Appendix L

Summary of LOUs, Data Tables, and Select Figures from the Conceptual Site Model

Appendix L
Summary of LOUs in Chronologic Order from Conceptual Site Model
(ENSR 2005)

1.0 Source Characterization

Potential environmental impacts at the Kerr-McGee Henderson facility were identified, assessed and/or characterized in the 1993 ECA (Kleinfelder, 1993), the LOU (NDEP, 1994), the 1996 Written Response (Kerr-McGee, 1996b), the 1997 Phase II ECA, (ENSR, 1997) and the 2001 Supplemental Phase II ECA (ENSR, 2001).

As part of the ECA process, Kerr-McGee worked with NDEP to develop and refine a Site-related chemicals list (Table 4). This list includes Site-related chemicals, products, intermediate and breakdown products, and chemical combinations that may be associated with the current or historic activities at the Site as it exists in the geographic setting within an industrial complex, with industrial manufacturing neighbors. Table 5 presents the list of Site-related chemicals in alphabetical order. In response to an NDEP request in the February 11, 2004 letter, Table 6 summarizes the applicable 2004 EPA Region IX Preliminary Remediation Goals (PRGs) and Federal Maximum Contaminant Levels (MCLs) for drinking water.

1.1 Potential Source Areas

Within each section below, each LOU is discussed. Diagrams of LOU sample locations from previous reports are included in Appendix D. Following the discussion of LOUs additional potential source areas, such as ditches, manufacturing units or landfills, are discussed.

1.1.1 LOU #1 Trade Effluent Settling Ponds

The Trade Effluent (TE) settling pond area is located north of the ammonium perchlorate storage area and west of the existing ponds, WC-East and WC- West (Plate 16). The TE ponds were operated by the U.S. government from the fall of 1942 to fall 1944 as unlined storage impoundments for acid waste neutralized with caustic liquor. As described in Kleinfelder, 1993, the acid liquor was comprised of hydrochloric acid generated from primary and secondary scrubbing towers. The waste caustic solution is presumed to be sodium hydroxide. The waste was apparently evenly distributed in the ponds, with no segregation of materials in different areas. Each TE pond was approximately 20 acres and the average liquid depth was 7.5 feet.

The TE Ponds were investigated in response to LOU #1 (SWMU KMCC-014). After decommissioning, portions of the TE pond area have been utilized for other activities. Kerr-McGee constructed and operated a hazardous waste landfill in the northwestern portion of the TE pond area between 1980 and 1983. The landfill was closed and capped in 1985 in accordance with RCRA interim status requirements and is currently under a post-closure monitoring program. In October 1988, double-lined surface impoundments WC-East and WC-West were constructed in the northeastern portion of the TE pond area. WC-East and WC-West are permitted by the NDEP and are currently in operation.

In 1987, prior to installation of the double-lined surface impoundments, two soil borings were drilled in the vicinity of the closed landfill (Holes 1 and 2), and nine samples were collected and analyzed. Analysis included metals by method 6010, soil pH by EPA Method 9045, pesticides by EPA Method 608, and Silvex Analyses by EPA Method 615 (Table 7). All results were non-detect except for Barium, with results ranging between 0.10 mg/l and 1.0 mg/l

In 1997, soil sampling was conducted in this area consistent with an NDEP approved work plan. Boring locations were selected by a random generation grid placed over the area of historical use and advanced to a total depth of 10 feet bgs. In order to characterize the potential remnants of the neutralized aqueous waste historically conveyed to the ponds, soil samples were collected at depths of 1, 5, and 10 feet bgs. Soil borings SB1-1 and SB1-2 were located in the area of concern due south of the TE ponds (Plate 6). Five soil borings, SB1-3 through SB1-7, were advanced in the area between the closed landfill and surface impoundments. Soil samples collected from the TE settling ponds were analyzed for eight RCRA metals by EPA Method 6010 and for soil pH by SW-846 Method 9045. Analytical results from samples collected at LOU #1 are contained in Table 7. In summary, metal concentrations were below detection limits, with the exception of barium, which was detected at concentrations of less than or equal to 1 mg/l.

Analytical results of soil samples collected from the TE ponds indicate that metal concentrations in soil samples are within the range of the average concentration of these constituents in soils (ASTM, 1995). Confirmation that these average ranges are applicable to the geographic area within which the facility is sited will be an element included in the Background Study Work Plan intended for 2005. The range of soil pH within the boring samples is from 8.2 to 9.8. The expected range of pH for soils in a desert environment is 8 to 9, but it is not unusual for pH to range from 7 to 11 (Boul, S.W.,1973). This will be confirmed during the Background Study to be completed in 2005. Please refer to Table 7 for analytical results and to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.2 LOU #2 Open Area due South of Trade Effluent Settling Ponds

LOU #2 was investigated concurrently with LOU #1, which is discussed above in Section 4.8.1. Soil borings SB1-1 and SB1-2 were located in the area of concern due south of the TE ponds (Plate 6). Analytical results of soil samples collected from the TE ponds indicate that metal concentrations in soil samples were within the range of the average concentration of these constituents in soils (ASTM, 1995). The samples' range of soil pH is from 8.2 to 8.9, which is within the expected range of desert soil. The results of analysis are presented in Tables 8 and 7. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.3 LOU #3 Air Pollution Emissions Associated with Industrial Processes

In 1997, air emissions from the Kerr-McGee facility were analyzed to determine the patterns of dispersion and probable deposition of emissions. Emission estimates were developed as part of the Title V Federal operating permit and were based on source test data as well as EPA approved emission factors (AP-42). The results of air modeling were included in the October 1996 Kerr-McGee report. In summary, the maximum calculated deposition is 17 grams per square meter (g/m^2) at a point on the eastern boundary of the plant. This reflects the predominantly southwestern wind direction. At other points along the Kerr-McGee plant boundary, the calculated deposition is significantly less; along over 80 percent of the boundary the deposition is less than 1 g/m^2. Appendix D includes the figures and text from the air modeling.

1.1.4 LOU #4 Hardesty Chemical Site

Hardesty Chemical Company (Hardesty) leased property in the vicinity of Unit 2 (as well as elsewhere in the BMI complex) in September 1945. In 1947, AMECCO gave notice that it had purchased the Hardesty interest in the BMI complex, and it appears AMEECO ceased operations prior to June 1949. Products listed for proposed production included muriatic acid, synthetic hydrochloric acid, monochlorobenzene, paradicyhlorobenzene, orthodichlorobenzene, DDT, and soda arsenite solution. A portion of the Hardesty area was later leased by J. B. Kelley, Inc.

Drawings of the facility indicate that there were two underground storage tanks (USTs) located to the north of Unit 2, one for kerosene and one for benzene. A tank farm was also located north of Unit 2 on the north side of the tracks. None of these tanks are currently present.

A groundwater monitoring well (M-97) was installed downgradient from the tank farm and former USTs in 1997 (Plate 14). The borehole was advanced to a total depth of 50 feet bgs and samples were collected every five feet for lithologic logging and control. The borehole was converted to a well. Based on the substances historically used at the Hardesty site, the groundwater was sampled and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), specific conductance, TPH, pH, and arsenic by EPA Methods 8240, 8270, 8015M-diesel, 9045, and 6010/7000 and SW-846 9045, respectively (Table 9).

Analyses indicate that TPH was not detected at the practical quantitation limit (PQL). Arsenic was detected at 0.124 mg/l. Analysis indicates that 7.8 μg/l of Di-n-butylphthalate is an estimated concentration below the laboratory PQL. The VOC analysis indicated the presence of chloroform (18 μg/l) and acetone (3.1 μg/l). The analysis for acetone showed an estimated concentration because it was below laboratory PQL. Acetone was also detected in the laboratory method blank. Groundwater monitoring well M-97 has also been monitored from 1999-2004 for pH, specific conductivity, total chromium, and perchlorate levels (Table 9).

In summary, the site related chemicals were either not detected, were detected at low levels as a result of laboratory procedures. This indicates that the former USTs at the Hardesty site have not impacted groundwater. Please refer to Table 9 for analytical information and Plate 14 for the location of this area relative to other potential TPH source areas.

1.1.5 LOU #5 On-Site Portion of Beta Ditch Including the Small Diversion Ditch

The Beta Ditch could have carried a wide variety of chemicals throughout its history. This ditch was investigated during the 1996 Phase II ECI (ERM, 1996). Soil samples were analyzed for VOCs, SVOCs, pesticides/ polychlorinated biphenyls (PCBs), metals, cyanide, chlorate, pH, asbestos and radionuclides. Table 10 summarizes the analytical results. Of the 41 individual VOCs analyzed under the EPA Method 8260, only four were detected at relatively low concentrations on Site. Of the 66 individual SVOCs analyzed under EPA Method 8270 only four were detected at relatively low concentrations on Site. Of the 28 constitutes analyzed for pesticides/PCBs only four were detected on Site. Please refer to Table 10 for analytical results and Plate 16 for the location of this area relative to other potential miscellaneous source areas. Appendix D contains a figure of the sample locations.

1.1.6 LOU #6 Unnamed Drainage Ditch Segment

This ditch is also referred to as the Northwest Drainage ditch and was used by more than one BMI company. Soil in the area was sampled in 1993. Eight surface soil samples were collected from 0-

1 foot bgs. Three samples were collected in the ditch and the other eight were collected from areas adjacent to the ditch. Three additional samples were collected from the 4-5 foot depth interval. No significant concentrations of contaminants of concern were identified (Table 11). In 1994, two nearby groundwater wells were sampled for VOCs by method 8240, metals by method 6010, and PCBs by method 608, see Table 11 for details. In addition, an extensive series of borings and sampling was conducted along the Warm Springs Road Extension in March 1996. A total of 45 soil samples were obtained. Analyses on numerous samples included metals by EPA Method 6010, chlorinated pesticides and PCBs by method 8080, VOCs by method 8260, SVOCs by method 8270, bulk asbestos, and radionuclides by various analyses. Please refer to Table 11 for analytical data and Plate 16 for the location of this area relative to other potential miscellaneous source areas. Appendix D contains a figure of the sample locations.

1.1.7 LOU #7 and #8 Old P-2 and P-3 Ponds and Associated Conveyance Facilities

The Old P-2 and P-3 ponds were investigated in response to LOUs #7 and #8, the Old P-2 surface impoundment is identified as Solid Waste Management Unit (SWMU) KMCC-010 in the Phase I ECA and the LOU (Kleinfelder, 1993 and NDEP, 1994).

During the Phase II ECA, sampling was conducted in the floor of these ponds consistent with the NDEP-approved work plan. Eight shallow soil borings, SB2-1 through SB2-8, were advanced in P-3 pond and five shallow borings, SB2-9 through SB2-13, were advanced in Old P-2 pond. Samples were collected at depths of 0 to 12 inches bgs and 24 to 36 inches bgs. Sample locations are shown on Plates 6 and 17. Prior to sampling, soil boring and sampling locations were selected using a random generation grid superimposed over the investigation area.

Surface soil samples were collected and analyzed for total chromium and soil pH. The analytical results of soil samples collected from the Old P-2 and P-3 ponds are presented in Table 12. Cross sections illustrating the impacts are presented on Plate 17.

With the exception of SB2-3 and SB2-6, the 0 to 12 inches deep samples in the boreholes contained total chromium above 100 milligrams per kilogram (mg/kg). Also, in several areas (SB2-1, SB2-8, SB2-10, and SB2-11), the chromium concentrations from the 0 to 12 inch depths were above 1,000 mg/kg (Plate 17 and Figure 4). All 24 to 36 inches deep samples, with the exception of SB2-3, SB2-5, and SB2-6, were analyzed for total chromium. Subsequent analysis in P-3 pond of the 24" to 36" deep samples indicated a decrease in total chromium concentration, with the exception of SB2-2 and SB2-8. The total chromium concentration in all samples from Old P-2 decreased with depth.

Based on these results, 10 additional soil borings (SB2-14 through SB2-24) were advanced (Figure 4 and Plate 17). Total chromium concentrations were below 100 mg/kg in samples collected from the borings located along the ponds' perimeters. These results indicated that soils impacted with chromium associated with Old P-2 and P-3 pond activities are primarily limited to the interior areas of the ponds.

For borings within the Old P-2 and P-3 pond interiors (SB2-14 through SB2-17), all of the deepest samples collected at the top of the capillary fringe contained less than 100 mg/kg total chromium, except for SB2-17, which was 100 mg/kg at a total depth of 33 feet bgs. Except for SB2-16, which had no total chromium detections exceeding 100 mg/kg, samples collected from the other three borings within the pond interiors (soil borings SB2-14, SB2-15, and SB2-17) encountered total

chromium concentrations exceeding 100 mg/kg at varying depths. Among the samples collected from SB2-14, SB2-15, and SB2-17, total chromium concentrations in soil ranged up to a maximum of 540 mg/kg. The deepest total chromium detections exceeding 100 mg/kg, in SB2-14, SB2-15, and SB2-17 were 160 mg/kg, 100 mg/kg, and 100 mg/kg at depths of 30 feet, 27 feet, and 33 feet bgs, respectively. The groundwater capillary fringe was encountered at varying depths of 33 to 42.5 feet bgs.

Levels of pH were measured in soil samples from all Old P-2 and P-3 pond soil borings. The pH levels ranged from a low of 7.8 to a high of 10. The pH levels from the four borings within the Old P-2 and P-3 pond interiors ranged from a low of 8.1 to a high of 10.

Please refer to Plate 10 for the location of LOU #7 and #8 relative to chromium concentrations in groundwater and other potential chromium source areas.

1.1.8 LOU #9 New P-2 Pond and Associated Piping

The New P-2 surface impoundment (pond) was initially constructed with two liners: a 30-mil un-reinforced polyvinylchloride (PVC) liner and a 36-mil reinforced polyester liner. Approximately 18 months after being constructed, an additional 60-mil high-density polyethylene liner was installed. The pond was regulated under NPDES permit #NV0000078. The New P-2 pond had leak detection which was monitored monthly. Table 13 presents groundwater wells upgradient and downgradient if this location. Kerr-McGee has focused remediation efforts on assessment, containment, and clean-up of the impacted groundwater downgradient from this pond. This pond is upgradient of the on-Site groundwater interception system/groundwater barrier wall. Details regarding the groundwater remediation program progress have been provided in Section 3 of this report and updates are provided quarterly (for perchlorate) and semi-annually (for chromium) to NDEP. Please refer to Plate 12 for the location of LOU #9 relative to groundwater specific conductivity and other potential chlorate and TDS source areas.

1.1.9 LOU #10 On-Site Hazardous Waste Landfill

This landfill was closed consistent with the approved closure and post closure plans. Groundwater analytical data for monitoring wells nearby are shown in Table 14. In a letter dated January 17, 1986 the NDEP approved the landfill closure. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.10 Chlorate LOU #11 Specific Information Regarding Sodium Chlorate Filter Cake Drying Pad area

Prior to the early 1990s the Filter Cake Drying Pad was used to dry particulate material removed from the sodium chlorate process. In the early 1990s a new tank containment system was constructed in the drying pad location. Before construction, the existing pad structure was demolished and the material generated was managed as hazardous waste (due to total chromium content of the upper surface) and appropriately disposed off Site. According to Alan Gaddy, a Kerr McGee employee who observed the demolition, discolored soil was removed and disposed with the concrete (Kerr-McGee, 1996b). Please refer to Plate 12 for the location of LOU #11 relative to groundwater specific conductivity and other potential chlorate and TDS source areas.

1.1.11 LOU #12 Hazardous Waste Storage Area

LOU #12 is located to the northwest of Unit 4 and was the location where waste from the sodium chlorate process was stored in a semi-dump trailer, in preparation for transportation to a commercial

hazardous waste disposal site (TSDF). The waste was initially transferred from the process to the trailer by a front-end loader, but in the later years of operation the material was transferred by dumping from a collection bin into the trailer. The semi-dump trailer was periodically transported off Site to the TSDF. NDEP has indicated that no further action was required for LOU #12. Please refer to Plate 12 for the location of LOU #12 relative to groundwater specific conductivity and other potential chlorate and TDS source areas.

1.1.12 LOU #13 and #14 Ponds S-1 and P-1

S-1 and P-1 ponds were single-lined surface impoundments used by the sodium chlorate process. The S-1 pond footprint was approximately 47,500 ft^2. The liner was constructed of 20-mil PVC on the bottom and 30-mil cross-linked polyethylene (CPE) on the sides (Kleinfelder, 1993). Pond P-1's footprint and liner were similar to S-1. The ponds were closed in 1983 and final closure was approved by the NDEP on December 5, 1985. During closure, approximately two feet of soil from beneath the floor of each pond was also removed and soils sampled and analyzed to confirm adequate soil removal. Soil samples were analyzed by Extraction Procedure (EP) Toxicity methods and revealed concentrations of total soluble chromium between <0.02 mg/l and 0.11 mg/l (Tables 15 and 16). NDEP has indicated that no further action was required for LOU #13 and #14. Please refer to Plate 12 for the location of LOU #13 and #14 relative to groundwater specific conductivity and other potential chlorate and TDS source areas. Appendix D contains a diagram of the sample locations.

1.1.13 LOU #15 Platinum Drying Unit

The platinum drying unit was a 20 foot by 32 foot concrete-floored and concrete-bermed containment pad. In this area, a sodium perchlorate process byproduct which contained recoverable amounts of platinum was worked and platinum was recovered. In 1993 the pad concrete was sampled for metals using TCLP. The metals were below the method detection limit, with the exception of chromium (Table 17). The area was demolished and the concrete was transported to a hazardous waste TSDF. Soil under the pad was sampled for total chromium in 1994. The three chromium samples were between 17.9 and 50.7 ppm (Table 17). Please refer to Plates 10, 11 and 16 for the location of LOU #15 relative to groundwater impacts and other potential source areas for perchlorate, chromium and miscellaneous chemicals.

1.1.14 LOU #16 and #17 Ponds AP-1, AP-2 and AP-3 and Associated Transfer Lines

As well as being areas where other chemicals were present, ponds AP-1, AP-2 and AP-3 were identified by the NDEP as potential sources of nitrate and chromium. Three existing monitoring wells, M-17, M-89, and M-25, were sampled and analyzed for nitrates. Well M-17 is located immediately upgradient of the ponds, and M-89 and M-25 are situated in the downgradient groundwater flow direction. The samples were analyzed for nitrates by EPA Method 300 (Table 18).

The nitrate analysis was conducted by ion chromatography and the laboratory results were presented in terms of elemental nitrogen. The chromatograph was re-examined and the retention time peaks separated for nitrate/nitrite. Virtually no nitrite was present in the samples; the sample results are presented in terms of equivalent concentration of elemental nitrogen. Please refer to Table 18 for the analytical data and Plate 16 for the location of this area relative to other potential

miscellaneous source areas. Nitrate is removed from treated groundwater in the ongoing remedial activities associated with the Site.

To evaluate potential chromium impacts, data from three existing monitoring wells, M-17, M-25, and M-89, were reviewed. Refer to Table 18 for the analytical results. The soil beneath these ponds was analyzed for chromium in 1993. Table 18 also presents the results of the TCLP analyses. Statistical guidelines were followed to determine the average concentrations of chromium. [The statistical guidance used is from US EPA SW-846 Chapter 9, dated 1986. Specifically Table 9-1, equation 2a was used to calculate the average and a series of equations were used to calculate the confidence interval for the mean: 3a, 4, 5 and 6 using a student's "t" value for a two tailed confidence interval in a probability of 0.20 with 7 degrees of freedom.] The average concentration of chromium in AP-1 was 3.13 mg/kg with a confidence interval of 0.45 mg/l. The average concentration of chromium in AP-2 was 2.80 mg/kg with a confidence interval of 0.88 mg/l (Kerr-McGee, 1996b). These ponds were not identified as a potential source of chromium, and therefore, are not on Plate 10.

1.1.15 LOU #18 Pond AP-4

Surface Impoundment AP-4 was double-lined and had leak detection between the liners. Although no groundwater wells were specifically constructed to monitor groundwater beneath this impoundment, groundwater monitoring occurs upgradient and downgradient in the area (Table 18). Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.16 LOU #19 Pond AP-5

Surface Impoundment AP-5 is double-lined and has leak detection between the liners. Although no groundwater wells were specifically constructed to monitor groundwater beneath this impoundment, the groundwater is monitored upgradient and downgradient in the area (Table 18). Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.17 LOU #20 Pond C-1 and Associated Piping

Pond C-1 was a single-lined surface impoundment. It was constructed with a single 60-mil PVC liner and covered 1.58 acres (69,000 ft^2). The pond was used to evaporate non-hazardous process water, primarily from steam production, but at times also from the boron and manganese dioxide processes. Four groundwater monitor wells have been monitored in the vicinity of Pond C-1 (Table 19). A review of groundwater manganese and conductivity records indicates that Pond C-1 does not appear to have impacted groundwater for these constituents (Kerr McGee, 1996b). In addition, C-1 is upgradient of the on-Site groundwater interception system/groundwater barrier wall. Please refer to Plate 12 for the location of Pond C-1 relative to groundwater specific conductivity and other potential chlorate and TDS source areas.

1.1.18 LOU #21 Pond Mn-1 and Associated Piping

Pond Mn-1 is a double-lined surface impoundment and has leak detection between the liners. The top liner is 60-mil high-density polyethylene (HDPE) and the bottom liner is 4 to 6 inches of compacted bentonite clay with a permeability of 10^{-6} centimeters per second (Kleinfelder, 1993). Mn-1 has a surface area of 1.22 acres (53,000 ft^2). The manganese pond was placed in operation in May 1983 and received non-hazardous process water wastes, including filter wash water and cathode wash water. The pond contents contain manganese as well as high TDS (Kleinfelder,

1993). This pond is upgradient of the on-Site groundwater interception system/groundwater barrier wall. Please refer to Table 19 for analytical information and Plate 12 for the location of pond Mn-1 relative to groundwater specific conductivity and other potential chlorate and TDS source areas.

1.1.19 LOU #22 and #23 Ponds WC-West (WC-1) and WC-East (WC-2) and Associated Piping

Ponds WC-West (WC-1) and WC-East (WC-2) are both double-lined process water surface impoundments. These ponds were constructed within the former Trade Effluent settling pond area. The bottom liner of WC-West is 40-mil HDPE and the upper liner is 60-mil HDPE, with two leak detection wells between the liners. The bottom liner of WC-East is 40-mil HDPE, the middle liner is 60-mil HDPE, and the top liner is 40-mil HDPE. The current top liner was installed as an ultraviolet (UV) protective liner because the original top liner (now the middle liner) did not have sufficient carbon content to meet Kerr-McGee construction specifications. WC-East has two leak detection wells between the middle and bottom liners. WC-West has a surface area of 1.55 acres (67,600 ft2) and WC-East has a surface area of 2.03 acres (88,580 ft^2). The soils beneath WC-West and WC-East were sampled for VOCs and eight RCRA metals prior to construction. Each analyte, except barium, was below the detection limit. This data is presented under LOU #1 on Table 7. Barium was detected at concentrations ranging from 0.1 to 1 mg/l (Kleinfelder, 1993). During the Phase I field investigation in 1993, a small spill was noted from the fittings on a Nalco process chemical container placed between the two ponds. An area of soil measuring approximately 5 feet by 10 feet appeared white and crusty (Kleinfelder, 1993). The soil stained with this material, reported to be sodium hypochlorite and other water treatment chemicals, was placed in WC-East (W-2). The NDEP required no further action for LOU #22. Please refer to Plate 12 for the location of ponds WC-West (WC-1) and WC-East (WC-2) relative to groundwater specific conductivity and other potential chlorate and TDS source areas.

1.1.20 LOU #22 and #23 Ponds WC-West and WC-East and Associated Piping

Ponds WC-West (WC-1) and WC-East (WC-2) are both double-lined process water surface impoundments. They were constructed within the former Trade Effluent settling pond area. For WC-West, the bottom liner is composed of 40-mil HDPE and the upper liner is composed of 60-mil HDPE with leak detection between the two liners. For WC-East the bottom liner is composed of 40-mil HDPE, the middle liner is 60-mil HDPE, and the top liner is 40-mil HDPE. The current top liner was installed as a UV protective liner because the original top liner (now the middle liner) did not have sufficient carbon content to meet Kerr-McGee construction specifications. WC-West has a surface area of 1.55 acres (67,600 ft^2) and WC-East has a surface area of 2.03 acres (88,580 ft^2). The soil beneath WC-West and WC-East was sampled for VOCs and eight RCRA metals prior to construction. A small spill occurred from the fittings on a Nalco container placed adjacent to WC-East. The soil stained with this material, reported to be sodium hypochlorite and other water treatment chemicals, was placed in WC-East pond (WC-2). Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.21 LOU #24 and #34 Leach Beds, Associated Conveyance Facilities and Former Manganese Tailings Area

Prior to 1975, tailings from the beneficiation of manganese dioxide ores were transported as a slurry to unlined surface impoundments/leach beds to the west of the current tailings area. After 1975, filtering of the tailings yielded a semi-dry filter cake. The tailings pile was graded periodically to maintain the desired shape and drainage. Placement of demolition debris into the tailings pile was

allowed by NDEP (Kleinfelder, 1993). The tailings were analyzed by EP toxicity in 1979 and by TCLP in 1990 and 1993, and were determined to be non-hazardous. Please refer to Table 20 for groundwater and TCLP analytical information and Plate 13 for the location of this area relative to manganese concentrations in groundwater and other potential manganese source areas.

1.1.22 LOU #25 Process Hardware Storage Area

The process hardware storage area is located between Units 1 and 2. The area is about 50 feet wide and 200 feet long and was used to store process hardware since 1989. The process hardware stored in this area consisted of scrap metal parts and equipment from decommissioning of the former sodium chlorate and perchlorate processes from Units 4 and 5. Parts, tanks and other equipment destined for this storage area were rinsed or otherwise decontaminated prior to placement on the pad. The NDEP required no further action for LOU #25. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.23 LOU #26 Trash Storage Area

The trash storage area is located north of Units 1 and 2. The area consists of two asphalt- surfaced areas measuring approximately 56 feet by 100 feet and 65 feet by 50 feet. Common trash from the sodium chlorate and sodium perchlorate processes was placed in 55-gallon drums and delivered to this staging area. The area was used from approximately 1990 to closure of the sodium chlorate process. The drums were inspected, sealed, labeled "non-hazardous waste" and shipped to the U.S. Ecology landfill in Beatty, Nevada. The drums were shipped to Beatty as a precautionary measure. The NDEP required no further action for LOU #26. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.24 LOU #27 PCB Storage Area

The PCB storage area is located in the northern portion of Unit 2. The PCB storage area consists of three 12 foot by 15 foot vaults with floors that are 12 inches lower than the surrounding area. The vault walls are concrete that is 8 inches thick and the floors are covered with black 6-mil plastic sheeting. The vault area was reserved as a PCB waste staging areas. The USEPA conducted an inspection of the PCB storage area in 1989 and stated that no problems were noted. The NDEP required no further action for LOU #27. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.25 LOU #28 Hazardous Waste Storage Area

The Hazardous Waste Staging Area was originally located north of Unit 2 and consisted of a 65 foot by 15 foot concrete pad segregated into four areas with concrete curbing. The staging pad area was constructed for compliance with RCRA requirements and used for both hazardous and non-hazardous waste staging, although the types were segregated. The wastes handled consisted of used oil, flammable maintenance parts washing wastes, hexavalent chromium-contaminated material, and miscellaneous compatible wastes. Material placed on these pads was contained in drums. During later construction projects, the staging pad and surrounding soil was removed to a depth of four feet. The soil removed had elevated levels of TPH, as analyzed in October 1994. In November 1994 analysis of a soil composite sample from several locations in the bottom of the excavation was non-detect <10 mg/kg for TPH (Table 21) (Kerr-McGee, 1996b). This area is upgradient of the on-Site groundwater interception system/groundwater barrier wall. Please refer

to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.26 LOU #29 Solid Waste Dumpsters

The solid waste dumpsters were located south of Unit 4 across from Avenue H. They consisted of open metal dumpsters placed on concrete surfaces separated by areas of gravel-covered soil. The area is about 220 feet by 70 feet. Two dumpsters have routinely been in place - one for recyclable steel and the other for common trash. At times other non-ferrous metal recycle dumpsters were staged for recycle of other than steel material. Scrap metal was washed prior to delivery to this area. The area was used since 1980. The NDEP required no further action for LOU #29. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.27 LOU #30 Ammonium Perchlorate Area – Pad 35

Pad 35 is located south of the building known as old D-1. It consists of an "L" shaped concrete pad approximately 30 feet by 12 feet. The base of the "L" measures 6 feet by 10 feet. This area was used for accumulation of drummed common trash potentially contaminated with perchlorate and other industrial wastes, such as cooling tower sludge and iron oxide sludge. Please refer to Plate 11 for the location of this pad (LOU #30) relative to perchlorate concentrations in groundwater and other potential perchlorate source areas. The NDEP required no further action for LOU #30.

1.1.28 LOU #31 Drum Crushing and Recycling Area

The drum crushing area (serving the ammonium perchlorate production) consisted of a drum crusher located on an 18 feet by 18 feet concrete pad located just east of the old D-1 building. Drums destined for disposal were emptied and rinsed prior to delivery to this area. Soils adjacent to the drum crushing area were transported to the AP-4 pond for recovery of the residual perchlorate (Kerr-McGee, 1996b). This area is located up-gradient of the on-Site groundwater interception system/groundwater barrier wall. Please refer to Plate 11 for the location of LOU #31 relative to perchlorate concentrations in groundwater and other potential perchlorate source areas.

1.1.29 LOU #32 Groundwater Remediation Unit

The chromium GWTP groundwater remediation unit occupies an area approximately 1,200 feet by 650 feet. It includes a line of groundwater interceptor wells, the groundwater barrier wall, and two recharge trenches. The groundwater treatment unit is also in the area on a 60-foot by 20-foot concrete pad. Portions of the recharge trenches became plugged and required modifications. At times treated water was discharged to near surface soils due to pipeline plugging (Kerr-McGee, 1996b). System modifications have been implemented and treated water is no longer delivered. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.30 LOU #33 Sodium Perchlorate Platinum By-product Filter

The platinum recovery filter press was located on a 75 foot by 100 foot concrete pad, to the east of the Unit 5 cell floor. The pad was equipped with a sump that collected and contained liquids, including process liquids and wash down water. Cracks in the floor, noted during the Phase I investigation, were coated with a Chevron industrial membrane material that provided a continuous cover over the floor (Kerr-McGee, 1996b). Analysis of groundwater impacts is ongoing. Please

refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.31 LOU #35 Truck Unloading Area

The truck unloading area in LOU #35 was identified by NDEP as requiring additional assessment and characterization of "unknown" waste materials disposed in this area. This area is also identified as SMU KMCC-025. Eight shallow soil borings (SB4-1 through SB4-8) were advanced and shallow samples (-S) were collected from depths of 0 to 12 inches bgs, and deep samples (-D) were collected from depths of 24 to 36 inches bgs. The sampling locations were chosen using a random generation sampling grid superimposed over the investigation area (Plate 6).

Based on information provided by a previous terminal manager, the truck unloading area was used for the unloading of inorganic materials. Sample analysis was conducted for total metals by EPA Method 6010/7000 and pH by SW-846 Method 9045. In addition, in order to assess whether degreasing or truck washing material remained at the site, the samples were analyzed for TPH and VOCs by EPA Methods 8015M-d and 8240, respectively. All samples collected were analyzed (Table 22).

Analytical results indicate that metal concentrations in the soil samples were not elevated compared to the range of the average background concentration of these constituents in Western U.S. soils.

The soil samples from the truck unloading area contained TPH at concentrations below the NDEP established criteria of 100 mg/kg for hydrocarbon-impacted soils. The pH for soils ranged from 8 to 10 (Table 22). With the exception of samples SB4-2-D, SB4-5-D, SB4-6-D, and SB4-8-S, the samples did not contain detectable VOC concentrations above the laboratory PQL. Samples SB4-2-D, SB4-5-D, SB4-6-D, and SB4-8-S contained acetone at concentrations of 11, 6.8, 7.0, and 8.7 μg/kg, respectively. However, acetone was also detected in a laboratory method blank at 4.4 μg/l. Samples SB4-6-D, SB4-5-D, and SB4-8-S were qualified as estimated values detected at a level less than the laboratory PQL. Analytical results of soil sample SB4-8-S indicated that the surface soil sample contained 2.4 μg/kg of trichloroethane (TCA), which was also an estimated value detected at a level less than the laboratory PQL.

Based on the analytical results the truck unloading area has not been adversely impacted. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.32 LOU #36 Former Satellite Accumulation Points

This satellite accumulation point is located at the southwest corner of Unit 3. It includes a parts washer and the adjacent open area where lead acid storage batteries and waste from the parts washer were stored. From 1989 to 1991 a solvent-based washer was used and after 1991 a caustic detergent was used for washing. Waste stored in this area included drums of oil and grease, solvents (mainly 1,1,1-TCA), sludge, caustic detergent and metal parts. NDEP required no further action for LOU #36. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.33 LOU #37 Former Satellite Accumulation Points

This satellite accumulation point is located within the northeast portion of Unit 3. It includes a parts washer and the drum for temporary storage of parts washer waste. From 1989 to 1991 a solvent-based washer was used and after 1991 a caustic detergent was used for washing. Waste stored in this area included drums of oil and grease, solvents (mainly 1,1,1-TCA), sludge, caustic detergent

and metal parts. NDEP required no further action for LOU #37. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.34 LOU #38 Former Satellite Accumulation Points

This satellite accumulation point is located outside the north wall of the laboratory. It was used to store hazardous chemicals used in the on-site laboratory. It consists of three metal chemical storage cabinets used to store partially full containers of flammable liquids. Once the containers were full they were placed in 55-gallon drums packed with vermiculite and shipped off site for appropriate disposal. NDEP required no further action for LOU #38. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.35 LOU #39 A.P. Satellite Accumulation Point – AP Maintenance Shop

Visible stained soil resulting from a minor spill from a used oil drum was observed in the AP satellite accumulation point-AP maintenance shop during a Phase I investigation. This area was investigated in response to LOU #39 (SWMU KMCC-029) Plates 6 and 14).

Visibly affected soil was removed and a surface soil sample, S8-1S was collected and analyzed by TPH fuel fingerprint methods to verify whether the TPH-affected soil had been successfully removed (Table 23). The sample results indicated that 180 mg/kg diesel and 1,500 mg/kg motor oil constituents remained in the soil. TPH as gasoline was not detected above the laboratory PQL of 29 mg/kg.

Additional soil was removed from the area and containerized in a Department of Transportation (DOT) approved drum. A second confirmation sample (S8-1RE) was collected from the bottom of the excavated area. The sample analytical result was non-detect (<31 mg/kg) for TPH in the diesel-range.

In summary, the removal of soil from the AP Satellite Accumulation Point-AP Maintenance area effectively remediated the area and the subsequent sampling analysis confirmed that no diesel-range organics above laboratory detection limits remain in this area. Please refer to Plate 14 for the location of this area relative to other potential TPH source areas.

1.1.36 LOU #40 PCB Transformer Spill

The PCB transformer spill occurred at the south end of Unit 5. On November 26, 1990, approximately 1.75 lbs of PCB-containing fluid was released. The fluid dripped through access holes and collected on the concrete floor of the basement of Unit 5. The fluid was cleaned up with absorbents and portions of the concrete were also removed. The concrete was 8 inches thick. In August 1991, a small amount of soil was removed from beneath the concrete in preparation for replacing the concrete flooring. The soil removed was incidental to the concrete removal and this material was disposed off Site in Beatty, Nevada. NDEP required no further action for LOU #40. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.37 LOU #41 Unit 1 Tenant Stains

Unit 1 Tenant stains were investigated as part of the 1997 Phase II ECA field investigation. Visibly stained soils were removed and transported to Environmental Technologies TSDF in Beatly, Nevada. A surface soil sample, S9-1S, was collected and submitted for TPH fuel fingerprint analysis (Table 24). Analytical results indicated that TPH in the range of motor oil was detected at a concentration of 250 mg/kg. TPH in the diesel range was quantified at 73 mg/kg and TPH in the

gasoline range was not detected above the PQL of 29 mg/kg. Additional soils were removed from the area with the use of a backhoe. The area was re-sampled. A confirmation soil sample (S9-1RE) from the bottom of the excavation contained 100 mg/kg of TPH heavier than diesel, which is at the NDEP action level. Please refer to Plate 14 for the location of this area relative to other potential TPH source areas. Well samples from M-92 and M-93 were also analyzed in 1993 to investigate potential groundwater TPH impacts from these stained areas. Data in Table 24 indicates TPH and benzene, toluene, ethylbenzene and xylenes (BTEX) concentrations were non-detect.

1.1.38 LOU #42 Unit 2 Salt Redler

The Salt Redler was a rubber belt conveyor and was located at the southeast corner of Unit 2. During the period of sodium chlorate production, transfer of salt from storage in Unit 2 to the conveyor feed hopper resulted in some salt spillage to the ground. Spilled salt was swept up and returned to Unit 2. The NDEP required no further action for LOU #42. Please refer to Plate 12 for the location of LOU #42 relative to groundwater specific conductivity and other potential chlorate and TDS source areas.

1.1.39 LOU #43 Unit 4 and 5 Basements

Sodium chlorate was produced in electrolytic cells located in Units 4 and 5. Additionally, these Units were used to produce sodium perchlorate at times. Both of these electrolytic processes contained chlorate and perchlorate as well as sodium dichromate (hexavalent chromium). The basements of Units 4 and 5 were used as sumps to collect spillage and wash water. Operation of the electrolytic cells in Units 4 and 5 was discontinued in the late 1990s, but the buildings and structures remain for future use. Removal of the impacted soil beneath these buildings would likely require destruction of each building. Portions of these buildings actively participate in the manufacturing process. Other portions of the buildings are in good condition and may be utilized for active manufacturing in the future. Some or all of this soil may be impacted with concentrations of perchlorate, chlorate, or chromium. Please refer to Plate 12 for the location of LOU #43 relative to groundwater specific conductivity and other potential chlorate and TDS source areas.

1.1.40 LOU #44 Unit 6 Basement

High-purity, battery-active manganese dioxide has been produced in electrolytic cells in Unit 6. The basement beneath the cells collected process spillage and wash water and was identified as a source of soil and groundwater impact. Several groundwater monitor wells near Unit 6 are used to monitor manganese concentrations; these are M-10, M-29, and M-77, both up- and downgradient from Unit 6. Remediation measures were undertaken in 1986. The basement was cleaned, the concrete floor was removed, and the subsurface soil was re-contoured. The basement was lined with a 100-mil HDPE liner. The integrity of the basement liner system is periodically checked and serviced. Please refer to Table 25 for groundwater analytical information and Plate 13 for the location of this building relative to manganese concentrations in groundwater and other potential manganese source areas.

1.1.41 LOU #45 Diesel Fuel Storage Tank

The former diesel fuel storage above-ground storage tank (AST) located south of old P-2 pond was removed by Kerr-McGee in 1994 (Plates 6 and 14). Samples were collected for analysis from seven soil borings (SB5-1 through SB5-7) and two groundwater monitor wells (M-10, M-21, and SB5-5 a temporary well). The samples were analyzed for diesel components (TPH-d) by EPA

Method 8015M-diesel, BTEX by EPA method 8020, and polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270. The soil and groundwater analytical results are presented in Table 26.

The NDEP has published cleanup standards for hydrocarbon-contaminated soil; the established level for TPH-d is 100 mg/kg. Soil samples from boreholes SB5-1, SB5-2 and SB5-3 contained TPH-d at concentrations greater than 100 mg/kg. Soil samples from the other boreholes did not contain TPH-d at concentrations exceeding 100 mg/kg. In addition, soil samples from borings SB5-4, SB5-5, SB5-6, and SB5-7 encountered no detectable concentrations of BTEX or PAHs (Plate 17 and Table 26).

Two existing monitoring wells were sampled and analyzed for diesel constituents. Well M-21 is located in the regional downgradient direction and M-10 is located upgradient. Analytical results obtained in 1997 indicated that TPH concentrations in both samples were less than the PQL of 1.0 mg/l. In 1999 the groundwater was investigated again. Analytical results indicate that TPH-d concentrations were either at very low levels in a groundwater sample taken from soil boring (converted into a temporary groundwater well) SB5-5 (13 mg/l), or non-detect in groundwater from M-21 approximately 50 feet downgradient. The results of the sample analysis for M-21 conducted during the Supplemental Phase II ECA sampling are consistent with the non-detectable results of groundwater samples collected from monitoring well M-21 in April 1997. These data confirm that groundwater has only been minimally impacted beneath the former diesel fuel storage tank area, and not impacted at all immediately downgradient of this area. Please refer to Plate 14 for the location of this area relative to other potential TPH source areas.

1.1.42 LOU #46 Former Old Main Cooling Tower and Recirculation Lines

The former old Main Cooling Tower was located north of the manganese dioxide process leach plant. It was approximately 50 feet high and 700 feet long. The tower was installed by the US government when the complex was originally constructed. It operated from 1941 to September 1989. Historically the old Main Cooling Tower experienced several recirculation water upsets, which resulted in discharge of high-conductivity water to the Beta ditch. Individual discharges varied from a few hours to several days. The estimated water discharge was reported to the NDEP along with analytical results for pH, conductivity, sodium chloride, zinc and phosphate. Chromium was added as a treatment chemical in the cooling tower. Chromium was added as a treatment chemical in the cooling tower. The NDEP required no further action for LOU #46. This area is upgradient of the on-Site groundwater interception system/groundwater barrier wall. Please refer to Plate 10 for the location of LOU #46 relative to chromium concentrations in groundwater and other potential chromium source areas.

1.1.43 LOU #47 Leach Plant Area Manganese Ore Piles

Manganese ore has been stored and processed at the Site since 1951. Historically manganese ore piles were 10 to 15 feet high and over 300 feet long. The manganese ore was normally crushed with particles varying in size but typically 0.25 inch and smaller. An industrial hygiene program is ongoing and eight-hour time-weighted averages for manganese dust exposures have been developed for workers in different settings within the process. The dust is composed of 55 percent by weight of manganese dioxide. Table 27 presents the analysis of the manganese dioxide ore. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.44 LOU #48, #49, #50, and #51 Leach Plant Process Equipment

A variety of process equipment is used to beneficiate the manganese dioxide ore and produce high-quality, battery-grade manganese dioxide. The analyte tanks are housed within a containment berm and are used to hold a manganese sulfate solution, that was used in the Unit 6 electrolytic cells, until the used solution is fortified and returned to the electrolytic cells. The sulfuric acid tank is housed on a containment pad and is used to hold this process chemical until needed by the process. The leaching tanks are housed on containment pads and are used to leach the manganese dioxide ore to gain its manganese value for use in the Unit 6 electrolytic cells. An analysis of the appropriateness of wells in the vicinity of the analyte tanks was completed and the results submitted to NDEP in the October 1996 Response to Letter of Understanding. Analysis of groundwater impacts including manganese concentrations, pH and specific conductivity is ongoing (Table 28). Please refer to Plate 13 for the location of LOUs #48, 49, 50 and 51 relative to manganese concentrations in groundwater and other potential manganese source areas.

1.1.45 LOU #52 AP Plant Area Screening Building, Dryer Building, and Associated Sump

The Dryer and Screening buildings shared a common sump and floor drain system. The sump collected wash-down water and, on rare occasions, overflowed. Secondary containment was installed around the sump and a lined collection ditch was constructed completely around the building. Soil exhibiting white stains was collected and recycled for perchlorate recovery. Please refer to Plate 11 for the location of LOU #52 relative to perchlorate concentrations in groundwater and other potential perchlorate source areas.

1.1.46 LOU #53 AP Plant Area Tank Farm

The AP tank farm contained a number of vertical open-top and closed-top tanks used for process solution storage. The tank farm was equipped with secondary containment and a sump. Contained spills were reported from the tanks in the past. Please refer to Plate 11 for the location of these tanks relative to perchlorate concentrations in groundwater and other potential perchlorate source areas.

1.1.47 LOU #54 AP Plant Area Change House/Laboratory and Septic Tank

The AP plant change house laboratory is located in the west central portion of the Kerr-McGee facility (Plate 6 and 16). The change house was constructed in the early 1950s and the chemistry laboratory was added in 1980. Wastewater effluent from the change house showers, restrooms, and laboratory sinks discharged to a septic system with an associated leach field.

Laboratory operations included rinsing laboratory equipment, preparing standards, analyzing inorganic samples, preparing analytical solutions, and preparing dilute titrants. Hazardous solutions were collected and shipped to an appropriate disposal facility. Rinse water from the laboratory entered the septic system until August 1992. In August 1992, the use of the septic system was discontinued. The change house showers, restrooms, and laboratory sinks now discharge to a pump station, which transfers the water to the City of Henderson sanitary drains.

