1R - 418

GENERAL CORRESPONDENCE

YEAR(S):

2003

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Confidential

Mr. William Olsen
Environmental Geologist
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

March 5, 2003

Re: Workplan for Remedial Activities
Barber Ranch Release Site
Monument, Lea County, New Mexico

1R-418

Dear Mr. Olsen:

Attached you will find a Workplan for the proposed remedial activities on the Barber Ranch (Ranch), located approximately 1 ¼ miles southwest of Monument in Lea County, New Mexico.

The soil has been impacted from historical releases from crude oil gathering lines at several sites throughout the Ranch, and is, therefore, RCRA Subtitle C Exempt. Shell Pipeline Company LP, through the former Equiva Services LLC, has previously installed soil borings and monitoring wells to delineate the vertical and horizontal extent of hydrocarbon impact.

As of November 1, 2002, I have assumed management of this project for Shell Pipeline Company LP. Please direct all further correspondence on this site to the address above. In addition, at the request of the landowner, Mr. Jimmy Cooper, a copy of this workplan has been transmitted to Mr. Randy Bayliss with the NMOCD.

Thank you for your continuing assistance with this project. If you have any questions or comments, please do not hesitate to call me at (972) 247-1700.

Respectfully,
Shell Oil Products US

Scott E. Burkey
Environmental Specialist

Cc: Mr. Jeffrey Kindley, Enercon Services, Inc.
Mr. Paul Sheeley, NMOCD, Hobbs, NM
Mr. Randy Bayliss, NMOCD, Santa Fe, NM

WORKPLAN
Barber Ranch Release Site
Monument, Lea County, New Mexico

Introduction

The two subject sites are located in the southwest quarter of Section 32, Township 19 South, Range 37 East, and approximately 1.25 miles southwest of Monument, New Mexico, as shown on the attached Figure 1. The release emanated from a crude oil gathering system which formerly traversed the Barber Ranch. Shell Pipeline Company LP (Shell) proposes to cap impacted soils, passively remove PSH, and perform quarterly groundwater monitoring/sampling.

Site History and Investigation Results

Historic crude oil releases from an abandoned Shell Pipe Line Corporation pipeline occurred at two distinct leak sites (northern and southern) on the property at unknown times. In July 1999, 11 soil borings were advanced at the site to a depth of 25 feet below ground surface (bgs). Based upon the results of the borings, in June 2002, 19 monitoring wells were installed to a depth of approximately 38 feet and an additional 12 borings were advanced to approximately 30 feet in an attempt to delineate the vertical and horizontal extent of hydrocarbon impact. It was determined that both soils and groundwater have been impacted by hydrocarbons and phase separated hydrocarbons (PSH) were also encountered. In August 2002, four additional monitoring wells were installed to complete delineation of the PSH plume. Since the beginning of August 2002, Shell has implemented quarterly groundwater monitoring of non-PSH impacted wells and weekly hand-bailing of PSH impacted wells. See figure 2 for boring locations. Laboratory analytical results are presented in Table 1.

The former pipeline was oriented north-south and the two areas of soil contamination are located approximately 400 feet apart. On the southern site (known as site 6), soil staining extends from the surface to a depth of 15 feet. On the northern site (known as site 7), soil staining extends from the surface to a depth of 10 feet. As the total ranking score for the site is 20, the soil action levels are as follows: Benzene 10 mg/kg, BTEX 50 mg/kg, and TPH 100 mg/kg. Only a single sample from boring S-5 in the northern spill site (out of the 70 total samples taken) exhibited total BTEX concentrations exceeding NMOCD standards of 50 mg/kg. Utilizing a 95% confidence limit analysis, soil BTEX exposure is not a concern. In addition, soil impact appears to be delineated both horizontally and vertically.

Of the 70 soil samples obtained, 19 exceeded NMOCD recommended TPH concentrations. Of those 19, only five had a SPLP TPH exceeding detection limits; however, all of the SPLP TPH concentrations were so low that their corresponding BTEX and PAH concentrations would not exceed NMOCD standards for groundwater. This indicates that groundwater will not be impacted above acceptable levels by future TPH leachate from soils (if any). Therefore, as BTEX exposure and TPH leachate are not concerns, and soil impact is delineated, Shell requests closure be granted for the soils.

