



KERR-McGEE CHEMICAL LLC

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ENVIRONMENTAL
PROTECTION

MAR 24 00

March 22, 2000

NDEP Las Vegas Office
TREX-000322

Ms. Brenda Pohlmann
Remediation Branch Supervisor
Nevada Division of Environmental Protection
555 East Washington, Suite 4300
Las Vegas, NV 89101

Dear Ms. Pohlmann:

Subject: Las Vegas Wash Seep Characterization Work Plan

As requested by Nevada Division of Environmental Protection, NDEP, attached is a "Work Plan for Seep Area Groundwater Characterization." Drilling, well completion, tracer tests and groundwater sampling are expected to begin in March and be complete by May 2000. Because of this accelerated timetable, Kerr-McGee requests NDEP approval of this Work Plan as soon as is practicable. Kerr-McGee also requests that the Bureau of Corrective Actions obtain comments from Bureau of Water Pollution Control on this Work Plan, specifically the planned tracer tests. Please note this Work Plan references a Sampling Plan prepared for earlier work in the Henderson area.

Please feel free to call either Ed Krish (405) 270-3752 or me at (702) 651-2234, if you have any questions. Thank you.

Sincerely,

Susan M. Crowley
Staff Environmental Specialist

Attachment
By certified mail

cc:	PSCorbett	TWReed	Doug Zimmerman (NDEP - Carson City)
	FRStater	EJKrish	Robert Kelso (NDEP - Carson City)
	W Ganus	LKBailey	Kevin Meyer (Region IX EPA)
	RHJones	MJPorterfield	(MWD)
	DAWard	EMSpore	(SNWA)
	WOGreen	Rick Smith (ENSR)	(COH)
	JTSmith		
	Doug Zimmerman (NDEP-Carson City)		

KERR-McGEE CHEMICAL LLC
HENDERSON, NEVADA

WORK PLAN
For
**SEEP AREA GROUNDWATER
CHARACTERIZATION**

March 22, 2000

Prepared by Kerr-McGee Chemical LLC

SCOPE

Kerr-McGee Chemical LLC, Kerr-McGee, plans to conduct field and analytical work in the vicinity of the Las Vegas Wash seep in Henderson, Nevada. These activities are intended to provide additional information about the physical and chemical characteristics of seep area groundwater. This Work Plan sets out the objectives and scope of the fieldwork and analyses to be performed. A report summarizing the results of the field work and analyses will be prepared and submitted to the Nevada Division of Environmental Protection (NDEP).

OVERVIEW

Earlier in 1999, Kerr-McGee completed activities associated with a Sampling Plan which characterized, in part, the perchlorate groundwater impact in the area between the COH-RIB facility and Las Vegas Wash. The activities outlined in this Work Plan are intended to supplement information gathered during the earlier characterization effort, primarily in the seep area. Figure 1 shows the seep location. Proposed activities include:

- Completion of a series of monitor wells along an east-west traverse between the Las Vegas Wash seep and the northern BMI ponds. Wells will be nested into three-well groups that will be screened in the lower, middle and upper zones of the alluvial aquifer, respectively. During this drilling, water samples will also be collected to assess the physical and chemical characteristics of the groundwater.
- Groundwater sampling in Las Vegas Wash from the Silver Dome stadium vicinity down stream as far as the old Henderson Landfill to access the location where perchlorate concentrations increase.
- Completion of a tracer-dye test to determine residence-time of groundwater between the Pittman Lateral area, the COH-RIB facility and the seep area.
- Completion of a seep area reconnaissance to determine whether additional "seeps" are contributing to perchlorate impact in the Las Vegas Wash.

WORK PLAN

Completion of Nested Monitor Wells

A series of monitor wells will be drilled and completed starting in April, 2000. These wells will be placed in three-well nests, on 400-foot centers, along an east-west traverse located between the seep and the northern BMI ponds. The three nested wells will be screened at the bottom, middle and top of the alluvial aquifer, respectively. Figure 2 shows the location of the proposed line of wells.

The wells will be drilled using an 8-inch outside diameter hollow stem auger (HSA). They will be constructed with 2-inch diameter screw-threaded Schedule 40 PVC casing and 0.020-inch factory-slotted screen, and installed through the hollow stem auger. The bottom of the well screen assembly will be fitted with a 0.2-foot long bottom plug. The entire annulus surrounding the screen will be filled with clean, 8-12 size washed sand to about 2 feet above the top of the screen. An annular seal of bentonite slurry or pellets will be placed above the filter pack sand to a thickness of three or four feet. The remaining well annulus from the top of the bentonite seal to grade will be filled with a Portland cement/bentonite grout. Installed monitor wells will be surveyed for vertical elevation control and horizontal location utilizing a Trimble 4800 survey-grade Global Positioning System (GPS) unit. These wells will be surveyed for TOC elevation, ground elevation and horizontal control.