Two soil borings were advanced and three soil samples collected from each boring in the area of the former septic system leach field. The samples were analyzed for total metals, soil pH, VOCs, and SVOCs. The total metals and pH results are presented in Table 29. VOCs and SVOCs were below detection limits in the samples analyzed with the exception of sample SB6-1-5, which contained acetone at 9.8 μg/kg. This is an estimated value because it is below the laboratory PQL.

The soils pH ranged between 8 and 10. Based on the results of the sample analysis, the waste chemical disposal via the laboratory septic system has not affected soils in the area of the AP plant area change house/laboratory septic tank former leach field. Please refer to Table 29 for analytical results, Plate 6 for the location of the boreholes and Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.48 LOU #55 Area Affected by July 1990 Fire

On July 18, 1990, a fire occurred in the AP drum storage pad area. The fire burned for approximately 45 minutes. The soil around the fire area was impacted with ammonium perchlorate, which was washed off the concrete pad by the fire suppression water. The impacted soil was collected and returned to the AP process to recover residual perchlorate. The burned asphalt and soil surrounding the area (approximately 30 cubic yards of material) were removed and sent to the US Ecology disposal facility in Beatty, Nevada. Please refer to Plate 11 for the location of LOU #55 relative to perchlorate concentrations in groundwater and other potential perchlorate source areas.

1.1.49 LOU #56 AP Plant Area Old Building D-1 Washdown

During material handling, mixing and blending, small amounts of AP dust fell to the old D-1 building floor. While housekeeping in the area was maintained by dry sweeping, about once every other month, the building was also washed-down after sweeping. The wash-down water contained dissolved AP and drained onto the asphalt pad surrounding the building. Some of the wash water also drained onto the soil adjacent to the asphalt (Kerr-McGee, 1996b). Please refer to Plate 11 for the location of LOU #56 relative to perchlorate concentrations in groundwater and other potential perchlorate source areas.

1.1.50 LOU #57 and #58 AP Plant Area New Building D-1 Wash-down and AP Plant Transfer Lines to Sodium Chlorate Process

The AP process-to-pond transfer lines extended from the AP process to the sodium chlorate ponds or process. The ponds and lines were in service from 1974 to 1995. The transfer lines occasionally released process solution to the ground. The lines were repaired, replaced or serviced on an as-needed basis. Please refer to Plate 11 for the location of LOU #57 and #58 relative to perchlorate concentrations in groundwater and other potential perchlorate source areas. The NDEP required no further action for LOU #57 and #58.

1.1.51 LOU #59 Storm Sewer System

The storm sewer system consists of a network of concrete, clay and tile storm drains, manholes and outfalls. Outfalls occur along Beta Ditch, tributaries to Beta Ditch, and other drainage ditches. Between 1941 and 1976 the storm sewer system conveyed storm water and process effluent. In January 1976 Kerr-McGee achieved “zero discharge” of industrial process wastewater. Kerr-McGee process solutions are controlled in vessels or in lined surface impoundments. The storm sewer is used to convey storm water and non-contact cooling water. The storm drain system is subsurface, ranging from 25 to 45 feet below grade. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.52 LOU #60 Acid Drain System

The acid drain system consists of a network of pipes, manholes and sumps used to collect acid effluent from throughout the BMI complex. The construction included the use of acid resistant materials. The system has a single outfall at the acid effluent neutralization plant. Kerr-McGee

plugged the acid drain system beneath the operating portions of the facility in 1984. Acid drains in the non-operating portions of the facility (Units 1 and 2) have been filled with concrete debris and soil. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.53 LOU #61 Old Sodium Chlorate Plant Decommissioning

The old Sodium Chlorate Plant was located in Units 4 and 5. Production occurred in 1,300 electrolytic cells from 1945 to 1989. The process liquids contained primarily sodium chlorate with sodium dichromate as a process chemical additive. Retention of process liquids in the basements and sump areas of Units 4 and 5 was identified as a potential source of chlorate in groundwater. As the process was decommissioned, the electrolytic cells and associated piping were emptied. Residual materials, including the cell shells and other materials, which were hazardous due the hexavalent chromium concentration, were transferred to a hazardous waste TSDF in Beatty, Nevada. The process equipment, such as tanks, pipes and pumps, was dismantled in 1991 and transported off Site for disposal or recycling. The building area was cleaned and made available for other uses. The NDEP required no further action for LOU #61. Please refer to Plate 12 for the location of LOU #61 relative to groundwater specific conductivity and other potential chlorate and TDS source areas.

1.1.54 LOU #62 State Industries Inc. Site, Including Impoundments and Catch Basin

State Industries leased portions of the Kerr-McGee property for the manufacture and storage of hot water heaters. State Industries operated two surface impoundments between 1974 and 1988. Both surface impoundments have been closed. Prior to closure, analysis of sludge samples indicated that the material was non-hazardous based on EP Toxicity tests. In 1995, seven borings and 24 samples were obtained to investigate soil under the proposed administration/office building. Samples were obtained to asses the engineering properties, sodium and sulfate soil contents, and soil pH (Table 30).

Fourteen soil borings were drilled in 1996 and 17 soil samples were obtained by State Industries, Inc. The samples were analyzed for total metals, corrosivity, and VOCs. Kerr-McGee utilized the CAM metals list for analysis to cover a broad suite of metals. Low levels of lead and molybdenum were present. VOCs were also detected in 7 of the 17 samples (Table 30). Split-samples were obtained by Kerr-McGee during the State Industries sampling event. VOCs analyses were conducted and seven samples were found to have detectable concentrations. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas. Appendix D contains a figure of the sample locations.

1.1.55 LOU #63 J.B. Kelley, Inc. Trucking Site

J.B. Kelley, Inc. leased property from Kerr-McGee immediately south and east of the truck unloading area and operated a trucking operation on site. The company hauled commodities such as lime and soda ash. The area of interest at the J.B. Kelley, Inc. are included a UST that stored diesel (excavated in 1991) and the site included open concrete vaults which formerly served as foundations for storage buildings. This area was formerly the site of Hardesty (Table 31 and Plates 6 and 16).

Concerning the open concrete vaults, because materials could potentially migrate through cracks in the concrete vault floor, in 1997 one shallow boring (SB7-1-1) was advanced through a crack in the

floor and a soil sample was collected immediately beneath the concrete. Samples were also collected of sand that accumulated within each of the eight vaults. From these samples a composite "soil" sample was produced, S7-1-S. The samples were analyzed for total metals by EPA Method 6010/7000, soil pH by SW-846 Method 9045, TPH by EPA Method 8015M-diesel and VOCs by EPA Method 8240. The analytical results are presented on Table 31.

Toluene was detected at 1.1 μg/kg in sample S7-1-S. Sample SB7-1-1 contained 1.6 μg/kg of TCA and 13 μg/kg of acetone. These analyses were qualified by the laboratory. The concentrations of toluene and TCA were estimated since they were below the laboratory PQL. Acetone was detected in a method blank.

The results of total metal analyses indicate that all constituents were detected at concentrations within the range of average background concentrations in Western U.S. soils. Total chromium concentration in the surface soil sample collected by compositing remnant sands from the bottom of each vault was 42.9 mg/kg. While this concentration is slightly elevated, it is still below the range of average background concentrations indicating that chromium is not at concentrations likely to represent an environmental concern.

Both samples were non-detect for TPH at the designated laboratory PQL. Based on the analytical results of the soil samples collected, the former J.B. Kelley, Inc. operation has not affected surface and subsurface soil. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas. Appendix D contains a sketch of the sample locations.

1.1.56 LOU #64 Koch Materials Company Site

Koch Materials Company leased an area west of the diesel storage tank for use as an asphalt emulsion batch plant. Koch TPH issues are discussed under the TPH section of this report. Soil samples collected in this area were analyzed for manganese. They also collected soil samples for VOCs, SVOCs, metals, and confirmatory TPH analysis. Please refer to Table 32 for analytical data and Plate 14 for the location of this area relative to other potential TPH source areas. Appendix D contains a figure of the sample locations.

1.1.57 LOU #65 Nevada Pre-cast Concrete Products, Green Ventures International, Buckles Construction Company, and Ebony Construction Sites

Nevada Pre-Cast Concrete utilized office space near the J.B. Kelley operations from January 1973 to May 1978. Only office activities were conducted by Nevada Pre-cast Concrete (Kleinfelder, 1993). Green Ventures International leased the S-1 change house from August 1980 to September 1981 for use as a marketing office for alfalfa sprouts. Only office activities were conducted by Green Ventures International (Kleinfelder, 1993). Buckles Construction Company leased a portion of Unit 1 from August 1973 to June 1989. Buckles Construction Company activities, including steel fabrication and equipment storage, were conducted in the crane bay located in the northwest corner of Unit 1 in the crane bay. In 1993, groundwater monitoring wells M-92 and M-93 were sampled for TPH and BTEX constituents to investigate possible groundwater impacts resulting from surrounding operations. All results from this analysis were non-detect (Table 22). In the LOU the NDEP asked if the Unit 1 tenant stains were associated with any of these activities. Unit 1 Tenant stains were investigated in response to LOU #41 (above). As part of the 1997 Phase II ECA effort, visibly stained soils were removed and transported to an appropriate disposal facility. A surface soil sample (S9-1S) was collected and submitted for TPH fuel fingerprint analysis (Table 22). Analytical results indicated that TPH in the range of motor oil, was detected at a concentration of 250 mg/kg.

TPH in the diesel range was quantified at 73 mg/kg and TPH in the gasoline range was not detected above the PQL of 29 mg/kg.

Additional soils were removed from the area and the area was re-sampled. A confirmation soil sample (S9-1RE) from the bottom of the excavation contained 100 mg/kg of TPH heavier than diesel, which is at the NDEP action level. Please refer to Plate 14 for the location of these areas relative to other potential TPH source areas.

1.1.58 LOU #66 Above Ground Diesel Storage tank leased by Flintkote

Flintkote Company leased a diesel AST from July 1973 through 1975. The tank was located near the southwest corner of the Chemstar property. The tank has been removed. The NDEP required no further action for LOU #66. Please refer to Plate 14 for the location of this area relative to other potential TPH source areas.

1.1.59 LOU #67 Delbert Madsen and Estate of Delbert Madsen

The leased property was used as a storage and salvage yard. The property was leased from 1976 through 1995 (Kleinfelder, 1993). Kerr-McGee removed the material and trash that was left on-site and disposed of it at the Silver State Landfill in Apex, Nevada (Kerr-McGee, 1996b). Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.60 LOU #68 Southern Nevada Auto Parts Site

The leased property was used to store wrecked, impounded and repossessed vehicles. Operations also included insurance adjustment and auction of vehicles. Stained soil was present in some areas. Kerr-McGee worked with the lessee to implement practices to minimize the potential for impacts to soil or groundwater to occur. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.61 LOU #69 Dillon Potter Site

Dillon Potter leased a 2-acre portion of the Kerr-McGee property. The area was used for livestock management and to store approximately 25 vehicles. The NDEP required no further action for LOU #69. Please refer to Plate 16 for the location of this area relative to other potential miscellaneous source areas.

1.1.62 GW-11 pond

Although not identified as an LOU, the GW-11 pond receives water for treatment. This pond is double-lined with leak detection wells between the liners. The GW-11 pond is located in the area of the former trade effluent ponds (LOU #1). During development of the NPDES permit, an extensive analysis of water discharged to pond GW-11 was completed. The data required to support the impoundment characterization was identified through an evaluation of the historical land use and a review of previous investigations. During the development of the Kerr-McGee Henderson facility NPDES permit for discharges from its groundwater remediation processes, Kerr-McGee worked closely with NDEP to identify and characterize the waste streams that would be placed in GW-11. An extensive sampling suite was jointly developed and applied to the GW-11 characterization. In response to requests from the NDEP Kerr-McGee collected and analyzed additional water samples from GW-11 in August and November 2004. Please refer to Table 33 for analytical data from Pond GW-11.

1.2 Other Potential Source Areas

Areas have been identified as potentially containing residual levels of contaminants that may constitute source areas. These are discussed in the following paragraphs and include sites in five general categories: manufacturing units, surface impoundments, hazardous waste storage areas, ditches, and landfills. Figure 5 presents the land use zoning in the area and Figure 6 presents a conceptual diagram of these potential contaminant source areas.

1.2.1 Manufacturing Units

Based on the historic use of manufacturing units as described above, they are a potential source of contamination. The production of perchlorate was greatly curtailed in 1998 and the last perchlorate was produced in 2002. Although perchlorate is no longer manufactured on-Site, the subsurface may contain residual levels of contaminants that could be leached to groundwater. Other chemicals, including chromium, may also be present in the manufacturing area. Based on the configuration of the perchlorate and chromium plumes, a significant historic source area may be present beneath Units 4 5 and 6 (Plate 6).

1.2.2 Surface Impoundments

Historic use of ponds and surface impoundments throughout the Site were potential sources of the groundwater impacts. The single-lined ponds have been taken out of use and replaced with extensively engineered surface impoundments that are equipped with double liners and leak detection capabilities. The soil within and around Old P-2 and P-3 surface impoundments were studied extensively, as described in Section 4.2. The potential exists for the soil beneath and around surface impoundments to be a source of contamination.

1.2.3 Hazardous Waste Storage Areas

Although the Phase I and II investigations indicated that the hazardous waste storage areas did not exhibit significant impacts from spills, the potential exists for soil impacts to be present beneath or around these areas.

1.2.4 Ditches

The Beta Ditch drains surface runoff from adjacent, upslope properties and crosses the site from east to west. This ditch is suspected of being impacted and may serve as a source of contamination. Other surface water conveyance features may also have impacts sufficient to serve as source areas.

1.2.5 Landfills

A hazardous waste landfill is present on-Site (Plate 6). Based on the closure approved in 1986, the waste is not impacting surrounding soil, surface water or air.

TABLES

Table 1
Areas Identified in the 1994 Letter of Understanding
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Item Number **	SWMU*	Areas Identified in the NDEP Letter of Concern **	Action Required**	Action Taken
1	SWMU KMCC-014	Trade Effluent Settling Ponds	Field work by Kerr-McGee	Data collected; Reported in Ph. II ECA (8/ 97). Requested DataChem data provided in Kerr-McGee Response (10/96).
2	--	Open Area Due South of "Trade Effluent Disposal Ponds"	Written response requested	Data collected; Reported in Ph. II ECA (8/ 97). Requested DataChem data provided in Kerr-McGee Response (10/96).
3	--	Air Pollution Emissions Associated with Industrial Processes	Written response requested	Air emissions modeled (10/96)
4	--	Hardesty Chemical Company Site (prior to J. B. Kelley Operations)	Field work by Kerr-McGee	Data collected; Reported in Ph. II ECA (8/ 97). Requested additional data provided in Kerr-McGee Response (10/96)
5	SWMU KMCC-020	On-Site Portion of Beta Ditch, Including "Small Diversion Ditch" Northwest of Pond C-1	Field work by Steering Committee	To be addressed in "Common Area Work Plan"
6	--	Unnamed Drainage Ditch Segment (BMI Landfill)	Field work by Steering Committee	To be addressed in "Common Area Work Plan"
7	SWMU KMCC-010	Old P-2 Pond and Associated Conveyance Facilities	Field work by Kerr-McGee	Data collected: Reported in Ph.II ECA (8/97) and Suppl. Ph. II (4/01)
8	--	Old P-3 Pond and Associated Conveyance Facilities	Field work by Kerr-McGee	Data collected: Reported in Ph.II ECA (8/97) and Suppl. Ph. II (4/01)
9	--	New P-2 Pond and Associated Piping	Written response requested	Requested specifications/drawings provided in Kerr-McGee Response (10/96)
10	SWMU KMCC-013	On-Site Hazardous Waste Landfill (Closed)	Written response requested	Requested correspondence relation to closure/post closure provided in Response letter (10/96)
11	SWMU KMCC-005	Sodium Chlorate Filter Cake Holding Area	Written response requested	Available data provided in Response letter (10/96) but, due to lack of complete data availability, NDEP rescinded request for added date, at this time. Response Letter (10/96)
12	SWMU KMCC-006	Hazardous Waste Storage Area	No Further Action Required	None Required
13	SWMU KMCC-023	Pond S-1	No Further Action Required	None Required
14	SWMU KMCC-024	Pond P-1, and Associated Conveyance Piping	No Further Action Required	None Required
15	SWMU KMCC-007	Platinum Drying Unit	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
16 17	--	Ponds AP-1, AP-2, and AP-3 and Associated Transfer Lines	Field work by Kerr-McGee	Data collected; Reported in Ph. II ECA (8/ 97). Requested additional data provided in Kerr-McGee Response (10/96)
18	--	Pond AP-4	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
19	--	Pond AP-5	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
20	SWMU KMCC-011	Pond C-1 and Associated Piping	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
21	SWMU KMCC-012	Mn-1 and Associated Piping	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
22	SWMU KMCC-015	Pond WC-1 and Associated Piping	No Further Action Required	None Required
23	SWMU KMCC-016	Pond WC-2 and Associate Piping	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
24	SWMU KMCC-009	Leach Beds, Associated Conveyance Facilities, and Mn Tailings Area	Written response requested	Requested technical evaluation provided in Kerr-McGee Response (10/96)
25	SWMU KMCC-001	Process Hardware Storage Area	No Further Action Required	None Required
26	--	Trash Storage Area	No Further Action Required	None Required
27	SWMU KMCC-003	PCB Storage Area	No Further Action Required	None Required
28	SWMU KMCC-004	Hazardous Waste Storage Area	Written response requested	Requested additional detail provided in Kerr-McGee Response (10/96)
29	SWMU KMCC-008	Solid Waste Dumpster	No Further Action Required	None Required
30	SWMU KMCC-017	AP Area-Pad 35	No Further Action Required	None Required
31	SWMU KMCC-018	Drum Recycling Area	Written response requested	Requested information provided in Kerr-McGee Response (10/96)
32	SWMU KMCC-019	Ground Water Remediation Unit	Written response requested	Discussion of treatment system improvements, modifications provided in Kerr-McGee Response (10/96)
33	SWMU KMCC-021	Sodium Perchlorate Platinum By-Product Filter, Unit 5	Written response requested	Requested information provided in Kerr-McGee Response (10/96)
34	SWMU KMCC-022	Former Manganese Tailings Area	A, Same as Item 24	Requested data provided in Kerr-McGee Response (10/96)
35	SWMU KMCC-025	Truck Emptying/Dumping Site	Field work by Kerr-McGee	Data collected; Reported in Ph. II ECA (8/97)
36	SWMU KMCC-026	Former Satellite Accumulation Point, Unit 3, Maintenance Shop	No Further Action Required	None Required
37	SWMU KMCC 027	Former Satellite Accumulation Point, Unit 6, Maintenance Shop	No Further Action Required	None Required
38	SWMU KMCC -028	Former Satellite Accumulation Point, AP-Laboratory	No Further Action Required	None Required
39	SWMU KMCC-029	Satellite Accumulation Point-AP Maintenance Shop	Field work by Kerr-McGee	Data collected; Reported in Ph. II ECA (8/97)
40	--	PCB Transformer Spill	No Further Action Required	None Required
41	--	Unit 1 Tenant Stains	Field work by Kerr-McGee	Data collected; Reported in Ph. II ECA (8/97)
42	--	Unit 2 Salt Redler	No Further Action Required	None Required
43	--	Unit 4 and 5 Basements	Written response requested	
44	--	Unit 6 Basement	Written response requested	Written response provided in May 1996
45	--	Diesel Storage Tank	Field work by Kerr-McGee	Data collected; Reported in Ph. II ECA (8/97) and Suppl. Ph. II (4/01)
46	--	Former Old Main Cooling Tower and Recirculation Lines	No Further Action Required	None Required
47	--	Leach Plant Area Manganese Ore Piles	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
48	--	Leach Plant Analyte Tanks	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
49	--	Leach Plant Area Sulfuric Acid Storage Tanks	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
50	--	Leach Plant Area Leach Tanks	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
51	--	Leach Plant Area Transfer Lines	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
52	--	AP Plant Area Screening Building, Dryer Building and Associated Sump	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
53	--	AP Plant Area Tank Farm	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
54	--	AP Plant Area Change House/ Laboratory Septic Tank	Field work by Kerr-McGee	Data collected; Reported in Ph. II ECA (8/97)
55	--	Area Affected by July 1990 Fire	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
56	--	AP Plant Area Old Building D-1- Washdown	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
57 58	--	AP Plant Area New Building D-1- Washdown and AP Plant Transfer Lines to Sodium Chlorate Process, AP Plant SI's and Transfer Lines	No Further Action Required	None Required
59	SWMU KMCC-030	Storm Sewer System	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
60	SWMU KMCC-031	Acid Drain System	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
61	--	Old Sodium Chlorate Plant Decommissioning	No Further Action Required	None Required
62	--	State Industries, Inc. Site, Including Impoundments and Catch Basin	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
63	--	J. B. Kelley, Inc. Trucking Site	Field work by Kerr-McGee	Data collected; Reported in Ph. II ECA (8/97)
64	--	Koch Materials Company Site	Written response requested	Requested data provided in Kerr-McGee Response (10/96)
65	--	Nevada Precast Concrete Products, Green Ventures International, Buckles Construction Company and Ebony Construction Sites		Requested data provided in Kerr-McGee Response (10/96)
66	--	Above-Ground Diesel Storage Tank Leased by Flintkote Co.	No Further Action Required	None Required
67	--	Delbert Madsen and Estate of Delbert Madsen Site	Written response requested documenting Kerr-McGee's efforts to work with tenant	Requested data provided in Kerr-McGee Response (10/96)
68	--	Southern Nevada Auto Parts Site	Written response requested documenting Kerr-McGee's efforts to work with tenant	Requested data provided in Kerr-McGee Response (10/96)
69	--	Dillon Potter Site	No Further Action Required	None Required

Notes:
* = Kleinfelder; April 1993, Environmental Conditions Assessment KMCC Chemical Corporation, Henderson, NV; Appendix D.
**= Division of Environmental Protection; August 1994, Phase II Letter of Understanding Between NDEP And KMCC.
= No Action Required
AP= Ammonium Perchlorate
Mn= Manganese
PCB= Polychlorinated biphenyls
Ph. II= Phase II
SI = Surface Impoundments
Suppl. Ph. II= Supplemental Phase II
(1) =Provide Documentation of KMCC's efforts to work with the tenant to further assess and characterize contamination which may be present at this location.
NDEP= Nevada Division of Environmental Protection
ECA = Environmental Conditions Assessment, also known as the Phase I Investigation
LOU= Letter of Understanding
SWMU= Solid Waste Management Unit
KMCC= Kerr-McGee Chemical Company LLC

Table 2
Product and Waste Volumes Summary
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Products				Waste Materials					
Company	Product[1]	Estimated Amounts Produced (tons)	Years Produced	Company	Process Waste[1]	Years	Volume Cu. Ft.	Disposal Site	Comments
WECCO				**WECCO**					
	Sodium Chlorate	33,153	1945-1955		Chlorates	1945-1955	104,000	BMI Ponds	
	Potassium Chlorate	12,599							
	Potassium Perchlorate	10,402							
	Ammonium Perchlorate	7,142	1951-1955		Manganese Dioxide	1951-1955	95,000	Company Ponds	Company Ponds refers to leach beds on the Kerr-McGee site
	Manganese Dioxide	6,226	1951-1955		Perchlorate Solids	1951-1955	Not Measureable	BMI Ponds	
AP & CC				**AP & CC**					
	Sodium Chlorate	149,419	1956-1967		Chlorates	1956-1967	162,000	BMI Ponds	
	Potassium Chlorate	23,046	1956-1967						
	Potassium Perchlorate	3,142	1956-1967						
	Ammonium Perchlorate	83,240	1956-1967		Manganese Dioxide	1956-1967	426,000	Company Ponds	Company Ponds refers to leach beds on the Kerr-McGee site
	Manganese Dioxide	41,432	1956-1967		Perchlorate Solids	1956-1967	Not Measureable	BMI Ponds	
Kerr-McGee				**Kerr-McGee**					
	Sodium Chlorate	374,066	1967 to current		Chlorate Wastes	1968-1974		BMI Ponds	
	Sodium Perchlorate	14,819	1968 to current		Perchlorate Wastes	1967-1974		BMI Ponds	
	Potassium Chlorate	5,103	1967-1975		Liquid Wastes	1968-1967		BMI Ponds	
	Potassium Perchlorate	8,762	1967-1982		Elemental Boron Wastes	1972-1976		BMI Ponds	
	Ammonium Perchlorate	214,776	1967 to current		Perchlorate Wastes	1975 to current		Lined Ponds	Lined ponds are the single- and double-lined surface impoundments constructed on the Kerr-McGee site
	Manganese Dioxide	219,470	1967 to current		Liquid Wastes	1975 to current		Lined Ponds	Lined ponds are the single- and double-lined surface impoundments constructed on the Kerr McGee site
	Magnesium Perchlorate	744	1969-1976		Elemental Boron Wastes	1976 to current		Lined Ponds	Lined ponds are the single- and double-lined surface impoundments constructed on the Kerr-McGee site
	Boron Trichloride	4,346	1973 to current		Chlorate Wastes	1975 to 1980		BMI Dump	
	Boron Tribromide	62	1973 to current		Boron Compounds Wastes	1970's		BMI Dump	
	Elemental Boron	112	1972 to current		Boron Compounds Wastes	1979- to current		Sanitary Landfill	Sanitary Landfill refers to the sanitary landfill operated by Silver State Disposal and /or Republic. Material disposed is nonhazardous solid industrial waste.
	Tumbleaf Defoliant®	3,798	1975-1985		Chlorate Wastes	1980-1983		On-Site H.W. Landfill	On-site H.W. Landfill refers to the hazardous wate landfill located on the KMCC site. This landfill was closed in accordance with applicable regulations.
					Chlorate Wastes	1983 to 1996		Commercial H.W. Landfill	Commercial H.W. Landfill refers to the hazardous waste landfill in Beatty, Nevada or the hazardous waste landfill in Grassy Mountain, UT.
					Manganese Dioxide Wastes	1967-1975		On-site Leachbeds	
					Manganese Dioxide Wastes	1975 to Present		On-Site Nonhazardous Pile	
					Chromium Wastes	1987-2004	9,000 lbs.	Commercial Landfill	Commecial landfill refers to the industrial landfill in Apex, NV or the non-haszardous waste landfill in Beatty, NV.
					Perchlorate Wastes	1998-2004	1401.73 tons	Incinerator	The perchlorate remediation system has been in operation since 1998 and has removed this volume through October 2004. Resin has been transported to an incinerator for destruction.

(1)= Data complied from Kleinfelder (1993) and Kerr-McGee (2004) For Kerr-McGee product summary, other inorganic chemicals were also produced at various times for a limited time period on an experimental basis. These included bench or pilot tests which produced small quantities of chemicals similar to those used or produced at the facility.
WECCO= Western Electrochemical Company
AP&CC= American Potash and Chemical Company

Table 3
LOU Listed by Potential Contaminant Group
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Potential Chemical Contaminant Group	Item Number **	Areas Identified in the NDEP Letter of Concern **	List of Identified Potential Impacts
Perchlorate	15	Platinum Drying Unit	P/ Cr/ Misc
Perchlorate	16 & 17	Ponds AP-1 and AP-2, and Associated Transfer Lines and Ponds AP-3 and Associated Transfer Lines	P/ Misc
Perchlorate	18	Pond AP-4	P/ Misc
Perchlorate	19	Pond AP-5	P/ Misc
Perchlorate	30	Ammonium Perchlorate Area-Pad 35	P
Perchlorate	31	Drum Recycling Area	P
Perchlorate	32	Ground Water Remediation Unit	P/Cr/Cl/TDS/Misc
Perchlorate	33	Sodium Perchlorate Platinum By-Product filter	P/ Misc
Perchlorate	43	Unit 4 and 5 Basements	Cr/ Cl/ P
Perchlorate	52	AP Plant Area Screening Building, Dryer Building and Associated Sump	P
Perchlorate	53	AP Plant Area Tank Farm	P
Perchlorate	55	Area Affected by July 1990 Fire	P
Perchlorate	56	AP Plant Area Old Building D-1- Washdown	P
Perchlorate	57 & 58	AP Plant Area New Building D-1- Washdown and AP Plant Transfer Lines to Sodium Chlorate Process	P
Chlorate	7	Old P-2 Pond and Associated Conveyance Facilities	Cr/ Cl
Chlorate	8	P-3 Pond and Associated Conveyance Facilities	Cr/ Cl
Chlorate	9	New P-2 Pond and Associated Piping	Cr/ Cl
Chlorate	11	Sodium Chlorate Filter Cake Holding Area North of Unit 3	Cr/ Cl
Chlorate	12	Hazardous Waste Storage Area	Cr/ Cl
Chlorate	13	Pond S-1	Cr/ Cl
Chlorate	14	Pond P-1, and Associated Conveyance Piping	Cr/ Cl
Chlorate	15	Platinum Drying Unit	P/ Cr/ Misc
Chlorate	32	Ground Water Remediation Unit	P/Cr/Cl/TDS/Misc
Chlorate	43	Unit 4 and 5 Basements	Cr/ Cl/ P
Chlorate	61	Old Sodium Chlorate Plant Decommissioning	Cr/ Cl
Total Dissolved Solids	20	Pond C-1 and Associated Piping	TDS/ B
Total Dissolved Solids	21	Mn-1 and Associated Piping	Mn/ TDS
Total Dissolved Solids	22	Pond WC-1 and Associated Piping	TDS/ Misc
Total Dissolved Solids	23	Pond WC-2 and Associate Piping	TDS/ Misc
Total Dissolved Solids	32	Ground Water Remediation Unit	P/Cr/Cl/TDS/Misc
Total Dissolved Solids	42	Unit 2 Salt Redler	TDS
Chromium	7	Old P-2 Pond and Associated Conveyance Facilities	Cr/ Cl
Chromium	8	P-3 Pond and Associated Conveyance Facilities	Cr/ Cl
Chromium	9	New P-2 Pond and Associated Piping	Cr/ Cl
Chromium	11	Sodium Chlorate Filter Cake Holding Area North of Unit 3	Cr/ Cl
Chromium	12	Hazardous Waste Storage Area	Cr/ Cl
Chromium	13	Pond S-1	Cr/ Cl
Chromium	14	Pond P-1, and Associated Conveyance Piping	Cr/ Cl
Chromium	15	Platinum Drying Unit	P/ Cr/ Misc
Chromium	28	Hazardous Waste Storage Area	HC / Misc/ Cr
Chromium	32	Ground Water Remediation Unit	P/Cr/Cl/TDS/Misc
Chromium	43	Unit 4 and 5 Basements	Cr/ Cl/ P
Chromium	46	Former Old Main Cooling Tower and Recirculation Lines	Cr
Chromium	61	Old Sodium Chlorate Plant Decommissioning	Cr/ Cl
Manganese	21	Mn-1 and Associated Piping	Mn/ TDS
Manganese	24	Leach Beds, Associated Conveyance Facilities, and Mn Tailings Area	Mn
Manganese	34	Former Manganese Tailings Area	Mn
Manganese	44	Unit 6 Basement	Mn
Manganese	47	Leach Plant Area Manganese Ore Piles	Mn/ Misc
Manganese	48	Leach Plant Analyte Tanks	Mn
Manganese	49	Leach Plant Area Sulfuric Acid Storage Tanks	Mn
Manganese	50	Leach Plant Area Leach Tanks	Mn
Manganese	51	Leach Plant Area Transfer Lines	Mn
Boron	20	Pond C-1 and Associated Piping	TDS/ B
Hydrocarbon	4	Hardesty Chemical Company Site (prior to J. B. Kelley Operations)	HC
Hydrocarbon	28	Hazardous Waste Storage Area	HC / Misc/ Cr
Hydrocarbon	39	Satellite Accumulation Point-AP Maintenance Shop	HC
Hydrocarbon	41	Unit 1 Tenant Stains	HC
Hydrocarbon	45	Diesel Storage Tank	HC
Hydrocarbon	63	J. B. Kelley, Inc. Trucking Site	HC/ Misc
Hydrocarbon	64	Koch Materials Company Site	HC
Hydrocarbon	65	Nevada precast concrete products, Green Ventures International, Buckles Construction Company and Ebony Construction Sites	HC
Hydrocarbon	66	Above-Ground Diesel Storage Tank Leased by Flintkote Co.	HC
Hydrocarbon	68	Southern Nevada Auto Parts Site	HC/ Misc
Miscellaneous	1	Trade Effluent Settling Ponds	Misc
Miscellaneous	2	Open Area Due South of "Trade Effluent Disposal Ponds"	Misc
Miscellaneous	3	Air Pollution Emissions Associated with Industrial Processes	Misc
Miscellaneous	5	On-Site Portion of Beta Ditch, Including "Small Diversion Ditch" Northwest of Pond C-1	Misc
Miscellaneous	6	Unnamed Drainage Ditch Segment	Misc
Miscellaneous	10	On-Site Hazardous Waste Landfill	Misc
Miscellaneous	15	Platinum Drying Unit	P/ Cr/ Misc
Miscellaneous	16 & 17	Ponds AP-1 and AP-2, and Associated Transfer Lines and Ponds AP-3 and Associated Transfer Lines	P/ Misc
Miscellaneous	18	Pond AP-4	P/ Misc
Miscellaneous	19	Pond AP-5	P/ Misc
Miscellaneous	22	Pond WC-1 and Associated Piping	TDS/ Misc
Miscellaneous	23	Pond WC-2 and Associate Piping	TDS/ Misc
Miscellaneous	25	Process Hardware Storage Area	Misc
Miscellaneous	26	Trash Storage Area	Misc
Miscellaneous	27	PCB Storage Area	Misc
Miscellaneous	28	Hazardous Waste Storage Area	HC / Misc/ Cr
Miscellaneous	29	Solid Waste Dumpster	Misc
Miscellaneous	32	Ground Water Remediation Unit	Cr/ Misc
Miscellaneous	33	Sodium Perchlorate Platinum By-Product filter	P/ Misc
Miscellaneous	35	Truck Emptying/Dumping Site	Misc
Miscellaneous	36	Former Satellite Accumulation Points	Misc
Miscellaneous	37	Former Satellite Accumulation Points	Misc
Miscellaneous	38	Former Satellite Accumulation Points	Misc
Miscellaneous	40	PCB Transformer Spill	Misc
Miscellaneous	47	Leach Plant Area Manganese Ore Piles	Mn/ Misc
Miscellaneous	54	AP Plant Area Change House/ Laboratory Septic Tank	Misc
Miscellaneous	59	Storm Sewer System	Misc
Miscellaneous	60	Acid Drain System	Misc
Miscellaneous	62	State Industries, Inc. Site, Including Impoundments and Catch Basin	Misc
Miscellaneous	63	J. B. Kelley, Inc. Trucking Site	HC/ Misc
Miscellaneous	67	Delbert Madsen and Estate of Delbert Madsen Site	Misc
Miscellaneous	68	Southern Nevada Auto Parts Site	HC/ Misc
Miscellaneous	69	Dillon Potter Site	Misc

Notes:
P = Perchlorate
Cl = Chlorate
TDS = Total Dissolved Solids - Conductivity
Cr = Chlorate
Mn = Mangenese
B = Boron
HC = Hydrocarbon
Misc = Miscellaneous
* Kleinfelder; April 1993, Environmental Conditions Assessment KMCC Chemical Corporation, Henderson, NV; Appendix D.
**Division of Environmental Protection; August 1994, Phase II Letter of Understanding Between NDEP And KMCC.
No Action Required by NDEP
AP: Ammonium Perchlorate
PCB: Polychlorinated biphenyls
NDEP = Nevada Division of Environmental Protection
ECA = Environmental Conditions Assessment
LOU = Letter of Understanding
SWMU - Solid Waste Management Unit
KMCC Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Table 4
Site-Related Chemicals List
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Parameters of Interest	Compound List	Synonyms[13]	CAS Number	Media[1]	Analytical Method[2, 9, 10]	Laboratory Detection Limits [14]		Notes
						Soil (mg/kg)	Water (µg/L)	
Miscellaneous Compounds, Chemicals, and Products	ammonia	anhydrous ammonia, aqua ammonia, aqueous ammonia	7664-41-7	V,S,A	EPA 350.1 ammonia as N	0.75	30	Historically present in vapor form; Phase I; possibility of sorbing in soil and/or water; LDLs from ATL[11]
	ammonium perchlorate	perchloric acid ammonium salt	7790-98-9	S, A	EPA 350.1 ammonia as N	0.75	30	Phase I; LDLs from ATL
					EPA 314.0 as perchlorate	0.04	2	LDLs from ATL
					EPA 310.1 as alkalinity	NA[8]	NA[8]	NDEP request in 8/5/04 letter
	anti-foam agent	surfactants	NA	A	EPA 425.1 for surfactants	NA	25	NDEP request in 6/21/04 letter
	argon		7440-37-1	V	EPA 3CM	NA	NA	Historically present in the gas form. NDEP request in 6/21/04 letter
	barium hydroxide	barium dihydroxide	17194-00-2	S, A	EPA 6010B as barium	1.0	3	Phase I; LDLs from ATL
					EPA 150.1 as pH for water, EPA 9045C as pH for soil	0-14 range	0-14 range	
					SM 2320B alkalinity as hydroxide[10]	50	5000	NDEP request in 8/5/04 letter
	barium sulfide	barium sulphide	21109-95-5	S, A	EPA 6010B as barium	1.0	3	Phase I; LDLs from ATL
					EPA 376.2 as sulfide, EPA 9030B/9034 for soil	0.5	50	
					EPA 310.1 as alkalinity	NA[8]	NA[8]	NDEP request in 8/5/04 letter
	barium sulfate	barite	7727-43-7	S, A	EPA 6010B as barium	1	3	LDLs from ATL
					EPA 300.0 as sulfate	10	1000	
	barite	barium sulfate	7727-43-7	S, A	EPA 6010B as barium	1	3	LDLs from ATL
					EPA 300.0 as sulfate	10	1000	
	boric acid		10043-35-5	S,A	EPA 6010B as boron	10	50	LDLs from ATL
					EPA 150.1 as pH for water, EPA 9045C as pH for soil	0-14 range	0-14 range	
	boron carbide	B4-C; Tetrabor	12069-32-8	S, A	EPA 6010B as boron, carbide not analyzed	10	50	Phase I; LDLs from ATL
					EPA 310.1 as alkalinity	NA[8]	NA[8]	
					Total Organic Carbon (TOC) by 9060 for carbon[10]	NA[8]	NA[8]	
	boron tribromide	boron bromide	10294-33-4	S, A	EPA 6010B as boron	10	50	Phase I; LDLs from ATL
					EPA 300.0 as bromide	0.5	50	
	boron trichloride	trichloroborane, boron chloride	10294-34-5	S, A	EPA 6010B as boron	0.5	50	Phase I; LDLs from ATL
					EPA 300.0 as chloride	5	500	
					EPA 325.3 as chloride	20	2000	
	calcium carbonate	calcium salt of carbonic acid	471-34-1	S,A	EPA 6010B as calcium	10	500	Phase I; LDLs from ATL
					EPA 310.1 alkalinity as $CaCO_3$	50	5000	
	calcium chloride	scale	10043-52-4	S, A	EPA 6010B as calcium	10	500	NDEP request in 6/21/04 letter; LDLs from ATL
					EPA 300.0 as chloride	5	500	
					EPA 325.3 as chloride	20	2000	
	calcium hypochlorite	losantin, calcium hypochloride, hypochlorous acid calcium salt,	777-54-3	S, A	EPA 6010B as calcium	10	500	Phase I; LDLs from ATL
					EPA 330.3 as residual chlorine	2	200	
	calcium oxide (lime)	lime, calx, quicklime, calcium monoxide, burnt lime, airlock, calcia, caloxol cp2, calxyl, desical P, rhenosorb C	1305-78-8	S, A	EPA 6010B as calcium	10	500	LDLs from ATL
					EPA 150.1 as pH for water, EPA 9045C as pH for soil	0-14 range	0-14 range	
	calcium sulfate	anhydrous calcium sulfate, Anhydrous gypsum, Anhydrous	7778-18-1	S, A	EPA 6010B as calcium	10	500	Phase I; LDLs from ATL
					EPA 300.0 as sulfate	10	1000	

Table 4
Site-Related Chemicals List
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Parameters of Interest	Compound List	Synonyms[13]	CAS Number	Media[1]	Analytical Method[2, 9, 10]	Laboratory Detection Limits [14]		Notes
						Soil (mg/kg)	Water (µg/L)	
Miscellaneous Compounds, Chemicals, and Products (continued)	chlorine	molecular chlorine	7782-50-5	A,V	EPA 330.3 as residual chlorine	NA	200	Phase I; vapor contaminant will not be tested; possibility of dissolving in water.
	chelant (Nalco 1745)	Nalco 1745, dithiocarbamates	NA	A	None identified for long chain polymers present in dithiocarbamates	NA	NA[8]	NDEP request in 6/21/04 letter
	coagulants	ferric sulfide, aluminum sulfate, ferric chloride	various	S, A	Coagulants will be analyzed using the ion and metal analysis identified under the specific chemicals listed and EPA 425.1 for surfactants	varies	varies	NDEP request in 6/21/04 letter
	coal	carbon, trace metals	7440-44-0	A	Total Organic Carbon (TOC)-ASTM 5997 or EPA 9060, metals 6010B	NA	0.06	NDEP request in 6/21/04 letter
	coke	carbon, trace metals	NA	A	Total Organic Carbon (TOC)-ASTM 5997 or EPA 9060, metals 6010B	NA	0.06	NDEP request in 6/21/04 letter
	diatomaceous earth	diatomaceous silica, diatomite, precipitated amorphous silica, silica gel, silicon dioxide (amorphous)	7631-86-9	S,A	6010B as silica			
					EPA 310.1 as alkalinity	NA[8]	NA[8]	NDEP request in 8/5/04 letter
	filter aid	diatomaceous earth	NA	NA	see diatomaceous earth	NA	NA	NDEP request in 6/21/04 letter
	flammables		varies	S, A, V	EPA 1010 (flashpoint), ASTM E681-04	varies	varies	NDEP request in 6/21/04 letter; LDLs from ATL
	flocculents	alum; caustic; ferric chloride; ferric sulfate; ferrous sulfate; lime; sulfides; and polyelectrolytes	varies	S,A	Flocculants will be analyzed using the ion and metal analysis identified under the specific chemical listed, 6010 and 6020 for alum as aluminum, EPA 425.1 for surfactants, and ASTM 5997 TOC analysis for polyelectrolytes.	varies	varies	NDEP request in 6/21/04 letter
	graphite	carbon	7440-44-0	A	Total Organic Carbon (TOC)-ASTM 5997 or EPA 9060	NA	0.06	NDEP request in 6/21/04 letter
	hydrogen chloride	anhydrous hydrogen chloride; Aqueous hydrogen chloride (i.e., Hydrochloric acid, Muriatic acid)	7647-01-0	S,A	EPA 300.0 or 325.3 as chloride; Not analyzed as gas.	20	2000	Historically present in gas form, could enter soil or water if absorbed into water; LDLs from ATL
					EPA 150.1 as pH for water,EPA 9045C as pH for soil	NA	0-14 range	
	hydrogen peroxide	high-strength hydrogen peroxide, Hydrogen dioxide, Hydrogen peroxide (aqueous), Hydroperoxide, Peroxide	7722-84-1	A	EPA 150.1 as pH for water,EPA 9045C as pH for soil	NA	0-14 range	Strong oxidizer; relatively unstable compound that requires stabilization to avoid deterioration over time; no known analysis method
	hydrogen sulfide	hydrosulfuric acid, sewer gas, sulfuretted hydrogen	7783-06-4	S,A	EPA 376.2 as sulfide, EPA 9030B/9034 for soil , ASTM D5504 (vapor)	0.5	50	Historically present in vapor form; Phase I; LDLs from ATL(soil and water); LDL (vapor) 5 ppb (CAS)[12]
	iron oxide	ferric oxide,iron(III) oxide	1332-37-2	S, A	EPA 6010B as iron	10	500	Phase I; LDLs from ATL
					EPA 150.1 as pH for water, EPA 9045C as pH for soil	0-14 range	0-14 range	
	magnesium carbonate	carbonate magnesium, hydromagnesite, magnesium(II) carbonate	7439-95-4	S, A	EPA 6010B as magnesium	10	100	Phase I; LDLs from ATL
					EPA 310.1 alkalinity as $CaCO_3$	50	5000	
	magnesium chlorate		NA	S, A	EPA 6010B as magnesium	10	100	Phase I; LDLs from ATL
					EPA 300.0 as chlorate	See Note 5	300	
	magnesium chloride	magnesium (II) chloride	7786-30-3	S, A	EPA 6010B as magnesium	10	100	Phase I; LDLs from ATL
					EPA 300.0 as chloride	5	500	
					EPA 325.3 as chloride	20	2000	
	magnesium perchlorate	perchloric acid magnesium salt	10034-81-8	S, A	EPA 6010B as magnesium	10	100	Phase I; LDLs from ATL
					EPA 314.0 as perchlorate	0.04	2	