Phase separated hydrocarbons (PSH) were encountered in 4 wells with thicknesses ranging from 0.01 feet to 0.18 feet. The PSH is located to the east of the southern spill site (spill site 6); no PSH was discovered in association with the northern spill site (spill site #7). The PSH plume has been delineated.

Each spill site appears to have its own associated dissolved-phase plume, and the two plumes do not appear to have yet commingled. Both plumes exhibit Benzene concentrations that exceed the NMOCD standards of 0.01 mg/l and one well in the southern plume exceeds the Xylene standard. All other groundwater BTEX concentrations are below NMOCD standards and all groundwater PAH concentrations are below New Mexico Water Quality Control Commission Ground Water Standards (NMWQCC). The dissolved phase plume of the southern spill site appears to have intersected and commingled with a groundwater dissolved phase plume originating from a spill site on the EOTT pipeline to the east. Delineation of Shell's dissolved-phase plumes appears to be complete. Additional delineation of the commingled plume to the east appears to be the responsibility of EOTT.

According to the USGS Topographic Map of the area (Monument South, New Mexico, 1985), no surface waters exist within at least 1.7 miles of the site. Two windmills are depicted on the topographic map approximately 1,000 feet to the east/northeast of the site. The rancher reports that both of these wells are dry; however, this may be due to the area's extended drought conditions.

Groundwater flow direction has been determined to be to the south/southeast. Groundwater is encountered at a depth of 26 to 30 feet bgs at the site. The Ogallala Formation is the principal source of groundwater in Lea County, New Mexico. The unconfined water table of the Ogallala is encountered from 25 to 50 feet bgs in the county. This formation consists of predominantly coarse fluvial conglomerates with sandstones, clays, and fine-grained aeolian siltstones. Where present in the subject area, the Ogallala unconformably overlies Triassic red-beds.

Borings show a fine, clayey sand from surface to approximately 4 feet in depth, with this lithology pinching out to the north. Below this unit, and outcropping in the northern spill area, is a mixture of sandy limestone and calcareous sand (with minor gypsum and gray clay at bottom) to a depth of approximately 23 feet bgs. Below this unit, from approximately 23 feet to 38 feet is a sand/clay unit which represents the bottom layer of the Ogallala Aquifer. Minor, intermittent, hard chert layers occur throughout the column.

