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REPORTS

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KENSON OPERATING CO., INC.

(Previous reference-GPII Energy, Inc.)

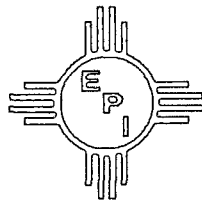
Langlie Jal Unit Playa Ground Water Remediation Plan

for the

Playa East of the Langlie Jal Unit Well #82
N.M.P.M.
S8 T25S R37E
Lea County, New Mexico

January 8, 2001

prepared by



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1. INTRODUCTION

Historic releases and spills of produced injection water in the area of the Langlie Jal Unit Well #82 tank battery and injection systems have impacted the surface and playa water pool down grade from the release locations, refer to the "GPII Energy, Inc.: Site Characterization, Documentation, & Proposal for the Playa located east of the Langlie Jal Unit (LJU) Well #82, NMPM S8 T25S R37E, Lea County, New Mexico, June 30, 1999." The "GPII Energy, Inc., LJU Playa Environmental Monitoring and Contingency Plan, October 1999" was implemented to monitor chloride and Total Dissolved Solids (TDS) levels in the playa water pool to identify transport and impact of the up-gradient soil chloride source term and monitor impact of chloride and TDS in the ground water down gradient of the water pool. The monitor well TDS concentration has increased from 368 mg/Kg in June 1999 to 10510 mg/Kg in November 2000, proportional increases were also observed for chloride. This exceeds the New Mexico Water Quality Control Commission Ground Water Protection Regulation found in 20NMAC6 3103. The New Mexico Oil Conservation Division (NMOCD), Environmental Bureau, Santa Fe Office has required that a ground water investigation and remediation plan be submitted for approval.

2. PLAN OBJECTIVE

This LJU Playa Ground Water Remediation Plan will delineate the extent and distribution of chloride and Total Dissolved Solids (TDS) in the upper most saturated zone in the area down gradient of the LJU Playa. The "LJU Monitoring Report November 2000" implemented a 6 month study to identify a correlation between monthly precipitation and the increase in TDS and Chloride concentrations in the monitor well samples. It is proposed to implement this ground water remediation plan in May 2001, after the correlation study is completed.

3. GROUND WATER INVESTIGATION

Initially, two additional monitor wells will be installed down gradient and transverse to the existing Monitor Well #1 located ~100' southeast of the playa water pool. These wells will be developed as monitor wells and sampled. If the chloride and TDS data indicate that these locations are within the contamination plume, the wells may be used as pollution abatement/extraction wells. Additional wells will be install at locations dictated by the chloride and TDS concentrations and ground water gradient.

3.1 Well Locations

It is proposed to install two wells at the following locations; Monitor Well #2, 150-200' due east and Monitor Well #3, 150-200' southeast of the of the existing monitor well. Refer to the attached map.

3.2 Engineering Survey

The well locations will be surveyed by a professional survey firm to identify the exact locations and elevations of the wells.

3.3 Ground Water Gradient

After the wells are surveyed, accurate ground water level measurements will be made and documented. These data will be used to accurately determine the ground water flow gradient.

3.4 Plume Delineation

The data from the newly installed wells will be used to determine the areal distribution of contamination.

4. GROUND WATER REMEDIATION

Following delineation of the areal distribution of contamination and the ground water flow gradient, the contaminated water will be extracted and introduced in the LJU Water Injection System.

4.1 Monitor Wells

Wells to monitor contaminant plume migration will be installed as needed, based on the information derived during the ground water investigation.

4.2 Pollution Abatement/Extraction Wells

The existing monitor well and others as deemed appropriate and necessary, will be converted to pollution abatement/extraction wells. The New Mexico State Engineers Roswell Office will be notified of all wells to be used for extraction and negotiations began with the water right owners. It is proposed that a solar powered small diameter electric submersible pump with a pump off switch be installed to extract the contaminated water. Depending on the flow rate, this process could reverse or halt the down gradient movement of contamination.

4.3 Well Construction and Development

Wells will be drilled and completed consistent with industry standards, i.e., minimum of 15' of well screen with at least 5' above the water table to accommodate seasonal fluctuations in the static water table. Drilling logs will be recorded and construction materials and well metrics will be provided.

4.4 Pump Tests

Pump tests are not contemplated initially but should not be precluded.

4.5 Up-Gradient Background Monitor Well

The initial samples from 1999 at Monitor Well #1 are deemed to be at background levels. Additional up-gradient wells are not contemplated but may be considered in the future to determine if up-gradient contamination is contributing to the down-gradient plume.

4.6 Extracted Water Management

A 10-barrel polypropylene tank with overflow protection will be located near Monitor Well #1 (MW1) and will receive the water extracted from the wells. The water will be hauled to the LJU injection system battery for introduction and use in the injection stream. Volume records will be maintained. Sampling and analyses for TDS and chloride will be conducted if warranted.

4.7 Monitoring and Reporting

The monitor wells will be sampled and analyzed at least quarterly, consistent with the LJU Environmental Monitoring and Contingency Plan and included in the quarterly report submitted to the NMOCD Santa Fe office.

4.8 Duration of Remediation

Remediation will be considered complete after 8 consecutive quarterly samples, from all monitor well locations, are at or below the chloride and TDS concentrations background concentrations, i.e., 36 and 368 mg/Kg, respectively. At that time a request to terminate the plan will be made to the NMOCD.

ATTACHMENT A: Site Map