Table 4
Site-Related Chemicals List
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Parameters of Interest	Compound List	Synonyms[13]	CAS Number	Media[1]	Analytical Method[2, 9, 10]	Laboratory Detection Limits [14]		Notes
						Soil (mg/kg)	Water (µg/L)	
Miscellaneous Compounds, Chemicals, and Products (continued)	manganese dioxide	Manganese (IV) Oxide	1313-13-9	S, A	EPA 6010B as manganese	10	500	Phase I; LDLs from ATL
	manganese oxide	manganomanganic oxide, trimanganese tetraoxide, trimanganese tetroxide	1344-43-0	S, A	EPA 6010B as manganese	10	500	Phase I; LDLs from ATL
					EPA 150.1 as pH for water, EPA 9045C as pH for soil	0-14 range	0-14 range	
	manganese sulfate	manganese (II) sulphate, manganous sulphate, manganese (II) sulfate, manganese (2+) sulfate monohydrate, sulfuric acid manganese salt	7285-87-7	S, A	EPA 6010B as manganese	10	500	Phase I; LDLs from ATL
					EPA 300.0 as sulfate	10	1000	
	methyl mercury	mercury metal: colloidal mercury, metallic mercury, quicksilver	7439-97-6	S, A	EPA 7470A/7471A as mercury	0.1	0.2	LDLs from ATL
	paints		NA	S,A	EPA 6010B for metals	See Note 4	varies	Phase I
					EPA 8260B VOCs, EPA 8270C SVOCs	varies	varies	
	paraffin wax	paraffin	NA	S,A	EPA 8015M (C_{13}-C_{22} range)	30	0.50	Phase I
	potassium chlorate	chloric acid potassium salt, berthollet salt, chlorate of potash	3811-04-9	S, A	EPA 6010B as potassium	See Note 4	1000	Phase I; LDLs from ATL
					EPA 7610	25	500	
					EPA 300.0 as chlorate	See Note 5	300	
	potassium chloride	potassium monochloride, potassium muriate, monopotassium chloride, kalitabs, rekawan, slow K, super K, pfiklor, enseal, kaochlor, kaon-cl, potavescent	7447-40-7	S, A	EPA 6010B as potassium	See Note 4	1000	Phase I; LDLs from ATL
					EPA 7610	25	500	
					EPA 300.0 as chloride	5	500	
					EPA 325.3 as chloride	20	2000	
	potassium perchlorate	perchloric acid potassium salt	7440-09-7	S, A	EPA 6010B as potassium	See Note 4	1000	Phase I; LDLs from ATL
					EPA 7610	25	500	
					EPA 314.0 as perchlorate	0.04	2	
	potassium phosphate	potassium phosphate tribasic, potassium orthophosphate, tripotassium phosphate	7758-11-4	S, A	EPA 6010B as potassium	See Note 4	1000	Phase I; LDLs from ATL
					EPA 7610	25	500	
					EPA 365.3 as total phosphate	0.2	20	
					EPA 310.1 alkalinity	NA[8]	3	
	silica	diatomaceous earth, diatomaceous silica, diatomite, precipitated amorphous silica, silica gel, silicon dioxide (amorphous)	7631-86-9	S, A	6010B as silica	20	100	Phase I; LDLs from ATL
					EPA 310.1 alkalinity	NA[8]	3	NDEP request in 8/5/04 letter
	silicon tetrabromide	silicon (IV) bromide, silicon bromide, tetrabromosilane	7789-66-4	S, A	6010B as silica	20	100	Phase I; LDLs from ATL
	silicon tetrachloride	silicon chloride, tetrachlorosilane, silicon (IV) chloride	10026-04-7	S, A	6010B as silica	20	100	Phase I; LDLs from ATL
					EPA 300.0 as chloride	5	500	
					EPA 325.3 as chloride	20	2000	

Table 4
Site-Related Chemicals List
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Parameters of Interest	Compound List	Synonyms[13]	CAS Number	Media[1]	Analytical Method[2, 9, 10]	Laboratory Detection Limits [14]		Notes
						Soil (mg/kg)	Water (µg/L)	
Miscellaneous Compounds, Chemicals, and Products (continued)	sodium arsenite	sodium (meta)arsenite, arsenous acid sodium salt, sodium metaarsenite, Atlas A, chem pels C, chem-sen 56, Kill-all, penite, prodalumnol, sodanit, various trade names	7784-46-5	S, A	EPA 6010B as sodium	See Note 4	19	LOU Response; LDLs from ATL
					EPA 6010B as arsenic	1	10	
	sodium alpha olefin sulfonate	sodium tetradecene sulfonate, sodium C14-16 olefin sulfonate;C14-16-alkane hydroxy and C14-16-alkene	68439-57-6	S,A	EPA 6010B as sodium	See Note 4	19	Phase I; LDLs from ATL
	sodium borate	anhydrous borax, borax dehydrated, disodium salt of boric acid, disodium tetraborate, fused borax, sodium borate (anhydrous), sodium tetraborate	1330-43-4	S, A	EPA 6010B as sodium	See Note 4	19	Phase I; LDLs from ATL
					EPA 310.1 alkalinity	NA[8]	NA[8]	
	sodium carbonate	soda ash, disodium carbonate, carbonic acid disodium salt	497-19-8	S, A	EPA 6010B as sodium	See Note 4	19	Phase I; LDLs from ATL
					EPA 310.1 alkalinity as $CaCO_3$ [10]	50	5000	
	sodium chlorate	agrosan, asex, atlacide, atratol, b herbatox, desolet, drexel defol, evau-super, grain sorghum harvest-aid, granex O, Harvest-aid, hibar C, kusatol, leafex 2, ortho C-1 defoliant & weed killer, oxycil, rasikal, shed-a-leaf, soda chlorate, sodakem, travex, tumbleaf, val-drop	7775-09-9	S, A	EPA 6010B as sodium	See Note 4	19	Phase I; LDLs from ATL
					EPA 300.0 as chlorate	See Note 5	300	
	sodium chloride	extra fine 200 salt, extra fine 325 salt, H.G. blending, salt, sea salt, table salt, common salt, dendritis, rock salt, top flake, white crystal, saline, halite, purex, USP sodium chloride	7647-14-5	S, A	EPA 6010B as sodium	See Note 4	19	Phase I; LDLs from ATL
					EPA 300.0 as chloride	5	500	
					EPA 325.3 as chloride	20	2000	
	sodium dichromate	sodium bichromate	7789-12-0	S, A	EPA 6010B as sodium	See Note 4	19	Phase I; LDLs from ATL
					EPA 7196A as hexavalent chromium, EPA 3060A for soil	0.1	10	
					EPA 6010B as chromium	1	3	
	sodium hexametaphosphate	metaphosphoric acid hexasodium salt, glassy sodium metaphosphate, SHMP	10124-56-8	S, A	EPA 6010B as sodium	See Note 4	19	Phase I; LDLs from ATL
					EPA 365.3 as total PO_4	0.2	20	
					EPA 310.1 alkalinity	NA[8]	3	NDEP request in 8/5/04 letter

Table 4
Site-Related Chemicals List
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Parameters of Interest	Compound List	Synonyms[13]	CAS Number	Media[1]	Analytical Method[2, 9, 10]	Laboratory Detection Limits [14]		Notes
						Soil (mg/kg)	Water (µg/L)	
Miscellaneous Compounds, Chemicals, and Products (continued)	sodium hydrosulfide	sodium hydrogen sulphide, sodium hydrogen sulfide, sodium sulfhydrate, sodium bisulphide, sodium hydrosulphide, sodium bisulfide	16721-80-5	S, A	EPA 6010B as sodium	See Note 4	19	Phase I; LDLs from ATL
					EPA 376.2 as sulfide, EPA 9030B/9034 for soil	0.5	50	
					EPA 310.1 alkalinity	NA[8]	NA[8]	
	sodium hydroxide	caustic soda, lye, soda lye, sodium hydrate	1310-73-2	S, A	EPA 6010B as sodium	See Note 4	19	Phase I; LDLs from ATL
					EPA 310.1 alkalinity	NA[8]	NA[8]	NDEP request in 8/5/04 letter
					EPA 150.1 as pH for water, EPA 9045C as pH for soil	0-14 range	0-14 range	
	sodium oxide	disodium monoxide, sodium monoxide, disodium oxide	1313-59-3	S, A	EPA 6010B as sodium	See Note 4	19	Phase I; LDLs from ATL
					EPA 150.1 as pH for water, EPA 9045C as pH for soil	0-14 range	0-14 range	
	sodium perchlorate	perchloric acid sodium salt	7601-89-0	S, A	EPA 6010B as sodium	See Note 4	19	Phase I; LDLs from ATL
					EPA 314.0 as perchlorate	0.04	2	
	sodium sulfite	anhydrous sodium sulfite, sodium sulphite, S-WAT, sulftech, sulfurous acid sodium salt, disodium sulfite, exsiccated sodium sulfite	7757-83-7	S, A	EPA 6010B as sodium	See Note 4	19	Phase I; LDLs from ATL
					EPA 377.1 as sulfite	NA[8]	2000	
	strontium carbonate	carbonic acid strontium salt	1633-05-2	S, A	EPA 6010B as strontium	0.5	100	Phase I; LDLs from ATL
					EPA 310.1 alkalinity as $CaCO_3$	NA[8]	NA[8]	
	sulfur dioxide	sulfurous acid anhydride, sulfurous oxide, sulfur oxide	7446-09-5	V	NIOSH Method 6004	NA	NA	Historically present in gas form; detection limit 3 µg/sample
	synthetic detergent	surfactants	NA	A	EPA 425.1 as surfactants	NA	25	NDEP request in 6/21/04 letter
	tank mud	tank sediment	NA	S, A	EPA 6010B for total metals	See Note 4	varies	NDEP request in 6/21/04 letter
					EPA 150.1 as pH for water, EPA 9045C as pH for soil	0-14 range	0-14 range	
					EPA 7196A for hexevalent chromium EPA 3060A for soil	0.1	10	
					Ion analysis (see ions below)	see below	see below	
	tricalcium phosphate	calcium phosphate tribasic; tricalcium diphosphate; bone phosphate; calcium orthophosphate; calcium phosphate; calcium phosphate (3:2); calcium tertiary phosphate; phosphoric acid, calcium salt (2:3)	7758-87-4	S, A	EPA 6010B as calcium	10	500	Phase I; LDLs from ATL
					EPA 365.3 as total phosphate	0.5, 0.2	50, 20	
					EPA 310.1 alkalinity	NA[8]	3	NDEP request in 8/5/04 letter
	titanium tetrachloride			S, A	EPA 6010B as titanium	15.0	300	
					EPA 300.0 as chloride	5	500	Phase I; LDLs from ATL
					EPA 325.3 as chloride	20	2000	Phase I; LDLs from ATL
	unknowns	not known, not identified, non specific	NA		Various methods would be used as appropriate depending on the data available to refine the analytical suite. Refer to Table 3 or the complete list of analytical	varies	varies	NDEP request in 6/21/04 letter
	urea	B-I-K, carbamide, carbamide resin, isourea, pseudourea, carbonyldiamine	57-13-6	A	EPA 350.1 ammonia as N	0.75	30.0	Phase I; LDLs from ATL
	various lab wastes		NA	S, A,.V	Various methods would be used as appropriate. Refer to Table 3 for the complete list of analytical methods.	varies	varies	NDEP request in 6/21/04 and 8/5/04 letters

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Site-Related Chemicals List
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Parameters of Interest	Compound List	Synonyms[13]	CAS Number	Media[1]	Analytical Method[2, 9, 10]	Laboratory Detection Limits [14]		Notes
						Soil (mg/kg)	Water (µg/L)	
Ions	chlorate		14866-68-3	A	EPA 300.0 as chlorate	See Note 5	300	
	chloride		16887-00-6	S, A	EPA 300.0 as chloride	5	500	NDEP request in 6/21/04 letter; LDLs from ATL
				S, A	EPA 325.3 as chloride	20	2000	NDEP request in 6/21/04 letter; LDLs from ATL
	cyanide		57-12-5	S, A	EPA 335.1, EPA 335.2 as total cyanide	0.25	10	Phase I; LDLs from ATL
	nitrate		14797-55-8	S, A	EPA 300.0 as nitrate	1.0	100	
	perchlorate		7601-90-3	S, A	EPA 314.0 as perchlorate	0.04	2	Phase I; LDLs from ATL
	phosphate		14265-44-2	S, A	EPA 300.0 as ortho phosphate, EPA 365.1 as total phosphate	0.5	50	Phase I
					EPA 310.1 alkalinity	NA[8]	3	NDEP request in 8/5/04 letter
	sulfate		14808-79-8	S, A	EPA 300.0 as sulfate, EPA 375.4	1.0, 5.0	19, 1000	
	sulfide		18496-25-8	S, A	EPA 376.2 as sulfide, EPA 9030B/9034 for soil	1.0, 0.5	NA[8], 50	
					EPA 310.1 alkalinity	NA[8]	NA[8]	NDEP request in 8/5/04 letter
Asbestos	asbestos		1332-21-4	S, A	ISO 10312 TEC	NA	0.2 MFL*	Phase I
Metals	aluminum		7429-90-5	S, A	EPA 6010B as aluminum	10.0	500	LDLs from ATL
	antimony		7440-36-0	S, A	EPA 6010B as antimony	2.0	5	LDLs from ATL
	arsenic		7440-38-2	S, A	EPA 6010B as arsenic	1.0	10	LDLs from ATL
	barium		7440-39-3	S, A	EPA 6010B as barium	1.0	3	Phase I; LDLs from ATL
	beryllium		7440-41-7	S, A	EPA 6010B as beryllium	1.0	3	LDLs from ATL
	boron		7440-42-8	S, A	EPA 6010B as boron	10.0	50	Phase I; LDLs from ATL
	cadmium		7440-43-9	S, A	EPA 6010B as cadmium	1.0	3	LOU Response; LDLs from ATL
	calcium		7440-70-2	S, A	EPA 6010B as calcium	10.0	500	Phase I; LDLs from ATL
	chromium (hexavalent)		18540-29-9	S, A	EPA 7196A, EPA 3060A for soil	0.1	10	Phase I; LDLs from ATL
	chromium (total)		7440-47-3	S, A	EPA 6010B as total chromium	1.0	3	Phase I; LDLs from ATL
	cobalt		7440-48-4	S, A	EPA 6010B as cobalt	1.0	3	Phase I; LDLs from ATL
	copper		7440-50-8	S, A	EPA 6010B as copper	2.0	5	Phase I; LDLs from ATL
	iron		7439-89-6	S, A	EPA 6010B as iron	1.0	500	Phase I; LDLs from ATL
	lead		7439-92-1	S, A	EPA 6010B as lead	10.0	5	Phase I; LDLs from ATL
	magnesium		7439-96-5	S,A	EPA 6010B as magnesium	10.0	100	LDLs from ATL
	manganese		7439-96-4	S, A	EPA 6010B as manganese	1.0	500	Phase I; LDLs from ATL
	mercury		7439-97-6	S,A	EPA 7470A/7471A as mercury	0.1	200	LDLs from ATL
	molybdenum		7439-98-7	S, A	EPA 6010B as molybdenum	1.0	5	LOU Response; LDLs from ATL
	nickel		7440-02-0	S, A	EPA 6010B as nickel	1.0	5	Phase I; LDLs from ATL
	platinum		7440-06-4	S, A	EPA 6010B as platinum	15.0	300	Phase I; LDLs from ATL
	phosphorous		7723-14-0	S,A	EPA 200.7	0.5	200	LDLs from ATL
	potassium		7440-09-7	S, A	EPA 6010B as potassium	25.0	500	Phase I; LDLs from ATL
	selenium		7782-49-2	S, A	EPA 6010B as selenium	1.0	10	LDLs from ATL
	silica		7631-86-9	S,A	See Miscellaneous Compounds, Chemicals and Products listing			
	silver		744-22-4	S, A	EPA 6010B as silver	1.0	3.0	LOU Response; LDLs from ATL
	sodium		744-23-5	S, A	EPA 6010B as sodium	See Note 4	19	Phase I; LDLs from ATL
	strontium		7440-24-6	S,A	EPA 6010B as strontium	0.5	100	LDLs from ATL
	thallium		7440-28-0	S, A	EPA 6010B as thallium	1.0	15	LDLs from ATL
	tin		7440-31-5	S, A	EPA 6010B as tin	1.0	300	LDLs from ATL
	titanium		7440-32-6	S, A	EPA 6010B as titanium	15.0	300	LDLs from ATL
	tungsten		7440-33-7	S, A	Flame AAS (aqueous), ICP-AES (soil)	NA[8]	100	
	vanadium		7440-62-2	S, A	EPA 6010B as vanadium	1.0	3	LDLs from ATL
	zinc		744-66-6	S, A	EPA 6010B as zinc	1.0	10	Phase I; LDLs from ATL

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Site-Related Chemicals List
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Parameters of Interest	Compound List	Synonyms[13]	CAS Number	Media[1]	Analytical Method[2, 9, 10]	Laboratory Detection Limits [14]		Notes
						Soil (mg/kg)	Water (µg/L)	
Volatile Organic Compounds (VOCs)[6]	1,1,1-TCA	chlorothene; 1,1,1-trichloroethane; 1,1,1-trichloroethane (stabilized),	71-55-6	S, A	EPA 8260B	0.005	0.5	Phase I; LDLs from ATL
	2-butanone*	ethyl methyl ketone, MEK, methyl acetone, methyl ethyl	78-93-3	S, A	EPA 8260B	0.005	5	LOU Response
	2-hexanone*	methyl n-butyl ketone	591-78-6	S, A	EPA 8260B	0.005	5	
	acetone*	dimethyl ketone, ketone propane, 2-propanone	67-64-1	S, A	EPA 8260B	0.005	5	Phase II ECI
	benzene	benzol, phenyl hydride	71-43-2	S, A	EPA 8260B	0.001	1	Phase II ECI
	chlorobenzol	benzene chloride, chlorobenzol, MCB, monochlorobenzene, phenyl chloride	108-90-7	S, A	EPA 8260B	0.001	1	
	chloroform	methane trichloride, trichloromethane	67-66-3	S, A	EPA 8260B	0.001	1	Phase II ECI
	chlorinated organics		varies	S, A	EPA 8260B	0.001	1	NDEP request in 6/21/04 letter
	chlorinated paraffins		varies	S, A	EPA 8260B	0.001	1	NDEP request in 6/21/04 letter
	ethylbenzene		100-41-4	S,A	EPA 8260B	0.005	0.5	LDLs from ATL
	glycols*	varies	varies	S,A	EPA 8015C or EPA 8260B	200	200,000	LDLs from ATL
	methanol*	carbinol, columbian spirits, methyl alcohol, Pyroligneous spirit, Wood alcohol, Wood naphtha, Wood spirit	67-56-1	S, A	EPA 8260B, EPA 8015C	0.001	1.0	Phase I
	methyl isobutyl ketone*	isobutyl methyl ketone, hexone, 4 methyl 2-pentanone, MIBK	108-10-1	S	EPA 8260B	0.005	NA [8]	NDEP request in 6/21/04 letter
	methyl tert-butyl ether	MTBE	1634-04-4	S, A	EPA 8260B	0.001	0.05	NDEP request 8/05/04 letter
	monochlorobenzene	benzene chloride, chlorobenzol, MCB,chlorobenzene, phenyl chloride	108-90-7	S, A	EPA 8260B	0.001	1	Phase I
	orthodichlorobenzene	1,2 dichlorobenzene	95-50-1	S, A	EPA 8260B	0.001	1	as 1,2-, 1,3- and 1,4- isomers;
	paradichlorobenzene	1,4-dichlorobenzene, PDB, paracide	106-46-7	S, A	EPA 8260B	0.001	1	as 1,2-, 1,3- and 1,4- isomers; Phase I
	tetrachloroethylene	perchloroethylene, PCE, tetrachloroethene	127-18-4	S, A	EPA 8260B	0.001	1	
	toluene*	methyl benzene, methyl benzol, phenyl methane, toluol	108-88-3	S, A	EPA 8260B	0.001	1	Phase I
	trichloroethylene	trichloroethene, TCE	79-01-6	S, A	EPA 8260B	0.001	1	
	xylene	dimethylbenzene; xylol	1330-20-7	S, A	EPA 8260B as total xylenes	0.001	1	As total xylenes;LOU Response
Inorganic Acids	hydrochloric acid	muriatic acid	7647-01-0	S, A	EPA 325.3 as chloride	20	2,000	Phase I; LDLs from ATL
					EPA 150.1 as pH for water, EPA 9045C as pH for soil	0-14 range	0-14 range	
	sulfuric acid		7664-93-8	S, A	EPA 325.3 as sulfate	5	500	Phase I; LDLs from ATL
					EPA 150.1 as pH for water, EPA 9045C as pH for soil	0-14 range	0-14 range	
Chlorinated Herbicides	tumbleaf defoliant		NA	A	EPA 8151A	NA [8]	NA [8]	Phase I
Organophosphorous Pesticides	all	insecticides	varies	S, A	Method 8141A	varies	varies	

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Parameters of Interest	Compound List	Synonyms[13]	CAS Number	Media[1]	Analytical Method[2, 9, 10]	Laboratory Detection Limits [14]		Notes
						Soil (mg/kg)	Water (µg/L)	
Organochlorine Pesticides	DDT	p,p'-DDT, dichlorodiphenyltrichloroethane	50-29-3	S	EPA 8081A as 4,4-DDT	0.002	0.05	Phase I; LDLs from ATL
	DDE	4,4'-DDE, dichlorodiphenyldichloroethylene	72-55-9	S	EPA 8081A	0.002	0.05	LDLs from ATL
	DDD	4,4'-DDD, dichlorodiphenyldichloroethane	72-54-8	S	EPA 8081A	10	0.01	NDEP Sept 29, 2004 letter
	insecticides		NA	A	EPA 8081A	0.01	0.6 -0.8	Phase I
	pesticides		NA	S,A	EPA 8081A	0.0017	0.6 -0.8	Phase I
Organic Acids	citric acid		77-92-9	S,A	EPA 150.1 as pH for water, EPA 9045C as pH for soil	0-14 range	0-14 range	
Petroleum Hydrocarbons	TPH				EPA 8015M full range, BTEX and MTBE by 8260B, lead by 6010B, PAHs by 8270C or 8310			Phase I
	C_4-C_{12}	gasoline		S,A	EPA 8015M	1	200	Phase I; LDLs from ATL
	C_{13}-C_{22}	paraffin wax, diesel		S,A	EPA 8015M	10	200	Phase I; LDLs from ATL
	C_{23+}	grease, crude oils		S,A	EPA 8015M	10	200	Phase I; LDLs from ATL
Polychlorinated Biphenyls (PCBs)	PCBs				EPA 8082			Phase I
	aroclor 1016		1267-41-12	S,A	EPA 8082	0.1	0.5	Phase I
	aroclor 1221		1110-42-82	S,A	EPA 8082	0.2	0.5	Phase I
	aroclor 1232		1114-11-65	S,A	EPA 8082	0.1	0.5	Phase I
	aroclor 1242		5346-92-19	S,A	EPA 8082	0.1	0.5	Phase I
	aroclor 1248		1267-22-96	S,A	EPA 8082	0.1	0.5	Phase I
	aroclor 1254		1109-76-91	S,A	EPA 8082	0.1	0.5	Phase I
	aroclor 1260		1109-68-25	S,A	EPA 8082	0.1	0.5	Phase I
Polychlorinated Dibenzodioxins/ Dibenzofurans	dioxins/furans		varies	S,A	EPA 1613	varies	varies	
Semivolatile Organic Compounds (SVOCs) and Polynuclear Aromatic Hydrocarbons (PAHs)	PAHs				EPA 8270C/8310			Phase I
	acenaphthene		83-32-9	S,A	EPA 8270C/8310	0.01	5	Phase I
	acenaphthylene		206-96-8	S,A	EPA 8270C/8310	0.01	5	
	anthracene		120-12-7	S,A	EPA 8270C/8310	0.01	5	Phase I
	benz(a)anthracene		56-55-3	S,A	EPA 8270C/8310	0.01	5	Phase I
	benzo(a)pyrene		50-32-8	S,A	EPA 8270C/8310	0.01	5	Phase I
	benzo(b)fluoranthene		205-99-2	S,A	EPA 8270C/8310	0.01	5	Phase I
	benzo(k)fluoranthene		207-08-9	S,A	EPA 8270C/8310	0.01	5	Phase I
	benzo(ghi)perylene		191-24-2	S,A	EPA 8270C/8310	0.01	5	
	chrysene		218-01-9	S,A	EPA 8270C/8310	0.01	5	Phase I
	dibenz(a,h)anthracene		53-70-3	S,A	EPA 8270C/8310	0.01	10	Phase I
	fluoranthene		206-44-0	S,A	EPA 8270C/8310	0.01	5	Phase I
	fluorene		89-73-7	S,A	EPA 8270C/8310	0.01	5	Phase I
	hexachlorobenzene		118-74-1	S	EPA 8270C	0.07	0.36	NDEP Sept 29, 2004 letter
	indeno(1,2,3-cd)pyrene		193-39-5	S,A	EPA 8270C/8310	0.01	10	Phase I
	naphthalene		97-20-3	S,A	EPA 8270C/8310	0.01	0.5	Phase I
	nitrobenzene		98-95-3	S, A	EPA 8270C	0.33	10	Phase I
	octachlorostyrene		29082-74-4	S,A	EPA 8270C/625	0.01	5	Phase I
	phenanthrene		85-01-8	S,A	EPA 8270C/8310	0.01	5	
	pyrene		129-00-0	S,A	EPA 8270C/8310	0.01	5	Phase I
	pyridine*		110-86-1	S, A	EPA 8270C or 8260B	1.65	5	Phase I; LDLs from ATL

Table 4
Site-Related Chemicals List
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Parameters of Interest	Compound List	Synonyms[13]	CAS Number	Media[1]	Analytical Method[2, 9, 10]	Laboratory Detection Limits [14]		Notes
						Soil (mg/kg)	Water (µg/L)	
Radionuclides Note: units are picocuries per liter (pCi/L) unless noted	actinium 228		14331-83-0	S	EML HASL 300	See Note 7	NA	NDEP request 8/05/04 letter
				A	EPA 900.0(gross alpha/beta), EPA 901.1(gamma)	NA	5, 20	
	bismuth 212		14913-49-6	S	EML HASL 300	See Note 7	NA	NDEP request 8/05/04 letter
				A	EPA 900.0(gross alpha/beta), EPA 901.1(gamma)	NA	5, 20	
	gross alpha (adjusted) [3]			A	EPA 900.0/SW9310	NA	5	NDEP request 2/11/04 letter
				S	SW9310/EML HASL 300	See Note 7	See Note 7	
	lead (isotopic)	Pb-210	14255-04-0	S	EML HASL 300	See Note 7	NA	NDEP request 8/05/04 letter
				A	EPA 909	NA	0.2	
		Pb-212	15092-94-2	S	EML HASL 300	See Note 7	NA	
				A	EPA 901.1/SW9310	NA	20	
	polonium 210		13981-52-7	S, A	EML HASL 300 Po 02 RC	0.001	0.001	bq/1000 = becquerels per 1000 min
	radium 226		13982-63-3	S	EML HASL 300	See Note 7	NA	NDEP request 2/11/04 letter
				A	EPA 903.1	NA	0.2	
	radium 228		15262-20-1	A	EPA 904.0	NA	2.5	
				S	EML HASL 300	See Note 7	NA	
	radon 222		10043-92-2	A	EPA 913.0	NA	0.4 Bq/L	NDEP request 8/05/04 letter
	thorium (isotopic)	includes Th-228, Th-229, Th-230, Th-232, Th-234	varies	S,A	EML HASL-300; A-01-R Mod/HASL 300	See Note 7	See Note 7	NDEP request 2/11/04 & 8/05/04 (Th-234) letters
	uranium (isotopic)	includes U-232, U-233/234, U-235/236, U-238	varies	S,A	EML HASL 300	See Note 7	See Note 7	
	uranium (total)		7440-61-1	A	EPA ASTM D5174	NA	0.05	NDEP request 2/11/04 letter
Water Quality Parameters	TDS	total dissolved solids	NA	A	EPA 160.1 as total dissolved solids	NA	10,000	Phase I
	TSS	total suspended solids	NA	A	EPA 160.2 as total suspended solids	NA	10,000	
	pH		NA	A	EPA 150.1 as pH for water, EPA 9045C as pH for soil	NA	0-14 range	

Notes:
[1] Abbreviations used: S = soil sample; A = aqueous sample; V = vapor sample
[2] Analytical Method may test for ions or indicators, not necessarily the compound listed
[3] Adjusted gross alpha is calculated by subtracting the effects of uranium and radon 222 from gross alpha
[4] For metals analyzed per Method 6010B, the method protocol requires soil samples to be digested into solution prior to analysis. Therefore, the Detection Limits are given in units of ug/L.
[5] For EPA Method 300.0 (ion analysis) soil samples are extracted into liquid, therefore the LDLs are given in units of ug/L. These LDLs are method detection limits (MDLs)
[6] For VOCs or SVOCs analyzed per EPA Method 8260B, the method states that Method Detection Limits (MDLs) vary depending on instrument sensitivity and matrix effects. Therefore, the MDLs are estimated by dividing the estimated quantitation limits (EQLS) by a factor of 5, per the method protocol.
[7] For EML Method HASL 300, LDLs are lab specific.
[8] For LDLs marked NA, there were no LDLs listed in the National Environmental Methods Index, and no other references could be found to supply LDLs for this method.
[9] pH testing : chemicals that are not listed for method EPA 150.1 or 9045C pH tests may be tested, if necessary, on a case by case basis in soil or aqueous medium.
[10] alkalinity testing : chemicals that are not listed for method EPA 310.1 may be tested, if necessary, on a case by case basis in soil or aqueous medium.
[11] ATL (Advanced Technology Laboratories): this lab was consulted for various analytical methods and LDLs.
[12] CAS (Columbia Analytical Services) : this air lab was consulted for various vapor analyses.
[13] Synonyms from ptcl.chem.ox.ac.uk/msds.
[14] Laboratory Detection limits listed are based on published or laboratory specific information and will vary in individual samples.

General Notes:
* = non-halogenated organics.
mg/L = milligrams per liter.
µg/L = micrograms per liter.
LDL = Laboratory Detection Limit
LOU = Letter of Understanding between Kerr McGee Chemical Corporation (KMCC) and NDEP, August 15, 1994.
NA - not available or not applicable.
NDEP= Nevada Division of Environmental Protection
Phase I = Kleinfelder, Inc. Environmental Conditions Assessment (ECA), KMCC, Henderson Nevada, April 1993. Also known as the ECA Investigation.
Phase II = ENSR Environmental Conditions Assessment at KMCC Henderson Nevada, August 7, 1997.
MFL* = Asbestos, Million fibers per Liter.
PAH's and PCB's are itemized, not all may be present on site.
If cell is blank, the compound was not on the referenced regulatory list

Table 5
Alphabetized Site Related Chemicals List
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

1,1,1-TCA	chlorinated paraffins	napthalene	TDS
2-butanone	chlorine	nickel	tetrachloroethylene
2-hexanone	chlorobenzol	nitrate	thallium
acenaphthene	chloroform	nitrobenzene	thorium (isotopic)
acenaphthylene	chromium (hexavalent)	octachlorostyrene	tin
acetone	chromium (total)	orthodichlorobenzene	titanium
actinium 228	chrysene	PAHs	titanium tetrachloride
all organophosphorous pesticides	citric acid	paints	toluene
aluminum	coagulants	paradichlorobenzene	TPH
ammonia	coal	paraffin wax	tricalcium phosphate
ammonium perchlorate	cobalt	PCBs	trichloroethylene
anthracene	coke	perchlorate	TSS
anti-foam agent	copper	pesticides	tumbleaf defoliant
antimony	cyanide	pH	tungsten
argon	DDD	phenanthrene	unknowns
aroclor 1016	DDE	phosphate	uranium (isotopic)
aroclor 1221	DDT	phosphorous	uranium (total)
aroclor 1232	diatomaceous earth	platinum	urea
aroclor 1242	dibenz(a,h)anthracene	polonium 210	vanadium
aroclor 1248	dioxins/furans	potassium	various lab wastes
aroclor 1254	ethylbenzene	potassium chlorate	xylene
aroclor 1260	filter aid	potassium chloride	zinc
arsenic	flammables	potassium perchlorate	
asbestos	flocculants	potassium phosphate	
barite	fluoranthene	pyrene	
barium	fluorene	pyridine	
barium hydroxide	glycols	radium 226	
barium sulfate	graphite	radium 228	
barium sulfide	gross alpha (adjusted)	radon 222	
benz(a)anthracene	hexachlorobenzene	selenium	
benzene	hydrochloric acid	silica	
benzo(a)pyrene	hydrogen chloride	silicon tetrabromide	
benzo(b)fluoranthene	hydrogen peroxide	silicon tetrachloride	
benzo(ghi)perylene	hydrogen sulfide	silver	
benzo(k)fluoranthene	indeno(1,2,3-cd)pyrene	sodium	
beryllium	insecticides	sodium alpha olefin sulfonate	
bismuth 212	iron	sodium arsenite	
boric acid	iron oxide	sodium borate	
boron	lead	sodium carbonate	
boron carbide	lead (isotopic)	sodium chlorate	
boron tribromide	magnesium	sodium chloride	
boron trichloride	magnesium carbonate	sodium dichromate	
C_{13}-C_{22}	magnesium chlorate	sodium hexametaphosphate	
C_{23+}	magnesium chloride	sodium hydrosulfide	
C_4-C_{12}	magnesium perchlorate	sodium hydroxide	
cadmium	manganese	sodium oxide	
calcium	manganese dioxide	sodium perchlorate	
calcium carbonate	manganese oxide	sodium sulfite	
calcium chloride	manganese sulfate	strontium	
calcium hypochlorite	mercury	strontium carbonate	
calcium oxide (lime)	methanol	sulfate	
calcium sulfate	methyl isobutyl ketone	sulfide	
chelant (Nalco 1745)	methyl mercury	sulfur dioxide	
chlorate	methyl tert-butyl ether	sulfuric acid	
chloride	molybdenum	synthetic detergent	
chlorinated organics	monochlorobenzene	tank mud	

Table 6

Site Related Chemicals with PRGs, SSLs and MCLs

Kerr-McGee Chemical LLC Facility, Henderson, Nevada

KMCC Site Related Chemicals	PRG Residential Soil (mg/kg)	PRG Industrial Soil (mg/kg)	SSL DAF 1 (mg/kg)	Tap Water (ug/l)	MCL (mg/l)	Comment
acetone	14000	54000	0.80	5,500		
aluminum	76,000	100,000	--	36,000		
ammonia	--	--	--		--	
antimony	31	410	0.30	150	0.006	Antimony and compounds
arsenic	22	255			0.01	
arsenic (cancer endpoint)	0.39	1.6	1	0.045		
asbestos					7 MFL*	
barium	5,400	67,000	82	2,600	2	Barium and compounds
benzene	0.64	1	0.002	0.35	0.005	
beryllium	150	1,900	3	73	0.004	Beryllium and compounds
boron	16,000	100,000	--	7,300	--	
cadmium	37	450	0.40	18	0.005	Cadmium and compounds
chlorine	--	--	--	--	4	
chloroform	0.22	0.47	0.03	0.17	0.08	
chromium (total)	210	450	2	--	0.10	1:6 ratio Cr VI: CR III
chromium (VI)	30	64	2	110	0.05	
cobalt	900	1,900	--	730		
copper	3,100	41,000	--	1,500	1.30**	Copper and compounds
cyanide	1,200	12,000	--	730	0.20	free product
dioxins/furans	0.0000039 / 2	0.000016 / 8	--	0.00000047	-- / 0.00000003'	Dioxin (2,3,7,8-TCDD)
DDT	1	7	2			
hydrogen chloride	--	--	--	--		
hydrogen sulfide	--	--	--	110		
iron	23,000	100,000	--	11,000		
lead	400	800	--	--	0.015 **	
manganese	1,800	19,000	--	880	--	Manganese and compounds
mercury (elemental)	--	--	--		0.002	
mercury (methyl)	6	62	--	3		
methanol	31,000	100,000	--	18,000		
methyl isobutyl ketone	5,300	47,000	--	2,000		
molybdenum	390	5,100	--	180	--	
monochlorobenzene					0.10	
nickel	1,600	2,000	7	730	--	Nickel (soluble salts)
nitrates	--	--	--	10,000	10	
nitrobenzene	20	100	0.01	3		
orthodichlorobenzene						
Polynuclear aromatic hydrocarbons (PAHs)	--	--	--	--		
Acenaphthene	3,700	29,000	29	370		
Anthracene	22,000	100,000	590	1,800	--	
Benz[a]anthracene	0.62	2	0.08	0.092	--	
Benzo[b]fluoranthene	0.62	2	0.20	0.092	--	
Benzo[k]fluoranthene	6	21	2	0.92	--	
Benzo[a]pyrene	0.062	0.21	0.40	0.00092	0.0002	
Chrysene	62	210	8	9	--	
Dibenz[ah]anthracene	0.062	0.21	0.08	0.0092		
Fluoranthene	2,300	22,000	210	1,500		
Fluorene	2,700	26,000	28	240	--	
Indeno[1,2,3-cd]pyrene	0.62	2.00	0.70	0.092	--	
Naphthalene	56	190	4	6	--	
Pyrene	2,300	29,000	210	180	--	

Table 6

Site Related Chemicals with PRGs, SSLs and MCLs

Kerr-McGee Chemical LLC Facility, Henderson, Nevada

KMCC Site Related Chemicals	PRG Residential Soil (mg/kg)	PRG Industrial Soil (mg/kg)	SSL DAF 1 (mg/kg)	Tap Water (ug/l)	MCL (mg/l)	Comment
paradichlorobenzene					0.001	
PCBs	0.22	0.74	--		0.0005	
Aroclor 1016	3	21	--	0.96		
Aroclor 1221	0.22	0.74	--			
Aroclor 1232	0.22	0.74	--			
Aroclor 1242	0.22	0.74	--			
Aroclor 1248	0.22	0.74	--			
Aroclor 1254	0.22	0.74	--	0.034		
Aroclor 1260	0.22	0.74	--			
perchlorate	7	100	--	3		MCL 0.024 mg/l proposed
pyridine	610	620	--	360		
selenium	390	5,100	0.30	180	0.05	
silver	390	5,100	2	180		Silver and compounds
strontium carbonate	47,000	100,000	--	22,000		
TDS						
thallium	5	67	--	2	0.002	Thallium and compounds
titanium	100,000	100,000	--	150,000		
toluene	520	520	0.60	720	1	
Toxaphene	0.44	1	2	0.061	0.003	
1,1,1-TCA	1,200	1,200	0.10	3,200	0.20	
TCE	0.053	0.11	0.003	0.028		
vanadium	780	1,000	300	36		vanadium and compounds
xylene	270	420	10	210	10	
zinc	23,000	100,000	620	11,000	--	
coke	--	--	--	--		coke oven emissions
DDD	2	10	0.80	0.28		
DDE	1	7	3	0.2		
ethylbenzene	400	400	0.70	1,300	0.70	
hexachlorobenzene	0.30	1	0.10	0.042	0.001	
methyl-tert-butyl ether (MTBE)	32	70	--	11		
phosphorous	1	20	--	0.73		phosphorous white
strontium	47,000	100,000	--	22,000		
tetrachloroethylene	0.48	1	0.003	0.10	0.005	
tin	47,000	100,000	--	22,000		
uranium (total)	16	200	--	7		chemical toxicitiy only

Notes:

-- = Chemical is on the EPA list but there is no Goal or Level Established for the referenced category.

MFL* = Asbestos, Million fibers per Liter

** = Action Level (mg/L), for Copper and Lead

PRG = Preliminary Remediation Goals

SSL = Soil Screening Levels

DAF1 = Dilution Attenuation Factor

MCL = Maximum Contaminant Level

PAH's and PCB's are itemized, not all may be present on site.

PRG and SSL DAF1 data from EPA Region 9 PRG's October 2004 Table

MCL data from EPA 2004 Edition of the Drinking Water Standards and Health Advisories.

If cell is blank, the compound was not on the referenced regulatory list.

Site related chemcials which do not have PRGs and/or MCLs listed are not shown on this list

Table 7
Summary of Analytical Data for LOU #16, 17, 18, and 19
AP Ponds
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Analysis of water for Nitrates

Well #	Sample Date	Nitrates (mg/l) EPA Method 300	Comments
M-17	1997	509	Nitrate or nitrite as nitrogen
M-25	1997	624	Nitrate or nitrite as nitrogen
M-89	1997	1130	Nitrate or nitrite as nitrogen

Periodic analysis of water from key nearby wells

Well #	Sample Date	Total Depth (ft bgs)	Depth to Water	pH (Lab)	EC (Lab)	Cr-total (ppm)	ClO_4 (ppm)	LAB	Location
M-17	1/1/96	43.05	34.72	7.30	10720	--	40	--	Upgradient
M-17	2/1/96	43.05	34.92	7.17	13210	--	50	--	Upgradient
M-17	3/1/96	43.05	34.82	7.34	10940	--	50	--	Upgradient
M-17	8/24/97	43.05	--	--	--	--	880	KMC	Upgradient
M-17	9/15/97	43.05	34.55	7.34	9410	--	--	KMC	Upgradient
M-17	4/27/98	43.05	34.22	7.42	9510	--	1300	KMC	Upgradient
M-17	5/6/99	43.05	34.63	7.17	19400	39	1550	KMC	Upgradient
M-17	5/5/00	43.05	35.35	7.16	21900	40	2200	KMC	Upgradient
M-17	1/25/01	43.05	35.57	7.10	23100	--	1700	KMC	Upgradient
M-17	2/20/01	43.05	35.53	7.22	22100	--	1500	KMC	Upgradient
M-17	3/29/01	43.05	35.30	7.10	22350	--	1500	KMC	Upgradient
M-17	4/25/01	43.05	35.35	7.19	22400	--	1600	KMC	Upgradient
M-17	5/15/01	43.05	35.43	7.10	22400	--	1600	KMC	Upgradient
M-17	6/22/01	43.05	37.05	7.20	22400	--	1500	KMC	Upgradient
M-17	7/24/01	43.05	35.26	7.20	21700	--	1600	KMC	Upgradient
M-17A	6/20/03	55.00	32.91	--	8340	--	472	KMC	Upgradient
M-17A	5/7/04	55.00	--	7.20	17260	42	1000	MW	Upgradient
M-17A	8/4/04	55.00	--	7.40	16370	37	970	MW	Upgradient
M-25	1/1/96	42.15	34.88	7.27	10150	--	140	--	Downgradient
M-25	2/1/96	42.15	34.78	7.21	11620	--	70	--	Downgradient
M-25	3/1/96	42.15	34.08	7.39	9470	--	80	--	Downgradient
M-25	8/24/97	42.15	--	--	--	--	780	KMC	Downgradient
M-25	9/15/97	42.15	33.45	7.07	11510	--	--	KMC	Downgradient
M-25	4/27/98	42.15	33.05	7.15	9500	--	740	KMC	Downgradient
M-25	5/6/99	42.15	33.33	7.30	11560	13	700	KMC	Downgradient
M-25	5/5/00	42.15	33.53	7.16	11900	12	820	KMC	Downgradient
M-25	1/26/01	42.15	34.38	7.20	11560	--	650	KMC	Downgradient
M-25	2/20/01	42.15	33.93	7.27	11800	--	650	KMC	Downgradient
M-25	3/29/01	42.15	33.69	7.20	11540	--	630	KMC	Downgradient
M-25	4/25/01	42.15	33.58	7.27	11700	--	580	KMC	Downgradient
M-25	5/4/01	42.15	33.58	--	11220	--	650	KMC	Downgradient
M-25	5/15/01	42.15	34.87	7.20	11220	--	650	KMC	Downgradient
M-25	6/22/01	42.15	34.11	7.20	11250	--	630	KMC	Downgradient
M-25	7/24/01	42.15	33.89	7.30	11150	--	610	KMC	Downgradient
M-25	8/27/01	42.15	34.25	7.30	11270	--	--	KMC	Downgradient
M-25	1/29/02	42.15	--	7.4	9990	--	660	MW	Downgradient
M-25	2/26/02	42.15	--	7.3	9980	--	560	MW	Downgradient
M-25	4/29/02	42.15	32.82	7.3	10850	40	570	MW	Downgradient
M-25	12/10/02	42.15	33.07	7.6	10400	11	840	MW	Downgradient
M-25	1/21/03	42.15	33.27	7.2	10940	10	--	MW	Downgradient

Table 7
Summary of Analytical Data for LOU #16, 17, 18, and 19
AP Ponds
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Well #	Sample Date	Total Depth (ft bgs)	Depth to Water	pH (Lab)	EC (Lab)	Cr-total (ppm)	ClO_4 (ppm)	LAB	Location
M-25	4/30/03	42.15	33.23	--	11400	--	590	MW	Downgradient
M-25	7/9/03	42.15	33.36	7.2	10860	11	550	MW	Downgradient
M-25	11/4/03	42.15	33.76	7.4	11380	12	520	MW	Downgradient
M-25	3/1/04	42.15	33.96	7.4	11040	13	550	MW	Downgradient
M-25	5/6/04	42.15	32.73	7.2	10380	12	580	MW	Downgradient
M-25	8/4/04	42.15	--	7.5	9660	12	590	MW	Downgradient
M-89	1/1/96	40.00	30.94	7.17	10570	--	160	--	**Down**gradient from LOU 16, 17, & 18; **Up**gradient from LOU 19
M-89	2/1/96	40.00	30.89	7.09	10470	--	150	--	
M-89	3/1/96	40.00	31.34	7.25	9220	--	140	--	
M-89	8/24/97	40.00	--	--	--	--	1200	KMC	
M-89	9/15/97	40.00	32.83	7.08	13970	--	--	KMC	
M-89	4/27/98	40.00	32.59	7.22	11080	--	1300	KMC	
M-89	5/6/99	40.00	32.84	7.20	16200	31	1300	KMC	
M-89	5/5/00	40.00	33.46	7.92	18600	32	1600	KMC	
M-89	1/29/01	40.00	34.07	7.00	18150	--	1300	KMC	
M-89	2/20/01	40.00	33.71	7.04	19200	--	1200	KMC	
M-89	3/29/01	40.00	33.41	7.20	18000	--	1200	KMC	
M-89	4/25/01	40.00	33.47	7.08	19000	--	1100	KMC	
M-89	5/4/01	40.00	33.47	--	17240	--	1200	KMC	
M-89	5/15/01	40.00	34.69	7.10	17240	--	1200	KMC	
M-89	6/22/01	40.00	34.21	7.10	17300	--	1200	KMC	
M-89	7/24/01	40.00	34.51	7.10	16530	--	1100	KMC	
M-89	8/27/01	40.00	32.64	7.30	16750	--	--	KMC	
M-89	1/29/02	40.00	--	7.2	18300	--	1400	--	
M-89	2/26/02	40.00	--	7.1	18380	--	1300	--	
M-89	4/29/02	40.00	32.83	7.0	18250	4	1400	MW	
M-89	6/17/02	40.00	--	--	19870	29.5	1490	KMC	
M-89	12/10/02	40.00	33.31	7.4	17400	35	3000	MW	
M-89	1/21/03	40.00	33.29	7.0	18740	32	1300	MW	
M-89	5/1/03	40.00	33.37	--	19190	--	1200	MW	
M-89	7/9/03	40.00	33.46	7.0	18320	32	1200	MW	
M-89	11/4/03	40.00	33.77	7.2	19140	38	1000	MW	
M-89	2/2/04	40.00	33.99	7.1	18330	40	1000	MW	
M-89	5/7/04	40.00	32.73	7.0	17000	36	1200	MW	
M-89	8/5/04	40.00	--	7.3	16280	36	990	MW	

Notes:
mg/l = milligrams per liter
ft bgs = feet below ground surface
EC = Electrical Conductivity
ClO_4: Perchlorate
-- = Either no data was obtained or was not analyzed for the respective constituent.
ppm = parts per million
Labs: KMC Kerr-McGee Corporation
MW Montgomery Watson
Nitrate and 1996 Well Data from Kerr-McGee, Response to LOU Comments, 1996
Well Data From: Kerr-McGee Chemical LLC Company, Mother-hen Database.

Table 7
Summary of Analytical Data for LOU #16, 17, 18, and 19
AP Ponds
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Summary of Analytical Data for LOU # 16 and 17

Analysis from AP Ponds

Sample Analyzed for: TCLP Extraction (Metals), ICAP Analysis of Extract for Chromium.
Sample Analysis by: Kerr-McGee Chemical LLC, Analytical Chemistry Section, Henderson NV.

Sample ID	Date	Chromium TCLP, Method 6010 (mg/l)
Soil Samples		
AP-1-1	6/7/1993	3.95
AP-1-2	6/7/1993	2.97
AP-1-3	6/7/1993	3.04
AP-1-4	6/7/1993	4.49
AP-1-5	6/7/1993	1.42
AP-1-6	6/7/1993	3.25
AP-1-7	6/7/1993	3.21
AP-1-8	6/7/1993	2.71
AP-2-1	6/7/1993	5.58
AP-2-2	6/7/1993	3.59
AP-2-3	6/7/1993	2.38
AP-2-4	6/7/1993	2.56
AP-2-5	6/7/1993	4.93
AP-2-6	6/7/1993	1.25
AP-2-7	6/7/1993	0.914
AP-2-8	6/7/1993	1.23
AP-4	6/7/1993	0.038
Water Samples		
AP-1: Liquid	5/21/1993	<0.12
AP-2: Liquid	5/21/1993	<0.12
AP-4: Liquid	5/21/1993	<0.12
AP-5: Liquid	5/21/1993	0.23

Notes:
mg/l = milligrams per liter
Data from Kerr-McGee, 1996b, Response to LOU Comments

Table 8
Summary of Analytical Data for LOU #7 and #8
Old P-2 and P-3 Ponds
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Boring Number	Sample Date	Sample Depth (ft bgs)	Total Chromium [1] (mg/kg)	pH [2]
Old P-2 Pond				
SB2-9	Apr-97	0-1.0	493 [4]	9.5
SB2-9 [3]	Apr-97	2-3	141	9.7 [4]*
SB2-10	Apr-97	0-1.0	1,560 [4]	9.8
SB2-10 [3]	Apr-97	2-3	679	10.0*
SB2-11	Apr-97	0-1.0	1,130 [4]	9.6
SB2-11 [3]	Apr-97	2-3	107	10*
SB2-12	Apr-97	0-1.0	884 [4]	9.5
SB2-12	Apr-97	2-3	861	9.4
SB2-13	Apr-97	0-1.0	532 [4]	9.9
SB2-13	Apr-97	0-1.0-DUP	481 [4]	9.9
SB2-13 [3]	Apr-97	2-3	23.5	10.2*
P-3 Pond				
SB2-1	Apr-97	0-1.0	1,030	9.7 [3]
SB2-1S	Apr-97	Lab Dup	1,030 [4]	9.7 3
SB2-1	Apr-97	2-3	131	9.9
SB2-2	Apr-97	0-1.0	108 [4]	9.6
SB2-2 [2]	Apr-97	2-3	2,130	9.6*
SB2-2D [3]	Apr-97	Lab Dup	1,770	9.60*
SB2-3	Apr-97	0-1.0	92.6 [4]	10.3
SB2-3	Apr-97	2-3	NA	NA
SB2-4	Apr-97	0-1.0	261 [4]	10.4
SB2-4 [3]	Apr-97	2-3	78.7	10.4*
SB2-5	Apr-97	0-1.0	131	9.7
SB2-5	Apr-97	2-3	NA	NA
SB2-6	Apr-97	0-1.0	24.8 [4]	9.1
SB2-6	Apr-97	2-3	NA	NA
SB2-7	Apr-97	0-1.0	224 [4]	9.7
SB2-7 [3]	Apr-97	2-3	181	10.5*
SB2-8	Apr-97	0-1.0	1,890 [4]	10
SB2-8	Apr-97	0-1.0-DUP	1,680 [4]	9.9
SB2-8 [3]	Apr-97	2-3	1,780	9.9*
Old P-2 Pond – Interior				
SB2-14-1.5	Mar-99	1.5	59	10
SB2-14-1.5D	Mar-99	Duplicate-1.5	76	10
SB2-14-3	Mar-99	3	45	10
SB2-14-4.5	Mar-99	4.5	36	10
SB2-14-6	Mar-99	6	54	9.6
SB2-14-7.5	Mar-99	7.5	51	9.5
SB2-14-9	Mar-99	9	40	9.7
SB2-14-10.5	Mar-99	10.5	42	9.7
SB2-14-12	Mar-99	12	82	9.8
SB2-14-13.5	Mar-99	13.5	57	9.6
SB2-14-15	Mar-99	15	92	9.2
SB2-14-16.5	Mar-99	16.5	75	9.5
SB2-14-18	Mar-99	18	140	9.3
SB2-14-19.5	Mar-99	19.5	46	8.5
SB2-14-21	Mar-99	21	110	8.7
SB2-14-22.5	Mar-99	22.5	100	8.5

Table 8
Summary of Analytical Data for LOU #7 and #8
Old P-2 and P-3 Ponds
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Boring Number	Sample Date	Sample Depth (ft bgs)	Total Chromium [1] (mg/kg)	pH [2]
SB2-14-24	Mar-99	24	320	8.1
SB2-14-25.5	Mar-99	25.5	250	8.5
SB2-14-27	Mar-99	27	540	8.2
SB2-14-28.5	Mar-99	28.5	280	8.3
SB2-14-30	Mar-99	30	160	8.6
SB2-14-31.5	Mar-99	31.5	99	8.7
SB2-14-33	Mar-99	33	46	8.2
SB2-15-1.5	Mar-99	1.5	98	9.5
SB2-15-3	Mar-99	3	63	9.6
SB2-15-4.5	Mar-99	4.5	150	9.3
SB2-15-6	Mar-99	6	170	9.4
SB2-15-7.5	Mar-99	7.5	230	8.9
SB2-15-9	Mar-99	9	210	9.1
SB2-15-10.5	Mar-99	10.5	200	9.5
SB2-15-12	Mar-99	12	170	9.2
SB2-15-13.5	Mar-99	13.5	190	9.3
SB2-15-15	Mar-99	15	160	9.1
SB2-15-16.5	Mar-99	16.5	18	9.2
SB2-15-18	Mar-99	18	20	9.9
SB2-15-19.5	Mar-99	19.5	27	9.5
SB2-15-21	Mar-99	21	21	9.6
SB2-15-22.5	Mar-99	22.5	31	8.7
SB2-15-24	Mar-99	24	51	8.1
SB2-15-25.5	Mar-99	25.5	61	8.2
SB2-15-27	Mar-99	27	100	8.6
SB2-15-28.5	Mar-99	28.5	53	9.2
SB2-15-30	Mar-99	30	23	9.7
SB2-15-31.5	Mar-99	31.5	28	9.2
SB2-15-33	Mar-99	33	26	8.9
Old P-3 Pond – Interior				
SB2-16-1.5	Mar-99	1.5	22	9.1
SB2-16-3	Mar-99	3	19	9.2
SB2-16-3D	Mar-99	Duplicate-3	17	9
SB2-16-4.5	Mar-99	4.5	18	9
SB2-16-6	Mar-99	6	15	8.9
SB2-16-7.5	Mar-99	7.5	20	8.7
SB2-16-9	Mar-99	9	44	8.6
SB2-16-10.5	Mar-99	10.5	23	8.6
SB2-16-12	Mar-99	12	18	8.6
SB2-16-13.5	Mar-99	13.5	17	8.6
SB2-16-15	Mar-99	15	14	8.5
SB2-16-16.5	Mar-99	16.5	12	8.4
SB2-16-18	Mar-99	18	12	8.7
SB2-16-19.5	Mar-99	19.5	11	8.8
SB2-16-21	Mar-99	21	12	8.8
SB2-16-22.5	Mar-99	22.5	11	8.8
SB2-16-24	Mar-99	24	18	8.7
SB2-16-25.5	Mar-99	25.5	16	8.2
SB2-16-27	Mar-99	27	16	8.3
SB2-16-28.5	Mar-99	28.5	51(Jl)	8.2
SB2-16-30	Mar-99	30	20	8.3
SB2-16-31.5	Mar-99	31.5	21	8.5

Table 8
Summary of Analytical Data for LOU #7 and #8
Old P-2 and P-3 Ponds
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Boring Number	Sample Date	Sample Depth (ft bgs)	Total Chromium [1] (mg/kg)	pH [2]
SB2-16-33	Mar-99	33	23	8.1
SB2-16-34.5	Mar-99	34.5	22	8.1
SB2-17-1.5	Mar-99	1.5	140	10
SB2-17-3	Mar-99	3	38	9.5
SB2-17-4.5	Mar-99	4.5	36	9.6
SB2-17-6	Mar-99	6	32	9.7
SB2-17-7.5	Mar-99	7.5	28	9.8
SB2-17-9	Mar-99	9	32	9.7
SB2-17-10.5	Mar-99	No sample taken		
SB2-17-12	Mar-99	12	47	9.6
SB2-17-13.5	Mar-99	13.5	53	9.3
SB2-17-15	Mar-99	15	130	9.3
SB2-17-16.5	Mar-99	16.5	160	9.2
SB2-17-18	Mar-99	18	190	8.9
SB2-17-19.5	Mar-99	19.5	78	9.1
SB2-17-21	Mar-99	21	87	9.1
SB2-17-22.5	Mar-99	22.5	87	9.1
SB2-17-24	Mar-99	24	85	9.1
SB2-17-25.5	Mar-99	25.5	140	9.2
SB2-17-27	Mar-99	27	130	8.8
SB2-17-28.5	Mar-99	28.5	190	8.2
SB2-17-30	Mar-99	30	48	8.2
SB2-17-31.5	Mar-99	31.5	47	8.4
SB2-17-33	Mar-99	33	100	8.7
Old P-2 Pond – North Perimeter				
SB2-18-2	Mar-99	2	13	9.1
SB2-18-5D	Mar-99	Duplicate-5	13	8.5
SB2-18-6.5	Mar-99	6.5	14	9.2
SB2-18-8	Mar-99	8	19	8.8
SB2-1 8-9.5	Mar-99	9.5	8.2	8.1
SB2-18-11	Mar-99	11	15	8.2
SB2-18-12.5	Mar-99	12.5	19	8.4
SB2-18-14	Mar-99	14	14	8.3
SB2-18-15.5	Mar-99	15.5	15	8
SB2-18-17	Mar-99	17	14	8.1
SB2-18-18.5	Mar-99	18.5	14	7.9
SB2-18-20	Mar-99	20	21	8.1
SB2-18-21.5	Mar-99	21.5	18	8.1
SB2-18-23	Mar-99	23	12	8.1
SB2-18-24.5	Mar-99	24.5	12	8
SB2-18-26	Mar-99	26	7.9	7.9
SB2-18-27.5	Mar-99	27.5	10	8.1
SB2-18-29	Mar-99	29	12	8.2
SB2-18-30.5	Mar-99	30.5	8.9	8
SB2-18-32	Mar-99	32	8.8	7.9
SB2-18-33.5	Mar-99	33.5	9.2	8.3
SB2-18-35	Mar-99	35	14	7.8
SB2-18-36.5	Mar-99	36.5	14	7.9
SB2-18-38	Mar-99	38	39	8.1
SB2-18-39.5	Mar-99	39.5	29	8.9
SB2-18-41	Mar-99	41	44	8.3
Old P-2 Pond East Perimeter				

Table 8
Summary of Analytical Data for LOU #7 and #8
Old P-2 and P-3 Ponds
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Boring Number	Sample Date	Sample Depth (ft bgs)	Total Chromium [1] (mg/kg)	pH [2]
SB2-19-2	Mar-99	2	3.6	9.7
SB2-19-6.5	Mar-99	6.5	3.4	9.9
SB2-19-8	Mar-99	8	12	9.6
SB2-19-9.5	Mar-99	9.5	12	8.7
SB2-19-11	Mar-99	11	10	9.7
SB2-19-12.5	Mar-99	12.5	12	9.2
SB2-19-14	Mar-99	14	11	8.8
SB2-19-15.5	Mar-99	15.5	11	9.6
SB2-19-17	Mar-99	17	14	8.8
SB2-19-18.5	Mar-99	18.5	11	8.7
SB2-19-20	Mar-99	20	10	8.5
SB2-19-21.5	Mar-99	21.5	13	8.8
SB2-19-23	Mar-99	23	10	8.3
SB2-19-24.5	Mar-99	24.5	8.4	8.8
SB2-19-26	Mar-99	26	9.5	8.8
SB2-19-27.5	Mar-99	27.5	8.1	8.4
SB2-19-29	Mar-99	29	7.9	8.6
SB2-19-30.5	Mar-99	30.5	11	8.6
SB2-19-32	Mar-99	32	9.6	8.3
SB2-19-33.5	Mar-99	33.5	11	8.1
SB2-19-35	Mar-99	35	20	8.2
SB2-19-36.5	Mar-99	36.5	30	8.1
SB2-19-38	Mar-99	38	22	8.1
SB2-19-39.5	Mar-99	39.5	23	8.1
SB2-19-41	Mar-99	41	20	8.2
SB2-19-42.5	Mar-99	42.5	27	8.1
Old P-3 Pond – North Perimeter				
SB2-20-6.5	Mar-99	6.5	31	8.3
SB2-20-6.5D	Mar-99	6.5D	31	8.3
SB2-20-7	Mar-99	7	39	8.2
SB2-20-9.5	Mar-99	9.5	49	8.3
SB2-20-11	Mar-99	11	40	8.2
SB2-20-11D	Mar-99	Duplicate-11	42	8.3
SB2-20-12.5	Mar-99	12.5	39	8.4
SB2-20-14	Mar-99	14	44	9
SB2-20-15.5	Mar-99	15.5	54	8.7
SB2-20-17	Mar-99	17	42	8.9
SB2-20-18.5	Mar-99	18.5	36	8.7
SB2-20-20	Mar-99	20	37	8.8
SB2-20-21.5	Mar-99	21.5	39	8.7
SB2-20-23	Mar-99	23	42	8.8
SB2-20-24.5	Mar-99	24.5	39	8.7
SB2-20-26	Mar-99	26	39	8.7
SB2-20-27.5	Mar-99	27.5	23	9.8
SB2-20-29	Mar-99	29	30	9.2
SB2-20-30.5	Mar-99	30.5	16	9.7
SB2-20-32	Mar-99	32	15	9.5
SB2-20-33.5	Mar-99	33.5	14	8.9
SB2-20-35	Mar-99	35	100	8.8
SB2-20-36.5	Mar-99	36.5	53	9
SB2-20-38	Mar-99	38	39	9.3
SB2-20-39.5	Mar-99	39.5	19	9.2

Table 8
Summary of Analytical Data for LOU #7 and #8
Old P-2 and P-3 Ponds
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Boring Number	Sample Date	Sample Depth (ft bgs)	Total Chromium [1] (mg/kg)	pH [2]
SB2-20-41	Mar-99	41	22	8.8
Old P-3 Pond – West Perimeter				
SB2-21-6.5	Mar-99	6.5	10	8.4
SB2-21-8	Mar-99	8	13	8.2
SB2-21-8D	Mar-99	Duplicate-8	13	8.5
SB2-21-9.5	Mar-99	9.5	11	8
SB2-21-11	Mar-99	11	12	8
SB2-21-12.5	Mar-99	12.5	12	8.6
SB2-21-14	Mar-99	14	15	8.4
SB2-21-15.5	Mar-99	15.5	12	8.5
SB2-21-17	Mar-99	17	14	8.6
SB2-21-18.5	Mar-99	18.5	14	8.4
SB2-21-20	Mar-99	20	15	8.4
SB2-21-21.5	Mar-99	21.5	13	8.5
SB2-21-23	Mar-99	23	15	8.8
SB2-21-24.5	Mar-99	24.5	13	8.6
SB2-21-26	Mar-99	26	12	8.8
SB2-21-27.5	Mar-99	27.5	11	9
SB2-21-29	Mar-99	29	6.5	9.4
SB2-21-30.5	Mar-99	30.5	13	9.2
SB2-21-32	Mar-99	32	10	9.1
SB2-21-33.5	Mar-99	33.5	24	8.2
SB2-21-35	Mar-99	35	16	8.4
SB2-21-36.5	Mar-99	36.5	18	8.2
SB2-21-38	Mar-99	38	28	8.1
SB2-21-39.5	Mar-99	39.5	23	8.1
SB2-21-41	Mar-99	41	18	8.1
SB2-21-42.5	Mar-99	42.5	21	8.1
Old P-3 Pond – Southern Perimeter				
SB2-22-6.5	Mar-99	6.5	12	8.9
SB2-22-8	Mar-99	8	13	8.6
SB2-22-9.5	Mar-99	9.5	12	8.6
SB2-22-11	Mar-99	11	12	8.5
SB2-22-12.5	Mar-99	12.5	14	8.5
SB2-22B-15.5	Mar-99	15.5	17	8.4
SB2-22B-17	Mar-99	17	17	8.2
SB2-22B-18.5	Mar-99	18.5	15	8.1
SB2-22B-20	Mar-99	20	14	8.2
SB2-22B-21.5	Mar-99	21.5	16	8.4
SB2-22B-23	Mar-99	23	15	8.5
SB2-22B-24.5	Mar-99	24.5	14	7.9
SB2-22B-26	Mar-99	26	12	8.4
SB2-22B-27.5	Mar-99	27.5	10	8.3
SB2-22B-29	Mar-99	29	6	8.5
SB2-22B-30.5	Mar-99	30.5	8	8.4
SB2-22B-32	Mar-99	32	13	8.4
SB2-22B-33.5	Mar-99	33.5	6.6	8.1
SB2-22B-35	Mar-99	35	18	7.8
SB2-22B-36.5	Mar-99	36.5	12	8.4
SB2-22B-38	Mar-99	38	25	8.4
SB2-22B-39.5	Mar-99	39.5	19	8.2
SB2-22B-41	Mar-99	41	21	8.1

Table 8
Summary of Analytical Data for LOU #7 and #8
Old P-2 and P-3 Ponds
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Boring Number	Sample Date	Sample Depth (ft bgs)	Total Chromium [1] (mg/kg)	pH [2]
SB2-22B-42.5	Mar-99	42.5	25	8.1
SB2-22B-44	Mar-99	44	19	8.2
Old P-2 Pond – Southwest Perimeter				
SB2-23-6.5	Mar-99	6.5	14	8.9
SB2-23-8	Mar-99	8	15	8.9
SB2-23-9.5	Mar-99	9.5	15	9.1
SB2-23-11	Mar-99	11	12	8.8
SB2-23-12.5	Mar-99	12.5	14	8.8
SB2-23-14	Mar-99	14	14	8.7
SB2-23-15.5	Mar-99	15.5	15	8.7
SB2-23-17	Mar-99	17	11	8.8
SB2-23-18.5	Mar-99	18.5	14	8.7
SB2-23-20	Mar-99	20	12	8.6
SB2-23-20D	Mar-99	Duplicate-20	13	8.9
SB2-23-21.5	Mar-99	21.5	14	8.7
SB2-23-23	Mar-99	23	8.9	8.9
SB2-23-24.5	Mar-99	24.5	15	9.1
SB2-23-26	Mar-99	26	7.6	8.5
SB2-23-27.5	Mar-99	27.5	12	8.3
SB2-23-29	Mar-99	29	12	8.3
SB2-23-30.5	Mar-99	30.5	15	8.2
SB2-23-32	Mar-99	32	16	8.5
SB2-23-33.5	Mar-99	33.5	47	8.5
SB2-23-35	Mar-99	35	16	8.5
SB2-23-36.5	Mar-99	36.5	18	8.4
SB2-23-38	Mar-99	38	23	8.3
SB2-23-39.5	Mar-99	39.5	32	8.5
SB2-23-41	Mar-99	41	20	8.5
Old P-2 Pond – Southern Perimeter				
SB2-24-6.5	Mar-99	6.5	18	8.6
SB2-24-7	Mar-99	7	16	8.4
SB2-24-9.5	Mar-99	9.5	14	8.4
SB2-24-11	Mar-99	11	16	8.8
SB2-24-12.5	Mar-99	12.5	15	9.9
SB2-24-14	Mar-99	14	16	9.7
SB2-24-15.5	Mar-99	15.5	16	9.5
SB2-24-17	Mar-99	17	15	9.3
SB2-24-18.5	Mar-99	18.5	11	9.6
SB2-24-20	Mar-99	20	12	9.2
SB2-24-20D	Mar-99	20	15	9.3
SB2-24-21.5	Mar-99	21.5	13	9.1
SB2-24-23	Mar-99	23	10	8.4
SB2-24-24.5	Mar-99	24.5	11	8.2
SB2-24-26	Mar-99	26	10	8.3
SB2-24-27.5	Mar-99	27.5	6	8.1
SB2-24-29	Mar-99	29	14	8
SB2-24-30.5	Mar-99	30.5	11	8.3
SB2-24-32	Mar-99	32	15	8.5
SB2-24-33.5	Mar-99	33.5	9.3	8.5
SB2-24-35	Mar-99	35	32	8.1
SB2-24-36.5	Mar-99	36.5	42	8.3
SB2-24-38	Mar-99	38	17	8.2

Table 8
Summary of Analytical Data for LOU #7 and #8
Old P-2 and P-3 Ponds
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Boring Number	Sample Date	Sample Depth (ft bgs)	Total Chromium [1] (mg/kg)	pH [2]
SB2-24-39.5	Mar-99	39.5	99	8.2
SB2-24-41	Mar-99	41	37	8.5

Notes:
[1] = Chromium analysis used EPA Method 6010. Regulatory Limit is 0.5 mg/kg.
[2] = pH analysis used Method 9045
ft bgs = feet below ground surface
0-12 = shallow sample (referred to as -S in text) collected from 0 to 12 inches bgs
24-36 = deep sample (referred to as -D in text) collected from 24 to 36 inches bgs
Lab Dup= Laboratory Duplicate Analysis
-DUP = duplicate sample
Duplicate 1.5 = Duplicate Sample taken at the specific depth (i.e. 1.5 feet bgs)
SB2-23-20D = Duplicate Sample taken at specified depth (i.e. 20 feet bgs)
ND = Not detected at laboratory reporting limit = <0.01 mg/kg
NA =not analyzed
* = Holding time for soil pH had expired
[3] = Sample removed from hold status and analyzed after receiving preliminary shallow sample results. Holding time for pH had already expired.
[4] = Relative percent difference (RPD) exceeded acceptable quality control limits.
Data From: SB2-1 through SB2-13 from ENSR, 1997, Phase II ECA; SB2-14 through SB2-24 from ENSR, 2001, Supplemental Phase II ECA.

Table 9
Summary of Analytical Data for LOU # 9
New P-2 Ponds, Nearby Groundwater Analytical Data
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

WELL #	Sample Date	Total Depth (ft bgs)	Depth to Water	pH (Lab)	EC (Lab)	Cr-total (ppm)	ClO_4 (ppm)	LAB	Location
M-2A	8/24/97	--	--	--	--	--	650	KMC	Downgradient
M-2A	9/15/97	--	41.02	7.31	13000	--	--	KMC	Downgradient
M-2A	4/27/98	46.71	41.41	7.28	6180	--	740	KMC	Downgradient
M-2A	5/6/99	46.71	41.09	7.29	10900	20	800	KMC	Downgradient
M-2A	5/5/00	46.71	41.78	7.39	14400	29	780	KMC	Downgradient
M-2A	5/4/01	46.71	41.85	7.43	11700	25	580	KMC	Downgradient
M-2A	4/30/02	--	40.55	7.3	12660	24	560	MW	Downgradient
M-2A	4/30/03	--	41.37	--	14470	--	690	MW	Downgradient
M-2A	5/6/04	--	--	7.3	13700	29	700	MW	Downgradient
M-21	8/24/97	--	--	--	--	--	52	KMC	Upgradient
M-21	9/15/97	--	41.50	7.35	6000	--	NS	KMC	Upgradient
M-21	4/27/98	44.63	42.05	7.28	6180	--	NS	KMC	Upgradient
M-21	5/6/99	44.63	41.10	7.02	6460	4.00	66	KMC	Upgradient
M-21	5/5/00	44.63	41.67	7.52	6410	3.30	50	KMC	Upgradient
M-21	5/4/01	44.63	41.30	--	6200	--	49	KMC	Upgradient
M-21	4/30/02	--	40.00	6.9	5580	3.6	54	MW	Upgradient
M-21	4/30/03	--	41.09	--	5720	--	49	MW	Upgradient
M-21	5/6/04	--	--	7.0	2970	0.8	24	MW	Upgradient
M-50	9/15/97	61.77	46.17	7.08	19560	--	--	KMC	Upgradient
M-50	4/27/98	--	46.45	7.17	16050	--	--	KMC	Upgradient
M-50	10/21/98	--	46.50	--	--	--	--	--	Upgradient
M-50	5/6/99	61.77	46.32	7.03	27800	59.00	1700	KMC	Upgradient
M-50	5/5/00	61.77	46.66	7.24	30200	66.00	1700	KMC	Upgradient
M-50	5/4/01	61.77	46.54	--	30500	--	1800	KMC	Upgradient
M-50	4/30/02	--	45.50	7.1	26900	92	1700	MW	Upgradient
M-50	12/9/02	--	46.30	7.2	26400	64	1900	MW	Upgradient
M-50	1/21/03	--	46.40	7.0	25600	59	1960	MW	Upgradient
M-50	5/1/03	--	46.08	--	26800	--	1500	MW	Upgradient
M-50	7/9/03	--	46.68	7.2	26200	67	1700	MW	Upgradient
M-50	8/13/03	--	46.36	--	--	--	--	--	Upgradient
M-50	9/8/03	--	46.42	--	--	--	--	--	Upgradient
M-50	10/5/03	--	46.44	--	--	--	--	--	Upgradient
M-50	11/4/03	--	46.54	7.2	26800	67	1500	MW	Upgradient
M-50	12/8/03	--	46.61	--	--	--	--	--	Upgradient
M-50	1/8/04	--	46.62	--	--	--	--	--	Upgradient
M-50	2/2/04	--	46.33	7.2	24900	67	1400	MW	Upgradient
M-50	3/1/04	--	45.54	--	--	--	--	--	Upgradient
M-50	4/1/04	--	45.36	--	--	--	--	--	Upgradient
M-50	5/3/04	--	45.63	7.2	20300	55	1100	MW	Upgradient
M-50	6/10/04	--	46.33	--	--	--	--	--	Upgradient
M-50	8/4/04	--	--	7.4	21100	58	1200	MW	Upgradient
M-75	4/27/98	--	42.51	7.39	5130	--	--	KMC	Downgradient
M-75	5/6/99	63.32	42.00	7.50	8610	8.80	160	KMC	Downgradient
M-75	5/5/00	63.32	42.53	7.74	9140	12.00	180	KMC	Downgradient
M-75	5/4/01	63.32	43.00	7.67	8180	11.00	150	KMC	Downgradient
M-75	5/1/02	--	41.44	7.7	7260	5.1	100	MW	Downgradient
M-75	5/1/03	--	42.05	--	7410	--	24	MW	Downgradient
M-75	5/6/04	--	--	7.7	6080	4.8	78	MW	Downgradient
M-76	8/24/97	--	--	--	--	--	200	KMC	Downgradient
M-76	9/15/97	54.17	39.79	7.57	8940	--	--	KMC	Downgradient
M-76	4/27/98	--	39.85	7.52	5440	--	200	KMC	Downgradient
M-76	10/21/98	--	39.52	--	--	--	--	--	Downgradient

Table 9
Summary of Analytical Data for LOU # 9
New P-2 Ponds, Nearby Groundwater Analytical Data
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

WELL #	Sample Date	Total Depth (ft bgs)	Depth to Water	pH (Lab)	EC (Lab)	Cr-total (ppm)	ClO_4 (ppm)	LAB	Location
M-76	5/6/99	54.17	38.32	7.51	8570	14.00	220	KMC	Downgradient
M-76	5/5/00	54.17	39.56	7.80	8000	11.00	160	KMC	Downgradient
M-76	5/4/01	54.17	39.40	7.69	7480	11.00	130	KMC	Downgradient
M-76	4/30/02	--	37.84	7.6	6360	8	98	MW	Downgradient
M-76	12/10/02	--	39.33	7.9	6370	6.1	--	MW	Downgradient
M-76	1/21/03	--	39.43	7.6	6250	4.8	--	MW	Downgradient
M-76	5/1/03	--	38.65	--	6840	--	120	MW	Downgradient
M-76	7/9/03	--	39.56	--	--	--	--	--	Downgradient
M-76	8/13/03	--	39.64	--	--	--	--	--	Downgradient
M-76	9/8/03	--	39.74	--	--	--	--	--	Downgradient
M-76	10/5/03	--	39.81	--	--	--	--	--	Downgradient
M-76	11/4/03	--	39.93	--	--	--	--	--	Downgradient
M-76	12/8/03	--	39.97	--	--	--	--	--	Downgradient
M-76	1/8/04	--	40.02	--	--	--	--	--	Downgradient
M-76	2/2/04	--	40.03	--	--	--	--	--	Downgradient
M-76	3/1/04	--	39.90	--	--	--	--	--	Downgradient
M-76	4/1/04	--	39.76	--	--	--	--	--	Downgradient
M-76	5/7/04	--	39.27	7.7	6190	4.8	100	MW	Downgradient
M-76	6/10/04	--	39.56	--	--	--	--	--	Downgradient

Notes:
ft bgs = feet below ground surface
EC = Electrical Conductivity
Cr-total: Total Chromium
ClO_4: Perchlorate
ppm = parts per million
-- = Either no data was obtained or was not analyzed for the respective constituent.
Labs: KMC Kerr-McGee Corporation
MW Montgomery Watson
Well Data From: Kerr-McGee Chemical LLC Company, Mother-hen Database.

Table 10
Summary of Analytical Data for LOU # 13
Pond S-1 Analytical Data
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Analysis of soil from Pond S-1 for EP Toxicity for Chromium

Sample #	Sample Date	Chromium (mg/l) MDL= 0.02 mg/l	LAB
S-1 NW Corner	3/8/84	0.05	Water Analysis Laboratory, Desert Research Institute
S-1 SW Corner	3/8/84	<0.02	Water Analysis Laboratory, Desert Research Institute
S-1 W Center	3/8/84	<0.02	Water Analysis Laboratory, Desert Research Institute
S-1 E Center	3/8/84	0.11	Water Analysis Laboratory, Desert Research Institute
S-1 NE Corner	3/8/84	0.02	Water Analysis Laboratory, Desert Research Institute
S-1 SE Corner	3/8/84	<0.02	Water Analysis Laboratory, Desert Research Institute
M-1 Background	3/8/84	<0.02	Water Analysis Laboratory, Desert Research Institute
M-21 Background	3/8/84	<0.02	Water Analysis Laboratory, Desert Research Institute
M-4 Background	3/8/84	<0.02	Water Analysis Laboratory, Desert Research Institute
A-1	8/24/84	0.03	Water Analysis Laboratory, Desert Research Institute
A-2	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
A-3	8/24/84	0.02	Water Analysis Laboratory, Desert Research Institute
A-4	8/24/84	0.02	Water Analysis Laboratory, Desert Research Institute
A-5	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
A-6	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
B-1	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
B-2	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
B-3	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
B-4	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
B-5	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
B-6	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
C-1	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
C-2	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
C-3	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
C-4	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
C-5	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
C-6	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
D-1	8/24/84	0.02	Water Analysis Laboratory, Desert Research Institute
D-2	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
D-3	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
D-4	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
D-5	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute
D-6	8/24/84	<0.02	Water Analysis Laboratory, Desert Research Institute

Notes:
MDL = Method Detection Limit
mg/l = milligrams per liter
< = not detected above the designated method detection limit.
Data from Kerr-McGee, 1996b, Response to LOU Comments

Table 11
Summary of Analytical Data for LOU # 14
Pond P-1 Analytical Data
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Analysis of soil from Pond P-1 for EP Toxicity for Chromium

Sample #	Sample Date	Chromium (mg/l) MDL= 0.10 mg/l	LAB
B-1 0 - 0.5'	8/9/85	0.11	Water Analysis Laboratory, Desert Research Institute
B-1 0.5 - 1.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-1 1.5 - 2.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-1 2.5 - 3.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-1 3.5 - 4.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-2 0 - 0.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-2 0.5 - 1.5'	8/9/85	0.41	Water Analysis Laboratory, Desert Research Institute
B-2 1.5 - 2.5'	8/9/85	0.10	Water Analysis Laboratory, Desert Research Institute
B-2 2.5 - 3.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-2 3.5 - 4.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-13 0 - 0.5'	8/9/85	0.27	Water Analysis Laboratory, Desert Research Institute
B-3 0.5 - 1.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-3 1.5 - 2.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-3 2.5 - 3.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-3 3.5 - 4.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-4 0 - 0.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-4 0.5 - 1.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-4 1.5 - 2.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-4 2.5 - 3.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-4 3.5 - 4.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-5 0 - 0.5'	8/9/85	0.21	Water Analysis Laboratory, Desert Research Institute
B-5 0.5 - 1.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-5 1.5 - 2.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-5 2.5 - 3.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-5 3.5 - 4.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-6 0 - 0.5'	8/9/85	0.25	Water Analysis Laboratory, Desert Research Institute
B-6 0.5 - 1.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute
B-6 1.5 - 2.5'	8/9/85	0.10	Water Analysis Laboratory, Desert Research Institute
B-6 2.5 - 3.5'	8/9/85	0.11	Water Analysis Laboratory, Desert Research Institute
B-6 3.5 - 4.5'	8/9/85	<0.10	Water Analysis Laboratory, Desert Research Institute

Notes:
MDL = Method Detection Limit
mg/l = milligrams per liter
< = not detected above the designated method detection limit.
Data from Kerr-McGee, 1996b, Response to LOU Comments

Table 12
Summary of Analytical Data for LOU # 15
Platinum Drying Unit
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Analysis of soil from Platinum Sludge Pit Solids

Sample Matrix: **Soil**
Sample Analysis by Lockheed Analytical Laboratory

Sample #	Date	TCLP Metals Analysis EPA Method 6010 (mg/l)							
		Arsenic	**Barium**	**Cadmium**	**Chromium**	**Lead**	**Mercury [1]**	**Selenium [2]**	**Silver**
Sample # 8	1/15/1993	<1.0	<10	<0.1	1.1	<1.0	<0.02	<0.1	<0.5
Analysis Method		6010	6010	6010	6010	6010	7471	7740	6010
Regulatory Limit		5.0	100.0	1.0	5.0	5.0	0.2	1.0	5.0
Reporting Limit		1.0	10.0	0.1	0.5	1.0	0.02	0.1	0.5

Notes:
mg/l = milligrams per liter
[1] = EPA Method for Mercury was 7471
[2] = EPA Method for Selenium was 7740
< = not detected above the designated method reporting limit.
Data from Kerr-McGee, 1996b, Response to LOU Comments

Analysis of Soil Surrounding the Platinum Drying Pad Area

Sample Matrix: **Soil**
Sample Analysis by Kerr-McGee Chemical LLC, Analytical Chemistry Section, Henderson NV

Sample #	Date	Cr-total (ppm)	Extraction Dilution	Cr-total with Dilution (ppm)	Sample Location
1N	4/7/1994	50.7	NA	NA	an east/west mid-point on the *north* side of the pad
	4/15/1994	17.8	20	0.9	Beneath the removed pad
2S	4/7/1994	24.7	NA	NA	an east/west mid-point on the *south* side of the pad

Notes:
Cr-total = Total Chromium
ppm= parts per million
NA = Not applicable
Data from Kerr-McGee, 1996b, Response to LOU Comments

Table 13
Summary of Analytical Data for LOU #20 and 21
Pond C-1 & Nearby Groundwater Analytical Data
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

WELL #	Sample Date	Total Depth (ft bgs)	Depth to Water	pH (Lab)	EC (Lab)	Cr-total (ppm)	Mn (ppm)	ClO_4 (ppm)	LAB	Location
M-19	5/6/99	39.54	33.03	7.14	12000	0.62	0.70	13.0	KMC	Adjacent to LOU
M-19	5/5/00	39.54	34.50	7.62	11300	0.71	0.34	7.360	KMC	Adjacent to LOU
M-19	5/4/01	39.54	35.06	7.38	10700	0.88	0.08	0.056	KMC	Adjacent to LOU
M-19	4/29/02	39.54	34.02	7.3	8360	0.45	0.17	6.8	MW	Adjacent to LOU
M-35	5/6/99	42.80	34.27	7.13	9720	4.30	0.85	1000	KMC	Upgradient
M-35	5/5/00	42.80	35.22	7.31	8970	3.40	1.20	820	KMC	Upgradient
M-35	5/4/01	42.80	25.40	7.28	9970	4.60	2.40	1000	KMC	Upgradient
M-35	3/11/02	42.80	--	--	--	--	0.07	--	--	Upgradient
M-35	4/29/02	42.80	34.27	7.2	9370	6.8	0.14	990	MW	Upgradient
M-35	9/9/02	42.80	--	--	--	--	0.22	--	--	Upgradient
M-35	12/9/02	42.80	35.40	7.2	9280	6.8	0.061	590	MW	Upgradient
M-35	4/29/03	42.80	--	--	--	--	ND<0.15	--	--	Upgradient
M-39	5/6/99	42.12	30.59	7.45	8080	2.40	0.44	140	KMC	Downgradient
M-39	5/5/00	42.12	31.70	7.54	7680	2.80	1.60	190	KMC	Downgradient
M-39	5/2/01	42.12	32.10	7.34	7620	3.30	1.80	280	KMC	Downgradient
M-39	3/11/02	42.12	--	--	--	--	0.06	--	--	Downgradient
M-39	4/29/02	42.12	20.60	7.3	7700	13	ND <0.15	450	MW	Downgradient
M-39	9/9/02	42.12	--	--	--	--	ND <0.15	--	--	Downgradient
M-39	12/10/02	42.12	--	--	--	--	ND <0.15	--	--	Downgradient
M-39	5/7/03	42.12	--	--	--	--	ND<0.15	--	--	Downgradient
M-67	5/7/03	--	--	--	--	--	ND<0.15	--	--	Further downgradient

Notes:
ft bgs = feet below ground surface
EC = Electrical Conductivity
Cr-total: Total Chromium
Mn = Manganese
ClO_4: Perchlorate
ppm = parts per million
ND < 0.15 = Non Detect, not detected above the designated method detection limit.
-- = Either no data was obtained or was not analyzed for the respective constituent.
Labs: KMC Kerr-McGee Corporation
MW Montgomery Watson
Well Data From: Kerr-McGee Chemical LLC Company, Mother-hen Database.

