NM1 - 1

# MONITORING REPORTS

# YEAR(S):

1992

BURRO PIPELINE CORPORATION

Lane Salt Lake Disposal Facility
Information Requested for
OCD Rule 711 Compliance

RECEIVED

JAN 14 1992

OIL CONSERVATION DIV.
SANTA FE

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**BY**
**SECTION**

State of New Mexico
Energy, Minerals and Natural Resources Department
OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87501

## *APPLICATION FOR SURFACE WASTE DISPOSAL FACILITY*

*(Refer to OCD Guidelines for assistance in completing the application.)*

I. Type: ☒ Produced Water ☐ Drilling Muds ☐ Treating Fluids
☐ Solids ☐ Other _____

II. OPERATOR: Burro Pipeline Corporation
ADDRESS: 633 17th Street, Suite 1550 Denver, Colorado 80202
CONTACT PERSON: Carter G. Mathies PHONE: 303-293-9379

III. LOCATION: SE /4 NE /4 Section 13 Township 10-S Range 32-E
Submit large scale topographic map showing exact location.

IV. IS THIS AN EXPANSION OF AN EXISTING FACILITY? ☐ Yes ☒ No

V. Attach the name and address of the landowner of the disposal facility site and landowners of record within one-half mile of the site.

VI. Attach description of the facility with a diagram indicating location of fences, pits, dikes, and tanks on the facility.

VII. Attach detailed engineering designs with diagrams prepared in accordance with Division guidelines for the construction/installation of the following: pits or ponds; leak-detection systems; aerations sytems; enhanced evaporation (spray) systems; waste treating systems and security systems.

VIII. Attach a contingency plan for reporting and clean-up of spills or releases.

IX. Attach a routine inspection and maintenance plan to ensure permit compliance.

X. Attach a closure plan.

XI. Attach geological/hydrological evidence demonstrating that disposal of oil field wastes will not adversely impact fresh water.

XII. Attach proof that the notice requirements of OCD Rule 711 have been met. (Commercial facilities only.)

XIII. Attach a contingency plan in the event of a release of $H_2S$.

XIV. Attach such other information as is necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.

XV. CERTIFICATION

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Carter G. Mathies Title: President
Signature: Carter G. Mathies Date: January 8, 1992

DISTRIBUTION: Original and one copy to Santa Fe with one copy to appropriate Division District Office.

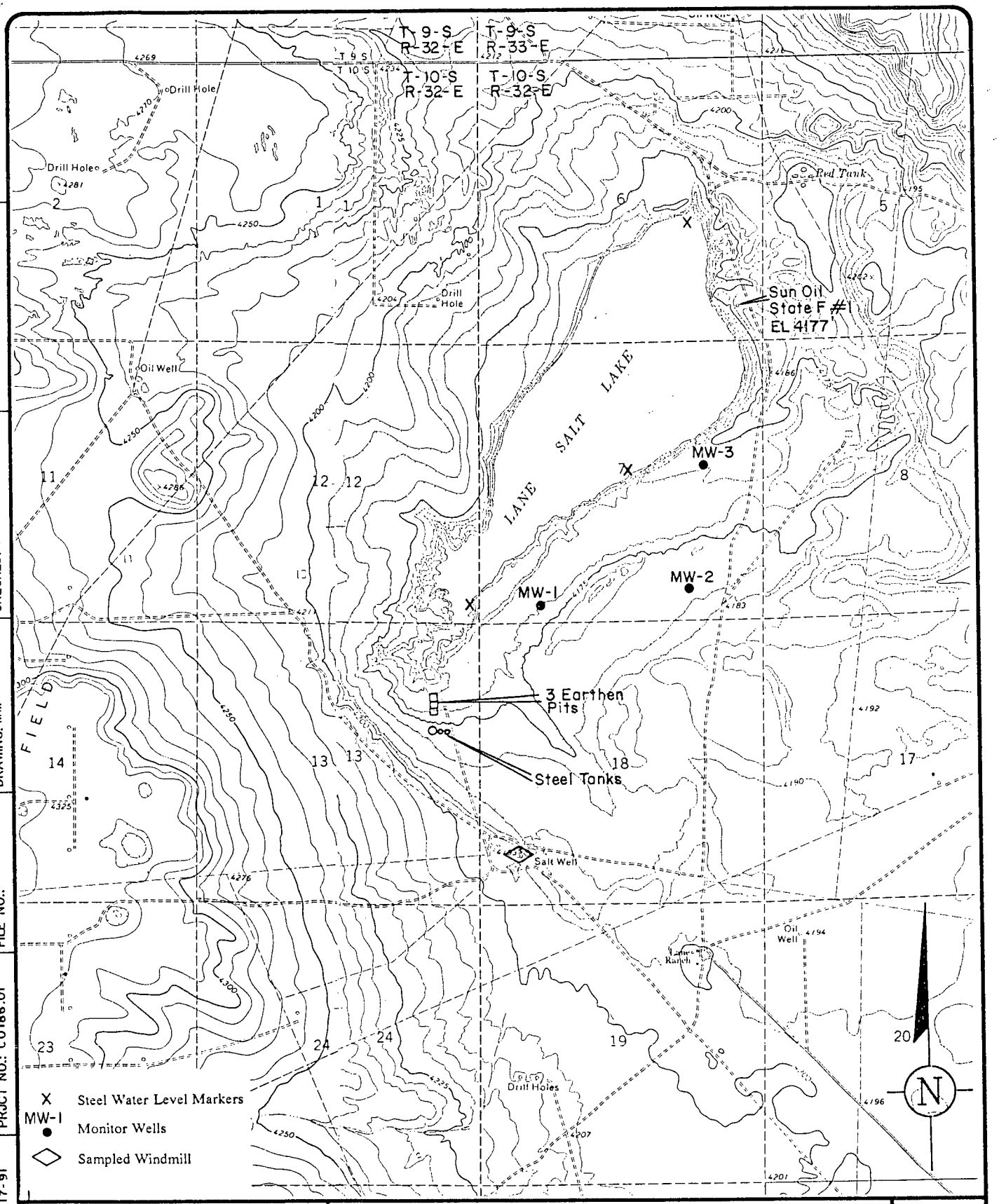
BURRO PIPELINE CORPORATION
LANE LAKE DISPOSAL FACILITY

CONTACT INFORMATION

1. Rueben Collins
   505-398-3144

2. Discovery Operating, Inc.
   915-683-5203

3. Burro Pipeline Corporation
   303-293-9379

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GERAGHTY & MILLER, INC.
*Environmental Services*

# BURRO SALT WATER DISPOSAL SYSTEM

LEA COUNTY, NEW MEXICO

FIGURE 1

BURRO PIPELINE CORPORATION
LANE LAKE DISPOSAL FACILITY

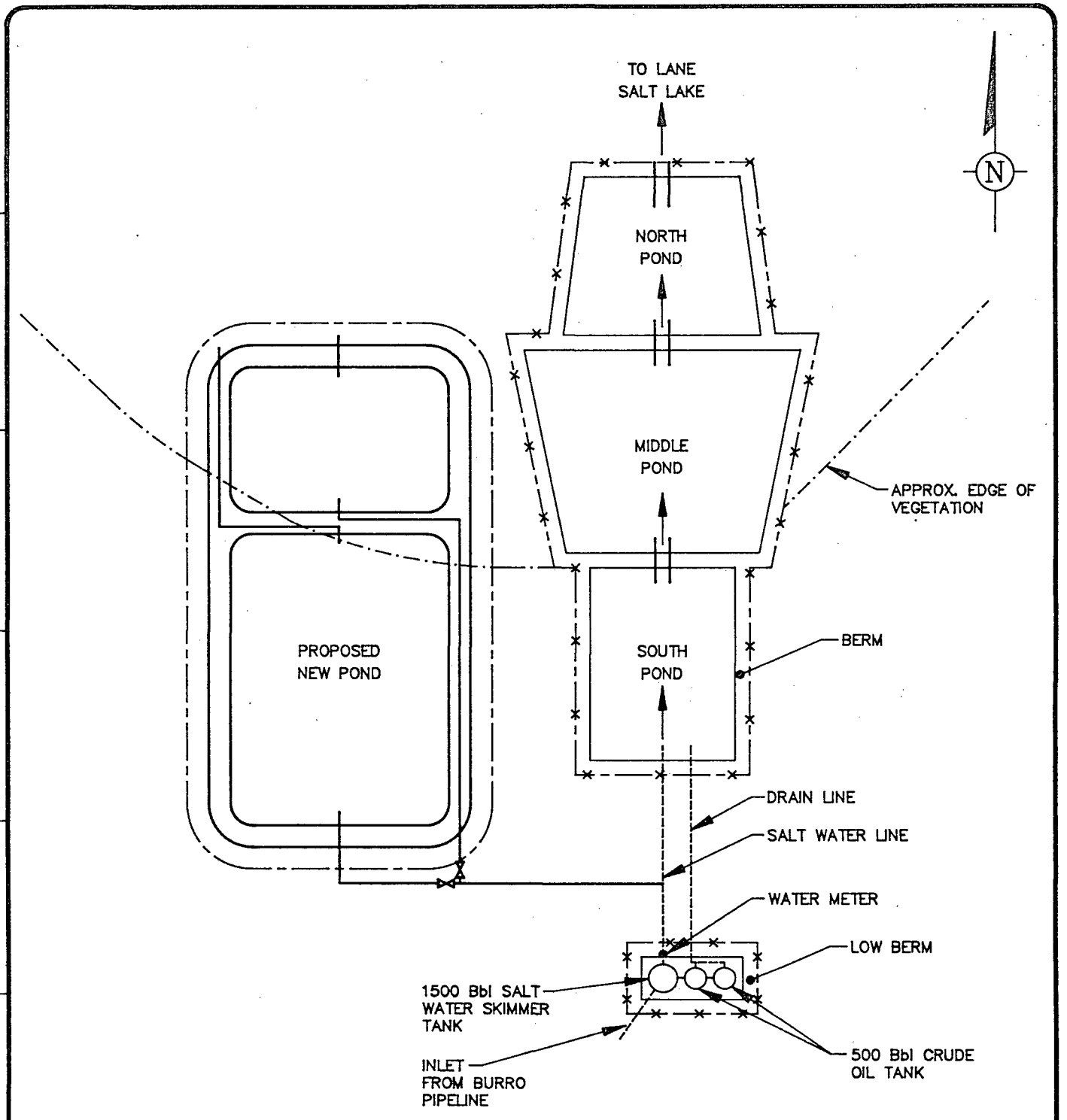
SURFACE OWNER INFORMATION

1. Carl L. Johnson (a single man)
P. O. Box 917
Tatum, New Mexico 88267

Mr. Johnson owns the surface of SW/4 Section 7, W/2 Section 18 and NW/4 Section 19, T-10-S, R-33-E. He also owns the surface of E/2 Section 13 and NE/4 Section 24, T-10-S, R-32-E.

2. New Mexico State Land Office
Attention: Commissioner of Public Lands
P. O. Box 1148
Santa Fe, New Mexico 87504-1148

The State of New Mexico owns the surface of the S/2 Section 12 and W/2 Section 13, T-10-S, R-32-E.




# SITE PLAN

APPROX. SCALE: 1"=100'

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0 100 FEET

**SETTLING POND SYSTEM**
**LANE SALT LAKE DISPOSAL FACILITY**

BURRO PIPELINE CORPORATION
DENVER, COLORADO

FIGURE

## INTRODUCTION

The Burro Pipeline Company has prepared this inspection and maintenance plan pursuant to a letter from the Oil and Conservation Division (OCD) of the Energy, Mineral and Natural Resources Department, State of New Mexico. The plan covers monitoring and sampling activities at the Burro Pipeline Lane Salt Lake Facility, also known as the Burro Salt Water Disposal (SWD) Facility, in Lea County, New Mexico (Figure 1).

## HISTORICAL SAMPLING

Three ground-water monitoring wells currently exist in the vicinity of the Burro SWD Facility. In addition, three water level marker posts are located within the Lane Salt Lake to indicate the relative elevation of the lake surface below its maximum permissible elevation (Figure 1).

Ground-water samples were taken from the three monitoring wells on December 2, 1991. The results of the analyses performed on these samples are shown in Table 1.

## SAMPLING PLAN

One ground-water sample will be collected from each of the three existing monitoring wells on a quarterly basis. The wells will be bailed and sampled from the bottom of the well so that salt water that might be migrating along the bottom of the water column would be detected. The samples will be delivered either by hand or by courier promptly after collection to an independent laboratory for analysis. Until delivery can be made to the laboratory, the samples will be kept chilled to 4°C in a cooler or refrigerator. The analytical results will be submitted to the district office of the OCD within ten working days of receipt. Each sample will be analyzed for specific conductivity, total petroleum hydrocarbons (TPH), chloride, and total dissolved solids (TDS). Because benzene, toluene, ethylbenzene, and xylene were not detected in the previous analyses, these compounds will no longer be analyzed. However, if TPH

# INSPECTION AND MAINTENANCE PLAN FOR GROUND-WATER MONITORING AT THE BURRO PIPELINE LANE SALT LAKE FACILITY

Prepared for
Burro Pipeline Company
Denver, Colorado

January, 1992

Geraghty & Miller, Inc.
*Environmental Services*
1099 18th Street, Suite 2100
Denver, Colorado 80202
(303) 294-1200

GERAGHTY & MILLER, INC.

concentrations in the monitoring wells begin to rise, inclusion of benzene, toluene, ethylbenzene, and xylenes analyses will be re-evaluated. Chloride and TDS are sufficient indicators of water quality and incursion of salt water from the Lane Salt Lake. The calcium, magnesium, sodium, bicarbonate, carbonate, sulfate, hardness, and pH analyses will no longer be performed because they provide no additional insight on the water quality over and above that gained from the chloride and TDS analyses.

The water level will be recorded from the marker stakes in the Lane Salt Lake during each monitoring well sampling round. The recorded level will reflect the distance between the zero mark on the top of the marker stake and the water surface of the lake. Water levels will also be recorded at each of the three monitoring wells. The recorded level will be the distance between the north side of the top of the well casing and the surface of the ground-water inside the well, i.e. the depth to water. The total depth of the monitoring wells will also be recorded with the water level. The water level data will be submitted to both the central and district offices of the OCD with the laboratory data from the three ground-water samples.

The integrity of the well casing visible from the surface and the cement pad anchoring the well casing at the surface will be inspected during the quarterly sampling rounds. All evidence of damage or tampering will be recorded and submitted to the OCD as an attachment to the water quality data and the water level data.

Table 1. Results of Ground-water Analyses in the Vicinity of Lane Salt Lake, Lea County, New Mexico

| ANALYTE | MW-1 | MW-2 | MW-3 |
|---|---|---|---|
| Benzene ($\mu$g/L) | ND | ND | ND |
| Toluene ($\mu$g/L) | ND | ND | ND |
| Ethylbenzene ($\mu$g/L) | ND | ND | ND |
| Xylenes ($\mu$g/L) | ND | ND | ND |
| Total Petroleum Hydrocarbons (mg/L) | 0.9 | ND | ND |
| Calcium (mg/L) | 20.1 | 44.3 | 48.4 |
| Magnesium (mg/L) | 22.8 | 34.1 | 56.9 |
| Sodium (mg/L) | 160 | 148 | 409 |
| Bicarbonate (mg/L) | 209 | 171 | 160 |
| Carbonate (mg/L) | ND | ND | ND |
| Chloride (mg/L) | 128 | 181 | 431 |
| Sulfate (mg/L) | 144 | 248 | 480 |
| Hardness (mg/L) | 154 | 292 | 384 |
| Total Dissolved Solids (mg/L) | 1090 | 1220 | 2100 |
| Conductivity ($\mu$mhos/cm) | 1180 | 1420 | 2680 |
| pH | 8.3 | 7.8 | 8.4 |

ND Not Detected

$\mu$g/L micrograms per liter

$\mu$g/L milligrams per liter

$\mu$mhos/cm micromhos per centimeter

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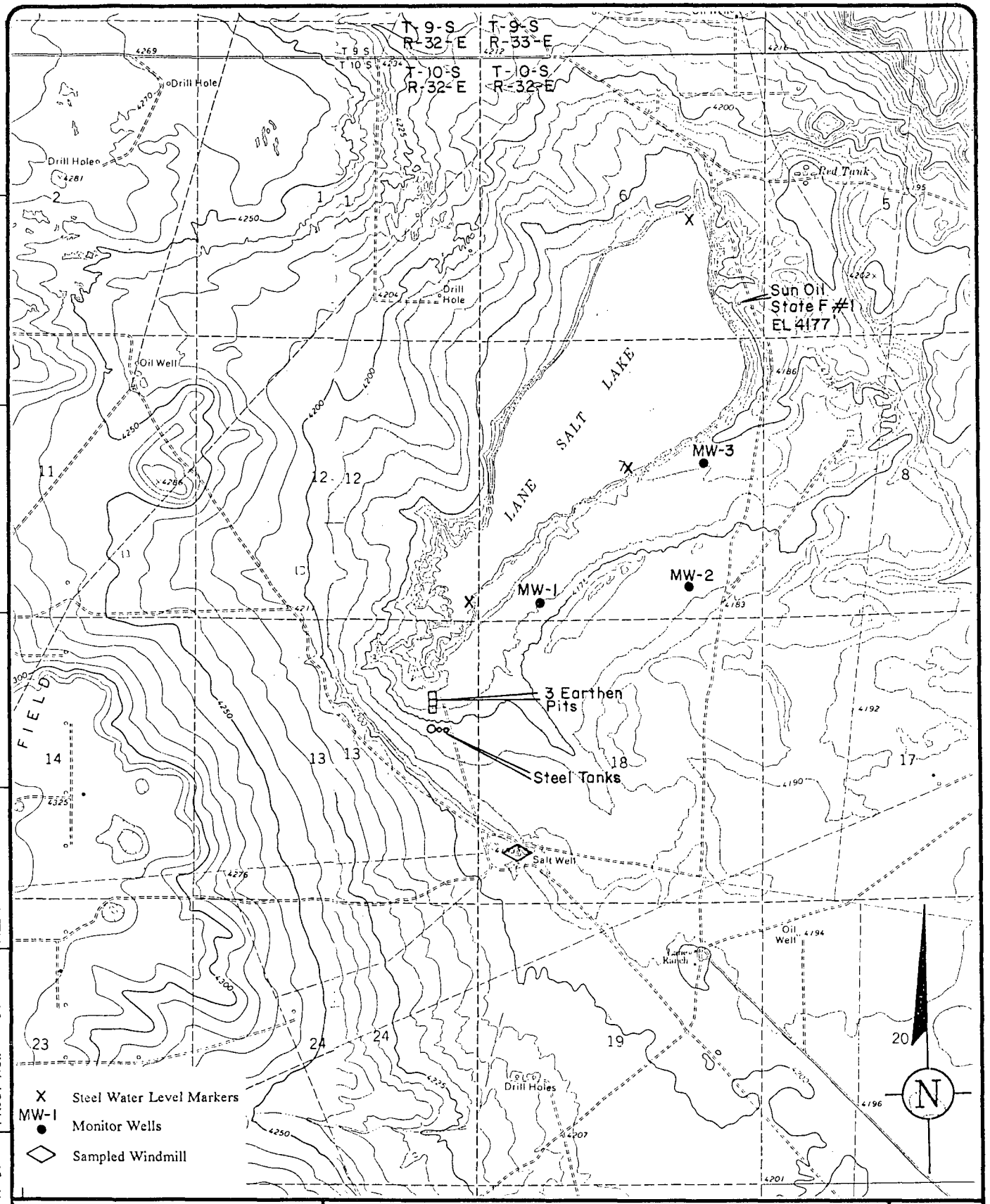


GERAGHTY & MILLER, INC.
*Environmental Services*

# BURRO SALT WATER DISPOSAL SYSTEM

LEA COUNTY, NEW MEXICO

FIGURE 1

# SPILL CONTINGENCY AND COUNTERMEASURE PLAN FOR OPERATIONS AT THE BURRO PIPELINE LANE SALT LAKE FACILITY

Prepared for
Burro Pipeline Company
Denver, Colorado

January, 1992

Geraghty & Miller, Inc.
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1099 18th Street, Suite 2100
Denver, Colorado 80202
(303) 294-1200

GERAGHTY & MILLER, INC.

## INTRODUCTION

The Burro Pipeline Company has prepared this Spill Contingency and Countermeasure (SPCC) Plan pursuant to a letter from the Oil Conservation Division (OCD) of the Energy, Mineral and Natural Resources Department, State of New Mexico. The SPCC covers the activities and operations at the Burro Pipeline Company, Lane Salt Lake Facility, also known as the Burro Salt Water Disposal (SWD) Facility, in Lea County, New Mexico. The major activity at the facility is oil and solids removal from brine produced in oil and gas operations.

## DESCRIPTION OF ACTIVITIES

The Burro SWD Facility is a central salt water gathering and disposal system located 13 miles west of Tatum, New Mexico (Figure 1). The gathering system is comprised of approximately 50 miles of pipe with approximately 110 connections. As of January 1, 1991, the system is handling approximately 4,000 to 5,000 barrels of salt water per day.

The Burro SWD Facility consists of a 1,500-barrel oil/water separator tank, two 500-barrel oil collection tanks, and three sediment settling ponds. A new lined settling pond is to be constructed in the near future.

## SPILL CONTROL PLAN

All components of the separation and storage tank system that may reasonably be expected to cause a spill will be located within a containment area.

Currently, a low berm exists around the oil/water separator and oil collection tanks. The existing spill containment area will be lined and enlarged to contain a volume greater than or equal to 1,650 barrels. The improved spill containment area will provide at least 110 percent containment of the largest tank. The lining will be a synthetic membrane compatible with oil and brine. The liner will cover the bottom and side walls of the containment area and will be

secured at the top of the berm. A liquid-tight seal will be formed between the liner and the storage tanks within the spill containment area.

## SPILL COUNTERMEASURE PLAN

A failure of any of the storage tanks will be contained within the bermed containment area. Free oil would be skimmed or pumped from the containment area into a vacuum truck. Salt water would be pumped into the settling pond. Oil absorbent material would be used to collect any remaining oil not collected by the vacuum truck.

## SPILL NOTIFICATION PLAN

In accordance with OCD Rule 116, "Notification of Fire, Leaks, Spills, and Blowouts", the district office of the OCD will be notified in the event of any "major" or "minor" spill, break, or leak. Major and minor releases are described below.

A major spill, break, or leak is defined as a release of 25 barrels or more of oil, or 100 barrels or more of salt water which does not reach a lake, stream, or watercourse; one or more barrels of oil or 25 barrels or more of salt water which does enter a lake, stream, or watercourse; or any volume of hydrocarbons, hydrocarbon waste or residue, salt water, or other deleterious chemicals or harmful contaminants of any magnitude which may with reasonable probability endanger human health or result in substantial damage to property. In this event, the district office of the OCD will be notified as soon as possible after discovery in person or by phone. If the incident occurs outside of normal business hours the District Supervisor, the Oil and Gas Inspector, or the Deputy Oil and Gas Inspector will be notified. A complete written report of the incident will be submitted in duplicate to the district office of the Oil Conservation Division within ten days after discovery of the incident.

A minor spill, break, or leak is defined as a release of 5 barrels or more and less than 25 barrels of oil, or 25 barrels or more and less than 100 barrels or salt water, none of which

reaches a lake, stream, or watercourse. In this event, the district office of the OCD will be notified via a complete written report in duplicate within ten days of discovery of the incident.

All reports of fires, breaks, leaks, or spills, whether verbal or written, will identify the location of the incident by the quarter-quarter, section, township, and range. The distance and direction from the nearest town or prominent landmark will also be supplied. The report will specify the nature and quantity of the loss, and also the general conditions prevailing in the area, including precipitation, temperature, and soil conditions. The report will also provide information on the measures that have been taken to remedy the situation being reported. The necessary information to report a major or minor spill is summarized in Table 1.

## INSPECTION AND RECORDS

Operators will inspect the integrity and tightness of the tanks and associated piping on a quarterly basis. The results of the inspection will be recorded on an Inspection Log and filed at the Burro Pipeline Company office.

Table 1. Information Summary for Spill Reporting, Burro SWD Facility, Lea County, New Mexico.

District Oil Conservation Division Office

1000 West Broadway
Hobbs, NM
(505) 393-6161

Mail:
State of New Mexico
Energy, Minerals, and Natural Resources Division
Oil Conservation Division
P.O. Box 1980
Hobbs, NM 88241

District Supervisor: Jerry Sexton
Oil and Gas Inspector:
Deputy Oil and Gas Inspector:

Site Location

SE/4 NE/4 of Section 13, T-10-S, R-32-E
13 miles West of Tatum, NM

DRAFTER: BD

APPROVED: TT

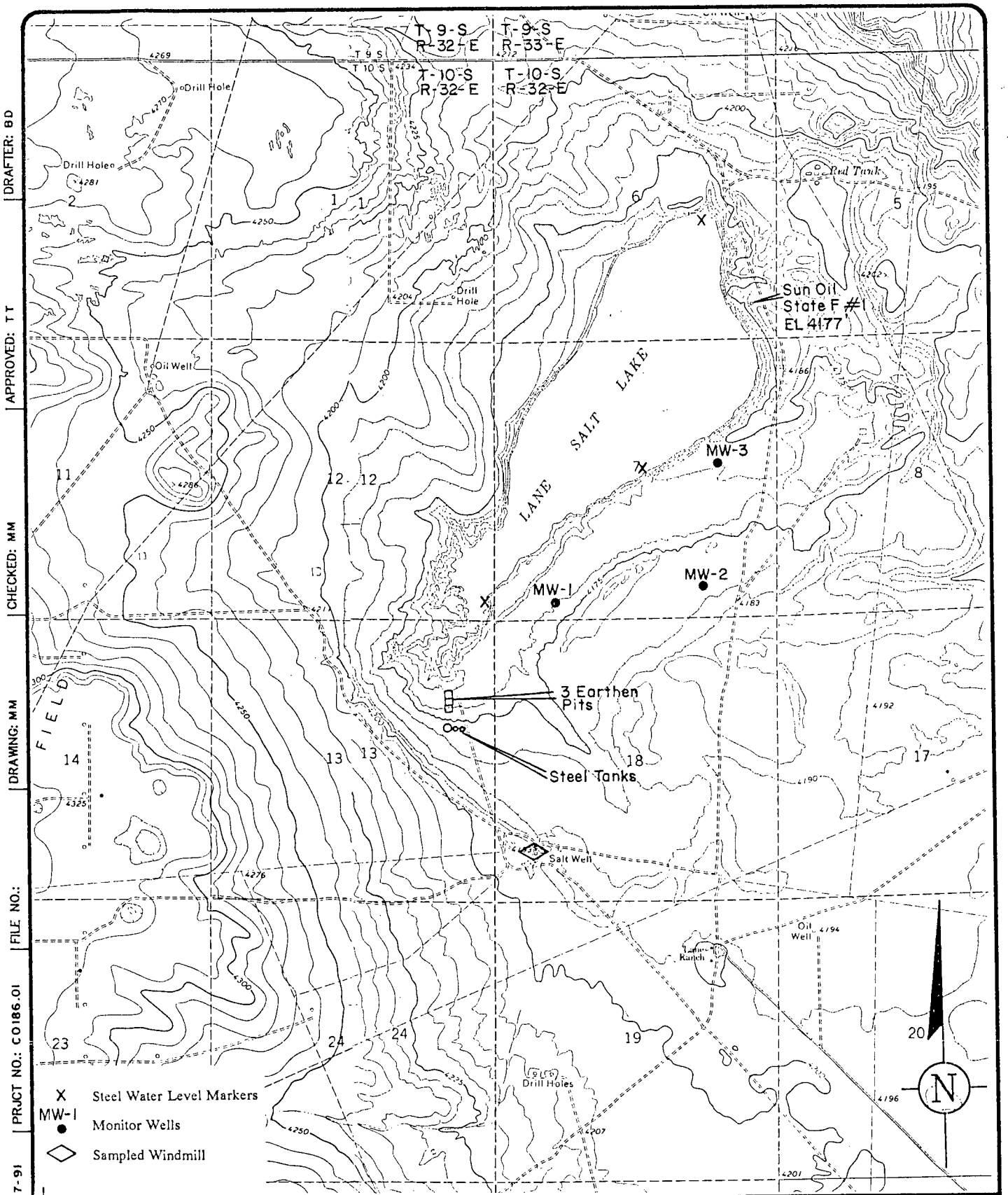
CHECKED: MM

DRAWING: MM

FILE NO.:

PRJCT NO.: C0186.01

DWG DATE: 12-17-91




GERAGHTY & MILLER, INC.
*Environmental Services*

# BURRO SALT WATER DISPOSAL SYSTEM

LEA COUNTY, NEW MEXICO

FIGURE 1

# CLOSURE PLAN FOR THE
# BURRO PIPELINE LANE SALT LAKE FACILITY

Prepared for
Burro Pipeline Company
Denver, Colorado

January, 1992

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*Environmental Services*
1099 18th Street, Suite 2100
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(303) 294-1200

GERAGHTY & MILLER, INC.

## INTRODUCTION

The Burro Pipeline Company has prepared this closure plan pursuant to a letter from the Oil Conservation Division (OCD) of the Energy, Mineral and Natural Resources Department, State of New Mexico. This plan is required by OCD Rule 711.

## FACILITY DESCRIPTION

The Burro Pipeline Lane Salt Lake Facility, also known as the Burro Salt Water Disposal (SWD) Facility, is a central salt water gathering and disposal system located 13 miles west of Tatum, New Mexico (Figure 1). The gathering system is comprised of approximately 50 miles of pipe with approximately 110 connections. As of January 1, 1991, the system is handling approximately 4,000 to 5,000 barrels of salt water per day.

The Burro SWD Facility consists of a 1,500-barrel oil/water separator tank, two 500-barrel oil collection tanks, and three sediment settling ponds. A new settling pond will be constructed in the near future.

## CLOSURE SCHEDULE

The three existing settling ponds will be closed once the new settling pond has been constructed and commissioned. The remainder of the facility will continue to operate. Final closure will depend on the performance of the operators that contribute to the gathering pipeline and cannot be predicted at this time.

The Burro Pipeline Company will notify the OCD upon final cessation of operations at the SWD Facility. It is expected that the total time required to close this facility will be longer than 6 months. Rationale for a closure period greater than 6 months is described below in the "Unit Closure" section. However, a more detailed closure schedule will be provided to OCD with the notification of cessation of operations.

## CLOSURE PROCEDURES

### UNIT DESCRIPTIONS AND MAXIMUM WASTE VOLUME

### EXISTING SETTLING PONDS

The three existing settling ponds each cover approximately 10,000 to 15,000 square feet. Maximum depth of each pond is approximately 10 feet. The ponds are constructed of compacted soil and are surrounded by individual berms. Each of the three settling ponds is about half full with sediment and sludge, containing between 2,000 and 4,000 cubic yards of sediment and sludge.

### NEW SETTLING POND

The new, lined settling pond will provide a total volume of approximately 500,000 cubic feet (18,500 cubic yards). Approximately half of this volume will contain sediment and sludge at closure if the facility remains in operation until that time.

### OIL/WATER SEPARATOR AND OIL COLLECTION TANKS

The 1,500-barrel oil/water separator tank and two 500-barrel oil collection tanks will remain in operation until facility closure. The separator tank will contain sediment and sludge. The oil tanks may contain up to 500 barrels of oil each. The oil is currently sold to an oil recycling firm; it is expected that this practice will continue. A small amount of sludge and very heavy oil may remain in the collection tanks after the oil is removed.

### TANK CONTAINMENT AREA

An improved containment area consisting of a synthetic membrane liner and berm will be constructed when the new settling pond is excavated. Soil from the existing containment area will be used to provide a protective cover over the synthetic membrane liner.

UNIT CLOSURE

EXISTING AND NEW SETTLING PONDS

All of the ponds will be closed following the same procedure.

- Free oil floating on the surface of the pond will be vacuum pumped and recycled or properly disposed at an OCD approved facility.
- The pond will be allowed to naturally drain to Lane Salt Lake to the extent possible.
- Free water will be pumped from the base of the pond. The water will be disposed of in an OCD-approved site.
- The sediment and sludge will be managed to reduce hydrocarbon residue concentrations to a level that will prevent adverse impact to the surrounding area after the ponds are closed. This management will be accomplished in one of two ways:
  - Removal of the sludge to a waste oil recycling facility, asphalt incorporation plant, or disposed in an OCD-approved site.
  - Vapor venting and bioremediation. This option is discussed in more detail below.
- The ponds will be brought up to surface grade with clean, compacted soil and covered with native vegetation or erosion control material.

Vapor venting and bioremediation of the ponds would effectively reduce the quantity of oils in the ponds to an acceptable level. This procedure could be accomplished either with the sediment and sludge in place (in situ) or after the sediment and sludge has been excavated from the ponds and placed on the ground nearby (landfarming). After remediation, excavated material would be placed back into the ponds.

The in situ option would require a longer period of time than landfarming to reduce hydrocarbon concentrations to an acceptable level. The longer length of time is due to the

difficulty in transferring hydrocarbon vapors from the sediment and sludge to the atmosphere and transferring oxygen and nutrients to the indigenous bacteria.

In situ remediation could be accomplished either by installing a forced ventilation system and fertilization system or by physically exposing the sediment and sludge to the air. The choice between these two methods will be based on the logistics of working on the sludge surface.

Vapor venting allows low molecular weight hydrocarbons to evaporate and be vented to the atmosphere. Concurrently, the additional oxygen available in the subsurface allows anaerobic bacteria to operate aerobically. Aerobic metabolism is several orders of magnitude faster than anaerobic metabolism. Consequently, aerobic bacteria oxidize hydrocarbons and reproduce at a sufficiently rapid rate to decrease hydrocarbon concentration within 6 to 24 months.

In addition to increased oxygen exposure, the bacteria may require supplemental nutrients to maximize the colony size. These nutrients are nitrogen, phosphorus, and potassium and are available as a standard fertilizer.

Landfarming is based on the same principles as in situ bioremediation. Landfarming remediation time would be shorter because the sediment and sludge could be spread in a shallow layer, permitting high oxygen exposure and rapid mixing of nutrients into the sediment and sludge.

Prior to selection of either in situ bioremediation or landfarming, a pilot test would be performed. This test would verify the efficacy of bioremediation and enable an estimate of the remediation timeframe.

OIL/WATER SEPARATOR AND OIL COLLECTION TANKS

All liquid would be removed from the tanks prior to closure. Oil will be recycled, as is the current practice. Bottom residue and sludge will be sent to an oil recycler, if possible, or disposed of at an OCD-approved site. Depending of the economics of disposal at the time of closure, the tanks could be, 1) sold or reused, 2) disposed of in an OCD-approved site, or 3) steam cleaned and disposed of at an industrial landfill. The rinsate would be disposed of at an OCD-approved site.

TANK CONTAINMENT AREA

The synthetic membrane liner will be removed and properly disposed of. Unless there is a major release in the future, the liner will be uncontaminated be either oil or brine solution. Overlaying soil will be landfarmed if there is any indication of oil contamination.

CLOSURE VERIFICATION

A statistically valid sampling plan will be developed for collection of composite samples from each of the settling ponds prior to capping. Hydrocarbon level in the remediated sediment and sludge will be at a level that will not adversely impact surrounding soil after the ponds are capped.