



KERR-McGEE CHEMICAL LLC

POST OFFICE BOX 55 - HENDERSON, NEVADA 89009

ENVIRONMENTAL
PROTECTION

November 9, 1998

NOV 12 98

Mr. Tom Whalen
Bureau of Corrective Actions
Nevada Division of Environmental Protection
333 West Nye Lane
Carson City, NV 98710

Dear Mr. Whalen:

Subject: KMCLLC Response to Phase II Report Comments

Kerr-McGee Chemical LLC (KMCLLC) submitted a report "Phase II Conditions Assessment at Kerr-McGee Chemical Corporation, Henderson, Nevada", to NDEP in August 1997. Your office subsequently provided approval of that report subject to conditions noted in your correspondence of June 10, 1998. With follow-up correspondence from your office, the conditions required a KMCLLC response by November 10, 1998.

KMCLLC's response is attached, with your original comments provided in italics. KMCLLC's response includes a Supplemental Work Plan to further characterize the areas noted as requiring additional study in the Phase II Report.

Please feel free to call me at (702) 651-2234 if you have any questions relating to this information. Thank you.

Sincerely,

Susan M. Crowley
Staff Environmental Specialist

cc: PSCorbett
WOGreen
RHJones
TWReed
RSimon
Robert Kelso, NDEP
Doug Zimmerman, NDEP

Smc/Response to Tom Whalen Comments - KM Submittal.doc

Response to Comments

2.3.2 Hydrogeology

Comment:

A reference is given for the Nevada Department of Water Resources. Please provide the citation for this information.

Response:

The reference should have specified "personal communication with representatives of the Nevada Department of Water Resources, April 1997."

3.1 Trade Effluent Settling Ponds

Comment:

Is LOU Item Number 2 the area described as "S-8" in the July 1980 US EPA photo analysis?

Response:

LOU Item Number 2 was described by NDEP as the area due south of the Trade Effluent Disposal Ponds. Area "S-8" in the 1943 photo analysis, included in the Region IX – EMSL-LV Project AMD 7980, is most descriptive of the area investigated. Although other subsequent photo analyses included in the same EPA document expand and contract this area, the 1943 photo analysis most closely describes the undisturbed "S-8" area on KMC Work Plan. Soil samples SB1-1 and SB1-2 are descriptive of this area's conditions.

3.1.1 Background

Comment:

Please provide an analysis of the data from the post-closure monitoring program for the closed landfill.

Response:

Annual post closure monitoring of the closed hazardous waste landfill has been ongoing since 1984. Results show that hexavalent chromium, the constituent which would be indicative of landfill impact, has not risen in downgradient wells. Downgradient chromium concentrations have been consistently lower than upgradient concentrations. Other constituents (i.e. organics) which are not indicative of landfill components, are trending downward. This is most likely due to the impact of Pioneer's water extraction/treatment facility, which began operation in 1980.

Comment:

Please explain the conditions of the NDEP permit and provide an analysis of any monitoring program.

Response:

The KMC Henderson NPDES Permit NV #0000078 includes provisions for regulation of active double-lined process water and waste water ponds, including the named ponds WC-East and WC-West, constructed in the area of the old Trade Effluent Pond area. The permit includes requirements to maintain the WC-East and WC-West ponds in good working order. This condition is verified by a leak detection monitoring system between the top and bottom liners. Information related to the monitoring is reported in each quarterly DMR submission.

3.5.1 Background

Comment:

Please provide the location of the leach field and any groundwater evaluations conducted in the vicinity. Also, please be more specific about "appropriate disposal facility" for hazardous solutions.

Response:

Please refer to Plate 1 of the "Phase II Environmental Conditions Assessment at Kerr-McGee Chemical Corporation, Henderson, Nevada", August 1997, for the location of the leach field associated with the changehouse/lab leach field, and for samples taken related to that area. Sample SB6-1 was taken from the leach field itself. Sample SB6-2 was taken as close to the discharge line to the leach field as possible.

Several wastes have been generated in the laboratory which have been disposed of at an "appropriate disposal facility." Disposal facilities used have been: Aptus in Aragonite, Utah, for those requiring incineration and USPCI in Aragonite, Utah or US Ecology in Beatty, Nevada, for those requiring treatment and/or landfilling.

3.8 Unit 1 Tenant Stains

Comment:

Please provide results of the resampling of the area.

Response:

Resampling results are provided in Section 4.8 of the "Phase II Environmental Conditions Assessment Located at Kerr-McGee Chemical Corporation, Henderson, Nevada" 1997.

4.1 Trade Effluent Settling Ponds

Comment:

We agree that project objectives for this area have been met.

In this and some of the following sections in the report, reference is made to the American Society of Testing Materials publication "Cleanup Criteria for Contaminated Soil and Groundwater." [Please correct the citation for this publication in the list of references.] The publication contains average concentration and natural range of metals in the United States. The ranges in the publication are very broad and represent a large variety of geologic and soil conditions.

The report makes the implied assumption that because RCRA metals values fall "within the range of the average concentration of these constituents in soils," there is not an impact from KMCLLC or predecessor operations at the site. The ASTM ranges are very broad (for example, chromium ranges from 2 to 3,000 milligrams per kilogram, or three orders of magnitude). To determine impacts to the environment from facility operations, the Nevada cleanup standards or actual background soil metals concentrations should be used.

NDEP's soil and Ground Water Remediation Policy of 1992 was superseded on October 3, 1996, by NAC 445A.226-445A.22755. NDEP no longer requires Subpart S calculations. However, Subpart S may be appropriate in some cases. Also, background values must be determined prior to establishing cleanup levels!

Response:

We acknowledge that the objectives for this investigation have been achieved.

ASTM average background metal concentrations were used in the Phase II Report to provide a generalized comparison of detected metal concentrations. It is also acknowledged that the Nevada Cleanup Standards have been specified, as of October 3, 1996, by NAC 445A.226 through NAC 445A.22755, and that the findings of the August 1997 Phase II investigation remain unchanged.

4.2 Old P-2, Old P-3 Ponds

Comment:

We agree that further work is required. More areal and subsurface definition is required. Please provide a workplan for the proposed work.

Response:

Old P-2 and P-3 ponds will be further investigated as stipulated in the attached Supplemental Phase II Work Plan.

4.3 Truck Unloading Area

Comment:

Based on the data presented in the report, no further investigative work needs to be conducted at the site at this time.

Response:

We acknowledge that additional work is not required.

4.4 Diesel Fuel Storage Tank

Comment:

We agree that further work is required to determine the affected volume of soil. Please submit a workplan for this work.

Response:

The Diesel Fuel Storage Tank area will be further investigated as stipulated in the attached Supplemental Phase II Work Plan.

Comment:

We agree that groundwater from M-21 does not appear to be impacted by diesel; consequently no further monitoring well installation is required. However, TPH should be routinely sampled from M-21 in the future.

Response:

Monitor well M-21 sampling will be conducted as described in the attached Supplemental Phase II Work Plan. In addition, annual sampling of monitor well M-21 for TPH will continue for 4 years. This will provide 5 data points with which KMCLLC can determine any impact from the old diesel fuel storage tanks.

4.6 J. B. Kelly, Inc. Trucking Site

Comment:

Although concentration of total chromium is below action levels, where did it come from and what is the migration through soil?

Response: Sample S7-1-1 was collected from a boring below the concrete slab in the bottom of the vaults. The chromium concentration (19.3 mg/kg) is similar to concentrations found in areas unimpacted by previous operations (See Table 3-4, Environmental Characterization Report, BMI Exclusion Areas 3, 4A, 4B, 5/6, Henderson, NV April 1997) prepared by ENSR. Therefore it appears to be in the range of naturally occurring mineralization. Sample S7-1-S consisted of sand collected from the bottom of several vaults. This sample is only two times the subsurface concentration (42.9 mg/kg). Why it is higher is unknown, but as noted, it is below action levels and does not appear to be impacting subsurface concentrations.

4.7 A.P. Satellite Accumulation Point – AP Maintenance Shop

Comment:

We agree that the removal action was effective in removing soil affected by diesel fuel compounds. However, please explain why motor oil concentrations. Based on the data presented in the report, no further investigative work needs to be conducted at the site at this time.

Response:

The area under investigation was the storage location for collection drums of used oil. Motor oil was one of the oil types collected.

4.8 Unit 1 Tenant Site

Comment:

We agree with the report regarding the effectiveness of the removal action. Based on the data presented, no further investigative work needs to be conducted at the site at this time.

Response:

We acknowledge that additional work is not required.

4.9 AP-1, AP-2, and AP-3 Ponds

Comment:

We agree that additional investigative work is required to determine the source of elevated levels of elemental nitrogen in the existing monitor wells M-17, M-89, and M-25. Please submit a workplan for this additional investigative work.

Considering that monitoring well M-25 is located about 280 feet to the northwest (ostensibly downgradient) of monitoring well M-89, the volume of affected groundwater could be extensive. Additional work should address the potential lateral extent of affected groundwater. Analysis of groundwater samples for ammonium perchlorate should be included in any sampling scheme.

Response:

Since the Phase II Work Plan activities were completed in April 1997, perchlorate impact to the groundwater beneath the Henderson facility has been under review. Source capture and control of impacted groundwater (utilizing the groundwater interception system for chromium remediation) is expected in the last quarter of 1998. KMC requests that because the perchlorate remedial alternatives currently under investigation will address nitrogen based compounds as well as perchlorate, the additional work needed to control impacted groundwater be addressed in the perchlorate remediation effort.

4.10 Hardesty Chemical Site

Comment:

We agree that the removed underground storage tanks did not affect groundwater.

Response:

We acknowledge that additional work is not required.

5.0 Data Validation and Review

Comment:

Please explain the impact of numerous sample qualifications on future remedial decisions.

Response:

The Data Validation and Review section of the Phase II Environmental Conditions Assessment contains references to "qualified" data. The qualified data consists of:

1. Three laboratory packages with pH samples analyzed outside of their holding time.
2. One laboratory package in which all samples were delivered to the laboratory at a temperature exceeding 4 degrees Celsius.

3. Three instances where the relative percent difference of certain constituents in the sample compared to the duplicate was greater than 20 percent.
4. A detectable concentration of acetone in one method blank.

Although these occurrences were noted, these specific qualifiers are not expected to have a significant adverse affect to the analysis results. The qualified data should not be invalidated and can be used to evaluate future remedial action at the site.

**KERR-McGEE CHEMICAL LLC
HENDERSON, NEVADA FACILITY**

**SUPPLEMENTAL PHASE II
WORK PLAN**

November 9, 1998

**Prepared for:
Nevada Division of Environmental Protection**

**Prepared by:
Kerr-McGee Chemical LLC**

**SUPPLEMENTAL PHASE II WORK PLAN
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1.0 INTRODUCTION

This Supplemental Work Plan describes proposed activities which will provide information to supplement information gathered during the April 1997 Phase II Environmental Conditions Investigation of the Henderson, Nevada facility.

This Work Plan is based on the requirements set forth by the Nevada Department of Environmental Protection (NDEP) in a letter to KMCLLC dated June 10, 1998. This Supplemental Work Plan will be appended to and comply with the NDEP-approved Phase II Work Plan issued by KMCLLC on May 10, 1996.

1.1 Site History

Details of the site history are set forth in the Phase II Work Plan and Health and Safety Plan, Henderson, Nevada Facility, KMCLLC document dated May 10, 1996.

1.2 Environmental Conditions Assessment

Results of the environmental conditions assessment are set forth in the Phase II Work Plan and Health and Safety Plan, Henderson, Nevada Facility, KMCLLC document dated May 10, 1996.

1.3 Objectives

Based on the results from samples collected during the Phase II Environmental Assessment and in response to NDEP comments (letter dated June 10, 1998) on the Phase II Environmental Conditions Assessment (ENSR document No. 4020-004-250, dated August 1997), KMCLLC has agreed to conduct additional work to address remaining concerns in the following areas at the KMCLLC Henderson Facility:

- ◆ Old P-2, Old P-3 Ponds
- ◆ Diesel Fuel Storage Tank

Please note that further investigation in the AP-1, AP-2, and AP-3 Pond area will be completed as part of the perchlorate assessment.

2.0 Scope of Work

2.1 Introduction and Approach

This work plan scope of work (SOW) addresses methods to meet the objectives stated in Section 1.3. The objectives for the two areas requiring additional work are as follows:

- ◆ Define the areal and subsurface extent of chromium in the Old P-2 and Old P-3 Ponds.
- ◆ Determine the extent and volume of petroleum affected soils in the Diesel Fuel Storage Tank area, and conduct additional TPH monitoring at monitoring well M-21.

2.2 Old P-2 and Old P-3 Ponds

The ponds were surface impoundments used to collect and concentrate dilute sodium chlorate solutions. For explicit background and former sampling information, refer to the Phase II Environmental Conditions Assessment (ENSR Document No. 4020-004-250, dated August 7, 1997).

2.2.1 Previous Analytical Results

Eight soil borings were advanced in Old P-3 Pond and five borings were advanced in Old P-2 Pond. Sample locations were selected using a random generation grid and were collected at a depth of 12 inches and 36 inches below ground surface (bgs). The samples were analyzed for total chromium and pH, and the results indicated elevated levels of chromium (above 100 mg/kg) were evident in the samples.

2.2.2 Proposed SOW for Supplemental Investigation of Old P-2 and Old P-3 Ponds

To define the areal extent of residual chromium resulting from the former use of the impoundments, eight borings will be advanced along the outer perimeter of the ponds (See Figure 2-1). The perimeter borings are proposed in locations that will enable the lateral and vertical limits of chromium in soil to be assessed. The perimeter borings are located just outside the berms encircling the chromium-containing soils within the Old P-2 and Old P-3 Ponds, Figure 2-1. The perimeter

boring locations will serve to confirm that chromium is limited to within the pond boundaries.

The bore holes will be advanced with a hollow-stem auger drill rig and will be logged by a geologist. Soil descriptions will be in accordance with the United Soil Classification System (USCS) based on inspection of the split-spoon samples collected and by visual inspection of drill cuttings. Sampling will commence at the ground surface and will continue to the capillary fringe, which is anticipated to be at a depth of approximately 40 feet bgs. Soil samples will be collected at two-foot intervals and will be analyzed for total chrome and pH until two successive samples are determined to be less than 100 milligrams per kilograms (mg/kg) of total chromium.

Four additional borings will be advanced in a similar manner within the interior boundaries of the former ponds (see Figure 2-1). The interior borings are located near areas of earlier chromium detection and are intended to confirm the extent of vertical chromium migration in soil, and to assess whether chromium-containing soils extend to the depth of groundwater. Sampling will be conducted at two-foot intervals to the capillary fringe anticipated to be approximately 40 feet bgs. Samples will be analyzed for pH and total chromium until two successive samples are determined to be less than 100 mg/kg of total chromium.

Sample collection, analysis, and sample custody will be conducted in accordance with the NDEP-approved Kerr-McGee Phase II Work Plan issued on May 10, 1996.

2.3 Diesel Fuel Storage Tank

The former diesel fuel storage aboveground storage tank (AST) located south of Old P-2 Pond was removed by KMCLLC in 1994. For explicit background and former sampling information, refer to the Phase II Environmental Conditions Assessment (ENSR Document No. 4020-004-250, dated August 1998).

2.3.1 Previous Investigation Results

Three soil borings, SB5-1, SB5-2, and SB5-3, were advanced to 10 feet bgs within the bermed diesel fuel storage area. Soil samples collected at 5 and 10 feet bgs in soil borings SB5-2 and SB5-3 contained total petroleum hydrocarbon

(TPH) above the NDEP cleanup level of 100 mg/kg. Additional work is proposed to assess the extent and volume of soil affected.

2.3.2 Proposed SOW for Additional Investigation of the Diesel Fuel Storage Tank

Four additional borings will be advanced in the Diesel Fuel Storage Tank bermed area (see Figure 2-1). The four borings are located to surround previous borings which detected TPH-d, and to confirm the limits of diesel in soil. The borings will be advanced using a hollow-stem auger drill rig to the capillary fringe or an approximate depth of 40 feet bgs. Samples will be collected via a split-spoon sampler on five-foot intervals to the terminal depth at the capillary fringe.

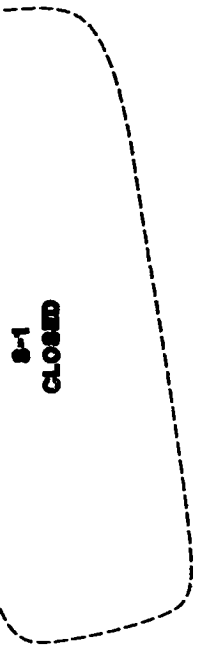
The soil samples will be analyzed for petroleum hydrocarbon compounds including benzene, toluene, xylenes and ethylbenzene (BTEX) and polynuclear aromatic compounds (PAHs). In addition to the soil sampling, one groundwater sample will be collected using Hydropunch equipment for analysis of TPH-d, BTEX and PAHs. To support future evaluation, one soil sample will also be collected for geotechnical parameters that include porosity, bulk density, moisture content and organic carbon content.

2.3.3 Additional TPH Sampling for Monitoring Well M-21

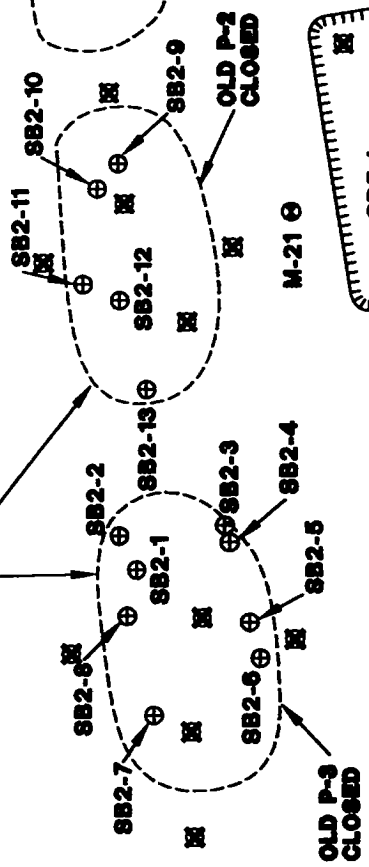
At the request of NDEP to confirm no impacts to groundwater, a groundwater sample will be collected from M-21 (see Figure 2-1) during the upcoming field activities described above at the Old P-2 and Old P-3 Ponds and Diesel Fuel Storage Tank.

The water sample collection, sample analysis, and sample handling will be performed in accordance with the previous NDEP-approved Kerr-McGee Phase II Work Plan, dated May 10, 1996.

11th STREET



OLD P-2, OLD P-3
POND AREA



TRUCK
ACCESS

FORMER
DIESEL FUEL STORAGE
TANK AREA

AVENUE F



FIGURE 2-1

**OLD P-2, P-3 PONDS AND DIESEL TANK
SUPPLEMENTAL SAMPLING LOCATIONS**

Kerr McGee Chemical Corp.
Henderson, Nevada

DRAWN BY	SCOP	DATE	PROJECT NO.
FILE NO.	48899-48	7/22/98	4080-004-280
CHK BY			REV.
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LEGEND

- ⊕ SOIL SAMPLING LOCATION
- ⊙ GROUNDWATER MONITORING WELL
- ⊠ PROPOSED SUPPLEMENTAL SOIL SAMPLING LOCATIONS
- ▤ EARTHEN BERM



3.0 Data Collection and Quality Assurance Plan

Soil samples from the Old P-2 and Old P-3 Ponds will be collected and analyzed for total chromium and soil pH as specified in the Kerr-McGee Phase II Work Plan, dated May 10, 1996.

Soil samples from the former Diesel Fuel Storage Tank Area and water samples from the adjacent monitoring well, M-21, will be collected and analyzed for diesel components as specified in the Kerr-McGee, Phase II Work Plan, dated May 10, 1996.

4.0 Project Management Plan

The project management will be staffed and managed as specified in the Kerr-McGee Phase II Work Plan, dated May 10, 1996.

5.0 Health and Safety Plan

The original Health and Safety Plan issued on May 10, 1996, for the Phase II investigative work will be reviewed and updated or revised as necessary for use during the Supplemental Phase II investigative work.