Table 14
Summary of Analytical Data for LOU # 28
Hazardous Waste Storage Area
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

P-2 Tank Excavation Area
Sample Date: **10/20/1994**
Sample Matrix: **Soil**
Sample Analysis by: Nevada Environmental Laboratory, Las Vegas

Sample ID	EPA Method 8015-M	EPA Method 8080	
	TPH * (mg/kg)	PCBs (mg/kg)	Aroclor (mg/kg)
Sample # 1	390 [1]	< 1.0	NA
Sample # 2	540 [1]	< 1.0	NA
Sample # 3	620 [1]	< 1.0	NA
Method Blank	<10	< 1.0	NA
Detection Limit	10	< 1.0	NA

Notes:
TPH * = Total Petroleum Hydrocarbons, Modified for Full Range
mg/kg = milligrams per kilogram
[1] = TPH components are in the range of Diesel (C_9-C_{24}) and Oil (C_{18}-C_{34}).
< = not detected above the designated method reporting limit.
NA = Not Applicable
Data from Kerr-McGee, 1996b, Response to LOU Comments

U-2 Storage Area, Excavation of P-2 tanks, (Final)
Sample Date: **11/22/1994**
Sample Matrix: **Soil**
Sample Analysis by: Nevada Environmental Laboratory, Las Vegas

Sample ID	TPH * (mg/kg)
U2-7	ND
Method Blank	ND
Detection Limit	10

Notes:
TPH * = Total Petroleum Hydrocarbons, Full Range, EPA Method 8015-Modified.
mg/kg = milligrams per kilogram
ND= Non Detect
Data from Kerr-McGee, 1996b, Response to LOU Comments

Table 15

Manganese in Groundwater Analytical Data

Kerr-McGee Chemical LLC Facility, Henderson, Nevada

WELL #	Sample Date	Total Depth	Depth to Water	pH (Lab)	EC (Lab)	Cr_{+6} (ppm)	Cr-total (ppm)	Mn (ppm)	ClO_4 (ppm)	LAB
H-11	10/18/98	106.00	77.00	7.40	1,840	<0.01		0.07	4.1	NEL/MW
H-11	6/2/00	90.00	76.02	6.71	1,988	<0.01	<0.005	1.5	1.9	NEL/MW
H-28A	9/11/02							0.8		
H-28A	5/7/03							0.78		
H-28A	5/3/04			7.2	9,710		ND<0.05	1.3		MW
L-637	10/16/98	37.50	10.30	7.12	15,780	<0.01	<0.01	1.4	0.016	NEL/MW
L-639	10/16/98	14.25	9.89	7.20	17,260	<0.01	<0.01	0.81	<0.016	NEL/MW
L-639	5/24/00	11.92	9.78	7.05	12,605	<0.01	<0.01	0.41	<0.02	NEL/MW
L-641	10/16/98	21.59	7.67			<0.01	<0.01	0.4	<0.016	NEL/MW
L-641	2/10/99	21.59	7.68	7.10				0.3	<0.006	AP
L-641	6/8/99	21.59	7.80	7.00	14,240			0.3	<0.006	AP
L-641	5/24/00	21.45	7.51			<0.01	0.02	0.21	<0.02	NEL/MW
L-641	3/27/01	21.45	6.99	7.40	11,300			0.2	0.030	AP
L-645	10/17/98	28.60	8.50	7.49	15,000	<0.01	<0.01	0.37	<0.016	NEL/MW
L-645	5/24/00	28.60	8.26	7.31	11,910	<0.01	<0.01	0.28	0.240	NEL/MW
M-5A-1	5/2/03							1.6		
M-5A	5/3/04			7.1	15,350		ND<0.05	1.4		MW
M-6A-1	5/2/03							0.076		
M-6A	5/3/04			7.5	9,730		ND<0.02	150		MW
M-7B-1	5/2/03							0.075		
M-7B	5/3/04			7.5	9,980		ND<0.02	25		MW
M-10	5/6/99	67.99	49.92	7.13	4,210		1.50	0.27	54	KMC
M-10	5/5/00	67.99	48.50	7.36	4,630		0.28	0.32	15	KMC
M-10	5/1/02	67.99	47.88	6.9	3,840		0.022	0.48	2	MW
M-10	12/10/02	67.99	48.79	7.5	4,330		0.12	1.2	11	MW
M-10	11/4/03	67.99	48.28	7.0	4,180		0.52	390	18	MW
M-10	8/4/04	67.99		7.6	3,980	0.016	0.078	640	16	MW
M-18	4/30/03							0.1		
M-19	5/6/99	39.54	33.03	7.14	12,000		0.62	0.7	13	KMC
M-19	5/5/00	39.54	34.50	7.62	11,300		0.71	0.34	7.4	KMC
M-19	5/4/01	39.54	35.06	7.38	10,700		0.88	0.08	0.056	KMC
M-19	4/29/02	39.54	34.02	7.3	8,360		0.45	0.17	6.8	MW
M-22A	5/5/00	36.45	30.36	7.31	17,200		21	0.54	2,800	KMC
M-22A	5/4/01	36.45	30.73	7.22	17,800		28	0.56	2,900	KMC
M-22A	4/29/02	36.45	29.18	7.2	18,310		32	0.36	3,000	MW
M-22A	9/9/02	36.45						0.22		
M-22A	12/10/02	36.45						0.22		
M-22A	4/29/03	36.45						ND<0.15		
M-25	5/6/99	42.15	33.33	7.30	11,560		13	0.13	700	KMC
M-25	5/5/00	42.15	33.53	7.16	11,900		12	0.06	820	KMC
M-25	3/11/02	42.15						ND<0.03		
M-25	4/29/02	42.15	32.82	7.3	10,850		40	ND<0.15	570	MW
M-25	9/10/02	42.15						ND<0.15		
M-25	12/10/02	42.15						ND<0.15		
M-25	4/29/03	42.15						ND<0.15		
M-27	12/10/02		23.72	7.70	3,710	ND	0.14	1.1	7.1	MW
M-29	5/6/99	41.02	33.88	6.29	6,630		0.15	760	<10	KMC
M-29	5/5/00	41.02	34.14	6.41	6,610		0.09	570	0.420	KMC
M-29	5/1/02	41.02	33.90	6.5	5,350		0.18	440	0.150	MW
M-31	5/6/99	44.10	39.28	7.15	16,000		27	0.82	2300	KMC
M-31	5/5/00	44.10	40.00	7.25	14,500		25	1.2	2100	KMC
M-32	5/6/99	57.34	47.42	7.16	7,660		3.3	4.2	960	KMC
M-32	5/5/00	57.34	49.01	7.09	10,500		6.5	5	1400	KMC
M-32	5/2/02	57.34	47.88	7.2	8,420		5.1	13	880	MW
M-33	5/6/99	57.70	46.09	7.53	1,730		ND	3.6	<10	KMC
M-33	5/6/99	57.70						2.1		
M-34	5/6/99	42.39	36.69	7.04	19,500		28	0.8	1,500	KMC

Table 15

Manganese in Groundwater Analytical Data

Kerr-McGee Chemical LLC Facility, Henderson, Nevada

WELL #	Sample Date	Total Depth	Depth to Water	pH (Lab)	EC (Lab)	Cr_{+6} (ppm)	Cr-total (ppm)	Mn (ppm)	ClO_4 (ppm)	LAB
M-34	5/5/00	42.39	37.44	7.22	18,900		30	0.83	1,700	KMC
M-34	5/4/01	42.39	37.52	7.21	16,400		33	0.76	2,100	KMC
M-34	4/29/02	42.39	36.38	7.2	14,370		28	0.23	2,000	MW
M-35	5/6/99	42.80	34.27	7.13	9,720		4.3	0.85	1,000	KMC
M-35	5/5/00	42.80	35.22	7.31	8,970		3.4	1.2	820	KMC
M-35	5/4/01	42.80	25.40	7.28	9,970		4.6	2.4	1,000	KMC
M-35	3/11/02	42.80						0.07		
M-35	4/29/02	42.80	34.27	7.2	9,370		6.8	0.14	990	MW
M-35	9/9/02	42.80						0.22		
M-35	12/9/02	42.80	35.40	7.2	9,280		6.8	0.061	590	MW
M-35	4/29/03	42.80						ND<0.15		
M-36	5/6/99	37.28	31.48	7.00	18,900	28	29	0.12	3,000	KMC
M-36	5/5/00	37.28	32.29	7.35	20,000	32	29	0.46	3,500	KMC
M-36	9/9/02	37.28						0.22		
M-36	12/10/02	37.28	31.47	7.4	18,500	33.7	33	ND<0.15	2,400	MW
M-36	4/29/03	37.28						0.15		
M-37	9/10/02							0.18		
M-37	12/10/02		32.04	7.4	11,100	0.055	0.068	0.23	5,800	MW
M-37	12/10/02							0.24		
M-39	5/6/99	42.12	30.59	7.45	8,080		2.4	0.44	140	KMC
M-39	5/5/00	42.12	31.70	7.54	7,680		2.8	1.6	190	KMC
M-39	5/2/01	42.12	32.10	7.34	7,620		3.3	1.8	280	KMC
M-39	3/11/02	42.12						0.06		
M-39	4/29/02	42.12	20.60	7.3	7,700		13	ND <0.15	450	MW
M-39	9/9/02	42.12						ND <0.15		
M-39	12/10/02	42.12						ND <0.15		
M-39	5/7/03	42.12						ND<0.15		
M-44	9/12/02							ND<0.15		
M-44	12/11/02		20.96	7.3	12,900	1.81	1.5	ND<0.15	1700	MW
M-44	5/1/03							ND<0.075		
M-52	5/6/99	47.07	40.16	7.03	27,700		15	0.09	7000	KMC
M-52	5/5/00	47.07	39.65	7.36	17,200		12	2.70	3100	KMC
M-52	3/11/02	47.07						0.84		
M-52	4/30/02	47.07	39.69	7.4	11,600		15	0.52	2000	MW
M-52	9/9/02	47.07						0.58		
M-52	12/9/02	47.07	40.42	7.3	10,400		14	0.81		MW
M-52	4/28/03	47.07		7.6			14	ND<0.15	1800	MW
M-59	5/5/00	41.89	23.72	7.35	8,070		2.9	0.06	240	KMC
M-59	4/30/01	41.89	24.46	7.34	8,500		3.9	0.04	430	KMC
M-67	5/7/03							ND<0.15		
M-68	5/7/03							ND<0.15		
M-77	5/6/99	48.93	36.43	7.28	6,050		0.21	14.00	38	KMC
M-77	5/5/00	48.93	37.14	7.40	5,320		0.04	22.00	54	KMC
M-77	5/2/02		36.41	7.4	4,780		0.54	36	110	MW
M-77	5/7/03							11		
M-84	9/11/02							0.026		
M-84	12/10/02							0.02		
M-84	4/30/03							ND<0.075		
M-94	9/12/02							0.6		
M-94	12/11/02		13.68	7.4	12,500	1.69	1.4	0.68	1790	MW
M-94	5/1/03							0.45		
M-100	12/11/02		29.03	7.5	4,740	1.93	1.8	ND<0.15	340	MW
M-100	5/1/03							ND<0.075		
MW-AJ	12/17/98	28.98	11.72	7.25	9,390	<0.01	<0.01	0.18	0.067	NEL/MW
MW-AJ	5/18/99	28.98	11.80	7	8,720			0.10	0.033	AP
MW-AJ	5/25/00	28.98	11.22	6.99	8,412	<0.01	<0.01	0.21	0.088	NEL/MW
MW-AJ	3/27/01	28.98	11.07	7.2	8,170			0.2	0.060	AP

Table 15

Manganese in Groundwater Analytical Data

Kerr-McGee Chemical LLC Facility, Henderson, Nevada

WELL #	Sample Date	Total Depth	Depth to Water	pH (Lab)	EC (Lab)	Cr_{+6} (ppm)	Cr-total (ppm)	Mn (ppm)	ClO_4 (ppm)	LAB
MW-J	5/18/99		19.50	6.8	8,080			1	0.220	AP
MW-J	3/27/01		17.95	7.2	7,150			0.8	2.540	AP
MW-K1	12/17/98	19.86	9.85	7.18	15,750	<0.01	<0.01	2	12.0	NEL/MW
MW-K1	5/24/00	20.60	9.80	6.9	13,343	<0.01	<0.01	1.5	0.690	NEL/MW
MW-K1	3/27/01	20.60	9.76	7.2	13,500			1.3	0.036	AP
MW-K2	3/27/01		18.20	7.2	12,500			<0.1	12.3	AP
MW-K4	3/27/01		19.23	7.2	9,160			<0.1	413.0	AP
MW-K5	5/25/00	44.90	19.86	7.01	11,199	<0.01	0.03	0.47	330	NEL/MW
MW-K5	3/27/01	44.90	21.25	7.3	9,460			<0.1	272	AP
MW-K6	5/25/00	29.95	4.02	7.04	6,453	<0.01	<0.01	1.6	52	NEL/MW
MW-K6	3/27/01	29.95	2.48	7.3	6,120			1.2	37	AP
MW-K8	6/1/00	28.15	19.37	7.21	7,069	0.061	0.04	<0.005	7.50	NEL/MW
MW-QD	5/18/99		12.90	7.1	3,220			<0.1	0.97	
MW-QS	12/17/98	18.10	13.00	7.3	3,990	0.021	0.02	0.01	0.96	NEL/MW
MW-QS	5/18/99	18.10	12.80	7.4	3,690			<0.1	1.31	AP
MW-QS	5/24/00	18.04	12.37	6.95	4,371	0.03	0.03	<0.01	1.4	NEL/MW
MW-R	12/17/98	35.75	19.40	7.14	7,670	<0.01	<0.01	1.3	0.030	NEL/MW
MW-R	5/18/99	35.75	22.82	6.9	7,320			1.3	0.027	AP
MW-R	5/23/00	35.60	18.57	6.8	6,699	0.023	<0.01	1.3	0.15	NEL/MW
MW-R	3/27/01	35.60	18.01	7.1	7,070			1.3	0.02	AP
MW-S	5/18/99	41.10	23.40	6.9	5,110			<0.1	0.04	AP
MW-S	5/25/00	41.10	23.74	7.1	8,421	0.017	<0.01	0.22	0.3	NEL/MW
MW-S	3/27/01	41.10	20.10	7.3	4,420			<0.1	0.024	AP
PC-2	5/26/00	33.60	15.53	7.2	7,613	0.017	<0.01	<0.01	3.1	NEL/MW
PC-4	6/1/00	44.15	23.35	7.29	8,322	0.1	0.09	<0.01	11	NEL/MW
PC-10	12/16/98	34.73	20.98	7.35	5,020	<0.1	<0.1	<0.01	3.3	NEL/MW
PC-10	5/24/00	34.77	20.44	7.2	5,448	0.061	<0.1	<0.01	3.7	NEL/MW
PC-12	12/16/98	29.70	19.60	7.34	8,470	0.26	0.25	<0.01	210	NEL/MW
PC-12	4/16/99	29.70		7.43		0.21	0.22	<0.01	230	KMC/MW
PC-12	4/19/99	29.70		7.49		0.20	0.22	<0.01	220	KMC/MW
PC-12	4/21/99	29.70		7.19		0.20	0.21	<0.01	230	KMC/MW
PC-12	4/24/99	29.70		7.31		0.17	0.44	2.1	220	KMC/MW
PC-12	5/24/00	28.50	19.05	7.09	8,161	0.29	0.23	<0.01	240	NEL/MW
PC-19	12/16/98	59.30	18.46	7.06	16,320	<0.01	<0.01	1.7	88	NEL/MW
PC-19	5/23/00	59.34	18.14	6.86	15,335	<0.01	<0.01	1.6	81	NEL/MW
PC-24	12/16/98	29.70	19.66	7.38	8,680	0.036	0.03	0.01	6.4	NEL/MW
PC-24	5/25/00	29.43	19.91	7.12	9,796	0.081	0.04	<0.01	7.5	NEL/MW
PC-28	12/17/98	19.58	7.80	7.39	8,170	0.4	3.9	<0.01	500	NEL/MW
PC-28	5/23/00	19.55	11.78	7.2	8,014	0.39	0.38	<0.01	380	NEL/MW
PC-31	12/17/98	47.10	14.75	7.13	15,840	<0.01	<0.01	1.6	<0.016	NEL/MW
PC-31	5/23/00	46.85	14.33	7.0	12,126	<0.01	0.04	1	0.044	NEL/MW
PC-50	12/17/98	42.20	12.20	7.12	9,880	0.13	0.12	1.3	470	NEL/MW
PC-50	5/25/00	42.45	12.12	6.82	11,233	0.23	0.18	1.4	580	NEL/MW
PC-55	4/16/99			7.02		<0.01	<0.01	1.44	220	KMC/MW
PC-55	4/19/99			7.04		<0.01	<0.01	1.44	200	KMC/MW
PC-55	4/21/99			6.91		<0.01	<0.01	1.39	200	KMC/MW
PC-55	4/24/99			7.16		<0.01	<0.01	1.59	210	KMC/MW
PC-64	12/17/98	18.20	5.88	7.51	12,410	1.7	1.60	0.08	1,400	NEL/MW
PC-64	5/23/00	18.21	6.03	7.27	12,142	0.21	2.20	0.08	1,400	NEL/MW
PC-67	12/17/98	36.00	8.45	7.07	23,000	0.19	0.18	0.02	10	NEL/MW
PC-67	5/23/00	36.30	9.23	6.86	34,349	0.22	0.18	<0.01	12	NEL/MW
PC-70	4/16/99	50.50	18.73	7.1		0.13	0.12	1.33	450	KMC/MW
PC-70	4/19/99	50.50		7.1		0.11	0.13	1.39	480	KMC/MW
PC-70	4/21/99	50.50		6.9		0.10	0.12	1.3	440	KMC/MW
PC-70	4/24/99	50.50		7.3		0.06	0.09	1.72	340	KMC/MW
TR-1	10/7/99	312.00	+4.5	7.9	1,283			0.05	<0.004	MW
TR-2	10/7/99	180.00	28.00	7.5	4,080			0.14	<0.004	MW

Table 15

Manganese in Groundwater Analytical Data

Kerr-McGee Chemical LLC Facility, Henderson, Nevada

WELL #	Sample Date	Total Depth	Depth to Water	pH (Lab)	EC (Lab)	Cr_{+6} (ppm)	Cr-total (ppm)	Mn (ppm)	ClO_4 (ppm)	LAB
TR-3	10/7/99	251.50	5.40	8.1	1,330			0.5	<0.004	MW
TR-4	10/7/99	147.00	34.00	8.7	1,930			0.2	0.006	MW
TR-5	10/7/99	252.50	12.00	8.1	1,447			0.06	<0.004	MW
TR-6	10/7/99	80.00	34.75	7.7	8,240			<0.01	0.120	MW
TR-7	10/7/99	292.00	37.10	8.2	1,438			0.05	<0.004	MW
TR-8	10/7/99	98.00	50.35	8.5	2,340			0.07	0.060	MW
TR-9	10/9/99	250.00	60.50	7.8	1,378			0.04	<0.004	MW
TR-10	10/9/99	100.00	57.35	7.9	2,190			0.01	1.12	MW
TR-11	10/13/99	252.00	+2.45	8	1,213			0.02	<0.004	MW
TR-12	10/18/99	293.00	+2.60	8.3	1,103			0.03	<0.004	MW

Notes:

ppm = parts per million

EC: Electrical Conductivity

Cr^{+6}: Hexavalent Chromium

Cr-total: Total Chromium

Mn = Manganese

ClO_4: Perchlorate

< = not detected above the respective PQL.

Labs:

AP	
KMC	Kerr-McGee Corporation
KMCLLC	Kerr-McGee Corporation, LLC
KMG	Kerr-McGee
LAS	
MW	Montgomery Watson
NEL	Nevada Environmental Laboratory
SNWA	Southern Nevada Water Authority
WECK	

Well Data From: Kerr-McGee Chemical LLC Company, Mother-hen Database

Table 16
Summary of Analytical Data for LOU # 24 and 34
Nearby Groundwater Analytical Data
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

WELL #	Sample Date	Total Depth (ft bgs)	Depth to Water	pH (Lab)	EC (Lab)	Mn (ppm)	LAB	Location
M-32	5/6/99	57.34	47.42	7.16	7660	4.2	KMC	Within or adjacent to LOU
M-32	5/5/00	57.34	49.01	7.09	10500	5	KMC	Within or adjacent to LOU
M-32	5/2/02	57.34	47.88	7.2	8420	13	MW	Within or adjacent to LOU
M-33	5/6/99	57.70	46.09	7.53	1730	3.6	KMC	Within or adjacent to LOU
M-33	5/6/99	57.70	--	--	--	2.1	--	Within or adjacent to LOU
M-34	5/6/99	42.39	36.69	7.04	19500	0.8	KMC	Downgradient
M-34	5/5/00	42.39	37.44	7.22	18900	0.83	KMC	Downgradient
M-34	5/4/01	42.39	37.52	7.21	16400	0.76	KMC	Downgradient
M-34	4/29/02	42.39	36.38	7.2	14370	0.23	MW	Downgradient
M-35	5/6/99	42.80	34.27	7.13	9720	0.85	KMC	Downgradient
M-35	5/5/00	42.80	35.22	7.31	8970	1.2	KMC	Downgradient
M-35	5/4/01	42.80	25.40	7.28	9970	2.4	KMC	Downgradient
M-35	3/11/02	42.80	--	--	--	0.07	--	Downgradient
M-35	4/29/02	42.80	34.27	7.2	9370	0.14	MW	Downgradient
M-35	9/9/02	42.80	--	--	--	0.22	--	Downgradient
M-35	12/9/02	42.80	35.40	7.2	9280	0.061	MW	Downgradient
M-35	4/29/03	42.80	--	--	--	ND<0.15	--	Downgradient
M-77	5/6/99	48.93	36.43	7.28	6050	14	KMC	Upgradient
M-77	5/5/00	48.93	37.14	7.40	5320	22	KMC	Upgradient
M-77	5/2/02	48.93	36.41	7.4	4780	36	MW	Upgradient
M-77	5/7/03	48.93	--	--	--	11	--	Upgradient

Notes:
ft bgs = feet below ground surface
EC = Electrical Conductivity
Mn = Manganese
ppm = parts per million
-- = Either no data was obtained or was not analyzed for the respective constituent.
Labs: KMC Kerr-McGee Corporation
MW Montgomery Watson
Well Data From: Kerr-McGee Chemical LLC Company, Mother-hen Databas

Tailings Sample
Sample Date: **5/2/1990** Sample Matrix: **Soil**
Sample Analysis by: DataChem Laboratories

Sample #	TCLP Metals, EPA Method 6010 (mg/l)							
	As	Ba	Cd	Cr	Pb	Hg *	Se	Ag
Tailings Sample	< 0.3	< 0.3	0.45	0.14	< 0.3	< 0.0002	< 0.3	0.09
Reporting Limit	0.3	0.5	0.05	0.05	0.3	0.0002	0.3	0.05

Notes:
mg/l = milligrams per liter
As = Arsenic
Ba = Barium
Cd = Cadmium
Cr = Chromium
Pb = Lead
Hg* = Mercury, Analytical Method is 7470.
Se = Selenium
Ag = Silver
< = not detected above the designated method reporting limit.
Data from Kerr-McGee, 1996b, Response to LOU Comments

MnO2 Tailings Sample (#4)
Sample Date: **1/15/1993** Sample Matrix: **Soil**
Sample Analysis by: Lockheed Analytical Laboratories

Sample #	TCLP Metals Extract, EPA Method 6010 (mg/l)							
	As	Ba	Cd	Cr	Pb	Hg *	Se **	Ag
Mn Tailings	<1.0	<10	<0.1	<0.5	<1.0	<0.02	<0.1 N	<0.5
Reporting Limit	1	10	0.1	0.5	1	0.02	0.1	0.5

Notes:
mg/l = milligrams per liter
As = Arsenic
Ba = Barium
Cd = Cadmium
Cr = Chromium
Pb = Lead
Hg* = Mercury, Analytical Method is 7471
Se ** = Selenium, Analytical Method 7740
Ag = Silver
N = aliquot diluted (1:10) to reduce acetate matrix interferences.
< = not detected above the designated method reporting limit.
Data from Kerr-McGee, 1996b, Response to LOU Comments

Table 17
Summary of Analytical Data for LOU # 44
Unit 6 Basement nearby Groundwater Analytical Data
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

WELL #	Sample Date	Total Depth (ft bgs)	Depth to Water	pH (Lab)	EC (Lab)	Cr_{+6} (ppm)	Cr-total (ppm)	Mn (ppm)	ClO_4 (ppm)	LAB	Location
M-10	5/6/99	67.99	49.92	7.13	4210	--	1.50	0.27	54	KMC	Upgradient
M-10	5/5/00	67.99	48.50	7.36	4630	--	0.28	0.32	15	KMC	Upgradient
M-10	5/1/02	67.99	47.88	6.9	3840	--	0.022	0.48	2	MW	Upgradient
M-10	12/10/02	67.99	48.79	7.5	4330	--	0.12	1.20	11	MW	Upgradient
M-10	11/4/03	67.99	48.28	7.0	4180	--	0.52	390	18	MW	Upgradient
M-10	8/4/04	67.99	--	7.6	3980	0.016	0.078	640	16	MW	Upgradient
M-29	5/6/99	41.02	33.88	6.29	6630	--	0.15	760	<10	KMC	Downgradient
M-29	5/5/00	41.02	34.14	6.41	6610	--	0.09	570	0.420	KMC	Downgradient
M-29	5/1/02	41.02	33.90	6.5	5350	--	0.18	440	0.150	MW	Downgradient
M-77	5/6/99	48.93	36.43	7.28	6050	--	0.21	14	38	KMC	Further downgradient
M-77	5/5/00	48.93	37.14	7.40	5320	--	0.04	22	54	KMC	Further downgradient
M-77	5/2/02	48.93	36.41	7.4	4780	--	0.54	36	110	MW	Further downgradient
M-77	5/7/03	48.93	--	--	--	--	--	11	--	--	Further downgradient

Notes:
EC: Electrical Conductivity
Cr^{+6}: Hexavalent Chromium
Cr-total: Total Chromium
Mn = Manganese
ClO_4: Perchlorate
ppm = parts per million
-- = Either no data was obtained or was not analyzed for the respective constituent.
< = not detected above the designated method reporting limit.
Labs: MW Montgomery Watson
KMC Kerr-McGee Corporation
Well Data From: Kerr-McGee Chemical LLC Company, Mother-hen Database

Table 18
Summary of Analytical Data for LOUs # 47 and 21
Analytical Composition of Manganese Dioxide Ore
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Constituent	Dried at 105°C	Constituent	Dried at 105°C
Manganese Dioxide (MnO_2)	75.65%	Total Manganese	50.73%
Manganese Mono-oxide (Mn))	3.77%		
Ferric Oxide (Fe_2O_3)	4.73%	Iron (Fe)	3.31%
Silica (SiO_2)	2.63%		
Alumina (Al_2O_3)	6.14%		
Phosphorus Pentoxide (P_2O_5)	0.26%	Phosphorus (P)	0.11%
Lime (Ca))	0.09%		
Magnesia (MgO)	0.07%		
Sodium Oxide (Na_2O)	0.03%		
Potassium Oxide (K_2))	0.86%		
Barium Oxide (Ba))	0.24%		
Titania(TiO_2)	0.24%	Titanium (Ti)	0.14%
Vanadium Pentoxide (V_2O_5)	0.02%	Vanadium (V)	0.01%
Cupric Oxide (CuO)	0.07%	Copper (Cu)	0.05%
Lead Mono-oxide (PbO)	0.00%	Lead (Pb)	0.00%
Zinc Oxide (ZnO)	0.08%	Zinc (Zn)	0.06%
Cobaltic Oxide (Co_3O_4)	0.14%	Cobalt (Co)	0.10%
Nickel Mono-oxide (NiO)	0.07%	Nickel (Ni)	0.05%
Molybdenum Trioxide (MoO_3)	0.01%	Molybdenum (Mo)	0.00%
Chromium Sesquioxide (Cr_2O_3)	0.01%	Chromium (Cr)	0.01%
Arsenic Trioxide (As_2O_3)	0.01%	Arsenic (As)	0.01%
Tungsten Trioxide (WO_3)	(trace) 0.002%		
Tin Dioxide (SnO_2)	(trace) 0.002%		
Combined Water H_2O)	4.98%		
Carbon Dioxide (CO_2)	0.06%		
Sulphur Trioxide (SO_3)	0.06%	Sulphur (S)	0.02%

Notes:
Sample weighted at 105°Cl moisture content – 8.56% (as calculated from cargo results).
(trace) = Not Detected, less than concentration indicated
Data From Kleinfelder, 1993, Phase I ECA

Table 19
Summary of Analytic Data for LOUs # 48, 49, 50, and 51
Leach Plant Analyte Tanks
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

WELL #	Sample Date	Total Depth (ft bgs)	Depth to Water	pH (Lab)	EC (Lab)	Mn (ppm)	LAB	Location
M-11	1/196	56.20	41.34	7.48	14380	--	--	Further Upgradient
M-11	2/1/96	56.20	41.24	7.45	12020	--	--	Further Upgradient
M-11	3/1/96	56.20	42.39	7.60	10050	--	--	Further Upgradient
M-11	8/24/97	56.20	--	--	--	--	KMC	Further Upgradient
M-11	9/15/97	56.20	41.93	7.69	11620	--	KMC	Further Upgradient
M-11	4/27/98	56.20	42.00	7.80	8110	--	KMC	Further Upgradient
M-11	10/14/98	--	42.45	--	--	--	--	Further Upgradient
M-11	5/6/99	56.20	43.26	7.72	8000	--	KMC	Further Upgradient
M-11	5/5/00	56.20	43.30	8.08	5480	--	KMC	Further Upgradient
M-11	5/4/01	56.20	42.61	--	--	--	KMC	Further Upgradient
M-11	5/1/02	--	42.10	7.7	10500	--	MW	Further Upgradient
M-11	12/9/02	--	46.61	7.8	6970	--	MW	Further Upgradient
M-11	1/20/03	--	42.62	7.7	6730	--	MW	Further Upgradient
M-11	4/30/03	--	42.72		6500	--	MW	Further Upgradient
M-11	7/9/03	--	42.80	7.9	6030	--	MW	Further Upgradient
M-11	8/13/03	--	41.74	--	--	--	--	Further Upgradient
M-11	9/8/03	--	43.50	--	--	--	--	Further Upgradient
M-11	10/5/03	--	43.24	--	--	--	--	Further Upgradient
M-11	11/4/03	--	43.33	7.7	5450	--	MW	Further Upgradient
M-11	12/8/03	--	43.44	--	--	--	--	Further Upgradient
M-11	1/8/04	--	43.41	--	--	--	--	Further Upgradient
M-11	2/5/04	--	43.29	8.0	5480	--	MW	Further Upgradient
M-11	3/1/04	--	43.06	--	--	--	--	Further Upgradient
M-11	4/1/04	--	42.87	--	--	--	--	Further Upgradient
M-11	5/4/04	--	42.57	8.0	5100	--	MW	Further Upgradient
M-11	6/10/04	--	42.61	--	--	--	--	Further Upgradient
M-11	8/4/04	--	--	8.0	4820	--	MW	Further Upgradient
M-28	1/196	--	--	7.52	6830	--	--	
M-28	2/1/96	--	--	7.60	6620	--	--	
M-28	3/1/96	--	--	7.69	5530	--	--	
M-31	1/196	44.10	37.64	7.11	11700	--	--	Downgradient
M-31	2/1/96	44.10	37.94	7.04	10490	--	--	Downgradient
M-31	3/1/96	44.10	37.86	7.09	9280	--	--	Downgradient
M-31	4/27/98	--	39.10	7.13	11610	--	KMC	Downgradient
M-31	10/21/98	--	39.85	--	--	--	--	Downgradient
M-31	5/6/99	44.10	39.28	7.15	16000	0.82	KMC	Downgradient
M-31	5/5/00	44.10	40.00	7.25	14500	1.20	KMC	Downgradient
M-31	5/4/01	44.10	--	--	--	--	KMC	Downgradient
M-31A	11/4/03	--	--	--	--	--	--	Downgradient
M-31A	5/7/04	--	--	7.20	12040	--	MW	Downgradient
M-31A	8/4/04	--	--	7.30	11530	--	MW	Downgradient
M-32	1/196	57.34	54.61	7.20	7480	5.60	--	Downgradient
M-32	2/1/96	57.34	55.21	6.98	8120	6.32	--	Downgradient
M-32	3/1/96	57.34	55.51	7.03	7630	6.00	--	Downgradient
M-32	8/24/97	--	--	--	--	--	KMC	Downgradient

Table 19
Summary of Analytic Data for LOUs # 48, 49, 50, and 51
Leach Plant Analyte Tanks
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

WELL #	Sample Date	Total Depth (ft bgs)	Depth to Water	pH (Lab)	EC (Lab)	Mn (ppm)	LAB	Location
M-32	9/15/97	57.34	46.85	7.11	6770	--	KMC	Downgradient
M-32	4/27/98	--	47.75	7.25	8420	--	KMC	Downgradient
M-32	10/21/98	--	48.94	--	--	--	--	Downgradient
M-32	5/6/99	57.34	47.42	7.16	7660	4.20	KMC	Downgradient
M-32	5/5/00	57.34	49.01	7.09	10500	5.00	KMC	Downgradient
M-32	5/4/01	57.34	49.00	--	12120	--	KMC	Downgradient
M-32	5/2/02	--	47.88	7.2	8420	13	MW	Downgradient
M-32	12/11/02	--	DRY	--	--	--	--	Downgradient
M-32	4/28/03	--	DRY	--	--	--	--	Downgradient
M-32	2/4/04	--	DRY	--	--	--	--	Downgradient

Notes:
ft bgs = feet below ground surface
EC = Electrical Conductivity
Mn = Manganese
ppm = parts per million
-- = Either no data was obtained or was not analyzed for the respective constituent.
Labs: KMC Kerr-McGee Corporation
MW Montgomery Watson
Well Data From: Kerr-McGee Chemical LLC Company, Mother-hen Database.

Table 20
Summary of Analytical Data for LOU # 4
Hardesty Chemical Monitoring well MW-97 Analytical Data
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Analysis of water from M-97

Water Sample	Date	Conductivity (µS/cm)	TPH-diesel (mg/l)	Volatile organic compounds (µg/l)		SVOCs (µg/l)	Arsenic (µg/l)	pH
				Acetone	Chloroform	Di-n-butylphthalate		
M-97	4/9/1997	3690	<1.0	3.1	18	7.8	0.124	7.72
EPA Method:		120.1	8015M	8240		8270	6010 ICP	150.1

Note: All other 1997 Volatile organic compounds and SVOCs = Non-Detect.

Periodic analysis of water from M-97

WELL #	Date	Total Depth (ft bgs)	Depth to Water	pH (Lab)	EC (Lab)	Cr-total (ppm)	ClO_4 (ppm)	LAB
M-97	5/6/99	47.86	40.63	7.6	3290	0.09	11	KMC
M-97	5/5/00	47.86	41.31	8.09	3550	0.10	22	KMC
M-97	5/4/01	47.86	40.53	--	3980	--	31	KMC
M-97	5/1/02	47.86	39.00	7.5	4590	0.059	34	MW
M-97	5/7/04	47.86	40.22	7.6	3640	0.076	18	MW

Notes:
TPH = Total Petroleum Hydrocarbons
VOCs = Volatile organic compounds
SVOCs = Semi-volatile organic compounds
ft bgs = feet below ground surface
EC = Electrical Conductivity
Cr-total: Total Chromium
ClO_4: Perchlorate
LOU = Letter of Understanding
µS/l = micro Siemen per liter
mg/l = milligrams per liter
µg/l = micrograms per liter
ppm = parts per million
-- = Either no data was obtained or was not analyzed for the respective constituent.
Labs: KMC Kerr-McGee Chemical LLC Company
MW Montgomery Watson
Analytic Data for M-97 on 4/9/1997 from ENSR, 1997 Phase II ECA.
Well Data From: Kerr-McGee Chemical LLC Company, Mother-hen Database.

Table 21
Summary of Analytical Data for LOU # 39
AP Satellite Accumulation Point-Ap Maintenance Shop
Nevada PrecastConcrete Products
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Analyzed for: TPH-8015M
Sample Matrix: **Soil**
Sample Analysis by: LAS Laboratories

SAMPLE #	Date	TPH Constituent	Result (mg/kg)	PQL (mg/kg)	Note
S8-1S	4/8/1997	Diesel*	180	29	
	4/8/1997	Gasoline*	<29	29	
	4/8/1997	Motor Oil	1500 [1]	29	4 Dilutions
S8-1RE	4/10/1997	Diesel*	<31	31	

Notes:
TPH = Total Petroleum Hydrocarbons
mg/kg = milligrams per kilogram
PQL = Practical Quantitation Limit
* =Range Organics
< = not detected above the designated method reporting limit.
[1] = 4 dilutions were used for this sample analysis.
Data from ENSR, 1997, Phase II ECA, August 1997

Table 22
Summary of Analytical Data for LOUs # 41 and 65
Soil Analyses, Unit 1 Tenant Stains and
Nevada Precast Concrete Products
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Wells North of Unit 1 Tenant Stains
Sample Analyzed for: TPH-8015 and BTEX 8240
Sample Matrix: **Groundwater**
Analysis by: Alpha Analytical, Inc., Sparks, Nevada

WELL #	Date	TPH (mg/l)	BTEX (µg/l)
M-92	5/6/1993	<0.5	All < 1.0
M-93	5/6/1993	<0.5	All < 1.0
	Detection Limit	0.5	1

Notes:
mg/l = milligrams per liter
µg/l = micrograms per liter
TPH = Total Petroleum Hydrocarbons
BTEX = Benzene, Toluene, Total Xylenes, Ethylbenzene
< = not detected above the method detection limit.
Data from ENSR, 1997, Phase II ECA

Unit 1 Tenant Stains, Stained Soil
Sample Analyzed for: TPH-8015M
Sample Matrix: **Soil**
Sample Analysis by: LAS Laboratories

SAMPLE #	Date	TPH Constituent	Result (mg/kg)	PQL (mg/kg)
S9-1S	4/8/1997	Diesel*	73	29
	4/8/1997	Gasoline*	<29	29
	4/8/1997	Motor Oil	250	29
S9-1RE	4/10/1997	Diesel*	100	32

Notes:
TPH = Total Petroleum Hydrocarbons
mg/kg = milligrams per kilogram
PQL = Practical Quantitation Limit
* =Range Organics
< = not detected above the designated method reporting limit.
Data from ENSR, 1997, Phase II ECA

Table 23
Summary of Analytical Data for LOU #45
Diesel Fuel Storage Tank Area
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Number	Date	Sample Depth (ft bgs)	TPH [1] (mg/kg)
Soil Analysis			
SB5-1	4/9/1997	-1	16,000
	4/9/1997	-5	<34
	4/9/1997	-10	<34
SB5-2	4/9/1997	-1	7,500
	4/9/1997	-5	9,100
	4/9/1997	-10	6,700
SB5-3	4/9/1997	-1	4,500
	4/9/1997	-5	1,300
	4/9/1997	-10	520
	4/9/1997	-10-DUP	800
		TPH Reporting Limit	34
Water Analysis			
M-21	4/10/1997	WATER	< 1.0
Well Location	Downgradient		(RL=1.0 mg/l)
M-10	4/10/1997	WATER	<1.0
Well Location	Upgradient		(RL=1.0 mg/l)

Notes:
ft bgs = feet below ground surface
TPH = Total Petroleum Hydrocarbons
mg/kg = milligrams per kilogram
[1] = TPH analysis was EPA Method 8015M-d, diesel range.
-DUP = duplicate sample taken at the indicated depth.
< = not detected above the designated reporting limit.
Data from ENSR, 1997, Phase II ECA.

Sample Number	Date	Sample Depth (ft bgs)	TPH [1] (mg/kg) EPA Method 8015M-d	EPA Method 8020 (mg/kg)				PAHs [2] (µg/kg) EPA Method 8270
				Benzene	Toluene	Ethyl-benzene	Total Xylenes	
Soil Analysis								
SB5-4-5	3/29/1999	5	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-10	3/29/1999	10	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-15	3/29/1999	15	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-20	3/29/1999	20	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-25	3/29/1999	25	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-30	3/29/1999	30	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-35	3/29/1999	35	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-40	3/29/1999	40	**50**	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-5	3/29/1999	5	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-10	3/29/1999	10	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-15	3/29/1999	15	**25**	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-20	3/29/1999	20	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)

Table 23
Summary of Analytical Data for LOU #45
Diesel Fuel Storage Tank Area
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Number	Date	Sample Depth (ft bgs)	TPH [1] (mg/kg) EPA Method 8015M-d	EPA Method 8020 (mg/kg)				PAHs [2] (µg/kg) EPA Method 8270
				Benzene	Toluene	Ethyl-benzene	Total Xylenes	
SB5-5-25	3/29/1999	25	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-30	3/29/1999	30	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-35	3/29/1999	35	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-40	3/29/1999	40	**90**	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-5	3/29/1999	5	**38**	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-5D	3/29/1999	5	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-10	3/29/1999	10	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-15	3/29/1999	15	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-20	3/29/1999	20	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-25	3/29/1999	25	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-30	3/29/1999	30	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-35	3/29/1999	35	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-6-40	3/29/1999	40	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-5	3/29/1999	5	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-10	3/29/1999	10	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-10D	3/29/1999	10	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-15	3/29/1999	15	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-20	3/29/1999	20	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-25	3/29/1999	25	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-30	3/29/1999	30	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-35	3/29/1999	35	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-40	3/29/1999	40	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
Water Analysis								
SB5-5	3/29/1999	WATER	13 mg/l	NA	NA	NA	NA	NA
Well Location	Middle of LOU		(RL=0.5 mg/l)					
M-21	3/29/1999	WATER	ND	NA	NA	NA	NA	NA
Well Location	Downgradient		(RL=0.5 mg/l)					

Notes:
ft bgs = feet below ground surface
TPH = Total Petroleum Hydrocarbons
mg/kg = milligrams per kilogram
µg/l = micrograms per liter
[1] = TPH analysis used EPA Method 8015-d (diesel range).
[2] = PAHs analysis used EPA Method 8270.
-DUP = duplicate sample taken at the indicated depth.
(<34) = Not detected above the designated PQL
ND (<5) = Non-detect at laboratory Reporting Limit (RL) of 5 mg/kg
ND (<2) = Non-detect at laboratory Reporting Limit of 2 mg/kg
NA = Not analyzed
RL = Reporting Limit
Data from ENSR, 2001, Supplemental Phase II ECA.

Table 24
Summary of Analytical Data for LOU #63
J. B. Kelley Trucking
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Analyzed for:	Total Organic Carbon (TOC) & TPH
Sample Matrix:	Sample #1-**groundwater from existing well H-38,** Sample #2-25-**soil**
Sample Analysis by:	Met-Chem West, Las Vegas, Nevada

SAMPLE #	Date	Sample Depth (ft bgs)	TOC [1] (mg/l)	8015-M (mg/l)		Sample Type
				TPH-d	TPH-g	
Sample #1	1/8/1992	GW Elevation	3.3	--	--	Water from Well H-38
Sample #2	1/8/1992	15	--	<10	<10	Soil
Sample #3	1/8/1992	25	--	<10	<10	Soil
Sample #4	1/8/1992	35	--	<10	<10	Soil
Sample #5	1/8/1992	37	--	<10	<10	Soil
Sample #6	1/8/1992	15	--	<10	<10	Soil
Sample #7	1/8/1992	25	--	<10	<10	Soil
Sample #8	1/8/1992	35	--	<10	<10	Soil
Sample #9	1/8/1992	37	--	<10	<10	Soil
Sample #10	1/8/1992	15	--	<10	<10	Soil
Sample #11	1/8/1992	25	--	<10	<10	Soil
Sample #12	1/8/1992	35	--	<10	<10	Soil
Sample #13	1/8/1992	37	--	<10	<10	Soil
Sample #14	1/8/1992	15	--	<10	<10	Soil
Sample #15	1/8/1992	25	--	<10	<10	Soil
Sample #16	1/8/1992	35	--	<10	<10	Soil
Sample #17	1/8/1992	37	--	<10	<10	Soil
Sample #18	1/8/1992	15	--	<10	<10	Soil
Sample #19	1/8/1992	25	--	<10	<10	Soil
Sample #20	1/8/1992	35	--	<10	<10	Soil
Sample #21	1/8/1992	37	--	<10	<10	Soil
Sample #22	1/8/1992	15	--	<10	<10	Soil
Sample #23	1/8/1992	25	--	<10	<10	Soil
Sample #24	1/8/1992	35	--	<10	<10	Soil
Sample #25	1/8/1992	37	--	<10	<10	Soil

Notes:

mg/l = milligrams per liter
mg/kg = milligrams per kilogram
TOC [1] =Total Organic Carbon, EPA Method 415.1
TPH = Total Petroleum Hydrocarbons
8015-M = Modified EPA Method 8015
< = not detected above the respective PQL

TPH-d = Total Petroleum Hydrocarbons, diesel range (C_4 -C_{10})

TPH-gas = Total Petroleum Hydrocarbons, gasoline range (C_{11} -C_{21})

Data: Kerr-McGee, Response to LOU Comments, 1996

Table 24
Summary of Analytical Data for LOU #63
J. B. Kelley Trucking
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Analyzed for: BTEX &TPH
Sample Matrix: **Groundwater (Well Samples)**
Sample Analysis by: Met-Chem West, Las Vegas, Nevada

SAMPLE #	Date	**BTEX** EPA Method: 602/604 (mg/l)				**TPH** 8015-M (mg/l)	
		Benzene	**Toluene**	**Total Xylene**	**Ethyl-benzene**	**TPH-d**	**TPH-g**
H-38	4/29/1992	0.048	<0.005	<0.020	0.114	<5.0	<10
Field Blank	4/29/1992	<0.009	<0.005	<0.020	<0.010	NA	NA
Detection Limit		0.009	0.005	0.020	0.010	5.0	10.0

Notes:
mg/l = milligrams per liter
8015-M = Modified EPA Method 8015
< = not detected above the respective PQL
TPH-d = Total Petroleum Hydrocarbons, diesel range (C_4 -C_{10})
TPH-gas = Total Petroleum Hydrocarbons, gasoline range (C_{11} -C_{21})
NA = Not Applicable
Data: Kerr-McGee, Response to LOU Comments, 1996

Sample Analyzed for: TPH extractable as diesel & BTEX
Sample Matrix: **Groundwater**
Sample Analysis by: Alpha Analytical, Inc.

SAMPLE #	Date	**BTEX** EPA Method: 624/8240 (µ**g/l)**					**8015-M**
		Benzene	**Toluene**	**Total Xylene**	**Ethyl-benzene**	**All Others**	**TPH * (mg/l)**
M-92	5/6/1993	<1.0	<1.0	<1.0	<1.0	ND	<0.5
M-93	5/6/1993	<1.0	<1.0	<1.0	<1.0	ND	<0.5
Detection Limit		1.0	1.0	1.0	1.0	various	0.5

Notes:
mg/l = milligrams per liter
µg/l = micrograms per liter
8015-M = Modified EPA Method 8015
TPH = Total Petroleum Hydrocarbons
< = not detected above the respective PQL.
Data from Kerr-McGee, 1996b, Response to LOU Comment

Sample Analyzed for: Metals, TPH, pH and VOCs
Sample Matrix: **Soil,** one sample and one composite sample
Sample Analysis by: LAS Laboratories, Las Vegas, Nevada

SAMPLE #	Date	**Metals** EPA Method 6010 (mg/kg)						**TPH ***	**pH ****	**VOCs** EPA Meth.8240 (µg/kg)		
		As	**Ba**	**Cd**	**Total-Cr**	**Pb**	**All Others**			**Toluene**	**Acetone**	**1, 1, 1-TCA**
S7-1-S	4/8/1997	10.5	516 [1]	0.8	42.9	257	ND	<90	9.09	1.1J	<10	<5
SB7-1-1	4/8/1997	4.9 [1]	187 [1]	<0.4	19.3	9.9	ND	<30	8.5	<5	13	1.6

Notes:
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
As = Arsenic
Ba = Barium
Cd = Cadmium
Cr = Chromium
Pb = Lead
Hg = Mercury
Se = Selenium
Ag = Silver
TPH = Total Petroleum Hydrocarbons
* = TPH analysis used EPA Method 8015-d (diesel range).
** = pH by EPA Method 9045
-S = surface soil sample
-1 = soil sample collected at one foot below ground surface
< = not detected above the respective PQL.
[1] = Relative Percent Difference (RPD) for duplicate analysis exceeded acceptable quality control limits.
Data from ENSR, 1997, Phase II ECA.

Table 25
Summary of Analytical Data for LOU # 64
Koch Materials Company
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Analyzed for: VOCs and SVOCs
Sample Matrix: **Soil**
Sample Analysis by: GTEL Environmental Laboratories, Inc., Concord, CA
Hits Only

Sample #	Date	Depth (ft)	VOCs (µg/kg) EPA Method 8240			SVOCs (µg/kg) EPA Method 8270	
			Methylene Chloride	Acetone	Total Xylenes	Hexachloro-benzene	2, 4, 6-Trichloro-phenol
DGO-1	11/3/1994	0.5-1	<5	81 [1]	<10	<300	<300
DGO-2	11/3/1994	1.5-2	9.8 [1]	54 [1]	10	<300	<300
BG-1	11/3/1994	0.5-1	<5	<50	<10	1200	950
TS-1	11/3/1994	0.5-1	<5	<50	<10	1700	1000
Detection Limit			5	50	10	300	300

Notes:
VOCs = Volatile organic compounds
SVOCs = Semi-volatile organic compounds
µg/kg = micrograms per kilogram
< = not detected above the respective PQL.
[1] = Methylene chloride and acetone are common laboratory contaminants. Through the use of system blanks the instrument was verified to be free of target contaminants.
Data From: Canonie Environmental, 1995: Phase II Environmental Site Assessment, Koch Material Company, Final Report January 1995 **and from** Western Technology, 1996b: Subsurface Soil Exploration, Former Koch Materials Facility, BMI Industrial Complex, Henderson, Nevada, April 1996.

Sample Analyzed for: Metals
Sample Matrix: **Soil**
Sample Analysis by: GTEL Environmental Laboratories, Inc., Concord, CA

Sample #	Date	Depth (ft)	TCLP METALS (mg/kg) EPA Method 6010								
			As [a]	Ba	Cd	Cr	Pb	Mn	Hg [b]	Se	Ag
BG-1	11/3/1994	0.5-1	33	43	13	29	30	57	<0.1	32	5
TS-1	11/3/1994	0.5-1	1.3	13	<0.5	<1	5	29	<0.1	<5	<1
LS-1	11/3/1994	0.5-1	1.5	100	<0.5	14	7	410	<0.1	<5	<1
EP-1	11/3/1994	0.5-1	2.1	150	<0.5	18	15	430	<0.1	<5	<1
DGO-1	11/3/1994	0.5-1	32	90	<0.5	17	14	470	<0.1	<5	<1
DGO-2	11/3/1994	1.5-2	5.9	100	<0.5	13	71	1100	<0.1	<5	<1
SD-1	11/3/1994	0.5-1	2.8	120	<0.5	12	7	190	<0.1	<5	<1
SS-1	11/3/1994	0.5-1	2.5	110	<0.5	14	6	350	<0.1	<5	<1
RS-1	11/3/1994	0.5-1	2.8	140	<0.5	17	7	550	<0.1	<5	<1
HO-1	11/3/1994	0.5-1	1.9	140	<0.5	16	8	360	<0.1	<5	<1
GO-1	11/3/1994	0.5-1	2.1	98	<0.5	11	9	350	<0.1	<5	<1
Detection Limit			0.5	1	0.5	1	5	0.5	0.1	5	1

Notes:
mg/kg = milligrams per kilogram
As [a] = Arsenic using EPA Method 7060
Ba = Barium
Cd = Cadmium
Cr = Chromium
Pb = Lead
Mn = Manganese
Hg [b] = Mercury using EPA Method 7471
Se = Selenium
Ag = Silver
< = not detected above the respective PQL.
Data From: Canonie Environmental, 1995: Phase II Environmental Site Assessment, Koch Material Company, Final Report January 1995 **and from** Western Technology, 1996b: Subsurface Soil Exploration, Former Koch Materials Facility, BMI Industrial Complex, Henderson, Nevada, April 1996. **Also from** Kerr-McGee, 1996b, Response to LOU Comments.

Table 25
Summary of Analytical Data for LOU # 64
Koch Materials Company
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Analyzed for: TPH-8015, 3 Metals, and VOCs
Sample Matrix: Soil
Sample Analysis: Nevada Environmental Laboratory, Reno, Nevada

Sample #	Date	Depth (ft)	TPH (mg/kg) EPA Method 8015
SP-1 [1]	3/18/1996	stockpile [2]	9000 [3]
KM-1	3/29/1996	1-2	92*
KM-2	3/29/1996	1-2	19*
KM-3-1	3/29/1996	1-2	<10
KM-3-5	3/29/1996	5-6	<10
KM-4-1	3/29/1996	1-2	<10
KM-4-5	3/29/1996	5-6	<10
KM-5	3/29/1996	1-2	<10
KM-6-1	3/29/1996	1-2	<10
KM-6-5	3/29/1996	5-6	<10
KM-7-1	3/29/1996	1-2	25*
KM-7-5	3/29/1996	5-6	<10
KM-8-1	3/29/1996	1-2	<10
KM-8-5	3/29/1996	5-6	18*
KM-9-1	3/29/1996	1-2	190*
KM-9-5	3/29/1996	5-6	<10
KM-10	3/29/1996	1-2	17*
KM-11	3/30/1996	1-2	32*
Detection Limit			10

Notes:

TPH = Total Petroleum Hydrocarbons, in the range of light oil and motor oil.

mg/kg = milligrams per kilogram

* =TPH in the range of light oil and motor oil Detection limit for oil is 50 mg/kg.

SP-1 [1] = Non Detect for: Cadmium, Chromium, Lead, (µg/kg) EPA Method 6010A; VOCs, (µg/kg) EPA Method 8260A.

stockpile [2] = stockpile of oil and asphalt impacted soil removed from site, total of 511.12 tons.

[3] = TPH components are in the range of Oil (C_{18} - C_{24}). Detection limit for oil is 50 mg/kg.

< = not detected above the respective PQL.

Data From: Canonie Environmental, 1995: Phase II Environmental Site Assessment, Koch Material Company, Final Report January 1995. **and** Western Technology, 1996b: Subsurface Soil Exploration, Former Koch Materials Facility, BMI Industrial Complex, Henderson, Nevada, April 1996; **and** Kerr-McGee, 1996b, Response to LOU Comments.

Table 25
Summary of Analytical Data for LOU # 64
Koch Materials Company
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Analyzed for: TPH-8015 Modified (M)-diesel
Sample Matrix: **Soil**
Sample Analysis: Alpha Analytical, Inc, Las Vegas, Nevada

SAMPLE #	Date	TPH (mg/kg)
KM-1	3/29/1996	92
KM-2	3/29/1996	19
KM-3-1	3/29/1996	<10
KM-3-5	3/29/1996	<10
KM-4-1	3/29/1996	<10
KM-4-5	3/29/1996	<10
KM-5	3/29/1996	<10
KM-6-1	3/29/1996	<10
KM-6-5	3/29/1996	<10
KM-7-1	3/29/1996	25
KM-7-5	3/29/1996	<10
KM-8-1	3/29/1996	<10
KM-8-5	3/29/1996	18
KM-9-1	3/29/1996	190
KM-9-5	3/29/1996	<10
KM-10	3/29/1996	17
Detection Limit		10

Notes:
TPH= Total Petroleum Hydrocarbons
mg/kg = milligrams per kilogram
* = TPH Components are in the range of Oil (C_{18}-C_{24})
[1] = Detection limit for oil is 50 mg/kg
< = not detected above the respective PQL.
From Kerr-McGee, 1996b, Response to LOU Comments.

Sample Analyzed for: TPH, TCLP Metals, & VOCs
Sample Matrix: **Stockpiled soil sample. Analysis for disposal characterization.**
Sample Analysis by: Nevada Environmental Laboratory

SAMPLE #	Date	TPH (mg/kg) EPA Method 8015-M	Metals (mg/l) EPA Method 1311/6010A			VOCs (µg/kg) Method 8240/8260A
			Cadmium	Chromium	Lead	
SP-01	3/18/1996	9000*	<0.010	<0.010	<0.05	No Detects
Method Blank	3/18/1996	<50	<0.010	<0.010	<0.05	No Detects
Detection Limit		50	0.01	0.01	0.05	Varied

Notes:
8015-M = Method 8015 Modified
TPH= Total Petroleum Hydrocarbons
VOCs = Volatile Organic Compounds
mg/kg = milligrams per kilogram
mg/l = milligrams per liter
µg/kg = micrograms per kilogram
* = TPH Components are in the range of Oil (C_{18}-C_{24})
< = not detected above the respective PQL.
From Kerr-McGee, 1996b, Response to LOU Comments.

Table 26
Summary of Analytical Data for LOU #1
Trade Effluent Settling Ponds
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

DataChem Analysis

EP Toxicity Metals and pH Analysis

Sample Description	Date Collected	Sample Depth (ft bgs)	Metals EPA Method 6010 (mg/l). Preparation Method 1310								pH (Method 9045)
			As	Ba	Cd	Cr	Pb	Hg *	Se	Ag	
Hole 1	10-23-87	3-4	<0.3	0.16	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	7.0
Hole 1	10-23-87	5-6	<0.3	0.95	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	8.0
Hole 1	10-23-87	7-8	<0.3	0.48	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	8.2
Hole 1	10-23-87	9-10	<0.3	0.95	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	6.8
Hole 1	10-23-87	11-12	<0.3	0.66	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	6.9
Hole 1	10-23-87	13-14	<0.3	1.00	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	6.8
Hole 1	10-23-87	15-16	<0.3	0.90	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	6.5
Hole 2	10-23-87	1-2	<0.3	0.10	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	8.4
Hole 2	10-23-87	3-4	<0.3	0.65	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	6.8

Pesticide and Silvex Analysis

Sample Description	Date Collected	Sample Depth (ft bgs)	EPA Method 608 (µg/l)				EPA Method 615 (µg/l)	
			Endrin	Lindane	Methoxychor	Toxaphene	2,4-D	2,4,5-TP Silvex
Hole 1	10-23-87	1-2	<0.01	<0.01	<0.1	<0.1	<0.1	<0.1
Hole 2	10-23-87	Surface	<0.01	<0.01	<0.1	<0.1	<0.1	<0.1
Iron Oxide (not associated with the LOU)	10-23-87	Solid	<0.01	<0.01	<0.1	<0.1	<0.1	<0.1

Notes:

LOU = Letter of Understanding
ft bgs = feet below ground surface
As = Arsenic
Ba = Barium
Cd = Cadmium
Cr = Chromium
Pb = Lead
Hg * = Mercury, EPA Method 7470
Se = Selenium
Ag = Silver
< = not detected above the designated method detection limit with qualifier U- constituent was analyzed for but not detected.
mg/l = milligrams per liter
µg/l = micrograms per liter
Data from Kerr-McGee, 1996b, Response to LOU Comments

Analytical Data from *April 1997*

Boring Number	Date	Sample Depth (ft bgs)	Metals EPA Method 6010 (mg/kg)								pH Method 9045
			As	Ba	Cd	Total Cr	Pb	Hg	Se	Ag	
SB1-1	4/9/1997	-1	3.2 [1]	173 [1]	<0.4	11.4	8.0	<0.1	<0.8	<0.4	8.9
		-5	4.4 [1]	131 [1]	<0.4	9.9	5.1	<0.1	<0.8	<0.4	8.6
		-10	5.1 [1]	183.0	<0.4	13.6	8.7	<0.1	<0.8	<0.4	8.2
		-10 D	5.2	193.0	<0.4	14.2	8.2	<0.1	<0.8	<0.4	ND
SB1-2	4/9/1997	-1	3.9	180.0	<0.4	11.0	9.7	<0.1	<0.9	<0.4	8.2
		-5	4.1	286.0	<0.4	12.8	9.0	<0.1	<0.9	<0.4	8.3
		-10	5.0	198.0	<0.4	11.8	8.0	<0.1	<0.8	<0.4	8.7
SB1-3	4/9/1997	-1	3.5	182.0	<0.5	10.2	8.4	<0.1	<0.9	<0.5	9.6
		-5	3.4	96.8	<0.5	9.9	6.0	<0.1	<0.9	<0.5	9.5
		-10	5.2	213.0	<0.4	13.4	8.4	<0.1	<0.8	<0.4	9.7
SB1-4	4/9/1997	-1	5.6	72.3	<0.4	5.70 (B)	8.3	<0.1	<0.8	<0.4	9.6
		-5	5.0	328.0	<0.4	12.6	8.5	<0.1	<0.8	<0.4	8.7
		-10	6.3	75.2	<0.4	18.0	7.8	<0.4	<0.9	<0.4	8.6
SB1-5	4/9/1997	-1	8.6	237.0	<0.5	23.8	65.8	0.1	<5	<0.5	9.6

Table 26
Summary of Analytical Data for LOU #1
Trade Effluent Settling Ponds
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Analytical Data from *April 1997*											
Boring Number	**Date**	**Sample Depth (ft bgs)**	**Metals EPA Method 6010 (mg/kg)**								**pH Method 9045**
			As	**Ba**	**Cd**	**Total Cr**	**Pb**	**Hg**	**Se**	**Ag**	
SB1-5	4/9/1997	-5	17.4	397.0	2.6	43.5	158.0	<0.4	<5	<0.5	9.0
		-10	4.3	212.0	<0.4	16.1	10.3	<0.5	<0.8	<0.4	9.5
SB1-6	4/10/1997	-1	4.1	245.0	<0.5	15.9	16.0	<0.1	<1	<0.5	9.8
		-5	4.2 [1]	164 [1]	<0.4	15.8	8.9	<0.1	<0.8	<0.4	8.4
		-10	6.7 [1]	197 [1]	<0.4	13.8	7.0	<0.1	<0.8	<0.4	8.6
SB1-7	4/10/1997	-1	6.6 [1]	168 [1]	<0.4	31.3	184.0	<0.1	<0.9	<0.4	9.2
		-5	18.3 [1]	812 [1]	0.428 (B)	37.7	60.6	<0.1	<9	0.6 (B)	8.4
		-10	5.1 [1]	178 [1]	<0.4	14.6	8.9	<0.1	<0.8	<0.4	8.9
		-10D	4.7	134.0	<0.4	14.3	6.9	<0.4	<0.9	<0.4	8.8

Notes:
ft bgs = feet below ground surface
As = Arsenic
Ba = Barium
Cd = Cadmium
Cr = Chromium
Pb = Lead
Hg = Mercury
Se = Selenium
Ag = Silver
< = not detected above the designated method detection limit with qualifier U-constituent was analyzed for but not detected.
B = Reported value is less than the contract-required detection limit but greater than or equal to the instrument detection limit.
[1] = Relative percent difference (RPD) exceeded acceptable quality control limits.
D = Duplicate
ND = Not Determined
Data from ENSR, 1997, Phase II ECA.

Table 27
Summary of Analytical Data for LOU # 2
Area South of Trade Effluent Settling Ponds
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Boring Number	Sample Date	Sample Depth (ft bgs)	Metals EPA Method 6010 (mg/kg)								pH (Method 9045)
			As	Ba	Cd	Total Cr	Pb	Hg	Se	Ag	
SB1-1	4/9/1997	-1	3.2 [1]	173 [1]	<0.4	11.4	8	<0.1	<0.8	<0.4	8.9
		-5	4.4 [1]	131 [1]	<0.4	9.9	5.1	<0.1	<0.8	<0.4	8.6
		-10	5.1 [1]	183	<0.4	13.6	8.7	<0.1	<0.8	<0.4	8.2
		-10 D	5.16	193	<0.4	14.2	8.23	<0.1	<0.8	<0.4	ND
SB1-2	4/9/1997	-1	3.9	180	<0.4	11	9.7	<0.1	<0.9	<0.4	8.2
		-5	4.1	286	<0.4	12.8	9	<0.1	<0.9	<0.4	8.3
		-10	5	198	<0.4	11.8	8	<0.1	<0.8	<0.4	8.7

Notes:
ft bgs = feet below ground surface
As = Arsenic
Ba = Barium
Cd = Cadmium
Cr = Chromium
Pb = Lead
Hg = Mercury
Se = Selenium
Ag = Silver
< = not detected above the designated method detection limit
B = Reported value is less than the contract-required detection limit but greater than or equal to the instrument detection limit.
[1] = Relative percent difference (RPD) exceeded acceptable quality control limits.
D = Duplicate
LOU = Letter of Understanding
ND = Not Determined
Data from ENSR, 1997, Phase II ECA.

Table 28
Summary of Analytical Data for LOU #5
Beta Ditch
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Site	Date	Depth	Asbestos	Arsenic (mg/kg)	Barium (mg/kg)	Chromium (mg/kg)	Lead (Mg/kg)	Mecury (mg/kg)	Vanadium (mg/kg)	Chlorate (mg/kg)	pH	alpha-BHC (mg/kg)	beta-BHC (mg/kg)	4/4-DDE (mg/kg)	4/4 DDT (mg/kg)	1,2-Dichloro benzene (mg/kg)	1-3-Dichloro benzene (mg/kg)	1-4-Dichloro benzene (mg/kg)	Hexa chloro benzene (mg/kg)	Chloro benzene (mg/kg)
BDB02	04/18/96	1	9	ND	220 B	11 B	150	ND	35 B	0.019 B	10	ND	1.4 J	64	40	0.7	ND	0.48	0.54	-
BDB02	04/18/96	5	ND	ND	270 B	15 B	130	ND	54 B	0.012 B	12	3.12	ND	65	56	770	71	1200	6.4	-
BDB03	04/12/96	1	0.9	83 B	310 B	59	110	0.25	32 B	1.2	8.7	ND	ND	17	12	ND	ND	ND	ND	-
BDB04	04/12/96	1	3	ND	290 B	39	590	ND	28 B	0.13	8.8	ND	ND	420	53	ND	ND	ND	6.8	-
BDB05	04/12/96	1	ND	13 B	300 B	490	240 J	0.53 J	32 J	0.17 B	8.1	ND	ND	0.16	0.53	ND	ND	ND	ND	-
BDB05	04/12/96	1	ND	24	220 B	18 B	110	0.2	43 B	0.14	9.5	ND	ND	ND	ND	ND	ND	ND	-	-
BDB05	04/12/96	5	-	-	-	-	-	-	-	-	-	ND	ND	ND	ND	-	-	-	-	-
BDB02	04/18/96	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	8.1	0.14	10	-	2.7
BDB02	04/18/96	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	1200	98	2200	-	2200
BDB05	04/12/96	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	-	ND
BDB05	04/12/96	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	-	ND

B = analyte was detected in the method blank as well as the sample
J = estimated value concentration was between the practical quanitation limit and the method detection limit
- analyte was not sampled
ND = Not Detected

Table 29
Summary of Analytical Data for LOU # 6
Unnamed Drainage Ditch Segment
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Matrix: Groundwater

Well Number	Date	VOCs (µg/l) EPA Method 8240				RCRA Metals (µg/l) EPA Method 6010					PCB's (µg/l) EPA Method 608/8080	
		Chloroform	Bromo-form	1, 2-Dichloro-benzene	All Others	As *	Ba	Total Cr	Mn	All Others	Aroclor-1254	All Others
M-10	4/18/1994	24	<5	<5	ND	<5	15	<10	240	ND	3.2	ND
M-47	4/18/1994	280	9	8	ND	180	20	1800	44	ND	5.1	ND
M-48	4/18/1994	340	<5	<5	ND	200	20	1600	94	ND	<1	ND
Detection Limit		5	5	5	various	5	5	10	5	various	1	various

Sample Matrix: Soil

Sample Number	Date	Chlorinated Pesticides & PCBs(µg/kg) EPA Method 8080				Total Metals (mg/kg) EPA 6010					Asbestos Bulk Composite Samples by PLM	
		Beta-BHC	4, 4-DDE	4, 4-DDT	All Others	As *	Ba	Total Cr	Pb	All Others	Detected	Asbestiform (%)
WSR-1	10/11/1993	27	<16	<16	ND	1.8	99	7	9	ND	No	NA
WSR-2	10/11/1993	16	<16	<16	ND	2.2	110	8	9	ND	No	NA
WSR-3	10/11/1993	95	38	34	ND	2.9	140	9	20	ND	Yes	Chrysotile<1%
WSR-4	10/11/1993	39	<16	22	ND	2	140	11	10	ND	No	NA
WSR-5	10/11/1993	25	<16	26	ND	1.7	150	8	14	ND	No	NA
NWD-1a	10/11/1993	29	<16	<16	ND	22	140	13	10	ND	No	NA
NWD-1b	10/11/1993	<8	<16	<16	ND	26	120	8	9	ND	No	NA
NWD-2a	10/11/1993	140	300	330	ND	2.6	130	11	14	ND	Yes	Chrysotile<1%
NWD-2b	10/11/1993	27	26	35	ND	<0.5	100	10	12	ND	No	NA
NWD-3a	10/11/1993	<80	270	270	ND	3.6	170	16	24	ND	Yes	Chrysotile<1%
NWD-3b	10/11/1993	<80	<160	260	ND	5	160	16	23	ND	No	NA
Detection Limit		8 (80*)	16 (160*)	16	various	0.5	0.5	1	5	various	NA	NA

Sample Matrix: Soil

Sample Number	Date	Chlorate (ppm)
WSR-1	10/11/1993	0.28
WSR-2	10/11/1993	<0.1
WSR-3	10/11/1993	<0.1
WSR-4	10/11/1993	<0.1
WSR-5	10/11/1993	0.14
NWD-1a	10/11/1993	1.53
NWD-1b	10/11/1993	2.65

Notes:

µg/l = micrograms per liter
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
As * = Arsenic using EPA Method 7060
Ba = Barium
NA = Not Applicable
Total Cr = Total Chromium
Mn = Manganese
Pb = Lead
VOCs = Volatile organic compounds
PCB = Polychlorinated Biphenyls
80* and 160* = Detection limit higher in some samples due to dilutions.
Note: Soil: Cyanide by EPA Method 335.2 was non-detect for all samples. VOCs by EPA Method 8240 were non-detect for all samples.

Table 29
Summary of Analytical Data for LOU # 6
Unnamed Drainage Ditch Segment
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Number	Date	Chlorate (ppm)
NWD-2a	10/11/1993	<0.1
NWD-2b	10/11/1993	<0.1
NWD-3a	10/11/1993	<0.1
NWD-3b	10/11/1993	0.42
Detection Limit		0.1

Notes (Continued):
All VOC, Cyanide, Metal Data = GTEL Environmental Laboratories, Inc., Concord, CA
Groundwater and Soil PCB Data = Alpha Analytical, Inc., Las Vegas, NV
Soil Pesticide Data = Alpha Analytical, Inc., Las Vegas, NV
Chlorate Data = Analysis conducted internally at Kerr-McGee Chemical LLC, Analytical Chemistry Section, Henderson NV
Data From: Kerr-McGee, 1994, Internal Correspondence, June 10, 1994.

Phase I Subsurface Soil Evaluation, Warm Springs Road Extension (Western Technologies Inc., April 1996)

Sample Matrix: Soil

Boring/ Sample Number	Date	Sample Depth (ft bgs)	Total Metals (mg/kg) EPA Method 6010 (ICP)													
			Sb	As	Be	Cd	Cr	Cu	Pb	Hg *	Ni	Se	Ag	Tl	Zn	Cy *
IB-1-0	3/4/1996	0-1	3	<1.25	0.34	0.086	5.3	14	6.1	0.022	6.1	<2.5	<0.25	<2.5	17	<0.1
IB-1-14	3/4/1996	14	3	3.1	0.25	0.062	7.4	13	2.7	<0.01	3.4	<2.5	<0.25	<2.5	14	<0.1
IBC-1-0	3/4/1996	0-1	3.9	1.5	0.37	0.082	8.5	14	8.8	<0.01	6.3	<2.5	<0.25	<2.5	22	<0.1
IBC-2-0	3/4/1996	0-1	5.3	3.4	0.47	<0.05	11	15	11	0.012	7.9	<2.5	<0.25	<2.5	27	<0.1
IBC-2-D	3/4/1996	0-1	4.2	2	0.43	0.09	8.9	14	9.5	<0.01	6.9	<2.5	<0.25	<2.5	24	<0.1
IBC-3-0	3/4/1996	0-1	4.5	2.4	0.41	0.093	7.6	13	8.7	<0.01	6.6	<2.5	<0.25	<2.5	22	<0.1
IBC-4-0	3/4/1996	0-1	3.8	1.5	0.35	0.087	7.8	13	8.8	<0.01	6.4	<2.5	<0.25	<2.5	22	<0.1
IBC-5-0	3/4/1996	0-1	5	1.8	0.46	0.069	8.4	15	15	0.01	6.5	<2.5	<0.25	<2.5	23	<0.1
IBC-6-0	3/4/1996	0-1	4.4	1.8	0.36	0.095	7.2	13	12	0.011	5.5	<2.5	<0.25	<2.5	19	<0.1
IBC-7-0	3/4/1996	0-1	5.1	3.1	0.44	<0.05	10	13	7.2	<0.01	6.5	<2.5	<0.25	<2.5	26	<0.1
IBC-8-0	3/4/1996	0-1	5.5	1.7	0.47	0.064	10	14	6	0.011	6.7	<2.5	<0.25	<2.5	26	<0.1
IBC-9-0	3/4/1996	0-1	5.6	2.9	0.51	0.1	11	16	6	<0.01	7.1	<2.5	<0.25	<2.5	28	<0.1

Sample Matrix: Soil

Boring/ Sample Number	Date	Asbestos (%) Bulk Composite Samples by PLM	Chlorinated Pesticides & PCBs (µg/kg) EPA Method 8080				
			Alpha-BHC	Beta- BHC	Delta-BHC	Gamma-BHC (lindane)	All Others
IB-1-0	3/4/1996	NA	<1.7	<1.7	<1.7	<1.7	ND
IB-1-14	3/4/1996	NA	<1.7	**2.8**	<1.7	<1.7	ND
IBC-1-0	3/4/1996	< 1	<1.7	**28**	<1.7	<1.7	ND
IBC-2-0	3/4/1996	ND	**1.9**	**30**	<1.7	**2.2**	ND
IBC-2-D	3/4/1996	NA	<1.7	<1.7	<1.7	<1.7	ND

Table 29
Summary of Analytical Data for LOU # 6
Unnamed Drainage Ditch Segment
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Boring/ Sample Number	Date	Asbestos (%) Bulk Composite Samples by PLM	Chlorinated Pesticides & PCBs (µg/kg) EPA Method 8080				
			Alpha-BHC	Beta- BHC	Delta-BHC	Gamma-BHC (lindane)	All Others
IBC-3-0	3/4/1996	< 1	<1.7	**100**	<1.7	<1.7	ND
IBC-4-0	3/4/1996	< 1	**2.3**	**66**	**3.6**	<1.7	ND
IBC-5-0	3/4/1996	ND	<1.7	61	<1.7	<1.7	ND
IBC-6-0	3/4/1996	ND	<1.7	37	<1.7	<1.7	ND
IBC-7-0	3/4/1996	ND	<1.7	75	<1.7	<1.7	ND
IBC-8-0	3/4/1996	ND	<1.7	43	<1.7	<1.7	ND
IBC-9-0	3/4/1996	ND	<1.7	29	<1.7	<1.7	ND

Notes:

ft bgs = feet below ground surface
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
As = Arsenic
Be = Beryllium
Cd = Cadmium
Cr = Chromium
Cu = Copper
Pb = Lead
Hg* = Mercury by EPA Method7471
Ni - Nickel
Se = Selenium
Ag = Silver
Tl= Thallium
Cy* = Total Cyanide, by EPA Method 9010
-D = Duplicate sample taken at the indicated depth.
PCB = Polychlorinated Biphenyls
< = not detected above the respective PQL.
PLM = polarized light microscopy
NA = Not Analyzed
ND = Non Detect
VOCs = Volatile organic compounds
SVOCs = Semi-volatile organic compounds
Note: VOCs & SVOCs were non-detect for all samples
Note = All 0-1 foot samples = composite samples from 20 feet in the four compass directions around the boring.

Location of Borings:

IB-1 = within the Western Drainage Ditch
IB-2 & IB-3 = located at 100 foot distances to the east from IB-1 and both were placed in related smaller flood channels to the Western Drainage Ditch.
IB-4 & IB-5 = located at 100 foot distances to the west from IB-1. Boring IB-5 was placed in a related flood channel to the Western Drainage Ditch.
IB-6 through IB-9 = located 500 foot distances to the west between boring IB-5 and U.S. Highway 95 overpass.
VOC, SVOC, & Chlorinated Pesticides and PCB Data= Alpha Analytical, Sparks, NV
Metals Data = Chemax Laboratories, Inc., Sparks, Nevada
Asbestos Data = Bulk Soil Samples analyzed by Analytica Solutions, Broomfield, Colorado
Data From: Western Technologies Inc., 1996c: Subsurface Soil Evaluation, Warm Springs Road Extension, Phase I U.S. Highway 95 to Eastgate Road, Henderson, Nevada, Prepared for the City of Henderson, June 24, 1996.

Table 29
Summary of Analytical Data for LOU # 6
Unnamed Drainage Ditch Segment
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Phase II Subsurface Soil Evaluation, Warm Springs Road Extension (Western Technologies Inc., June 1996)

Sample Matrix: Soil

Boring/ Sample Number	Date	Sample Depth (ft bgs)	VOCs (µg/kg) EPA Method 8260			
			1, 2, 4, -Trichlorobenzene	1, 2, 3-Trichlorobenzene	Hexachlorobenzene	All Others
IIB-1-1	3/6/1996	0-1	<40	<40	<41	ND
IIB-1-14	3/6/1996	14	310	240	1100	ND
IIBC-2-1	3/6/1996	0-1	<40	<40	<41	ND
IIBC-3-1	3/6/1996	0-1	<40	<40	<41	ND
IIBC-4-1	3/5/1996	0-1	<40	<40	<41	ND
IIBC-5-1	3/5/1996	0-1	<40	<40	<41	ND
IIBC-6-1	3/5/1996	0-1	<40	<40	<41	ND
IIBC-7-1	3/5/1996	0-1	<40	<40	<41	ND
IIBC-8-1	3/5/1996	0-1	<40	<40	4100	ND
IIBC-9-1	3/5/1996	0-1	<40	<40	<41	ND
IIBC-10-1	3/6/1996	0-1	<40	<40	<41	ND
IIBC-11-1	3/6/1996	0-1	<40	<40	<41	ND
IIBC-12-1	3/5/1996	0-1	<40	<40	<41	ND
IIBC-13-1	3/5/1996	0-1	<40	<40	<41	ND
IIBC-14-1	3/5/1996	0-1	<40	<40	<41	ND
IIBC-15-1	3/5/1996	0-1	<40	<40	<41	ND
IIBC-16-1	3/4/1996	0-1	<40	<40	<41	ND
Detection Limit			40	40	660	various

Sample Matrix: Soil

Boring/ Sample Number	Date	Sample Depth (ft bgs)	SVOCs (µg/kg) EPA Method 8270		Asbestos (%)- Bulk Composite Samples by PLM	Chlorinated Pesticides & PCBs (µg/kg) EPA Method 8080							
			Hexachloro-benzene	All Others		Alpha-BHC	Beta-BHC	Delta-BHC	Gamma- BHC (lindane)	4, 4-DDE	4, 4-DDT	Arochlor-1260	All Others
IIB-1-0	3/6/1996	0-1	<660	ND	<1	<1.7	41	<1.7	<1.7	85	140	<170	ND
IIB-1-14	3/6/1996	14	<660	ND	NA	3.6	95	130	<1.7	<3.3	<3.3	<170	ND
IIBC-2-0	3/6/1996	0-1	<660	ND	ND	<1.7	42	<1.7	4.1	16	<3.3	<170	ND
IIBC-3-0	3/6/1996	0-1	<660	ND	<1	<1.7	72	<1.7	<1.7	35	43	<170	ND
IIBC-4-0	3/5/1996	0-1	<660	ND	ND	<1.7	75	<1.7	<1.7	31	<3.3	<170	ND
IIBC-5-0	3/5/1996	0-1	<660	ND	ND	<1.7	69	<1.7	<1.7	12	<3.3	<170	ND
IIBC-6-0	3/5/1996	0-1	<660	ND	ND	<1.7	130	<1.7	<1.7	37	<3.3	<170	ND
IIBC-7-0	3/5/1996	0-1	**1100**	ND	ND	<1.7	97	<1.7	<1.7	180	140	<170	ND

Table 29
Summary of Analytical Data for LOU # 6
Unnamed Drainage Ditch Segment
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Boring/ Sample Number	Date	Sample Depth (ft bgs)	SVOCs (µg/kg) EPA Method 8270		Asbestos (%)- Bulk Composite Samples by PLM	Chlorinated Pesticides & PCBs (µg/kg) EPA Method 8080							
			Hexachloro-benzene	All Others		Alpha-BHC	Beta-BHC	Delta-BHC	Gamma- BHC (lindane)	4, 4-DDE	4, 4-DDT	Arochlor-1260	All Others
IIBC-8-0	3/5/1996	0-1	**4100**	ND	2	<1.7	50	<1.7	<1.7	210	260	<170	ND
IIBC-9-0	3/5/1996	0-1	<660	ND	<1	<1.7	36	<1.7	<1.7	93	48	<170	ND
IIBC-10-0	3/6/1996	0-1	<660	ND	ND	<1.7	73	<1.7	<1.7	59	82	<170	ND
IIBC-11-0	3/6/1996	0-1	<660	ND	ND	<1.7	90	<1.7	<1.7	59	<3.3	<170	ND
IIBC-12-0	3/5/1996	0-1	<660	ND	ND	<1.7	75	<1.7	<1.7	<3.3	36	<170	ND
IIBC-13-0	3/5/1996	0-1	<660	ND	ND	37	<1.7	<1.7	<1.7	<3.3	<3.3	3200	ND
IIBC-14-0	3/5/1996	0-1	<660	ND	ND	<1.7	190	<1.7	<1.7	28	42	<170	ND
IIBC-15-0	3/5/1996	0-1	<660	ND	ND	<1.7	160	<1.7	<1.7	12	<3.3	<170	ND
IIBC-16-0	3/4/1996	0-1	<660	ND	ND	<1.7	52	<1.7	<1.7	7	<3.3	<170	ND
Detection Limit			660	various	1	1.7	1.7	1.7	1.7	3.3	3.3	170	various

Sample Matrix: Soil

Boring/ Sample Number	Date	Sample Depth (ft bgs)	Total Metals (mg/kg) EPA Method 6010 (ICP)												
			Sb	As	Be	Cd	Cr	Cu	Pb	Hg *	Ni	Se	Ag	Tl	Zn	Cy *
IIB-1-0	3/6/1996	0-1	2.2	3.4	0.41	0.12	19	17	11	0.069	7.4	<2.5	<0.25	<2.5	28	<0.1
IIB-1-14	3/6/1996	14	4	4.8	0.37	<0.05	15	12	3.9	<0.01	6	<2.5	<0.25	<2.5	17	<0.1
IIBC-2-0	3/6/1996	0-1	1.8	<1.25	0.29	0.071	4	7.6	4.8	0.011	4.8	<2.5	<0.25	<2.5	13	<0.1
IIBC-3-0	3/6/1996	0-1	2.7	<1.25	0.37	0.09	8.1	15	10	0.015	6.6	<2.5	<0.25	<2.5	25	<0.1
IIBC-3-0-D	3/6/1996	0-1	2.6	2.1	0.32	0.099	6.3	13	11	0.025	5.6	<2.5	<0.25	<2.5	22	<0.1
IIBC-4-0	3/5/1996	0-1	3.4	<1.25	0.32	0.1	6.4	9.1	7.3	0.011	6.5	<2.5	<0.25	<2.5	18	<0.1
IIBC-5-0	3/5/1996	0-1	2.8	<1.25	0.32	0.055	5.5	9.1	5.1	<0.01	6	<2.5	<0.25	<2.5	16	<0.1
IIBC-6-0	3/5/1996	0-1	3.4	<1.25	0.36	0.081	6	9.8	7.8	0.013	6.5	<2.5	<0.25	<2.5	19	<0.1
IIBC-7-0	3/5/1996	0-1	3.6	2.2	0.39	0.1	7	11	8.4	0.023	6.5	<2.5	<0.25	<2.5	22	<0.1
IIBC-8-0	3/5/1996	0-1	3.8	2.8	0.4	0.072	7.3	12	8.2	0.018	6.5	<2.5	<0.25	<2.5	22	<0.1
IIBC-9-0	3/5/1996	0-1	5	3	0.38	0.28	8.7	20	10	0.022	6.8	<2.5	<0.25	<2.5	150	<0.1
IIBC-10-0	3/6/1996	0-1	4.5	2.5	0.42	0.13	8.4	14	11	0.014	7.8	<2.5	<0.25	<2.5	26	<0.1
IIBC-11-0	3/6/1996	0-1	4.9	3.4	0.43	0.2	7.2	15	19	0.017	8.2	<2.5	<0.25	<2.5	50	<0.1
IIBC-12-0	3/5/1996	0-1	3.6	<1.25	0.37	<0.05	6	8.9	5.9	<0.01	5.3	<2.5	<0.25	<2.5	19	<0.1
IIBC-13-0	3/5/1996	0-1	5	<1.25	0.38	0.19	8.5	18	12	0.064	7.4	<2.5	<0.25	<2.5	43	<0.1
IIBC-14-0	3/5/1996	0-1	4.4	2.2	0.45	0.13	6.6	12	7.7	<0.04	3.8	<2.5	<0.25	<2.5	27	<0.1
IIBC-15-0	3/5/1996	0-1	3.1	1.8	0.37	0.095	5.5	10	7	0.014	5.5	<2.5	<0.25	<2.5	18	<0.1
IIBC-16-0	3/4/1996	0-1	2.2	<1.25	0.28	<0.05	3.6	8.7	7.3	0.014	4.6	<2.5	<0.25	<2.5	15	<0.1

Table 29
Summary of Analytical Data for LOU # 6
Unnamed Drainage Ditch Segment
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Matrix: Soil										
Boring/ Sample Number	Date	Sample Depth (ft bgs)	Radioactive Nuclides (units= PCI/G)							
			Radium -226/228 by HASL 300		**Thorium** by Th-NAS-NS-3004			**Uranium** by U-NAS-NS-3050		
			Ra-226	Ra-228	Th-232	Th-230	Th-228	U-238	U-235-236	U-234
IIB-1-0	3/6/1996	0-1	1.4	2.08	1.24	2.02	1.38	2.38	0.38	3.15
		Detection Limit	0.09	0.16	0.13	0.14	0.18	0.18	0.21	0.19

Notes:

ft bgs = feet below ground surface
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
Sb = Antimony
As = Arsenic
Be = Beryllium
Cd = Cadmium
Cr = Chromium
Cu = Copper
Pb = Lead
Hg* = Mercury by EPA Method7471
Ni - Nickel
Se = Selenium
Ag = Silver
Tl= Thallium
Cy* = Total Cyanide, by EPA Method 9010
-D = Duplicate sample taken at the indicated depth.
PCB = Polychlorinated Biphenyls
PLM = polarized light microscopy
NA = Not Analyzed
ND = Non Detect
VOCs = Volatile organic compounds
SVOCs = Semi-volatile organic compounds
< = not detected above the respective PQL.
Ra = Radium
Th =Thorium
U = Uranium

Location of Borings:

Analytical data for the borings were labelled IIB-1 but on the location map in the Appendix the borings were labelled B-1.
Boring IIB-1 located within the Northwest Drainage Ditch
Boring IIB-2 located east of the ditch along the centerline of the road within 10 feet of the edge of the ditch. This location placed the boring on the earthen berm
Boring IIB-3 located west of the ditch along the centerline of the road within 10 feet of the edge of the ditch.
Borings IIB-4 through IIB-11 located at 500 foot distance to the east between boring IIB-2 and Boulder Highway. Borings IIB-7 and IIB-8 were located within the Northwest Drainage Ditch as the road easement again crossed the ditch to the east of IIB-1
Borings IIB-12 through IIB-16 located at 500 foot distances to the west between the boring IIB-3 and Eastgate Road.
VOC, SVOC, & Chlorinated Pesticides and PCB Data= Alpha Analytical, Sparks, NV
Metals Data = Chemax Laboratories, Inc., Sparks, Nevada
Asbestos Data = Bulk Soil Samples analyzed by Analytica Solutions, Broomfield, Colorado
Radioactive Nuclides = Analysis by Quanterra Environmental Services, Earth City, Missouri through Alpha Analytical Services.
Data From: Western Technologies Inc., 1996d: Phase II Subsurface Soil Evaluation Warm Springs Road Extension, Eastgate Road to Boulder Highway, Henderson, Nevada, Prepared for the City of Henderson, June 24, 1996.

Table 30
Summary of Analytical Data for LOU # 10
Hazardous Waste Landfill, Nearby Groundwater Analytical Data
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

WELL #	Sample Date	Total Depth (ft bgs)	Depth to Water	pH (Lab)	EC (Lab)	Cr-total (ppm)	Mn (ppm)	ClO_4 (ppm)	LAB	Location
M-5A	8/24/97	--	--	--	--	--	--	<0.7	KMC	Further Upgradient
M-5A	9/15/97	46.79	39.76	6.92	12600	--	--	--	KMC	Further Upgradient
M-5A	4/27/98	--	39.42	7.14	6050	--	--	--	KMC	Further Upgradient
M-5A	5/3/00	--	--	--	14400	--	--	21	KMC	Further Upgradient
M-5A	5/6/99	46.79	37.69	7.11	14200	ND	--	<2	KMC	Further Upgradient
M-5A	5/5/00	46.79	39.44	7.32	14900	0.05	--	32	KMC	Further Upgradient
M-5A	5/4/01	46.79	39.11	--	5860	--	--	28	KMC	Further Upgradient
M-5A	5/2/03	--	39.00	7.0	14500	0.012	--	31	MW	Further Upgradient
M-5A	12/11/02	--	38.95	--	--	--	--	--	MW	Further Upgradient
M-5A	5/7/03	--	39.07	--	15600	--	--	--	MW	Further Upgradient
M-5A	7/9/03	--	--	7.2	15350	--	--	--	MW	Further Upgradient
M-5A	5/3/04	--	--	7.1	15350	ND<0.05	1.4	--	MW	Further Upgradient
M-5A	8/3/04	--	--	7.0	15120	--	--	--	MW	Further Upgradient
M-6A	8/24/97	--	--	--	--	--	--	<0.7	KMC	Downgradient
M-6A	9/15/97	47.38	40.45	7.35	7790	--	--	--	KMC	Downgradient
M-6A	4/27/98	--	40.27	7.49	5020	--	--	--	KMC	Downgradient
M-6A	5/6/99	47.38	38.71	7.46	8150	ND	--	5	KMC	Downgradient
M-6A	5/5/00	47.38	40.60	7.69	8510	0.02	--	11	KMC	Downgradient
M-6A	5/4/01	47.38	40.15	7.44	8770	0.02	--	12	KMC	Downgradient
M-6A	4/30/02	--	39.99	7.5	8940	0.039	--	24	MW	Downgradient
M-6A	12/11/02	--	40.07	--	--	--	--	--		Downgradient
M-6A	5/2/03	--	41.02	--	10180	--	--	--	MW	Downgradient
M-6A	7/9/03	--	--	7.3	9940	--	--	--	MW	Downgradient
M-6A	5/3/04	--	--	7.5	9730	ND<0.02	150	--	MW	Downgradient
M-6A	8/3/04	--	--	7.5	9810	--	--	--	MW	Downgradient
M-7A	8/24/97	--	--	--	--	--	--	47	KMC	Just downgradient
M-7A	9/15/97	--	37.15	7.20	8230	--	--	--	KMC	Just downgradient
M-7A	4/27/98	40.47	37.21	7.47	5290	--	--	--	KMC	Just downgradient
M-7B	5/6/99	54.80	33.73	7.51	8410	ND	--	14	KMC	Just downgradient
M-7B	5/5/00	54.80	36.69	7.62	8570	0.15	--	13	KMC	Just downgradient
M-7B	5/4/01	54.80	36.87	7.45	8710	0.09	--	10.6	KMC	Just downgradient
M-7B	4/30/02	--	36.94	7.4	8520	0.01	--	12	MW	Just downgradient
M-7B	12/11/02	--	37.03	--	--	--	--	--	--	Just downgradient
M-7B	5/2/03	--	37.16	--	9800	--	--	--	MW	Just downgradient
M-7B	7/9/03	--	--	7.4	9880	--	--	--	MW	Just downgradient
M-7B	5/3/04	--	--	7.5	9980	ND<0.02	25	--	MW	Just downgradient
M-7B	8/3/04	--	--	7.5	10050	--	--	--	MW	Just downgradient
H-28	4/27/98	42.90	--	7.63	7020	--	--	<10	KMC	Downgradient
H-28	5/6/99	42.90	38.90	--	--	--	--	--	KMC	Downgradient
H-28	5/3/00	--	--	--	8900	--	--	5.86	KMC	Downgradient
H-28	5/5/00	47.25	40.92	7.76	9020	0.41	--	9.00	KMC	Downgradient
H-28	5/1/01	--	--	--	8570	--	--	2.86	KMC	Downgradient
H-28	5/4/01	47.25	40.76	7.11	8780	0.15	--	--	KMC	Downgradient
H-28	5/9/01	41.85	7.20	--	8540	--	--	3.70	KMC	Downgradient
H-28A	12/11/02	--	40.65	--	--	--	--	--	--	Downgradient
H-28A	5/7/03	--	40.24	--	9340	--	--	--	MW	Downgradient

Table 30
Summary of Analytical Data for LOU # 10
Hazardous Waste Landfill, Nearby Groundwater Analytical Data
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

WELL #	Sample Date	Total Depth (ft bgs)	Depth to Water	pH (Lab)	EC (Lab)	Cr-total (ppm)	Mn (ppm)	ClO_4 (ppm)	LAB	Location
H-28A	7/9/03	--	--	7.1	9630	--	--	--	MW	Downgradient
H-28A	5/3/04	--	--	7.2	9710	ND<0.05	1.3	--	MW	Downgradient
H-28A	8/3/04	--	--	7.2	9410	--	--	--	MW	Downgradient

Notes:
ft bgs = feet below ground surface
EC: Electrical Conductivity
Cr-total: Total Chromium
Mn = Manganese
ClO_4: Perchlorate
ppm = parts per million
-- = Either no data was obtained or was not analyzed for the respective constituent.
Labs:
AP
KMC Kerr-McGee Corporation
KMCLLC Kerr-McGee Corporation, LLC
KMG Kerr-McGee
LAS
MW Montgomery Watson
NEL Nevada Environmental Laboratory
SNWA Southern Nevada Water Authority
WECK
Well Data From: Kerr-McGee Chemical LLC Company, Mother-hen Database.

Table 31

Summary of Analytical Data for LOU # 35

Truck Unloading Area

Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Matrix: **Soil**

Sample Analysis by LAS Laboratories, Inc., Las Vegas, Nevad

Boring Number	Sample Depth (ft bgs)	Date	Metals EPA Method 6010 (mg/kg)								pH [1]	TPH [2] (mg/kg)	VOCs EPA Method 8240 (µg/kg)		
			As	Ba	Cd	Total Cr	Pb	Hg	Se	Ag			Acetone	1, 1, 1-Trichloro-ethane (TCA)	All Others
SB4-1-S	0-1	4/9/1997	11.4 *	1,010 *	<0.4	21.4	56.4	<0.1	<4	<0.4	9.52	<30	<10	<5	ND
SB4-1-S-D	0-1-DUP	4/9/1997	24.5	1,450	<0.4	19.1	52.0	<0.1	<4	<0.4	ND	ND	NA	NA	NA
SB4-1D	2-3	4/9/1997	5.3 *	246 *	<0.4	15.7	18.4	<0.1	<0.8	<0.4	10.3	<30	<10	<5	ND
SB4-2-S	0-1	4/9/1997	10 *	558 *	<0.4	18.5	51.8	<0.1	<0.8	<0.4	8.32	<90	<10	<5	ND
SB4-2-D	2-3	4/9/1997	3.5 *	179 *	<0.4	14.1	9.8	<0.1	<0.8	<0.4	8.63	<30	**11**	<5	ND
SB4-3-S	0-1	4/9/1997	17.4 *	1,360 *	<0.4	23	141	<0.1	<4.0	0.6	8.64	41 (X)	<10	<5	ND
SB4-3-D	2-3	4/9/1997	3.9 *	161 *	<0.4	13	7.9	<0.1	<0.8	<0.4	9.14	<30	<10	<5	ND
SB4-4-S	0-1	4/9/1997	5.3 *	175 *	<0.4	13.1	23	<0.1	<0.8	<0.4	8.92	37 (X)	<10	<5	ND
SB4-4-D	2-3	4/9/1997	4.2	199 *	<0.3	20.7	9.4	<0.1	<0.7	<0.3	9.27	<30	<9.8	<5	ND
SB4-4-D-D	2-3-DUP	4/9/1997	9.3	207 *	<0.4	24.2	29.2	<0.09	<0.8	<0.4	9.25	<30	<10	<5	ND
SB4-5-S	0-1	4/9/1997	6.6	190 *	<0.3	20.1	15.3	0.1	<3	<0.3	8.14	<89	<10	<5	ND
SB4-5-D	2-3	4/9/1997	4.4	196	<0.4	15.9	10.9	<0.1	<0.8	<0.4	8.24	<30	**6.8 J**	<5	ND
SB4-6-S	0-1	4/9/1997	4.3	200 *	<0.4	17.4	9.4	<0.1	<4	<0.4	9.65	<30	<10	<5	ND
SB4-6-D	2-3	4/9/1997	5.3	202 *	<0.4	18.1	12.9	<0.09	<0.8	<0.4	9.07	<30	**7.0 J**	<5	ND
SB4-7-S	0-1	4/9/1997	16.6	329 *	<0.4	21.8	59.9	<0.1	<4	<0.4	9.94	<30	<9.8	<5	ND
SB4-7-D	2-3	4/9/1997	4.9	245 *	<0.4	17.4	14.3	<0.1	<0.7	<0.4	8.67	<30	<10	<5	ND
SB4-8-S	0-1	4/9/1997	14.6 *	360 *	<0.4	15.5	83	<0.1	<0.8	<0.4	9.18	79 (X)	**8.7 J**	**2.4 J**	ND
SB4-8-D	2-3	4/9/1997	4.4	227 *	<0.4	14.3	11.5	<0.1	<0.8	<0.4	7.85	<89	<10	<5	ND

Notes:

ft bgs = feet below ground surface

mg/kg = milligrams per kilogram

[1] = pH analysis used Method 9045

TPH = Total Petroleum Hydrocarbons

[2] = TPH analysis used EPA Method 8015M-d in mg/kg.

As - Arsenic

Ba - Barium

Cd - Cadmium

Total Cr - Total Chromium

Pb - Lead

Hg - Mercury

Se - Selenium

Ag - Silver

VOCs = Volatile organic compounds

SVOCs = Semi-volatile organic compounds

-S= shallow sample (referred to as -S in text) collected from 0 to 12 inches bgs

-D = deep sample (referred to as -D in text) collected from 24 to 36 inches bgs

-DUP = Duplicate sample

< = Not detected above the designated PQL.

ND = Not Determined

NA = Not Analyzed

J = Estimated value, cpmstituent detected at a level less than the practical quantitation limit and greater than the method detection limit.

* = Relative percent difference (RPD) for duplicate analysis exceeded acceptable quality contr limits.

(X) = TPH heavier than diesel present. The concentration result was based on the area of the peaks within the retention time window of diesel-range organics.

SVOC Data: SVOCs were analyzed on all samples (except SB4-1-S-D). ALL WERE NON-DETECT. Units were µg/L.

Data from ENSR, 1997, Phase II ECA.

Table 32
Summary of Analytical Data for LOU # 54
AP Plant Area Change House/Lab Septic Tank
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Boring Number	Date	Sample Depth (ft bgs)	Metals EPA Method 6010 (mg/kg)								pH *
			As	Ba	Cd	Cr	Pb	Hg	Se	Ag	
SB6-1	4/9/1997	-5	3.7	175 [1]	<0.4	15.8	8	<0.1	<0.7	<0.4	8.87
	4/9/1997	-5-DUP	4.09	238 [1]	<0.4	14.0	8.82	<0.1	<0.7	<0.4	9
	4/9/1997	-10	6	327 [1]	<0.4	16.1	8.4	<0.1	<0.8	<0.4	9.14
	4/9/1997	-15	5.6	150 [1]	<0.4	15.2	7.2	<0.1	<0.8	<0.4	10.0
SB6-2	4/9/1997	-5	4	150 [1]	<0.4	13.9	7.9	0.1	<4	1.2	8.47
	4/9/1997	-10	5.8	170 [1]	<0.4	17.6	10.1	<0.1	<4	<0.4	8.37
	4/9/1997	-15	5.1	173 [1]	<0.4	16.4	8.5	<0.1	<4	<0.4	8.73

Notes:
ft bgs = feet below ground surface
mg/kg = milligrams per kilogram
As = Arsenic
Ba = Barium
Cd = Cadmium
Cr = Chromium
Pb = Lead
Hg = Mercury
Se = Selenium
Ag = Silver
* = pH by EPA Method 9045
[1] = Relative percent difference (RPD) for duplicate analysis exceeded acceptable quality control limits.
-DUP = Duplicate sample taken at the indicated depth.
Data from ENSR, 1997, Phase II ECA.

Table 33
Summary of Analytical Data for LOU # 62
State Industries, Inc.
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Matrix: Soil
Sample Analysis by: Atlas Chemical Testing Laboratories, Las Vegas Nevada
Samples taken from Pond Area

Boring/ Sample Number	Date	Sample Depth (ft bgs)	Sodium (%)	Sulfate (%)	Total Available Water Soluble Sodium Sulfate (%)	pH
B-1	11/8/1995	2	0.01	0.02	0.03	8.6
	11/8/1995	5	0.02	0.04	0.06	9.2
	11/8/1995	9	0.03	0.04	0.06	8.4
B-2	11/8/1995	3	0.02	0.03	0.05	8.5
	11/8/1995	6	0.03	0.04	0.06	8.9
	11/8/1995	9	0.03	0.03	0.05	8.5
	11/8/1995	14	0.03	0.04	0.06	8.5
B-3	11/8/1995	3	0.08	0.91	0.24	8.48
	11/8/1995	5	0.08	0.88	0.25	6.29
	11/8/1995	4	0.1	0.92	0.31	5.85
	11/8/1995	7	0.07	0.86	0.22	7.28
	11/8/1995	14	0.07	0.93	0.22	7.5
B-4	11/8/1995	2	0.11	1.05	0.33	7.77
	11/8/1995	4	0.09	0.96	0.29	6.49
	11/8/1995	6	0.03	0.12	0.09	8.34
	11/8/1995	9	0.02	0.03	0.05	8.53
	11/8/1995	14	0.02	0.03	0.05	8.84
B-5	11/8/1995	2	0.13	1.39	0.42	7.96
	11/8/1995	5	0.08	1.05	0.25	8.03
	11/8/1995	7	0.03	0.18	0.1	8.41
B-6	11/8/1995	3	0.02	0.05	0.06	8.74
	11/8/1995	7	0.03	0.11	0.08	8.66
B-7	11/8/1995	2	0.03	1.08	0.1	4.35
	11/8/1995	4	0.03	0.84	0.09	5.2
	11/8/1995	6	0.03	0.95	0.08	3.61

Notes:
Water Soluble Salt Analysis in Soil 1:5 (soil:water) Aqueous Extraction, ASTM D 1428, D 516.
NOTE: As Indicated on Analysis: The results for each constituent denote the percentage of that analyte, solubl in water at a 1:5 (soil: water) extraction ratio, which is present in the soil. Sodium was determined by flame photometry, sulfate turbidimetrically, and sodium sulfate by calculation.
Data From: ETEC, 1995: Geotechnical Investigation Report, Administration/ Office Building Between Lake Mead Drive and KMCC Plant Henderson, Nevada, November 20, 1995.

Table 33
Summary of Analytical Data for LOU # 62
State Industries, Inc.
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample Matrix: Soil Samples taken by State Industries, expired holding times.
Sample Analysis by: Nevada Environmental Laboratory, Las Vegas, Nevada
Samples taken from Rectangular and Circular Evaporative Pond Areas (Samples BR and BC, respectively). Background sample taken (BB-1

Sample Number	Date	Depth (ft bgs)	CAM 17 METALS (mg/kg). EPA Method 6010													pH EPA Method 150.0
			As*	Ba	Be	Cr	Co	Cu	Pb *	Hg*	Mo	Ni	Ag	V	Zn	
BR-1-4	1/3/1996	4	3.6	170	0.47	11	8.3	11	15	--	1.8	11	--	23	26	6.64
BR-2-4	1/3/1996	4	3.4	210	--	20	13	6.7	15	0.21	7.5	11	<5	10	81	2.79
BR-3-3.5	1/3/1996	3.5	3.2	150	0.28	54	13	13	16	--	6.8	16	--	20	83	3.19
BR-4-3.5	1/3/1996	3.5	3.0	120	0.52	10	20	13	--	--	--	18	--	23	95	3.92
BR-5-3.5	1/3/1996	3.5	4.0	280	--	18	14	--	27	0.23	15	11	5.4	8	60	2.57
BR-6-3.5	1/3/1996	3.5	3.7	190	0.43	27	13	14	31	0.16	9.9	<20	--	24	71	7.03
BR-6-5	1/3/1996	5	2.4	230	0.62	7.4	7.6	12	--	--	--	12	--	22	26	8.38
BR-7-3.5	1/3/1996	3.5	2.2	140	0.54	6.7	7.4	11	--	--	--	11	--	20	26	7.92
BR-8-3	1/3/1996	3	2.7	120	0.3	23	11	25	15	--	--	12	--	20	70	3.78
BR-8-4	1/3/1996	4	3.0	30	0.73	8.3	34	11	--	--	--	28	--	24	100	7.1
BR-9-4	1/3/1996	4	3.3	170	0.38	26	18	12	21	--	5.9	22	--	21	66	5.12
BC-1-5	1/3/1996	5	2.4	180	0.57	10	11	14	16	--	<0.5	17	--	22	43	7.97
BC-1-10	1/3/1996	10	4.8	90	--	37	5.7	25	14	--	6.2	7.4	--	21	23	4.45
BC-2-10	1/3/1996	10	3.4	150	0.54	8.2	8.8	11	--	--	<0.5	13	--	22	26	7.59
BC-3-8.5	1/4/1996	8.5	7.6	63	0.52	110	7.2	29	15	--	--	12	--	36	50	7.01
BC-4-7	1/4/1996	7	4.0	440	--	20	58	42	21	0.13	2.6	120	--	19	260	7.67
BB-1-5	1/4/1996	5	2.9	160	0.59	6.7	7.4	12	--	--	--	11	--	19	26	8.75
Quantitation Limit			1	0.25	0.25	0.5	0.5	5	12.5	0.1	5	2	0.75	2.5	5	NA

HITS ONLY

Sample Number	Date	Depth (ft bgs)	VOCs (µg/kg) EPA Method 8240/8260A									
			Acetone	2-Butanone	1,1,1-TCA	TCE	2-Hexanone	PCE	Toluene	Ethylbenzene	m, p-Xylene	o-Xylene
BR-1-4	1/3/1996	4	--	--	--	--	--	28 J	--	--	--	--
BR-2-4	1/3/1996	4	360	30	31	10	--	130J	--	--	27J	20J
BR-3-3.5	1/3/1996	3.5	--	--	17J	5J	--	130J	--	--	6	8
BR-5-3.5	1/3/1996	3.5	--	--	77J	14J	--	230J	6J	--	57	32
BR-6-3.5	1/3/1996	3.5	--	--	--	--	--	--	7J	--	--	--
BR-8-3	1/3/1996	3	--	27	--	--	44	8J	--	--	--	--
BC-4-7	1/4/1996	7	--	--	--	--	--	9J	--	--	--	--
Quantitation Limit			25	25	5	5	25	5	5	5	5	5

Table 33
Summary of Analytical Data for LOU # 62
State Industries, Inc.
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Notes:

As* = Arsenic, EPA Method 7060A
Ba = Barium
Be = Beryllium
Cr = Chromium
Co = Cobalt
Cu = Copper
Hg* = Mercury, EPA Method 7471A
Pb* = Lead, EPA Method 7420
Mo = Molybdenum
Ni - Nickel
Ag = Silver
V = Vanadium
Zn = Zinc
-- = Data was detected below the Reporting limit.
J = Estimated quantitation due to a probable matrix effect.
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
VOCs = Volatile organic compounds
1, 1, 1-TCA = 1, 1, 1-Trichloroethane (TCA)
TCE = Trichloroethene (TCE)
PCE = Tetrachloroethene (PCE)
Metals analyzed at 1:500 dilution due to matrix effect (As, Cr, Cu, Mo, Ni, V, Zn)

Note: Samples with all non-detect VOC results include: BR-4-3.5, BR-6-5, BR-7-3.5, BR-8-4, BR9-4, BC-1-5, BC-1-10, BC-2 10, BC-3-8.5, and BB-1-5.

Data From: Western Technologies, 1996a: Subsurface Soil Evaluation Former Evaporative Ponds Sites, Former State Industries Facility, BMI Industrial Complex, Henderson, Nevada; On behalf of State Industries, Inc., February 20, 1996**Data also** presented in Kerr-McGee, 1996b, Response to LOU Comments.

Sample Matrix: Soil Samples (taken by KMCC) are splits of samples taken by State Industries (above) with expired holding times.
Sample Analysis by: Southwest Laboratories of Oklahoma, Broken Arrow, Oklahoma
Samples taken from Pond Area

Boring/ Sample Number	Date	VOCs (µg/kg) EPA Method 8240												
		Methylene Chloride	Acetone	1, 1-Dichloroethene	1, 1-Dichloroethane	Chloroform	2-Butanone	1, 1, 1-Trichloroethane (TCA)	Trichloroethene (TCE)	2-Hexanone	Tetrachloroethene (PCE)	Toluene	Ethylbenzene	Xylene (total)
Volatile # 2	1/3/1996	6 J	130	<7	<7	<7	17	8	54	<14	22	3 J	2 J	15
Volatile # 3	1/3/1996	8	210	2J	3J	1J	240	120	66	<12	140	3 J	<6	12
Volatile # 3-D	1/3/1996	5 J	140	1	2	<7	120	62	26	<12	64	2 J	<6	6
Volatile # 4	1/3/1996	6	48	<6	<6	<6	68	15	52	94	29	2J	<6	4 J
Volatile # 4-D	1/3/1996	7	34	<6	<6	<6	40	16	48	64	43	3 J	<6	7
Volatile # 5	1/3/1996	9	92	<7	2 J	<7	<14	71	73	<14	72	5 J	5 J	37
Volatile # 5-D	1/3/1996	9	89	<7	2 J	<7	<14	66	42	<14	89	5 J	6 J	45
Quantitation Limit		6	12	6 (or 7)	6 (or 7)	6 (or 7)	14	6	6	12 (or 14)	6	6	6	6

Notes:

< = not detected above the respective PQL.
J = Estimated Value: Concentration below limit of quantitation
VOCs = Volatile organic compounds
µg/kg = micrograms per kilogram

Data from: Internal Correspondence, Kerr-McGee Chemical LLC Facility, Feb-20, 1996.

Table 34
Summary of Analytical Data for GW-11 Pond
Kerr-McGee Chemical LLC Facility, Henderson, Nevada

Sample	Sample Date	Pollutant Family	Analyte	Analytical Method	Result	Units
GW-11	8/3/2004	**Miscellaneous Compounds, Chemicals, and Products[1]**	Ammonia Nitrogen	EPA 350.1 ammonia as N	6.4	mg/L
GW-11	8/3/2004		Percent Unionized Ammonia 25C	CALC-CRC	5.26	%
GW-11	8/3/2004		Apparent Color	ML/s2120B	100	ACU
GW-11	8/3/2004		Surfactants	EPA 425.1 as surfactants	7.14	mg/L
			All Other Miscellaneous Compounds were ND	NA	NA	NA
GW-11	8/3/2004	**Ions**	chlorate	EPA 300.1B as chlorate	7600000	ug/L
GW-11	8/3/2004		chloride	EPA 300.0 as chloride	6900	mg/L
GW-11	8/3/2004		nitrate	EPA 300.0 as nitrate	200	ug/L
GW-11	8/3/2004		perchlorate	EPA 314.0 as perchlorate	2300000	ug/L
GW-11	8/3/2004		sulfate	EPA 300.0	4100	mg/L
			All Other Ions were ND	NA	NA	NA
GW-11	8/3/2004	**Metals[2]**	arsenic III	EPA 200.8	38	ug/L
GW-11	8/3/2004		Total arsenic	EPA 200.8	77	ug/L
GW-11	8/3/2004		Total barium	EPA 200.8	60	ug/L
GW-11	8/3/2004		Total boron	EPA 200.7	28	mg/L
GW-11	8/3/2004		chromium (hexavalent)	EPA 7196A	2.1	mg/L
GW-11	8/3/2004		chromium (total)	EPA 200.8	1900	ug/L
GW-11	8/3/2004		Total magnesium	EPA 200.7	1000	mg/L
GW-11	8/3/2004		Total manganese	EPA 200.8	110	ug/L
GW-11	8/3/2004		Total molybdenum	EPA 200.8	160	ug/L
GW-11	8/3/2004		Total nickel	EPA 200.8	67	ug/L
GW-11	8/3/2004		Total potassium	EPA 200.7	120	mg/L
GW-11	8/3/2004		Total sodium	EPA 200.7	5000	mg/L
GW-11	8/3/2004		strontium	ML/6010-200.7	45	mg/L
GW-11	11/11/2004		Uranium	EPA 200.8	140	ug/L
GW-11	8/3/2004		Total vanadium	EPA 200.8	87	ug/L
			All Other Metals were ND	NA	NA	NA
GW-11	8/3/2004	**Volatile Organic Compounds (VOCs)[3]**	chloroform	ML/EPA 624	0.6	ug/L
GW-11	8/3/2004		Bromoform	ML/EPA 624	0.7	ug/L
			All Other VOCs were ND	NA	NA	NA
GW-11	8/3/2004	**Chlorinated Herbicides**	Dichlorprop	ML/SW 8151A	1.9	ug/L
GW-11	11/11/2004	**Organophosphorous Pesticides**	No Organophosphorous Pesticides Detected	ML/EPA 608	NA	NA
GW-11	8/3/2004	**Organochlorine Pesticides**	No Organochlorine Pesticides Detected	ML/EPA 608	NA	NA
GW-11	11/11/2004	**Total Petroleum Hydrocarbons**	No Petroleum Hydrocarbons Detected	Method 418.1	NA	NA
GW-11	8/3/2004	**Polychlorinated Biphenyls (PCBs)**	No PCBs detected	ML/EPA 608	NA	NA
GW-11	8/3/2004	**Semivolatile Organic Compounds (SVOCs) and Polynuclear Aromatic Hydrocarbons (PAHs)**	Di (2-Ethylhexly)phthalate	EPA 525.2	1.13	ug/L
			All Other SVOCs and PAHs were ND	NA	NA	NA
GW-11	8/3/2004	**Radionuclides**	gross alpha	EPA 900.0	120	pCi/L
GW-11	8/3/2004		Alpha, Min Detectable Activity	EPA 900.0	40.5	pCi/L
GW-11	8/3/2004		Alpha, Two Sigma Error	EPA 900.0	48	pCi/L
GW-11	11/11/2004		gross alpha	EPA 900.0	2.42	pCi/L
GW-11	11/11/2004		Alpha, Min Detectable Activity	EPA 900.0	1.98	pCi/L
GW-11	11/11/2004		Alpha, Two Sigma Error	EPA 900.0	1.47	pCi/L
GW-11	8/3/2004		radium 226	ML/EPA 903.1	<0.82	pCi/L
GW-11	8/3/2004		radium 226 Minimal Detectable	ML/EPA 903.1	0.82	pCi/L
GW-11	8/3/2004		radium 228	ML/EPA 904.0	<1.48	pCi/L
GW-11	8/3/2004		radium 228 Minimal Detectable	ML/EPA 904.0	1.48	pCi/L
GW-11	11/11/2004		Uranium	EPA 200.8	93.8	pCi/L
			All Other Radionuclides were ND	NA	NA	NA
GW-11	8/3/2004	**Water Quality Parameters Parameters**	TDS	SM 2540C	30500	mg/L
GW-11	8/3/2004		Biochemical Oxygen Demand, Totl	SM5210B 405.1	3.19	mg/L
GW-11	8/3/2004		Total Organic Carbon	ML/SM 5310C	5.0	mg/L
GW-11	8/3/2004		Total Inorganic Nitrogen-Calc	EPA 300.0	206	mg/L
GW-11	8/3/2004		pH	EPA 150.1 as pH for water	8.0	pH Units
			All Other Water Quality Parameters were ND	NA	NA	NA

Notes:
[1] Cyanide was sampled on 11/11/04 and run on 11/15/04
[2] Thorium was sampled on 11/11/04 and run on 12/5/04
[3]Octachlorosytrene was sampled on 11/11/04 and run on 11/22/04
General Notes:
mg/L = milligrams per liter.
pCi/L = pico curies per liter
µg/L = micrograms per liter.
ND = non detect
NA - not available or not applicable.

Sample Location Maps for:

LOU # 5 Beta Ditch

LOU #6 Northwest Drainage Ditch

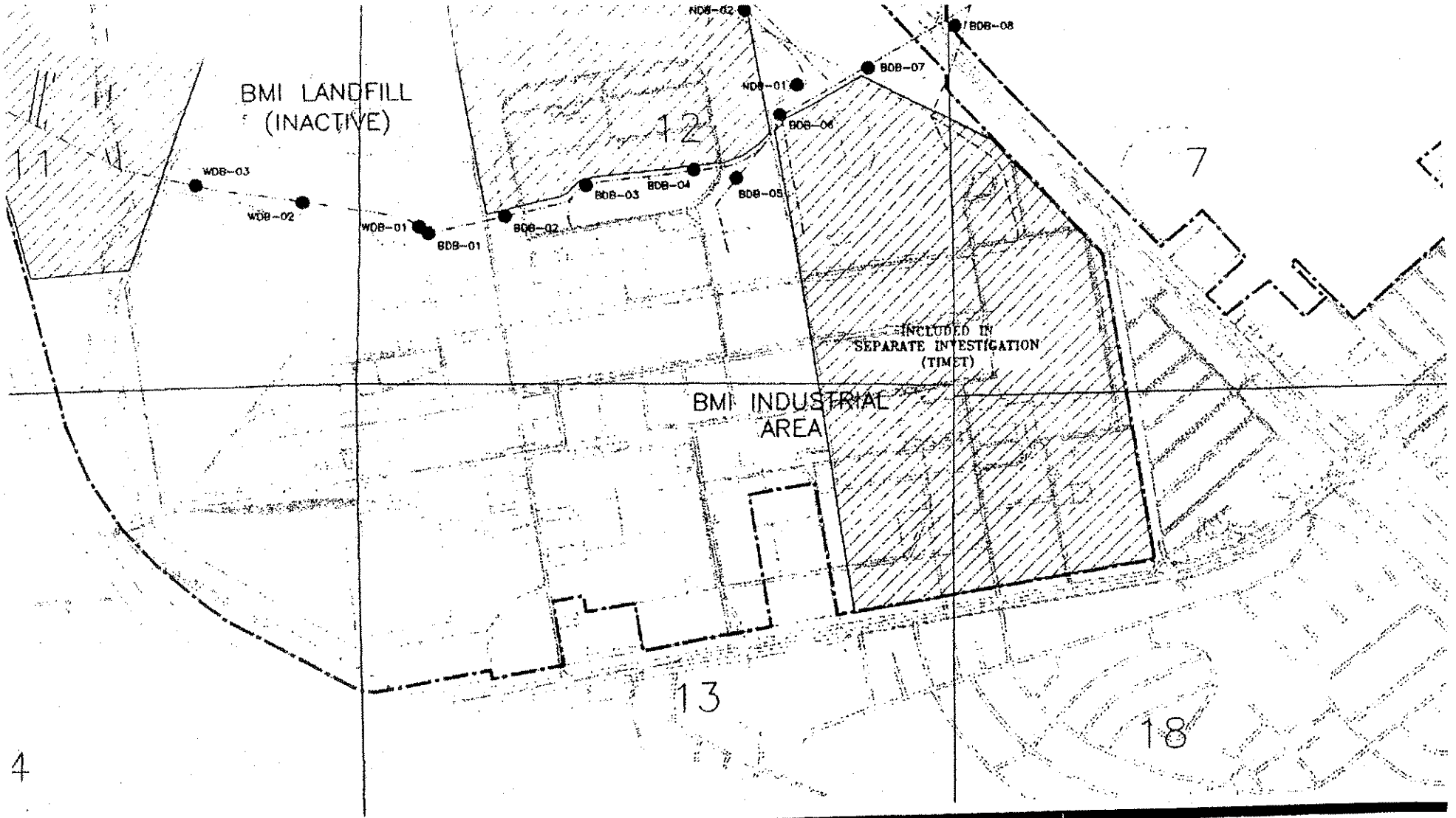
LOU #13 Pond S-1

LOU #14 Pond P-1

LOU #62 State Industries

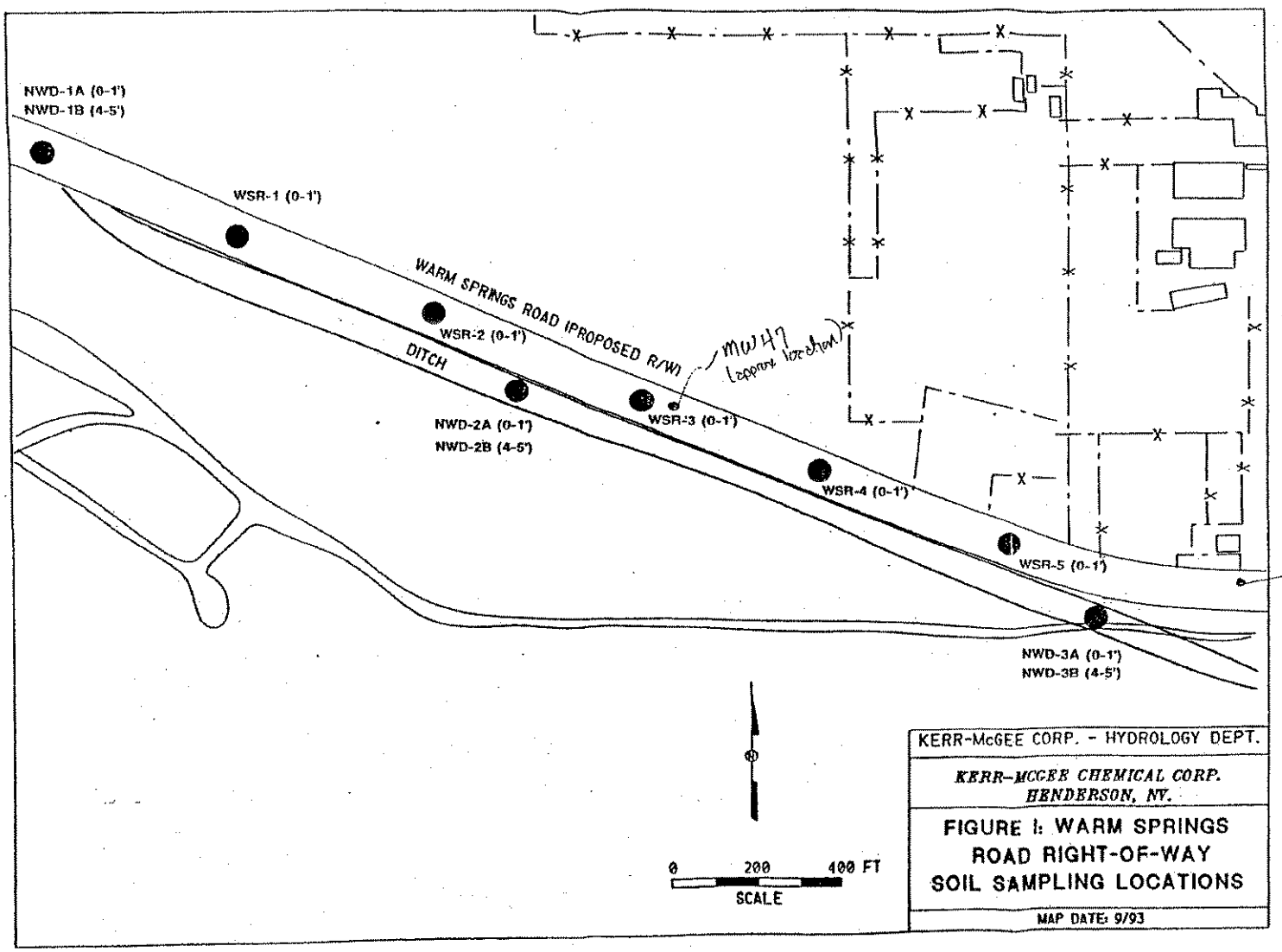
LOU #63 J. B. Kelley Inc.

LOU #64 Koch Materials

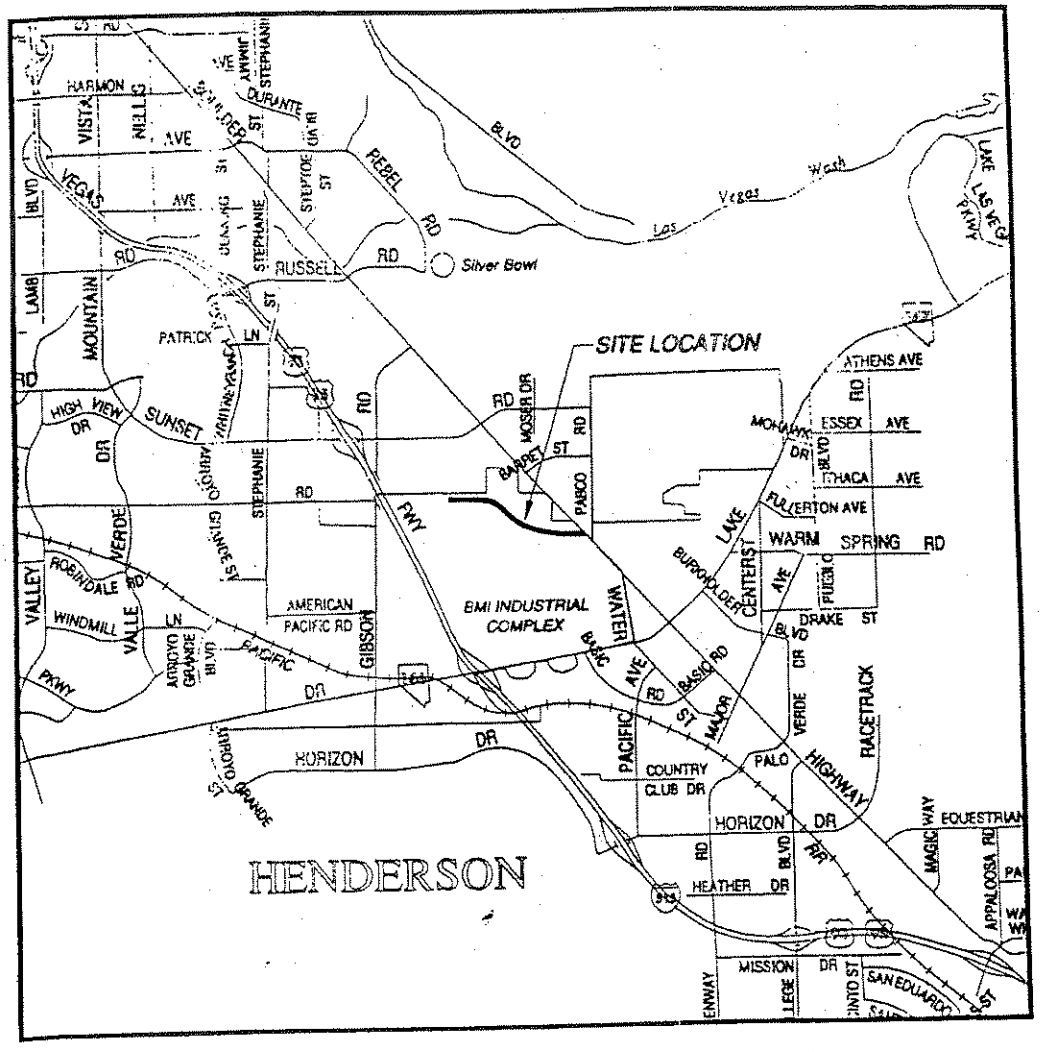


LOU # 5
Beta Ditch
April 1996 Sample Locations
From: ERM, 1996, Draft Phase II Investigative Report Associated with BMI Common Areas

0 1,200 2,400 3,600



LOU # 6
Northwest Drainage Ditch
October 1993 Sample Locations
From: Kerr-McGee Chemical LLC

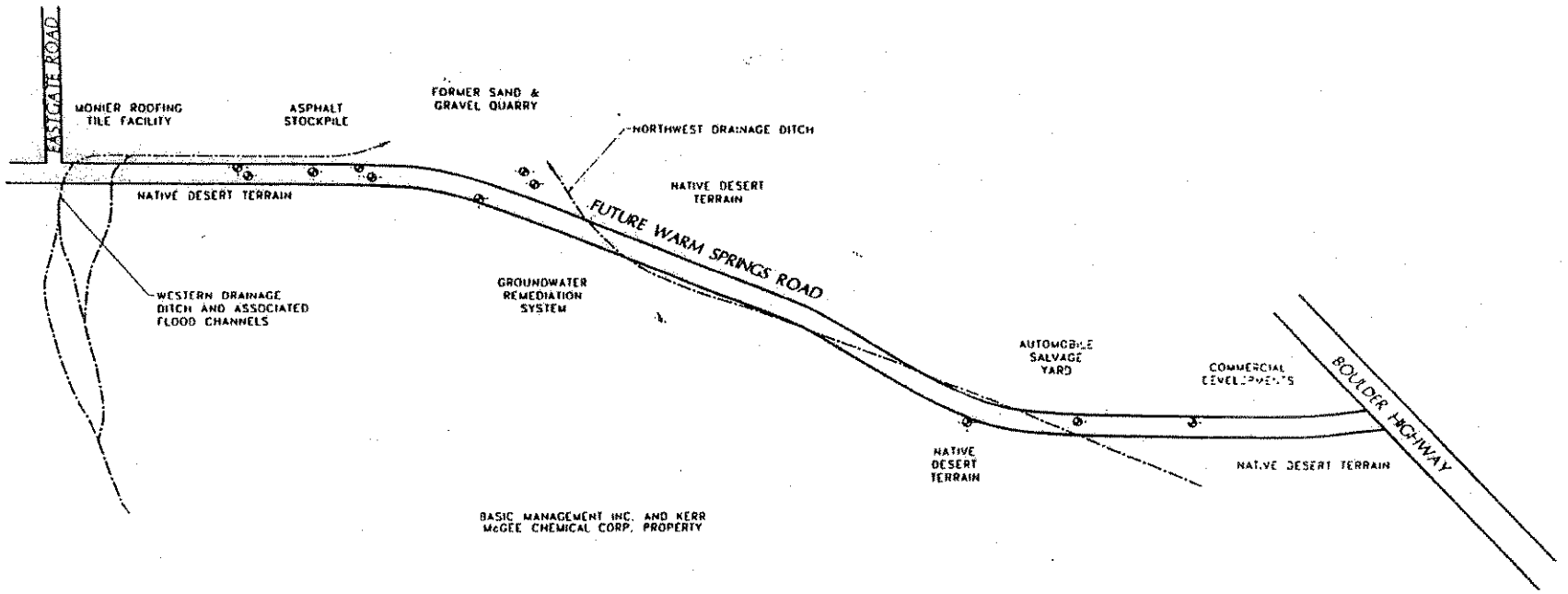


LOU # 6
Northwest Drainage Ditch
March 1996 Sample Locations
From: Western Technologies, 1996d,
Phase II Subsurface Soil Evaluation

N

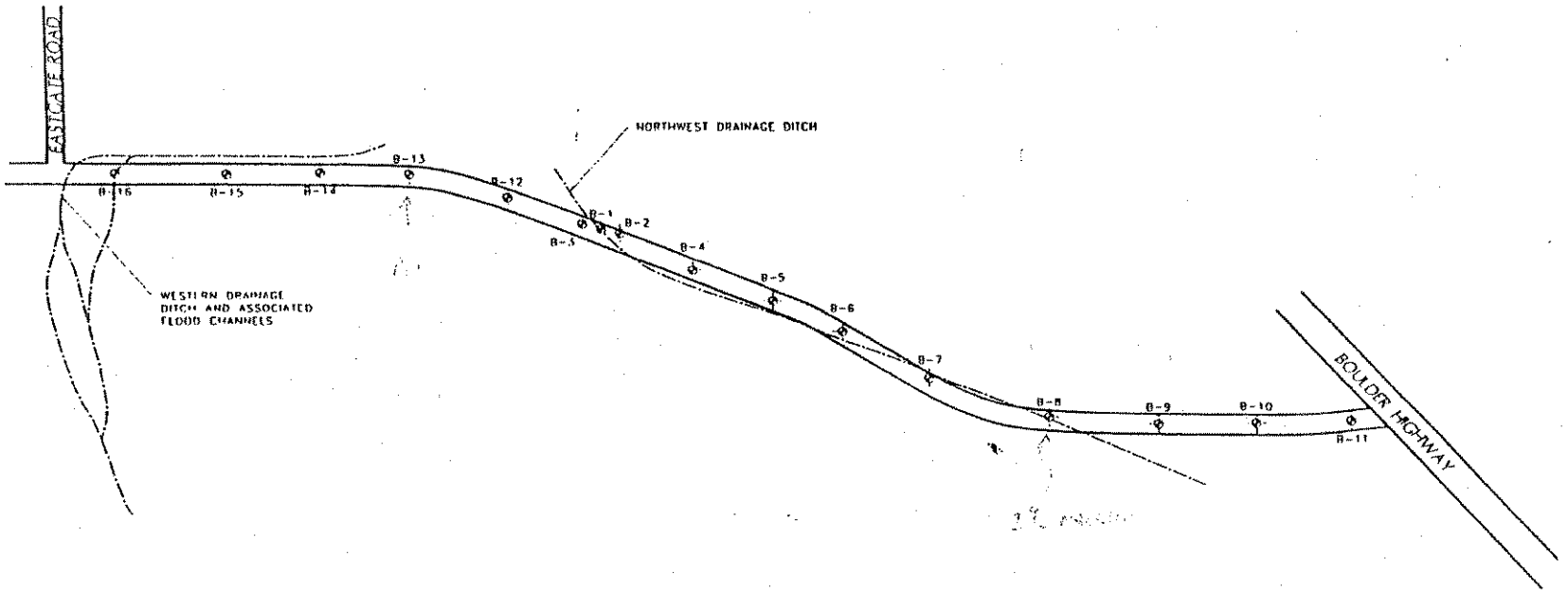
NOT TO SCALE

Project: PHASE II WARM SPRINGS ROAD EXTENSION	
Diagram: Vicinity Map	
Western Technologies Inc.	
Job No. 4186JL043	Figure 1



LOU # 6
Northwest Drainage Ditch
March 1996 Sample Locations
From: Western Technologies, 1996d,
Phase II Subsurface Soil Evaluation

Project: PHASE II WARM SPRING ROAD EXTENSION	
Diagram: Project Site Plan	
Western Technologies Inc.	
Job No: 4186JL043	Figure: 2



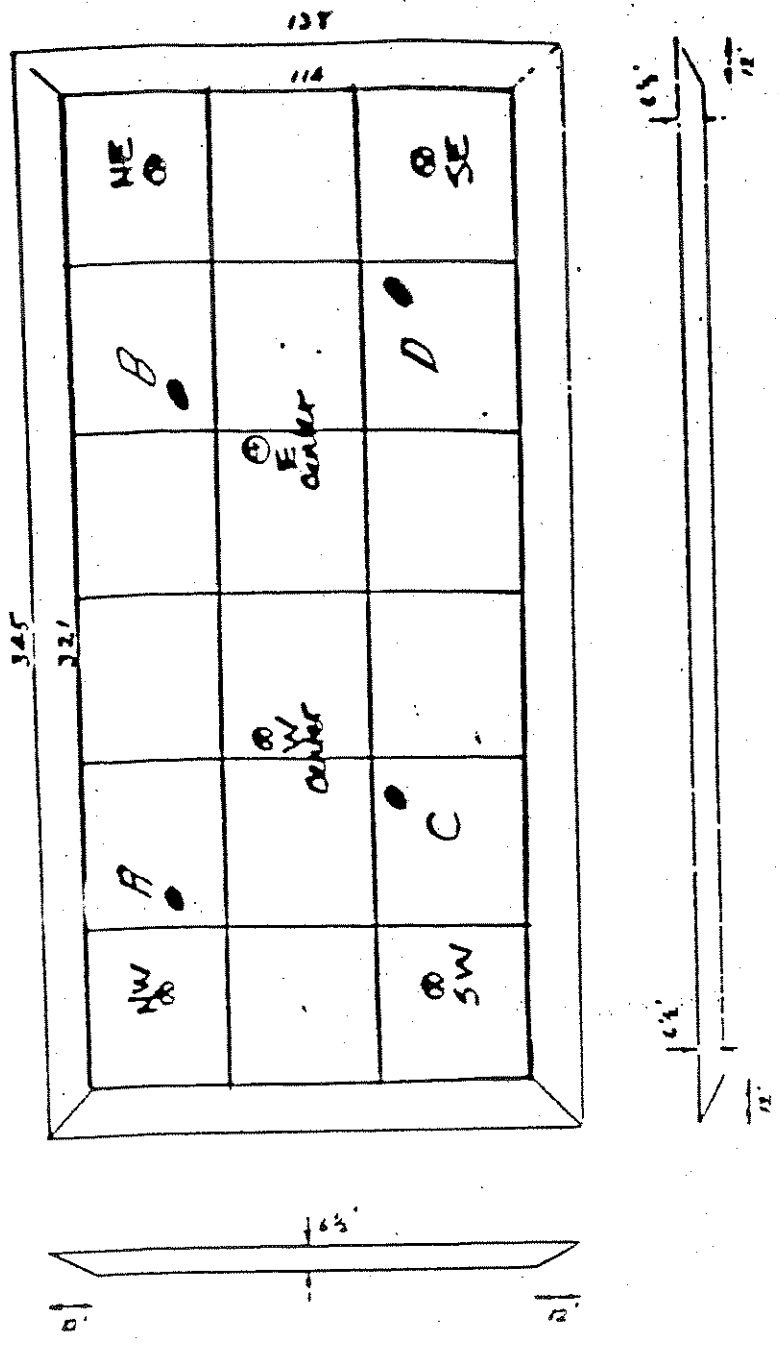
LOU # 6
Northwest Drainage Ditch
March 1996 Sample Locations
From: Western Technologies, 1996d,
Phase II Subsurface Soil Evaluation

LEGEND:
B-1 ⊕ APPROXIMATE BORING LOCATION AND NUMBER

N

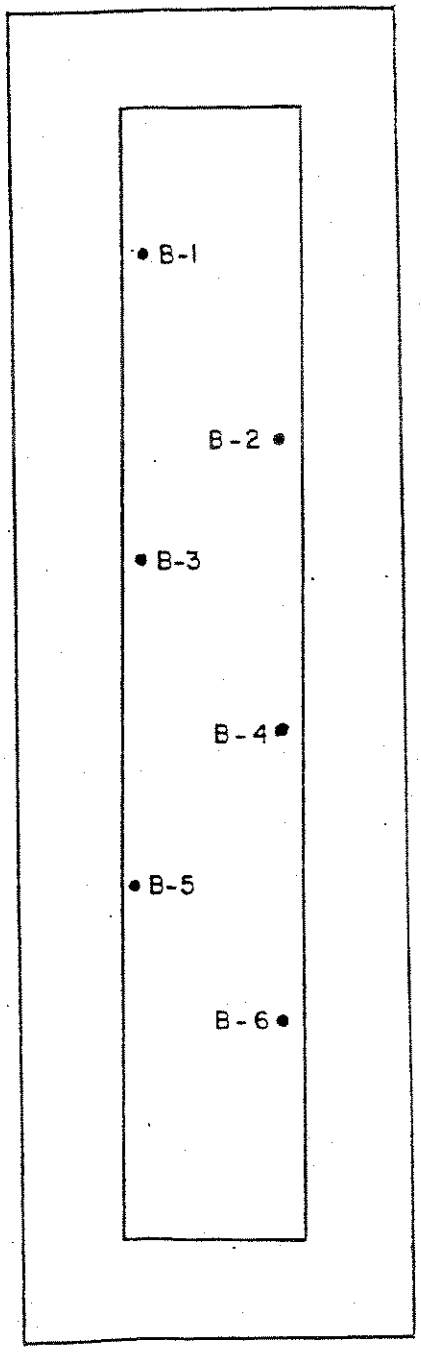
0 300 600 Feet
SCALE

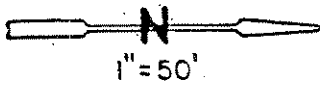
Project: PHASE II WARM SPRING ROAD EXTENSION	
Diagram: Site Boring Plan	
Western Technologies Inc.	
Job No. 4186JL043	Figure 3



EVAPORATION POND S-1

LOU # 13
Pond S-1 Closure Documentation
August 1984 Chromium Sample Locations
From: Kerr-McGee, 1996b, Response to Letter of Understanding





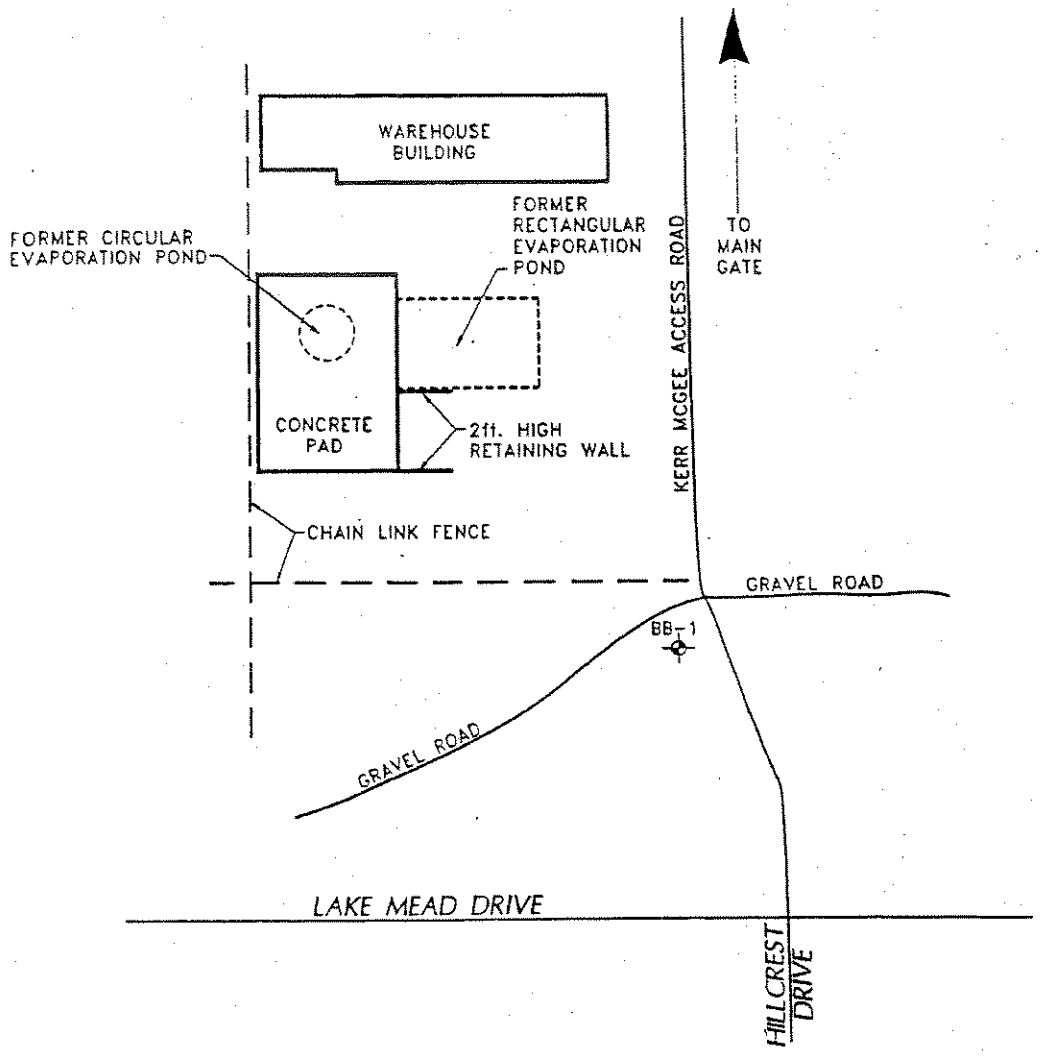
• B-2: Approximate Location of Exploratory Boring

LOU # 14
Pond P-1 Closure Documentation
August 1985 Chromium Sample Locations
From: Kerr-McGee, 1996b, Response to Letter of Understanding

LEINFELDER & ASSOCIATES
CONSULTING ENGINEERS • GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PROJECT NO. L-1359-3

PLOT PLAN
POND P-1



FOR BORING LOCATIONS AT RECTANGULAR POND SEE FIGURE 3
FOR BORING LOCATIONS AT CIRCULAR POND SEE FIGURE 4

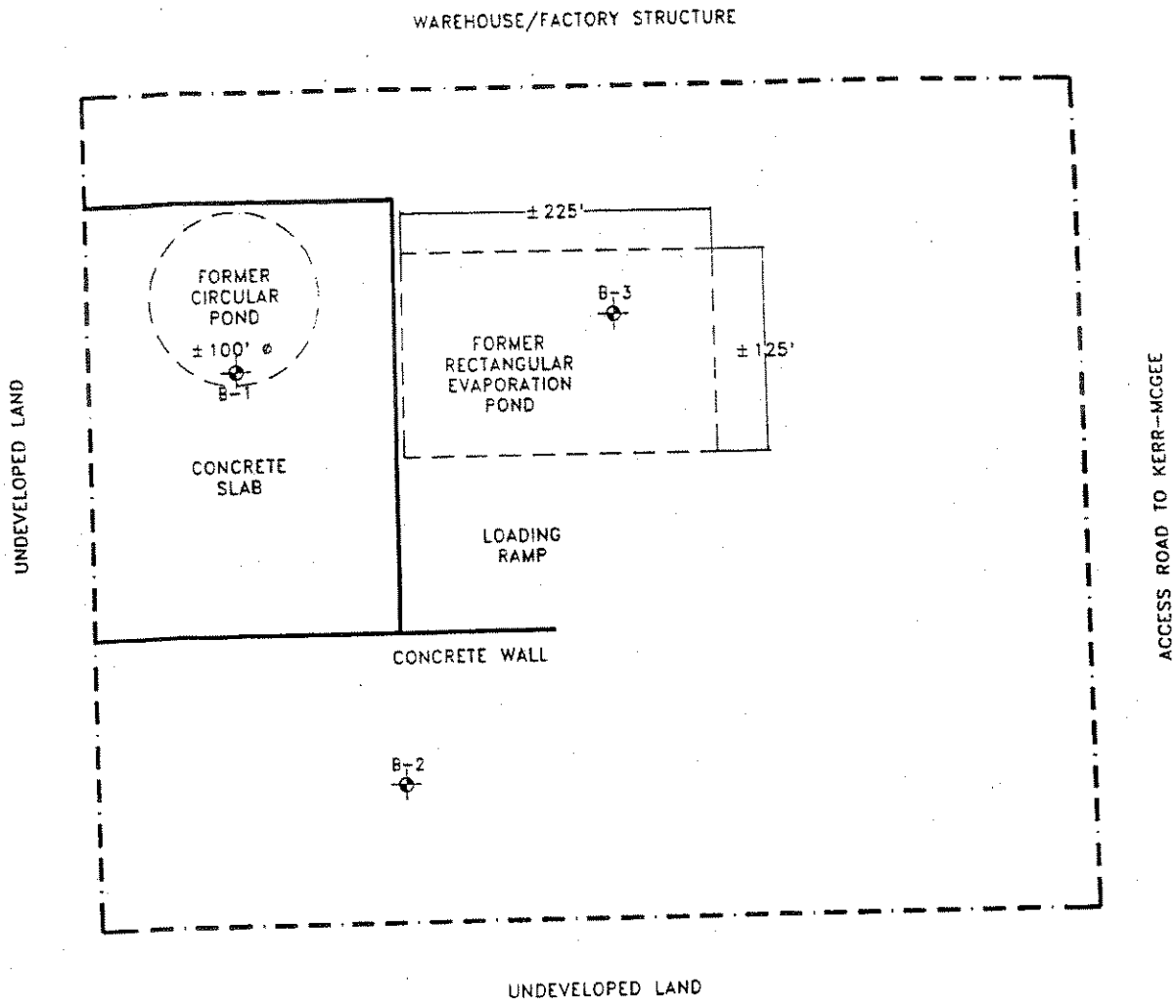
LOU # 62
State Industries, Inc
Location of Rectangular & Circular Ponds
January 1996 Sample Locations
From: Kerr-McGee, 1996b, Response to Letter of Understanding

LEGEND:
APPROXIMATE BORING LOCATION

N

SCALE 1" = 300'

Project: STATE INDUSTRIES - BMI COMPLEX
Diagram: Site Plan
Western Technologies Inc.
Job No. 4185JL164
Figure 2



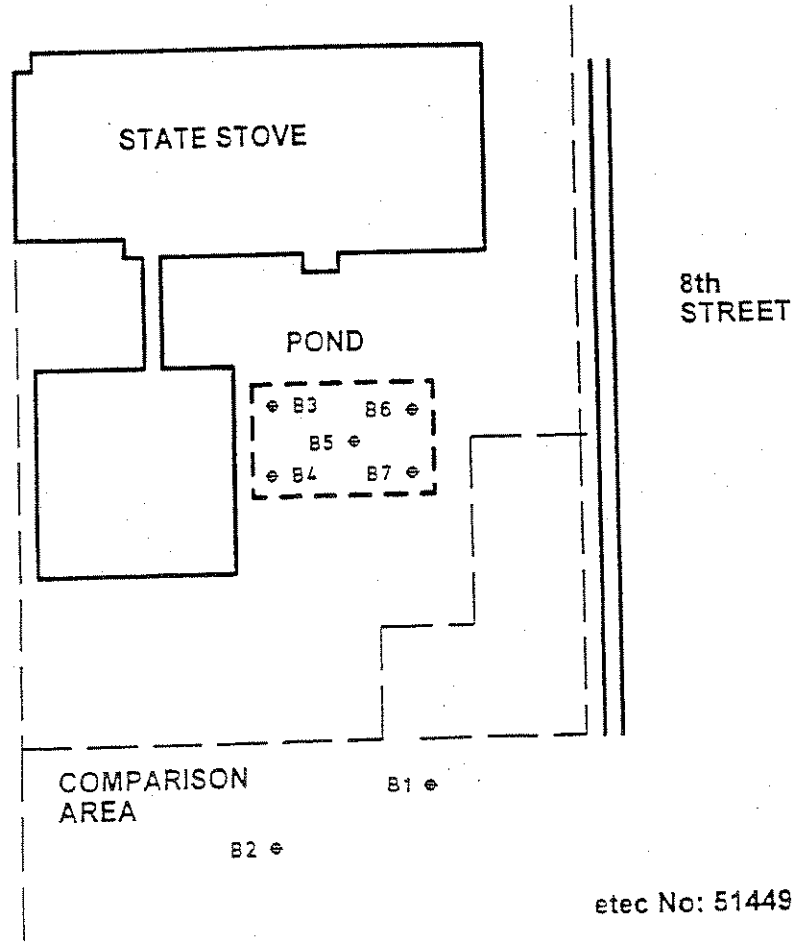
LOU # 62
State Industries, Inc
January 1996 Sample by State Industries
From: Western Technologies, 1996a, Subsurface Soil Evaluation Former Evaporative Ponds Sites

LEGEND:
⊕ APPROXIMATE BORING LOCATION

N
NOT TO SCALE

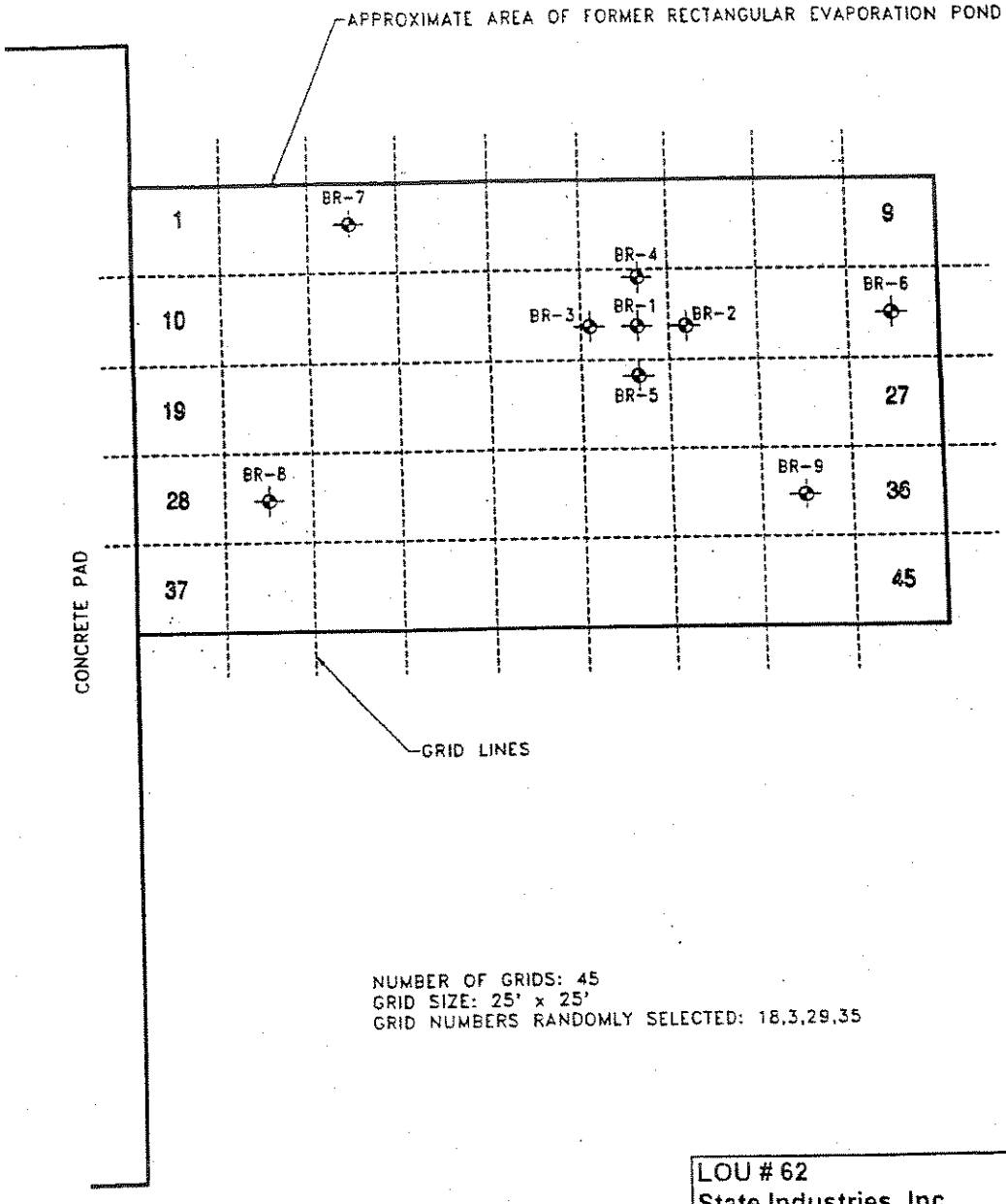
Project:	STATE INDUSTRIES - BMI COMPLEX
Diagram:	Boring Location Diagram
	Western Technologies Inc.
Job No. 4185JL164	Figure 2

SITE PLAN / TEST BORING LOCATIONS



etec No: 51449

LOU # 62
State Industries, Inc
Rectangular Pond Sample Locations
November 1995 Sample by Kerr-McGee Chemical LLC Facility
From: ETEC, 1995, Geotechnical Investigation Report, Administration/Office Building



NUMBER OF GRIDS: 45
GRID SIZE: 25' x 25'
GRID NUMBERS RANDOMLY SELECTED: 18,3,29,35

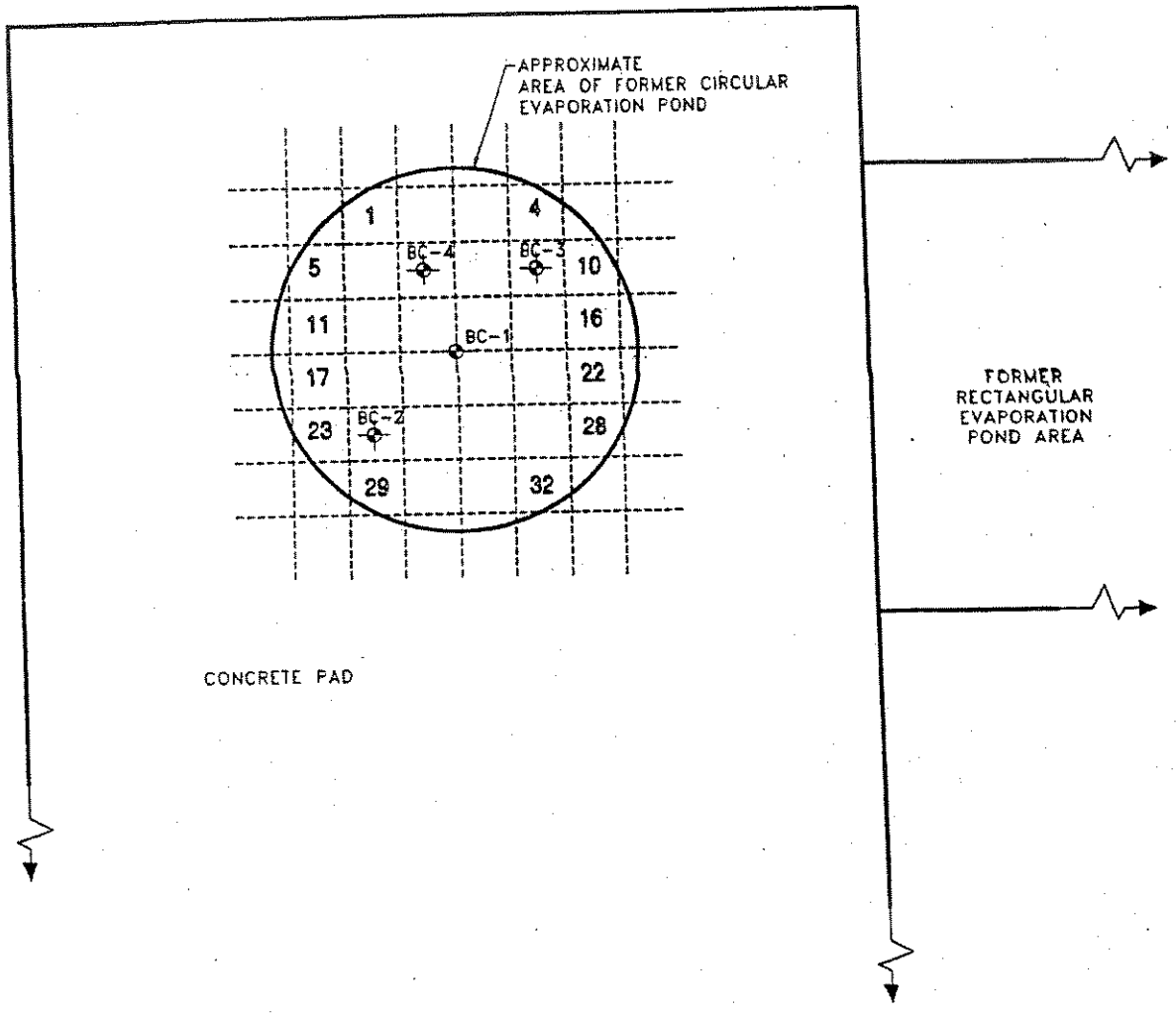
LOU # 62
State Industries, Inc
Rectangular Pond Sample Locations
January 1996 Sample Locations
From: Kerr-McGee, 1996b, Response to Letter of Understanding

LEGEND:
BR-2 BORING LOCATION AND NUMBER

N

1" = 50'

Project:	STATE INDUSTRIES - BMI COMPLEX
Diagram:	RECTANGULAR EVAPORATION POND GRID PATTERN/BORING LOCATION
	Western Technologies Inc.
Job No. 4185JL164	Figure 3



NUMBER OF GRIDS: 32
GRID SIZE: 15' x 15'
GRID NUMBERS RANDOMLY SELECTED: 24,9,7

LOU # 62
State Industries, Inc
Circular Pond Sample Locations
January 1996 Sample Locations
From: Kerr-McGee, 1996b, Response to Letter of Understanding

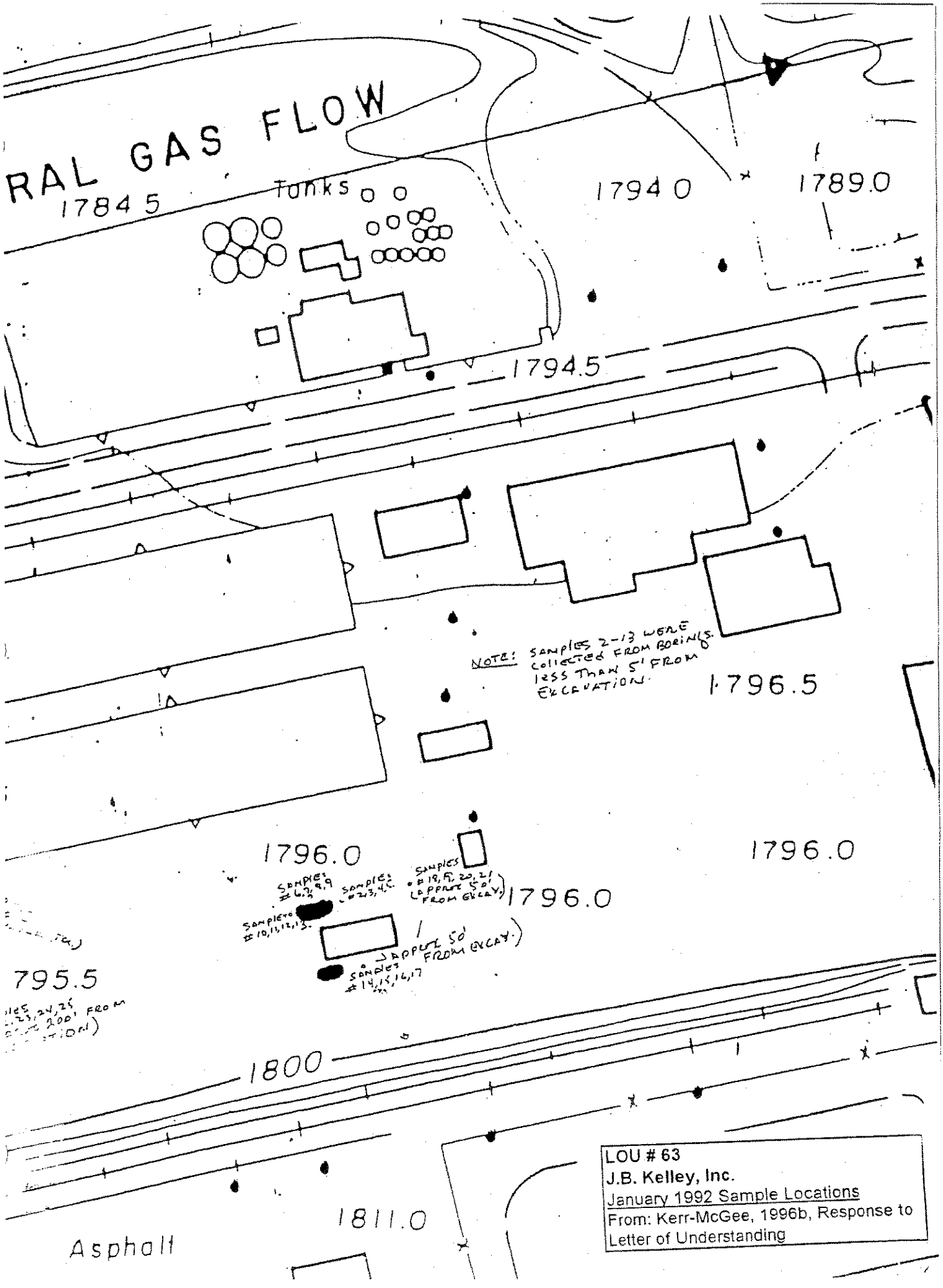
LEGEND:

⊕ BORING LOCATION AND NUMBER
BC-2

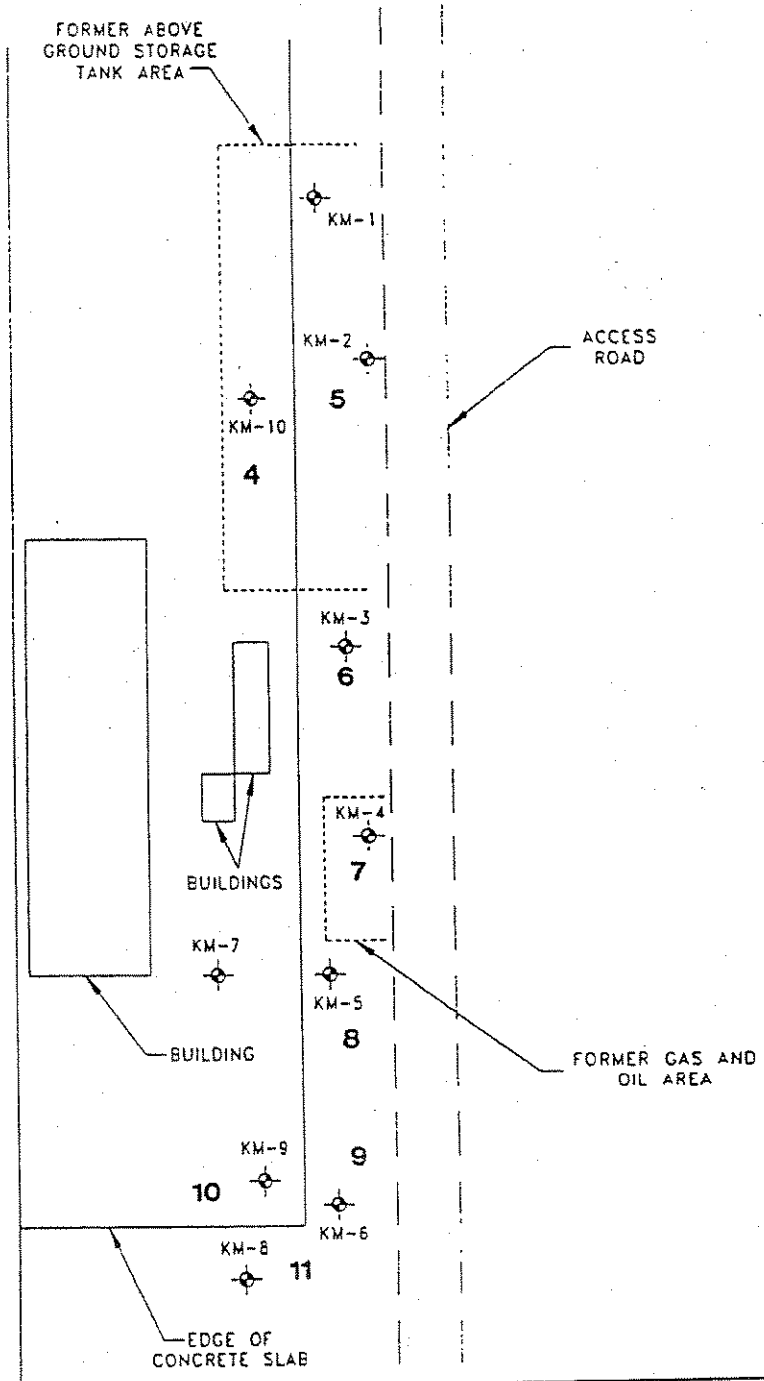
N

1" = 50'

Project: STATE INDUSTRIES - BMI COMPLEX	
Diagram: CIRCULAR EVAPORATION POND GRID PATTERN/BORING LOCATION	
Western Technologies Inc.	
Job No. 4185JL164	Figure 4



LOU # 63
J.B. Kelley, Inc.
January 1992 Sample Locations
From: Kerr-McGee, 1996b, Response to Letter of Understanding



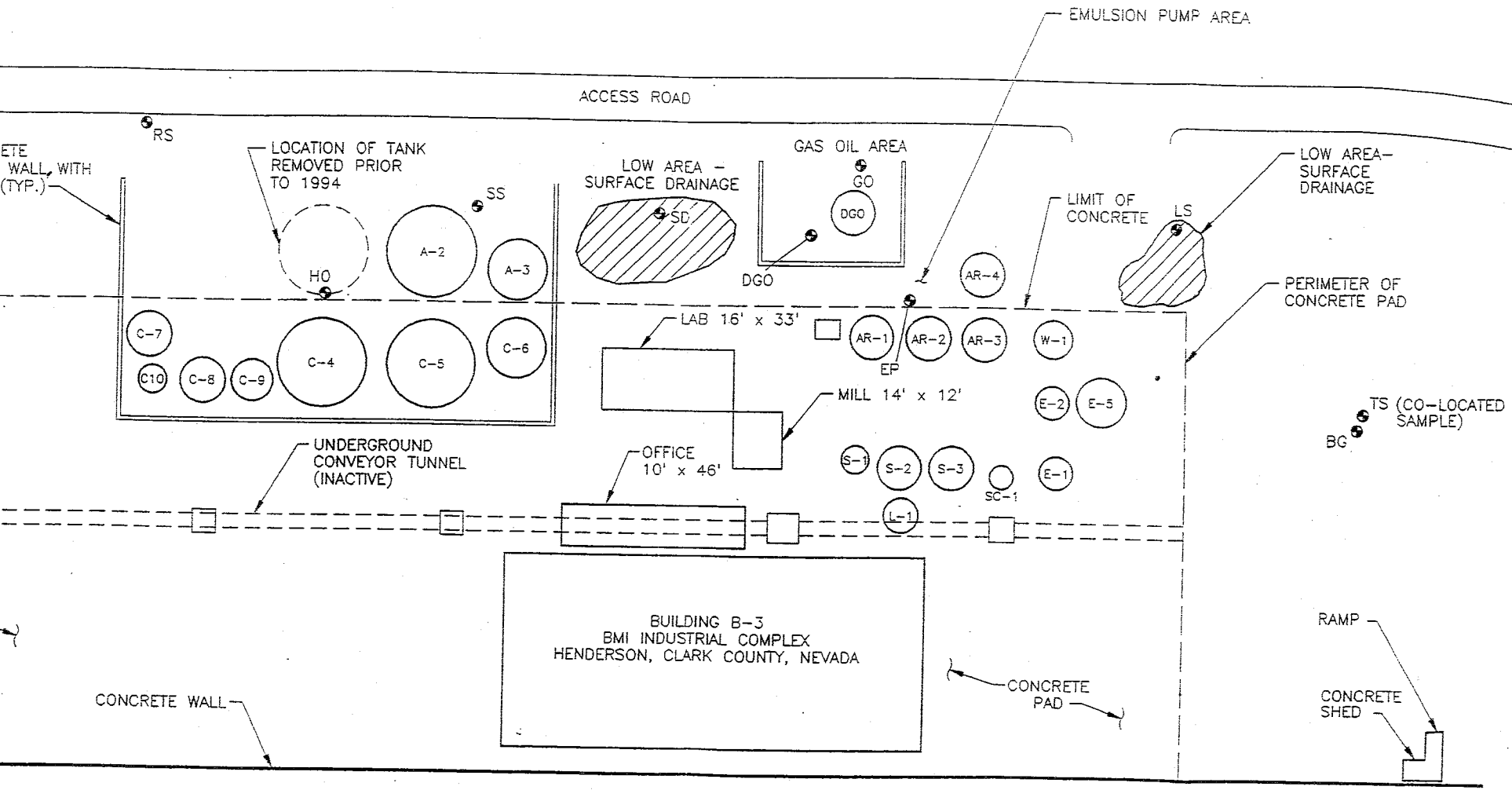
LOU # 64
Koch Materials
March 1996 Sample Locations
From: Kerr-McGee, 1996b, Response to Letter of Understanding

LEGEND:
KM-2 ⊕ APPROXIMATE BORING LOCATION AND NUMBER

N

NOT TO SCALE

Project:	FORMER KOCH MATERIALS
Diagram:	SITE PLAN
	Western Technologies Inc.
Job No. 4186JL080	Figure 1



LEGEND:

- HO — BORING LOCATION AND DESIGNATION
- A-1 / C-6 — EMULSION TANK (FINISHED PRODUCT)
- W-1 — WATER TANK
- DGO — GAS OIL TANK
- SC-1 — SOLUTION CONCENTRATE TANK
- L-1 — LATEX TANK
- S-3 — SOAP SOLUTION TANK
- E-1 — EMULSIFIER TANK
- AR-2 — ASPHALT TANK

NOTE:

1. THIS DRAWING IS NOT TO SCALE.

LOU # 64
Koch Materials
November 1994 Sample Locations
From: Canonie Environmental, 1995, Phase II Environmental Site Assessment

SITE LAYOUT SHOWING SOIL BORING LOCATIONS

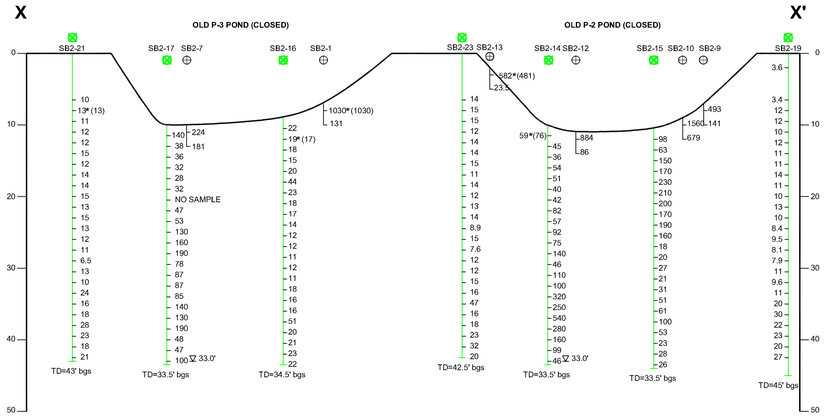
PREPARED FOR

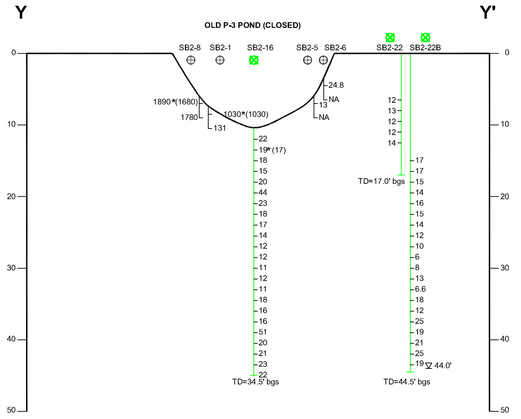
KOCH MATERIALS COMPANY
HENDERSON, NEVADA

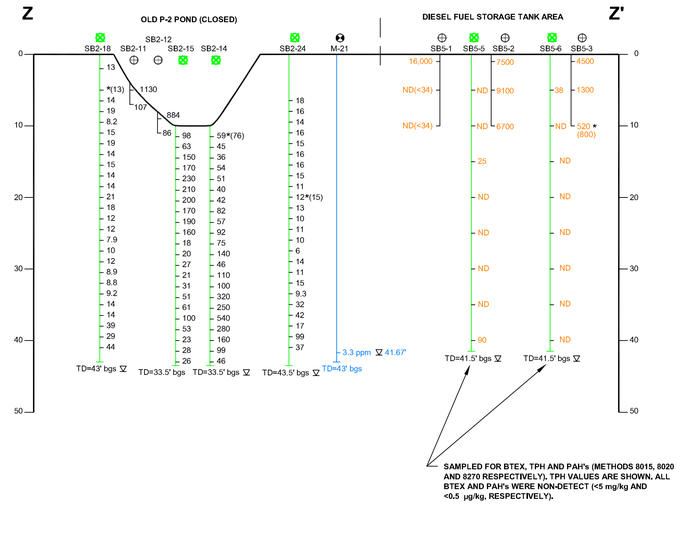
Canonie Environmental

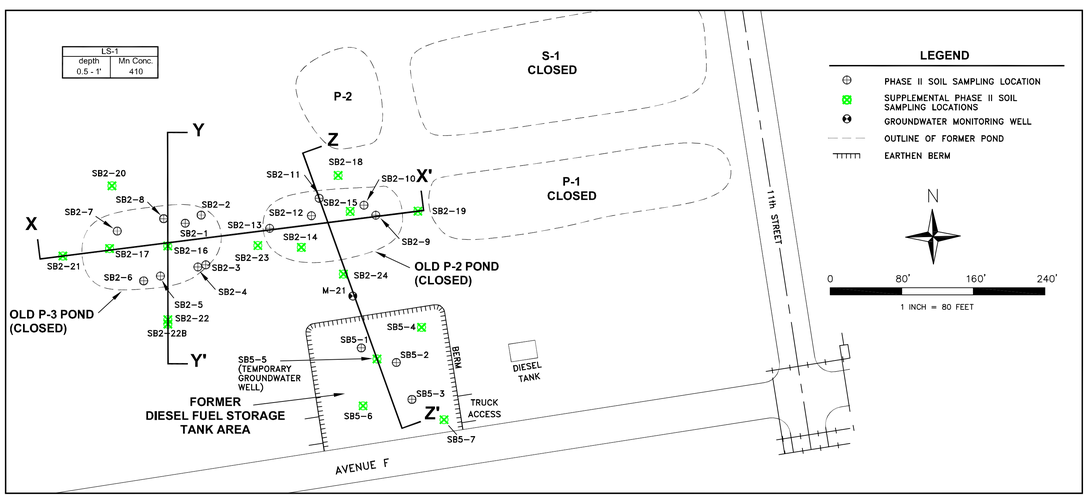
DRN. BY	CK'D BY	AP'D BY
M.T.H.	ATS	GWF

DATE: 11-23-94	FIGURE 1	DRAWING NUMBER 94-169-B1
SCALE: N.T.S.		









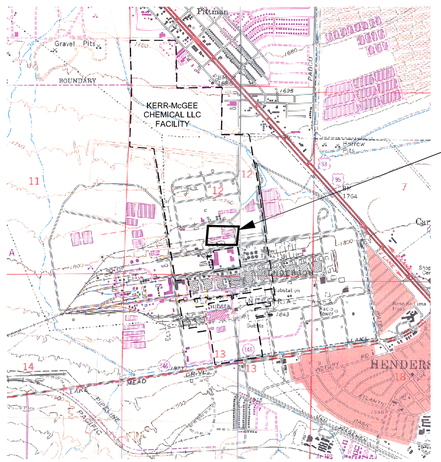


PLATE: 17
CROSS SECTIONS OF OLD P-2, P-3 PONDS AND FORMER DIESEL FUEL STORAGE TANK AREA

KERR-McGEE CHEMICAL LLC FACILITY
HENDERSON, NEVADA

SB2-21	DEEP BORING, HOLLOW STEM AUGER (DRILLED 1999)
SB2-7	SHALLOW, HAND AUGERED (DRILLED 1997)
M-21	GROUNDWATER MONITORING WELL (DRILLED 1983)
10	TOTAL CHROMIUM CONCENTRATION (in mg/kg) METHOD 6010
1600	TOTAL PETROLEUM HYDROCARBON (TPH) CONCENTRATION (in mg/kg). METHOD 8015 FOR DEEP BORINGS AND 8015 M-D FOR SHALLOW HAND AUGERING.
3.3 ppm	GROUNDWATER SAMPLE TESTED FOR TOTAL CHROMIUM
NA	NOT ANALYZED
ND	NON DETECT FOR ALL TPH RANGES (<10 mg/kg)
*	DUPLICATE SAMPLE TAKEN. DUPLICATE RESULT SHOWN IN PARENTHESIS
▽ 33.0'	GROUNDWATER LEVEL FIRST MEASURED
bgs	BELOW GROUND SURFACE

FEET 0 10 FEET 0 40

JANUARY 2005

x-sections.dwg