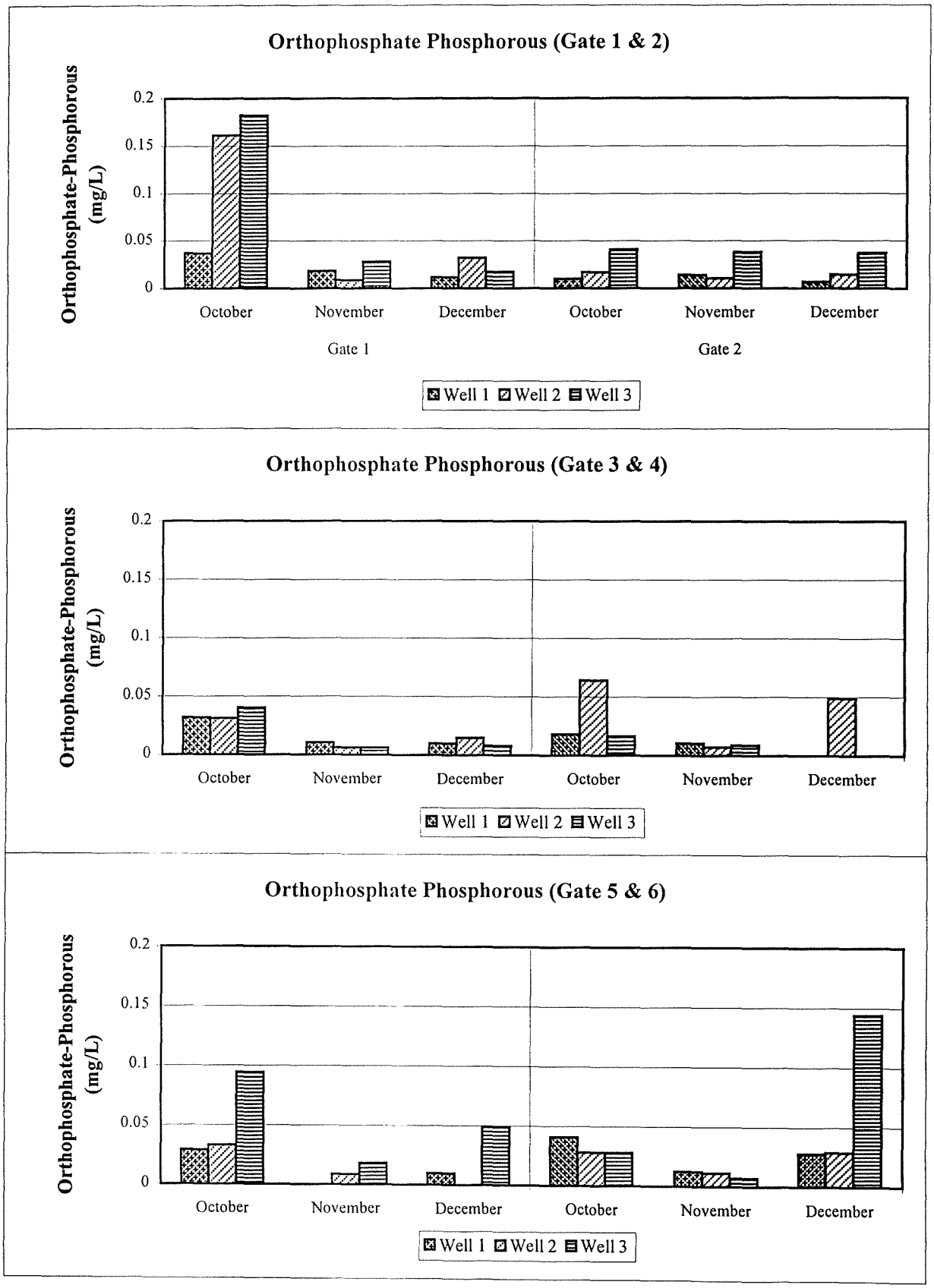


Figure 8
Kerr-McGee/Moss American
Treatment Performance Monitoring
Fourth Quarter 2000

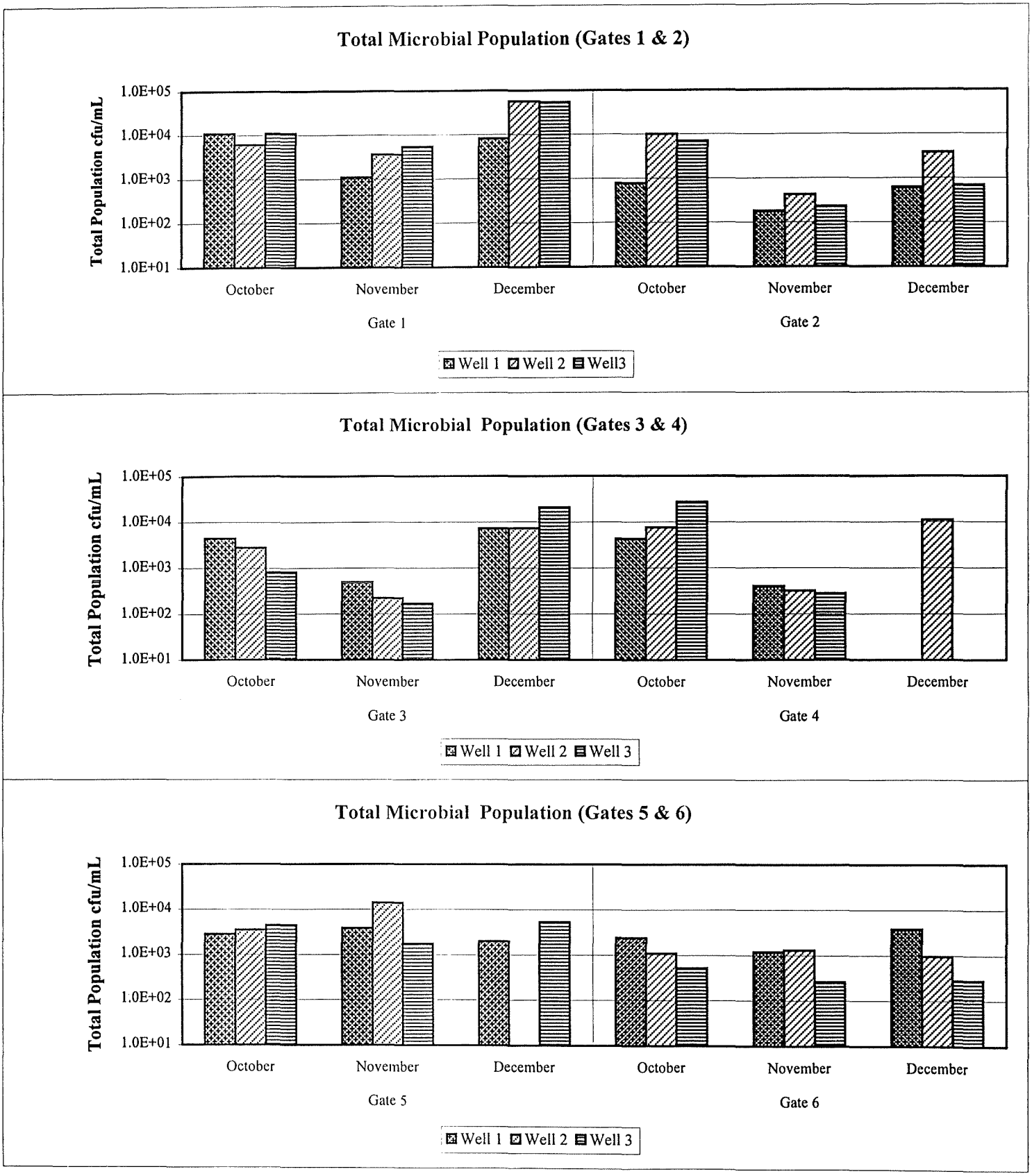
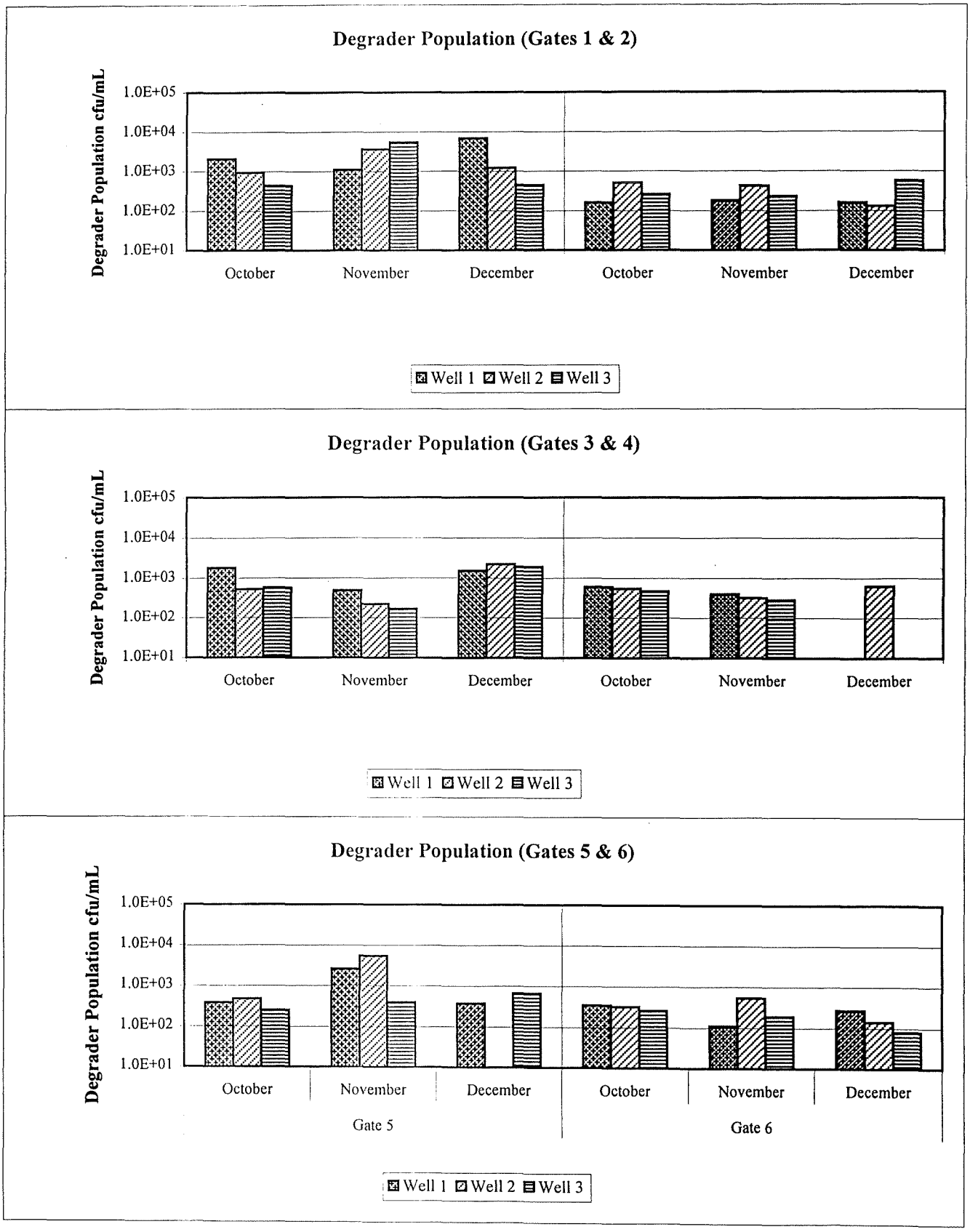


Figure 9
Kerr-McGee/Moss American
Treatment Performance Monitoring
Fourth Quarter 2000

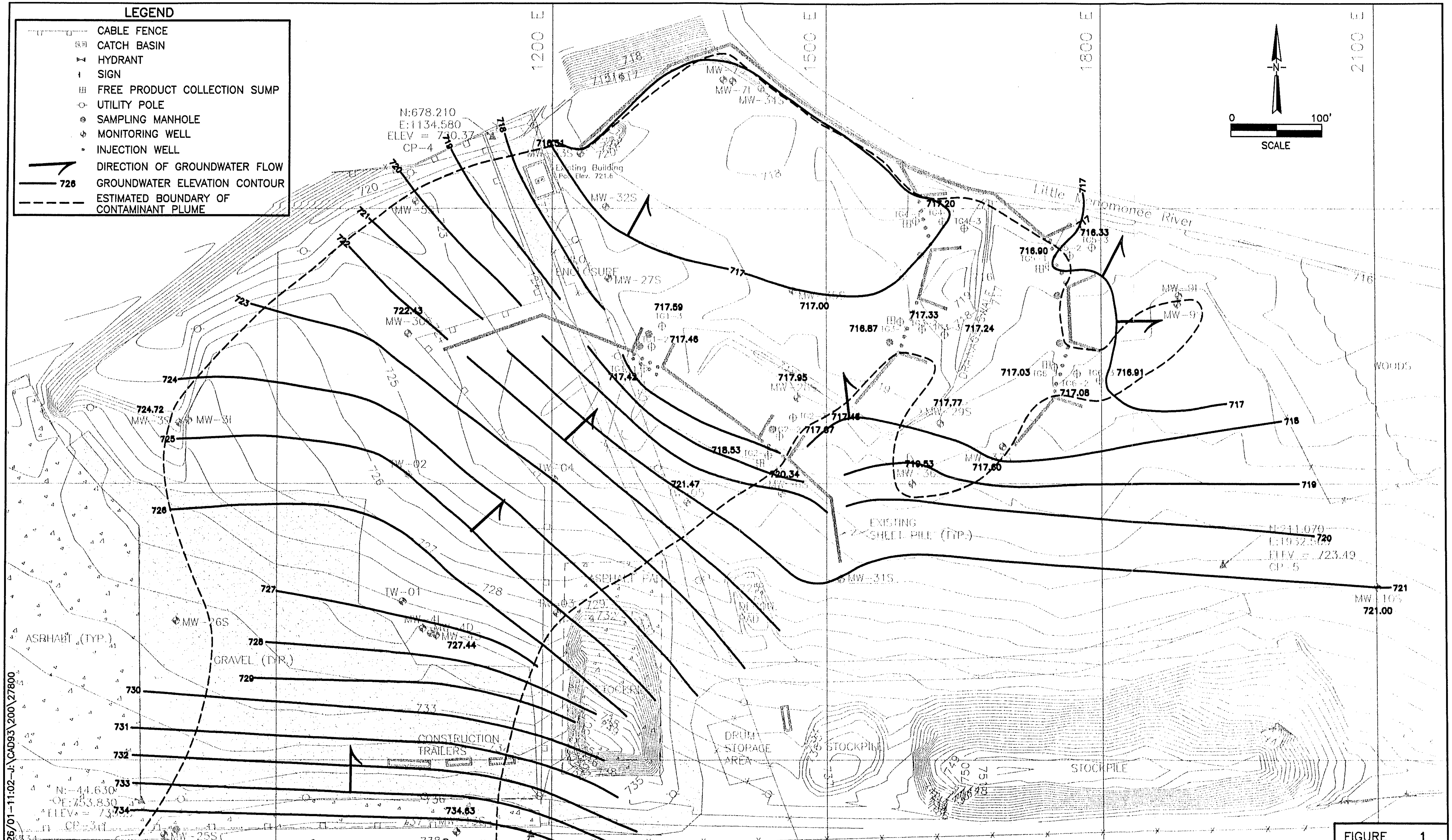


Attachment 1
Monthly Field-Measured Parameters- Treatment Gate Monitoring Wells
Moss-American Site
Milwaukee, Wisonsin
Fourth Quarter 2000 (Monthly 2000)

Well Number	Date	Temperature (C)	pH	Specific Conductance (microohms/cm)	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (Ntu)
TG1-1	October-00	14.3	7.35	0.788	-013	0.46	NM
	November-00	9.3	7.63	1.130	015	1.13	NM
	December-00	6.2	7.89	1.094	-116.7	NA	NM
TG1-2	October-00	14.4	7.28	0.987	002	0.18	NM
	November-00	8.9	7.49	1.350	020	0.75	NM
	December-00	NA	NA	NA	NA	NA	NM
TG1-3	October-00	14.0	7.55	0.889	051	0.24	NM
	November-00	8.0	7.88	1.250	076	0.68	NM
	December-00	NA	NA	NA	NA	NA	NM
TG2-1	October-00	13.9	6.97	0.662	052	0.34	NM
	November-00	8.8	7.70	0.910	136	1.52	NM
	December-00	6.9	8.55	0.802	-042	NA	NM
TG2-2	October-00	13.9	6.90	0.670	001	0.48	NM
	November-00	9.0	7.74	0.930	054	1.97	NM
	December-00	6.9	8.27	0.816	-099	NA	NM
TG2-3	October-00	14.7	7.29	0.906	086	0.44	NM
	November-00	7.8	7.58	1.200	078	0.81	NM
	December-00	8.6	8.01	1.091	-101	NA	NM
TG3-1	October-00	14.7	6.86	1.021	-023	0.27	NM
	November-00	8.5	7.15	1.000	-021	1.08	NM
	December-00	6.7	7.61	1.424	-072	NA	NM
TG3-2	October-00	14.6	7.04	0.993	-077	0.13	NM
	November-00	8.3	7.16	0.924	-039	0.98	NM
	December-00	7.7	7.92	1.275	-111	NA	NM
TG3-3	October-00	14.8	6.80	0.928	-054	0.29	NM
	November-00	8.3	7.19	0.910	-056	0.91	NM
	December-00	7.7	8.42	1.319	-106	NA	NM
TG4-1	October-00	14.6	7.35	0.711	-056	3.10	NM
	November-00	8.1	7.67	0.309	-022	0.67	NM
	December-00	NM	NM	NM	NM	NM	NM
TG4-2	October-00	14.2	7.26	0.806	-012	4.10	NM
	November-00	8.1	7.58	0.667	-009	0.20	NM
	December-00	NA	NA	NA	NA	NA	NM
TG4-3	October-00	14.4	6.93	0.834	-033	0.12	NM
	November-00	8.5	7.49	0.716	-003	0.64	NM
	December-00	NM	NM	NM	NM	NM	NM
TG5-1	October-00	14.3	7.25	0.660	029	0.12	NM
	November-00	9.0	7.55	0.562	106	1.61	NM
	December-00	6.9	8.35	0.792	-021	NA	NM
TG5-2	October-00	14.2	7.15	0.669	-033	0.09	NM
	November-00	8.1	7.59	0.300	072	0.90	NM
	December-00	NM	NM	NM	NM	NM	NM
TG5-3	October-00	14.1	7.36	0.766	106	0.56	NM
	November-00	9.3	7.60	0.672	153	1.29	NM
	December-00	NA	NA	NA	NA	NA	NM
TG6-1	October-00	14.5	7.21	0.985	090	0.35	NM
	November-00	8.4	7.33	0.468	075	1.20	NM
	December-00	NA	NA	NA	NA	NA	NM
TG6-2	October-00	14.1	7.10	0.934	138	0.16	NM
	November-00	9.9	7.39	0.876	116	1.60	NM
	December-00	NA	NA	NA	NA	NA	NM
TG6-3	October-00	13.9	6.76	0.960	-.014	0.15	NM
	November-00	9.0	7.25	0.517	143	0.77	NM
	December-00	NA	NA	NA	NA	NA	NM

NA- Not available due to cold temperatures

NM- Not measured. Value only measured quarterly. Not measured fourth quarter 2000 due to cold temperatures.


LEGEND
CABLE FENCE
CATCH BASIN
HYDRANT
SIGN
FREE PRODUCT COLLECTION SUMP
UTILITY POLE
SAMPLING MANHOLE
MONITORING WELL
INJECTION WELL
DIRECTION OF GROUNDWATER FLOW
GROUNDWATER ELEVATION CONTOUR
ESTIMATED BOUNDARY OF CONTAMINANT PLUME
1200 E
1500 E
1800 E
2100 E
N
0
100'
SCALE
N:678.210
E:1134.580
ELEV = 730.37
CP-4
Existing Building
Little Menomonee River
WOODS
EXISTING SHEET PILE (TYP.)
N:211.070
ELEV = 723.49
CP-5
ASPHALT (TYP.)
GRAVEL (TYP.)
CONSTRUCTION TRAILERS
DRUM STORAGE AREA
STOCKPILE
STOCKPILE
N:-44.630
E:753.830
CP-3
N:-80.570
E:1177.070
ELEV = 737.17
CP-6
MW-31S
MW-27S
MW-32S
MW-26S
MW-25S
TW-01
TW-02
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716.87
717.33
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717.08
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717.87
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720.34
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727.44
734.63
735.04

FIGURE 1

WESTON
MANAGERS DESIGNERS/CONSULTANTS

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

GROUNDWATER ELEVATION CONTOUR MAP – 2001
KERR McGEE CORPORATION
MOSS–AMERICAN SITE
Milwaukee, Wisconsin

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

HERNANDD-02/26/01-11:02-J:\CAD93\200\27800

MOSS-AMERICAN SITE
GROUNDWATER MONITORING
OCTOBER 2000 ANALYTICAL RESULTS

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3490723

Collected:10/31/2000 14:30 by JK

Account Number: 07802

Submitted: 11/01/2000 09:35
Reported: 11/16/00 at 01:15 PM
Discard: 12/17/00
MA3-TG1-1-311000-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG1-1 SDG#: MOS72-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	N.D.		0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.						
00221	Ammonia Nitrogen	7664-41-7	0.53	J	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.037		0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.041	J	0.040	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:27	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/02/2000 08:18	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/02/2000 17:29	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/13/2000 09:00	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/02/2000 04:45	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 09:51	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 09:51	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/08/2000 13:25	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 11:00	Patricia J. Weirich	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3490724

Collected:10/31/2000 14:40 by JK

Account Number: 07802

Submitted: 11/01/2000 09:35
Reported: 11/16/00 at 01:15 PM
Discard: 12/17/00
MA3-TG1-2-311000-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG1-2 SDG#: MOS72-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.75 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.80 J	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.161	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.061	0.040	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:30	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/02/2000 08:20	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/02/2000 17:30	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/13/2000 09:00	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/02/2000 04:45	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 09:54	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 09:54	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/08/2000 13:25	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 11:00	Patricia J. Weirich	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3490725

Collected:10/31/2000 15:15 by JK

Account Number: 07802

Submitted: 11/01/2000 09:35
Reported: 11/16/00 at 01:15 PM
Discard: 12/17/00
MA3-TG1-3-311000-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG1-3 SDG#: MOS72-03*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	N.D.	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.59 J	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.182	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.058	0.040	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:32	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/02/2000 08:21	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/02/2000 17:31	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/13/2000 09:00	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/02/2000 04:45	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 09:55	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 09:55	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/08/2000 13:25	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 11:00	Patricia J. Weirich	1

Lancaster Laboratories
Where quality is a science.

Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 737403
Reported: 11/16/00 at 01:15 PM

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 00307022601A	Sample number(s): 3490723-3490725							
Ortho-Phosphate as P				105		91-108		
Batch number: 00307105101A	Sample number(s): 3490723-3490725							
Nitrite Nitrogen	N.D.	.015	mg/l	103		90-110		
Batch number: 00307106102A	Sample number(s): 3490723-3490725							
Nitrate Nitrogen	N.D.	.03	mg/l	94		90-110		
Batch number: 00311109101A	Sample number(s): 3490723-3490725							
Total Phosphorus as P (water)	N.D.	.04	mg/l	96		89-111		
Batch number: 00313108101A	Sample number(s): 3490723-3490725							
Kjeldahl Nitrogen	N.D.	.63	mg/l	104		90-110		
Batch number: 00318022101A	Sample number(s): 3490723-3490725							
Ammonia Nitrogen	N.D.	.15	mg/l	97	96	90-102	1	3

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 00307022601A	Sample number(s): 3490723-3490725								
Ortho-Phosphate as P	107	107	80-114	0	4	3.88	3.83	1	7
Batch number: 00307105101A	Sample number(s): 3490723-3490725								
Nitrite Nitrogen	102		90-110			N.D.	N.D.	0 (1)	6
Batch number: 00307106102A	Sample number(s): 3490723-3490725								
Nitrate Nitrogen	102		90-110			N.D.	N.D.	0 (1)	3
Batch number: 00311109101A	Sample number(s): 3490723-3490725								
Total Phosphorus as P (water)	101		90-110			N.D.	N.D.	200* (1)	6
Batch number: 00313108101A	Sample number(s): 3490723-3490725								
Kjeldahl Nitrogen	65*		90-110			N.D.	N.D.	7 (1)	7
Batch number: 00318022101A	Sample number(s): 3490723-3490725								
Ammonia Nitrogen						0.83 J	0.81 J	3 (1)	8

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

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

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. # 7802 Sample # 349023-25

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

(1)
Client: Kerr-McGee Acct. #:
Project Name/#: Moss-American PWSID #:
Project Manager: Tom Grzan P.O.#
Sampler: Joseph Klemp Quote #:
Name of state where samples were collected: WISCONSIN

For lab use only
FSC:
SCR #: 1145336

(2) Sample Identification | Date Collected | Time Collected | (3) Grab | Composite | Matrix (4): Soil | Water | Other (Potable / NPDES) | Total # of Containers | (5) Analyses Requested: Nitrate-N, Nitrogen TKN, Total P, Ortho-P, NH3 | Remarks | (6) Temperature of samples upon receipt (if requested)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Nitrate-N	Nitrogen TKN	Total P	Ortho-P	NH3	Remarks	Temperature
MA3-TG1-1-311000-01	10/31/00	1430	✓			✓		5	✓	✓	✓	✓			
MA3-TG1-2-311000-02	↓	1440	✓			✓		5	✓	✓	✓	✓			
MA3-TG1-3-311000-03	↓	1515	✓			✓		5	✓	✓	✓	✓			

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

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

Relinquished by:	Date	Time	Received by:	Date	Time
K. Baker	10/30/00	1430	J. Klemp	10/31/00	0900
J. Klemp	10/31/00	1700	FedEx	10/31/00	1700

(9)

Lancaster Laboratories is a subsidiary of Thermo TerraTech Inc., a Thermo Electron Company

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3491667

Collected:11/01/2000 09:35 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:06 PM
Discard: 12/18/00
MA3-TG2-1-011100-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG201 SDG#: MOS73-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	N.D.	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	N.D.	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0098 J	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.042 J	0.040	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:34	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:15	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 16:44	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:02	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:02	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/08/2000 13:25	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 11:00	Patricia J. Weirich	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3491668

Collected:11/01/2000 09:40 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:06 PM
Discard: 12/18/00
MA3-TG2-2-011100-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG202 SDG#: MOS73-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.81	J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.						
00221	Ammonia Nitrogen	7664-41-7	0.77	J	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.0168	J	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.050		0.040	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:35	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:17	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 16:45	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:05	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:05	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/08/2000 13:25	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 11:00	Patricia J. Weirich	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3491669

Collected:11/01/2000 10:15 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:06 PM
Discard: 12/18/00
MA3-TG2-3-011100-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG023 SDG#: MOS73-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	N.D.	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.33 J	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.041	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.051	0.040	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:39	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:18	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 16:46	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:06	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:06	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/08/2000 13:25	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 11:00	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3491670

Collected:11/01/2000 10:55 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:06 PM
Discard: 12/18/00
MA3-TG3-1-011100-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG031 SDG#: MOS73-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	2.2	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.6	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.032	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.125	0.040	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.38	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:40	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:19	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 16:48	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:07	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:07	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/08/2000 13:25	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 11:00	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3491671

Collected:11/01/2000 11:00 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:06 PM
Discard: 12/18/00
MA3-TG3-2-011100-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG032 SDG#: MOS73-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.34 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.2	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.031	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.065	0.040	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.20 J	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:42	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:20	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 16:49	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:08	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:08	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/08/2000 13:25	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 11:00	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3491672

Collected:11/01/2000 11:45 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:06 PM
Discard: 12/18/00
MA3-TG3-3-011100-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG033 SDG#: MOS73-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.94 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.95 J	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.040	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.054	0.040	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:43	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:22	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 16:50	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:09	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:09	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/08/2000 13:25	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 11:00	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3491674

Collected:11/01/2000 14:00 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:06 PM
Discard: 12/18/00
MA3-TG4-1-011100-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG041 SDG#: MOS73-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.52 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.9	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0179 J	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.322	0.040	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.99	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:45	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:24	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 16:55	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:12	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:12	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/08/2000 13:25	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 14:00	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3491675

Collected:11/01/2000 14:05 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:06 PM
Discard: 12/18/00
MA3-TG4-2-011100-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG042 SDG#: MOS73-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.51 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.3	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.064	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.045 J	0.040	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:54	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:28	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 16:56	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:13	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:13	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/09/2000 12:05	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 14:00	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3491673

Collected:11/01/2000 11:50 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:06 PM
Discard: 12/18/00
MA3-TG4-3-011100-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG043 SDG#: MOS73-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.91 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.5	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0163 J	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.085	0.040	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.26	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:44	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:23	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 16:51	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:10	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:10	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/08/2000 13:25	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 11:00	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3491676

Collected:11/01/2000 15:00 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:06 PM
Discard: 12/18/00
MA3-TG5-1-011100-10 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG051 SDG#: MOS73-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.35 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.4	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.029	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.080	0.040	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 Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:58	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:29	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 16:58	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:16	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:16	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/09/2000 12:05	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 14:00	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3491677

Collected:11/01/2000 15:05 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:06 PM
Discard: 12/18/00
MA3-TG5-2-011100-11 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG052 SDG#: MOS73-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.67 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.89 J	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.033	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.044 J	0.040	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 14:59	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:30	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 16:59	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:17	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:17	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/09/2000 12:05	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 14:00	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3491678

Collected:11/01/2000 15:45 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:07 PM
Discard: 12/18/00
MA3-TG5-3-011100-12 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG053 SDG#: MOS73-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	N.D.	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.032 J	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.046 J	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.39 J	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.094	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.044 J	0.040	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 15:00	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:31	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 17:00	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:18	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:18	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/09/2000 12:05	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 14:00	Patricia J. Weirich	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3491679

Collected:11/01/2000 16:20 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:07 PM
Discard: 12/18/00
MA3-TG6-1-011100-13 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG061 SDG#: MOS73-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.79 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.2	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.041	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	N.D.	0.040	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 15:02	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:33	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 17:01	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:19	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:19	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/09/2000 12:05	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 14:00	Patricia J. Weirich	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3491680

Collected:11/01/2000 16:40 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:07 PM
Discard: 12/18/00
MA3-TG6-2-011100-14 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG062 SDG#: MOS73-14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	N.D.	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.39 J	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.028	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	N.D.	0.040	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.12	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 15:03	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:34	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 17:03	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:20	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:20	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/09/2000 12:05	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 14:00	Patricia J. Weirich	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3491681

Collected:11/01/2000 16:50 by JK

Account Number: 07802

Submitted: 11/02/2000 09:00
Reported: 11/17/00 at 04:07 PM
Discard: 12/18/00
MA3-TG6-3-011100-15 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG063 SDG#: MOS73-15*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.73 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	N.D.	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.028	0.0056	mg/l	1
00227	Total Phosphorus as P (water)	7723-14-0	0.054	0.040	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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/09/2000 15:04	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/03/2000 08:35	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/06/2000 17:04	Venia M. McFadden	1
00221	Ammonia Nitrogen	EPA 350.2	1	11/15/2000 08:30	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/03/2000 01:20	Daniel S. Smith	1
00227	Total Phosphorus as P (water)	EPA 365.1	1	11/07/2000 10:21	Mark A. Buckwalter	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/07/2000 10:21	Mark A. Buckwalter	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/09/2000 12:05	Patricia J. Weirich	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	11/06/2000 14:00	Patricia J. Weirich	1

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. # 7802 Sample # 3491667-81

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

(1)
Client: Ken- McGee Acct. #:
Project Name/#: Moss American PWSID #:
Project Manager: Tom Grzan P.O.#
Sampler: Joe Klemp Quote #:
Name of state where samples were collected: WISCONSIN

For lab use only
FSC:
SCR #: 145336

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix (4): Soil	Water	Other (Potable / NPDES)	Total # of Containers	(5) Analyses Requested: Nitrate-Nitrite	O-PO4	TKN, TP-PO4	NH3	Remarks	(6) Temperature of samples upon receipt (if requested)
MA3-TG2-1-011100-01	11-01-00	0935	✓			✓		5	✓	✓	✓	✓	C.O.C #1 of 2	
MA3-TG2-2-011100-02	↓	0940	✓			✓		5	✓	✓	✓	✓	Original C.O.C's	
MA3-TG2-3-011100-03		1015	✓			✓		5	✓	✓	✓	✓	in Cooler #1	
MA3-TG3-1-011100-04		1055	✓			✓		5	✓	✓	✓	✓	Copies in Subsequent	
MA3-TG3-2-011100-05		1100	✓			✓		5	✓	✓	✓	✓	Coolers. 5 Coolers	
MA3-TG3-3-011100-06		1145	✓			✓		5	✓	✓	✓	✓	in Set.	
MA3-TG4-3-011100-07		1150	✓			✓		5	✓	✓	✓	✓		
MA3-TG4-1-011100-08		1400	✓			✓		5	✓	✓	✓	✓		
MA3-TG4-2-011100-09		1405	✓			✓		5	✓	✓	✓	✓		
MA3-TG5-1-011100-10	↓	1500	✓			✓		5	✓	✓	✓	✓		

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

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

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
K. Baker	11/06	1430			
a. allen	11/01/00	1800	FedEx	11/01/00	1800
			Dawn Fox	11/2/00	0900

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. # 7802 Sample # 3491667-81

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: Joe Klemp Quote #:
Name of state where samples were collected: WISCONSIN

For lab use only
FSC:
SCR #: 1145336

C.O.C. #2 of 2

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix (4) Soil	Water (☐ Potable ☐ NPDES)	Other	Total # of Containers	(5) Analyses Requested: Nitrate-Nitrite	o-PO4	TKN	TP-PO4	NH3	Remarks	(6) Temperature of samples upon receipt (if requested)
MA3-TG5-2-011100-11	11-01-00	1505	✓			✓		5	✓	✓	✓	✓			
MA3-TG5-3-011100-12	↓	1545	✓			✓		5	✓	✓	✓	✓		Original C.O.C's in Cooler #1	
MA3-TG6-1-011100-13		1620	✓			✓		5	✓	✓	✓	✓		Copies in subsequent	
MA3-TG6-2-011100-14		1640	✓			✓		5	✓	✓	✓	✓		Coolers. 5 Coolers	
MA3-TG6-3-011100-15		1650	✓			✓		5	✓	✓	✓	✓		in set	

(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)
Type I (Tier I) GLP
Type II (Tier II) Other
Type III (NJ Red. Del.)
Type IV (CLP)

SDG Complete? Yes No

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

Internal Chain of Custody required? Yes No

(9) Relinquished by:	Date	Time	Received by:	Date	Time
K Baker	10-30-00	1430			
	11/01/00	1800	Fedex	11/01/00	1800
				11/2/00	910

Hammond Division - Microbac Laboratories

Bio-Analytical Summary Report

Job Code: **CZK**

Site Information

Site Name	MOSS AMERICA	Date received	2-Nov-00
Location	MILWAUKEE, WI	Date of this report	23-Nov-00
Consultant	Roy Weston Corporation	BioRenewal Job Code	**CZK1**
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	PAH-BTEX	Number of gw samples	7

Section I - Summary of Bioremediation Data

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

Sample ID	Soil microbial populations: Exceeds norm for: Passive	Active	pH	% TON / % OM	C:N	C:P	% moisture / SWHC	% Air-filled pore space
	>1E+06	>1E+03	5.5-8.5	>1.5%	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
TG4-2-011100-09	Summary table not applicable for groundwater.							
TG5-1-011100-10	Summary table not applicable for groundwater.							
TG5-2-011100-11	Summary table not applicable for groundwater.							
TG5-3-011100-12	Summary table not applicable for groundwater.							
TG6-1-011100-13	Summary table not applicable for groundwater.							
TG6-2-011100-14	Summary table not applicable for groundwater.							
TG6-3-011100-15	Summary table not applicable for groundwater.							

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

✓ = **Sample meets guideline.**

✘ = **Sample does not meet guideline.**

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

NOTES:

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

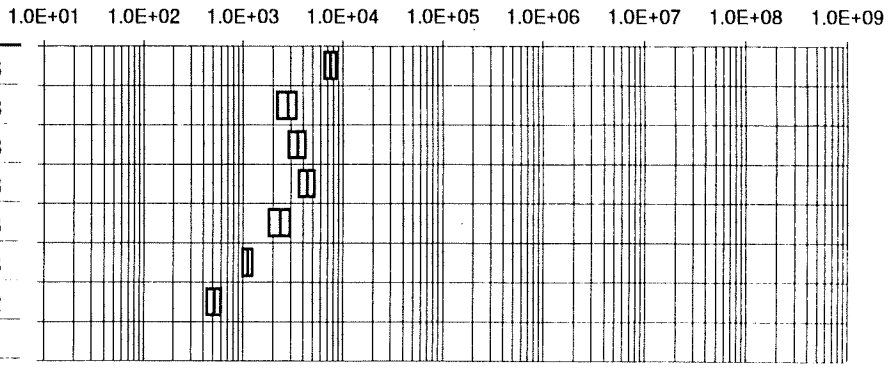
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples
Total populations

Low and high indicate 95% confidence range

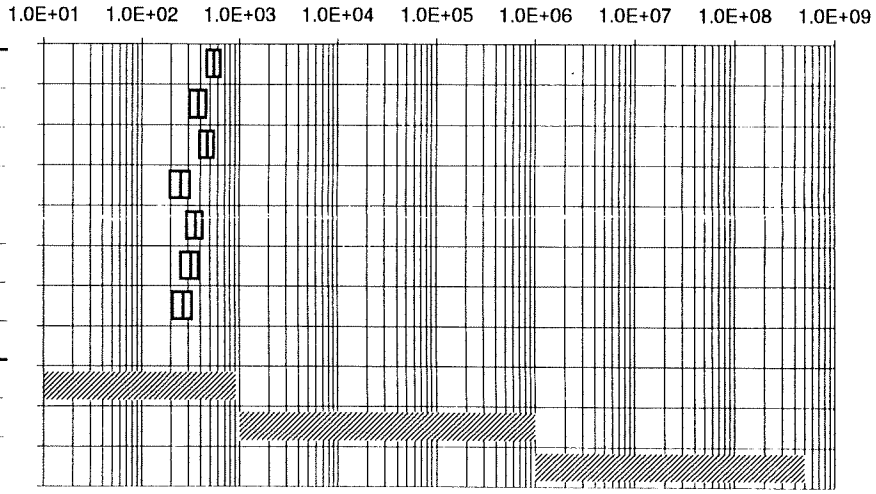
Sample ID	Mean	Low	High
TG4-2-011100-09	7.6E+03	6.6E+03	8.6E+03
TG5-1-011100-10	2.8E+03	2.2E+03	3.4E+03
TG5-2-011100-11	3.5E+03	2.9E+03	4.3E+03
TG5-3-011100-12	4.4E+03	3.7E+03	5.2E+03
TG6-1-011100-13	2.4E+03	1.8E+03	3.0E+03
TG6-2-011100-14	1.1E+03	1.0E+03	1.2E+03
TG6-3-011100-15	5.2E+02	4.4E+02	6.0E+02



Groundwater Samples
Degrader populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
TG4-2-011100-09	5.4E+02	4.6E+02	6.3E+02
TG5-1-011100-10	3.8E+02	3.1E+02	4.5E+02
TG5-2-011100-11	4.7E+02	3.9E+02	5.5E+02
TG5-3-011100-12	2.5E+02	2.0E+02	3.1E+02
TG6-1-011100-13	3.5E+02	2.9E+02	4.2E+02
TG6-2-011100-14	3.2E+02	2.5E+02	3.9E+02
TG6-3-011100-15	2.6E+02	2.1E+02	3.3E+02



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

Assay conditions

Sample ID	Degrader Media		Temp.	Growth	DOF **		Percent
	Carbon source	% Carbon (v/v)	(Celcius)	Conditions	Total	Degrader	Degraders
TG4-2-011100-09	PAH-BTEX	1.0	22	Aerobic	2	2	7.2%
TG5-1-011100-10	PAH-BTEX	1.0	22	Aerobic	2	2	13.5%
TG5-2-011100-11	PAH-BTEX	1.0	22	Aerobic	2	2	13.2%
TG5-3-011100-12	PAH-BTEX	1.0	22	Aerobic	2	2	5.7%
TG6-1-011100-13	PAH-BTEX	1.0	22	Aerobic	2	2	15.0%
TG6-2-011100-14	PAH-BTEX	1.0	22	Aerobic	2	2	28.1%
TG6-3-011100-15	PAH-BTEX	1.0	22	Aerobic	2	2	50.8%

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

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

Hammond Division - Microbac Laboratories

Job Code: **CZK**

Bio-Analytical Summary Report

Site Information

Site Name	MOSS AMERICA	Date received	2-Nov-00
Location	MILWAUKEE, WI	Date of this report	23-Nov-00
Consultant	Roy Weston Corporation	BioRenewal Job Code	**CZK**
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	PAH-BTEX	Number of gw samples	8

Section I - Summary of Bioremediation Data

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

Sample ID	Soil microbial populations: Exceeds norm for: Passive	Active	pH	% TON / % OM	C:N	C:P	% moisture / SWHC	% Air-filled pore space
	>1E+06	>1E+03	5.5-8.5	>1.5%	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
TG2-1-011100-01	Summary table not applicable for groundwater.							
TG2-2-011100-02	Summary table not applicable for groundwater.							
TG2-3-011100-03	Summary table not applicable for groundwater.							
TG3-1-011100-04	Summary table not applicable for groundwater.							
TG3-2-011100-05	Summary table not applicable for groundwater.							
TG3-3-011100-06	Summary table not applicable for groundwater.							
TG4-1-011100-08	Summary table not applicable for groundwater.							
TG4-3-011100-07	Summary table not applicable for groundwater.							