Groundwater samples will be collected for laboratory analyses of perchlorate, specific conductivity and pH at the plant-site Kerr-McGee Chemical laboratory. Duplicate samples will be collected for perchlorate analyses at Montgomery-Watson Laboratory in Pasadena under chain-of-custody control.

Please refer to the KMCC Phase II Work Plan for sample collection protocols.

Completion of a Groundwater Survey in Las Vegas Wash

Groundwater samples will be collected from shallow hand-dug trenches along Las Vegas Wash from the vicinity of the Silver Dome stadium downstream to the vicinity of the old Henderson landfill. The sampling interval will be 2000 feet with 1000-foot in-fill samples where warranted. Analyses will be performed for perchlorate, specific conductivity and pH.

Groundwater sampling sites will be surveyed for vertical elevation control and horizontal location utilizing a Trimble 4800 survey-grade Global Positioning System (GPS) unit.

Completion of a Tracer-Dye Test

A data-gap exists regarding the residence time of alluvial groundwater between Pittman Lateral area and the seep area. Kerr-McGee will conduct tracer-dye tests in 3 sections of the alluvial aquifer so that this residence time can be measured. A tracer-dye, yet to be determined, will be added to a temporary geoprobe hole to be drilled 100 feet up-gradient from the designated "interceptor" monitor well on three different traverses across the alluvial channel. These traverses are at the Pittman Lateral south of the COH-RIB, the MW-K5 line within the COH-RIB and the proposed well-nest line south of the seep. Figure 2 shows the location of the tracer-dye test lines.

Groundwater samples will be collected from the interceptor monitor well directly down-gradient of each point of dye introduction at a frequency that will insure detection of the tracer-dye. There are two reasons for using short distances between the points of introduction and interception. Namely, less volume of dye needs be introduced into the ground and less time is necessary to intercept the tracer-dye flow. After the residence time data has been evaluated for these four short distances, the data will be extrapolated to the intervening sections of the alluvial channel in order to obtain a sectional and overall average residence time.

Choices of tracer-dyes to be considered are fluorescent dyes such as fluoresein; environmental isotopes such as ^2H , ^3H or ^{18}O ; and organic compounds such as rhodamine, lissamine and amino G acid. Before the tracer-dye is chosen, samples of alluvial groundwater beneath and north of the COH-RIB will be collected and analyzed for background fluorescence due to phosphates or other compounds derived from the COH wastewater effluent. Approval will also be needed from the Bureau of Water Pollution Control for introduction of the chosen tracer.

Seep Area Reconnaissance

While the vegetation in the seep area is dormant, an opportunity exists to more easily survey existing conditions to determine whether additional "seeps" are contributing to perchlorate impact in the Las Vegas Wash. Kerr-McGee plans to complete a detailed reconnaissance during early March, before the vegetation has recovered heavy growth.

ANALYTICAL DATA

Table 1 lists the methods to be used for each analyte.

Table 1. Methods of Analysis

Analyte	Method
pH	EPA 150.1 ⁽¹⁾
Specific Conductance	EPA 120.1 ⁽¹⁾
Perchlorate Ion	EPA 314 ⁽²⁾

- (1) "Methods for Chemical Analysis of Water and Wastes," US Environmental Protection Agency, NERL, Cincinnati, Ohio 45268, March 1983 (EPA -600/4-79-020).
- (2) "Method for Perchlorate Analysis by Ion Chromatography." Environmental Protection Agency Method 314, March 2000.

DATA COLLECTION and QUALITY CONTROL

Please refer to the Data Collection and Quality Assurance Plan (DCQAP) portion of the KMCC ECA Phase II Work Plan (Section 3) for protocols that will be used for field data collection and quality control. The following exception to this protocol should be noted:

- Samples will be obtained utilizing Kerr-McGee personnel without the assistance of ENSR.
- NEL Laboratories will be utilized for all analyses except perchlorate. Montgomery-Watson Laboratories, in California, will be used for perchlorate.

PROJECT MANAGEMENT

Kerr-McGee personnel will coordinate the field related activities associated with this Work Plan. The work group is headed by Susan Crowley, Staff Environmental Specialist, at Kerr-McGee's Henderson facility. Table 2 summarizes the key personnel for the project.