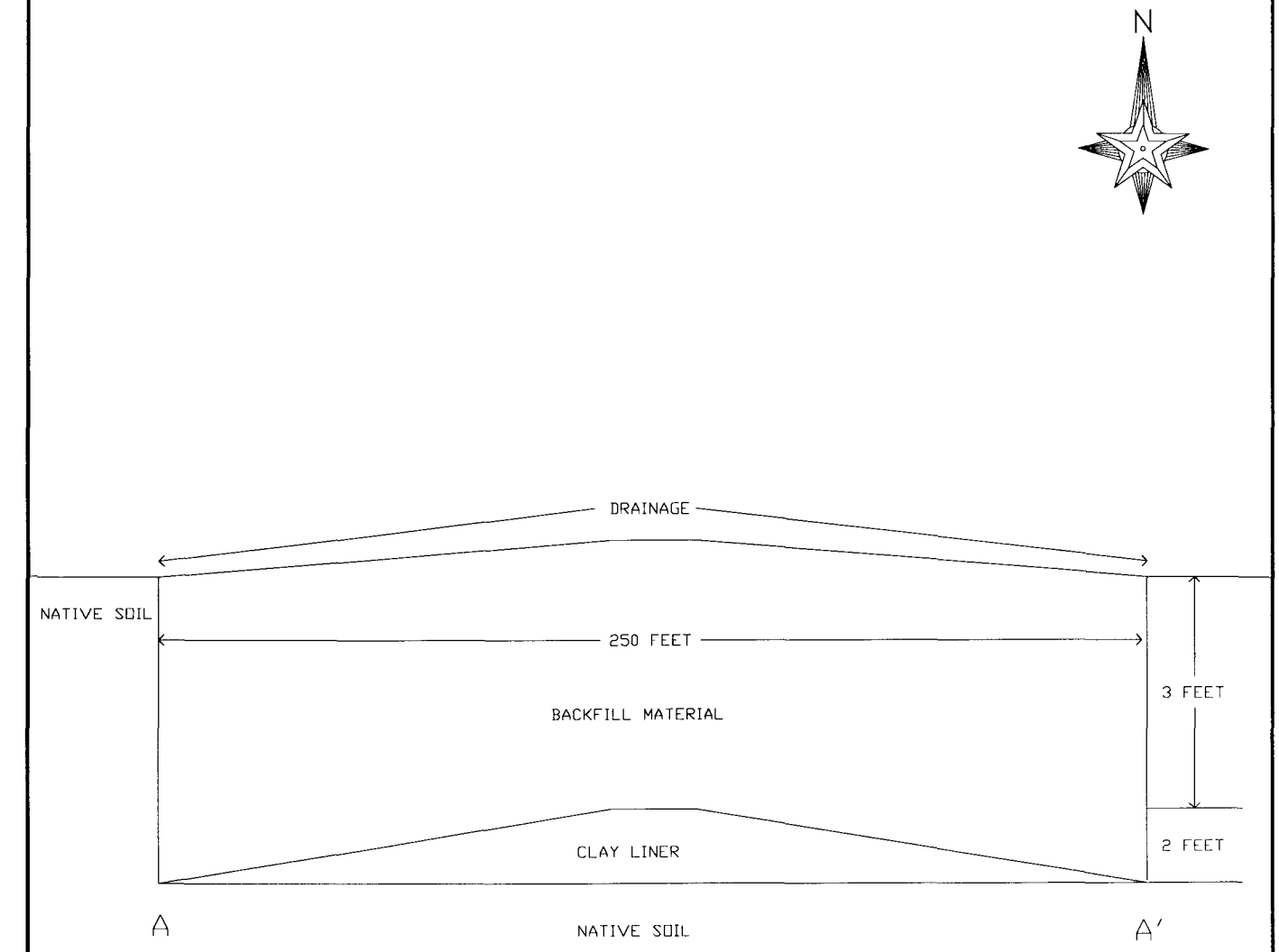
Proposed Activities

Shell proposes to excavate the soils in the two areas directly above the dissolved phase/PSH plumes down to the normal construction activity depth of 5 feet. A clay liner will be placed at the bottom of the excavation in 6-inch thick lifts and compacted. The preceding compacted lifts will be scarified in order to create a bondable surface for the next lift. This process will continue until the final compacted liner thickness is 2-feet thick. The liners will be contoured such that water will flow off the liner and not pool above it, as shown on the attached figures 1-4.

The clay liner will be constructed from clay, which will create a final compacted liner with permeability no greater than 1×10^{-5} cm/sec (EPA530-R-93-017, Municipal Solid Waste Landfill Criteria, Chapter 6, Final Cover Design). The liner will be compacted to a minimum of 90% of the maximum dry unit weight determined by the standard Proctor test. Field compaction will be verified using a nuclear density meter. Field density tests will be performed on every lift with a maximum of four tests per lift and the lifts will be removed and re-compacted if the test results are unsatisfactory.