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

✓ = **Sample meets guideline.**

✗ = **Sample does not meet guideline.**

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NOTES:

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

Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples
Total populations

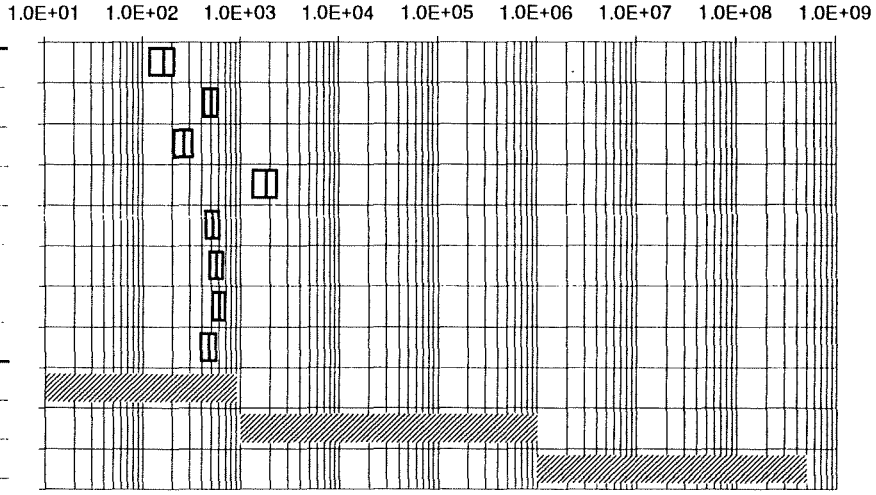
Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
TG2-1-011100-01	7.7E+02	6.7E+02	8.8E+02
TG2-2-011100-02	1.0E+04	9.3E+03	1.2E+04
TG2-3-011100-03	7.0E+03	6.0E+03	8.0E+03
TG3-1-011100-04	4.4E+03	3.7E+03	5.2E+03
TG3-2-011100-05	2.8E+03	2.2E+03	3.4E+03
TG3-3-011100-06	8.5E+02	7.5E+02	9.6E+02
TG4-1-011100-08	4.6E+03	3.9E+03	5.5E+03
TG4-3-011100-07	2.7E+04	2.2E+04	3.4E+04

Groundwater Samples
Degrader populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
TG2-1-011100-01	1.6E+02	1.2E+02	2.1E+02
TG2-2-011100-02	5.0E+02	4.3E+02	5.9E+02
TG2-3-011100-03	2.6E+02	2.1E+02	3.2E+02
TG3-1-011100-04	1.8E+03	1.3E+03	2.3E+03
TG3-2-011100-05	5.2E+02	4.4E+02	6.1E+02
TG3-3-011100-06	5.7E+02	4.9E+02	6.6E+02
TG4-1-011100-08	6.0E+02	5.2E+02	7.0E+02
TG4-3-011100-07	4.7E+02	3.9E+02	5.6E+02
Marginal inoculum			
Inoculum levels			
Active degradation levels			



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

Assay conditions

	Degrader Media		Temp.	Growth	DOF **		Percent
Sample ID	Carbon source	% Carbon (v/v)	(Celcius)	Conditions	Total	Degrader	Degraders
TG2-1-011100-01	PAH-BTEX	1.0	22	Aerobic	2	2	21.1%
TG2-2-011100-02	PAH-BTEX	1.0	22	Aerobic	2	2	4.8%
TG2-3-011100-03	PAH-BTEX	1.0	22	Aerobic	2	2	3.8%
TG3-1-011100-04	PAH-BTEX	1.0	22	Aerobic	2	2	40.7%
TG3-2-011100-05	PAH-BTEX	1.0	22	Aerobic	2	2	18.6%
TG3-3-011100-06	PAH-BTEX	1.0	22	Aerobic	2	2	67.0%
TG4-1-011100-08	PAH-BTEX	1.0	22	Aerobic	2	2	13.0%
TG4-3-011100-07	PAH-BTEX	1.0	22	Aerobic	2	2	1.7%

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

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

Hammond Division - Microbac Laboratories
Bio-Analytical Summary Report

Job Code: **CZI**

Site Information

Site Name	MOSS AMERICA	Date received	1-Nov-00
Location	MILWAUKEE, WI	Date of this report	22-Nov-00
Consultant	Roy Weston Corporation	BioRenewal Job Code	**CZI**
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	PAH-BTEX	Number of gw samples	3

Section I - Summary of Bioremediation Data

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

Sample ID	Soil microbial populations: Exceeds norm for: Passive	Active	pH	% TON / % OM	C:N	C:P	% moisture / SWHC	% Air-filled pore space
	>1E+06	>1E+03	5.5-8.5	>1.5%	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
TG1-1-311000-01	Summary table not applicable for groundwater.							
TG1-2-311000-02	Summary table not applicable for groundwater.							
TG1-3-311000-03	Summary table not applicable for groundwater.							

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

✓ = **Sample meets guideline.**

✗ = **Sample does not meet guideline.**

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

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

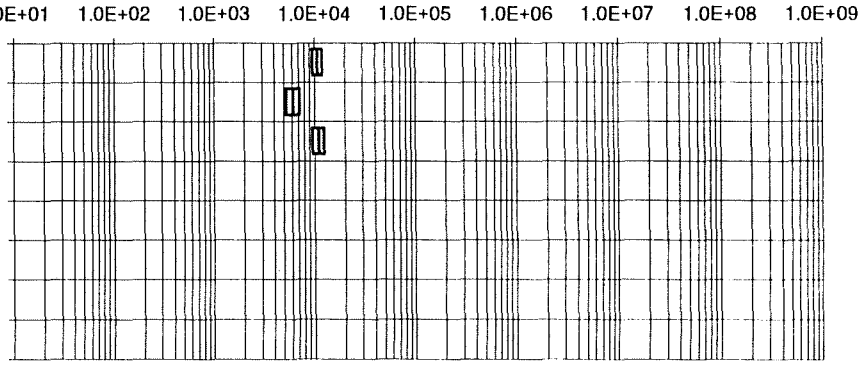
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples
Total populations

Low and high indicate 95% confidence range

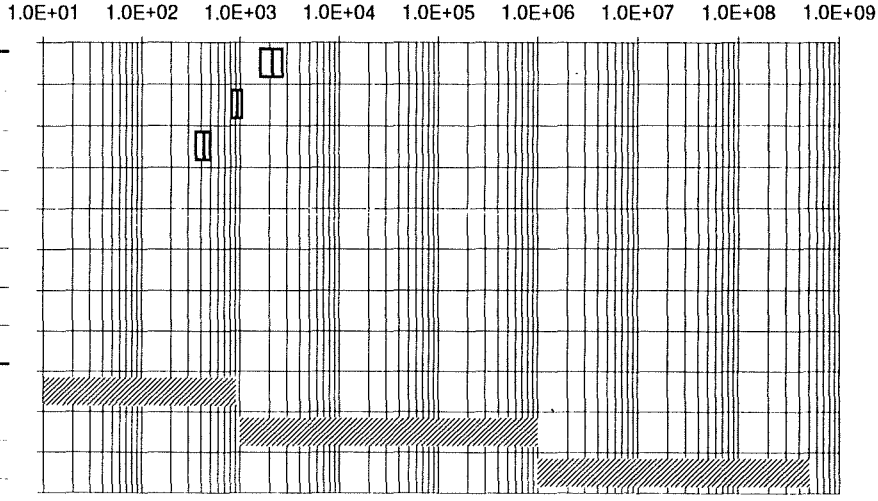
Sample ID	Mean	Low	High
TG1-1-311000-01	1.1E+04	9.7E+03	1.2E+04
TG1-2-311000-02	6.1E+03	5.2E+03	7.1E+03
TG1-3-311000-03	1.1E+04	9.7E+03	1.3E+04



Groundwater Samples
Degrader populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
TG1-1-311000-01	2.1E+03	1.6E+03	2.7E+03
TG1-2-311000-02	9.3E+02	8.2E+02	1.1E+03
TG1-3-311000-03	4.3E+02	3.6E+02	5.0E+02



Marginal inoculum

Inoculum levels

Active degradation levels

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

Assay conditions

	Degrader Media		Temp.	Growth	DOF **		Percent
Sample ID	Carbon source	% Carbon (v/v)	(Celcius)	Conditions	Total	Degrader	Degraders
TG1-1-311000-01	PAH-BTEX	1.0	22	Aerobic	2	2	19.3%
TG1-2-311000-02	PAH-BTEX	1.0	22	Aerobic	2	2	15.2%
TG1-3-311000-03	PAH-BTEX	1.0	22	Aerobic	2	2	3.8%

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

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

GG73-59

Chain-of-Custody

Contact person Tom Grazn Sampler J. Klemp
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 (✓)

MA3- Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	CEA* (soil/gw) see note ☐ Aerobic, ☐ Anaerobic, ☐ Microaerophilic	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve and hydrometer, ☐ sieve only	Intact core: % air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	Microbial Enumeration			
TG2-1-011100-01	C2K01	11/01/00	0935		✓	12-15'		1									✓			
TG2-2-011100-02	C2K02		0940		✓			1									✓			
TG2-3-011100-03	C2K03		1015		✓			1									✓			
TG3-1-011100-04	C2K04		1055		✓			1									✓			
TG3-2-011100-05	C2K05		1100		✓			1									✓			
TG3-3-011100-06	C2K06		1145		✓			1									✓			
TG4-3-011100-07	C2K07		1150		✓			1									✓			
TG4-1-011100-08	C2K08		1400		✓			1									✓			

Relinquished by: M. a. alm Date/time: 11/01/00 1800
Received by: D. [illegible] Date/time: 11/02/00 10:00

Comments: C.O.C # 1 of 2

Sample condition upon arrival:
On ice? ☑ Yes, ☐ No 1°C

BioRenewal
Div. - Microbac Labs
2800 S. Fish Hatchery Rd.
Madison, WI 53711
(608)276-8980
Fax (608)273-6989
info@biorenewal.com

Send results to:
Name Tom Grazn
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

9923-59

Chain-of-Custody

Contact person Tom Grzan Sampler

Project name Moss American Project #

Project location Milwaukee, WI
(City) (state)

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

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

Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	Requested analyses (✓): CEA* (soil/gw) see note ☐ Aerobic, ☐ Anaerobic, ☐ Microaerophillic	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve and hydrometer, ☐ sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	Microbial Enumeration
TG4-2-011100-09	C2K09	11/01/00	1405		✓	12-15'		1									✓
TG5-1-011100-10	C2K10		1500		✓			1									✓
TG5-2-011100-11	C2K11		1505		✓			1									✓
TG5-3-011100-12	C2K12		1545 ~~1620~~		✓			1									✓
TG6-1-011100-13	C2K13		1620 ~~1640~~		✓			1									✓
TG6-2-011100-14	C2K14		1640		✓			1									✓
TG6-3-011100-15	C2K15		1650		✓	✓		1									✓

Relinquished by: [signature] Date/time: 11/01/00 1800

Received by: [signature] Date/time: 11/02/00 10:00

Comments: C.O.C. # 2 of 2

Sample condition upon arrival:

On ice? ☒ Yes, ☐ No 1 °C

BioRenewal
Div. - Microbac Labs
2800 S. Fish Hatchery Rd.
Madison, WI 53711
(608)276-8980
Fax (608)273-6989
info@biorenewal.com

Send results to:

Name Tom Grzan
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

White - Original Copy Canary - BioRenewal Copy Pink - Sampler Copy

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

9,23 ST

Chain-of-Custody

Contact person Tom Grzan Sampler J. Klemp

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

MA3 – Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	Requested analyses (✓): CEA* (soil/gw) ☐ Aerobic, ☐ Anaerobic, ☐ Microaerophillic see note	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve and hydrometer, ☐ sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	Microbial Enumeration				
TG1-1-311000-01	C2101	10/31/00	1430		✓	12-15'	1										✓				
TG1-2-311000-02	C2102	"	1440		✓	12-15'	1										✓				
TG1-3-311000-03	C2103	"	1515		✓	12-15'		1									✓				

Relinquished by: J. Klemp — Date/time: 10/31/00 1700

Received by: [signature] — Date/time: 11/1/00 10:30

Comments:

Sample condition upon arrival:

On ice? ☑ Yes, ☐ No

BioRenewal
Div. - Microbac Labs
2800 S. Fish Hatchery Rd.
Madison, WI 53711
(608)276-8980
Fax (608)273-6989
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Send results to:
Name Tom Grzan
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Phone (847)918-4000 Fax (847)918-4055

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

White - Original Copy Canary - BioRenewal Copy Pink - Sampler Copy

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

MOSS-AMERICAN SITE
GROUNDWATER MONITORING
NOVEMBER 2000 ANALYTICAL RESULTS

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3508768

Collected:11/27/2000 14:25 by JK

Account Number: 07802

Submitted: 11/28/2000 08:55
Reported: 12/14/00 at 09:52 PM
Discard: 1/14/01
MA3-TG1-1-271100-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

01--- SDG#: MOS84-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.49 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.54	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.83 J	0.15	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0184 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.22	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/07/2000 12:47	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2000 09:11	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/08/2000 10:53	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/06/2000 09:25	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/28/2000 22:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 19:08	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	12/05/2000 10:50	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3508769

Collected:11/27/2000 14:15 by JK

Account Number: 07802

Submitted: 11/28/2000 08:55
Reported: 12/14/00 at 09:52 PM
Discard: 1/14/01
MA3-TG1-2-271100-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

02--- SDG#: MOS84-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.33 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.92 J	0.15	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0087 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.23	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/07/2000 12:48	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2000 08:53	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/08/2000 10:54	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/06/2000 09:25	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/28/2000 22:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 19:10	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	12/05/2000 10:50	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3508770

Collected:11/27/2000 14:35 by JK

Account Number: 07802

Submitted: 11/28/2000 08:55
Reported: 12/14/00 at 09:52 PM
Discard: 1/14/01
MA3-TG1-3-271100-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

03--- SDG#: MOS84-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.08	J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.						
00221	Ammonia Nitrogen	7664-41-7	0.59	J	0.15	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.028		0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.31		0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/07/2000 12:52	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2000 08:54	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/08/2000 10:55	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/06/2000 09:25	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/28/2000 22:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 18:31	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	12/05/2000 10:50	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3508771

Collected:11/27/2000 16:15 by JK

Account Number: 07802

Submitted: 11/28/2000 08:55
Reported: 12/14/00 at 09:52 PM
Discard: 1/14/01
MA3-TG2-1-271100-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

04--- SDG#: MOS84-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	N.D.	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	N.D.	0.15	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0141 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/07/2000 12:56	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2000 08:55	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/08/2000 10:56	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/06/2000 09:25	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/28/2000 22:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 18:32	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	12/05/2000 10:50	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3508772

Collected:11/27/2000 15:45 by JK

Account Number: 07802

Submitted: 11/28/2000 08:55
Reported: 12/14/00 at 09:52 PM
Discard: 1/14/01
MA3-TG2-2-271100-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

05--- SDG#: MOS84-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.12 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.68 J	0.15	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0104 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.21	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/07/2000 12:57	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2000 08:56	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/08/2000 10:58	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/06/2000 09:25	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/28/2000 22:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 19:09	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	12/05/2000 10:50	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3508773

Collected:11/27/2000 16:00 by JK

Account Number: 07802

Submitted: 11/28/2000 08:55
Reported: 12/14/00 at 09:52 PM
Discard: 1/14/01
MA3-TG2-3-271100-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3--6- SDG#: MOS84-06*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.77 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.27 J	0.15	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.038	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.22	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/07/2000 12:58	Venia M. McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/29/2000 08:58	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/08/2000 10:59	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/06/2000 09:25	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	11/28/2000 22:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 18:36	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	12/05/2000 10:50	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Analysis Request/ Environmental Services Chain of Custody

RECEIVED
DEC 27 2000

Lancaster Laboratories
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For Lancaster Laboratories use only
Acct. # 7802 Sample # 3508768-73

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

(1)
Client: KERR-MC GEE Acct. #:
Project Name/#: MOSS-AMERICA PWSID #:
Project Manager: TOM GRAAN P.O.#
Sampler: JOE KLEMP Quote #:
Name of state where samples were collected: WISCONSIN

For lab use only
FSC:
SCR #: 1146359

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

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (☐ Potable ☐ NPDES)	Other	Total # of Containers	NO_2 NO_3	NH_3	O-PO_4	TKN	TP PO_4				Remarks	Temperature of samples upon receipt (if requested)
MA3-TG1-1-271100-01	11/27/00	1425	X			X		5	✓	✓	✓	✓	✓					
MA3-TG1-2-271100-02	11/27/00	1415	X			X		5	✓	✓	✓	✓	✓					
MA3-TG1-3-271100-03	11/27/00	1435	X			X		5	✓	✓	✓	✓	✓					
MA3-TG2-1-271100-04	11/27/00	1615	X			X		5	✓	✓	✓	✓	✓					
MA3-TG2-2-271100-05	11/27/00	1545	X			X		5	✓	✓	✓	✓	✓					
MA3-TG2-3-271100-06	11/27/00	1600	X			X		5	✓	✓	✓	✓	✓					

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

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

SDG Complete? Yes (No)

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

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	11/22/00	0600	Joe Klemp	11/27/00	1000
[signature]	11/27/00	1730	FedEx	11/27/00	1730
			[signature]	11/28/00	0855

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3511207

Collected:11/30/2000 09:40 by JK

Account Number: 07802

Submitted: 12/01/2000 09:15
Reported: 12/26/00 at 10:04 AM
Discard: 1/26/01
MA3-TG-3-1-301100-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

11301 SDG#: MOS88-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	2.4 J	1.6	mg/l	1
	The quantitation limit for total kjeldahl nitrogen was increased due to the nature of the sample matrix.					
00219	Nitrite Nitrogen	14797-65-0	0.066	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.6	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0104 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.63	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/09/2000 11:22	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/02/2000 07:56	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/12/2000 14:48	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/13/2000 13:00	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/02/2000 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 18:38	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/07/2000 10:10	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3511208

Collected:11/30/2000 09:45 by JK

Account Number: 07802

Submitted: 12/01/2000 09:15
Reported: 12/26/00 at 10:04 AM
Discard: 1/26/01
MA3-TG-3-2-301100-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

11302 SDG#: MOS88-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.69 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.2	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0061 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.35	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/09/2000 11:23	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	2	12/13/2000 17:11	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	2	12/20/2000 15:01	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/13/2000 13:00	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/02/2000 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 18:38	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/07/2000 10:10	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3511209

Collected:11/30/2000 09:50 by JK

Account Number: 07802

Submitted: 12/01/2000 09:15
Reported: 12/26/00 at 10:04 AM
Discard: 1/26/01
MA3-TG-3-3-301100-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

11303 SDG#: MOS88-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.32 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.106	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.2	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0061 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.35	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/09/2000 11:24	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/02/2000 07:59	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	2	12/20/2000 15:02	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/13/2000 13:00	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/02/2000 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 18:39	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/07/2000 10:10	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3511210

Collected:11/30/2000 10:50 by JK

Account Number: 07802

Submitted: 12/01/2000 09:15
Reported: 12/26/00 at 10:04 AM
Discard: 1/26/01
MA3-TG-4-1-301100-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

11304 SDG#: MOS88-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.43 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.022 J	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.1	0.15	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0104 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.78	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/09/2000 11:28	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/02/2000 08:05	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/12/2000 14:52	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/13/2000 13:00	Michelle Heidig	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/02/2000 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 18:40	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/07/2000 10:10	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3511211

Collected:11/30/2000 10:55 by JK

Account Number: 07802

Submitted: 12/01/2000 09:15
Reported: 12/26/00 at 10:04 AM
Discard: 1/26/01
MA3-TG-4-2-301100-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

11305 SDG#: MOS88-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.38 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.6	0.15	mg/l	1
	The result obtained for total Kjeldahl nitrogen is less than the result obtained for ammonia nitrogen. The results for both analyses are within the acceptable criteria for duplicate analysis.					
00226	Ortho-Phosphate as P	14265-44-2	0.0071 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.16	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/09/2000 11:29	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/02/2000 08:06	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/12/2000 14:53	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/14/2000 10:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/02/2000 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 19:10	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/07/2000 10:10	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3511212

Collected:11/30/2000 11:00 by JK

Account Number: 07802

Submitted: 12/01/2000 09:15
Reported: 12/26/00 at 10:04 AM
Discard: 1/26/01
MA3-TG-4-3-301100-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

11306 SDG#: MOS88-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.80 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.109	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.5	0.15	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0087 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.33	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/09/2000 11:33	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/02/2000 08:08	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	2	12/20/2000 15:03	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/14/2000 10:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/02/2000 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 19:11	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/07/2000 10:10	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3511216

Collected:11/30/2000 14:30 by JK

Account Number: 07802

Submitted: 12/01/2000 09:15
Reported: 12/26/00 at 10:04 AM
Discard: 1/26/01
MA3-TG-5-1-301100-10 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

30-10 SDG#: MOS88-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.97 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.62 J	0.15	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	N.D.	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.27	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/09/2000 11:38	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/02/2000 08:13	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/12/2000 15:02	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/14/2000 10:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/02/2000 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 18:49	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/07/2000 10:10	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3511217

Collected:11/30/2000 14:35 by JK

Account Number: 07802

Submitted: 12/01/2000 09:15
Reported: 12/26/00 at 10:04 AM
Discard: 1/26/01
MA3-TG-5-2-301100-11 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

30-11 SDG#: MOS88-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.90 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.65 J	0.15	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0087 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.15 J	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/09/2000 11:39	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/02/2000 08:14	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/12/2000 15:03	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/14/2000 10:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/02/2000 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 19:14	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/07/2000 10:10	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3511218

Collected:11/30/2000 14:40 by JK

Account Number: 07802

Submitted: 12/01/2000 09:15
Reported: 12/26/00 at 10:04 AM
Discard: 1/26/01
MA3-TG-5-3-301100-12 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

30-12 SDG#: MOS88-12*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.64 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.11	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.56 J	0.15	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0179 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.19	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/09/2000 11:41	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/02/2000 08:18	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/12/2000 15:04	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/14/2000 10:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/02/2000 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 19:15	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/07/2000 10:10	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3511213

Collected:11/30/2000 13:20 by JK

Account Number: 07802

Submitted: 12/01/2000 09:15
Reported: 12/26/00 at 10:04 AM
Discard: 1/26/01
MA3-TG-6-1-301100-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

11307 SDG#: MOS88-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.69 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.4	0.15	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0125 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.20	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/09/2000 11:34	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/02/2000 08:09	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/12/2000 14:56	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/14/2000 10:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/02/2000 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 19:12	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/07/2000 10:10	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3511214

Collected:11/30/2000 13:25 by JK

Account Number: 07802

Submitted: 12/01/2000 09:15
Reported: 12/26/00 at 10:04 AM
Discard: 1/26/01
MA3-TG-6-2-301100-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

11308 SDG#: MOS88-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	N.D.	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.14	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.41 J	0.15	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0114 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/09/2000 11:36	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/02/2000 08:10	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/12/2000 14:57	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/14/2000 10:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/02/2000 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 19:13	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/07/2000 10:10	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3511215

Collected:11/30/2000 13:30 by JK

Account Number: 07802

Submitted: 12/01/2000 09:15
Reported: 12/26/00 at 10:04 AM
Discard: 1/26/01
MA3-TG-6-3-301100-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

11309 SDG#: MOS88-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.02 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.74 J	0.15	mg/l	1
00226	Ortho-Phosphate as P	14265-44-2	0.0071 J	0.0056	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.26	0.13	mg/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	12/09/2000 11:37	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/02/2000 08:11	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	12/12/2000 15:01	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	12/14/2000 10:15	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/02/2000 00:50	Daniel S. Smith	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	12/06/2000 18:48	Venia M. McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	12/07/2000 10:10	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	12/04/2000 14:01	Nancy J. Shoop	1

Hammomd Division - Microbac Laboratories
Bio-Analytical Summary Report

Job Code: **24-000**

Site Information

Site Name	Moss America	Date received	28-Nov-00
Location	Milwaukee WI	Date of this report	27-Dec-00
Consultant	Roy F weston	Microbacl Job Code	**23-332**
Proj. Contact	Tom Graan		
Project Ref ID	271100	Number of soil samples	0
Contaminant	PAH-BTEX	Number of gw samples	6

Section I - Summary of Bioremediation Data

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

	Soil microbial populations: Exceeds norm for:							
Sample ID	Passive	Active	pH	% TON / % OM	C:N	C:P	% moisture / SWHC	% Air-filled pore space
	>1E+06	>1E+03	5.5-8.5	>1.5	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
tg1-1-271100-1	Summary table not applicable for groundwater.							
tg1-2-271100-2	Summary table not applicable for groundwater.							
tg1-3-271100-3	Summary table not applicable for groundwater.							
tg2-1-271100-4	Summary table not applicable for groundwater.							
tg2-2-271100-5	Summary table not applicable for groundwater.							
tg2-3-271100-6	Summary table not applicable for groundwater.							

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

✓ = **Sample meets guideline.**

✗ = **Sample does not meet guideline.**

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

NOTES:

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

Hammomd Division - Microbac Laboratories
Bio-Analytical Summary Report

Job Code: **24-005**

Site Information

Site Name	Moss America	Date received	01-Dec-00
Location	Milwaukee WI	Date of this report	27-Dec-00
Consultant	Roy F weston	Microbacl Job Code	**24-05**
Proj. Contact	Tom Graan		
Project Ref ID	271100	Number of soil samples	0
Contaminant	PAH-BTEX	Number of gw samples	6

Section I - Summary of Bioremediation Data

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

	Soil microbial populations: Exceeds norm for:							
Sample ID	Passive	Active	pH	% TON / % OM	C:N	C:P	% moisture / SWHC	% Air-filled pore space
	>1E+06	>1E+03	5.5-8.5	>1.5	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
tg3-1-301100-1	Summary table not applicable for groundwater.							
tg3-2-301100-2	Summary table not applicable for groundwater.							
tg3-3-301100-3	Summary table not applicable for groundwater.							
tg4-1-301100-4	Summary table not applicable for groundwater.							
tg4-2-301100-5	Summary table not applicable for groundwater.							
tg4-3-301100-6	Summary table not applicable for groundwater.							

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

✓ = **Sample meets guideline.**

✗ = **Sample does not meet guideline.**

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

NOTES:

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

Hammomd Division - Microbac Laboratories
Bio-Analytical Summary Report

Job Code: **24-000**

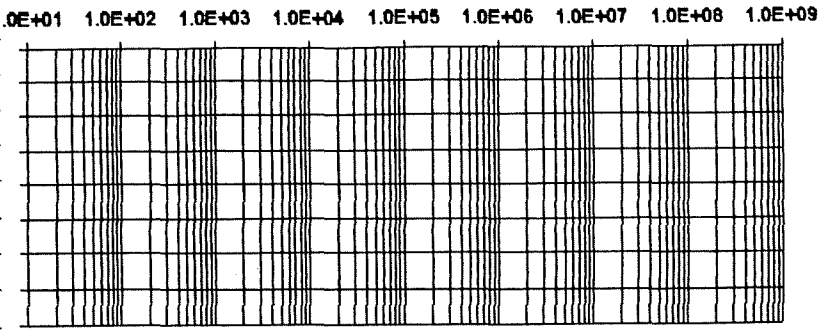
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples
Total populations

Low and high indicate 95% confidence range

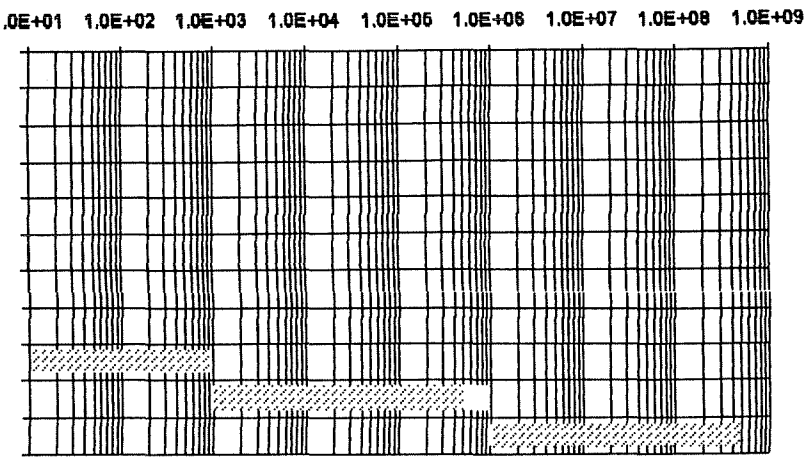
Sample ID	Mean	Low	High
tg1-1-271100-1	2.6E+03		
tg1-2-271100-2	6.0E+03		
tg1-3-271100-3	9.3E+03		
tg2-1-271100-4	8.8E+02		
tg2-2-271100-5	1.3E+03		
tg2-3-271100-6	1.0E+03		



Groundwater Samples
Degrader populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
tg1-1-271100-1	1.1E+03		
tg1-2-271100-2	3.6E+03		
tg1-3-271100-3	5.4E+03		
tg2-1-271100-4	1.8E+02		
tg2-2-271100-5	4.2E+02		
tg2-3-271100-6	2.3E+02		



Marginal Inoculum
Inoculum levels
Active degradation levels

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

Assay conditions

	Degrader Media		Temp.	Growth	DOF **		Percent
Sample ID	Carbon source	% Carbon (v/v)	(Celcius)	Conditions	Total	Degrader	Degraders
tg1-1-271100-1	PAH-BTEX	1.0	22	aerobic	0	0	43.0%
tg1-2-271100-2	PAH-BTEX	1.0	22	aerobic	0	0	60.0%
tg1-3-271100-3	PAH-BTEX	1.0	22	aerobic	0	0	58.1%
tg2-1-271100-4	PAH-BTEX	1.0	22	aerobic	0	0	20.5%
tg2-2-271100-5	PAH-BTEX	1.0	22	aerobic	0	0	32.6%
tg2-3-271100-6	PAH-BTEX	1.0	22	aerobic	0	0	22.1%

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

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

Hammomd Division - Microbac Laboratories
Bio-Analytical Summary Report

Job Code: **24-005**

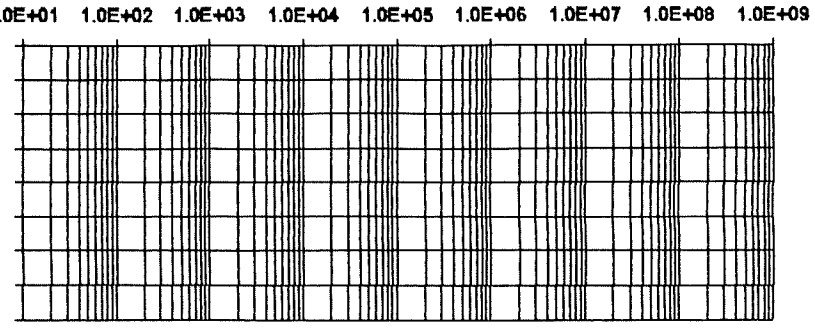
Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples
Total populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
tg3-1-301100-1	1.2E+03		
tg3-2-301100-2	1.7E+03		
tg3-3-301100-3	2.2E+02		
tg4-1-301100-4	1.9E+04		
tg4-2-301100-5	1.9E+03		
tg4-3-301100-6	1.1E+03		

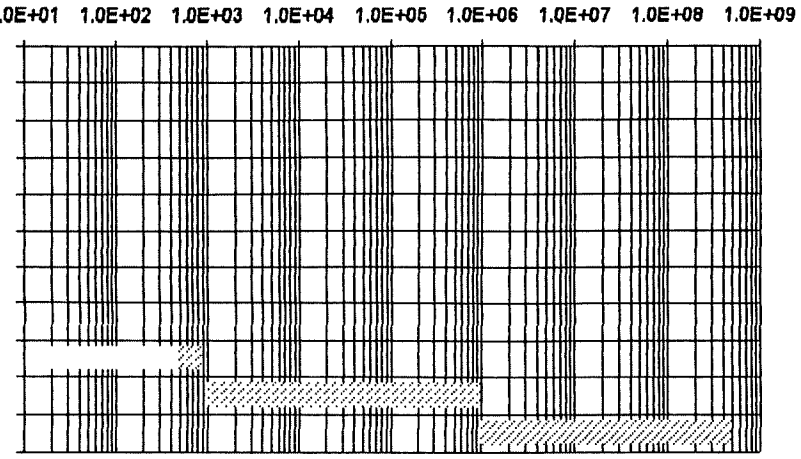


Groundwater Samples
Degrader populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
tg3-1-301100-1	4.9E+02		
tg3-2-301100-2	2.2E+02		
tg3-3-301100-3	1.7E+02		
tg4-1-301100-4	4.0E+02		
tg4-2-301100-5	3.2E+02		
tg4-3-301100-6	2.8E+02		

Marginal Inoculum
Inoculum levels
Active degradation levels



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

Assay conditions

Sample ID	Degrader Media: Carbon source	Degrader Media: % Carbon (v/v)	Temp. (Celcius)	Growth Conditions	DOF ** Total	DOF ** Degrader	Percent Degraders
tg3-1-301100-1	PAH-BTEX	1.0	22	aerobic	0	0	42.6%
tg3-2-301100-2	PAH-BTEX	1.0	22	aerobic	0	0	13.3%
tg3-3-301100-3	PAH-BTEX	1.0	22	aerobic	0	0	77.3%
tg4-1-301100-4	PAH-BTEX	1.0	22	aerobic	0	0	2.2%
tg4-2-301100-5	PAH-BTEX	1.0	22	aerobic	0	0	16.8%
tg4-3-301100-6	PAH-BTEX	1.0	22	aerobic	0	0	25.0%
	0	1.0	22	aerobic	0	0	#DIV/0!
	0	1.0	22	aerobic	0	0	#DIV/0!

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

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

Microbac

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CERTIFICATE OF ANALYSIS

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

Permit Number

Date Reported: 1/03/00
P.O. Number: Project Moss America
Sample ID: 9924-00005
Date Received: 12/01/00
Time Received: 10:00

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: TG3-1-301100-01, 11/30/00 @ 09:40 by J. Klemp				
Total Aerobic Bacteria	1,150. cfu/ml	12/04/00	NMC	9215B MODIFIED
T.Aerobic Degrader Bacteria	490. cfu/ml	12/04/00	NMC	9215B MODIFIED
SUBJECT: TG3-2-301100-02, 11/30/00 @ 09:45 by J. Klemp				
Total Aerobic Bacteria	1,660. cfu/ml	12/04/00	NMC	9215B MODIFIED
T.Aerobic Degrader Bacteria	220. cfu/ml	12/04/00	NMC	9215B MODIFIED
SUBJECT: TG3-3-301100-03, 11/30/00 @ 09:50 by J. Klemp				
Total Aerobic Bacteria	220. cfu/ml	12/04/00	NMC	9215B MODIFIED
T.Aerobic Degrader Bacteria	170. cfu/ml	12/04/00	NMC	9215B MODIFIED
SUBJECT: TG4-1-301100-04, 11/30/00 @ 10:50 by J. Klemp				
Total Aerobic Bacteria	18,500. cfu/ml	12/04/00	NMC	9215B MODIFIED
T.Aerobic Degrader Bacteria	400. cfu/ml	12/04/00	NMC	9215B MODIFIED
SUBJECT: TG4-2-301100-05, 11/30/00 @ 10:55 by J. Klemp				
Total Aerobic Bacteria	1,900. cfu/ml	12/04/00	NMC	9215B MODIFIED
T.Aerobic Degrader Bacteria	320. cfu/ml	12/04/00	NMC	9215B MODIFIED
SUBJECT: TG4-3-301100-06, 11/30/00 @ 11:00 by J. Klemp				
Total Aerobic Bacteria	1,120. cfu/ml	12/04/00	NMC	9215B MODIFIED
T.Aerobic Degrader Bacteria	280. cfu/ml	12/04/00	NMC	9215B MODIFIED
SUBJECT: TG5-1-301100-10, 11/30/00 @ 14:30 by J. Klemp				
Total Aerobic Bacteria	3,800. cfu/ml	12/04/00	NMC	9215B MODIFIED
T.Aerobic Degrader Bacteria	2,600. cfu/ml	12/04/00	NMC	9215B MODIFIED

*** Certificate Continues On Next Page ***

Microbac

® Microbac Laboratories, Inc.
Seaway Division
544 Conkey Street
Hammond, IN 46324
(219) 932-1770
INDIANA CERTIFICATION NUMBERS: M-45-8 C-45-02
http://www.microbac.com

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

CERTIFICATE OF ANALYSIS

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

Date Reported: 1/03/00
P.O. Number: Project Moss America
Sample ID: 9924-00005
Date Received: 12/01/00
Time Received: 10:00

Permit Number

PARAMETERS	RESULTS	DATE	TECH	METHOD
SUBJECT: TG5-2-301100-11, 11/30/00 @ 14:35 by J. Klemp				
Total Aerobic Bacteria	14,100. cfu/ml	12/04/00	NMC	9215B MODIFIED
T.Aerobic Degrader Bacteria	5,400. cfu/ml	12/04/00	NMC	9215B MODIFIED
SUBJECT: TG5-3-301100-12, 11/30/00 @ 14:40 by J. Klemp				
Total Aerobic Bacteria	1,730. cfu/ml	12/04/00	NMC	9215B MODIFIED
T.Aerobic Degrader Bacteria	390. cfu/ml	12/04/00	NMC	9215B MODIFIED
SUBJECT: TG6-1-301100-07, 11/30/00 @ 13:20 by J. Klemp				
Total Aerobic Bacteria	1,180. cfu/ml	12/04/00	NMC	9215B MODIFIED
T.Aerobic Degrader Bacteria	110. cfu/ml	12/04/00	NMC	9215B MODIFIED
SUBJECT: TG6-2-301100-08, 11/30/00 @ 13:25 by J. Klemp				
Total Aerobic Bacteria	1,300. cfu/ml	12/04/00	NMC	9215B MODIFIED
T.Aerobic Degrader Bacteria	540. cfu/ml	12/04/00	NMC	9215B MODIFIED
SUBJECT: TG6-3-301100-09, 11/30/00 @ 13:30 by J. Klemp				
Total Aerobic Bacteria	260. cfu/ml	12/04/00	NMC	9215B MODIFIED
T.Aerobic Degrader Bacteria	190. cfu/ml	12/04/00	NMC	9215B MODIFIED

Submitted with Quality by _____

9925-552

Chain-of-Custody

Contact person Tom Grazn Sampler Joe Klemp
Project name Moss American Project # _____
Project location Milwaukee (City) WI (state)

Site contaminant * BTEX PAH's
(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

MA3 – Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	Requested analyses (✓): CEA* (soil/gw) ☑ Aerobic, ☐ Anaerobic, ☐ Microaerophillic see note	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve and hydrometer, ☐ sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	Microbial Enumeration				
TG1-1-271100-01		11/27/00	1425		✓		1										✓				
TG1-2-271100-02			1415		✓		1										✓				
TG1-3-271100-03			1435		✓		1										✓				
TG2-1-271100-04			1615		✓		1										✓				
TG2-2-271100-05			1545		✓		1										✓				
TG2-3-271100-06		↓	1600		✓		1										✓				

Relinquished by: _____ Date/time: 11/27/00 1730
Received by: _____ 11/28/00 10:00 Date/time: _____
Comments:
Sample condition upon arrival:
On ice? ☐ Yes, ☐ No

BioRenewal
Div. - Microbac Labs
2800 S. Fish Hatchery Rd.
Madison, WI 53711
(608)276-8980
Fax (608)273-6989
info@biorenewal.com

Send results to:
Name Tom Grazn
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 _____

White - Original Copy Canary - BioRenewal Copy Pink - Sampler Copy

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

9924-5

Chain-of-Custody 1 of 2

Contact person Tom Grazan Sampler Joe Klemp
Project name Moss American Project #
Project location Milwaukee WI
(City) (state)

Site contaminant * BTEX, PAH's
(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

MA 3 Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	Requested analyses (✓): CEA* (soil/gw) ☐ Aerobic, ☐ Anaerobic, ☐ Microaerophilic see note	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	Microbial Enumeration
TG3-1 301100-01		11/30/00	0940		✓	10-12'	1										X
TG3-2 301100-02			0945		✓	"	1										"
TG3-3 301100-03			0950		✓	"	1										"
TG4-1 301100-04			1050		✓	"	1										"
TG4-2 301100-05			1055		✓	"	1										"
TG4-3 301100-06			1100		✓	"	1										"
TG5-1 301100-10			1430		✓	"	1										"
TG5-2 301100-11			1435		✓	"	1										"

Relinquished by: A. Klemp
Date/time: 11-30-00 / 1600

Received by:
Date/time: 12/1/00 1000

Comments:

Sample condition upon arrival:
Seal intact
On ice? ☒ Yes, ☐ No

BioRenewal
Div. - Microbac Labs
2800 S. Fish Hatchery Rd.
Madison, WI 53711
(608)276-8980
Fax (608)273-6989
Info@biorenewal.com

Send results to:
Name Tom Grazan
Company Roy F. Weston
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

White - Original Copy Canary - BioRenewal Copy Pink - Sampler Copy

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

4174-5

Chain-of-Custody 1 of 2

Contact person Tom Grazan Sampler Joe Klemp

Project name Moss American Project # _____

Project location Milwaukee WI
(City) (state)

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

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

Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	Requested analyses (✓): CEA* (soil/gw) ☐ Aerobic, ☐ Anaerobic, ☐ Microaerophillic see note	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve and hydrometer, ☐ sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	Microbial Enumeration				
TG5-3-301100-12		11/30/00	1440		✓	10-12'	1										X				
TG6-1-301100-07			1320		✓		1										X				
TG6-2-301100-08			1325		✓		1										X				
TG6-3 301100-09			1330		✓		1										X				

Relinquished by: _____ Date/time: 11-30-00 / 1600

Received by: _____ Date/time: 12/1/00 1000

Comments:

Sample condition upon arrival: Seal intact

On ice? ☒ Yes, ☐ No

BioRenewal
Div. - Microbac Labs
2800 S. Fish Hatchery Rd.
Madison, WI 53711
(608)276-8980
Fax (608)273-6989
info@biorenewal.com

Send results to:

Name Tom Grazan
Company Roy F. Weston
Address 750 E. Bunker Ct. St 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 _____

White - Original Copy Canary - BioRenewal Copy Pink - Sampler Copy

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

MOSS-AMERICAN SITE
GROUNDWATER MONITORING
DECEMBER 2000 ANALYTICAL RESULTS

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3528959

Collected:01/03/2001 09:00 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-TW05-030101-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TW5-2 SDG#: MOA16-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		0.20	ug/l	1
00777	Toluene	108-88-3	N.D.		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.		0.60	ug/l	1
01861	PAH's in Water						
03280	Naphthalene	91-20-3	10.0	J	3.8	ug/l	5
03281	Acenaphthylene	208-96-8	9.9	J	3.8	ug/l	5
03282	Acenaphthene	83-32-9	63.		3.8	ug/l	5
03283	Fluorene	86-73-7	40.1		0.82	ug/l	5
03284	Phenanthrene	85-01-8	1.37	J	0.34	ug/l	5
03285	Anthracene	120-12-7	1.1		0.14	ug/l	5
03286	Fluoranthene	206-44-0	8.1		0.14	ug/l	5
03287	Pyrene	129-00-0	6.0		0.82	ug/l	5
03288	Benzo(a)anthracene	56-55-3	0.130	J	0.096	ug/l	5
03289	Chrysene	218-01-9	N.D.		0.29	ug/l	5
03290	Benzo(b)fluoranthene	205-99-2	N.D.		0.18	ug/l	5
03291	Benzo(k)fluoranthene	207-08-9	N.D.		0.048	ug/l	5
03292	Benzo(a)pyrene	50-32-8	N.D.		0.096	ug/l	5
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.		0.14	ug/l	5
03294	Benzo(g,h,i)perylene	191-24-2	N.D.		0.48	ug/l	5
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.32	ug/l	5

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/05/2001 18:44	Steven J. Stabinger	1

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

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3528959

Collected:01/03/2001 09:00 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-TW05-030101-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TW5-2 SDG#: MOA16-02

01861	PAH's in Water	SW-846 8310	1	01/12/2001 09:39	Michelle J. Kolodziejski	5
03337	PAH Water Extraction	SW-846 3510C	1	01/08/2001 08:30	Joseph S. Feister	1

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

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3527175

Collected:12/28/2000 09:40 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MW-3S-281200-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3S202 SDG#: MOA11-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.77	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.77	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.77	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.16	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.067	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.029	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.029	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.16	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.019	ug/l	1
03289	Chrysene	218-01-9	0.069 J	0.058	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.0096	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.019	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.029	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.096	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.064	ug/l	1

Laboratory Chronicle

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3527175

Collected:12/28/2000 09:40 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MW-3S-281200-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3S202 SDG#: MOA11-01

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/02/2001 15:02	Melissa Mann	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 13:44	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3526545

Collected:12/27/2000 12:00 by JK

Account Number: 07802

Submitted: 12/28/2000 09:30
Reported: 01/09/01 at 02:07 PM
Discard: 2/9/01
MA3-MW4S-271200-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

M4S-- SDG#: MOA08-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)						
00776	Benzene	71-43-2	2.6		0.20	ug/l	1
00777	Toluene	108-88-3	4.1		0.20	ug/l	1
00778	Ethylbenzene	100-41-4	5.7		0.20	ug/l	1
00779	Total Xylenes	1330-20-7	10.		0.60	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.						
01861	PAH's in Water						
03280	Naphthalene	91-20-3	720.		40.	ug/l	50
03281	Acenaphthylene	208-96-8	81.	J	40.	ug/l	50
03282	Acenaphthene	83-32-9	600.		40.	ug/l	50
03283	Fluorene	86-73-7	217.		8.6	ug/l	50
03284	Phenanthrene	85-01-8	7.7	J	3.5	ug/l	50
03285	Anthracene	120-12-7	12.		1.5	ug/l	50
03286	Fluoranthene	206-44-0	28.		1.5	ug/l	50
03287	Pyrene	129-00-0	18.6		0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	0.638		0.020	ug/l	1
03289	Chrysene	218-01-9	0.33		0.061	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	0.067		0.038	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	0.041	J	0.010	ug/l	1
03292	Benzo(a)pyrene	50-32-8	0.051	J	0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.		0.030	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.		0.10	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	0.069	J	0.068	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.						

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

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3526545

Collected:12/27/2000 12:00 by JK

Account Number: 07802

Submitted: 12/28/2000 09:30
Reported: 01/09/01 at 02:07 PM
Discard: 2/9/01
MA3-MW4S-271200-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

M4S-- SDG#: MOA08-02

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilutio Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	12/29/2000 23:05	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/04/2001 20:46	Michelle J. Kolodziejski	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 19:13	Michelle J. Kolodziejski	50
03337	PAH Water Extraction	SW-846 3510C	1	01/02/2001 08:55	Denise L. Trimby	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3527176

Collected:12/28/2000 09:00 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MW-5S-281200-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

5S201 SDG#: MOA11-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	The vial submitted for volatile analysis did not have a pH < 2 at the time of analysis. Due to the volatile nature of the analytes, it is not appropriate for the laboratory to adjust the pH at the time of sample receipt.					
	Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.77	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.77	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.77	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.16	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.067	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.029	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.029	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.16	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.019	ug/l	1
03289	Chrysene	218-01-9	0.075 J	0.058	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.0096	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.019	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.029	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.096	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.064	ug/l	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3527176

Collected:12/28/2000 09:00 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MW-5S-281200-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

5S201 SDG#: MOA11-02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/02/2001 16:11	Melissa Mann	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 14:27	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3528958

Collected:01/03/2001 09:00 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-MW6S-030101-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW6S- SDG#: MOA16-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.81	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.81	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.81	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.17	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.071	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.031	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.031	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.020	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.061	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.039	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.031	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.10	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.068	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/05/2001 18:09	Steven J. Stabinger	1

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Lancaster Laboratories Sample No. WW 3528958

Collected:01/03/2001 09:00 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-MW6S-030101-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MW6S- SDG#: MOA16-01

01861	PAH's in Water	SW-846 8310	1	01/11/2001 10:17	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/08/2001 08:30	Joseph S. Feister	1

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Lancaster Laboratories Sample No. WW 3528468

Collected:01/02/2001 11:45 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-MW75-020101-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

10-75 SDG#: MOA13-14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	3.4 J	2.0	ug/l	10
00777	Toluene	108-88-3	N.D.	2.0	ug/l	10
00778	Ethylbenzene	100-41-4	15.	2.0	ug/l	10
00779	Total Xylenes	1330-20-7	47.	6.0	ug/l	10

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

Due to dilution of the sample made necessary by the high level of non-target compounds, normal quantitation limits were not attained.

01861	PAH's in Water					
03280	Naphthalene	91-20-3	3,470.	16.	ug/l	20
03281	Acenaphthylene	208-96-8	115. J	16.	ug/l	20
03282	Acenaphthene	83-32-9	78. J	16.	ug/l	20
03283	Fluorene	86-73-7	12.7	0.17	ug/l	1
03284	Phenanthrene	85-01-8	0.080 J	0.069	ug/l	1
03285	Anthracene	120-12-7	0.044 J	0.030	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.020	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.059	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.0099	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.030	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.099	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.066	ug/l	1

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

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Lancaster Laboratories Sample No. WW 3528468

Collected:01/02/2001 11:45 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-MW75-020101-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

10-75 SDG#: MOA13-14

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

accuracy at a batch level.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilutio Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/05/2001 00:37	Melissa-Ann S. McAlpine	10
01861	PAH's in Water	SW-846 8310	1	01/10/2001 21:28	Michelle J. Kolodziejski	1
01861	PAH's in Water	SW-846 8310	1	01/12/2001 12:15	Michelle J. Kolodziejski	20
03337	PAH Water Extraction	SW-846 3510C	1	01/04/2001 17:00	Wanda F. Oswald	1

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Lancaster Laboratories Sample No. WW 3528472

Collected:01/02/2001 15:00 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-MW95-020101-10 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

10-10 SDG#: MOA13-18

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.						
01861	PAH's in Water						
03280	Naphthalene	91-20-3	1.22	J	0.80	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.		0.80	ug/l	1
03282	Acenaphthene	83-32-9	N.D.		0.80	ug/l	1
03283	Fluorene	86-73-7	N.D.		0.17	ug/l	1
03284	Phenanthrene	85-01-8	N.D.		0.070	ug/l	1
03285	Anthracene	120-12-7	0.047	J	0.030	ug/l	1
03286	Fluoranthene	206-44-0	N.D.		0.030	ug/l	1
03287	Pyrene	129-00-0	N.D.		0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.		0.020	ug/l	1
03289	Chrysene	218-01-9	N.D.		0.060	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.		0.038	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.		0.0100	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.		0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.		0.030	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.		0.100	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.067	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						

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Lancaster Laboratories Sample No. WW 3528472

Collected:01/02/2001 15:00 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-MW95-020101-10 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

10-10 SDG#: MOA13-18

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 19:29	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/10/2001 22:54	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/04/2001 17:00	Wanda F. Oswald	1

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Lancaster Laboratories Sample No. WW 3528961

Collected:01/03/2001 10:30 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-MW10S-030101-04 Unspiked Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

10S-4 SDG#: MOA16-04BKG

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
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.82	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.82	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.82	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.17	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.072	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.031	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.031	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.021	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.062	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.039	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.021	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.031	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.10	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.069	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/05/2001 16:25	Steven J. Stabinger	1

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Lancaster Laboratories Sample No. WW 3528961

Collected:01/03/2001 10:30 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-MW10S-030101-04 Unspiked Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

10S-4 SDG#: MOA16-04BKG

01861	PAH's in Water	SW-846 8310	1	01/11/2001 01:00	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/08/2001 08:30	Joseph S. Feister	1

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Lancaster Laboratories Sample No. WW 3526544

Collected:12/27/2000 11:05 by JK

Account Number: 07802

Submitted: 12/28/2000 09:30
Reported: 01/09/01 at 02:07 PM
Discard: 2/9/01
MA3-MW13S-271200-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

13S-- SDG#: MOA08-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.81	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.81	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.81	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.17	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.071	ug/l	1
03285	Anthracene	120-12-7	0.051 J	0.030	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.020	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.061	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.038	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.030	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.10	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.068	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					

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Lancaster Laboratories Sample No. WW 3526544

Collected:12/27/2000 11:05 by JK

Account Number: 07802

Submitted: 12/28/2000 09:30
Reported: 01/09/01 at 02:07 PM
Discard: 2/9/01
MA3-MW13S-271200-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation
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Oklahoma City OK 73125

13S-- SDG#: MOA08-01

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	12/29/2000 22:32	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/04/2001 20:00	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/02/2001 08:55	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3526546

Collected:12/27/2000 12:10 by JK

Account Number: 07802

Submitted: 12/28/2000 09:30
Reported: 01/09/01 at 02:08 PM
Discard: 2/9/01
MA3-MW25S-271200-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

25S-- SDG#: MOA08-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.79	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.79	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.79	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.17	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.069	ug/l	1
03285	Anthracene	120-12-7	0.053 J	0.030	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.020	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.059	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.038	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.0099	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.030	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.099	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.066	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					

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Lancaster Laboratories Sample No. WW 3526546

Collected:12/27/2000 12:10 by JK

Account Number: 07802

Submitted: 12/28/2000 09:30
Reported: 01/09/01 at 02:08 PM
Discard: 2/9/01
MA3-MW25S-271200-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

25S-- SDG#: MOA08-03

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilutic Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	12/29/2000 23:37	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/04/2001 21:08	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/02/2001 08:55	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3528465

Collected:01/02/2001 11:10 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:21 PM
Discard: 2/22/01
MA3-MW275-020101-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

10103 SDG#: MOA13-11

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.						
01861	PAH's in Water						
03280	Naphthalene	91-20-3	1.17	J	0.77	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.		0.77	ug/l	1
03282	Acenaphthene	83-32-9	N.D.		0.77	ug/l	1
03283	Fluorene	86-73-7	N.D.		0.16	ug/l	1
03284	Phenanthrene	85-01-8	N.D.		0.067	ug/l	1
03285	Anthracene	120-12-7	0.035	J	0.029	ug/l	1
03286	Fluoranthene	206-44-0	N.D.		0.029	ug/l	1
03287	Pyrene	129-00-0	N.D.		0.16	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.		0.019	ug/l	1
03289	Chrysene	218-01-9	N.D.		0.058	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.		0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.		0.0096	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.		0.019	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.		0.029	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.		0.096	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.064	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						

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Lancaster Laboratories Sample No. WW 3528465

Collected:01/02/2001 11:10 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:21 PM
Discard: 2/22/01
MA3-MW275-020101-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

10103 SDG#: MOA13-11

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 16:58	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/10/2001 20:02	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/04/2001 17:00	Wanda F. Oswald	1

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Lancaster Laboratories Sample No. WW 3527177

Collected:12/28/2000 12:30 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MW-28S-281200-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

28S06 SDG#: MOA11-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.86	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.86	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.86	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.18	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.075	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.032	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.032	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.18	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.021	ug/l	1
03289	Chrysene	218-01-9	0.36	0.064	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.041	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.021	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.032	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.11	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.072	ug/l	1

Laboratory Chronicle

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Lancaster Laboratories Sample No. WW 3527177

Collected:12/28/2000 12:30 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MW-28S-281200-06 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

28S06 SDG#: MOA11-03

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/02/2001 16:46	Melissa Mann	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 14:49	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3528965

Collected:12/29/2000 00:00 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-MW29S-030101-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

29S-1 SDG#: MOA16-06

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/05/2001 20:28	Steven J. Stabinger	1

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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 3526547

Collected:12/27/2000 15:30 by JK

Account Number: 07802

Submitted: 12/28/2000 09:30
Reported: 01/09/01 at 02:08 PM
Discard: 2/9/01
MA3-MW30S-271200-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

30S-- SDG#: MOA08-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	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.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.84	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.84	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.84	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.18	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.073	ug/l	1
03285	Anthracene	120-12-7	0.077 J	0.031	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.031	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.18	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.021	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.063	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.040	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.021	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.031	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.10	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.070	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					

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Lancaster Laboratories Sample No. WW 3526547

Collected:12/27/2000 15:30 by JK

Account Number: 07802

Submitted: 12/28/2000 09:30
Reported: 01/09/01 at 02:08 PM
Discard: 2/9/01
MA3-MW30S-271200-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

30S-- SDG#: MOA08-04

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	12/30/2000 00:42	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/04/2001 21:31	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/02/2001 08:55	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3528466

Collected:01/02/2001 10:50 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-MW325-020101-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

10104 SDG#: MOA13-12

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.						
01861	PAH's in Water						
03280	Naphthalene	91-20-3	1.25	J	0.82	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.		0.82	ug/l	1
03282	Acenaphthene	83-32-9	N.D.		0.82	ug/l	1
03283	Fluorene	86-73-7	N.D.		0.18	ug/l	1
03284	Phenanthrene	85-01-8	N.D.		0.072	ug/l	1
03285	Anthracene	120-12-7	0.052	J	0.031	ug/l	1
03286	Fluoranthene	206-44-0	N.D.		0.031	ug/l	1
03287	Pyrene	129-00-0	N.D.		0.18	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.		0.021	ug/l	1
03289	Chrysene	218-01-9	N.D.		0.062	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.		0.039	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.		0.010	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.		0.021	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.		0.031	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.		0.10	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.069	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						

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Lancaster Laboratories Sample No. WW 3528466

Collected:01/02/2001 10:50 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-MW325-020101-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

10104 SDG#: MOA13-12

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 17:36	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/10/2001 20:23	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/04/2001 17:00	Wanda F. Oswald	1

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Lancaster Laboratories Sample No. WW 3528463

Collected:01/02/2001 09:50 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:21 PM
Discard: 2/22/01
MA3-MW33S-020101-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

33S21 SDG#: MOA13-09

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	8.3 J	2.0	ug/l	10
00777	Toluene	108-88-3	N.D.	2.0	ug/l	10
00778	Ethylbenzene	100-41-4	24.	2.0	ug/l	10
00779	Total Xylenes	1330-20-7	80.	6.0	ug/l	10

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

Due to dilution of the sample made necessary by the high level of non-target compounds, normal quantitation limits were not attained.

01861	PAH's in Water					
03280	Naphthalene	91-20-3	1,760.	16.	ug/l	20
03281	Acenaphthylene	208-96-8	102. J	16.	ug/l	20
03282	Acenaphthene	83-32-9	85. J	16.	ug/l	20
03283	Fluorene	86-73-7	15.0	0.17	ug/l	1
03284	Phenanthrene	85-01-8	0.30	0.069	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.029	ug/l	1
03286	Fluoranthene	206-44-0	0.064 J	0.029	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.020	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.059	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.0098	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.029	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.098	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.066	ug/l	1

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

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Lancaster Laboratories Sample No. WW 3528463

Collected:01/02/2001 09:50 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:21 PM
Discard: 2/22/01
MA3-MW33S-020101-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

33S21 SDG#: MOA13-09

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

accuracy at a batch level.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilutic Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 23:21	Melissa-Ann S. McAlpine	10
01861	PAH's in Water	SW-846 8310	1	01/10/2001 19:19	Michelle J. Kolodziejski	1
01861	PAH's in Water	SW-846 8310	1	01/11/2001 14:10	Michelle J. Kolodziejski	20
03337	PAH Water Extraction	SW-846 3510C	1	01/04/2001 17:00	Wanda F. Oswald	1

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Lancaster Laboratories Sample No. WW 3528467

Collected:01/02/2001 11:30 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-MW345-020101-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

10105 SDG#: MOA13-13

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)						
00776	Benzene	71-43-2	N.D.		2.0	ug/l	10
00777	Toluene	108-88-3	N.D.		2.0	ug/l	10
00778	Ethylbenzene	100-41-4	10.		2.0	ug/l	10
00779	Total Xylenes	1330-20-7	24.	J	6.0	ug/l	10
	Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
	Due to dilution of the sample made necessary by the high level of non-target compounds, normal quantitation limits were not attained.						
01861	PAH's in Water						
03280	Naphthalene	91-20-3	5,050.		16.	ug/l	20
03281	Acenaphthylene	208-96-8	143.	J	16.	ug/l	20
03282	Acenaphthene	83-32-9	160.	J	16.	ug/l	20
03283	Fluorene	86-73-7	74.		3.5	ug/l	20
03284	Phenanthrene	85-01-8	78.2		1.4	ug/l	20
03285	Anthracene	120-12-7	5.6		0.61	ug/l	20
03286	Fluoranthene	206-44-0	6.4		0.61	ug/l	20
03287	Pyrene	129-00-0	5.01		0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	0.192		0.020	ug/l	1
03289	Chrysene	218-01-9	0.185	J	0.061	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.		0.039	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	0.017	J	0.010	ug/l	1
03292	Benzo(a)pyrene	50-32-8	0.031	J	0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.		0.031	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.		0.10	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.068	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and						

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Lancaster Laboratories Sample No. WW 3528467

Collected:01/02/2001 11:30 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-MW345-020101-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

10105 SDG#: MOA13-13

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

accuracy at a batch level.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilutic Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 23:59	Melissa-Ann S. McAlpine	10
01861	PAH's in Water	SW-846 8310	1	01/10/2001 21:06	Michelle J. Kolodziejski	1
01861	PAH's in Water	SW-846 8310	1	01/12/2001 11:49	Michelle J. Kolodziejski	20
03337	PAH Water Extraction	SW-846 3510C	1	01/04/2001 17:00	Wanda F. Oswald	1

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Lancaster Laboratories Sample No. WW 3528964

Collected:01/03/2001 09:30 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-MW35S-030101-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

35S-3 SDG#: MOA16-05

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
	The vial submitted for volatile analysis did not have a pH < 2 at the time of analysis. Due to the volatile nature of the analytes, it is not appropriate for the laboratory to adjust the pH at the time of sample receipt.						
01861	PAH's in Water						
03280	Naphthalene	91-20-3	0.94	J	0.76	ug/l	1
03281	Acenaphthylene	208-96-8	1.82	J	0.76	ug/l	1
03282	Acenaphthene	83-32-9	1.4	J	0.76	ug/l	1
03283	Fluorene	86-73-7	0.23	J	0.16	ug/l	1
03284	Phenanthrene	85-01-8	0.55		0.066	ug/l	1
03285	Anthracene	120-12-7	0.31		0.028	ug/l	1
03286	Fluoranthene	206-44-0	1.64		0.028	ug/l	1
03287	Pyrene	129-00-0	1.45		0.16	ug/l	1
03288	Benzo(a)anthracene	56-55-3	0.246		0.019	ug/l	1
03289	Chrysene	218-01-9	0.280	J	0.057	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	0.158		0.036	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	0.070		0.0095	ug/l	1
03292	Benzo(a)pyrene	50-32-8	0.138		0.019	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.		0.028	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.		0.095	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	0.090	J	0.063	ug/l	1

Laboratory Chronicle

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Lancaster Laboratories Sample No. WW 3528964

Collected:01/03/2001 09:30 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-MW35S-030101-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

35S-3 SDG#: MOA16-05

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/05/2001 19:53	Steven J. Stabinger	1
01861	PAH's in Water	SW-846 8310	1	01/11/2001 11:21	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/08/2001 08:30	Joseph S. Feister	1

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Lancaster Laboratories Sample No. WW 3528960

Collected:01/03/2001 11:00 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-MW36S-030101-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

36S-5 SDG#: MOA16-03

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
	The vial submitted for volatile analysis did not have a pH < 2 at the time of analysis. Due to the volatile nature of the analytes, it is not appropriate for the laboratory to adjust the pH at the time of sample receipt.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.82	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.82	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.82	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.17	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.072	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.031	ug/l	1
03286	Fluoranthene	206-44-0	0.033 J	0.031	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.020	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.061	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.039	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.031	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.10	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.069	ug/l	1

Laboratory Chronicle

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Lancaster Laboratories Sample No. WW 3528960

Collected:01/03/2001 11:00 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-MW36S-030101-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

36S-5 SDG#: MOA16-03

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/05/2001 19:18	Steven J. Stabinger	1
01861	PAH's in Water	SW-846 8310	1	01/11/2001 11:00	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/08/2001 08:30	Joseph S. Feister	1

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Lancaster Laboratories Sample No. WW 3526548

Collected:12/27/2000 15:45 by JK

Account Number: 07802

Submitted: 12/28/2000 09:30
Reported: 01/09/01 at 02:08 PM
Discard: 2/9/01
MA3-MW37S-271200-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

37S-- SDG#: MOA08-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.86	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.86	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.86	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.18	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.075	ug/l	1
03285	Anthracene	120-12-7	0.053 J	0.032	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.032	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.18	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.021	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.064	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.041	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.021	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.032	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.11	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.072	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					

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Lancaster Laboratories Sample No. WW 3526548

Collected:12/27/2000 15:45 by JK

Account Number: 07802

Submitted: 12/28/2000 09:30
Reported: 01/09/01 at 02:08 PM
Discard: 2/9/01
MA3-MW37S-271200-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

37S-- SDG#: MOA08-05

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	12/30/2000 00:09	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/04/2001 21:53	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/02/2001 08:55	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3526549

Collected:12/27/2000 15:50 by JK

Account Number: 07802

Submitted: 12/28/2000 09:30
Reported: 01/09/01 at 02:08 PM
Discard: 2/9/01
TB-1 Trip Blank Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TB001 SDG#: MOA08-06TB*

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

Sufficient sample volume was not available to perform a 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
08213	BTEX (8021)	SW-846 8021B/5030B	1	12/29/2000 22:00	Melissa-Ann S. McAlpine	1

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Lancaster Laboratories Sample No. WW 3527182

Collected:12/28/2000 15:25 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG1-1-281200-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MATG1 SDG#: MOA11-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.60 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.151	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.40 J	0.48	mg/l	3
	Due to limited sample volume, the limit of quantitation for the ammonia nitrogen determination was increased. Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0114 J	0.0056	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	9.1	0.67	mg/l	1
00273	Total Organic Carbon	n.a.	15.0	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	37.8	2.2	mg/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	7.0	0.20	ug/l	1
00777	Toluene	108-88-3	1.9	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	22.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	41.	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.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	3,300.	7.7	ug/l	10

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Lancaster Laboratories Sample No. WW 3527182

Collected:12/28/2000 15:25 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG1-1-281200-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MATG1 SDG#: MOA11-08

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
03281	Acenaphthylene	208-96-8	146.		7.7	ug/l	10
03282	Acenaphthene	83-32-9	170.		7.7	ug/l	10
03283	Fluorene	86-73-7	69.2		1.6	ug/l	10
03284	Phenanthrene	85-01-8	34.8		0.67	ug/l	10
03285	Anthracene	120-12-7	2.7		0.29	ug/l	10
03286	Fluoranthene	206-44-0	1.63	J	0.29	ug/l	10
03287	Pyrene	129-00-0	1.7	J	1.6	ug/l	10
03288	Benzo(a)anthracene	56-55-3	N.D.		0.19	ug/l	10
03289	Chrysene	218-01-9	N.D.		0.57	ug/l	10
03290	Benzo(b)fluoranthene	205-99-2	N.D.		0.36	ug/l	10
03291	Benzo(k)fluoranthene	207-08-9	N.D.		0.096	ug/l	10
03292	Benzo(a)pyrene	50-32-8	N.D.		0.19	ug/l	10
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.		0.29	ug/l	10
03294	Benzo(g,h,i)perylene	191-24-2	N.D.		1.0	ug/l	10
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.64	ug/l	10

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	01/03/2001 15:54	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/29/2000 15:55	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	01/10/2001 16:05	Brad M. La Placa	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/12/2001 08:45	Michele L. Hanby	3
00226	Ortho-Phosphate as P	EPA 365.3	1	12/29/2000 23:30	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/29/2000 20:46	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	01/02/2001 22:41	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:43	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/10/2001 05:55	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/02/2001 20:50	Melissa Mann	1
01861	PAH's in Water	SW-846 8310	1	01/10/2001 17:26	Michelle J. Kolodziejski	10
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/02/2001 10:02	Patricia J. Weirich	1

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Lancaster Laboratories Sample No. WW 3527182

Collected:12/28/2000 15:25 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG1-1-281200-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

MATG1 SDG#: MOA11-08

03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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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 3527181

Collected:12/28/2000 15:30 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG1-2-281200-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A3G28 SDG#: MOA11-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.07 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.171	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.67 J	0.48	mg/l	3
	Due to limited sample volume, the limit of quantitation for the ammonia nitrogen determination was increased. Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.032	0.0056	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.9	mg/l	1
00273	Total Organic Carbon	n.a.	10.6	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	13.0	2.2	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.					