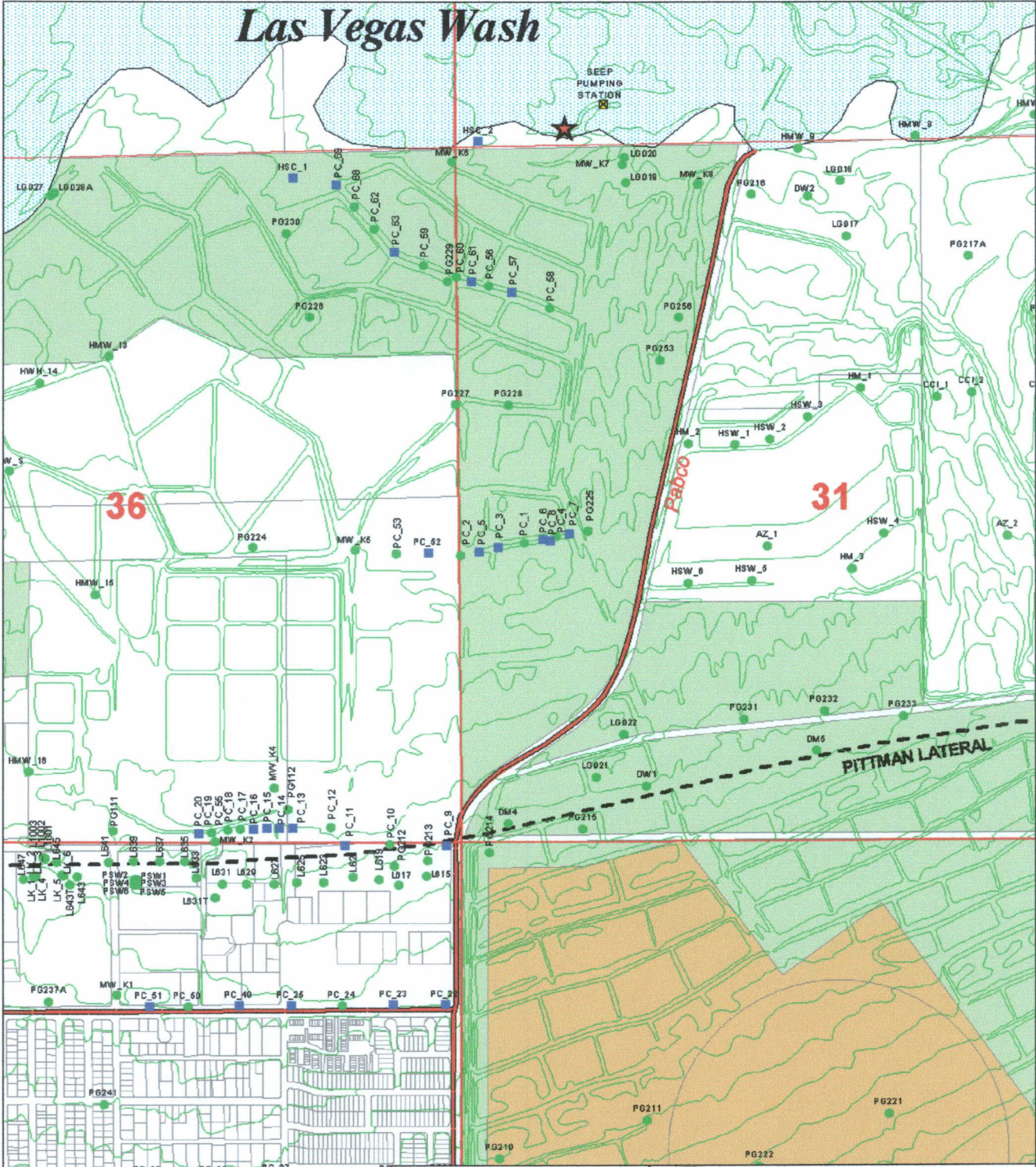
Table 2. Key Personnel

Title	Location	Name, Phone
Kerr-McGee Project Manager	Kerr-McGee Henderson	Susan M. Crowley CEM-1428 (702) 651-2234
Site Health & Safety Officer	Kerr-McGee Henderson	Greg B. Cowley (702) 651-2228
Managing Hydrogeologist	Kerr-McGee Oklahoma City	Edward J. Krish (405) 270-3752
Legal Council	Kerr-McGee Oklahoma City	William O. Green (405) 270 2791

HEALTH AND SAFETY

Please refer to the Health and Safety (HSP) portion of the KMCC Phase II Work Plan (Section 5) for protocols that will be used during this sampling effort.