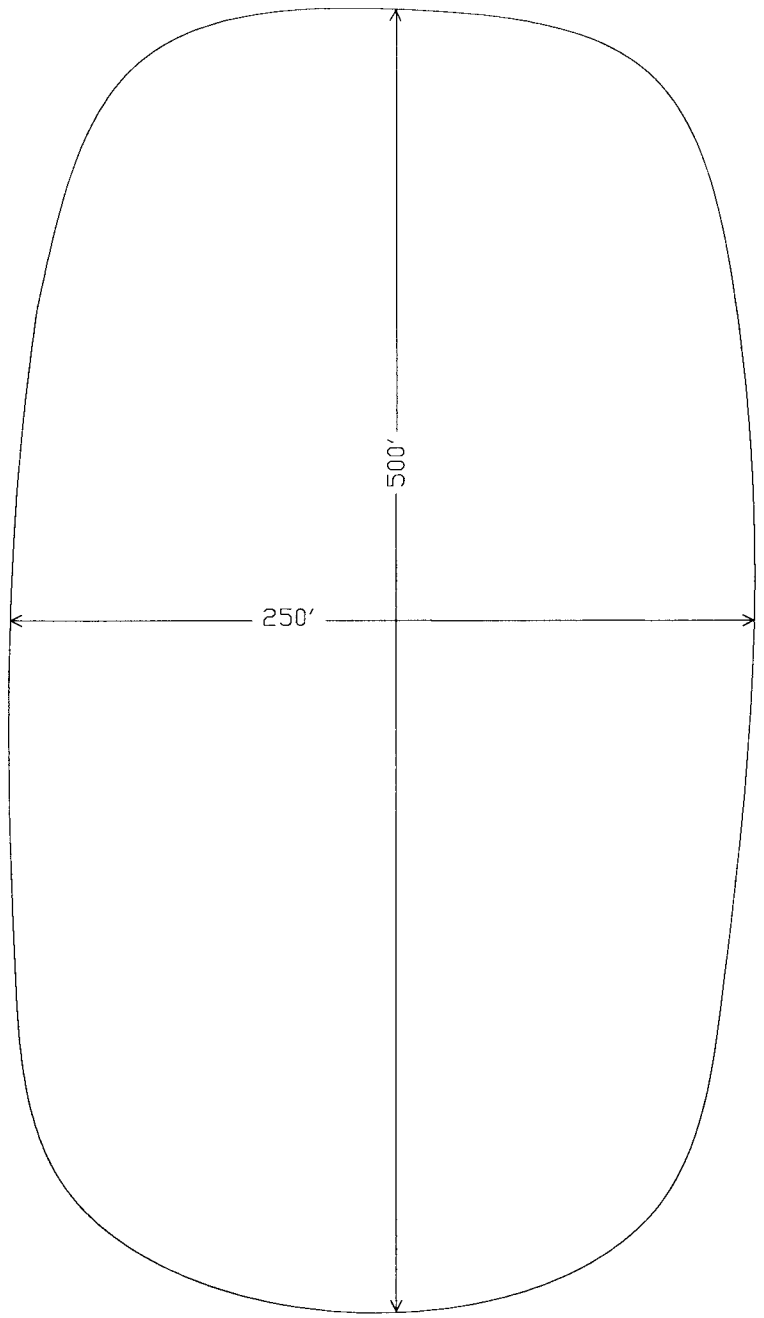
A soil shredder will be implemented to address the hydrocarbon-impacted soils excavated from the site. The soils will be tested for BTEX/TPH after the initial shredding to determine the amount of hydrocarbons remaining. Upon completion of the soil shredding, the excavation will then be backfilled with the soils initially removed from the excavation. The backfill will be mounded to turn water and seeded (once) to minimize erosion. It is estimated that an area of approximately 620,000 ft^2 will be excavated and capped.

All groundwater monitoring wells will be monitored on a quarterly basis for the next year. Those wells not containing PSH will be sampled and analyzed for PAH and BTEX. PSH will be addressed by one or more passive methods: hand bailing and/or the placement of passive skimmers. If conditions warrant, a free product recovery system may be installed at a later date.



NOT TO SCALE

PROPOSED CLAY LINER FOR NORTHERN RELEASE		FEBRUARY 2003	
PREPARED FOR: SHELL OIL PRODUCTS, U.S. BARBER RANCH LEA COUNTY, NEW MEXICO	PREPARED BY: ENERCON SERVICES, INC. 306 WEST WALL, SUITE 1312 MIDLAND, TX 79701 (915) 570-8726	INCIDENT # 300109 PROJECT NUMBER: EQ-112	FIGURE 1



NOT TO SCALE

PLOT PLAN OF PROPOSED CLAY LINER FOR NORTHERN RELEASE

FEBRUARY 2003

PREPARED FOR:
SHELL OIL PRODUCTS, U.S.

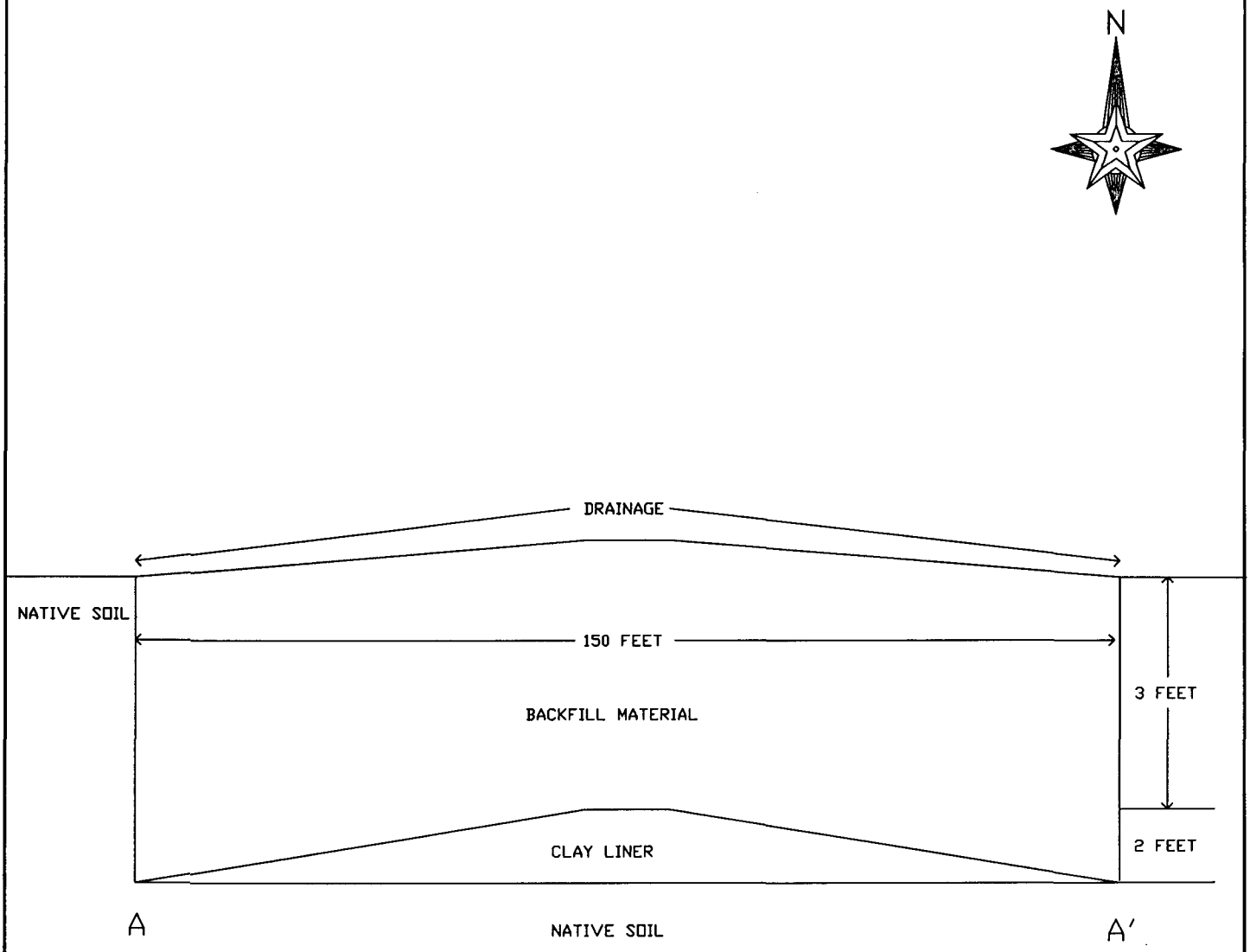
BARBER RANCH
LEA COUNTY, NEW MEXICO

PREPARED BY:
ENERCON SERVICES, INC.
306 WEST WALL, SUITE 1312
MIDLAND, TX 79701
(915) 570-8726

INCIDENT #
300109

PROJECT NUMBER:
EQ-112

FIGURE
2



NOT TO SCALE

PROPOSED CLAY LINER FOR SOUTHERN RELEASE

FEBRUARY 2003

PREPARED FOR:
SHELL OIL PRODUCTS, U.S.

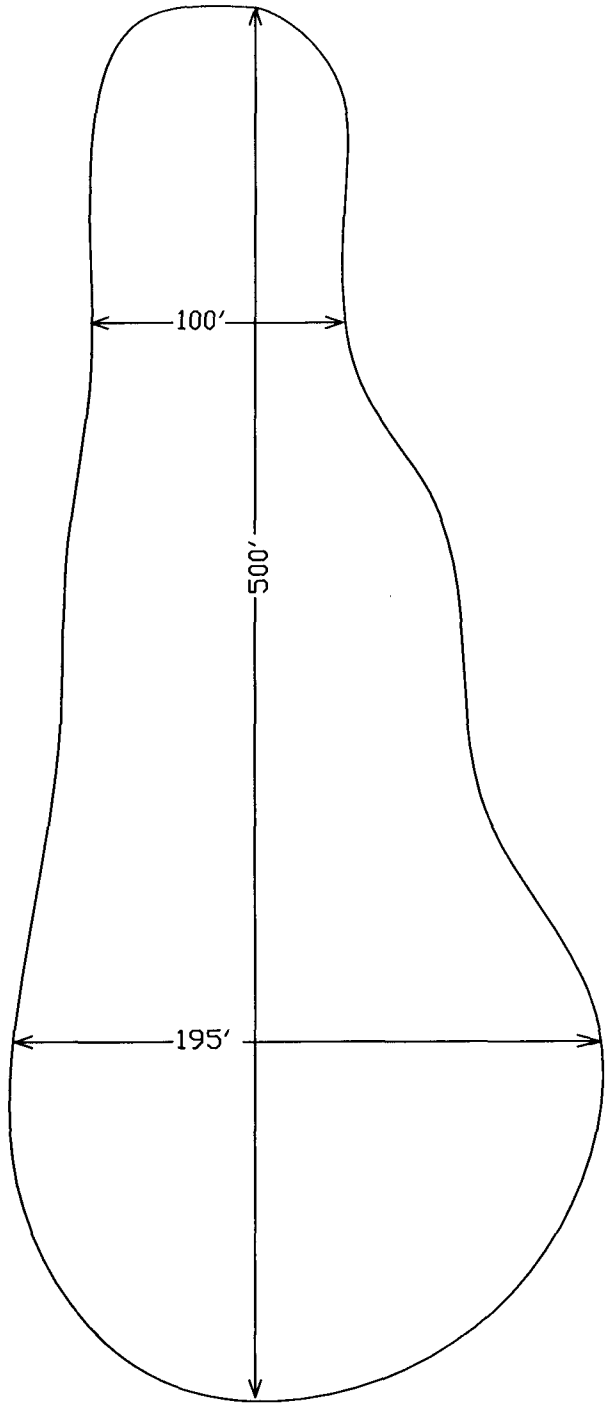
BARBER RANCH
LEA COUNTY, NEW MEXICO

PREPARED BY:
ENERCON SERVICES, INC.
306 WEST WALL, SUITE 1312
MIDLAND, TX 79701
(915) 570-8726

INCIDENT #
300109

PROJECT NUMBER:
EQ-112

FIGURE
3



NOT TO SCALE

PROPOSED CLAY LINER FOR SOUTHERN RELEASE

FEBRUARY 2003

PREPARED FOR:
SHELL OIL PRODUCTS, U.S.

BARBER RANCH
LEA COUNTY, NEW MEXICO

PREPARED BY:
ENERCON SERVICES, INC.
2775 VILLA CREEK, SUITE 120
DALLAS, TX 75234
972/484-3854

DRAWN BY:
D. LOVVORN

PROJECT NUMBER:
EQ-112

FIGURE
4