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Lancaster Laboratories Sample No. WW 3527181

Collected:12/28/2000 15:30 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG1-2-281200-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A3G28 SDG#: MOA11-07

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	01/03/2001 15:53	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/29/2000 15:54	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	2	01/12/2001 13:44	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/12/2001 08:45	Michele L. Hanby	3
00226	Ortho-Phosphate as P	EPA 365.3	1	12/29/2000 23:30	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/29/2000 20:46	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	01/02/2001 19:02	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:42	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/10/2001 05:55	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/02/2001 20:15	Melissa Mann	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/02/2001 10:02	Patricia J. Weirich	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3527183

Collected:12/28/2000 15:35 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG1-3-281200-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A3309 SDG#: MOA11-09

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.23	J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.130		0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.		0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.						
00221	Ammonia Nitrogen	7664-41-7	0.59	J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
00226	Ortho-Phosphate as P	14265-44-2	0.0174	J	0.0056	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.		5.8	mg/l	1
00273	Total Organic Carbon	n.a.	11.4		0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".						
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.		0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	22.8		2.2	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	0.27	J	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.						
01861	PAH's in Water						
03280	Naphthalene	91-20-3	11.4		0.85	ug/l	1
03281	Acenaphthylene	208-96-8	2.27	J	0.85	ug/l	1
03282	Acenaphthene	83-32-9	12.		0.85	ug/l	1

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Lancaster Laboratories Sample No. WW 3527183

Collected:12/28/2000 15:35 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG1-3-281200-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A3309 SDG#: MOA11-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
03283	Fluorene	86-73-7	2.33	0.18	ug/l	1
03284	Phenanthrene	85-01-8	3.82	0.075	ug/l	1
03285	Anthracene	120-12-7	0.78	0.032	ug/l	1
03286	Fluoranthene	206-44-0	1.96	0.032	ug/l	1
03287	Pyrene	129-00-0	1.57	0.18	ug/l	1
03288	Benzo(a)anthracene	56-55-3	0.068 J	0.021	ug/l	1
03289	Chrysene	218-01-9	0.212 J	0.064	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.041	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.021	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.032	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.11	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.071	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	01/03/2001 12:24	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/29/2000 15:57	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	2	01/12/2001 13:46	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/12/2001 08:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/29/2000 23:30	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/29/2000 20:46	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	01/02/2001 19:27	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:44	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/10/2001 05:55	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/02/2001 22:34	Melissa Mann	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 16:58	Michelle J. Kolodziejski	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/02/2001 10:02	Patricia J. Weirich	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3527183

Collected:12/28/2000 15:35 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG1-3-281200-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A3309 SDG#: MOA11-09

08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3527178

Collected:12/28/2000 11:45 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG2-1-281200-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A3G21 SDG#: MOA11-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	N.D.	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.166	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.21 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0069 J	0.0056	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.8	mg/l	1
00273	Total Organic Carbon	n.a.	3.9	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	3.9 J	2.2	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.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.78	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.78	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.78	ug/l	1

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Collected:12/28/2000 11:45 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG2-1-281200-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A3G21 SDG#: MOA11-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
03283	Fluorene	86-73-7	N.D.	0.17	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.068	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.029	ug/l	1
03286	Fluoranthene	206-44-0	0.036 J	0.029	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.020	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.059	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.0098	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.029	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.098	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.065	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	01/03/2001 15:49	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/29/2000 15:48	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	2	01/12/2001 13:42	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/12/2001 08:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/29/2000 23:30	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/29/2000 20:46	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	01/02/2001 18:38	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:37	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/10/2001 05:55	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/02/2001 17:21	Melissa Mann	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 15:10	Michelle J. Kolodziejski	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/02/2001 10:02	Patricia J. Weirich	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Collected:12/28/2000 11:45 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG2-1-281200-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation
P.O. Box 25861
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A3G21 SDG#: MOA11-04

08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3527179

Collected:12/28/2000 11:15 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG2-2-281200-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A3G22 SDG#: MOA11-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.85 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.145	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.59 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0144 J	0.0056	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	4.4	mg/l	1
00273	Total Organic Carbon	n.a.	6.0	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	9.4	2.2	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.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.78	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.78	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.78	ug/l	1

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Lancaster Laboratories Sample No. WW 3527179

Collected:12/28/2000 11:15 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG2-2-281200-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A3G22 SDG#: MOA11-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
03283	Fluorene	86-73-7	N.D.	0.17	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.068	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.029	ug/l	1
03286	Fluoranthene	206-44-0	0.055 J	0.029	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.019	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.058	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.0097	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.019	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.029	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.097	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.065	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	01/03/2001 15:50	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/29/2000 15:49	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	2	01/12/2001 13:43	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/12/2001 08:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/29/2000 23:30	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/29/2000 20:46	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	01/02/2001 18:46	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:40	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/10/2001 05:55	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/02/2001 17:56	Melissa Mann	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 15:53	Michelle J. Kolodziejski	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/02/2001 10:02	Patricia J. Weirich	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3527179

Collected:12/28/2000 11:15 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG2-2-281200-04 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A3G22 SDG#: MOA11-05

08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3527180

Collected:12/28/2000 12:15 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG2-3-281200-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A3G23 SDG#: MOA11-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.64 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	N.D.	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.037	0.0056	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.8	mg/l	1
00273	Total Organic Carbon	n.a.	5.6	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	10.6	2.2	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.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.77	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.77	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.77	ug/l	1

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Lancaster Laboratories Sample No. WW 3527180

Collected:12/28/2000 12:15 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG2-3-281200-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A3G23 SDG#: MOA11-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
03283	Fluorene	86-73-7	N.D.	0.16	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.067	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.029	ug/l	1
03286	Fluoranthene	206-44-0	0.030 J	0.029	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.16	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.019	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.058	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.0096	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.019	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.029	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.096	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.064	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	01/03/2001 15:51	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/29/2000 15:50	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	01/10/2001 16:03	Brad M. La Placa	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/12/2001 08:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/29/2000 23:30	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/29/2000 20:46	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	01/02/2001 18:54	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:41	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/10/2001 05:55	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/02/2001 18:30	Melissa Mann	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 16:15	Michelle J. Kolodziejski	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/02/2001 10:02	Patricia J. Weirich	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3527180

Collected:12/28/2000 12:15 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:22 PM
Discard: 2/16/01
MA3-TG2-3-281200-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A3G23 SDG#: MOA11-06

08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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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 3527661

Collected:12/29/2000 09:30 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG3-1-291200-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG31 SDG#: MOA13-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	2.5	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.159	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.7	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0099 J	0.0056	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	3.3	mg/l	1
00273	Total Organic Carbon	n.a.	17.8	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	0.29	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	43.1	2.2	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
	The vial submitted for volatile analysis did not have a pH < 2 at the time of analysis. Due to the volatile nature of the analytes, it is not appropriate for the laboratory to adjust the pH at the time of sample receipt.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.78	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.78	ug/l	1

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Lancaster Laboratories Sample No. WW 3527661

Collected:12/29/2000 09:30 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG3-1-291200-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG31 SDG#: MOA13-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
03282	Acenaphthene	83-32-9	0.89	J	0.78	ug/l	1
03283	Fluorene	86-73-7	0.65	J	0.16	ug/l	1
03284	Phenanthrene	85-01-8	0.44		0.068	ug/l	1
03285	Anthracene	120-12-7	0.21		0.029	ug/l	1
03286	Fluoranthene	206-44-0	0.33		0.029	ug/l	1
03287	Pyrene	129-00-0	0.26	J	0.16	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.		0.019	ug/l	1
03289	Chrysene	218-01-9	N.D.		0.058	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.		0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.		0.0097	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.		0.019	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.		0.029	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.		0.097	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.065	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	01/03/2001 12:25	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/30/2000 11:39	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	2	01/12/2001 13:47	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/16/2001 08:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/31/2000 07:45	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/30/2000 15:39	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	2	01/16/2001 11:05	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:45	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/15/2001 07:05	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/03/2001 20:48	Melissa Mann	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 18:03	Michelle J. Kolodziejski	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/02/2001 10:02	Patricia J. Weirich	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3527661

Collected:12/29/2000 09:30 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG3-1-291200-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG31 SDG#: MOA13-01

08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3527662

Collected:12/29/2000 09:40 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG3-2-291200-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG32 SDG#: MOA13-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.64 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.176	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.2	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0149 J	0.0056	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	8.0	0.67	mg/l	1
00273	Total Organic Carbon	n.a.	9.6	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	25.7	2.2	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
	The vial submitted for volatile analysis did not have a pH < 2 at the time of analysis. Due to the volatile nature of the analytes, it is not appropriate for the laboratory to adjust the pH at the time of sample receipt.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.81	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.81	ug/l	1

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Lancaster Laboratories Sample No. WW 3527662

Collected:12/29/2000 09:40 by JK

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Discard: 2/22/01
MA3-TG3-2-291200-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG32 SDG#: MOA13-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
03282	Acenaphthene	83-32-9	N.D.	0.81	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.17	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.071	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.030	ug/l	1
03286	Fluoranthene	206-44-0	0.046 J	0.030	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.020	ug/l	1
03289	Chrysene	218-01-9	0.067 J	0.061	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.038	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.030	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.10	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.068	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	01/03/2001 12:23	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/30/2000 11:38	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	2	01/12/2001 13:48	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/16/2001 08:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/31/2000 07:45	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/30/2000 15:39	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	2	01/16/2001 11:13	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:45	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/15/2001 07:05	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/03/2001 21:25	Melissa Mann	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 18:24	Michelle J. Kolodziejski	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/02/2001 10:02	Patricia J. Weirich	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3527662

Collected:12/29/2000 09:40 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG3-2-291200-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG32 SDG#: MOA13-02

08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3527663

Collected:12/29/2000 09:50 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG3-3-291200-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG33 SDG#: MOA13-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.36 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.155	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.041 J	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.2	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0079 J	0.0056	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	4.3	0.67	mg/l	1
00273	Total Organic Carbon	n.a.	8.6	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	20.9	2.2	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
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.88	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.88	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.88	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.19	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.077	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.033	ug/l	1

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Lancaster Laboratories Sample No. WW 3527663

Collected:12/29/2000 09:50 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG3-3-291200-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG33 SDG#: MOA13-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
03286	Fluoranthene	206-44-0	0.065 J	0.033	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.19	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.022	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.066	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.042	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.022	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.033	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.11	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.073	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	01/03/2001 12:27	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/30/2000 11:36	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	2	01/12/2001 13:49	Mark A. Buckwalter	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/16/2001 08:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/31/2000 07:45	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/30/2000 15:39	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	2	01/16/2001 11:21	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:46	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/15/2001 07:05	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/03/2001 23:10	Melissa Mann	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 18:46	Michelle J. Kolodziejski	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/02/2001 10:02	Patricia J. Weirich	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3527663

Collected:12/29/2000 09:50 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG3-3-291200-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG33 SDG#: MOA13-03

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Lancaster Laboratories Sample No. WW 3528464

Collected:01/02/2001 09:20 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:21 PM
Discard: 2/22/01
MA3-TG4-2-020101-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG02- SDG#: MOA13-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.47 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.0	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.049	0.0056	mg/l	1
	This sample was analyzed within the 48hr holding time for orthophosphate on 01/04/01 and yielded a result of 0.049 mg/L. This result was greater than the total phosphorous which promted a repeat of the analysis on 01/18/01. The repeated trial yielded a result of N.D. mg/L. The first trial is being reported because it was performed within the holding time for orthophosphate.					
00235	Biochemical Oxygen Demand	n.a.	N.D.	4.0	mg/l	1
00273	Total Organic Carbon	n.a.	7.2	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	18.6	2.2	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.					

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Lancaster Laboratories Sample No. WW 3528464

Collected:01/02/2001 09:20 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:21 PM
Discard: 2/22/01
MA3-TG4-2-020101-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG02- SDG#: MOA13-10

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Units	Dilution Factor
01861	PAH's in Water						
03280	Naphthalene	91-20-3	2.34	J	0.84	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.		0.84	ug/l	1
03282	Acenaphthene	83-32-9	N.D.		0.84	ug/l	1
03283	Fluorene	86-73-7	N.D.		0.18	ug/l	1
03284	Phenanthrene	85-01-8	N.D.		0.073	ug/l	1
03285	Anthracene	120-12-7	0.092	J	0.031	ug/l	1
03286	Fluoranthene	206-44-0	0.23		0.031	ug/l	1
03287	Pyrene	129-00-0	0.18	J	0.18	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.		0.021	ug/l	1
03289	Chrysene	218-01-9	N.D.		0.063	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.		0.040	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.		0.010	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.		0.021	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.		0.031	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.		0.10	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.070	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	01/10/2001 12:54	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	01/03/2001 16:36	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	01/10/2001 17:00	Brad M. La Placa	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/17/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	01/04/2001 02:00	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	01/03/2001 23:06	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	01/08/2001 19:45	Nicole Shoop	1

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Lancaster Laboratories Sample No. WW 3528464

Collected:01/02/2001 09:20 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:21 PM
Discard: 2/22/01
MA3-TG4-2-020101-02 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG02- SDG#: MOA13-10

00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:53	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/15/2001 07:05	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 15:43	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/10/2001 19:40	Michelle J. Kolodziejski	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/04/2001 10:13	Cheryl L. Robinson	1
03337	PAH Water Extraction	SW-846 3510C	1	01/04/2001 17:00	Wanda F. Oswald	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3527664

Collected:12/29/2000 13:10 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG5-1-291200-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG51 SDG#: MOA13-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	N.D.	1.6	mg/l	1
	Due to interferences from the sample matrix, the limit of quantitation for the total kjeldahl nitrogen determination was increased.					
00219	Nitrite Nitrogen	14797-65-0	0.153	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.44 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.0099 J	0.0056	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.6	mg/l	1
00273	Total Organic Carbon	n.a.	4.2	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	9.5	2.2	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
01861	PAH's in Water					
03280	Naphthalene	91-20-3	3.12 J	0.76	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.76	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.76	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.16	ug/l	1

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Lancaster Laboratories Sample No. WW 3527664

Collected:12/29/2000 13:10 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG5-1-291200-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG51 SDG#: MOA13-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
03284	Phenanthrene	85-01-8	N.D.	0.066	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.028	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.028	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.16	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.019	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.057	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.036	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.0095	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.019	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.028	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.095	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.064	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	01/03/2001 12:28	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/30/2000 11:34	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	01/10/2001 16:20	Brad M. La Placa	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/16/2001 08:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/31/2000 07:45	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/30/2000 15:39	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	2	01/16/2001 11:29	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:47	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/15/2001 07:05	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 06:50	Melissa Mann	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 19:07	Michelle J. Kolodziejski	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/02/2001 10:02	Patricia J. Weirich	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3527664

Collected:12/29/2000 13:10 by JK

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG5-1-291200-05 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

Account Number: 07802

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

3TG51 SDG#: MOA13-04

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2425 New Holland Pike
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717-656-2300 Fax: 717-656-2681

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Lancaster Laboratories Sample No. WW 3527665

Collected:12/29/2000 13:30 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG5-3-291200-07 Unspiked Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG53 SDG#: MOA13-05BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	0.68 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.184	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.41 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.049	0.0056	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	4.1	mg/l	1
00273	Total Organic Carbon	n.a.	4.9	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	0.35	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	14.6	2.2	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
	The vial submitted for volatile analysis did not have a pH < 2 at the time of analysis. Due to the volatile nature of the analytes, it is not appropriate for the laboratory to adjust the pH at the time of sample receipt.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.88	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.88	ug/l	1

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Discard: 2/22/01
MA3-TG5-3-291200-07 Unspiked Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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P.O. Box 25861
Oklahoma City OK 73125

3TG53 SDG#: MOA13-05BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
03282	Acenaphthene	83-32-9	N.D.	0.88	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.19	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.077	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.033	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.033	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.19	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.022	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.066	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.042	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.022	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.033	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.11	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.074	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	01/03/2001 12:29	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	12/30/2000 11:35	Mark A. Buckwalter	1
00220	Nitrate Nitrogen	EPA 353.2	1	01/10/2001 16:50	Brad M. La Placa	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/16/2001 08:45	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	12/31/2000 07:45	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	12/30/2000 15:39	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	01/02/2001 18:14	Timothy M. Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:48	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/15/2001 07:05	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/03/2001 07:58	Patrick N. Evans	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 12:40	Michelle J. Kolodziejski	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/02/2001 10:02	Patricia J. Weirich	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3527665

Collected:12/29/2000 13:30 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG5-3-291200-07 Unspiked Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG53 SDG#: MOA13-05BKG

08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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

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Lancaster Laboratories Sample No. WW 3528469

Collected:01/02/2001 15:10 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-TG6-1-020101-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG07- SDG#: MOA13-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.56 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	1.3	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.043	0.0056	mg/l	1
00235	Biochemical Oxygen Demand	n.a.	N.D.	3.0	mg/l	1
00273	Total Organic Carbon	n.a.	6.5	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	17.0	2.2	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.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	1.57 J	0.80	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.80	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.8	ug/l	1

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Lancaster Laboratories Sample No. WW 3528469

Collected:01/02/2001 15:10 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-TG6-1-020101-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG07- SDG#: MOA13-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
03283	Fluorene	86-73-7	N.D.	0.17	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.070	ug/l	1
03285	Anthracene	120-12-7	0.032 J	0.030	ug/l	1
03286	Fluoranthene	206-44-0	0.043 J	0.030	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.020	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.060	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.038	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.030	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.10	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.067	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 Trial#	Date and Time	Analyst	Dilution Factor
00217	Kjeldahl Nitrogen	EPA 351.2	1	01/10/2001 12:55	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	01/03/2001 16:37	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	01/10/2001 17:01	Brad M. La Placa	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/17/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	01/04/2001 02:00	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	01/03/2001 23:06	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	01/08/2001 20:34	Nicole Shoop	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:54	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/15/2001 07:05	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 18:14	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/10/2001 21:49	Michelle J. Kolodziejski	1

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Lancaster Laboratories Sample No. WW 3528469

Collected:01/02/2001 15:10 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-TG6-1-020101-07 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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Oklahoma City OK 73125

TG07- SDG#: MOA13-15

01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/04/2001 10:13	Cheryl L. Robinson	1
03337	PAH Water Extraction	SW-846 3510C	1	01/04/2001 17:00	Wanda F. Oswald	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3528470

Collected:01/02/2001 15:20 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-TG6-2-020101-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG08- SDG#: MOA13-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	N.D.	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.42	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.24 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.029	0.0056	mg/l	1
	This sample was analyzed within the 48hr holding time for orthophosphate on 01/04/01 and yielded a result of 0.029 mg/L. This result was greater than the total phosphorous which promted a repeat of the analysis on 01/18/01. The repeated trial yielded a result of N.D. mg/L. The first trial is being reported because it was performed within the holding time for orthophosphate.					
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.3	mg/l	1
00273	Total Organic Carbon	n.a.	4.3	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	10.3	2.2	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.					

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3528470

Collected:01/02/2001 15:20 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-TG6-2-020101-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG08- SDG#: MOA13-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.86	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.86	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.86	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.18	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.076	ug/l	1
03285	Anthracene	120-12-7	0.052 J	0.032	ug/l	1
03286	Fluoranthene	206-44-0	0.038 J	0.032	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.18	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.022	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.065	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.041	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.022	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.032	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.11	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.072	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	01/10/2001 12:56	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	01/03/2001 16:41	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	01/10/2001 17:02	Brad M. La Placa	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/17/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	01/04/2001 02:00	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	01/03/2001 23:06	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	01/08/2001 20:42	Nicole Shoop	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3528470

Collected:01/02/2001 15:20 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-TG6-2-020101-08 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG08- SDG#: MOA13-16

00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:55	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/15/2001 07:05	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 18:51	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/10/2001 22:11	Michelle J. Kolodziejski	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/04/2001 10:13	Cheryl L. Robinson	1
03337	PAH Water Extraction	SW-846 3510C	1	01/04/2001 17:00	Wanda F. Oswald	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3528471

Collected:01/02/2001 15:30 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-TG6-3-020101-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG09- SDG#: MOA13-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00217	Kjeldahl Nitrogen	7727-37-9	1.06 J	0.63	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.030	mg/l	1
	This sample was preserved to pH <2 with sufuric acid immediately following the nitrite-nitrogen analysis. This extends the holding time for nitrate-nitrogen analysis to 28 days.					
00221	Ammonia Nitrogen	7664-41-7	0.62 J	0.16	mg/l	1
	Sufficient sample volume was not available to perform matrix QC for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
00226	Ortho-Phosphate as P	14265-44-2	0.144	0.0056	mg/l	1
	This sample was analyzed within the 48hr holding time for orthophosphate on 01/04/01 and yielded a result of 0.144 mg/L. This result was greater than the total phosphorous which promted a repeat of the analysis on 01/12/01. The repeated trial yielded a result of N.D. mg/L. The first trial is being reported because it was performed within the holding time for orthophosphate.					
00235	Biochemical Oxygen Demand	n.a.	N.D.	2.6	mg/l	1
00273	Total Organic Carbon	n.a.	7.5	0.40	mg/l	1
	The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".					
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.13	mg/l	1
01553	Chemical Oxygen Demand	n.a.	17.8	2.2	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.					

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Lancaster Laboratories Sample No. WW 3528471

Collected:01/02/2001 15:30 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-TG6-3-020101-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG09- SDG#: MOA13-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01861	PAH's in Water					
03280	Naphthalene	91-20-3	1.36 J	0.78	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.78	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.78	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.17	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.068	ug/l	1
03285	Anthracene	120-12-7	0.051 J	0.029	ug/l	1
03286	Fluoranthene	206-44-0	0.036 J	0.029	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.020	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.059	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.0098	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.029	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.098	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.065	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	01/10/2001 12:58	Mark A. Buckwalter	1
00219	Nitrite Nitrogen	EPA 353.2	1	01/03/2001 16:42	Venia M. McFadden	1
00220	Nitrate Nitrogen	EPA 353.2	1	01/10/2001 17:04	Brad M. La Placa	1
00221	Ammonia Nitrogen	EPA 350.2	1	01/17/2001 08:30	Michele L. Hanby	1
00226	Ortho-Phosphate as P	EPA 365.3	1	01/04/2001 02:00	Daniel S. Smith	1
00235	Biochemical Oxygen Demand	EPA 405.1	1	01/03/2001 23:06	Nicole R. Bushong	1
00273	Total Organic Carbon	EPA 415.1	1	01/08/2001 20:50	Nicole Shoop	1

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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 3528471

Collected:01/02/2001 15:30 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-TG6-3-020101-09 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TG09- SDG#: MOA13-17

00345	Total Phosphorus as PO4 water	EPA 365.1	1	01/06/2001 12:56	Mark A. Buckwalter	1
01553	Chemical Oxygen Demand	EPA 410.2	1	01/15/2001 07:05	Susan A. Engle	1
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/05/2001 03:08	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/10/2001 22:32	Michelle J. Kolodziejski	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	01/04/2001 10:13	Cheryl L. Robinson	1
03337	PAH Water Extraction	SW-846 3510C	1	01/04/2001 17:00	Wanda F. Oswald	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	01/05/2001 17:00	Nancy J. Shoop	1

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Lancaster Laboratories Sample No. WW 3527184

Collected:12/28/2000 15:25 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:23 PM
Discard: 2/16/01
MA3-TG1-1-281200-07-DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A07DP SDG#: MOA11-10

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	6.3	J	2.0	ug/l	10
00777	Toluene	108-88-3	N.D.		2.0	ug/l	10
00778	Ethylbenzene	100-41-4	20.		2.0	ug/l	10
00779	Total Xylenes	1330-20-7	37.		6.0	ug/l	10
	Sufficient sample volume was not available to perform a MSD for this analysis. However, a MS was performed. In addition, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.						
	Due to dilution of the sample made necessary by the high level of non-target compounds, normal quantitation limits were not attained.						
01861	PAH's in Water						
03280	Naphthalene	91-20-3	3,510.		9.0	ug/l	10
03281	Acenaphthylene	208-96-8	154.		9.0	ug/l	10
03282	Acenaphthene	83-32-9	180.		9.0	ug/l	10
03283	Fluorene	86-73-7	72.6		1.9	ug/l	10
03284	Phenanthrene	85-01-8	34.9		0.78	ug/l	10
03285	Anthracene	120-12-7	2.6		0.34	ug/l	10
03286	Fluoranthene	206-44-0	1.83	J	0.34	ug/l	10
03287	Pyrene	129-00-0	N.D.		1.9	ug/l	10
03288	Benzo(a)anthracene	56-55-3	N.D.		0.22	ug/l	10
03289	Chrysene	218-01-9	N.D.		0.67	ug/l	10
03290	Benzo(b)fluoranthene	205-99-2	N.D.		0.43	ug/l	10
03291	Benzo(k)fluoranthene	207-08-9	N.D.		0.11	ug/l	10
03292	Benzo(a)pyrene	50-32-8	N.D.		0.22	ug/l	10
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.		0.34	ug/l	10
03294	Benzo(g,h,i)perylene	191-24-2	N.D.		1.1	ug/l	10
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.75	ug/l	10

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Lancaster Laboratories Sample No. WW 3527184

Collected:12/28/2000 15:25 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:23 PM
Discard: 2/16/01
MA3-TG1-1-281200-07-DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A07DP SDG#: MOA11-10

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/02/2001 21:24	Melissa Mann	10
01861	PAH's in Water	SW-846 8310	1	01/08/2001 10:11	Michelle J. Kolodziejski	10
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3527185

Collected:12/28/2000 15:25 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:23 PM
Discard: 2/16/01
FB-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A0FB1 SDG#: MOA11-11FB

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.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.85	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.85	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.85	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.18	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.074	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.032	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.032	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.18	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.021	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.063	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.040	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.021	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.032	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.11	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.071	ug/l	1

Laboratory Chronicle

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3527185

Collected:12/28/2000 15:25 by JK

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:23 PM
Discard: 2/16/01
FB-01 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

A0FB1 SDG#: MOA11-11FB

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/02/2001 23:09	Melissa Mann	1
01861	PAH's in Water	SW-846 8310	1	01/05/2001 17:41	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3527186

Collected: n.a.

Account Number: 07802

Submitted: 12/29/2000 09:30
Reported: 01/16/01 at 12:23 PM
Discard: 2/16/01
Trip Blank Water Sample
Moss American Superfund Site - Milwaukee, WI

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

AGTBK SDG#: MOA11-12TB*

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

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/02/2001 13:18	Melissa Mann	1

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

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3527666

Collected:12/29/2000 13:30 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01

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

MA3-TG5-3-291200-07 Matrix Spike Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

3TG53 SDG#: MOA13-05MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	22.	0.20	ug/l	1
00777	Toluene	108-88-3	23.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	23.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	68.	0.60	ug/l	1
01861	PAH's in Water					
03280	Naphthalene	91-20-3	190.	0.88	ug/l	1
03281	Acenaphthylene	208-96-8	201.	0.88	ug/l	1
03282	Acenaphthene	83-32-9	200.	0.88	ug/l	1
03283	Fluorene	86-73-7	20.2	0.19	ug/l	1
03284	Phenanthrene	85-01-8	6.07	0.077	ug/l	1
03285	Anthracene	120-12-7	2.61	0.033	ug/l	1
03286	Fluoranthene	206-44-0	3.66	0.033	ug/l	1
03287	Pyrene	129-00-0	22.2	0.19	ug/l	1
03288	Benzo(a)anthracene	56-55-3	1.79	0.022	ug/l	1
03289	Chrysene	218-01-9	7.37	0.066	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	1.41	0.042	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	1.34	0.011	ug/l	1
03292	Benzo(a)pyrene	50-32-8	1.62	0.022	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	3.47	0.033	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	13.0	0.11	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	6.78	0.074	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/03/2001 08:36	Patrick N. Evans	1

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Lancaster Laboratories Sample No. WW 3527666

Collected:12/29/2000 13:30 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG5-3-291200-07 Matrix Spike Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG53 SDG#: MOA13-05MS

01861	PAH's in Water	SW-846 8310	1	01/05/2001 13:01	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3527667

Collected:12/29/2000 13:30 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01

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MA3-TG5-3-291200-07 Matrix Spike Dup. Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

3TG53 SDG#: MOA13-05MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	22.	0.20	ug/l	1
00777	Toluene	108-88-3	22.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	22.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	67.	0.60	ug/l	1
01861	PAH's in Water					
03280	Naphthalene	91-20-3	168.	0.78	ug/l	1
03281	Acenaphthylene	208-96-8	179.	0.78	ug/l	1
03282	Acenaphthene	83-32-9	180.	0.78	ug/l	1
03283	Fluorene	86-73-7	18.1	0.17	ug/l	1
03284	Phenanthrene	85-01-8	5.40	0.068	ug/l	1
03285	Anthracene	120-12-7	2.34	0.029	ug/l	1
03286	Fluoranthene	206-44-0	3.23	0.029	ug/l	1
03287	Pyrene	129-00-0	19.9	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	1.59	0.019	ug/l	1
03289	Chrysene	218-01-9	6.41	0.058	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	1.27	0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	1.20	0.0097	ug/l	1
03292	Benzo(a)pyrene	50-32-8	1.45	0.019	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	3.12	0.029	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	11.7	0.097	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	6.10	0.065	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/03/2001 09:13	Patrick N. Evans	1

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Lancaster Laboratories Sample No. WW 3527667

Collected:12/29/2000 13:30 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG5-3-291200-07 Matrix Spike Dup. Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3TG53 SDG#: MOA13-05MSD

01861	PAH's in Water	SW-846 8310	1	01/05/2001 13:23	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3527668

Collected:12/29/2000 13:10 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG5-1-291200-05DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

3T51D SDG#: MOA13-06

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
01861	PAH's in Water					
03280	Naphthalene	91-20-3	2.64 J	0.78	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.78	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.78	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.17	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.068	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.029	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.029	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.019	ug/l	1
03289	Chrysene	218-01-9	0.151 J	0.058	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.0097	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.019	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.029	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.097	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.065	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 06:13	Melissa Mann	1

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Lancaster Laboratories Sample No. WW 3527668

Collected:12/29/2000 13:10 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
MA3-TG5-1-291200-05DP Grab Water Sample
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3T51D SDG#: MOA13-06

01861	PAH's in Water	SW-846 8310	1	01/05/2001 14:06	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3527669

Collected:12/29/2000 14:00 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
FB02 Field Blank Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

FB2MA SDG#: MOA13-07FB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.79	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.79	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.79	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.17	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.069	ug/l	1
03285	Anthracene	120-12-7	N.D.	0.030	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.030	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.17	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.020	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.059	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.0098	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.020	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.030	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.098	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.066	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 05:35	Melissa Mann	1

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Collected:12/29/2000 14:00 by JK

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:52 AM
Discard: 2/22/01
FB02 Field Blank Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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FB2MA SDG#: MOA13-07FB

01861	PAH's in Water	SW-846 8310	1	01/05/2001 19:50	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/03/2001 09:30	Denise L. Trimby	1

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Lancaster Laboratories Sample No. WW 3527670

Collected: n.a.

Account Number: 07802

Submitted: 12/30/2000 09:30
Reported: 01/22/01 at 11:53 AM
Discard: 2/22/01
Trip Blank Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TB2MA SDG#: MOA13-08TB

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/03/2001 16:25	Melissa Mann	1

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Lancaster Laboratories Sample No. WW 3528473

Collected:01/02/2001 15:00 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-MW95-020101-10DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

10-DP SDG#: MOA13-19

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.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.82	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.82	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.82	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.18	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.072	ug/l	1
03285	Anthracene	120-12-7	0.052 J	0.031	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.031	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.18	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.021	ug/l	1
03289	Chrysene	218-01-9	N.D.	0.062	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.039	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.021	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.031	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.10	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.069	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					

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Lancaster Laboratories Sample No. WW 3528473

Collected:01/02/2001 15:00 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
MA3-MW95-020101-10DP Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

Kerr-McGee Corporation
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10-DP SDG#: MOA13-19

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 20:06	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/10/2001 23:15	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/04/2001 17:00	Wanda F. Oswald	1

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Lancaster Laboratories Sample No. WW 3528474

Collected:01/02/2001 16:00 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
FB-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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

FB-DP SDG#: MOA13-20FB

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.					
01861	PAH's in Water					
03280	Naphthalene	91-20-3	N.D.	0.77	ug/l	1
03281	Acenaphthylene	208-96-8	N.D.	0.77	ug/l	1
03282	Acenaphthene	83-32-9	N.D.	0.77	ug/l	1
03283	Fluorene	86-73-7	N.D.	0.16	ug/l	1
03284	Phenanthrene	85-01-8	N.D.	0.068	ug/l	1
03285	Anthracene	120-12-7	0.037 J	0.029	ug/l	1
03286	Fluoranthene	206-44-0	N.D.	0.029	ug/l	1
03287	Pyrene	129-00-0	N.D.	0.16	ug/l	1
03288	Benzo(a)anthracene	56-55-3	N.D.	0.019	ug/l	1
03289	Chrysene	218-01-9	0.066 J	0.058	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	N.D.	0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	N.D.	0.0097	ug/l	1
03292	Benzo(a)pyrene	50-32-8	N.D.	0.019	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	N.D.	0.029	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	N.D.	0.097	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.065	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					

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Lancaster Laboratories Sample No. WW 3528474

Collected:01/02/2001 16:00 by JK

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
FB-03 Grab Water Sample
Moss American Superfund Site - Milwaukee, WI

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Oklahoma City OK 73125

FB-DP SDG#: MOA13-20FB

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 15:05	Melissa-Ann S. McAlpine	1
01861	PAH's in Water	SW-846 8310	1	01/10/2001 23:37	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/04/2001 17:00	Wanda F. Oswald	1

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Lancaster Laboratories Sample No. WW 3528475

Collected: n.a.

Account Number: 07802

Submitted: 01/03/2001 09:45
Reported: 01/22/01 at 09:22 PM
Discard: 2/22/01
Trip Blank Water Sample
Moss American Superfund Site - Milwaukee, WI

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

TB-DP SDG#: MOA13-21TB*

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

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/04/2001 14:28	Melissa-Ann S. McAlpine	1

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Lancaster Laboratories Sample No. WW 3528962

Collected:01/03/2001 10:30 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-MW10S-030101-04/MS Matrix Spike Grab Water
Moss American Superfund Site - Milwaukee, WI

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

10S-4 SDG#: MOA16-04MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	22.	0.20	ug/l	1
00777	Toluene	108-88-3	23.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	23.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	69.	0.60	ug/l	1
01861	PAH's in Water					
03280	Naphthalene	91-20-3	125.	0.75	ug/l	1
03281	Acenaphthylene	208-96-8	156.	0.75	ug/l	1
03282	Acenaphthene	83-32-9	160.	0.75	ug/l	1
03283	Fluorene	86-73-7	16.7	0.16	ug/l	1
03284	Phenanthrene	85-01-8	5.52	0.066	ug/l	1
03285	Anthracene	120-12-7	2.72	0.028	ug/l	1
03286	Fluoranthene	206-44-0	3.07	0.028	ug/l	1
03287	Pyrene	129-00-0	18.8	0.16	ug/l	1
03288	Benzo(a)anthracene	56-55-3	1.48	0.019	ug/l	1
03289	Chrysene	218-01-9	5.83	0.057	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	1.21	0.036	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	1.14	0.0094	ug/l	1
03292	Benzo(a)pyrene	50-32-8	1.24	0.019	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	2.89	0.028	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	10.7	0.094	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	5.73	0.063	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/05/2001 16:59	Steven J. Stabinger	1

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Lancaster Laboratories Sample No. WW 3528962

Collected:01/03/2001 10:30 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-MW10S-030101-04/MS Matrix Spike Grab Water
Moss American Superfund Site - Milwaukee, WI

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

10S-4 SDG#: MOA16-04MS

01861	PAH's in Water	SW-846 8310	1	01/11/2001 01:22	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/08/2001 08:30	Joseph S. Feister	1

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Lancaster Laboratories Sample No. WW 3528963

Collected:01/03/2001 10:30 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-MW10S-030101-04/MSD Matrix Spike Dup Water
Moss American Superfund Site - Milwaukee, WI

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

10S-4 SDG#: MOA16-04MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	22.	0.20	ug/l	1
00777	Toluene	108-88-3	22.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	22.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	67.	0.60	ug/l	1
01861	PAH's in Water					
03280	Naphthalene	91-20-3	136.	0.78	ug/l	1
03281	Acenaphthylene	208-96-8	163.	0.78	ug/l	1
03282	Acenaphthene	83-32-9	160.	0.78	ug/l	1
03283	Fluorene	86-73-7	17.4	0.16	ug/l	1
03284	Phenanthrene	85-01-8	5.69	0.068	ug/l	1
03285	Anthracene	120-12-7	2.83	0.029	ug/l	1
03286	Fluoranthene	206-44-0	3.22	0.029	ug/l	1
03287	Pyrene	129-00-0	19.5	0.16	ug/l	1
03288	Benzo(a)anthracene	56-55-3	1.55	0.019	ug/l	1
03289	Chrysene	218-01-9	6.13	0.058	ug/l	1
03290	Benzo(b)fluoranthene	205-99-2	1.27	0.037	ug/l	1
03291	Benzo(k)fluoranthene	207-08-9	1.20	0.0097	ug/l	1
03292	Benzo(a)pyrene	50-32-8	1.30	0.019	ug/l	1
03293	Dibenzo(a,h)anthracene	53-70-3	3.06	0.029	ug/l	1
03294	Benzo(g,h,i)perylene	191-24-2	11.4	0.097	ug/l	1
03295	Indeno(1,2,3-cd)pyrene	193-39-5	6.07	0.065	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/05/2001 17:34	Steven J. Stabinger	1

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Lancaster Laboratories Sample No. WW 3528963

Collected:01/03/2001 10:30 by JK

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
MA3-MW10S-030101-04/MSD Matrix Spike Dup Water
Moss American Superfund Site - Milwaukee, WI

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

10S-4 SDG#: MOA16-04MSD

01861	PAH's in Water	SW-846 8310	1	01/11/2001 01:43	Michelle J. Kolodziejski	1
03337	PAH Water Extraction	SW-846 3510C	1	01/08/2001 08:30	Joseph S. Feister	1

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Lancaster Laboratories Sample No. WW 3528966

Collected:01/03/2001 12:00

Account Number: 07802

Submitted: 01/04/2001 09:30
Reported: 01/17/01 at 11:02 AM
Discard: 2/17/01
Trip Blank Water Sample
Moss American Superfund Site - Milwaukee, WI

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

103TB SDG#: MOA16-07TB*

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B/5030B	1	01/05/2001 15:50	Steven J. Stabinger	1

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Analysis Request/ Environmental Services Chain of Custody

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Acct. # 7802 Sample # 352654-49

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: Joe Klemp Quote #:
Name of state where samples were collected: Wisconsin

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FSC:
SCR #: 1147552

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix (4) Soil	Water	Potable ☐ NPDES ☐ (Check if applicable) Other	Total # of Containers	(5) Analyses Requested BTEX	PAHs	Remarks	(6) Temperature of samples upon receipt (if requested)
MA3-MW13S-271200-01	12/27/00	11:05	X			X		5	X	X		
MA3-MW4S-271200-02	12/27/00	12:00	X			X		5	X	X		
MA3-MW25S-271200-03	12/27/00	12:10	X			X		5	X	X		
MA3-MW30S-271200-04	12/27/00	15:30	X			X		5	X	X		
MA3-MW37S-271200-05	12/27/00	15:45	X			X		5	X	X		
TB-1	12/27/00	15:50	X			X		2	X	X		

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

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

Relinquished by:	Date	Time	Received by:	Date	Time
	12/27/00	1410	Becky Fusek	12/28/00	11:00 (9)
Becky Fusek	12/27/00	16:00		Date	Time
	Date	Time		Date	Time
	Date	Time		Date	Time
	Date	Time		Date	Time

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Analysis Request/ Environmental Services Chain of Custody

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Acct. # 7802 Sample # 3528463-75

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: Joe Klemp Quote #:
Name of state where samples were collected: WISCONSIN

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FSC:
SCR #:

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

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (☐ Potable ☐ NPDES)	Other	Total # of Containers	BTEX	PAH (8310)	TOC	COD, TP PO4, TKN	BOD, O-PO4	NO2, NO3	NH3	Remarks	Temperature of samples upon receipt (if requested)
MA3-MW33S-020101-01	01/02/01	0950	x			x		11	x	x						Original C.O.C	
MA3-TG4-2-020101-02	↓	0920	x			x		11	x	x	x	x	x	x	x		
MA3-MW27S-020101-03		1110	x			x		11	x	x							
MA3-MW32S-020101-04		1050	x			x		11	x	x							
MA3-MW34S-020101-05		1130	x			x		11	x	x							
MA3-MW7S-020101-06		1145	x			x		11	x	x							
MA3-TG6-1-020101-07		1510	x			x		11	x	x	x	x	x	x	x		
MA3-TG6-2-020101-08		1520	x			x		11	x	x	x	x	x	x	x		
MA3-TG6-3-020101-09		1530	x			x		11	x	x	x	x	x	x	x		
MA3-MW9S-020101-10	↓	1500	x			x		11	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
Type I (Tier I) — GLP
Type II (Tier II) — Other
Type III (NJ Red. Del.)
Type IV (CLP)

SDG Complete? Yes (No)

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

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	1/2/01	1700	FedEx	1/2/01	1700
			[signature]	1/3/01	0945

Analysis Request/ Environmental Services Chain of Custody

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Acct. # 7802 Sample # 3528463-75

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

(1)
Client: Kerr - McGee Acct. #:
Project Name/#: Moss American PWSID #:
Project Manager: Tom Green P.O.#
Sampler: Joe Klemp Quote #:
Name of state where samples were collected: WISCONSIN

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FSC:
SCR #:

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

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (☐ Potable ☐ NPDES (Check if applicable))	Other	Total # of Containers	BTEX	PAH (8310)	TOC	COD, TP, TOH, TKN	NH3	BOD, O-PO4	NO2, NO3		Remarks	Temperature of samples upon receipt (if requested)
MA3 – MW95 - 020101 - 10 DB	01/02/01	1500	x			x		11	x	x	x						Original C.O.C	
FB - 03	"	1600	x			x		11	x	x								

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

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

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

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	1/2/01	1700	Fed Ex	1/2/01	1700
			[signature]	1/03/01	0945

(9)

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Acct. # 7802 Sample # 3528958-66

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(1)
Client: Kerr-McGee Acct. #:
Project Name/#: Moss American PWSID #:
Project Manager: Tom Green P.O.#
Sampler: Joe Klemp Quote #:
Name of state where samples were collected: WISCONSIN

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

Sample Identification	Date Collected	Time Collected	(3) Grab	(3) Composite	(4) Matrix: Soil	(4) Matrix: Water (☐ Potable ☐ NPDES)	(4) Matrix: Other	Total # of Containers	(5) Analyses Requested: BTEX	(5) Analyses Requested: PAH (8310)	Remarks	(6) Temperature of samples upon receipt (if requested)
MA3-MW65-030101-01	01/03/01	0900	✓			✓		5	✓	✓		
MA3-TW05-030101-02		0900	✓			✓		5	✓	✓		
MA3-MW36S-030101-05		1100	✓			✓		5	✓	✓		
MA3-MW10S-030101-04		1030	✓			✓		5	✓	✓		
MA3-MW35S-030101-03		0930	✓			✓		5	✓	✓		
MA3-MW10S-030101-04 MS/MSD		1030	✓			✓		5	✓	✓		
TRIP BLANK		1200	✓			✓		2	✓			
MA3-MW26S-030101-01	12/12/00		✓			✓		3	✓			

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

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

SDG Complete? (Yes) No

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

Internal Chain of Custody required? Yes No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
	1/03/01	1500			
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:	1/22/01	0930

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Hammomd Division - Microbac Laboratories

Job Code: **24-271**

Bio-Analytical Summary Report

Site Information

Site Name	Moss American	Date received	29-Dec-00
Location	Milwaukee, WI	Date of this report	24-Jan-01
Consultant	Roy F weston	Microbacl Job Code	**9924-271**
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	PAH-BTEX	Number of gw samples	6

Section I - Summary of Bioremediation Data

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

Sample ID	Soil microbial populations: Exceeds norm for: Passive	Active	pH	% TON / % OM	C:N	C:P	% moisture / SWHC	% Air-filled pore space
	>1E+06	>1E+03	5.5-8.5	>1.5	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
ma3-tg1-1-281200-07	Summary table not applicable for groundwater.							
ma3-tg1-2-281200-08	Summary table not applicable for groundwater.							
ma3-tg1-3-281200-09	Summary table not applicable for groundwater.							
ma3-tg2-1-281200-03	Summary table not applicable for groundwater.							
ma3-tg2-2-281200-04	Summary table not applicable for groundwater.							
ma3-tg2-2-281200-05	Summary table not applicable for groundwater.							

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

✓ = **Sample meets guideline.**

× = **Sample does not meet guideline.**

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

NOTES:

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

Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples

Hammomd Division - Microbac Laboratories

Job Code: **24-278**

Bio-Analytical Summary Report

Site Information

Site Name	Moss American	Date received	30-Dec-00
Location	Milwaukee, WI	Date of this report	24-Jan-01
Consultant	Roy F weston	Microbacl Job Code	**9924-278**
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	PAH-BTEX	Number of gw samples	6

Section I - Summary of Bioremediation Data

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

Sample ID	Soil microbial populations: Exceeds norm for: Passive	Active	pH	% TON / % OM	C:N	C:P	% moisture / SWHC	% Air-filled pore space
	>1E+06	>1E+03	5.5-8.5	>1.5	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
ma3-tg3-1-291200-01	Summary table not applicable for groundwater.							
ma3-tg3-2-291200-02	Summary table not applicable for groundwater.							
ma3-tg3-3-291200-03	Summary table not applicable for groundwater.							
ma3-tg5-1-291200-05	Summary table not applicable for groundwater.							
ma3-tg5-2-291200-07	Summary table not applicable for groundwater.							

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

✓ = **Sample meets guideline.**

✗ = **Sample does not meet guideline.**

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

NOTES:

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

Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples

Hammomd Division - Microbac Laboratories

Job Code: **25-36**

Bio-Analytical Summary Report

Site Information

Site Name	Moss America	Date received	03-Jan-01
Location	Milwaukee WI	Date of this report	26-Jan-01
Consultant	Roy F Weston	Microbacl Job Code	**9925-36**
Proj. Contact	Tom Graan		
Project Ref ID	0	Number of soil samples	0
Contaminant	btex-pah	Number of gw samples	4

Section I - Summary of Bioremediation Data

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

Sample ID	Soil microbial populations: Exceeds norm for: Passive	Active	pH	% TON / % OM	C:N	C:P	% moisture / SWHC	% Air-filled pore space
	>1E+06	>1E+03	5.5-8.5	>1.5	<40	<120	25-85%	>10%
Guideline note reference:	1	2	3	4	5	6	7	8
ma3-tg4-2-020101-02	Summary table not applicable for groundwater.							
ma3-tg6-1-020101-07	Summary table not applicable for groundwater.							
ma3-tg6-2-020101-08	Summary table not applicable for groundwater.							
ma3-tg6-3-020101-09	Summary table not applicable for groundwater.							

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

✓ = **Sample meets guideline.**

✗ = **Sample does not meet guideline.**

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

NOTES:

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

Section II - Microbial Data Summary continued

All values in cfu/ml*

Groundwater Samples

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

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

Hammomd Division - Microbac Laboratories

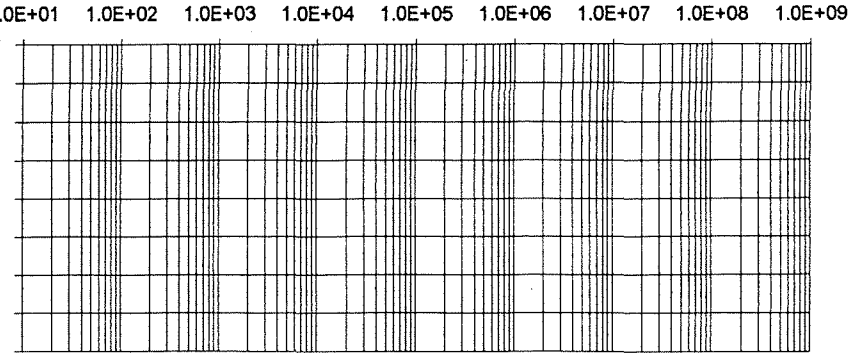
Job Code: **24-278**

Bio-Analytical Summary Report

Total populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
ma3-tg3-1-291200-0'	7.2E+03	0.0E+00	0.0E+00
ma3-tg3-2-291200-0:	7.3E+03	0.0E+00	0.0E+00
ma3-tg3-3-291200-0:	2.1E+04	0.0E+00	0.0E+00
ma3-tg5-1-291200-0:	2.0E+03	0.0E+00	0.0E+00
ma3-tg5-2-291200-0:	5.3E+03	0.0E+00	0.0E+00



Groundwater Samples

Degrader populations

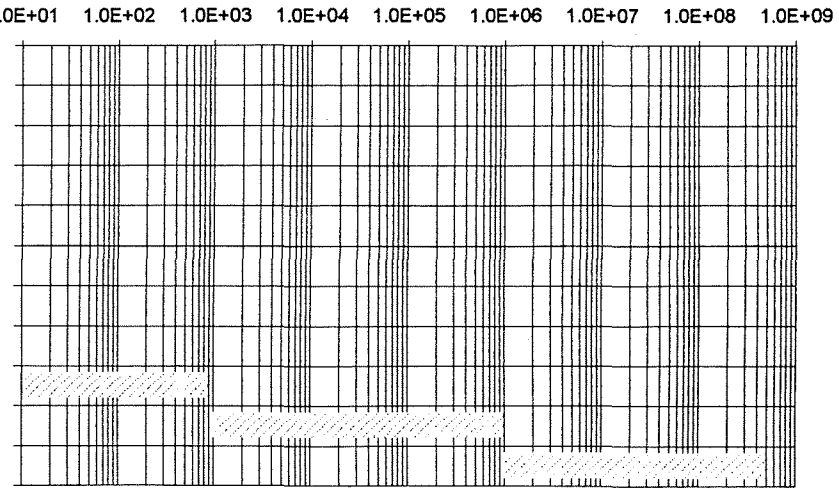
Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
ma3-tg3-1-291200-0'	1.5E+03	0.0E+00	0.0E+00
ma3-tg3-2-291200-0:	2.2E+03	0.0E+00	0.0E+00
ma3-tg3-3-291200-0:	1.9E+03	0.0E+00	0.0E+00
ma3-tg5-1-291200-0:	3.7E+02	0.0E+00	0.0E+00
ma3-tg5-2-291200-0:	6.6E+02	0.0E+00	0.0E+00

Marginal inoculum

Inoculum levels

Active degradation levels



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

Assay conditions

Sample ID	Degrader Media		Temp.	Growth	DOF **		Percent
	Carbon source	% Carbon (v/v)	(Celcius)	Conditions	Total	Degrader	Degraders
ma3-tg3-1-291200-0'	PAH-BTEX	1.0	22	aerobic	0	0	20.8%
ma3-tg3-2-291200-0:	PAH-BTEX	1.0	22	aerobic	0	0	30.1%
ma3-tg3-3-291200-0:	PAH-BTEX	1.0	22	aerobic	0	0	9.0%
ma3-tg5-1-291200-0:	PAH-BTEX	1.0	22	aerobic	0	0	18.5%
ma3-tg5-2-291200-0:	PAH-BTEX	1.0	22	aerobic	0	0	12.5%

Hammomd Division - Microbac Laboratories

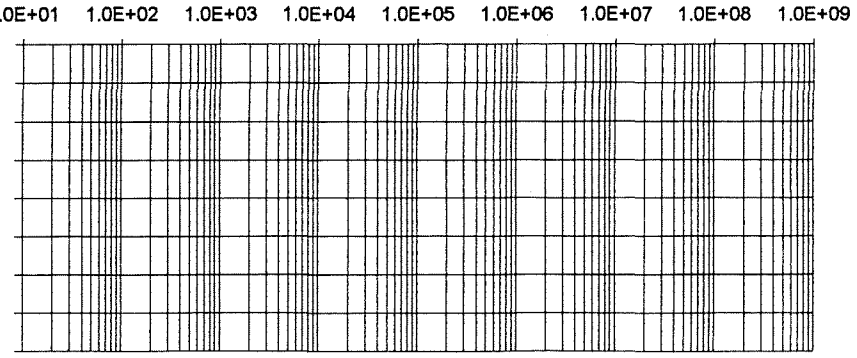
Job Code: **25-36**

Bio-Analytical Summary Report

Total populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
ma3-tg4-2-020101-02	1.1E+04	0.0E+00	0.0E+00
ma3-tg6-1-020101-07	3.8E+03	0.0E+00	0.0E+00
ma3-tg6-2-020101-08	9.7E+02	0.0E+00	0.0E+00
ma3-tg6-3-020101-09	2.8E+02	0.0E+00	0.0E+00



Groundwater Samples

Degrader populations

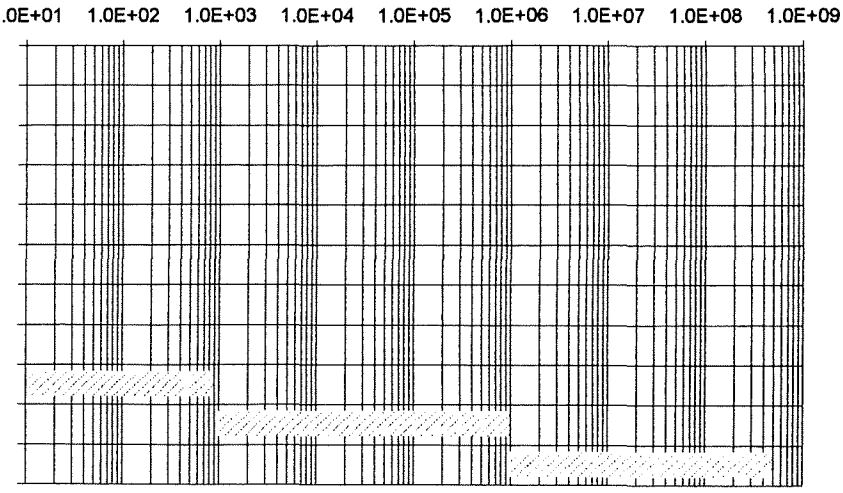
Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
ma3-tg4-2-020101-0	6.2E+02	0.0E+00	0.0E+00
ma3-tg6-1-020101-0	2.7E+02	0.0E+00	0.0E+00
ma3-tg6-2-020101-0	1.4E+02	0.0E+00	0.0E+00
ma3-tg6-3-020101-0	8.0E+01	0.0E+00	0.0E+00

Marginal inoculum

Inoculum levels

Active degradation levels



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

Assay conditions

Sample ID	Degrader Media		Temp.	Growth	DOF **		Percent
	Carbon source	% Carbon (v/v)	(Celcius)	Conditions	Total	Degrader	Degraders
ma3-tg4-2-020101-0	btex-pah	1.0	22	aerobic	0	0	5.6%
ma3-tg6-1-020101-0	btex-pah	1.0	22	aerobic	0	0	7.1%
ma3-tg6-2-020101-0	btex-pah	1.0	22	aerobic	0	0	14.4%
ma3-tg6-3-020101-0	btex-pah	1.0	22	aerobic	0	0	28.6%

Hammomd Division - Microbac Laboratories

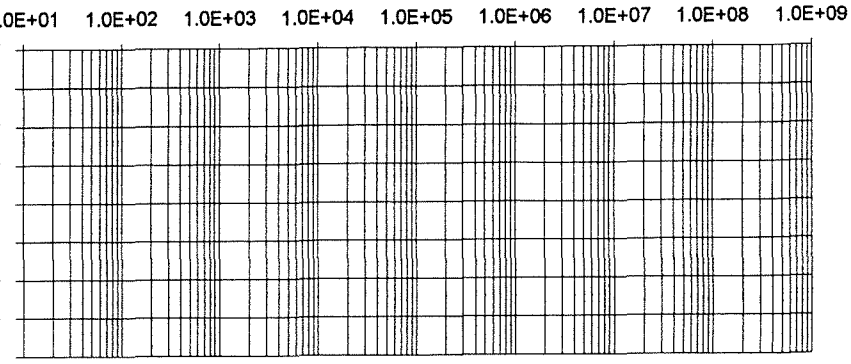
Job Code: **24-271**

Bio-Analytical Summary Report

Total populations

Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
ma3-tg1-1-281200-0	8.1E+03	0.0E+00	0.0E+00
ma3-tg1-2-281200-0	5.6E+04	0.0E+00	0.0E+00
ma3-tg1-3-281200-0	5.4E+04	0.0E+00	0.0E+00
ma3-tg2-1-281200-0	6.5E+02	0.0E+00	0.0E+00
ma3-tg2-2-281200-0	3.8E+03	0.0E+00	0.0E+00
ma3-tg2-2-281200-0	6.8E+02	0.0E+00	0.0E+00



Groundwater Samples

Degrader populations

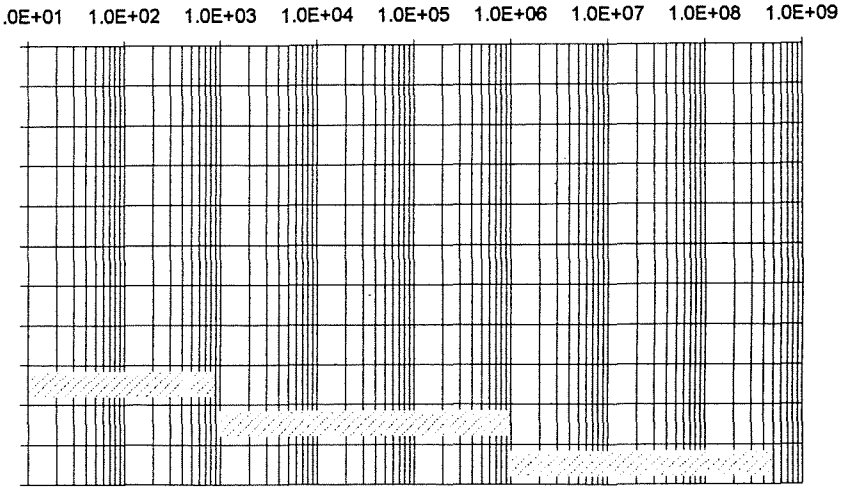
Low and high indicate 95% confidence range

Sample ID	Mean	Low	High
ma3-tg1-1-281200-0	6.8E+03	0.0E+00	0.0E+00
ma3-tg1-2-281200-0	1.2E+03	0.0E+00	0.0E+00
ma3-tg1-3-281200-0	4.4E+02	0.0E+00	0.0E+00
ma3-tg2-1-281200-0	1.6E+02	0.0E+00	0.0E+00
ma3-tg2-2-281200-0	1.3E+02	0.0E+00	0.0E+00
ma3-tg2-2-281200-0	5.7E+02	0.0E+00	0.0E+00

Marginal inoculum

Inoculum levels

Active degradation levels



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

Assay conditions

	Degrader Media		Temp.	Growth	DOF **		Percent
Sample ID	Carbon source	% Carbon (v/v)	(Celcius)	Conditions	Total	Degrader	Degraders
ma3-tg1-1-281200-0	PAH-BTEX	1.0	22	aerobic	0	0	84.0%
ma3-tg1-2-281200-0	PAH-BTEX	1.0	22	aerobic	0	0	2.1%
ma3-tg1-3-281200-0	PAH-BTEX	1.0	22	aerobic	0	0	0.8%
ma3-tg2-1-281200-0	PAH-BTEX	1.0	22	aerobic	0	0	24.6%
ma3-tg2-2-281200-0	PAH-BTEX	1.0	22	aerobic	0	0	3.4%
ma3-tg2-2-281200-0	PAH-BTEX	1.0	22	aerobic	0	0	83.8%

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

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

4424-271

Chain-of-Custody

Contact person Tom Grzan Sampler Joe Klemp

Project name Moss American Project # _____

Project location Milwaukee, WI
(City) (state)

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

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

Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	Requested analyses (✓): CEA* (soil/gw) see note ☐ Aerobic, ☐ Anaerobic, ☐ Microaerophillic	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve and hydrometer, ☐ sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	MICROBIAL ENUMERATION
MA3-TG1-1-281200-07		12/28/00	1525		✓	10-12'	1										✓
MA3-TG1-2-281200-08			1530		✓		1										✓
MA3-TG1-3-281200-09			1535		✓		1										✓
MA3-TG2-1-281200-03			1145		✓		1										✓
MA3-TG2-2-281200-04			1115		✓		1										✓
MA3-TG2-3-281200-05			1215		✓		1										✓

Relinquished by: [signature]
Date/time: 12/28/00 1800

Received by:
Date/time:

Comments:

Sample condition upon arrival:
On ice? ☐ Yes, ☐ No

Microbac Laboratories,
Seaway Industrial Laboratory
542-544 Conkey Street
Hammond, Indiana 46324
219/932-1770

air - fuel - water - food -

Send results to:
Name Tom Grzan
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 _____

[signature] 12/29/00 10:17

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

24-278

Chain-of-Custody

Contact person Tom Green Sampler Joe Klemp

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

Sample ID	Lab use only	Date	Time	(✓) Soil	(✓) Gw	Sample depth	(#) Jars	(#) Vials	(#) Core	Additional comments	Requested analyses (✓): CEA* (soil/gw) see note ☐ Aerobic, ☐ Anaerobic, ☐ Microaerophillic	Standard nutrient panel (soil/gw) - incl. TKN, ammonium nitrogen, available P, pH, total organic carbon, % moisture (s)	Particle size analysis (soil) ☐ sieve and hydrometer, ☐ sieve only	% air-filled pore space (soil) (includes bulk density)	Intact core: Soil moisture at field capacity	Intact core: Bulk density (soil)	M. Crobial Enumeration				
MA3-TG3-1-291200-01		12/29/00	0930		V	10-12'	1										✓				
MA3-TG3-2-291200-02			0940		V		1										✓				
MA3-TG3-3-291200-03			0950		V		1										✓				
MA3-TG5-1-291200-05			1310		V		1										✓				
MA3-TG5-3-291200-07			1330		V	"	1										✓				

Relinquished by: A. Klemp — Date/time: 12/29/00 1700

Received by: _____ — Date/time: _____

Comments: _____

Sample condition upon arrival: _____

On ice? ☐ Yes, ☐ No

Microbac

Microbac Laboratories,
Seaway Industrial Laboratory
542-544 Conkey Street
Hammond, Indiana 46324
219/932-1770

air - fuel - water - food -

Send results to:

Name Tom Green
Company Roy F. Weston
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