Las Vegas Wash



- ★ SEEP
- BORING
- MONITOR (WORKING AND HISTORICAL)

INDUSTRIAL PROPERTY

- BMI
- TIMET



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

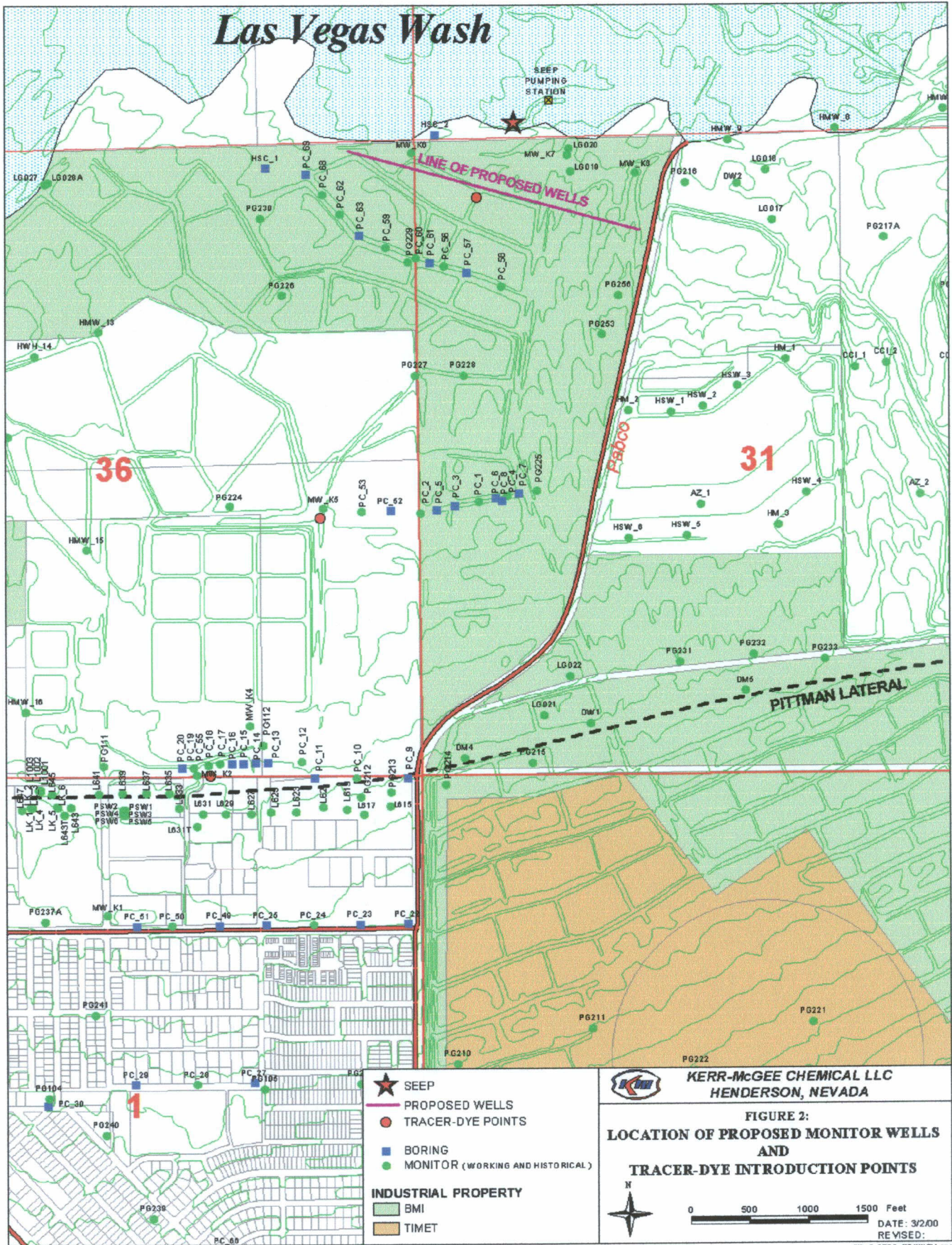
**FIGURE 1:
LOCATION OF THE SEEP
SECTION 30, T. 21 S., R. 63 E.
CLARK COUNTY, NEVADA**



DATE: 3/2000
REVISED:

FD_1_SEEP.apr

Las Vegas Wash



- ★ SEEP
 - PROPOSED WELLS
 - TRACER-DYE POINTS
 - BORING
 - MONITOR (WORKING AND HISTORICAL)
- INDUSTRIAL PROPERTY**
- BMI
 - TIMET



KERR-McGEE CHEMICAL LLC
HENDERSON, NEVADA

FIGURE 2:
LOCATION OF PROPOSED MONITOR WELLS
AND
TRACER-DYE INTRODUCTION POINTS



0 500 1000 1500 Feet

DATE: 3/2/00
 REVISED: