

BW - 10

**PERMITS,
RENEWALS,
& MODS**

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1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

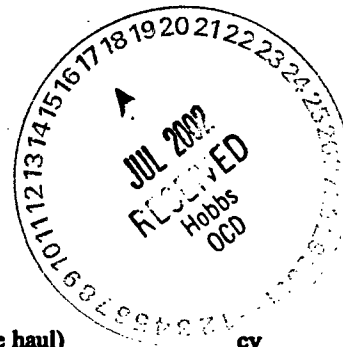
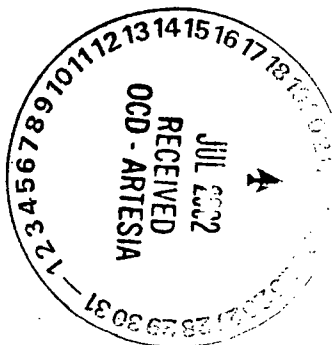
Form C-138
Revised March 17, 1999
Submit Original
Plus 1 Copy
to Appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

| | |
|---|---|
| 1. RCRA Exempt: <input type="checkbox"/> Non-Exempt: <input checked="" type="checkbox"/> Verbal Approval Received: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | 4. Generator Bureau of Land Management |
| 2. Management Facility Destination GMI Landfarm, 34 miles West of Tatum, NM | 5. Originating Site Broom Site |
| 3. Address of Facility Operator P. O. Box 1658, Roswell, NM 88201 | 6. Transporter Gandy Corporation |
| 7. Location of Material (Street Address or ULSTR) Sec 3, T-22-S, R-27-E, Eddy County, NM | 8. State NM |
| 9. Circle One: A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job. B. All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved. All transporters must certify the wastes delivered are only those consigned for transport. | |

BRIEF DESCRIPTION OF MATERIAL:

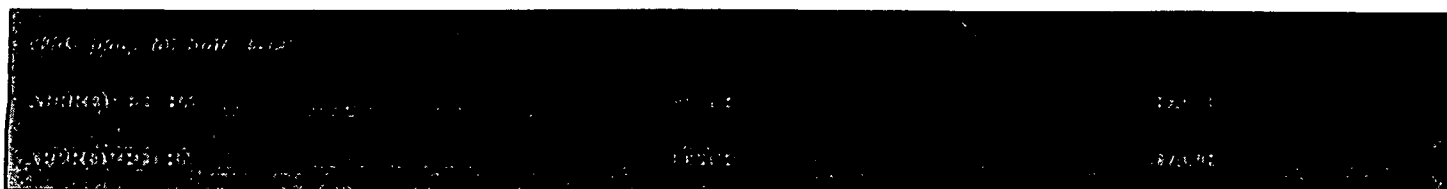
Contaminated hydrocarbons



Estimated Volume 220 cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE Larry Gandy TITLE: Vice-President DATE: 7-12-02
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: Larry Gandy TELEPHONE NO. 505-398-4960



Walter J. Gandy

Environmental Geology

8/12/02



COMMERCIAL LAND FARMS

A New Mexico Enterprise
Serving New Mexico's Needs

CERTIFICATE OF WASTE STATUS OILFIELD NON-EXEMPT WASTE MATERIAL

Originating Location: Broom Site Near Carlsbad
Sec 3, T-22-S, R-27-E, Eddy County New Mexico
Source: Contaminants from brine sales facility

Disposal Location: 34 Miles West of Tatum, NM on Hwy 380

"As a condition of acceptance for disposal, I hereby certify that this waste as defined by the Environmental Agency's (EPA) July 1988 Regulatory Determination. To my knowledge, this waste will be analyzed pursuant to the provisions of 40 CFR Part 261 to verify the nature as non-hazardous. I further certify that to my knowledge no "hazardous or listed waste" pursuant to the provisions of 40 CFR, Part 261, Subparts C and D, has been added or mixed with the waste so as to make the resultant mixture a "hazardous waste" pursuant to the provisions of 40 CFR, section 261.3 (b)."

In addition, Generator certifies that nothing has been added to the exempt or non-exempt non-hazardous waste and that this waste does not contain Naturally Occurring Radioactive Material (NORM) regulated pursuant to 20 NMAC 3.1 Subpart 1403.



I, the undersigned as the agent for Bureau of Land Management
concur with the status of the waste from the subject site.

Name Link Laceywell
Title/Agency Haz-Mat. Specialist
Bureau of Land Management
Address Carlsbad
Signature Link Laceywell
Date July 12, 2002

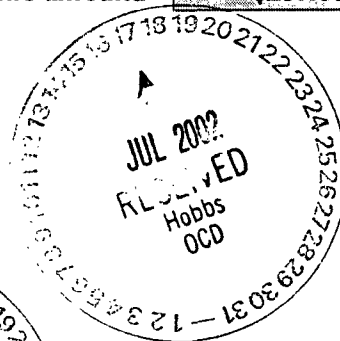
◆◆◆

**Accounts Payable
Gandy Marley, Inc.
P.O. Box 827
Tatum, NM 88267
Phone: 505-398-4960 Fax: 396-6887**

INVOICE #: 322-61

| Date | Report/ Sample | Item | Hrs | Amount |
|---------|-------------------|--|-----|-----------------|
| 4/8/02 | S1 | Sample for D698 proctor, Ramon crusher waste sample delivered to lab | | \$135.00 |
| 6/25/02 | S2 | Sample for D698 proctor, sample delivered to lab | | \$135.00 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | \$270.00 |
| | | | | \$17.55 |
| | | | | \$287.55 |

Thank you for
your business
Katy



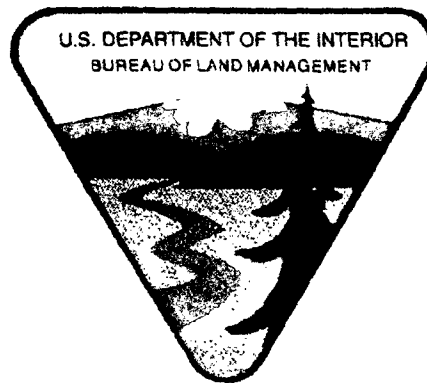
Harry Gandy
Box 827
Tatum, NM 88267

NOVEMBER 3, 1999

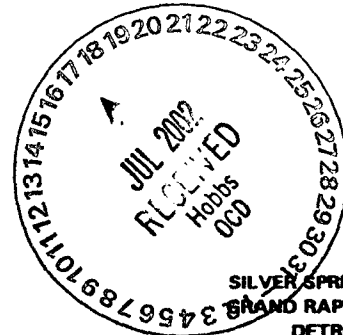
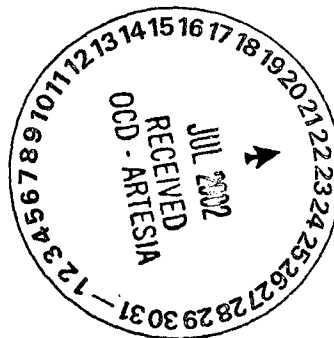
FINAL SITE CHARACTERIZATION REPORT

BROOM SITE

BLM CARLSBAD DISTRICT/FIELD OFFICE, NEW MEXICO



U.S. DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT
SITE EVALUATION SERVICES CONTRACT NO. 1422-N651-C4-3049



SILVER SPRING
GRAND RAPIDS
DETROIT
DENVER

CCJM

C.C. JOHNSON & MALHOTRA, P.C.
ENVIRONMENTAL ENGINEERS & SCIENTISTS

November 3, 1999

Mr. Ken Smith (303) 236-0206
Contracting Officer's Representative
U.S. Department of the Interior, Bureau of Land Management
National Applied Resource Sciences Center, Building 50
Denver Federal Center, Colorado 80225-0047

Contract Number 1422-N651-C4-3049, Task Order Number 99-063

Dear Mr. Smith,

C.C. Johnson & Malhotra, P.C. is pleased to submit the Final Site Characterization Report for the Broom Site, BLM Carlsbad District/Field Office, New Mexico. I have routed copies of this report as follows:

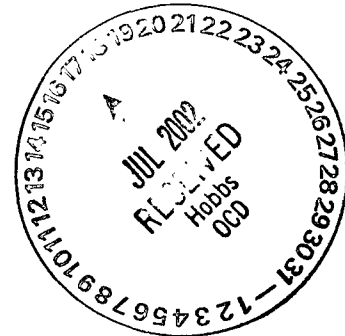
One (1) copy to Mr. Ken Morin, P.E., BLM-NARSC
One (1) copy to Dr. Karl Ford, BLM-NARSC
Three (3) copies to Mr. Link Lacewell, BLM-Carlsbad District/Field Office, New Mexico

Please let me know if you need any additional information concerning this submittal.

Very truly yours,

Thomas J. Lendel

FOR
Stephen L. Yarbrough
Project Manager, CCJM



C.C. JOHNSON & MALHOTRA, P.C.

12567 WEST CEDAR DRIVE, SUITE 220 • LAKEWOOD, CO 80228
Telephone (303) 987-2928 • Fax (303) 987-3516

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FINAL SITE CHARACTERIZATION REPORT

NOVEMBER 3, 1999

BROOM SITE

BLM CARLSBAD DISTRICT/FIELD OFFICE

Prepared By: Thomas J. Suredahl
For Stephen L. Yarbrough
Project Manager, CCJM

Date: November 3, 1999

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LIST OF ATTACHMENTS

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| Attachment #1 | General Site Location Map |
| Attachment #2 | Site Features & Sample Locations Map |
| Attachment #3 | Photo Log |
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1.0 INTRODUCTION

The United States Department of Interior, Bureau of Land Management (BLM) authorized C.C. Johnson & Malhotra, P.C. (CCJM) to conduct site characterization work at the Broom Site located near Carlsbad, New Mexico (Attachment #1). This work is being conducted under contract 1422-N651-C4-3049, Task Order Number 99-063. This report summarizes the results of sampling accomplished in June of 1999.

1.1 Site Description

The Broom Site is located at the SW¼, SE¼, Section 3, T. 22 S., R. 27 E., Eddy County, New Mexico. Geographic coordinates are 32° 24' 59" north latitude and 104° 10' 25" west longitude (USGS 1985). The site consists of an old salt water sales facility which has been inoperative since the mid 1980's. The facility was used to process salt water (brine) for oil production. A twenty-acre denuded area, where briny water is thought to have migrated, leads downgradient away from the site in three primary lobes. Additionally, there is a potential for midnight dumping to have occurred. The site has areas of soil staining and a few containerized remnant operating products/wastes. Site features are shown on Attachment #2.

Sacks of product are stacked on two pallets located near the entrance area. The sacks have become very weathered over time, their contents have spilled, and few readable identifying marks remain on them. However, the markings " K_2O " and "*?ium ?oride*" are legible on the outside of one sack. The sacks contain(ed) a white granular product similar in appearance to salt (Attachment #3, Photographs #22 and #23). Given the operating requirements of this facility, it is reasonable to conclude that the sacks contain(ed) potassium chloride. Potassium monoxide (" K_2O ") is an impurity introduced during the production of commercial-grade potassium chloride.

Site structures include an empty freshwater tank and three empty and rusted salt water tanks (Attachment #3, Photograph #2), a sump, a lined and bermed brine pit (Attachment #3, Photograph #1), a small pump house, an open trash pit and an area where potential tank dumping occurred and which still has a berm (the unlined disposal pit).

An exploratory oil well is located onsite near the Utility/Pump House. The well was drilled in 1969 by the Pennzoil Company to a total depth of 3,536 feet. It did not produce and was abandoned soon after it was drilled. A well log is on file with the Geological Survey (Serial Number: NM-0473303-A), however, the log does not include any information describing subsurface lithology and/or formations encountered.

The site lies within a plains grassland/shrub vegetative community. BLM has identified native grasses on the site including three awn, grama grass, tridens, tobossa, burro grass, and dropseed. Catclaw, mesquite, and whitethorn acacia dominate the overstory vegetation.

2.0 SCOPE AND OBJECTIVES

The scope of this task order includes three phases of work. The first phase involved derivation of a sampling and analysis plan for the purposes of guiding subsequent site characterization in the field. The second phase of the work involved performance of the site characterization. The last phase of work consists of this brief site characterization report which will present data from the June, 1999 field effort.

The objectives of the first phase of work included the following:

- Preparation, review and submittal of a Sampling and Analysis Plan with an appended Health and Safety Plan.

The objectives of the second phase of work included the following items:

- Characterization of surface water quality at the site sump;
- Characterization of the soils in the area of former brine spillage;
- Characterization of soils near the tank farm; and
- HAZCAT screening for corrosivity, reactivity and ignitability characteristics in areas of visibly stained soils and from any containerized products/wastes found on the premises.

The objective of the third phase of the task order is to incorporate all data from field characterization into a brief site characterization report. The goal of this reporting is a presentation of the data in a readily usable format. Based on the limited scope of the task order, no in-depth interpretation of the results will be made, nor has data validation been performed on the samples. A brief narrative discussion accompanies each type of data.

3.0 SAMPLING RESULTS

Sampling at the Broom Site consisted of one surface water sample, eleven solid matrix samples (soils and sediments), three solid samples for naturally occurring radioactive material (NORM) screening, and six samples for HAZCAT screening. Sample locations are shown on Attachment #2. No ground water or air pathway samples were requested. Soil pH, electrical conductance (EC) and photoionization detector results were measured in the field for nine of the eleven solid matrix samples.

3.1 Surface Water Sampling Results

The only surface water sample requested under this task order is from an onsite sump. Standing water was present in this location during the June, 1999 field effort and it was collected as surface water sample BRO-SW-1. The total metals results for this sample are provided in Table 3.1-1 and the organics results are provided in Table 3.1-2.

There were no exceedances of EPA's Maximum Contaminant Levels (MCLs) or BLM's Risk Management Criteria (RMCs) for metals in this surface water sample. The thallium sample result for BRO-SW-1 was reported as a non-detect with a detection limit of 3.2 µg/L. The MCL for thallium is 2 µg/L. In any regard, this sump water is not considered a drinking water supply. In terms of ambient water quality criteria (AWQCs) for metals, there were two exceedances: the aluminum value was slightly greater than three times the AWQC, and the silver value was more than 39 times greater than the AWQC. There was aquatic life observed in the sump water during the field effort.

The results for organic contaminants found three detections in the sump surface water. The volatile organic acetone was detected at 210 µg/L (parts per billion). Two pesticides were also detected in minor concentrations: alpha-BHC at 0.0028 µg/L and alpha-chlordane at 0.026 µg/L. There is no published MCL for acetone in drinking water. The National Institute for Occupational Safety and Health (NIOSH) pocket guide lists the IDLH (immediately dangerous to life and health) value for acetone at 2,500 parts per million.

Table 3.1-1; Surface Water Sample Results - Total Metals (ug/L)

| Analyte | BRO-SW-1 Standing Water in Sump 6/22/99 | BLM SW - RMCs (CAMPER) | Maximum Contaminant Level (MCL) | Ambient Water Quality Criteria (AWQC) |
|------------------|--|---------------------------------------|--|--|
| Aluminum | 494 | NP | NP | 150 |
| Antimony | 2.43 | 124 | 6 | 1,600 |
| Arsenic | 6.86 | 93 | 50 | 190 |
| Barium | 1,130 | NP | 2,000 | NP |
| Beryllium | 1.05 | NP | 4 | NP |
| Cadmium | 0.310 U | 155 | 5 | 11 |
| Calcium | 147,000 | NP | NP | NP |
| Chromium | 1.59 | NP | 100 | NP |
| Cobalt | 1.57 | NP | NP | NP |
| Copper | 2.65 | 11,490 | 1,300 | 12 |
| Iron | 463 | NP | NP | NP |
| Lead | 1.71 U | 50 | 15 | 3.2 |
| Magnesium | 25,200 | NP | NP | NP |
| Manganese | 107 | 1,548 | NP | NP |
| Mercury | 0.073 U | 93 | 2 | 0.12 |
| Nickel | 3.54 | 6,194 | 100 | 620 |
| Potassium | 918,000 | NP | NP | NP |
| Selenium | 2.77 U | 1,548 | 50 | 35 |
| Silver | 4.7 | 1,548 | NP | 0.12 |
| Sodium | 2,730,000 | NP | NP | NP |
| Thallium | 3.71 U | NP | 2 | NP |
| Vanadium | 4.57 | NP | NP | NP |
| Zinc | 53.1 | 92,909 | NP | 110 |

NP = Not Published

Table 3.1-2; Surface Water Sample Results - Organics (ug/L)

| | |
|--|---------------|
| BRO-SW-1 | |
| Standing Water in Sump | |
| 6/22/99 | |
| Volatile Organic Compounds | |
| Acetone | 210 |
| Semi-volatile Organic Compounds | |
| ND | |
| Pesticides | |
| Alpha-BHC | 0.0028 |
| Alpha-Chlordane | 0.026 |
| Polychlorinated Biphenyls | |
| ND | |

ND = Not Detected

3.2 Solid Matrix Sampling Results

A set of eleven solid matrix samples were collected for this site characterization effort. The task order called for ten soils. The samples were designated as follows:

- A background surface soil, BRO-SL-1 (Attachment #3, Photograph #3), located approximately 200 feet south of the northwest corner of the fenced enclosure;
- A stained surface soil BRO-SL-2 (Attachment #3, Photograph #4) collected immediately downgradient of the pump house;
- A sediment sample, BRO-SL-3, obtained from the brine pit (Attachment #3, Photographs #5 and #6);
- A sediment sample, BRO-SL-4, collected from the sump which was collocated with BRO-

- SW-1 (Attachment #3, Photograph #7);
- A soil sample, BRO-SL-5, collected from the low point in the former trash pit location (Attachment #3, Photographs #8 and #9);
- A stained surface soil sample, BRO-SL-6, collected from a low point of the unlined disposal pit area (Attachment #3, Photographs #10 and #11). Note: Attachment #2 shows an area labeled "Suspected Waste Oil Dump Area" located immediately upgradient of this location. Any dumped waste oil would have flowed into and pooled at the location where BRO-SL-6 was collected. Surface soil sample BRO-SL-6 is considered representative of both locations;
- A surface soil sample, BRO-SL-7, obtained from the northern-most point in the denuded area (Attachment #3, Photograph #13);
- A surface soil sample and its blind duplicate, BRO-SL-8 and BRO-SL-10 respectively, located approximately halfway out to the southern-most point of the denuded area;
- A surface soil sample, BRO-SL-9, obtained near the southern-most end of the denuded area (Attachment #3, Photograph #14); and,
- A yellow-stained surface soil sample, BRO-SL-11, collected along the top of the berm near the eastern corner of the brine pit (Attachment #3, Photograph #15).

The results for total metals in solid matrix samples are provided in Table 3.2-1. The organics results for the solid matrix samples are included in Table 3.2-2. Elevated concentrations of metals were found in several of the solid matrix samples. Sample BRO-SL-2 (stained soil adjacent to the pump house) contained cadmium, sodium, and zinc in concentrations greater than three times the background sample concentrations for those inorganic constituents. Calcium and magnesium were detected in a concentration more than ten times the background result. Sample BRO-SL-3 (brine pit sediment) contained calcium at more than three times background and sodium at more than 100 times the background sample result. The sediment sample from the sump (BRO-SL-4) contained magnesium at greater than three times the background soil concentration and calcium and sodium at more than ten times the background results. The trash pit soil sample (BRO-SL-5) contains barium, cadmium, silver, sodium, and zinc at concentrations greater than three times background and calcium at a level more than ten times background. The unlined, bermed disposal pit (BRO-SL-6) contained cadmium, chromium, copper, lead, mercury, sodium, and zinc at greater than three times background concentrations. Barium and calcium in this sample were at levels greater than ten times the background concentration. Samples BRO-SL-8, BRO-SL-9, and BRO-SL-10 all contained levels of sodium more than 100 times the background concentration. This is good evidence that the offsite migration of a spill was concentrated salt water (brine). Sample BRO-SL-9 also was found to contain nickel at a level more than three times background. Sample BRO-SL-11 had detections of antimony, chromium, sodium, and zinc at concentrations much greater than 100 times background; and also had calcium and thallium at levels more than ten times background. This sample comes from a highly visible yellow-stained surface soil. The staining is very limited in areal extent.

Organic results for the solid matrix samples revealed no detections of semivolatile contaminants, and no polychlorinated biphenyls. There was a minor concentration of methylene chloride in sample BRO-SL-5 (1.2 µg/kg). No other volatile organics were detected. Six different organochlorine pesticides were detected. Pesticide hits were 1 µg/kg or less, with the exception of a value of 9.5 µg/kg for aldrin in sample BRO-SL-6 (the unlined, bermed disposal pit). In addition, organophosphorus pesticides were analyzed in sample BRO-SL-11, the yellow-stained solid material from the top of the berm, but no pesticides were detected in this sample. Seven of the solid matrix samples revealed no detection for total recoverable petroleum hydrocarbons (TRPH). Three samples did contain TRPH in significant concentrations, as follows: BRO-SL-2 (3,700 ppm or mg/kg), BRO-SL-4 (2,600 ppm), and BRO-SL-6 (11,000 ppm). All three of these samples showed visual evidence of dark staining, indicative of petroleum residue. The laboratory case narratives (see Attachment #5) indicate that dilutions were necessary for these three samples for the semivolatile analysis due to matrix effects. Reported detection limits are consequently higher and no positive target compounds were reported. The laboratory raw data also includes some reports of tentatively identified compounds (TIC's) for several samples. It is noteworthy that brine pit sample BRO-SL-3 was heavily stained black and yet TRPH was not detected in that sample.

Final Site Characterization Report
Broom Site
November 3, 1999

Table 3.2-1; Solid Matrix Sample Results - Total Metals mg/kg

| Analyte | BRO-SL-1 6/22/99 Background | BRO-SL-2 6/22/99 Pump House | BRO-SL-3 6/22/99 Brine Pit | BRO-SL-4 6/22/99 Sump | BRO-SL-5 6/22/99 Trash Pit | BRO-SL-6 6/22/99 Unlined Pit | BRO-SL-7 6/22/99 Denuded Area | BRO-SL-8 6/22/99 Denuded Area | BRO-SL-9 6/22/99 Denuded Area | BRO-SL-10 6/22/99 Dup. of BRO-SL-8 | BRO-SL-11 6/23/99 Brine Pit Berm (CAMPER) | BLM RMC's |
|-----------|-----------------------------------|-----------------------------------|----------------------------------|-----------------------------|----------------------------------|------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--|---|--------------|
| Aluminum | 8,350 | 2,830 | 4,300 | 2,590 | 7,740 | 12,700 | 16,100 | 14,800 | 13,500 | 14,300 | 5,880 | NP |
| Antimony | 0.44 | 0.25 | 0.22 | 0.1799 U | 0.86 | 0.63 | 0.49 | 0.56 | 0.61 | 0.58 | 47*** | 50 |
| Arsenic | 2.27 | 1.63 | 1.52 | 1.96 | 3.46 | 3.52 | 3.99 | 3.97 | 2.86 | 3.75 | 0.76U | 20 |
| Barium | 73.6 | 138 | 56.5 | 219 | 292.0* | 5,550** | 198 | 109 | 103 | 101 | 162 | NP |
| Beryllium | 0.46 | 0.14 | 0.16 | 0.09 | 0.24 | 0.45 | 0.63 | 0.68 | 0.65 | 0.61 | 0.37 | NP |
| Cadmium | 0.0310 U | 0.118* | 0.06 | 0.08 | 0.245* | 0.282* | 0.0310 U | 0.0310 U | 0.0310 U | 0.0310 U | 0.155U | 70 |
| Calcium | 3,790 | 135,000** | 33,800* | 160,000** | 171,000** | 83,300** | 6,200 | 2,960 | 3,720 | 2,990 | 53,400** | NP |
| Chromium | 9.51 | 7.19 | 5.32 | 4.17 | 25.70 | 59.5* | 13.00 | 13.80 | 12.50 | 12.50 | 24,700*** | NP |
| Cobalt | 3.42 | 1.32 | 1.48 | 1.23 | 2.69 | 2.06 | 5.23 | 5.27 | 5.25 | 5.10 | 4.74 | NP |
| Copper | 6.08 | 3.58 | 3.04 | 5.59 | 15.50 | 19.2* | 9.79 | 9.83 | 8.91 | 9.44 | 1.29 | 5,000 |
| Iron | 7,280 | 3,210 | 3,560 | 3,210 | 11,200 | 13,100 | 12,500 | 12,700 | 11,700 | 11,900 | 5,910 | NP |
| Lead | 6.96 | 4.97 | 4.03 | 8.74 | 11.20 | 30.0* | 7.98 | 8.01 | 8.73 | 7.71 | 3.90 | 1,000 |
| Magnesium | 3,280 | 44,800** | 1,720 | 16,100* | 3,950 | 6,250 | 3,360 | 3,480 | 3,610 | 3,180 | 2,290 | NP |
| Manganese | 176 | 89.8 | 82.2 | 47.3 | 112 | 120 | 237 | 242 | 305 | 236 | 128 | 19,000 |
| Mercury | 0.01 | 0.012 U | 0.012 U | 0.012 U | 0.03 | 0.046* | 0.02 | 0.02 | 0.012 U | 0.01 | 0.012U | 40 |
| Nickel | 6.48 | 2.68 | 3.00 | 2.87 | 7.12 | 9.33 | 10.50 | 10.40 | 41.3* | 9.70 | 5.48 | 2,700 |
| Potassium | 2,050 | 619 | 792 | 1,430 | 1,390 | 2,600 | 2,750 | 2,550 | 2,730 | 2,590 | 1,050 | NP |
| Selenium | 0.50 | 0.2774 U | 0.2774 U | 0.2774 U | 0.34 | 0.60 | 0.48 | 0.96 | 0.77 | 0.59 | 1.39U | 700 |
| Silver | 0.0333 U | 0.0333 U | 0.0333 U | 0.0333 U | 0.272* | 0.09 | 0.0333 U | 0.0333 U | 0.0333 U | 0.0333 U | 0.166U | 700 |
| Sodium | 40.5 | 164* | 21,000*** | 1,340** | 154* | 255* | 13,300*** | 6,200*** | 4,890*** | 6,260*** | 5,640*** | NP |
| Thallium | 0.3708 U | 0.3708 U | 0.3708 U | 0.3708 U | 0.3708 U | 0.3708 U | 0.3708 U | 0.3708 U | 0.3708 U | 0.3708 U | 4.2** | NP |
| Vanadium | 12.20 | 8.35 | 6.28 | 7.02 | 9.44 | 15.30 | 17.30 | 18.70 | 15.00 | 15.30 | 10.50 | NP |
| Zinc | 24.1 | 132* | 29.4 | 59.0 | 114* | 99.6* | 29.1 | 28.8 | 42.7 | 26.7 | 13,500*** | 40,000 |

> 3x background = *

> 10x background = **

> 100x background = ***

NP - Not Published.

Final Site Characterization Report
Broom Site
November 3, 1999
Table 3.2-2: Solid Matrix Sample Results - Organics

| Parameter | BRO-SL-1 6/22/99 Background | BRO-SL-2 6/22/99 Pump House | BRO-SL-3 6/22/99 Brine Pit | BRO-SL-4 6/22/99 Sump | BRO-SL-5 6/22/99 Trash Pit | BRO-SL-6 6/22/99 Unlined Pit | BRO-SL-7 6/22/99 Denuded Area | BRO-SL-8 6/22/99 Denuded Area | BRO-SL-9 6/22/99 Denuded Area | BRO-SL-10 6/22/99 Dup. of BRO-SL-8 | BRO-SL-11 6/23/99 Brine Pit Berm |
|---|-----------------------------------|-----------------------------------|----------------------------------|-----------------------------|----------------------------------|------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--|--|
| Volatile Organic Compounds (ug/kg) | | | | | | | | | | | |
| Methylene Chloride | ND | ND | ND | ND | 1.2 | ND | ND | ND | ND | ND | NA |
| Semi-volatile Organic Compounds (ug/kg) | | | | | | | | | | | |
| | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pesticides - Organochlorine (ug/kg) | | | | | | | | | | | |
| 4,4-DDD | ND | ND | ND | ND | 1.0 | ND | ND | ND | ND | ND | ND |
| 4,4-DDE | ND | ND | ND | ND | ND | ND | ND | 0.29 | 0.48 | 0.29 | ND |
| Aldrin | ND | ND | ND | ND | ND | 9.5 | ND | ND | ND | ND | ND |
| Alpha-BHC | ND | ND | 0.15 | ND | ND | ND | ND | ND | ND | ND | ND |
| Dieldrin | ND | ND | ND | ND | 0.57 | ND | ND | ND | ND | ND | ND |
| Gamma-Chlordane | ND | ND | ND | ND | 0.11 | ND | ND | ND | ND | ND | ND |
| Polychlorinated Biphenyls (ug/kg) | | | | | | | | | | | |
| | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Total Recoverable Petroleum Hydrocarbons (mg/kg) | | | | | | | | | | | |
| TRPH | 10 U | 3,700 | 10 U | 2,600 | 10 U | 11,000 | 10 U | 10 U | 10 U | 10 U | NA |
| Pesticides - Organophosphorus (ug/kg) | | | | | | | | | | | |
| | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | ND |

ND = Not Detected

NA = Not Analyzed

3.3 Drum Sampling Results

Sample BRO-CW-1 was collected from a 5-gallon drum inside the pump house onsite. The sample was a non-aqueous liquid, but would not ignite in a HAZCAT screening (sample BRO-HAZ-4). It was analyzed for total metals and organics (Tables 3.3-1 and 3.3-2, respectively). Results indicate that the material in the drum contains arsenic, chromium, copper, iron, lead, manganese, nickel and zinc at levels greater than the site's sump surface water concentrations. The drum was also determined to contain a few organic constituents including bis(2-ethylhexyl)phthalate, and nine pesticides. Of the nine pesticides, the highest values were for heptachlor epoxide (1.8 µg/L), alpha-BHC (1.4 µg/L), and endrin aldehyde (1.2 µg/L). Total recoverable petroleum hydrocarbons (TRPH) was very low in the sample (1 µg/L).

Table 3.3-1; Drum Sample Results - Total Metals (ug/L)

| BRO-CW-1 Drum Sample 6/23/99 | |
|------------------------------------|---------|
| Aluminum | 259 |
| Antimony | 2.7 |
| Arsenic | 60.9 |
| Barium | 92.8 |
| Beryllium | 0.28 U |
| Cadmium | 0.59 |
| Calcium | 221,000 |
| Chromium | 7.13 |
| Cobalt | 2.47 |
| Copper | 37.3 |
| Iron | 5,420 |
| Lead | 5.66 |
| Magnesium | 12,500 |
| Manganese | 366 |
| Mercury | 3.6 U |
| Nickel | 6.41 |
| Potassium | 27,200 |
| Selenium | 2.77 U |
| Silver | 0.33 U |
| Sodium | 176,000 |
| Thallium | 3.71 U |
| Vanadium | 1.68 |
| Zinc | 726 |

Table 3.3-2; Drum Sample Results - Organics

| | |
|--|--------------|
| BRO-CW-1 | |
| Drum Sample | |
| 6/23/99 | |
| Total Recoverable Petroleum Hydrocarbons (mg/L) | |
| TRPH | 1.0 |
| Semivolatile Organic Compounds (ug/L) | |
| Bis (2-ethylhexyl) Phthalate | 18 |
| Pesticides (ug/L) | |
| Alpha-BHC | 1.4 |
| Gamma-BHC (Lindane) | 0.055 |
| Alpha-Chlordane | 0.56 |
| 4,4'-DDE | 0.15 |
| 4,4'-DDT | 0.47 |
| Endosulfan-I | 0.64 |
| Endosulfan-II | 0.34 |
| Endrin Aldehyde | 1.2 |
| Heptachlor Epoxide | 1.8 |

3.4 HAZCAT Field Screening Results

A Sensidyne HAZCAT kit was used to provide rapid screening of site materials for RCRA waste characteristics of reactivity, ignitability, and corrosivity. This kit was utilized to broaden the characterization of site materials without incurring fixed-base laboratory costs for a larger set of samples (Attachment #3, Photograph #19). A total of six samples were screened and were designated BRO-HAZ-1 through BRO-HAZ-6. Results are provided in Attachment #3.

Generally, none of the six samples were determined to be ignitable, reactive, or corrosive. Sample BRO-HAZ-6 was found to be combustible (i.e. burnable but not RCRA-ignitable). HAZCAT samples BRO-HAZ-2 (Attachment #3, Photograph #20) and BRO-HAZ-4 were submitted for total metals and organics analysis, as samples BRO-SL-11 and BRO-CW-1, respectively. Sample BRO-

HAZ-1 came from weathered bags of material left onsite on a pallet. These bags contain(ed) potassium chloride (Attachment #3, Photographs #22 and #23). Samples BRO-HAZ-3, BRO-HAZ-4, and BRO-HAZ-5 (Attachment #3, Photograph #21) were collected from drums in the pump house labeled as motor or lubricant oils.

3.5 Soil pH, Electrical Conductivity and Photoionization Detector Results

Nine solid matrix samples were evaluated for soil pH, electrical conductance and photoionization detector responses. Soil pH and electrical conductance were determined by preparing a 1:1 slurry of soil and distilled water and by measuring pH and EC with the Horiba U-10 combination meter (SSSA, 1996). The methodology for this work is taken directly from *Soil Science Society of America, Special Publication Number 49*. A handheld MiniRAE photoionization detector was used to make field measurements for volatile constituents in samples. Numeric results of this field screening are provided in Table 3.5-1.

Sample BRO-SL-1 through BRO-SL-9 were found to have pH values between 7.93 and 8.89. The exception to this was sample BRO-SL-5 which had a pH measurement of 11.0. The pH of 11 is very basic, however, it does not meet or exceed the RCRA pH characteristic for hazardous aqueous waste of 12.5. Sample BRO-SL-5 came from the bottom of the trash pit which appeared to have been dug through a caliche layer, possibly explaining some of the reason for the high pH value.

The highest electrical conductivities were recorded for samples BRO-SL-3 (brine pit), and BRO-SL-8 through BRO-SL-10 (all from the denuded areas downgradient of the site). These elevated conductivities are not surprising based on typically higher conductivity values characteristic of salts and the known presence of brine in the pit. The offsite migration of brine likely caused the denuded landscape downgradient of the site and is evidenced by the higher EC values obtained there and the higher sodium values found at these sample locations (Table 3.2-1).

The highest photoionization detector (PID) values ranged from 0.7 parts per million (ppm) to 15.5 ppm. The highest values came from sample BRO-SL-2 (dark-stained soil near the pump house - 3.3 ppm), BRO-SL-6 (the unlined, bermed disposal pit/ darkly stained - 15.5 ppm), and BRO-SL-9 (far south end of the denuded area - 5.7 ppm). The high PID readings at BRO-SL-2 and BRO-SL-6 correlate with the higher TRPH values obtained at those locations (3,700 ppm and 11,000 ppm, respectively).

Final Site Characterization Report
Broom Site
November 3, 1999

Table 3.5-1: Soil pH, Electrical Conductivity, and Photoionization Detector Results

| Sample | BRO-SL-1 6/22/99 Background | BRO-SL-2 6/22/99 Pump House | BRO-SL-3 6/22/99 Brine Pit | BRO-SL-4 6/22/99 Sump | BRO-SL-5 6/22/99 Trash Pit | BRO-SL-6 6/22/99 Unlined Pit | BRO-SL-7 6/22/99 Denuded Area | BRO-SL-8 6/22/99 Denuded Area | BRO-SL-9 6/22/99 Denuded Area |
|----------------------------|-----------------------------------|-----------------------------------|----------------------------------|-----------------------------|----------------------------------|------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Soil pH | 8.03 | 8.46 | 7.93 | 8.46 | 11 | 7.01 | 7.09 | 8.4 | 8.89 |
| Electrical Conductivity | 0.209 uS/cm | 0.437 uS/cm | 51.6 uS/cm | 3.49 uS/cm | 0.136 uS/cm | 0.180 uS/cm | 12.6 uS/cm | 9.5 uS/cm | 14.6 uS/cm |
| PID Reading | 0.7 ppm | 3.3 ppm | 1.8 ppm | 1.3 ppm | 1.5 ppm | 15.5 ppm | 1.5 ppm | 0.7 ppm | 5.7 ppm |

3.6 Naturally Occurring Radioactive Material (NORM) Sampling Results

A total of three solid matrix samples were screened for NORM using a Victoreen 190 radiation meter. These samples were designated BRO-NORM-1 through BRO-NORM-3. Sample BRO-NORM-1 was collected from the scale build-up found inside a section of pipe left onsite (Attachment #3, Photograph #16). Sample BRO-NORM-2 was collected from tank bottom material in the large onsite tank labeled "freshwater" (Attachment #3, Photograph #17). Sample BRO-NORM-3 came from the large storage tank onsite that is the second tank from the southwest end of the line of tanks. This tank was highly corroded and the sample was collected by spooning tank bottom material through a rusted-out panel on the side of the tank (Attachment #3, Photograph #18).

A background radiation level was measured in the Lakewood office of CCJM for comparison to the field samples. None of the three samples collected in the field emitted radiation that appreciably deviated from background. Results are provided in Table 3.6-1.

Table 3.6-1: Naturally Occurring Radioactive Material (NORM) Results

| Sample | BRO-NORM-1 Pipe Scale 7/23/99 | BRO-NORM-2 Freshwater Tank 7/23/99 | BRO-NORM-3 2 nd Saltwater Tank 7/23/99 | BACKGROUND CCJM Office 7/23/99 |
|--------|-------------------------------------|--|---|--------------------------------------|
| Result | 27.5 uR/Hr | 28.9 uR/Hr | 39.5 uR/Hr | 39.4 uR/Hr |

3.7 Data Quality Assurance/Quality Control

Data validation was not specified for this data set, thus the results tables, as presented, have not included any qualifiers that may have been applied based on data validation protocols. The laboratory has indicated in their case narratives, which accompanied the data packages, that there were some quality control difficulties, apparently due mostly to matrix interferences. Copies of those case narratives are included in Attachment #5 in order to provide a summary of the quality control outliers. A number of samples required dilutions due to matrix problems, causing higher detection limits and no positive results for most organic target analytes at the higher dilution factor. In addition, the laboratory supplied raw data for a number of tentatively identified compounds in some samples. There were indications in the samples of hydrocarbon contaminants that were not part of the target compound list. These may also have contributed to the matrix interference problems.

Samples BRO-SL-8 and BRO-SL-10 are a field duplicate pair. The results for these two samples do not indicate any sampling or analytical precision problems.

4.0 DISCUSSION

Results of the site characterization effort have revealed the following useful information:

- The site has not revealed a NORM problem.
- The site sump surface water contains acetone, minor pesticide detections, and levels of aluminum and silver that exceed ambient water quality criteria.
- The denuded areas offsite are high in sodium concentration, as expected, but contain no TRPH, volatile or semivolatile organics, and only trace pesticide hits.
- Three areas onsite have TRPH detections that are significant, including the stained surface soil near the pump house, the stained soil in the unlined, bermed disposal pit, and the sump sediment. The volume of contaminated soil in the unlined disposal pit is unknown, but believed to be widespread based on hand augering done during the field effort.
- The yellow-stained soil at the top of the brine impoundment berm, BRO-SL-11, has high concentrations of antimony (47 mg/kg), chromium (24,700 mg/kg), and zinc (13,500 mg/kg). Additional TCLP chromium analysis of this sample is necessary to evaluate whether the contaminated soil is a D007 RCRA hazardous waste (leachable chromium > 5.0 mg/L). It appears that the area of contamination is limited to a single, very small, area (Attachment #3, Photograph #15). No organics, including organophosphorous pesticides, were detected at this location.
- Soil collected from the unlined pit, BRO-SL-6 (Attachment #3, Photographs #10 and #11), has elevated concentrations of the metals barium (5,550 mg/kg) and chromium (59.5 mg/kg). Additional TCLP (for barium and chromium) analyses on this sample are necessary to evaluate whether the contaminated soil is a D005 RCRA hazardous waste (leachable barium >100 mg/L) or a D007 RCRA hazardous waste (leachable chromium > 5.0 mg/L). The extent of hazardous and/or nonhazardous contamination associated with the unlined pit has not been determined.
- There is a six-month sample holding time for on samples collected for TCLP analysis. Therefore, TCLP analyses may be run until the end of 1999 on samples analyzed for total metals that are now in storage at the laboratory. No additional expense would be incurred recollecting the samples.

- Three drums of product remain onsite, none of which appear to represent a viable hazard. Two drums are apparently oil/lubricants and the third drum (BRO-CW-1) has low-level total metals and organics/pesticide concentrations.
- Two pallets near the site's storage tanks have weathered bags that contain(ed) potassium chloride, likely used in the brine tanks to increase salt concentration. Potassium chloride is harmful if swallowed, inhaled, or absorbed through the skin. It also causes eye and skin irritation. If it is discarded in its purchased form, it is not hazardous waste either by listing or by characteristic. A local permitted solid waste disposal facility should be advised of the condition of these bags prior to their disposal.
- If site remedial activities are undertaken, the State of New Mexico has a voluntary cleanup program. This program is regulated under 20 NMAC 6.3 "Voluntary Remediation." The webpage www.nmenv.state.nm.us/ offers relevant information concerning participation in the program. This information was provided by Ken Morin, BLM-NARSC, (303) 236-6418. Questions and/or concerns about BLM participation in the New Mexico, or other state-administered voluntary cleanup programs, may be directed to Mr. Morin.

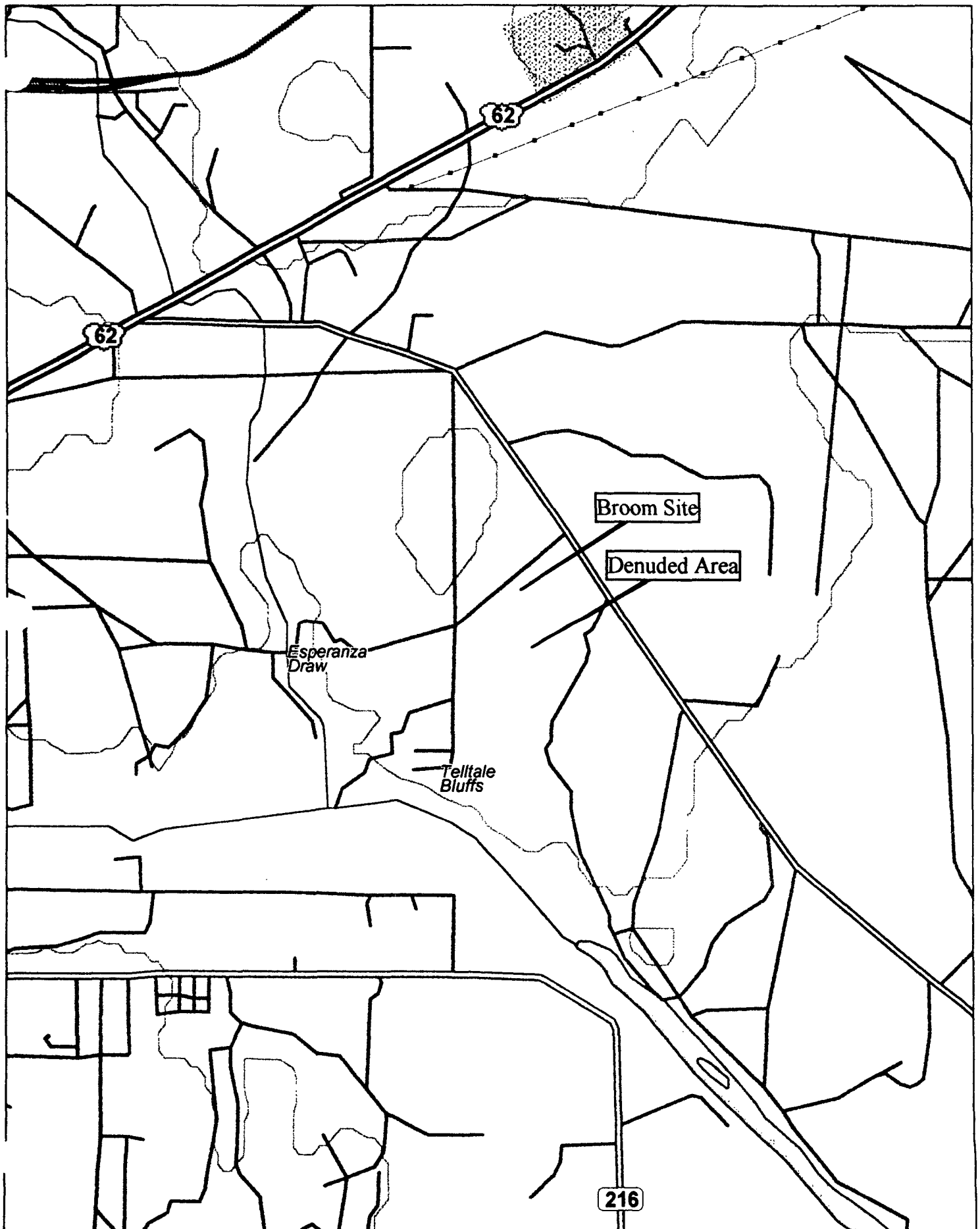
5.0 REFERENCES

- Soil Science Society of America. 1996. Methods for Assessing Soil Quality. Special Publication Number 49.
- United States Department of the Interior - Bureau of Land Management (BLM). 1989. Surface Management Status Map, Carlsbad 1:100,000 scale quadrangle.
- United States Department of the Interior - Bureau of Land Management (BLM). 1998. Phase I Environmental Site Assessment Report. Completed by Link Lacewell.
- United States Geological Survey (USGS). 1985. Carlsbad East, NM Quadrangle 7.5 minute topographic map.

ATTACHMENT #1

GENERAL SITE LOCATION MAP

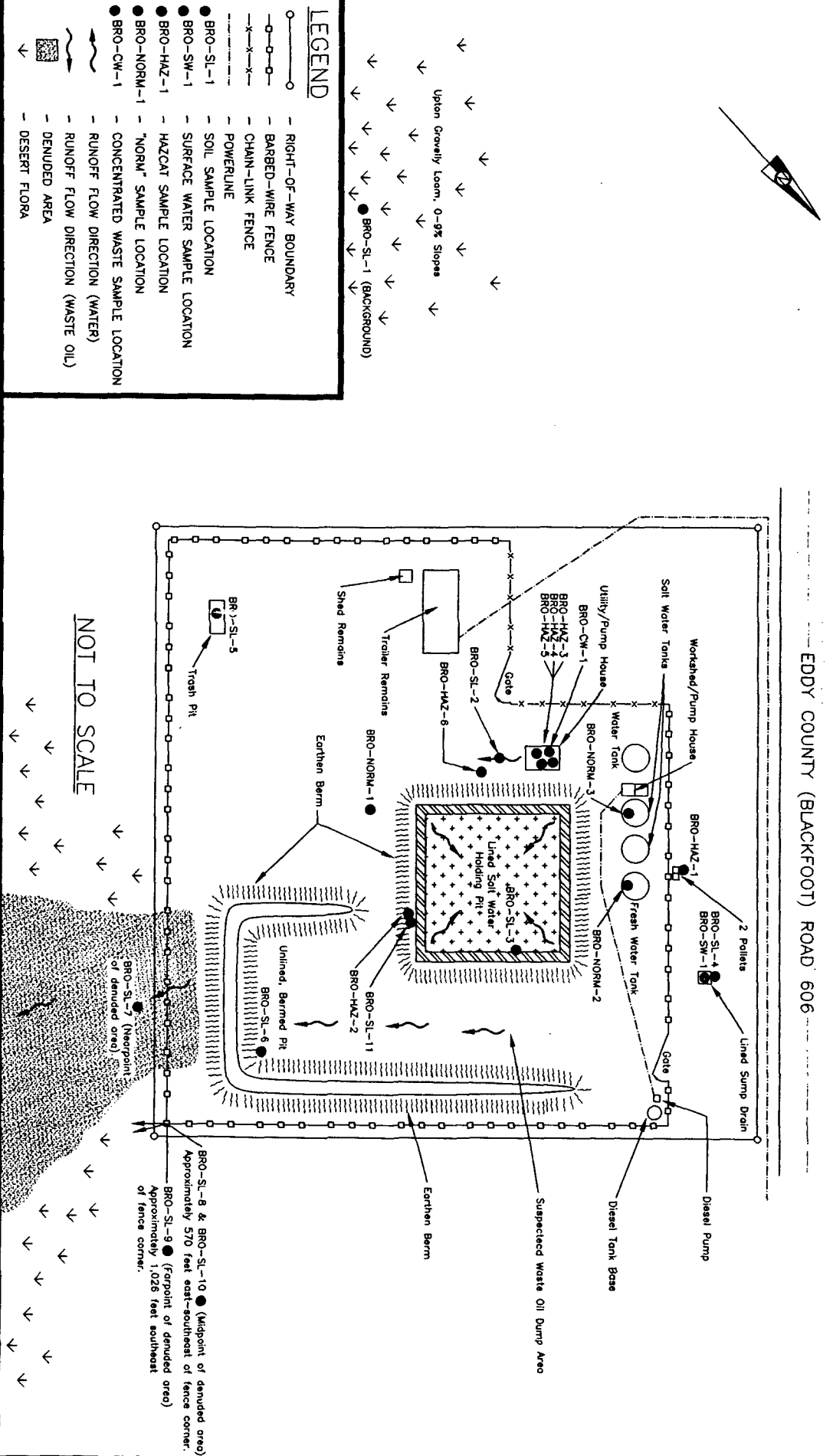
ATTACHMENT #1 - GENERAL SITE LOCATION MAP



ATTACHMENT #2

SITE FEATURES & SAMPLE LOCATIONS MAP

EDDY COUNTY (BLACKFOOT) ROAD 606



Date:
June 1999

Bureau of Land Management
Carlsbad Field Office, New Mexico
BROOM SITE
SITE FEATURES & SAMPLE LOCATIONS MAP

CCJM SILVER SPRING
DETROIT
DENVER
ENVIRONMENTAL ENGINEERS & SCIENTISTS GRAND RAPIDS
13557 W. Cedar Drive, Suite 220 • Lakewood, CO • 80228

Attachment:
2

ATTACHMENT #3

PHOTO LOG

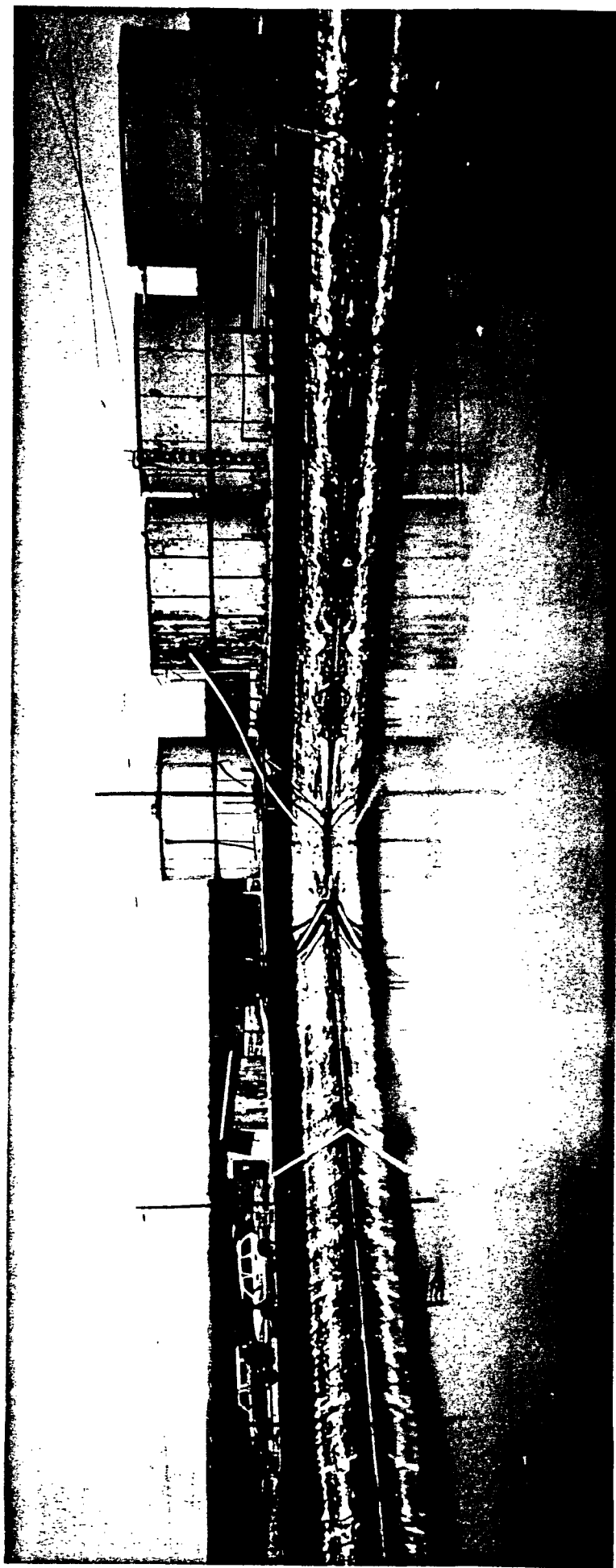


PHOTO # 1: Panoramic view of the brine impoundment and holding tanks looking west.



PHOTO # 2: View southwest at tanks used to store fresh and brine waters onsite.



PHOTO # 3: View of collection of background soil BRO-SL-1 ~200 feet south of site's NW fence corner.



PHOTO # 4: View of soil sample BRO-SL-2 in stained area adjacent to pump house.



PHOTO # 5: View looking west of sample location BRO-SL-3 (white pinflag) within the bermed brine impoundment.

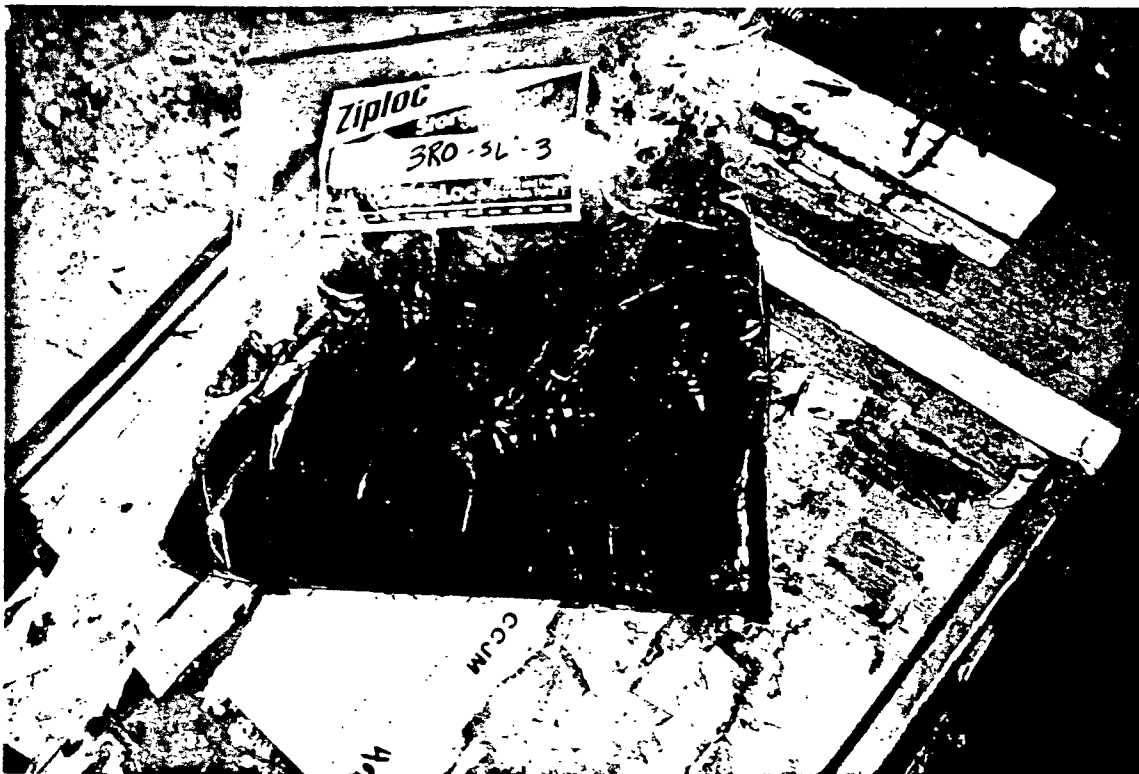


PHOTO # 6: Closeup showing dark staining in sample BRO-SL-3.



PHOTO # 7: View of site sump with an outfall pipe from a nearby drain. Samples collected here include BRO-SL-4 and BRO-SW-1.



PHOTO # 8: View looking southwest over the site's trash pit. City water plant in the background.



PHOTO # 9: View of soil sample location BRO-SL-5 from the low point of the trash pit.

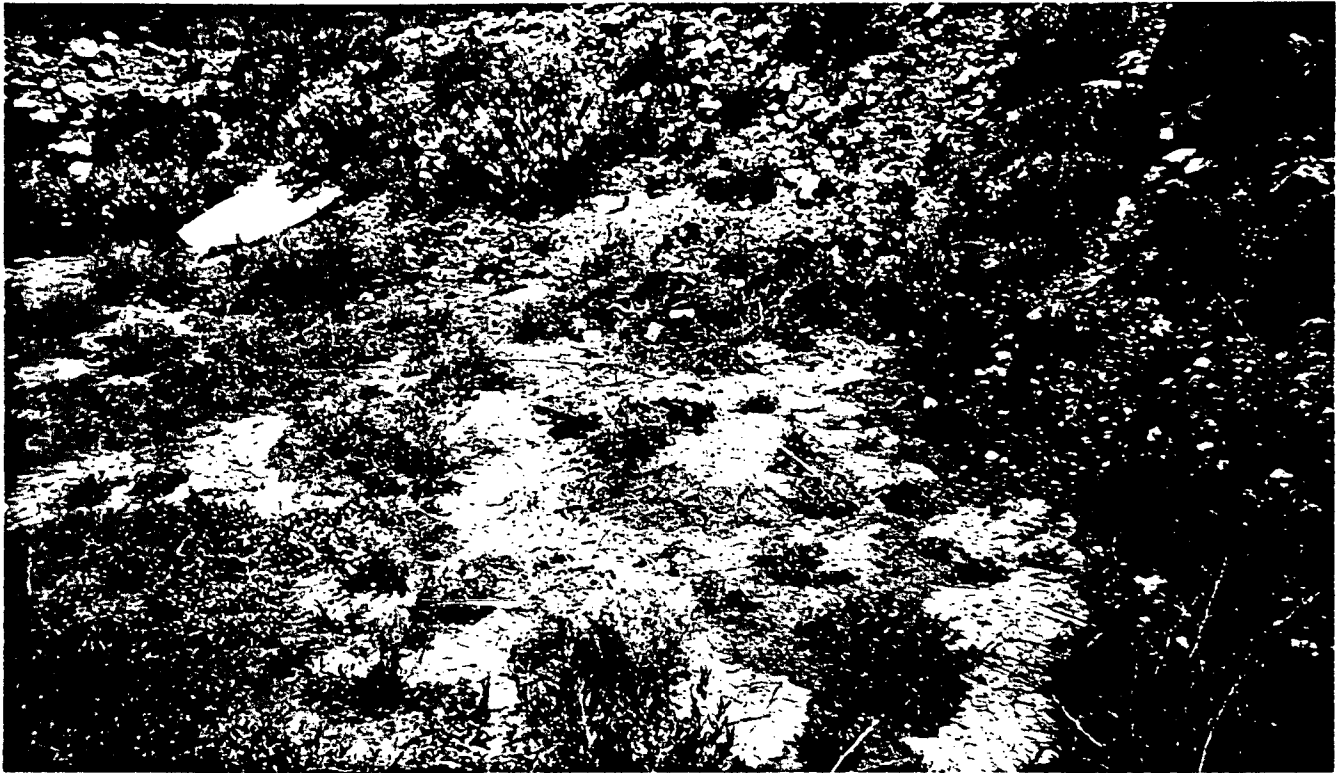


PHOTO # 10: Sample location BRO-SL-6 from the unlined , bermed disposal pit.



PHOTO # 11: View looking east over the unlined, bermed disposal pit area. Denuded areas are visible beyond the fence line.



PHOTO # 12: View looking southeast at obviously denuded areas leading downgradient from the unlined, bermed disposal pit area.



PHOTO #13: View northwest of sample location BRO-SL-7 at the northern end (Closest to the site) of the denuded area.

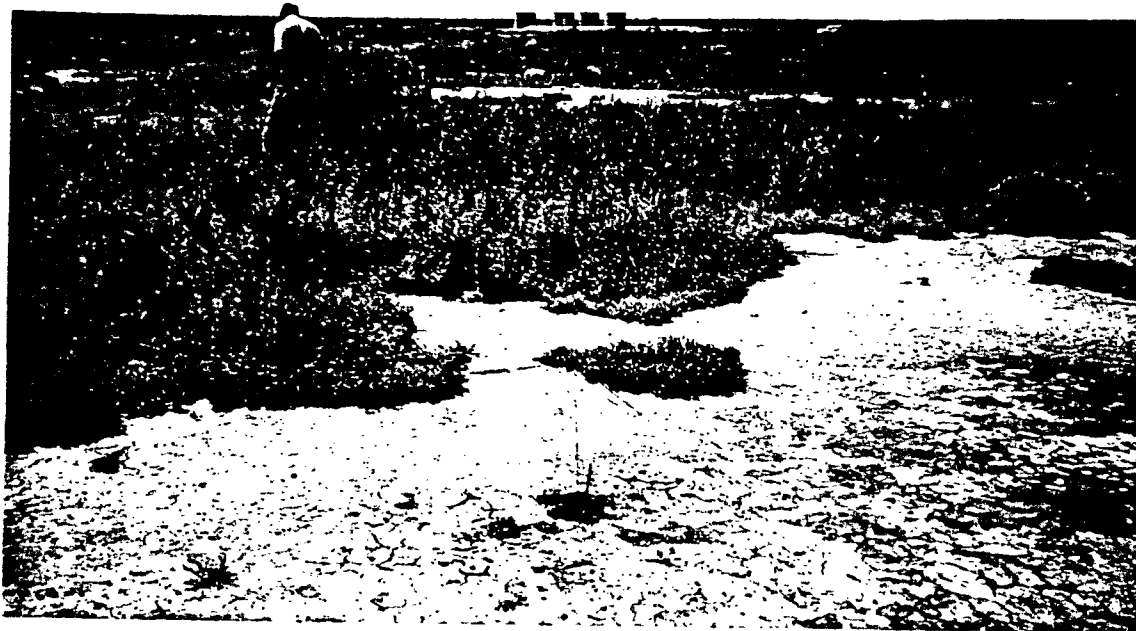


PHOTO #14: View looking northwest at sample location BRO-SL-9 for the far southeast end of the denuded area.

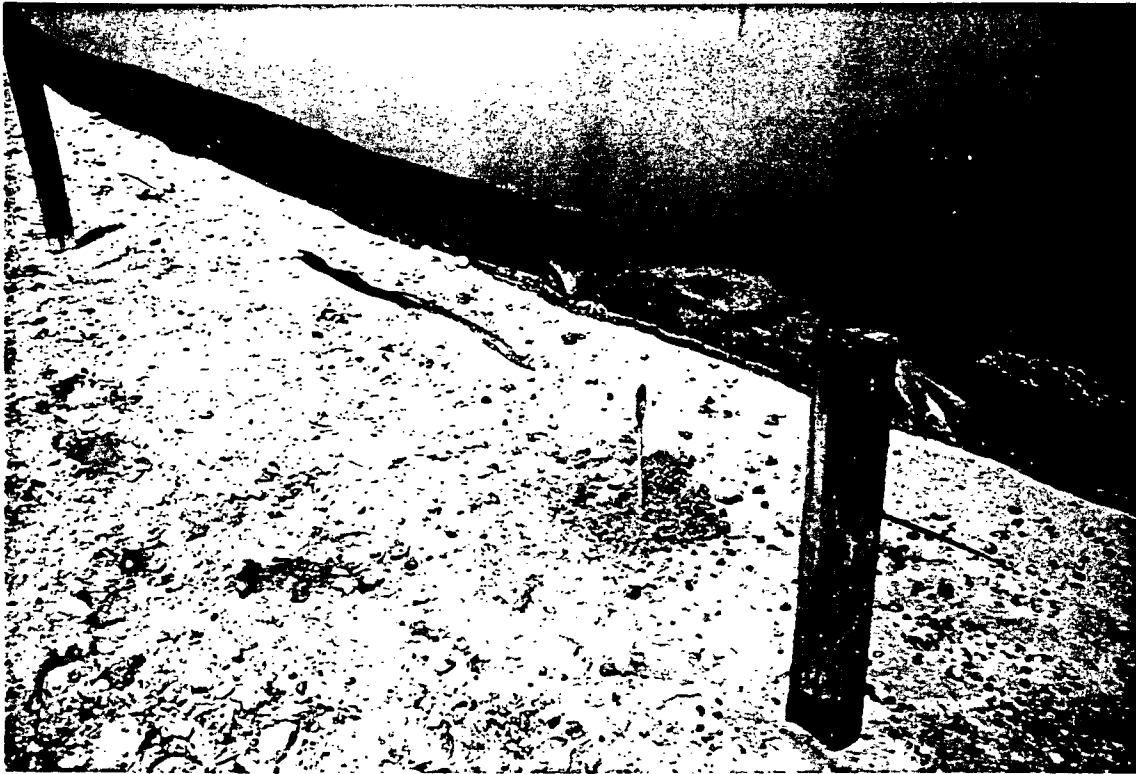


PHOTO # 15: Closeup view of bright yellow-stained soil at sample location BRO-SL-11 on the crest of the berm surrounding the brine impoundment.



PHOTO # 16: Sample BRO-NORM-1 collected from scale buildup within a pipe that was left onsite.

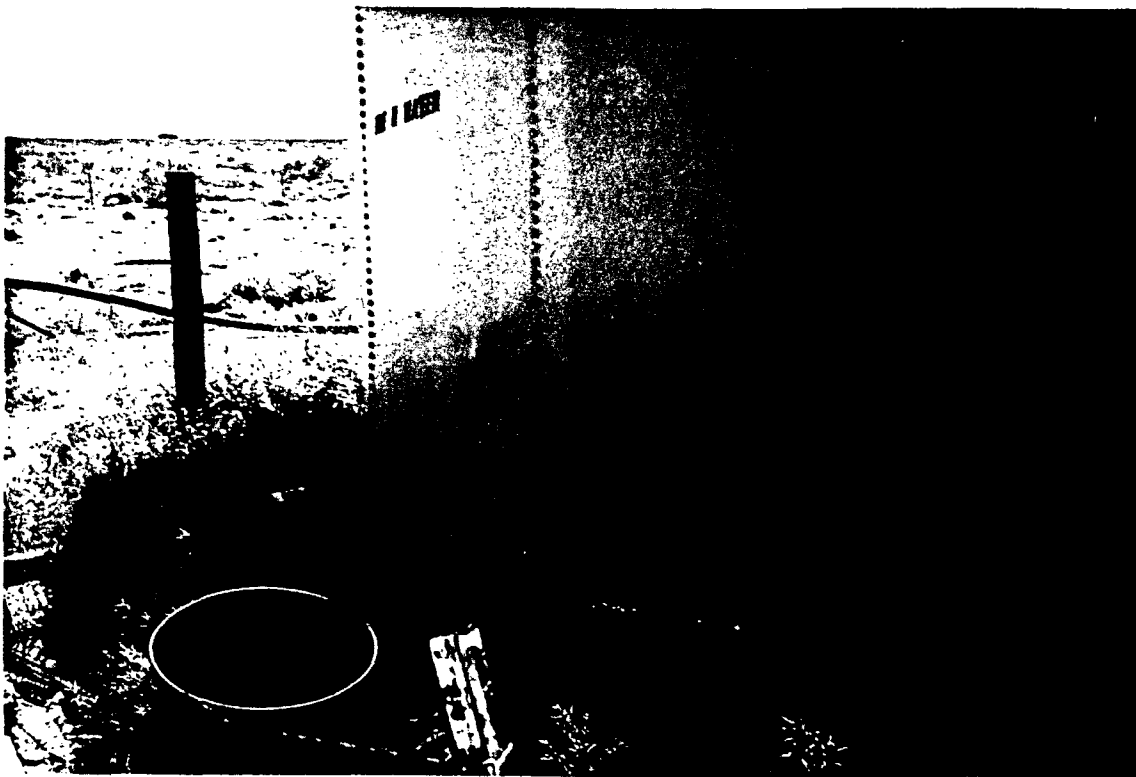


PHOTO # 17: View of tank from which sample BRO-NORM-2 was collected.

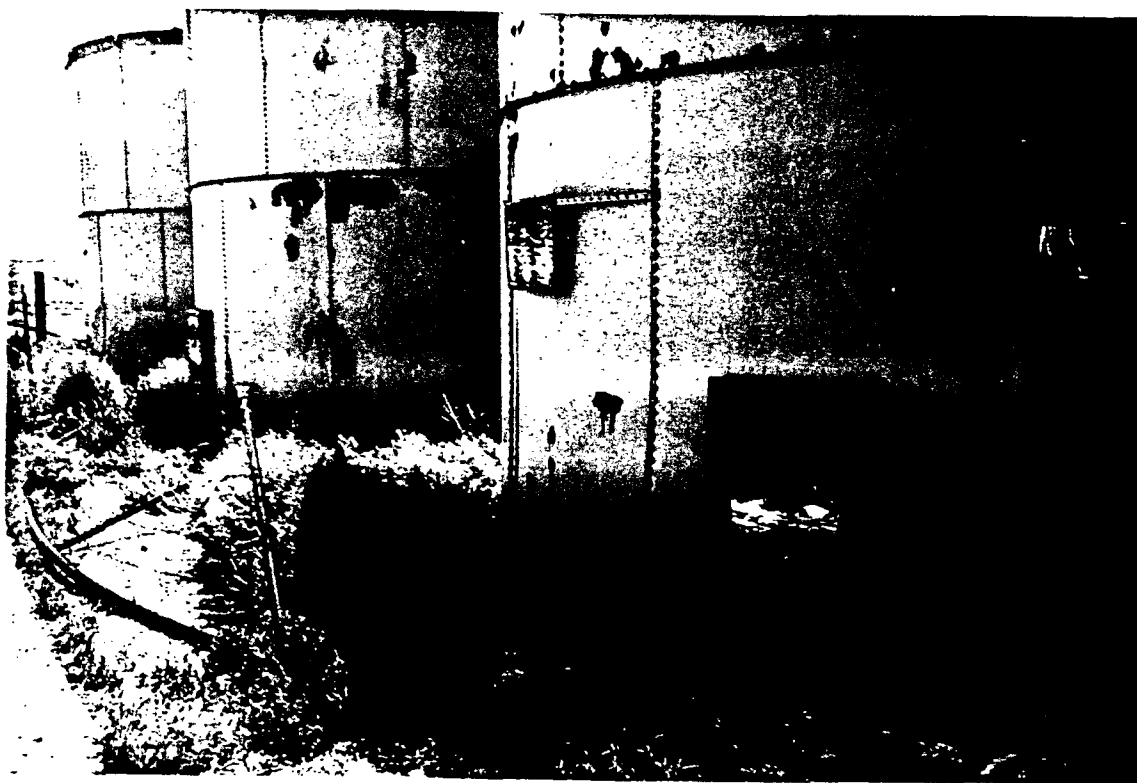


PHOTO # 18: View of sample location BRO-NORM-3 collected through rusted-out plate in tank.



PHOTO # 19: HAZCAT setup at the northwest end of the site.



PHOTO # 20: HAZCAT sample BRO-HAZ-2.



PHOTO # 21: HAZCAT samples BRO-HAZ-3,4, and 5.

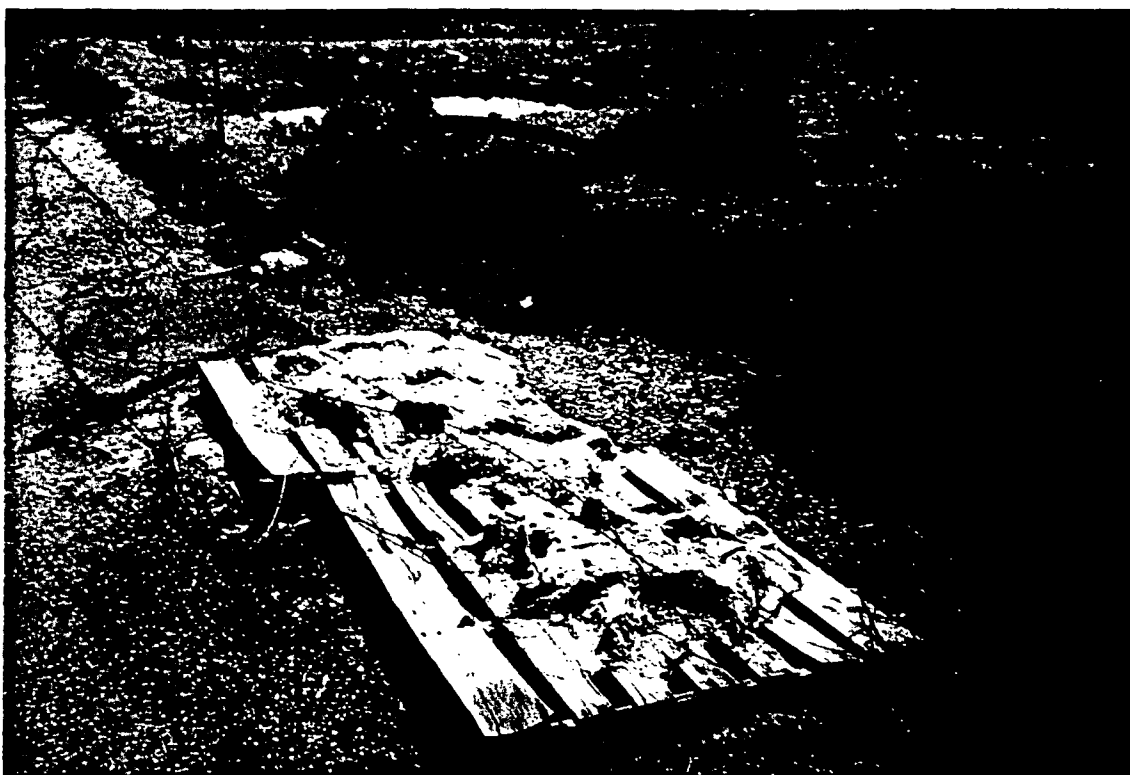


PHOTO # 22: View of pallets with weathered bags of product and the sump in the background.



PHOTO # 23: Closeup view of weathered product bags; possibly potassium chloride. Sample BRO-HAZ-1 was collected here.

ATTACHMENT #4

HAZCAT SCREENING FORMS

100

SAMPLE I.D.: _____ HNO₃/OVA READING: _____ FILTERED? _____
 DATE: _____ pH: _____ PHOTO # _____
 TIME: _____ SPECIFIC CONDUCTANCE: _____ ROLL # _____
 LOCATION: _____ TEMPERATURE: _____ PRESERVATIVE: _____
 PURGE VOLUME: _____
 SAMPLE DESCRIPTION: _____

| PARAMETERS | SAMPLE TAG # | TRAFFIC RPT. NO. | CHAIN OF CUSTODY NO. | AIRBILL NO. |
|------------|--------------|------------------|----------------------|-------------|
| BNA | | | | |
| PESTICIDE | | | | |
| VOA | | | | |
| METALS | | | | |
| OTHER | | | | |

BROOM SITE INVENTORY / HAZCAT SUMMARY SHEET

101

CONTAINER / TANK SPECIFICATIONS:

Inventory Name: BR0-HAZ-1

0.4 (Backyard)

INVENTORY DATE:
INVENTORY TIME:Type: METAL / POLY / FIBER / OTHER: NAPID (10.2) Response: 0.7 ppmHAZSPACE / OMI:
BaySize (GAL): 55 / 30 / 10 / 5 / OTHER: NA Condition: GOOD / FAIR / POOR / FRESH FILL: E / 0-25 % / 25-50 % / 50-75 % / 75-100 % / FAccessories: ☒ POOL / TRUCK / LOADER / BARRIED / OTHER: _____Apex ID: BR0-HAZ-1

Characteristics - Liquid: SOLVENT / EMULSION / OIL STRIP / GELS-GOOS / SUSPENDED SOLIDS / AQUEOUS SOLUTION

Color: _____

Characteristics - Solid: CRYSTALS / FIBERS / METALLIC FILINGS-SHAVINGS / PELLETS / GRANULAR / POWDERED / PARTICULATE

Color: WhiteHAZCAT: ☒ REQUIRED / NOT REQUIRED / OTHER: _____ Overpack Required: YES / NO

HAZCAT TEST

HAZCAT TEST

TEST RESULT:

COMMENTS:

Date: 6-23 Time: 1000Run By: TS Assessed By: _____

Water Analysis Test: _____

Water Solubility Test: _____

Acidity Test: _____

Stability Test: _____

Density Test: _____

pH Test: _____

Color Test: _____

Conductivity Test: _____

OIL Test: _____

Chemical and Water Test: _____

Other: _____

Other: _____

Other: _____

Other: _____

Other: _____

Other: _____

Other: _____

K₂O - Potassium Chloride
Bags labeled

DOT Classification: FLAMMABLE / CORROSIVE / GASEOUS / OXIDIZER / COMBUSTIBLE / EXPLOSIVE

1100

BROOM SITE INVENTORY / HAZCAT SUMMARY SHEET

CONTAINER / TANK SPECIFICATIONS:

Identifying Mark: NoneType: METAL / POLY / FIBER / OTHER: NASize (Lit): 55 / 30 / 10 / 8 / OTHER: NAAccessories: FOOT / TRUCK / LOADER / BURNED / OTHER:Agent ID: HAZ-2Observations - Liquid: SOLVENT / EMULSION / OIL STRIP / GELS-GOOS / SUSPENDED SOLIDS / AQUEOUS SOLUTIONObservations - Solid: CRYSTALS / FIBERS / METALLIC FLAKES-SHAVINGS / PELLETS / GRANULAR / POWDERED PARTICULATEHAZCAT: REQUIRED NOT REQUIRED / OTHER: Other Required: YES / NO

Additional Observations:

HAZCAT TEST

Date: 6-23 Time: 1017Ann By: TS Assisted By: ---

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

INVENTORY DATE

INVENTORY TIME

HAZCAT / OTHER

Bay

BROOM SITE INVENTORY / HAZCAT SUMMARY SHEET

CONTAINER / TANK SPECIFICATIONS:

Identifying Mark: HAZCAT 3Type: METAL / POLY / FIBER / OTHER: NASize (Lit): 55 / 30 / 10 / 8 / OTHER: NAAccessories: FOOT / TRUCK / LOADER / BURNED / OTHER:Agent ID: BKO-HAZ-3Observations - Liquid: SOLVENT / EMULSION / OIL STRIP / GELS-GOOS / SUSPENDED SOLIDS / AQUEOUS SOLUTIONObservations - Solid: CRYSTALS / FIBERS / METALLIC FLAKES-SHAVINGS / PELLETS / GRANULAR / POWDERED PARTICULATEHAZCAT: REQUIRED NOT REQUIRED / OTHER: Other Required: YES / NO

Additional Observations:

HAZCAT TEST

Date: 6-23 Time: 1053Ann By: TS Assisted By: ---

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

Water Residue Test:

INVENTORY DATE

INVENTORY TIME

HAZCAT / OTHER

Brown

1112

Yellow material in soil
Near brine pit.

Blue - Chevron DELCO 4?? (bullet hole)

Motor oil
SAE 15W-40

BROOM SITE INVENTORY / HAZCAT SUMMARY SHEET

CONTAINER / TANK SPECIFICATIONS:

Identifying Name: HAZCAT 4P10 (10/2) Response: 1.3 ppmINVENTORY DATE:
INVENTORY TIME:
HEADSPACE / OT:Type: METAL POLY / FIBER / OTHER:TOP: OPEN / CLOSED / MISSINGSize (gal): 55 / 20 / 10 / OTHER: CONDEN: GOOD / FARM / POOL PUMP FILL: E / 0-25 % / 25-50 % / 50-75 % / 75-100 %Associated: POOL TRUCK / LOADER / BURNED / OTHER: inside shed on palletAspirator ID: BR0-HAZ-4Observation: LIQUID SOLVENT / EMULSION / OL. TRAP / GELS-0005 / SUSPENDED SOLIDS / AQUEOUS SOLUTIONColor: BrownObservation: SOLIDS / FIBERS / METALLIC FILMS-SWIMMERS / PELLETS / GRANULAR / POWDERED / PARTICULATEHAZCAT: REQUIRED / NOT REQUIRED / OTHER: Overpack Required: YES / NO

Additional Observations:

HAZCAT TEST

Date: 6-23 Time: 11:14Run By: Assisted By:

Water Reaction Test:

TEST RESULT:

COMMENTS:

Water Solubility Test:

TEST RESULT:

COMMENTS:

Viscosity Test:

TEST RESULT:

COMMENTS:

Stability Test:

TEST RESULT:

COMMENTS:

pH Test:

TEST RESULT:

COMMENTS:

Density Test:

TEST RESULT:

COMMENTS:

Compressibility Test:

TEST RESULT:

COMMENTS:

Clarity Test:

TEST RESULT:

COMMENTS:

Chemical Volatile Test:

TEST RESULT:

COMMENTS:

Chemical Test:

TEST RESULT:

COMMENTS:

Notes / Observed Hazards or Concerns:

Product? Leticia Corp
Oklahoma City, OKDOT Classification: FLAMMABLE / CORROSIVE / CLUSTIC / OXIDIZER / COMBUSTIBLE / EXPLOSIVE

BROOM SITE INVENTORY / HAZCAT SUMMARY SHEET

CONTAINER / TANK SPECIFICATIONS:

Identifying Name: HAZCAT 5P10 (10/2) Response: 0.2 ppmINVENTORY DATE:
INVENTORY TIME:
HEADSPACE / OT:Type: METAL POLY / FIBER / OTHER:TOP: OPEN / CLOSED / MISSINGSize (gal): 55 / 20 / 10 / OTHER: CONDEN: GOOD / FARM / POOL PUMP FILL: E / 0-25 % / 25-50 % / 50-75 % / 75-100 %Associated: POOL TRUCK / LOADER / BURNED / OTHER: inside shed on palletAspirator ID: BR0-HAZ-5Observation: LIQUID SOLVENT / EMULSION / OL. TRAP / GELS-0005 / SUSPENDED SOLIDS / AQUEOUS SOLUTIONColor: BrownObservation: SOLIDS / FIBERS / METALLIC FILMS-SWIMMERS / PELLETS / GRANULAR / POWDERED / PARTICULATEHAZCAT: REQUIRED / NOT REQUIRED / OTHER: Overpack Required: YES / NO

Additional Observations:

HAZCAT TEST

Date: 6-23 Time: 11:32Run By: Assisted By:

Water Reaction Test:

TEST RESULT:

COMMENTS:

Water Solubility Test:

TEST RESULT:

COMMENTS:

Viscosity Test:

TEST RESULT:

COMMENTS:

Stability Test:

TEST RESULT:

COMMENTS:

pH Test:

TEST RESULT:

COMMENTS:

Density Test:

TEST RESULT:

COMMENTS:

Compressibility Test:

TEST RESULT:

COMMENTS:

Clarity Test:

TEST RESULT:

COMMENTS:

Chemical Volatile Test:

TEST RESULT:

COMMENTS:

Chemical Test:

TEST RESULT:

COMMENTS:

Notes / Observed Hazards or Concerns:

Product? Chevron Universal Gear
Lubricant SAE 80W-90DOT Classification: FLAMMABLE / CORROSIVE / CLUSTIC / OXIDIZER / COMBUSTIBLE / EXPLOSIVE

106

BROOM SITE INVENTORY/HAZCAT SUMMARY SHEET

CONTAINER / TANK SPECIFICATIONS:

Inventory Name: NonePID (10/2) Response: 0.2 ppmINVENTORY DATE:
INVENTORY TIME:Type: METAL / POLY / FIBER / OTHER: NA

Top: OPEN / CLOSED / MISSING

Size (Lit): 55 / 20 / 10 / 5 / OTHER: NA Condition: GOOD / FAIR / POOR Percent Full: E / 0-25 % / 25-50 % / 50-75 % / 75-100 % / FAssembly: FOOT / TRUCK / LOADER / BURNED / OTHER: NALiquid ID: BR0-HAZ-6

Observations - Liquid: SOLVENT / EMULSION / OIL-SYRUP / GELS-GOOS / SUSPENDED SOLIDS / AQUEOUS SOLUTION

OTHER: _____

Color: _____

Color: _____

Observations - Solid: CRYSTALS / FIBERS / METALLIC FLINGS-SHavings / PELLETS / GRANULAR / POWDERED / PARTICULATE

OTHER: _____

Color: _____

Color: Green

HAZCAT: REQUIRED / NOT REQUIRED / OTHER: _____ Overpack Required: YES / NO

Additional Observations:

HAZCAT TEST

TEST RESULT:

COMMENTS:

Date: 6/23 Time: 1040Run By: TS Assessed By: _____

Water Residue Test: _____

TEST RESULT: ✓

COMMENTS:

Water Solubility Test: _____

TEST RESULT: ✓

COMMENTS:

Water Test: _____

TEST RESULT: ✓

COMMENTS:

Solubility Test: _____

TEST RESULT: ✓

COMMENTS:

Odor Test: _____

TEST RESULT: ✓

COMMENTS:

Stability Test: _____

TEST RESULT: ✓

COMMENTS:

pH Test: 5.50/6.10TEST RESULT: ✓

COMMENTS:

Change Test: _____

TEST RESULT: ✓

COMMENTS:

Compatibility Test: _____

TEST RESULT: ✓

COMMENTS:

Color Test: _____

TEST RESULT: ✓

COMMENTS:

Change Test: _____

TEST RESULT: ✓

COMMENTS:

Change Test: _____

TEST RESULT: ✓

COMMENTS:

Notes / Observe Hazards or Concerns:

green & Fibrous material
possibly to kill algae - burns

DOT Classification: FLAMMABLE / CORROSIVE / CAUSTIC / OXIDIZER / COMBUSTIBLE / EXPLOSIVE

107

BROOM SITE INVENTORY/HAZCAT SUMMARY SHEET

CONTAINER / TANK SPECIFICATIONS:

Inventory Name: _____

PID (10/2) Response: _____ ppm

INVENTORY DATE:
INVENTORY TIME:

Type: METAL / POLY / FIBER / OTHER: _____

Top: OPEN / CLOSED / MISSING

Size (Lit): 55 / 20 / 10 / 5 / OTHER: _____ Condition: GOOD / FAIR / POOR Percent Full: E / 0-25 % / 25-50 % / 50-75 % / 75-100 % / F

Assembly: FOOT / TRUCK / LOADER / BURNED / OTHER: _____

Liquid ID: _____

Observations - Liquid: SOLVENT / EMULSION / OIL-SYRUP / GELS-GOOS / SUSPENDED SOLIDS / AQUEOUS SOLUTION

OTHER: _____

Color: _____

Color: _____

Observations - Solid: CRYSTALS / FIBERS / METALLIC FLINGS-SHavings / PELLETS / GRANULAR / POWDERED / PARTICULATE

OTHER: _____

Color: _____

Color: _____

HAZCAT: REQUIRED / NOT REQUIRED / OTHER: _____ Overpack Required: YES / NO

Additional Observations:

HAZCAT TEST

TEST RESULT:

COMMENTS:

Date: _____ Time: _____

Run By: _____ Assessed By: _____

Water Residue Test: _____

TEST RESULT: ✓

COMMENTS:

Water Solubility Test: _____

TEST RESULT: ✓

COMMENTS:

Water Test: _____

TEST RESULT: ✓

COMMENTS:

Solubility Test: _____

TEST RESULT: ✓

COMMENTS:

Odor Test: _____

TEST RESULT: ✓

COMMENTS:

Stability Test: _____

TEST RESULT: ✓

COMMENTS:

pH Test: _____

TEST RESULT: ✓

COMMENTS:

Change Test: _____

TEST RESULT: ✓

COMMENTS:

Compatibility Test: _____

TEST RESULT: ✓

COMMENTS:

Color Test: _____

TEST RESULT: ✓

COMMENTS:

Change Test: _____

TEST RESULT: ✓

COMMENTS:

Notes / Observe Hazards or Concerns:

DOT Classification: FLAMMABLE / CORROSIVE / CAUSTIC / OXIDIZER / COMBUSTIBLE / EXPLOSIVE

ATTACHMENT #5

LABORATORY CASE NARRATIVES



CORE LABORATORIES

Sample Delivery Group Narrative

July 14, 1999

Customer: CC Johnson and Malholtra

Project: Broom site

Core Laboratories Project Number: 991623

EPA 418.1 Total Recoverable Petroleum Hydrocarbons

On 7-8-99, the matrix ^{BRO-SL-6}spike duplicate and matrix spike for a client specified quality control sample 991623-6 were outside of the quality control limits at 0% and 0% recoveries. The unacceptable recoveries are due to the high concentration of the sample which required a 100 times dilution. The laboratory control sample recovery, the matrix spike recovery on sample 991623-10 (85.9%), and all other quality control analyses were acceptable. ^{BRO-SL-10}

David M. Elkin
Laboratory Supervisor

Linda L. Benkers
QA/QC Coordinator



Sample Delivery Group Narrative

July 21, 1999

Customer: CC Johnson and Malholtra

Project: A376-BLM3-CNVPO-01

Core Laboratory Project Number: 991623

CLP Metals Analysis - ICAP

BRO-SL-10
Sample 991623-10 had matrix spike (MS) and/or the matrix spike duplicate (MSD) recoveries for antimony, calcium, magnesium, and potassium outside acceptance criteria. The post digestion spikes (PDS) and the RPDs on the MS/MSDs were within acceptance criteria. Matrix interference is suspected.

Not a Broom Site sample.

The serial dilutions (SD) analyzed on sample 991617-2 were outside of the normal acceptance limits for several analytes. No definitive answer was found to explain the variance, but matrix interference is suspected to be a contributing factor.

Method 8081 Pesticide Analysis

BRO-SL-6
Due to matrix interferences, samples 991623-2 and -4 were analyzed and reported at a 10x dilution and sample 991623-6 at a 100x dilution for the pesticide compounds. The reporting limits were adjusted on the final report. The surrogate recoveries on sample 991623-6 and the MS/MSD on sample 991623-6 for 2,4,5,6-tetrachloro-m xylene and decachlorobiphenyl were below acceptance criteria due to the necessary dilutions.

The initial calibration verifications (ICV) analyzed on 07/03/99, 07/08/99, and 07/13/99 had endrin aldehyde above acceptance criteria on the primary and secondary columns. Endrin aldehyde was not detected in the associated samples.

Method 8082 PCB Analysis

BRO-SL-4
BRO-SL-6
Due to matrix interferences, samples 991623-4 and -6 were analyzed and reported at a 10x dilution. The reporting limits were adjusted on the final report. The MS/MSD on sample 991623-6 had recoveries below acceptance criteria for aroclor 1016 and aroclor 1260 due to the necessary dilutions.



CORE LABORATORIES

July 21, 1999

Customer: CC Johnson and Malholtra

Project: A376-BLM3-CNVPO-01

Core Laboratory Project Number: 991623

Method 8260 Volatile Analysis

The MS/MSD on sample 991623-6 had all recoveries below acceptance criteria. The reference standard (RS) recovery and the RPDs on the MS/MSD were within acceptance criteria. Matrix interference is suspected.

The MS and/or the MSD on sample 991623-11 had all recoveries below acceptance criteria. The RPDs on the MS/MSD were also outside acceptance criteria for benzene, 1,1-dichloroethene, and trichloroethene. Recoveries for the surrogate 4-bromofluorobenzene were also outside acceptance criteria for 991623-11 and the MS/MSD. The laboratory control sample (LCS) recoveries were acceptable and these compounds were not detected in the associated sample. Sample 991623-11 foamed excessively and required an antifoam reagent. Matrix interference is suspected.

BRO-SW-1

The MS/MSD on sample 991656-1 had recoveries for chlorobenzene below acceptance criteria. The reference standard recovery and the RPD on the MS/MSD were within acceptance criteria. There were no detections for chlorobenzene in the associated samples. Matrix interference is suspected.

Method 8270 Semivolatile Analysis


Due to matrix interferences, samples 991623-2 and -4 were analyzed and reported at a 10x dilution and sample 991623-6 at a 200x dilution. The reporting limits were adjusted on the final report. All MS/MSD recoveries on sample 991623-6 were outside acceptance criteria, due to the necessary dilutions.

BRO-SL-2

BRO-SL-4

The laboratory control sample (LCS) had recoveries for 4-nitrophenol and pentachlorophenol below acceptance criteria. The samples were re-extracted and reanalyzed outside of the EPA recommended holding time with comparable results. The original results are reported.

All other associated quality control analyses were acceptable.


Patrick J. McEntee
Laboratory Manager



Sample Delivery Group Narrative

July 28, 1999

Customer: CC Johnson and Malholtra

Project: A376-BLM3-CNVPO-01

Core Laboratory Project Number: 991651

CLP Metals Analysis - ICAP

BRD-SL-11 Sample 991651-2 had the matrix spike (MS) and the matrix spike duplicate (MSD) recoveries for potassium outside acceptance criteria. The post digestion spikes (PDS) and the RPDs on the MS/MSDs were within acceptance criteria. Matrix interference is suspected. The serial dilutions (SD) analyzed on sample 991651-1 were outside of the normal acceptance limits for barium, iron, magnesium, and manganese. No definitive answer was found to explain the variance, but matrix interference is suspected to be a contributing factor. BRD-CW-1

Method 8081 Pesticide Analysis

The initial calibration verifications (ICV) analyzed on 07/12/99 and 07/20/99 had endrin aldehyde or delta-BHC above acceptance criteria on the primary and/or secondary columns. These compounds were not detected in the associated sample.

Method 8082 PCB Analysis

The MS/MSD on sample 991623-6 had recoveries below acceptance criteria for Aroclor 1016 and Aroclor 1260 due to dilutions required to minimize matrix interference. The LCS recoveries for these Aroclors were acceptable.

Method 8270 Semivolatile Analysis

Due to analyst error, sample 991651-1 was spiked with 10 times more surrogate spiking solution than is required. All surrogate recoveries are 10 times above acceptance criteria. Based on the actual amount of spiking solution added, all recoveries are within acceptance criteria.

All other associated quality control analyses were acceptable.

Linda L. Benkers
QA/QC Coordinator

Office

District I

1625 N. French Drive., Hobbs, NM 88240

District II

811 S. First, Artesia, NM 88210

District III

1000 Rio Brazos Rd., Aztec, NM 87410

District IV

2040 South Pacheco, Santa Fe, NM 87505

State Of New Mexico
Energy, Minerals, and Natural ResourcesForm C-103
Revised March 25, 1999OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Well API No.

30-015-20331

5. Indicate Type Of Lease

State ☒ Fee ☐

6. State Oil and Gas Lease No.

7. Lease Name Or Unit Agreement
Name:

Tracy

Name Of Operator

Ray Westall Operating

8. Well No.

003

Address Of Operator

P.O. Box 4 - Loco Hills, New Mexico 88255

9. Pool Name Or Wildcat

Well Location

Unit Letter M : 560' Feet From The South Line And 610' Feet From The West LineSection 03 Township 22S Range 21E NMPM County Eddy

10. Elevation (Show whether DR, RKB, RT, GR, ect.)

11. Check The Appropriate Box To Indicate Nature Of Notice, Report Or Other Data

NOTICE OF INTENTION TO:

Remedial Work ☐ Plug And Abandon ☐Temporarily Abandon ☐ Change Plans ☐Pull Or Alter Casing ☐ Multiple Completion ☐Other ☐

SUBSEQUENT REPORT OF:

Remedial Work ☐ Alter Casing ☐Commence Drilling OPNS. ☐ Plug and Abandonment ☒Casing Test and Cement Job ☐Other: ☐

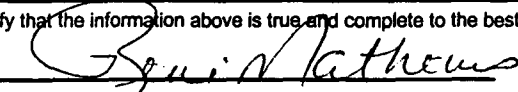
12. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

02/13/01 Pull tubing, tag bottom and set CIBP at 981'.
 Perf 601' Pressure test casing to 400# - held.
 Perf 270' Pressure test casing to 400# - held.
 Run tubing to 979' pumped 14.5 bbls cement top 400'.
 Bring tubing to 450' pumped 20 bbls cement.
 Displace all fluid in hole until circulate.
 Good cement at surface.
 Pull out of hole, load hole with cement.
 Load cement between 5 1/2" and 8 5/8" casing.
 Total Cement: 150 sxs

02/14/02 Install marker and clean location.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signature



Title

Production Secretary

Date

02/27/02

Type Or Print Name:

Rene Mathews

Telephone No.

(505) 677-2370

(THIS SPACE FOR STATE USE)

APPROVED BY

Title

Date

Conditions Of Approval If Any:

District I

1825 N. French Drive., Hobbs, NM 88240

District II

811 S. First, Artesia, NM 88210

District III

1000 Rio Brazos Rd., Aztec, NM 87410

District IV

2040 South Pacheco, Santa Fe, NM 87505

State Of New Mexico
Energy, Minerals, and Natural Resources

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

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87

| | | |
|--|--|--|
| <p>SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)</p> | | <p>Well API No. 30 15 20331</p> <p>1. Indicate Type Of Lease State <input type="checkbox"/> Fee <input checked="" type="checkbox"/></p> <p>2. State Oil and Gas Lease No.</p> <p>3. Lease Name Or Unit Agreement Name: TRACY</p> |
| <p>1. Type Of Well: Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> BRINE</p> | | <p>4. Well No. 3</p> |
| <p>Name Of Operator Ray Westall Operating</p> | | <p>5. Pool Name Or Wildcat</p> |
| <p>Address Of Operator P.O. Box 4 - Loco Hills, New Mexico 88255</p> | | |
| <p>Well Location Unit Letter M : 560 Feet From The South Line And 610 Feet From The West Line Section 3 Township 22S Range 27E NMPM County S. Hilly</p> | | |
| <p>10. Elevation (Show whether OR, RAB, RT, GR, etc.)</p> | | |

11. Check The Appropriate Box To Indicate Nature Of Notice, Report Or Other Data

| | | | |
|---|--|---|--|
| <p>NOTICE OF INTENTION TO:</p> <p>Remedial Work <input type="checkbox"/> Plug And Abandon <input checked="" type="checkbox"/></p> <p>Temporarily Abandon <input type="checkbox"/> Change Plans <input type="checkbox"/></p> <p>Pull Or Alter Casing <input type="checkbox"/> Multiple Completion <input type="checkbox"/></p> <p>Other <input type="checkbox"/></p> | | <p>SUBSEQUENT REPORT OF:</p> <p>Remedial Work <input type="checkbox"/> Alter Casing <input type="checkbox"/></p> <p>Commence Drilling OPNS. <input type="checkbox"/> Plug and Abandonment <input type="checkbox"/></p> <p>Casing Test and Cement Job <input type="checkbox"/></p> <p>Other <input type="checkbox"/></p> | |
|---|--|---|--|

12. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

SET CIBP IN CSNL SHAPE ^{981'} ~~601'~~ **601'** CAP W/35' CMT
Set plug 500-600' * Perforate 5 1/2" casing @ 601'.
10 3X surface plug Squeeze 100' cement Plug Inside & Outside 5 1/2" casing.
601'-501' TAG
* Perf. csg. @ 270' ~~space in of each unit of completion~~
* TAG cement Plug set @ 1300'. ~~200' cement to surface.~~ Place cnt. inside csg. 270'-to surface.
If cement Plug not in place
Reset 2518 cement Plug 1300' TAG

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signature **Rene Mathews** Title **Production Secretary** Date _____
Type Or Print Name: **Rene Mathews** Telephone No. **(505) 677-2370**
(THIS SPACE FOR STATE USE)

APPROVED BY **Mike Sullfield** Title **Envir. Eng. Spec. I** Date **2/5/2002**
Conditions Of Approval If Any:

* Brine Gel between All Cement Plugs.

* Notifie N.M.O.C.D. to Witness Plugging Operations

2/2/2002
Mike Sullfield

2/4/2002
John Bink

FAX COVER SHEET

OIL CONSERVATION DIVISON
1301 W. GRAND AVE
ARTESIA, NM 88210

PHONE (505-748-1283
FAX (505-748-9720

Date 2/5/2002

TO: Roger Anderson 476-3462

FROM: Mike Stubblefield

NUMBER OF PAGES 5 (INCLUDING COVER SHEET)

MESSAGE C-103 Intent Received to Plug & Abandon
ST Brine Well Ray Well Tracy #3

Submit 3 Copies To Appropriate District

Office

District I

1025 N. French Drive., Hobbs, NM 88240

District II

917 S. First, Artesia, NM 88210

District III

1000 Rio Grande Rd., Aztec, NM 87410

District IV

2040 South Pacheco, Santa Fe, NM 87505

State Of New Mexico
Energy, Minerals, and Natural ResourcesOIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505Form C-103
Revised March 28, 1999

SUNDY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG WELLS IN A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type Of Well:
Oil Well ☐ Gas Well ☐ Other ☒ BRINE

Name Of Operator: Ray Westall Operating

Address Of Operator: P.O. Box 4 - Loco Hills, New Mexico 88255

Well Location:
Unit Letter M : 560 East From The South Line And 610 Feet From The West Line
Section 3 Township 22S Range 21E NMPM County Schuyler

10. Elevation (show whether GRT, MGS, RT, GRT, etc.)

11. Check The Appropriate Box To Indicate Nature Of Notice, Report Or Other Data

| NOTICE OF INTENTION TO: | | SUBSEQUENT REPORT OF: | |
|---|--|---|---|
| Remedial Work <input type="checkbox"/> | Plug And Abandon <input checked="" type="checkbox"/> | Remedial Work <input type="checkbox"/> | After Casing <input type="checkbox"/> |
| Temporarily Abandon <input type="checkbox"/> | Change Plans <input type="checkbox"/> | Commence Drilling OPIB. <input type="checkbox"/> | Plug and Abandonment <input type="checkbox"/> |
| Pull Or Alter Casing <input type="checkbox"/> | Multiple Completion <input type="checkbox"/> | Casing Test and Cement Job <input type="checkbox"/> | |
| Other <input type="checkbox"/> | | Other <input type="checkbox"/> | |

12. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

SET CIBP IN CSNL SHAPE ^{981'} ~~601'~~ ^{601'} CAP W/ 35' CMT
~~Set plug 500-600' & Perforate 5 1/2" casing @ 601'.~~
 10 SX surface plug Squeeze 100' cement Plug Inside & Outside 5 1/2" casing.
 @ 601'-501' TAG
 * Plug. cas. @ 270' Squeeze 100' of Cmt. inside & Outside cas.
 170'-270' TAG
 * TAG cement Plug SET @ 1300'.
 IF cement Plug NOT in Place
 RESET 251K cement Plug 1300' TAG

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signature Rene Mathews Title Production Secretary Date _____

Type Or Print Name: Rene Mathews Telephone No. (505) 677-2370
(THIS SPACE FOR STATE USE)

APPROVED BY _____ Title _____ Date _____
Conditions Of Approval If Any:

* Brine Gel between All Cement Plugs.

* Notifie N.M.O.C.D. to Witness Plugging Operations.

2/2/2002

Michel Stullerfeld

2/4/2002

John Barker

Submit 3 Copies To Appropriate Districts

Office

District I

1625 N. French Drive., Hobbs, NM 88240

District II

311 E. First, Artesia, NM 88210

District III

1000 Rio Brazos Rd., Aztec, NM 87410

District IV

2040 South Pacheco, Santa Fe, NM 87505

State Of New Mexico
Energy, Minerals, and Natural ResourcesOIL CONSERVATION DIVISION
2040 South Pacheco,
Santa Fe, NM 87505Form C-103
Revised March 28, 1999

| | | |
|---|--|---|
| SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.) | | Well API No. 301520331 Indicate Type Of Lease Lease <input type="checkbox"/> Fee <input checked="" type="checkbox"/> |
| 1. Type Of Well: Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> BRINL | | 6. State Oil and Gas Lease No. |
| Name Of Operator Ray Westfall Operating | | 7. Lease Name Or Unit Agreement Name: TRACY |
| Address Of Operator P.O. Box 4 - loco Hills, New Mexico 88255 | | 8. Well No. 3 |
| Well Location Unit Letter M : 560 Feet From The South Line And 610 Feet From The West Line Section 3 Township 22S Range 21E N.M.P.M. County Schuyler | | 9. Pool Name Or Wildcat |
| 10. Elevation (Show whether D.R., R.R.B., RT, GR, etc.) | | |

11. Check The Appropriate Box To Indicate Nature Of Notice, Report Or Other Data

| NOTICE OF INTENTION TO: | | SUBSEQUENT REPORT OF: | |
|-------------------------|---|----------------------------|--|
| Remedial Work | <input type="checkbox"/> Plug And Abandon <input checked="" type="checkbox"/> | Remedial Work | <input type="checkbox"/> Alter Casing <input type="checkbox"/> |
| Temporarily Abandon | <input type="checkbox"/> Change Plans <input type="checkbox"/> | Commence Drilling OPIE. | <input type="checkbox"/> Plug and Abandonment <input type="checkbox"/> |
| Put Or Alter Casing | <input type="checkbox"/> Multiple Completion <input type="checkbox"/> | Casing Test and Cement Job | <input type="checkbox"/> |
| Other | <input type="checkbox"/> | Other | <input type="checkbox"/> |

12. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

SET CIBP IN CONW SHOE 1030' ~~CASING~~ CAS W/35' CMT
 Set plug 500-600'
 10 SX surface plug

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signature Rene Mathews Title Production Secretary Date 01/31/02Type Or Print Name: Rene Mathews Telephone No. (505) 677-2370
(THIS SPACE FOR STATE USE)APPROVED BY _____ Title _____ Date _____
Conditions Of Approval If Any:

Submit 3 Copies To Appropriate Districts
 Office
 District I
 1625 N. French Drive., Hobbs, NM 88240
 District II
 811 S. First, Artesia, NM 88210
 District III
 1000 Rio Grande Rd., Aztec, NM 87410
 District IV
 2040 South Pacheco, Santa Fe, NM 87505

State Of New Mexico
 Energy, Minerals, and Natural Resources

OIL CONSERVATION DIVISION
 2040 South Pacheco
 Santa Fe, NM 87505

Form C-103
 Revised March 25, 1998

| | | |
|--|--|--|
| SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.) | | Well API No. 30-015-20331 |
| 1. Type Of Well: Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Drive | | 5. Indicate Type Of Lease State <input checked="" type="checkbox"/> Fee <input type="checkbox"/> |
| Name Of Operator Ray Westall Operating | | 6. State Oil and Gas Lease No. |
| Address Of Operator P.O. Box 4 - Loco Hills, New Mexico 88255 | | 7. Lease Name Or Unit Agreement Name: Tracy |
| Well Location Unit Letter M : 560' Feet From The South Line And 610' Feet From The West Line Section 03 Township 22S Range 21E NMPM County Eddy | | 8. Well No. 003 |
| 10. Elevation (Show whether D.R., A.C.B., R.T., C.R., etc.) | | 9. Pool Name Or Wildcat |
| 11. Check The Appropriate Box To Indicate Nature Of Notice, Report Or Other Data | | |
| NOTICE OF INTENTION TO: Remedial Work <input type="checkbox"/> Plug And Abandon <input checked="" type="checkbox"/> Temporarily Abandon <input type="checkbox"/> Change Plans <input type="checkbox"/> Pull Or Alter Casing <input type="checkbox"/> Multiple Completion <input type="checkbox"/> Other <input type="checkbox"/> | | SUBSEQUENT REPORT OF: Remedial Work <input type="checkbox"/> Alter Casing <input type="checkbox"/> Commence Drilling OPER. <input type="checkbox"/> Plug and Abandonment <input type="checkbox"/> Casing Test and Cement Job <input type="checkbox"/> Other <input type="checkbox"/> |

12. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Set CIBP in Casing Shoe @ 1030' - Cap with 35' Cement

Set Plug 500' - 600'

10 x 12 Surface Plug

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signature

Rene Mathews

Title

Production Secretary

Date

01/31/02

Type Or Print Name

Rene Mathews

Telephone No.

(505) 677-2370

(THIS SPACE FOR STATE USE)

APPROVED BY

Title

Date

Conditions Of Approval If Any:

Operator Ray Weston
 Well Tracy #3
 Unit M Section 3 Township 22S Range 27E
 API # 30-015-20321

TOPS

Yates
 T. Salt 275'
 B. Salt 1785'
 Glorieta
 Bone Sp.
 Abo
 Wolfcamp
 Morrow
 Devonian
 Fusselman
 Other T. Delaware Sand 1995'

8 5/8" 24# casing set @ 551'

w/200SX cement. Circ.

* SET 10 SX cement Surface Plug
 * Perf. Csg. @ 270'. Squeeze 100' of cement inside & outside csg 170'-270' TAG
 * Squeeze 100' cement Plug Inside & Outside 5 1/2" casing
 601'-501'. TAG

* Perforate 5 1/2" casing @ 601'.

* Circulate Brine Gel to Surface.

* Run & SET CIBPW / 35' cement on top @ 981'.

* Run Tubing & Tag Cement Plug @ 1300'.
 Reset if not in place w/25SX - TAG

History

TD - 3370'

P.B.T.D. Surface. 9/26/1970

Drilled out to TD 1274'. 12/23/1978

5 1/2" 15.5# casing set @ 1031'

8 3/4" Hole.

w/275SX C.C. Cement Cal. to Circ.
 - 11 C.C. W. Report.

Price, Wayne

BW-10

From: Anderson, Roger
Sent: Wednesday, April 03, 2002 11:27 AM
To: Stubblefield, Mike
Subject: RE: RAY WESTALL BRINE SUPPLY FACILITY TRACY #3

The BLM is correct. The last person we have on file for the facility is Broom. Westall only had the well. If BLM is going to clean it up, that's great. Don't rock the boat!!!!

Roger C. Anderson

Environmental Bureau Chief
Oil Conservation Division

-----Original Message-----

From: Stubblefield, Mike
Sent: Wednesday, April 03, 2002 10:27 AM
To: Anderson, Roger
Subject: RAY WESTALL BRINE SUPPLY FACILITY TRACY #3

4/3/2002

ROGER,

THE TRACY #3 BRINE SUPPLY WELL HAS BEEN PLUGGED AND THE FINAL CLEANUP ON THE WELL LOCATION WAS OK.

I HAVE SENT YOU A COPY OF SUBSEQUENT PLUGGING REPORT TODAY.

QUESTION ? THE MAIN BRINE SUPPLY STORAGE AND SALES FACILITY IS LOCATED OFF LOCATION FROM THE WELL SITE ON FEDERAL LAND ON COUNTY ROAD 606.

I WENT BY THIS BRINE FACILITY YESTERDAY AND TWO BLM STAFF WERE AT THE SITE. LINK LACEWELL AND GENE HUNT HAZARDOUS MATERIAL SPECIALIST FOR BLM CARLSBAD OFFICE.

I INQUIRED AS TO WHAT THEY WERE DOING AND THEY SAID TAKING SOIL SAMPLES FOR CLOSURE OF THE BRINE STATION BY BLM.

I INQUIRED AS TO WHO THEY THOUGHT OWNED THE BRINE STATION AND LINK SAID THE FEDERAL GOVERNMENT.
HE INFORMED ME THAT THE LAST LEASE ON RECORD WAS EARNEST BROOM AND PRIOR TO MR. BROOM CHAMPION CHEMICAL.

LINK INFORMED ME THAT BLM WAS GOING TO CLOSE THE BRINE FACILITY AS BUDGET ALLOWED.

MR. WESTALL CLAIMS TO HAVE NEVER OWNED OR OPERATED THE BRINE STATION.
HE SAID HE WAS NEVER WAS APPROVED FOR FEDERAL RIGHT AWAY PERMIT.

THE BRINE STATION HAS A LARGE HOLDING POND, STOCK TANKS, AND A LOT OF MISC. ITEMS STILL ON SITE.

WHO DO YOU SEE AS RESPONSIBLE FOR CLOSURE OF THIS BRINE FACILITY?

MIKE S.

Oct-24-01 08:49A RAY WESTALL

501 7-2361

P.02

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P.O. BOX 2088

SANTA FE, NEW MEXICO 87501

30-015-32068

Form C-101
Revised 10-1-78

| | |
|-------------------------|--|
| NO. OF COPIES REQUESTED | |
| DISTRIBUTION | |
| SANTA FE | |
| FILE | |
| U.S.G.S. | |
| LAND OFFICE | |
| OPERATION | |

5A. Indicate Type of Lease

STATE ☒ REC ☐

6. State Oil & Gas Lease No.

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

Type of Work

Type of Well

DRILL ☒DEEPEN ☐PLUG BACK ☐OIL WELL ☐GAS WELL ☐

OTHER

SINGLE TONG ☒MULTIPLE TONG ☐

Name of Operator

Loco Hills Brine Company

13467

Address of Operator

P.O. Box 68 Loco Hills, New Mexico 88255

Location of Well

TWP. LAYER

M

LOCATED

600

FEET FROM THE

South

LINE

230

FEET FROM THE

West

LINE OF SEC.

16

TWP.

175

SEC.

30E

RANGE

12. County

Eddy

19. Proposed Depth

1,000'

19A. Formation

Salt

20. Method of C.T.

C.T.

1. Production (Show whether Oil, Gas, etc.)

3655. GR

21A. Kind & Status Plug, Bond

Blanket

21B. Drilling Contractor

Hegwer

22. Approx. Date Work will start

ASAP

PROPOSED CASING AND CEMENT PROGRAM

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | SACKS OF CEMENT | EST. TOP |
|--------------|----------------|-----------------|---------------|-----------------|----------|
| 10" | 7" | Fiberglass | 420' | Circulate | |
| 5 1/2" | 2 7/8" | Fiberglass | 100' | | |

6.4 ID

I propose to drill a brine well to 1,000', setting fiberglass 7" casing and circulate. Drill down into the salt, run 2 7/8" fiberglass tubing and circulate for brine.

SOME SPACE DESCRIBE PROPOSED PROGRAM: IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTION, ZONE AND PROPOSED NEW PRODUCTION; GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

Operator certifies that the information above is true and complete to the best of my knowledge and belief.

By Ray Westall Title Operator Date 6-12-85

(This space for State Use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

Price, Wayne

From: Gum, Tim
Sent: Friday, October 27, 2000 1:14 PM
To: Price, Wayne
Subject: RE: Ray Westall tracy #3

From: Price, Wayne
Sent: Monday, October 23, 2000 10:56 AM
To: Gum, Tim; Price, Wayne
Subject: RE: Ray Westall tracy #3

Per Westall they are waiting on the P&A contractor. TWG.

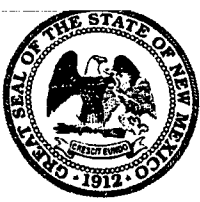
Tim did you ever find out about this!

From: Price, Wayne
Sent: Monday, September 11, 2000 4:14 PM
To: Gum, Tim
Subject: Ray Westall tracy #3

Tim, did Ray Westall ever submit a P&A procedure for the Tracy #3 This was the old BRoom Brine well.

let me know!

Thanks!



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

June 23, 2000

Lori Wrotenbery
Director
Oil Conservation Division

CERTIFIED MAIL
RETURN RECEIPT NO. 5051 5611

Randall L. Harris
Ray Westall Operating
P.O. Box 4
Loco Hills, New Mexico 88255

Re: Tracy Well #3 Brine Well BW-010
UL M 560 FSL and 610 FWL
of Section 3-Ts 22s-R27e
Eddy County, NM

Dear Mr. Harris:

The New Mexico Oil Conservation Division (NMOCD) records reflect the above captioned well has been inactive since 1989. Pursuant to 19NMAC 15.D.201 wells that are inactive for over one year shall be "Properly Abandoned". Please submit for NMOCD approval a closure and well plugging plan by July 31, 2000.

If you have any questions, please contact Wayne Price of my staff at (505-827-7155). On behalf of the staff of the OCD, I wish to thank you and your staff for your cooperation during this discharge plan review.

Sincerely,

Roger C. Anderson
Environmental Bureau Chief
RCA/lwp

xc: OCD Artesia Office

FILE ROOM

Submit: 5 Copies
Appropriate District Office
DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

State of New Mexico
Energy, Minerals and Natural Resources Department

RECEIVED

Form C-104
Revised 1-1-89
See Instructions
at Bottom of Page

OIL CONSERVATION DIVISION

MAY -5 '89

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

O. C. D.
ARTESIA, OFFICE

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

REQUEST FOR ALLOWABLE AND AUTHORIZATION
TO TRANSPORT OIL AND NATURAL GAS

I.

| | |
|--|---|
| Operator <u>RAY WESTALL</u> | Well API No. <u>30-015-20331</u> |
| Address <u>P.O. Box 4, Loco Hills NM 88255</u> | |
| Reason(s) for Filing (Check proper box) <input type="checkbox"/> Other (Please explain) | |
| New Well <input type="checkbox"/> | Change in Transporter of: |
| Recompletion <input type="checkbox"/> | Oil <input type="checkbox"/> Dry Gas <input type="checkbox"/> |
| Change in Operator <input checked="" type="checkbox"/> | Casinghead Gas <input type="checkbox"/> Condensate <input type="checkbox"/> |
| If change of operator give name and address of previous operator <u>BROOM TRANSPORTATION INC, P.O. Box 505, Artesia NM</u> | |

II. DESCRIPTION OF WELL AND LEASE

| | | | | |
|----------------------------|----------------------|---|--|-------------------------|
| Lease Name <u>TRACY</u> | Well No. <u>3</u> | Pool Name, Including Formation <u>BRINE SOURCE</u> | Kind of Lease State, Federal or Fee | Lease No. <u>Fee</u> |
| Location | | | | |
| Unit Letter <u>M</u> | : <u>560</u> | Feet From The <u>S</u> | Line and <u>610</u> | Feet From The <u>W</u> |
| Section <u>3</u> | Township <u>22 S</u> | Range <u>27 E</u> | NMPM, <u>Eddy</u> | County |

III. DESIGNATION OF TRANSPORTER OF OIL AND NATURAL GAS

| | |
|---|--|
| Name of Authorized Transporter of Oil <input type="checkbox"/> or Condensate <input type="checkbox"/> | Address (Give address to which approved copy of this form is to be sent) |
| Name of Authorized Transporter of Casinghead Gas <input type="checkbox"/> or Dry Gas <input type="checkbox"/> | Address (Give address to which approved copy of this form is to be sent) |
| If well produces oil or liquids, give location of tanks. | Unit Sec. Twp. Rge. Is gas actually connected? When ? |

If this production is commingled with that from any other lease or pool, give commingling order number:

IV. COMPLETION DATA

| | | | | | | | | |
|-------------------------------------|-----------------------------|----------|-----------------|----------|-----------------------|-----------|------------|------------|
| Designate Type of Completion - (X) | Oil Well | Gas Well | New Well | Workover | Deepen | Plug Back | Same Res'v | Diff Res'v |
| Date Spudded | Date Compl. Ready to Prod. | | Total Depth | | P.B.T.D. | | | |
| Elevations (DF, RKB, RT, GR, etc.) | Name of Producing Formation | | Top Oil/Gas Pay | | Tubing Depth | | | |
| Perforations | | | | | Depth Casing Shoe | | | |
| TUBING, CASING AND CEMENTING RECORD | | | | | | | | |
| HOLE SIZE | CASING & TUBING SIZE | | DEPTH SET | | SACKS CEMENT | | | |
| | | | | | MAY 10 1989 | | | |
| | | | | | OIL CONSERVATION DIV. | | | |
| | | | | | SANTA FE | | | |

V. TEST DATA AND REQUEST FOR ALLOWABLE

OIL WELL (Test must be after recovery of total volume of load oil and must be equal to or exceed top allowable for this depth or be for full 24 hours.)

| | | | |
|--------------------------------|-----------------|---|------------|
| Date First New Oil Run To Tank | Date of Test | Producing Method (Flow, pump, gas lift, etc.) | |
| Length of Test | Tubing Pressure | Casing Pressure | Choke Size |
| Actual Prod. During Test | Oil - Bbls. | Water - Bbls. | Gas- MCF |

GAS WELL

| | | | |
|---------------------------------|---------------------------|---------------------------|-----------------------|
| Actual Prod. Test - MCF/D | Length of Test | Bbls. Condensate/MMCF | Gravity of Condensate |
| Testing Method (puot, back pr.) | Tubing Pressure (Shut-in) | Casing Pressure (Shut-in) | Choke Size |

VI. OPERATOR CERTIFICATE OF COMPLIANCE

I hereby certify that the rules and regulations of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

Signature RANDALL L. HARRIS GEOLOGIST
Printed Name 5/5/89 Title 677-2301
Date Telephone No.

OIL CONSERVATION DIVISION

MAY 9 1989

Date Approved

By Mike Williams

Title SUPERVISOR DISTRICT II

INSTRUCTIONS: This form is to be filed in compliance with Rule 1104

- 1) Request for allowable for newly drilled or deepened well must be accompanied by tabulation of deviation tests taken in accordance with Rule 111.
- 2) All sections of this form must be filled out for allowable on new and recompleted wells.
- 3) Fill out only Sections I, II, III, and VI for changes of operator, well name or number, transporter, or other such changes.
- 4) Separate Form C-104 must be filed for each pool in multiply completed wells.



MEMORANDUM OF MEETING OR CONVERSATION

☐ Telephone☒ Personal

Time

3:40 P.M.

Date

8-14-91

Originating PartyOther Parties

K. Brown - OCD

Ray Westall - owner

Randy Harris - geologist

Subject

- Broom Transportation, Inc. Tracy Brine Facility,
- Ray Westall's involvement in facility.

Discussion

Broom Transport went bankrupt & the bank asked Ray Westall's company to take over the brine operation and trucking business. Westall filed the C-104 form (approved by Mike Williams) and now is responsible for the well bore. However, the mineral lease (Tracy) had expired ~~and~~ and they could not negotiate a price with Mr. Tracy. Also, the surface facilities are on BLM land and BLM wanted extensive work done to the site (ie. monitor wells). BLM had required Westall to ^{provide proof} ~~show~~ that the site was not toxic which was somewhat costly.

Last year Westall had done extensive work on the well getting it ready for operation (MIT, pull tubing, cleaned-out, ect...)

Conclusions or Agreements

These papers are on file with the district.

Currently trying to sell the facility to a third party (ie. The Permian Corp). Told Randy to keep us informed.

He agreed they would plug the well if the deal doesn't

Conclusion

go through.

Signed

K. Brown

P&A CANIDATE
BRINE WELL

Company: Broom Transportation, Inc.
Linda Broom, President

Facility: Tracy Brine Station; DP-351 (BW-10)
Facility is located on BLM land and the former owner of the facility (Champion Chemicals) did have a \$10,000 performance bond (No. 105 E 8904) with Travelers Indemnity Company. Facility was assigned to Broom Transportation in October 1985 - unknown if this performance bond was also transfered.

Well: Tracy No. 3
Sec 3, T22S-R27E, Eddy County (2 1/2 mi. east Carlbad)
Well is located across the street from the facility on the Tracy lease (surface rights). Don't know if the mineral rights are also Tracy or BLM and if so does BLM have any plugging bond.

Note by EID on 8/5/88 that Linda Broom filed for bankruptcy. Facility was abandoned sometime in mid 80's (EID inspections in 1986 and 1987 indicate no activity at facility). There is no available plugging bond since the bonding company went bankrupt and the OCD cancelled the bond on January 15, 1986.

Ray Westall 1-677-2370
1-677-3113

→ Filed a 104 - Form
Cancelled by bank

E I D B U C K S L I P

CHECK ONE:

☐ LETTER TO _____
for _____ signature

☒ MEMO TO Bob Stovall, General Counsel, OCD

☐ PRESS RELEASE

☐ OTHER

SUBJECT: Plugging of Tracy Brine Well

DRAFTED BY: John Parker, WRS 08/05/88
(Date)

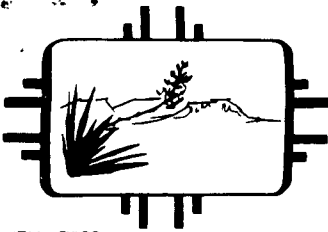
CONCURRENCES:

| NAME: | | INITIAL | DATE REC'D | DATE APPROVED |
|---------------------------|------------|-----------|-------------|---------------|
| <u>Ernest C. Rebuck</u> | Sect. Mgr. | <u>ER</u> | <u>8/8</u> | <u>8/8</u> |
| <u>Stuart Castle</u> | Bur. Chief | <u>SC</u> | <u>8/8</u> | <u>8/9</u> |
| <u>Richard Mitselfelt</u> | Dep. Dir. | <u>R</u> | <u>8/11</u> | <u>8/11</u> |
| <u>Michael Burkhart</u> | Director | | | |

FINAL DECISION NEEDED BY _____ BECAUSE _____
(date)

COMMENTS BY DRAFTER OR REVIEWER(S):

Linda Broom, operator of Tracy Brine Well, filed
for bankruptcy and transferred her transportation
license to another party. She has failed to
respond (although she has signed for) ^{to} our correspond-
ances. OCD will first determine if Broom or
any other party has funds available for plugging and
abandonment prior to using the reclamation
fund.
JWP



NEW MEXICO
HEALTH AND ENVIRONMENT
DEPARTMENT

Post Office Box 968
Santa Fe, New Mexico 87504-0968

ENVIRONMENTAL IMPROVEMENT DIVISION

Michael J. Burkhart
Director

GARREY CARRUTHERS
Governor

LARRY GORDON
Secretary

CARLA L. MUTH
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 18, 1988

Linda Broom, President
Broom Transportation, Inc.
Post Office Box 505
Artesia, NM 88210

unclaimed

Dear Ms. Broom:

The New Mexico Environmental Improvement Division (EID) has made numerous unsuccessful attempts to contact you over the past two years regarding the Tracy Brine Station. EID staff who have visited the facility over the same time period believe it to be deserted. Additionally, EID has received correspondence from the Oil Conservation Division stating that Broom Transportation, Inc. has gone out of business.

The discharge plan authorizing Broom Transportation, Inc. to operate Tracy Brine Station, DP-351, is due to expire on February 22, 1990. DP-351 was approved with monitoring and reporting requirements. EID has not received any reports from Broom Transportation, Inc. since the February 1985 renewal date. This is a violation of Section 5-207.C. of the New Mexico Water Quality Control Commission (WQCC) Regulations. In addition, Broom Transportation, Inc. no longer has any financial assurance in place after cancellation of its bond on January 15, 1986. This is a violation of Section 5-210.B.17 of the WQCC Regulations. If Broom Transportation, Inc. does not initiate a good faith effort to bring its brine operation into compliance with the regulations, EID may terminate DP-351 in accordance with Section 3-109.E.3 of the regulations and/or undertake appropriate legal action.

Please respond within 14 days from receipt of this letter stating your intentions regarding possible future operations of the Tracy Brine Station. Thank you in advance for your cooperation.

Sincerely,

Richard Mitzelfelt
Deputy Director
Water Management Programs

RM:JP:dg

cc: Gini Nelson, HED Office of General Counsel, Santa Fe
Garrison McCaslin, EID District IV, Roswell
Doug Hoag, Bureau of Land Management

515800

New Mexico Health and Environment Department
P.O. Box 968
Santa Fe, New Mexico 87504-0968

*Fold at line over top of envelope to the right
of the return address.*

CERTIFIED

P-484 099 791

MAIL

Linda Broom
Broom Transportation, Inc.
P.O. Box 505
Artesia, NM 88210

REASON CHECKED

☒ **Unclaimed**

☒ **Insufficient Address**

☒ **No such office in state**

☒ **No such street**

☒ **No such number**

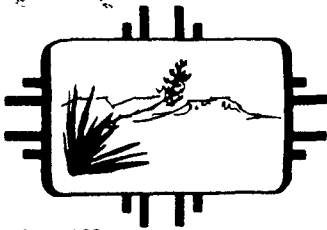
☒ **No such name in city**

RETURNED TO SENDER

SANTA FE, NM
MAY 20 1988
6802261

U.S. POSTAGE
230

Postnet barcode



NEW MEXICO
HEALTH AND ENVIRONMENT
DEPARTMENT

Post Office Box 968
Santa Fe, New Mexico 87504-0968

ENVIRONMENTAL IMPROVEMENT DIVISION

Michael J. Burkhardt
Director

GARREY CARRUTHERS
Governor

LARRY GORDON
Secretary

CARLA L. MUTH
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 18, 1988

Linda Broom, President
Broom Transportation, Inc.
1111 North Washington
Roswell, NM 88201

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Richard Mitzelfelt
Deputy Director
Water Management Programs

RM:DP:dg

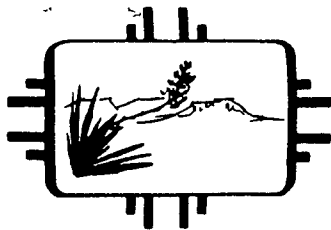
cc: Gini Nelson, HED Office of General Counsel, Santa Fe
Garrison McCaslin, EID District IV, Roswell
Doug Hoag, Bureau of Land Management

P-484 099 743

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

| | | |
|--------------------|--------------------------------|----|
| U.S.G.P.O. 153-506 | Sent to Linda Broom, President | |
| | Broom Transportation, Inc | |
| | 1111 North Washington, | |
| | Roswell, NM 88201 | |
| Postage | | \$ |
| Certified Fee | | |



NEW MEXICO
HEALTH AND ENVIRONMENT
DEPARTMENT

Post Office Box 968
Santa Fe, New Mexico 87504-0968

ENVIRONMENTAL IMPROVEMENT DIVISION

Michael J. Burkhart
Director

GARREY CARRUTHERS
Governor

LARRY GORDON
Secretary

CARLA L. MUTH
Deputy Secretary

P-484 099 791

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 18, 1988

Linda Broom, President
Broom Transportation, Inc.
Post Office Box 505
Artesia, NM 88210

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

| | | |
|--------------------|--|--|
| U.S.G.P.O. 153-506 | Sent to Linda Broom | |
| | Street and No. Broom Transportation, Inc. | |
| | P.O. Box 505 | |
| | Artesia, NM 88210 | |
| | Postage \$ | |
| Certified Fee | | |

Dear Ms. Broom:

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Sincerely,

Richard Mitzelfelt
Deputy Director
Water Management Programs

RM:JP:dg

cc: Gini Nelson, HED Office of General Counsel, Santa Fe
Garrison McCaslin, EID District IV, Roswell
Doug Hoag, Bureau of Land Management

CHECK ONE:

☒ LETTER TO Linda Broom
for Richard Mitzelfelt signature

☐ MEMO TO _____

☐ PRESS RELEASE

☐ OTHER

SUBJECT: Possible DP Termination

DRAFTED BY: John Parker _____ (Date)

CONCURRENCES:

NAME:

INITIAL

DATE
REC'DDATE
APPROVEDErnest C. Rebuck

Sect. Mgr.

ER5/105/10

Bur. Chief

Richard Mitzelfelt

Dep. Dir.

RM5/195/19Michael Burkhart

Director

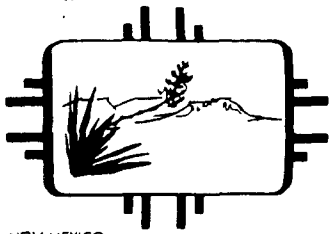
FINAL DECISION NEEDED BY _____ (date) BECAUSE _____

COMMENTS BY DRAFTER OR REVIEWER(S):

This constitute ETDs last attempt to contact Linda Broom and bring Tracy Brine Station into compliance. If this attempt fails; we make undertake the requisite administrative actions necessary to P&A the Brine Well using OCD funds.

These two addresses are the most current.

file



NEW MEXICO
HEALTH AND ENVIRONMENT
DEPARTMENT

Post Office Box 968
Santa Fe, New Mexico 87504-0968

ENVIRONMENTAL IMPROVEMENT DIVISION

Michael J. Burkhardt
Director

GARREY CARRUTHERS
Governor

LARRY GORDON
Secretary

CARLA L. MUTH
Deputy Secretary

April 27, 1988

Mr. Eric Serna, Commissioner
Corporation Commission of New Mexico
Post Office Drawer 1269
Santa Fe, New Mexico 87504-1269

Dear Mr. Serna:

Through conversations of John Parker of my staff with Frank Smith, Director of the Transportation Division, it is my understanding that the Corporation Commission has an application pending to transfer the license held by Broom Transportation, Inc. (BTI). This letter is to inform you that BTI has unfulfilled financial obligations regarding the Tracy Brine Station, which BTI operated and had a permit to operate from the Environmental Improvement Division.

The outstanding obligations referred to herein include plugging and abandonment of the brine well and complete site decommissioning in accordance with Part 5 of the New Mexico Water Quality Control Commission Regulations. The costs of such actions are in the neighborhood of \$15,000 - \$20,000. It is my understanding that there are additional requirements imposed by the United States Bureau of Land Management.

I trust that this information will be of assistance to the Commission in its deliberations regarding the possible transfer of the Broom Transportation, Inc. license. Should you desire any further information, you should direct your inquiries to Ms. Gini Nelson, Office of General Counsel, of the Health and Environment Department at 827-2854.

Sincerely,

Michael Burkhardt
Director

MB:JP.dg

cc: Frank Smith, Director, Transportation Division, Corporation Commission
Richard Mitzelfelt, Deputy Director, Water Management Programs
Gini Nelson, Assistant Deputy, Office of General Counsel, HED
John Parker, Water Resource Specialist, Ground Water Section
Doug Hoag, Bureau of Land Management, Carlsbad

CHECK ONE:

☒ LETTER TO Eric Serna
 for Michael Burkhardt signature

☐ MEMO TO _____

☐ PRESS RELEASE

☐ OTHER

SUBJECT: DP-351, Tracy Boine Well

DRAFTED BY: John Parker / DX 04/26/88
 (Date)

CONCURRENCES:

NAME:

INITIAL

DATE
REC'DDATE
APPROVEDErnest C. Rebuck

Sect. Mgr.

ER4/264/26

Bur. Chief

for Richard Mitzelfelt Dep. Dir.

Michael Burkhardt

Director

RM
MB

4/26/884/26/88

FINAL DECISION NEEDED BY 04/26/88 BECAUSE Final
 (date)

testimony to be given on Friday

COMMENTS BY DRAFTER OR REVIEWER(S):

Legal has reviewed

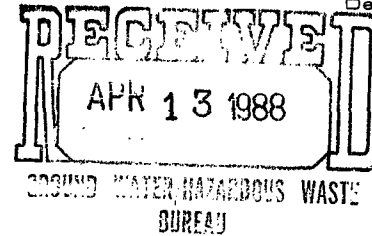


OFFICE OF GENERAL COUNSEL
Post Office Box 968
Santa Fe, New Mexico 87504-0968
(505) 827-2990

GARREY CARRUTHERS
Governor

LARRY GORDON
Secretary

CARLA L. MUTH
Deputy Secretary



MEMORANDUM

Confidential: Subject to Attorney-Client Privilege

TO: John Parker, GWB
FROM: Gini Nelson, OGC *Gini Nelson*
DATE: April 13, 1988
RE: Tracy Brine Well, DP-351

This memorandum is in response to your legal request dated December 10, 1987, regarding the Tracy Brine Well (Tracy Brine). You request advice on how to call in the plugging and abandonment bond on file with the Oil Conservation Division (OCD), because Tracy Brine appears to be abandoned. I apologize for how long it has taken me to respond to your request.

After reviewing the file, I note the following chronology:

1. DP-351 was approved by the Director of the Environmental Improvement Division (EID) on February 22, 1985, following a 4 1/2 month period during which Tracy Brine operated under an Assurance of Discontinuance.
2. Broom Transportation, Inc. (Broom Transportation) operated the facility during that time, and became owner sometime before March 13, 1985.
3. EID accepted Bond No. 8083-02-48 (bond) as satisfying the financial assurance requirement of the discharge plan. The bond on its face indicates that it is on file with the OCD, and is for \$5,000.00, issued for Hardin-Houston, Inc. as the principal and with Federal Insurance Co. as surety, and to the State of New Mexico, for plugging Tracy Brine "when dry or when abandoned in accordance with the rules, regulations, and orders of the Oil Conservation Division of New Mexico in such way as to confine the oil, gas, and water in the strata in which they are found, and to prevent them from escaping into other strata."
4. Tracy Brine was the subject of a legal request in 1986 because of Broom Transportation's apparent violation of its discharge plan, in using produced waters instead of clean waters in operation. The Legal Bureau returned the case to the UIC program on September 24, 1986, citing program inaction.

John Parker
April 13, 1988
Page two

I spoke with Diane Richardson of the OCD (827-5806) about the bond in January 1988. OCD cancelled the bond (or a replacement bond with Allied Fidelity as the surety -- I'm unclear on this point) on January 15, 1986, after receiving notification that the insurance company had gone bankrupt. OCD wrote Broom Transportation on December 11, 1986 and again on July 24, 1987 directing Broom Transportation to replace the bond, but received no response to either letter. Thus, OCD has no effective bond on file for Tracy Brine.

According to Ms. Richardson, OCD's procedures for calling in a bond on file with OCD require first an administrative hearing after public notice in order to issue an order for the company to resume operation or plug, or the surety to provide the funds for plugging; then, assuming there is no company or no desire on the part of the company to resume operation or plug, OCD takes the administrative order to the surety and/or to court to get the surety to comply with the order and make good on its bond.

If there is both no viable company and no viable surety, OCD may use the Reclamation Fund, maintained by a tax on oil money, to plug an abandoned well. Use of the Fund even in these circumstances requires, she believed, first the administrative hearing and order to the company and surety, and then another administrative hearing after public notice to authorize use of the Fund monies.

OCD was at that time without an attorney; Ms. Richardson expected that it would take at least one month before one was on staff. She expressed the willingness to compile the OCD files in preparation for the new attorney and with the expectation that initiating the administrative procedures referred to above could possibly be one of the new attorney's first projects.

Subsequent to my conversation with Ms. Richardson, I spoke with Doug Hoag of the Bureau of Land Management (BLM). BLM also regulates some Broom Transportation wells, and had occasion to inform Broom Transportation of compliance requirements for operating or relinquishing its site. I enclose the correspondence from BLM. As recently as October 19, 1987, Linda Broom, President of Broom Transportation, signed a certified mail receipt, but failed to respond to BLM.

Based on this information, I recommend that EID make a determination of whether Tracy Well is abandoned; and make an enforcement determination on approaching Linda Broom regarding Broom Transportation's violations of the Water

John Parker
April 13, 1988
Page three

Quality Act and regulations. I further recommend that the program draft a letter from the EID Director to the OCD Legal Division, sending a copy to Diane Richardson, advising OCD that EID has determined that Tracy Brine is abandoned (if that determination is, in fact, made), and requesting that OCD call in the bond that EID files indicate is on file with OCD. The letter should provide all relevant bond information, i.e., that the bond names Hardin-Houston as principal, but that the operator was Broom Transportation. It may reference my conversation with Ms. Richardson on January 8, 1988, and EID's understanding that OCD cancelled the bond in January 1986 because it had learned that the insurance company had gone bankrupt. The letter could also cite the Water Quality Control Commission requirements for plugging and abandonment, specifically the Section 5-210.B.17 requirements for additional monitoring and remediation activities, and request OCD to inform EID what it can do pertaining to reclamation, as needed, in addition to plugging the well as specified on the bond. I suggest that copies of that letter also be sent by separate cover letters to Charles Roybal, Office of General Counsel, Energy and Minerals Department, and William J. LeMay, Director, Oil Conservation Division, requesting their assistance.

I also recommend that EID inquire into notification procedures relating to changes in bonds on file at OCD. EID may need to formalize direct notification of proposed changes affecting bonds that EID uses in partial or full satisfaction of the WQCC Reg. Section 5-210.B.17 financial assurance requirement, so that EID can require a discharger to provide alternate or additional financial assurance as needed.

Enclosure

cc: Richard Mitzelfelt
Ernest Rebuck
Kevin Lambert



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Carlsbad Resource Area Headquarters

P. O. Box 1778

Carlsbad, New Mexico 88220

IN REPLY REFER TO

NM-34163
2800 (067)
Broom

RECEIVED

JAN 19 1988

LEGAL

JAN 14 1988

Gini Nelson
Office of General Council
P.O. Box 968
Santa Fe, NM 87504-0968

Dear Ms. Nelson:

This letter is in response to your telephone conversation with Mr. Douglas Hoag on January 14, 1988. At that time you wanted information on the salt water facility owned by Broom Transportation, Incorporated and located in the SW/4SE/4 of section 3, T.22 S., R.27 E. (N.M.P.M.), BLM serial number NM-34163.

This facility was assigned from Hardin-Houston, Incorporated to Broom Transportation, Inc. on October 25, 1985. At this time the only bond on this facility known to us is a \$10,000 performance bond (No. 105E8904) held by The Travelers Companies insurance agency for Hardin-Houston, Inc.

The information you wanted was the stipulations for (1) continued use and (2) relinquishment of the site, and the present address of Broom Corporation. Enclosed with this letter is a copy of the letter we sent to Broom Corporation on October 14, 1987 which addressed the use and relinquishment requirements, and a copy of the certified mail receipt for this letter. These enclosures should contain the information you need.

If you have any further questions please call (505/887-6544) or write Mr. Douglas Hoag at this office.

Sincerely,

Richard L. Manus
Area Manager

2 Enclosures

OCT 14 1987

S. Adam
JWJ
NM-34163
2800 (067)
Broom

CERTIFIED--RETURN RECEIPT REQUESTED
P-484 851 418

Broom Corporation
Attn: Ms. Linda S. Broom, President
P. O. Box 505
Artesia, New Mexico 88210

Dear Ms. Broom:

This letter is to inform you of compliance requirements for operating or relinquishing your salt water disposal site in the SW/4SE/4 of section 3, T. 22 S., R. 27 E., BLM serial number NM-34163, which was assigned to Broom Corporation in October of 1985.

If you wish to continue operating this site, the following items need to be corrected:

1. Broom Transportation will obtain a replacement bond for the Hardin-Houston bond in the same amount, \$10,000.00, unless Broom Transportation has a statewide bond already in force which is acceptable to the BLM.
2. The waste water pit for tank truck cleanout and pumping spillage should be covered with net wire of no greater than one-inch mesh to minimize the possibility of hazard to wildlife.
3. A berm at least thirty inches high should be constructed around the diesel fuel tank to contain any possible future leaks or spills.
4. Monitoring devices should be located around the lined salt water earth tank to detect any leakage.
5. The open garbage pit will be filled in and its use discontinued unless approved by the Environmental Improvement Division (EID), New Mexico State Health Environment Department (406 North Guadalupe, Carlsbad, New Mexico 88220). Documentation should be supplied to the BLM confirming that the disposal of garbage and sewage from the residence meets EID requirements.
6. The occasional dumping of salt water into the unlined pit on the east side of the site will be discontinued. If a pit is desired for this purpose, an engineered plan of proposed construction should be submitted for BLM approval.
7. A durable sign displaying the leaseholder's name, BLM serial number (NM-34163), and the purpose of the facility will be prominently located near the entrance to the site and maintained in legible condition.

8. All above-ground structures not subject to safety requirements or a part of the electrical distribution system shall be painted a color which simulates "Standard Environmental Color" Carlsbad Canyon, Munsell Soil Color No. 2.5Y 6/2 (formerly Sandstone Brown).

Items number 1 and 8 apply to the entire facility; the locations of the other problem areas are referenced by the appropriate number on the enclosed site plat.

If you wish to relinquish the site, the following conditions must be met:

1. All above-ground tanks, piping, fences, usable and unusable equipment, structures (except for the P&A well marker), and trash or garbage will be removed from Public surface.
2. Any pits with fluid will be completely dried. The debris around the garbage pit (see #5 on map) will be placed in the pit. After this has been accomplished, all the pits will be backfilled and all soil exposed to brine, discharge fluids, or other contaminants will be covered by at least thirty (30) inches of fresh soil. All berms will be smoothed over.
3. The fresh water pipeline will be capped, recovered to prevent freezing, and closed according to the specifications of the City of Carlsbad.
4. Reseed the entire area with the following mixture:

| | <u>Seed</u> | <u>Rate</u> |
|---------------------|----------------------------------|-------------|
| Alkali sacaton | (<u>Sporobolus airoides</u>) | 4 lbs. PLS |
| Four-wing saltbush | (<u>Atriplex canescens</u>) | 5 lbs. PLS |
| Yellow sweetclover | (<u>Melilotus officinalis</u>) | 4 lbs. PLS |
| Plains Bristlegrass | (<u>Setaria macrostachya</u>) | 3 lbs. |
| | | 16 lbs. PLS |

Pounds of pure live seed (PLS): Pounds of seed x percent of purity x percent of germination).

| <u>Fertilizer</u> | <u>Rate (lbs.)</u> |
|-----------------------|--------------------|
| 16-20-0 or equivalent | 350 lbs. |

The entire site area is to be seeded with the seed mixture listed above. The seed and fertilizer are to be applied together by broadcasting with a seed spreader, then harrowed for seed coverage. Use of a seed drill is acceptable. Appropriate measures will be taken to insure that the seed/fertilizer mixture is evenly and uniformly planted. There will be no primary or secondary noxious weeds in the seed mixture. Seed will be tested for viability and purity in accordance with State law(s) within nine months prior to purchase. Commercial seed will be either certified or registered and the seed mixture container will be tagged in accordance with State law(s). The seed will be available for inspection by the Authorized Officer. The seeding will be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth will not be made before completion of the first growing season after seeding.

5. Contact the Carlsbad Resource Area Headquarters (Phone No. 505/887-6544) at least two working days before the start of reseeding activities. Call or write care of Mr. Douglas Hoag at this office if you have any questions.

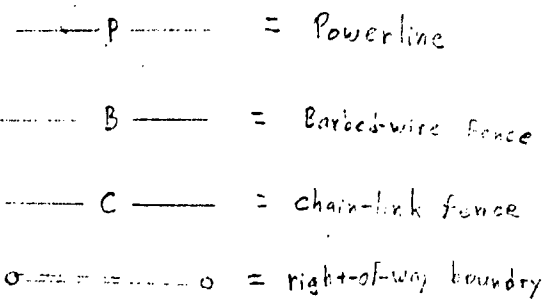
Sincerely,

Richard L. Manus
Area Manager

1 Enclosure

067:DHoag:nh:10/13//87:WANGID0034D

CWD by Broom Transportation



SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☒ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery.

| | |
|--|---|
| 3. Article Addressed to: Broom Corporation Attn: Ms. Linda S. Broom, Pres. P. O. Box 505 Artesia, NM 88210 | 4. Article Number P-484 851 418 Type of Service: <input checked="" type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail Always obtain signature of addressee or agent and DATE DELIVERED . |
| 5. Signature - Addressee X <i>Linda S. Broom</i> | 8. Addressee's Address (ONLY if requested and fee paid) Box 505 |
| 6. Signature - Agent X | |
| 7. Date of Delivery 10-19-87 | |

PS Form 3811, Feb. 1986 **DOMESTIC RETURN RECEIPT**

P-484 851 418

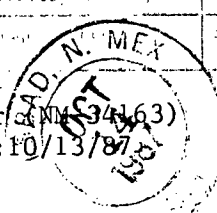
RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

U.S.G.P.O. 153-506

PS Form 3811, Jan. 1987

| | |
|--|----|
| Sent to Broom Corporation Attn: Ms. Linda S. Broom, Pres. P. O. Box 505 P.O. State and Zip Code Artesia, NM 88210 | |
| Postage | \$ |
| Certified Fee | |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom and Date Received | |
| Include Receipt Showing to Whom, Date, and Restricted Delivery | X |
| Postmark | |
| Letter (MM/DD/YY) DHoag: 10/13/87  | |

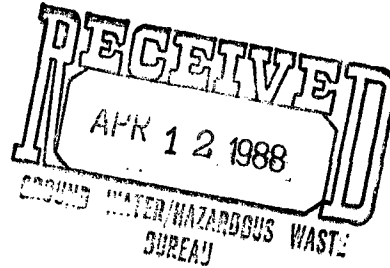


STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR



POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

M E M O R A N D U M

TO: KEVIN LAMBERT, UIC Program, NMEID
FROM: DAVID BOYER, Chief, Environmental Bureau, OCD
SUBJECT: STATUS OF BRINE SUPPLY WELL
DATE: APRIL 8, 1988

DB

The attached letter was sent to me by our Artesia district supervisor. I am forwarding it to you for whatever action may be required.

If the well needs to be plugged, and EID funds are not available, we can discuss whether the Oil Conservation Division (OCD) reclamation fund could be used in this instance.

Please let me know what action is needed or planned so that I can pass it on to our field office.

Enclosure

cc: Prentiss Childs, UIC-OCD
Mike Williams, OCD-Artesia



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

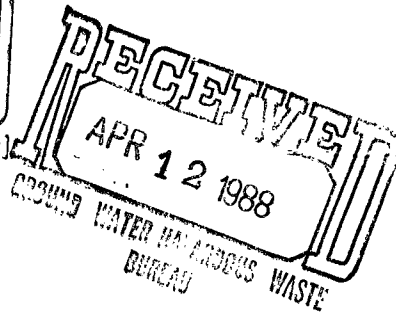
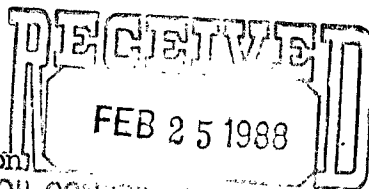
OIL CONSERVATION DIVISION
ARTESIA DISTRICT OFFICE

GARREY CARRUTHERS
GOVERNOR

P.O. DRAWER DD
ARTESIA, NEW MEXICO 88210
(505) 748-1283

February 22, 1988

David Boyer
Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088



Re: Status of Brine Supply well.

Mr. Boyer

The Tracy #3 located in Sec.3-22S-27E is no longer in use.
The well was formerly owned by Broom Transportation, Inc.

Broom Transportation, Inc. has gone out of business. The
bonding company holding the bond on this well has also gone
out of business.

Sincerely,

Mike Williams
Acting Supervisor, Dist. II

BRINE STATION INSPECTION FORM

DATE 11/30 1987 EID INSPECTOR Lambert/Parker
 FACILITY Tracy Brine LOCATION Carlsbad
 FACILITY REP ON SITE None COUNTY Eddy

WELL OPERATION

1 well system No Activity
 WELL IS INJECTING: THROUGH ANNULUS THROUGH TUBING
 SOURCE OF FRESH WATER _____
 TRACE INJECTION/PRODUCTION LINES _____

WELL HEAD PRESSURE _____ PSIG PUMP PRESSURE _____ PSIG
 LEAKS AROUND WELL OR PUMP _____

STORAGE AREA

FOR PONDS:
 GENERAL LINER APPEARANCE _____

pond dry No sign of ANY
Activity for quite sometime

AMOUNT OF FREEBOARD _____
 ANY SIGN OF OVERFLOW OR LEAKS _____
 LEAK DETECTION SYSTEM FLUIDS DRY

FOR TANKS:
 GENERAL APPEARANCE _____
 LABELED PLAINLY YES NO
 BERMED TO PREVENT RUNOFF YES NO
 CHECK CONTENTS TO ASSURE PROPER FLUID/LABLE MATCH _____

NUMBER OF TANKS FOR BRINE _____ FRESH WATER _____

LOADING AREA

PROPERLY GRADED AND BERMED TO CONTAIN SPILLAGE YES NO
 ANY EVIDENCE OF RECENT SPILLAGE YES NO
 DOES FACILITY HAVE A SPILL COLLECTION SYSTEM YES NO
 ANY EVIDENCE OF OIL SPILLING/DUMPING YES NO

MONITORING WELLS

DEPTH _____ FT STATIC WATER LEVEL _____ FT BELOW CASING
 SAMPLED THIS VISIT YES NO TEMP _____ Ec _____

COMMENTS Back corner of property is produced water pit
and another near front of property near loading area
No Activity for sometime Need to see
about calling in bond

Tracy Borne

John W. Parker, WRSII, Ground Water
Name, Title, and Bureau

12/1/87
(Signature)

RECEIVED
DEC 11 1987
LEGAL

(Signature)

12/10/87

Parker

No. 0027

EMERGENCY (explain)

LOW

A schematic diagram of a 1D lattice. A horizontal line represents the lattice with several points marked by dots. A vertical line segment is drawn at one point, extending upwards and downwards. The points are labeled with letters: 'P' at the left end, 'Q' at the top of the vertical segment, 'R' at the bottom of the vertical segment, and 'S' at the right end.

RECEIVED
DEC 16 1987
GROUND WATER/HAZARDOUS WASTE
BUREAU

SPECIAL INSTRUCTIONS:


This matter has been referred to Gini Nelson on 12/14/87

with the following instructions _____

(Where applicable) This matter has been transferred to _____

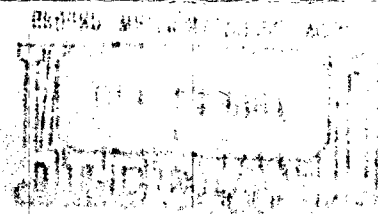
on _____ with the following instructions _____

289-87


Deputy General Counsel

Date Completed

John Parker
Ground Water Bureau





Post Office Box 968
Santa Fe, New Mexico 87504-0968

GARREY CARRUTHERS
Governor

LARRY GORDON
Secretary

CARLA L. MUTH
Deputy Secretary

M E M O R A N D U M

TO: Louis Rose, Deputy General Council / HED

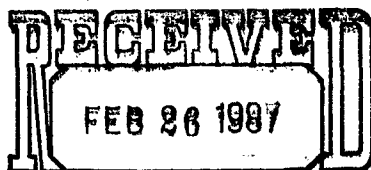
FROM: John W. Parker, Water Resource Specialist

DATE: December 10, 1987

RE: Tracy Brine/Broom Transportation

The Ground Water Section Underground Injection Control Program Staff has made repeated attempts to contact Linda Broom, owner/operator of the Tracy Brine Well, DP-351, all of which have been unsuccessful. Kevin Lambert and myself visited the site in November and found it deserted. While doing some inspections of dischargers in the southeast we asked around regarding Broom Transportation. We were told that the company went bankrupt and that the National Bank of Artesia had title to any financial interests with the facility. It is our belief that it is now time to call in the plugging bond which is on file with the OCD. Please advise as to how we may pursue this goal.

ALM4 - please copy this Ltr from BLM
For G. M. CASLIN & Kevin Lambert Gr. Wat. Section, Ltr



GROUND WATER/HAZARDOUS WASTE
BUREAU

2800 (067)
NM-34163
Broom

RECEIVED

February 2, 1987

FEB 05 1987

CARLSBAD OFFICE

Travelers Indemnity Company
The Travelers Companies
P. O. Box 4343
Houston, TX 77210-4343

Gentlemen:

This letter is in response to your request for cancellation of bond number 105 E 8904 on the salt water disposal site in the SW/4SE/4 of Section 3, T. 22 S., R. 27 E., BLM serial number NM-34163, which was assigned to Broom Corporation in October of 1985. The bond is conditioned upon and the assignment is approved subject to compliance with the terms and conditions of the original grant.

We have reviewed the case file and right-of-way site for compliance with the grant stipulations and the following items need to be corrected.

1. Broom Transportation will obtain a replacement bond for the Hardin-Houston bond in the same amount, unless Broom Transportation has a statewide bond already in force which is acceptable to the BLM.
2. The waste water pit for tank truck cleanout and pumping spillage should be covered with net wire of no greater than one-inch mesh to minimize the possibility of hazard to wildlife.
3. A berm at least thirty inches high should be constructed around the diesel fuel tank to contain any possible future leaks or spills.
4. Monitoring devices should be located around the lined salt water earth tank to detect any leakage.
5. The open garbage pit will be filled in and its use discontinued unless approved by the Environmental Improvement Division, New Mexico State Health Environment Department (405 North Guadalupe, Carlsbad, New Mexico 88220). Documentation should be supplied to the BLM confirming that the disposal of garbage and sewage from the residence meets BLD requirements.
6. The occasional dumping of salt water into the unlined pit on the east side of the site will be discontinued. If a pit is desired for this purpose, an engineered plan of proposed construction should be submitted for BLM approval.
7. A durable sign displaying the leaseholder's name, BLM serial number (NM-34163), and the purpose of the facility will be prominently located near the entrance to the site and maintained in legible condition.

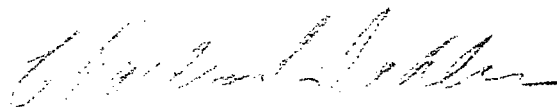
8. All above-ground structures not subject to safety requirements or a part of the electrical distribution system shall be painted a color which simulates "Standard Environmental Color" Carlsbad Canyon, Munsell Soil Color No. 2.5Y 6/2 (formerly Sandstone Brown).

Items number 1 and 8 apply to the entire facility; the locations of the other problem areas are marked by a number on the enclosed site plat.

The assignment is not finalized until the project is in compliance. As soon as these actions are completed, we will authorize cancellation of the Hardin-Houston bond with the Travelers Companies.

If you have any further questions, feel free to call (phone number 505-887-6544) or write Mr. Douglas Hoag at this office.

Sincerely,



Charles S. Dahlen
Area Manager

1 Enclosure:

1 - Site Plat (1p)

cc:

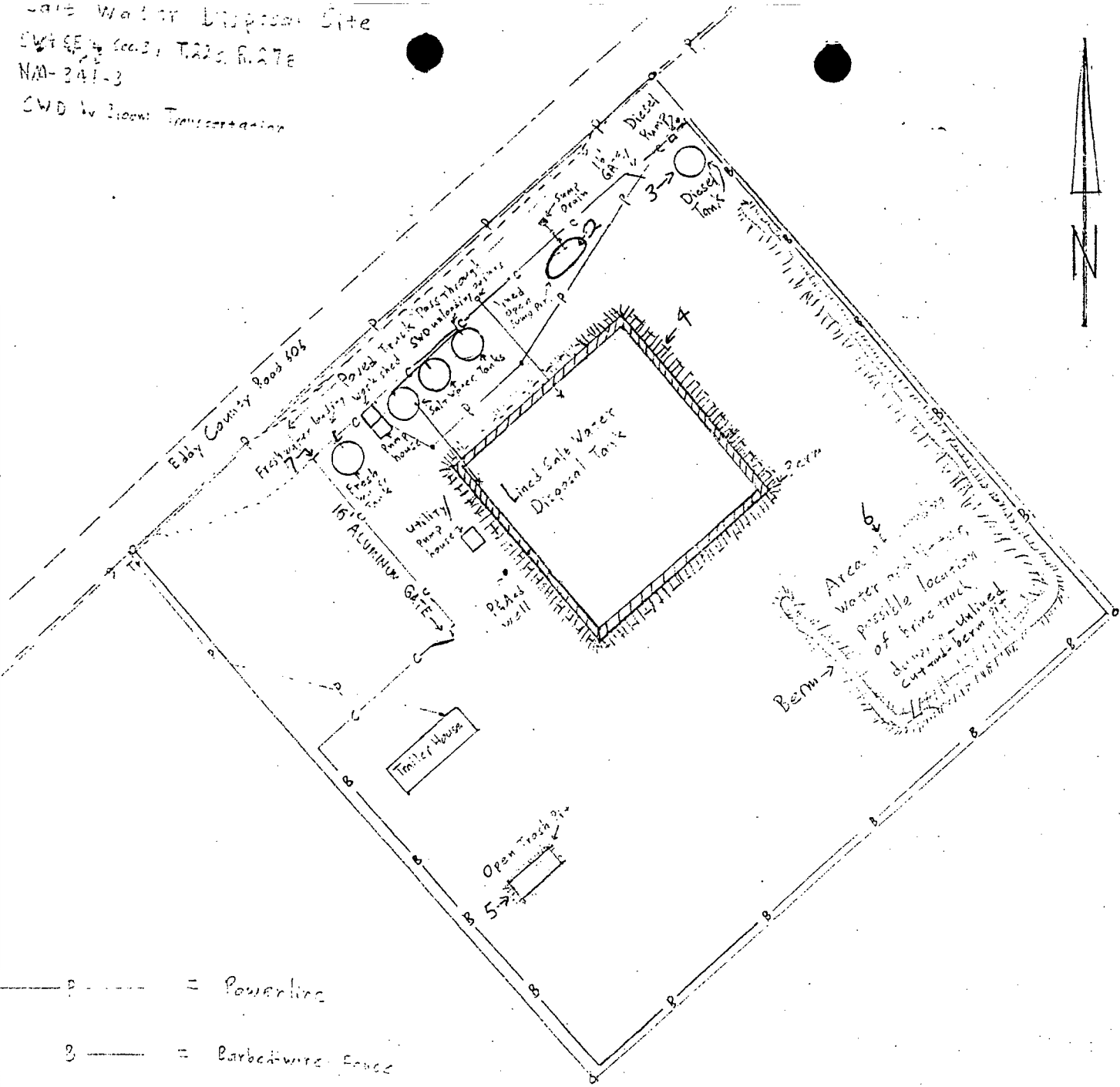
Hardin-Houston, Inc.

Broom Transportation, Inc.

→ Environmental Improvement Division

067:DHog:cq:2/2/87

State Water Disposal Site
 SW 1/4 Sec. 3, T22S, R. 27E
 NAM-341-3
 CWD in 2000: Translocation



- P - - - - = Powerline
- B - - - - = Barbed-wire fence
- C - - - - = chain-link fence

BRINE STATION INSPECTION FORM

DATE 12/9 1986 EID INSPECTOR Lambert, Koschal
 FACILITY Broom Transportation LOCATION Baker, Johnson
 FACILITY REP ON SITE None Available COUNTY Carlsbad
DP-351

WELL OPERATION

WELL IS INJECTING: ☒ THROUGH ANNULUS THROUGH TUBING
 SOURCE OF FRESH WATER City of Carlsbad
 TRACE INJECTION/PRODUCTION LINES _____

WELL HEAD PRESSURE _____ PSIG PUMP PRESSURE _____ PSIG
 LEAKS AROUND WELL OR PUMP None

STORAGE AREA

FOR PONDS:

GENERAL LINER APPEARANCE Good

AMOUNT OF FREEBOARD ~ 3 ft

ANY SIGN OF OVERFLOW OR LEAKS None

LEAK DETECTION SYSTEM _____ FLUIDS _____ DRY None

FOR TANKS:

GENERAL APPEARANCE 1 Tank ^{is} not in good condition, unable discern which
 LABELED PLAINLY _____ YES ☒ NO tanks are fresh &
 BERMED TO PREVENT RUNOFF _____ YES ☒ NO which are brine, Had
 CHECK CONTENTS TO ASSURE PROPER FLUID/LABLE MATCH _____ to make guess

NUMBER OF TANKS FOR 4 BRINE FRESH WATER
? 2 Middle Tanks look to be East Tank leaking looks to
fresh brine and 1 is in bad be fresh water
 LOADING AREA condition (brine) West Tank freshwater but not leaking

PROPERLY GRADED AND BERMED TO CONTAIN SPILLAGE _____ YES ☒ NO
 ANY EVIDENCE OF RECENT SPILLAGE _____ YES ☒ NO
 DOES FACILITY HAVE A SPILL COLLECTION SYSTEM _____ YES ☒ NO
 ANY EVIDENCE OF OIL SPILLING/DUMPING ☒ YES _____ NO

2 produced water pits which may present problems Check w/OCD

MONITORING WELLS

DEPTH _____ FT STATIC WATER LEVEL _____ FT BELOW CASING
 SAMPLED THIS VISIT _____ YES _____ NO TEMP _____ Ec _____

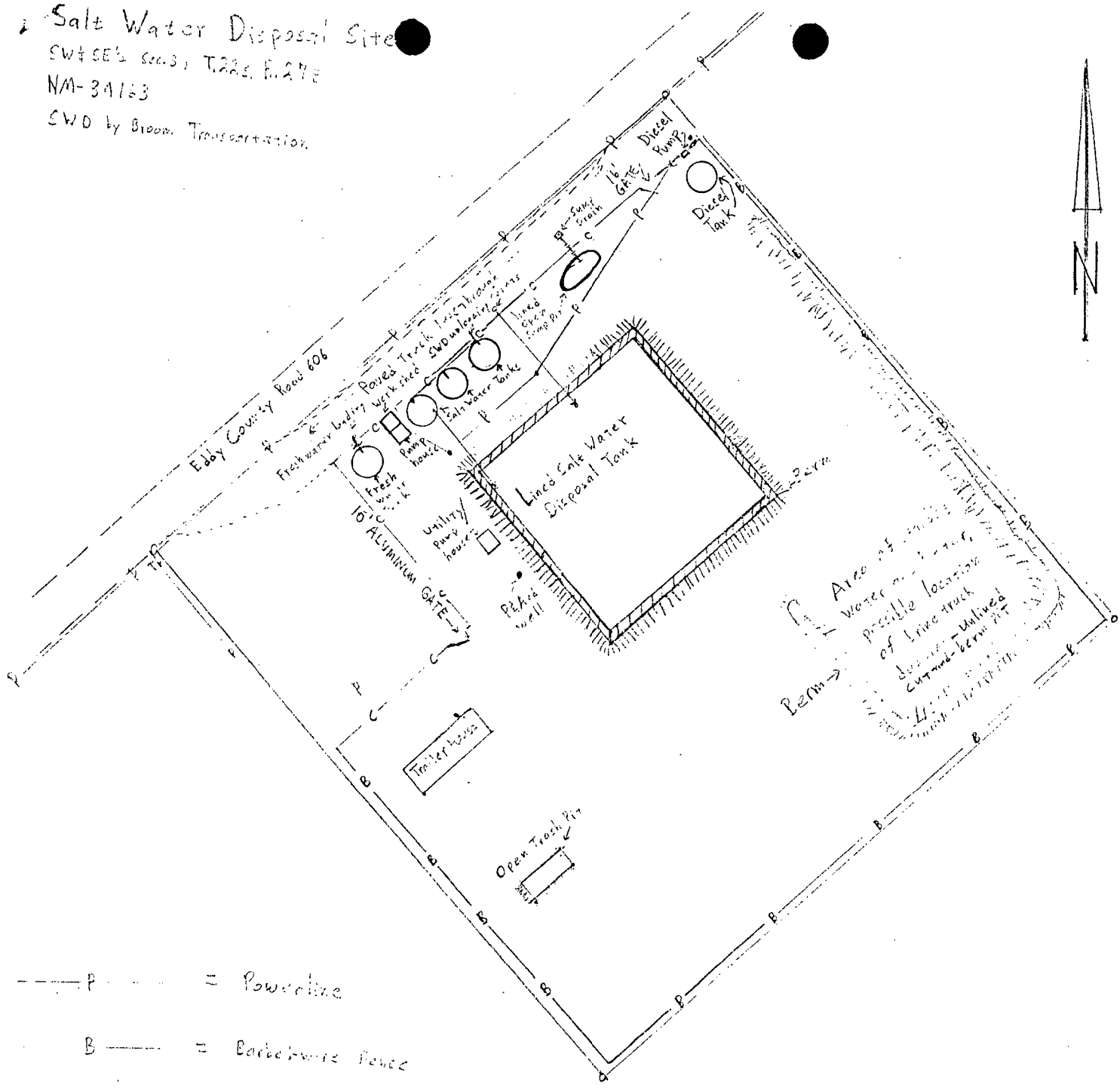
COMMENTS Tanks look to be out-of-service

I & W OCD knows

Broom Transportation
out-of-business
hauler contracts I & W

ELD should go after -
them for well, and pit
should not be there

Salt Water Disposal Site
 SW 1/4 Sec. 3, T.22S, R.27E
 NM-34163
 SWD by Brown Transportation

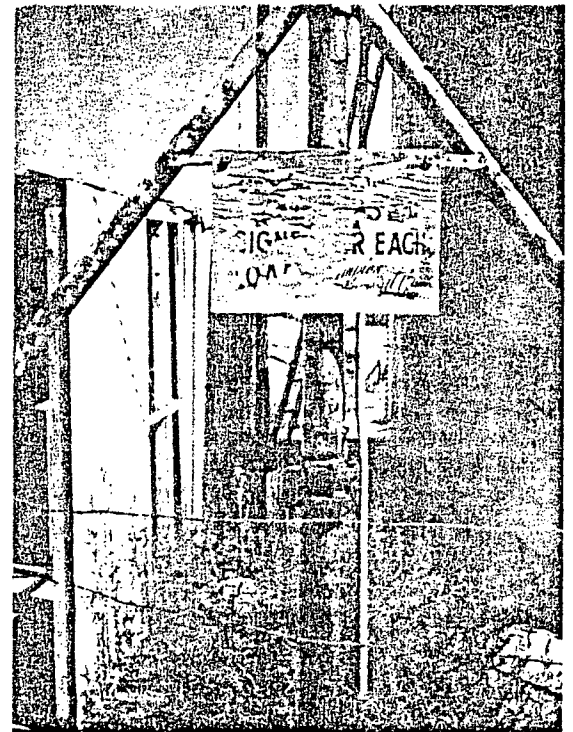
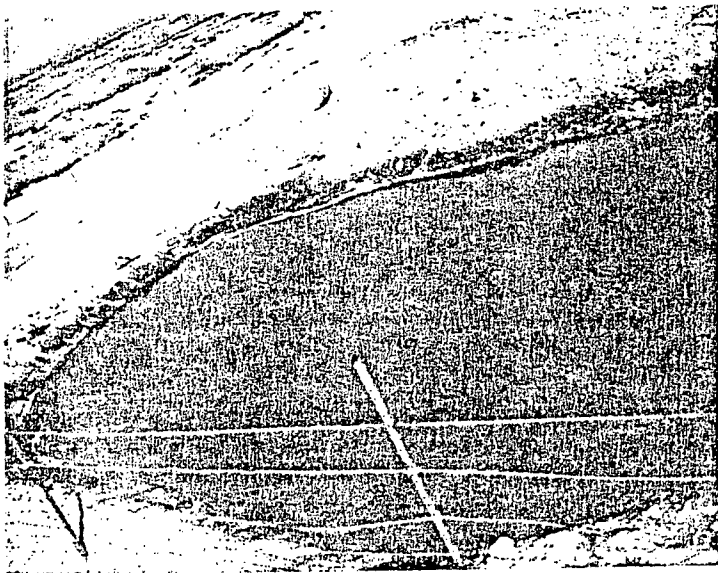
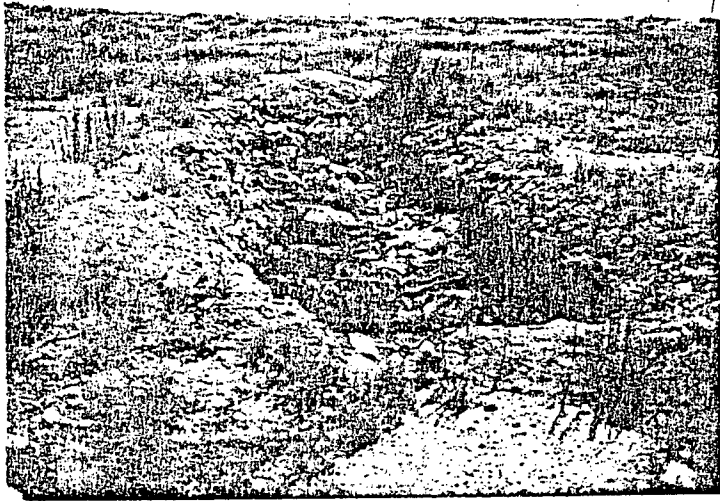


- - - P - - - = Powerline
- - - B - - - = Barbed-wire fence
- - - C - - - = chain-link fence

From
 Doug Hoag
 - BLM, Carlsbad

RECEIVED
 SEP 29 1986
 GROUND WATER FOR ARIZONA WASTE
 BUREAU

RECEIVED
 SEP 26 1986
 CARLSBAD OFFICE



RECEIVED
SEP 26 1986
CARLSBAD OFFICE

I contacted Mr. Mike Williams, with the Artesia office of N.M. Oil Conservation Division to inform him and Mr. Les Clements of the same office, that these reports had been made and the sample collected. He said that they had been notified of the situation and were in the process of contacting their Santa Fe staff and were planning a trip to Carlsbad as soon as possible. He agreed to try to collect a sample of water from the brine well as was requested by Mr. Sares.

TB/are

xc: Garrison McCaslin, HPM II., Roswell

✓ Steven Sares, Groundwater/Hazardous Waste Bureau

From

9/25/86 Tom Burt - Carlsbad

887-3436 RE: Broom TRANSPORTATION and sample
taken and sent to SLD

analyzed for: Ca, K, Mg, Na, Bicarbonate
Cl, SO₄ & TDS

3:20pm Has results of sample ~~been~~ come back
from SLD

Not back from SLD attention was
to Steve Sares
OCD-Artesia Check w/SLD

748-1283 - call Santa Fe Office talked to D. Bayer who
was not aware of any problem. Told me to
Keep in touch so that we can coordinate

SLD 841-2555

- Paul is looking for sample will get back in touch w/me

9/26/86 Paul Zeitz

NA 9,660
~~9,660~~ mg/l

K 420 mg/l

Mg 402 mg/l

HCO₃ 230 mg/l

SO₄ 213.3 mg/l

Total Hardness 5,450 mg/l

Ca 1500 mg/l

~~14,509~~ ~~mg/l~~

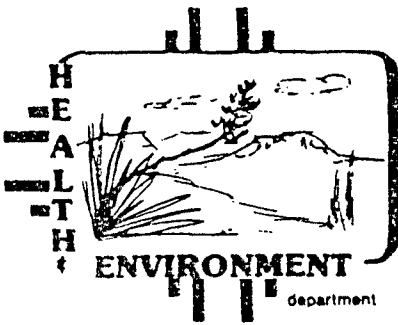
Cl 14,509 mg/l

TDS 30,518 mg/l

result originally

Sent 7/16/86
from SLD

∴ using Produced Water



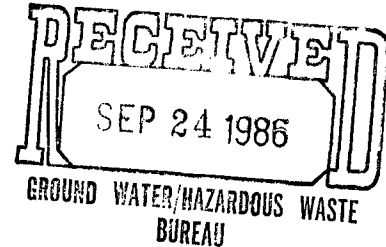
STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION

P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 827-2990

TONY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR



MEMORANDUM

TO: Ernie Rebuck, Chief, Ground Water/Hazardous Waste Bureau

FROM: Jennifer J. Pruett, Division Attorney *JJP*

DATE: September 24, 1986

RE: Broom Transporation Company Case

I was assigned this case in June, and ever since have awaited Bureau sampling of ponds and brine products. As no sampling has been done, and as the Bureau does not expect to do any in the near future, criminal enforcement is out of the question. When the case was sent to me, it was described as "a major violation" of the discharge plan. While I am sympathetic to staff turnover and vacancies, ground water staff was in the Hobb's area last week and did not take samples nor has the Field Office.

If Broom commits discharge plan violations in the future, please send another Request for Legal Services. I am available to take aggressive action if necessary.

JJP/lr

cc: Kevin Lambert ✓
Carol Oppenheimer
Richard Holland
Denise Fort

*UIC Staff was 9/24/86
not aware of GW staff
in Hobb's area*

*Request for Legal Services
Stated: Normal Priority
Requesting advice on
how to proceed with
enforcement of D.P.*

STATE OF NEW MEXICO

**TONEY ANAYA
GOVERNOR**

**DENISE D. FORT
DIRECTOR**

**E
I
D** **NVIRONMENTAL
MPROVEMENT
IVISION**

MEMORANDUM

TO: JENNIFER PRUETT, ATTORNEY, EID LEGAL BUREAU
FROM: ERNEST C. REBUCK, CHIEF, GW/HW BUREAU
SUBJECT: BROOM TRANSPORTATION COMPANY CASE
DATE: SEPTEMBER 15, 1986

The Broom Transportation Company case continues to be handled by the UIC unit of the Ground Water Section. Accordingly Kevin Lambert is the lead technical staff person on this case.

Although the UIC unit does not consider the case to be of high priority, it should remain on the legal docket until UIC can do a field investigation. UIC will investigate during its next field trip to the Hobbs area.

I recognize that there has been a little or not activity on the case since it was filed in July, 1986. However the inactivity is due to staff turnover and staff vacancies rather than any desire on the part of UIC.

cc: Kevin Lambert

ECR/ps

EQUAL OPPORTUNITY EMPLOYER

**P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 827-0020**



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION

P.O. Box 968, Santa Fe, New Mexico 87504-0968

(505) 827-2990

Kevin Lambert
DP-351

TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

MEMORANDUM

TO: Ernie Rebuck, Chief
Ground Water Hazardous Waste Bureau

FROM: Jennifer Pruett *JP*
Division Attorney

RE: Broom Transportation Company Case

Date: September 11, 1986

RECEIVED
SEP 11 1986
GROUND WATER/HAZARDOUS WASTE
BUREAU

On June 30, 1986, we received a request for legal services for the Broom Transportation Company Case. EID had been notified earlier that month that Broom was injecting produced water into its Brine production well, in clear violation of its discharge plan which requires that only fresh water be injected. The violation was reported by a disgruntled trucker of the brine, whose load was refused by a prospective purchaser as it appeared quite oily. My understanding was that samples from both the fresh water tanks at Broom as well as the brine tanks were to be analyzed by SLD as soon as possible. I have not had anything communicated to me on this case and wonder if it is still active. It was originally assigned to Steve Sares. Has it ever been reassigned? Is this a Bureau priority?

If I do not hear from you within (10) ten days of the date of this memo, I will assume the Bureau does not wish to proceed with the matter, and I will close the file. Thank you.

REQUEST FOR LEGAL SERVICES

Request made by: Steve Sares, WRS III (acting) GW/Hel Bureau
(Name, Title, and Bureau)

Approval of Bureau Chief: [Signature]
(Signature)

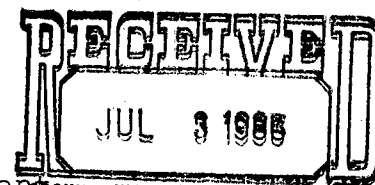
Date of Request: 6/23/86

Person Attorney should contact: Sares Telephone No. 2905

Priority: ☒ Emergency (explain) _____
☒ Normal
☐ Low

Due Date (Deadline): _____

Nature of Request:



- ☐ Referral of matter to legal bureau for enforcement
- ☐ Assign attorney to advise in licensing matter
- ☐ Assign attorney to represent Division in a matter before the EIB, WQCC, or OHSRC
- ☐ Legal opinion
- ☐ Review enforcement letter for legal adequacy
- ☐ Review submittal to federal or state government agency for legal adequacy
- ☐ Review draft contract or agreement for legal adequacy
- ☐ Obtain inspection order in District Court
- ☐ Status report
- ☒ Other (please specify) Request advise on how to proceed with enforcement of DP

Please fill in as applicable:

Name of Case: Broom Transportation Company

Attorney assigned to Case: _____

TO BE COMPLETED BY CHIEF ATTORNEY:

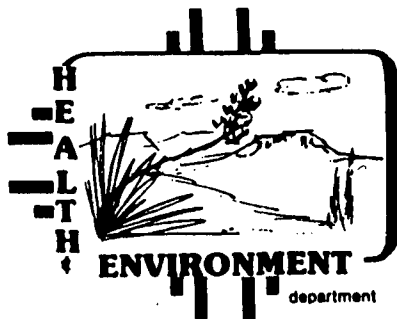
This matter has been referred to Jennifer Prueet on 6/1/86
with the following instructions Please see me.

Internal #

172-86

[Signature]
Chief Attorney

Date Completed _____



STATE OF NEW MEXICO

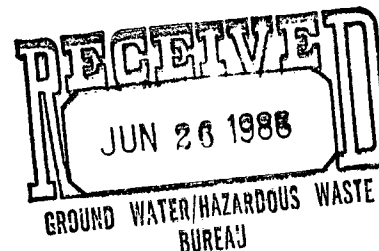
ENVIRONMENTAL IMPROVEMENT DIVISION

406 North Guadalupe
Carlsbad, New Mexico 88220
(505) 885-9023

Sares
TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

MEMORANDUM



DATE: June 24, 1986
TO: File
FROM: Tom Burt, HPM I. *[Signature]*
SUBJECT: Brine Extraction Well East of Carlsbad,
Reported Irregularities

On Monday morning, June 23, James D. Smith, environmentalist, Carlsbad field office of EID, received a telephone call from Mr. Jimmy Pryor, 887-2151, Carlsbad, that Broom Transportation, Inc., a tank truck company which also owns a brine extraction well east of Carlsbad, had been injecting "produced" water into their brine well for extraction purposes. He also reported that the company had been selling the produced water to drilling rigs for fresh water. Mr. Pryor was referred to Dennis McQuillan of EID Groundwater Bureau, Santa Fe.

Shortly thereafter, Steven Sares of EID Groundwater Bureau called me requesting that a water sample be collected from the fresh water tank of the Tracy Brine well site. James Smith and Roy Dawdy went to the site, introduced themselves to the lady there and collected the sample. They described the source of the sample as a metal storage tank (one of four) labelled "FRESH WATER". The sample (a quart cubitainer, unpreserved) was sent to SLD, Albuquerque that afternoon with a request to analyze for calcium, potassium, magnesium, sodium, bicarbonate, chloride, sulfate, and total dissolved solids. The liquid in the sample was black, with a very noticeable odor. Smith and Dawdy described it as having a film of oil on the surface.

Tuesday morning, June 24, I received a call from Mr. Pryor with the information that water from this same tank had been sold, as fresh water, to the following locations, among others: Mesa Petroleum, Hondo A, State #1; Exxon, Trig, Federal #1; and J. M. Huber, Federal 12, #1.

Brine manuf.

6/23/86 ~10:30

Broom Transportation - Carlsbad
instead of injecting fresh water they are injecting produced H_2O
to make brine

Hondo O+G free. job

Jimmy Pryor 887-2151 home
→ informant + caller

D. McD.

I CALLED TOM BURT AT 10⁴⁵ HE WILL SEND SOMEONE
OUT THERE TO SAMPLE FW_{res} tanks IN THE NEXT 1/2 HR
-45 min. HE'LL CALL BACK TO LET ME KNOW HOW THINGS WENT.

Jim Smith Carlsbad.

Sample From FW tank - full of oil, looks
like produced water.

Broom Transportation, Inc.

Post Office Box 1031
ARTESIA, NEW MEXICO 88210

Caprock Radio Units

#6214 #7208

#7203 #7213

#7205 #7301

— Phone —

(505) 746-3304

(505) 746-4463

January 17, 1986

Ms. Paige Grant Morgan
Water Resource Specialist,
Ground Water Section
N.M. Environmental Improvement Division
P.O. Box 968
Santa Fe, New Mexico 87504-0968

RE: Tracy Brine Well near Carlsbad

Dear Paige:

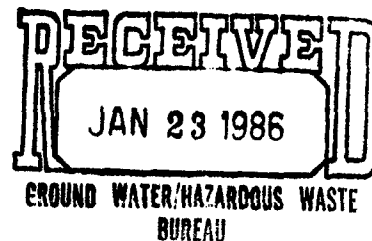
I am attaching a letter I am sending to Steve Cullen of Soilmoisture Equipment Corporation in Santa Barbara. I think we can afford to have this system installed in late February or early March. I also have hired a new man from Wyoming who is living at the brine station and who is very interested in taking care of it properly. He should be very conscientious about record keeping, if his present work is any indication of how his future work behavior will be. I will send you copies of any future correspondence I have with Steve.

Thanks for your continued patience with us as we struggle with financial dragons.

Sincerely,

Linda S. Broom
Linda S. Broom,
President

cc



Broom Transportation, Inc.

Post Office Box 1031
ARTESIA, NEW MEXICO 88210

Caprock Radio Units

#6214 #7208
#7203 #7213
#7205 #7301

— Phone —
(505) 746-3304
(505) 746-4463

January 17, 1986

Mr. Steve Cullen
Soilmoisture Equipment Corporation
P.O. Box 30025
Santa Barbara, California 93105

Dear Steve:

Thank you for your correspondence of last September. I have carefully reviewed the leaflet you sent describing the No. 5000-A Soil Salinity Sensors and the No. 5500 Salinity Bridge. I have some questions based on my understanding of this brochure:

1. Installation of sensors requires horizontal or slant drilling beneath the liner. Does your firm do the drilling and installation of these sensors, or would we have to get someone locally to do the installation? If we must retain a local crew for the installation, please recommend any firm you know of that has experience with this type work in our geographical area. Otherwise, furnish me with a detailed description of how the work must be done so that I can be sure I hire a competent crew to do the job.
2. You suggest that the sand layer beneath our brine lagoon might be a good place to put the sensors because the sand layer would act as a "French drain." Are their specific tests that should be made before we actually place the sensors to make sure that they will tell us what we want to know? If so, please send me explicit instructions on performing those tests.
3. I have attached a sheet describing the dimensions of the brine lagoon. Based on this description, can you estimate how many sensors we would need and where they should be placed?
4. Based on your response to #3, can you estimate the cost of the system?

Thank you for your time and effort. I look forward to your response.

Sincerely,

Linda S. Broom
Linda S. Broom,
President

cc: Paige Grant Morgan, N.M. EID

Broom Transportation, Inc.

Post Office Box 1031
ARTESIA, NEW MEXICO 88210

Caprock Radio Units

#6214 #7208

#7203 #7213

#7205 #7301

RECEIVED

OCT 7 1985

— Phone —
(505) 746-3304
(505) 746-4463

October 1, 1985

GROUND WATER/HAZARDOUS WASTE
BUREAU

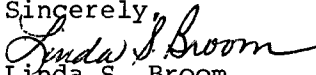
Paige Grant Morgan,
Water Resource Specialist
Environmental Improvement Division
P.O. Box 968
Santa Fe, New Mexico - 87504-0968

RE: Information from Soilmoisture Corporation

Dear Paige:

I received the attached information in the mail today and thought you might be interested in reading it also. Of course, I have a few more questions I would like to ask the Soilmoisture people before I decide to install a system like this. I hope to have this matter resolved soon, so I'll let you know what I decided as soon as possible. Perhaps if this works for us, it will also work for other brine station owners.

Best regards.

Sincerely,

Linda S. Broom,
President

cc



September 27, 1985

Ms. Linda S. Broom, President
Broom Transportation, Inc.
P.O. Box 1031
Artesia, NEW MEXICO 88210

Dear Ms. Broom:

Thank you for your letter of September 14, 1985 detailing your brine pond installation.

I have reviewed current techniques and research regarding soil salinity monitoring systems. Virtually all of the accepted methods rely on relating soil salinity to electrical conductivity. The salinity sensors which we have in our brochure entitled "For The First Time" provide the only means currently developed for measuring directly the conductivity of the soil solution in situ. I am enclosing a copy of this brochure for your convenience.

From the information which you have sent, I can infer that the conductivity of the native soils at your site is high and the conductivity of the brine solution is extremely high. At discrete locations, the salinity sensors will easily give you an accurate assessment of salts in the soil solution.

Difficulties that I anticipate and caution you about concern the installation of sensors beneath a previously constructed water impoundment structure and concerning the spacing of sensors, once installed, to insure adequate horizontal coverage and leakage detection.

Installation of the sensors, will require a slant or horizontal drilling operation to place the sensors beneath the liner. Depending on the configuration of the sand layer beneath the liner and particle size distribution of the soil materials immediately above and below, it may be more appropriate to place the sensors in the sand layer. It is possible that the sand layer would act as a "french drain" or conduit where contaminant leakage would accumulate to near the saturation point before crossing the discontinuity below.

Salinity sensors act as "point" source monitoring devices. Because of this, one must deal in probabilities when considering the number of sensors required to detect leaks. Again particle size distribution becomes important. Sensor spacing should be closer in coarse textured soils than in fine textured soils. Again, it may be possible to effectively increase the probability of detection by using the sand layer to channel contaminant flow to the sensing units.

Address Correspondence To:
Soilmoisture Equipment Corp
P. O. Box 30025
Santa Barbara, CA 93105 U.S.A.

Plant and Office Location:
801 South Kellogg Ave.
Goleta, CA 93017

Telephone:
Area Code 805 964-3525

Cable Address:
Soilcorp

Telex:
Telex No. 65-8424



SOILMOISTURE equipment corp.

Model Nos. 5000-A or No. 5100-A Soil Salinity Sensors are used in conjunction with No. 5500 Salinity Bridge and No. 5501 Plug Terminal Adapter for separate resistance measurements of the electrolytic element and thermistor element. The readings can then be converted directly to yield electrical conductivities in the range of high values that you will likely encounter. Longer lengths of cables can be provided on special order. Lengths over 100 ft. have been successfully used in the field.

Presently, we are involved in exploring new and more sophisticated technologies for on-site vadose, or unsaturated zone monitoring. As these technologies are tested and verified, we will be at the forefront of related product development and marketing. We will keep you informed as these technologies develop and hope that you will continue your contact with us, so that we may better fill your needs as a user.

I hope I have addressed the issues for which you have concern. Please contact me at your convenience, if you wish to discuss this further or would like to place an order. Thank you for your interest.

Sincerely

SOILMOISTURE EQUIPMENT CORP.

Steve Cullen
Sales Engineer

SC:dk



COVER ON FOR FIELD USE

SOIL SALINITY SENSOR

The Cat. Nos. 5000-A and 5100-A Soil Salinity Sensors together with the Cat. No. 5500 Salinity Bridge are a powerful, convenient tool for the study of the many ramifications of total dissolved salts in the soil solution.

In irrigated areas, particularly in arid and semiarid climates, the relationships of dissolved salts to plant growth and the irrigation practices are vital.

FOR THE SCIENTIST These new tools provide the scientist with means of measuring salinity values in the soil solution in discreet areas without continuous disturbance to the soil profile. The efficiency of the measurement, both in the field and laboratory setups, make it possible to substantially increase the pace of scientific investigation, and to observe dynamic changes in salinity values not previously possible.

FOR THE GROWER For the grower, the soil salinity sensor and salinity bridge provide a simple, practical tool for the monitoring of soil salinity in the field, and the control of salinity values through leaching.

SOIL SALINITY SENSOR The Cat. No. 5000-A Soil Salinity Sensor (shown), of improved sensitivity, is buried in the soil where salinity measurements are to be made. A connecting

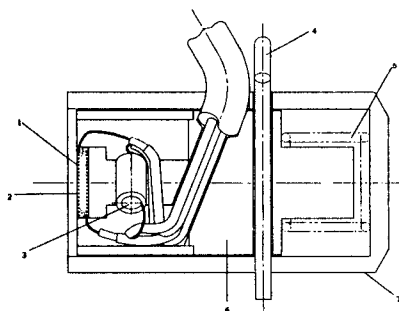
cable with polarized plug attached connects to the salinity bridge when a measurement is to be made. The rugged, totally sealed sensor undamaged by the soil environment contains an electrolytic element for sensing salinity and a thermistor for sensing temperature. The electrolytic element of very fine porous ceramic with imbedded platinum electrodes remains saturated with soil solution throughout the whole plant growth range. Ions migrate in and out of the fine pores in the electrolytic element to remain in constant chemical equilibrium with the soil solution.

SALINITY BRIDGE The Cat. No. 5500 Salinity Bridge has been specifically designed for use with the Cat. Nos. 5000-A and 5100-A Soil Salinity Sensors. This rugged, field portable, solid state, 1,000 Hertz, AC resistance bridge with galvanometer null indicator provides three conventional resistance ranges up to 100,000 ohms in addition to the special automatic conductivity circuit for read out of the soil salinity sensors. This is the only bridge specifically compensated for the capacitance characteristics of the soil salinity sensors to give accurate, sensitive resistance measurements.

Light weight and convenient to use with sealing cover, removable for laboratory applications.

SOILMOISTURE EQUIPMENT CORPORATION

SALINITY SENSOR WORKS

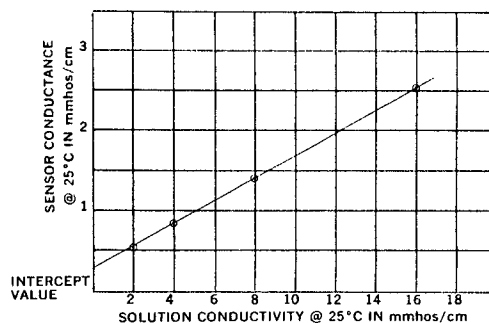


In the cross section view of the Cat. No. 5000-A Soil Salinity Sensor, shown above, the electrolytic element (1) is sensitive to changes in soil salinity and acts in the same general manner as a conventional conductivity cell. The element is made of an extremely fine textured, porous ceramic with cross-sectional area of .32 cm² with two fine mesh platinum electrodes (2) also .32 cm² in area fired into the ceramic 1 mm apart. The pores in the ceramic are so fine that they remain full of soil solution throughout the whole plant growth range of soil moisture conditions. The surface of the electrolytic element must be in intimate contact with the soil so that ions from the soil will migrate into or out of the pores of the electrolytic element so as to keep the solution within the element in chemical equilibrium with the soil solution. Since the geometry of the electrolytic element is stable, the resistance read between the two electrodes in the element is related to solution conductivity in the same manner that the resistance between the electrodes of a conductivity cell is related to the conductivity of the solution. In order to interpret the resistance reading in terms of solution conductivity, it is necessary also to know the temperature since the conductivity of soil solutions vary approximately 2% per °C. The thermistor (3), located just behind the electrolytic element, senses temperature and is used to measure the temperature of the electrolytic element so that the resistance of the electrolytic element can be related accurately to the conductivity of the soil solution. The resistance of the thermistor within the sensor changes approximately 3.9% per °C.

The balance of the parts in this sensor are used to assure that the surface of the electrolytic element remains in good contact with the soil. After insertion in the soil, the pin (4) is withdrawn by a pull wire which permits the spring (5) to force the inner assembly (6) containing the electrolytic element against the soil by pushing on the housing (7). This spring loading feature is desirable for use in soils of doubtful mechanical stability. The Cat. No. 5100-A Soil Salinity Sensor that does not incorporate this spring loading feature can be used in the more stable sandy soils.

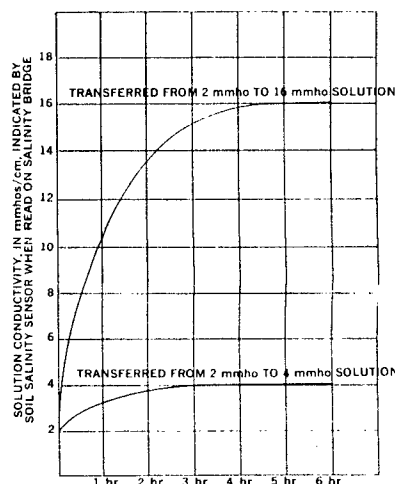
If the resistance in ohms of the electrolytic element, when measured at 25°C. in standard solutions of known conductivity, is divided into 1,000 to convert to millimhos of conductance, and then plotted against the solution conductivity, also in millimhos, one obtains a graph, as shown above. This graph is characteristic of the particular sensor. By reference to the graph, the solution conductivity of an unknown solution can be determined by the conductance of the sensor when it is placed in the solution.

It is characteristic of the sensors that the calibration line does not go through the origin but intersects the sensor conductance



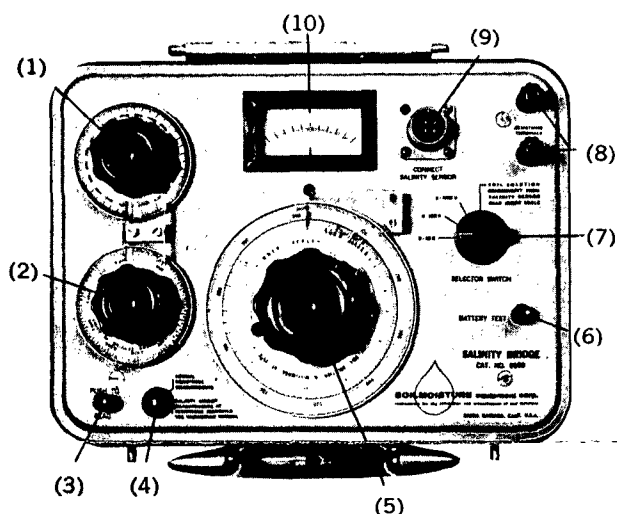
axis at some point above zero. This value is defined as the intercept value and is a fixed constant for the sensor. The slope of the calibration line, which corresponds to the cell constant of a conventional conductivity cell, is the second constant for the individual sensor. The third constant is the resistance value of the thermistor at 25°C.

The conductivity read out circuit of the Cat. No. 5500 Salinity Bridge provides an electrical analog that uses the intercept value of the individual sensor together with the slope and thermistor values to interpret the sensor conductance directly as solution conductivity corrected to 25°C. Each of the sensors is calibrated at the factory and the intercept setting that is entered in the bridge is calculated and marked on the plug of the sensor. The value of the slope which is actually combined with the value of the thermistor to make a single slope-thermistor setting for entry in the bridge is also calculated and marked on the plug of the sensor. By entering the thermistor setting and the slope-thermistor setting on the corresponding dials of the salinity bridge and adjusting the read-out dial until the galvanometer reading is zero, the read-out dial will then give directly conductivity of the solution within the electrolytic element corrected to 25°C.



Since ions must diffuse in and out of the pores of the electrolytic element in order to change the conductance reading of the element, a certain amount of time is required for the element to come to equilibrium with the surrounding solution. The graphs above show typical response times of the sensors when transferred from a bulk solution of one conductivity to a bulk solution of a different conductivity.

Soil Salinity Sensors are calibrated in solutions which are a 1 to 1 mixture, on an equivalent basis, of calcium and sodium chloride. The sensors can be readily recalibrated in solutions of different compositions, if this is required for special work.



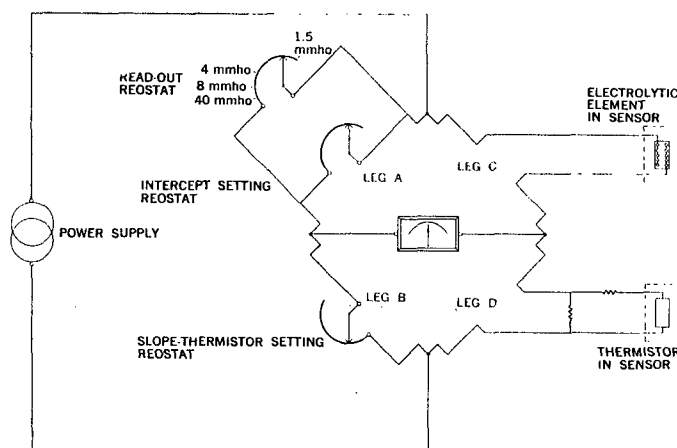
- (1) INTERCEPT SETTING DIAL
- (2) SLOPE-THERMISTOR SETTING DIAL
- (3) ON OFF SWITCH
- (4) TERMINAL RESISTANCE SWITCH
- (5) READ-OUT DIAL
- (6) BATTERY TEST SWITCH
- (7) SELECTOR SWITCH FOR RESISTANCE RANGE
- (8) RESISTANCE TERMINALS FOR UNKNOWN RESISTANCE MEASUREMENTS
- (9) RECEPTACLE TO ACCEPT POLARIZED SALINITY SENSOR PLUGS
- (10) GALVANOMETER

For routine soil salinity measurements from sensors installed in the field, the polarized plug of the sensor is plugged into the Receptacle (9). The Intercept Setting Dial (1) and the Slope-Thermistor Setting Dial (2) are set at the values marked on the plug of the sensor. The Selector Switch (7) is turned clockwise to the "SOIL SOLUTION CONDUCTIVITY FROM SALINITY SENSOR" position. The On Off Switch (3) is pushed down to energize the circuit and the Read-Out Dial (5) is moved clockwise or counterclockwise until the pointer of the Galvanometer (10), is on the zero or null point. Conductivity of the soil solution at 25°C. is then read on the inner conductivity scale of the Read-Out Dial at the index line.

The convenience of direct read out of soil solution conductivity corrected to 25°C. is made possible by the special bridge circuit which is shown diagrammatically above. With reference to the Sensor Conductance versus Solution Conductivity graph, shown on the opposite page, the Intercept Setting resistance in Leg A of the bridge circuit corresponds to the conductance of the intercept value when converted to resistance. The Slope-Thermistor Setting resistance value in Leg B of the bridge circuit corresponds to the slope of the line on the graph. The

effect of setting these values in the bridge circuit is to modify the resistance reading from the electrolytic element of any sensor, which is Leg C of the bridge circuit, so that it will correspond to the same reading that a fixed average sensor would have in that particular solution. Under these circumstances the bridge is balanced for all sensors in any particular solution when the resistance of the read-out reostat in Leg A is at a fixed value, that corresponds to the conductivity of the solution.

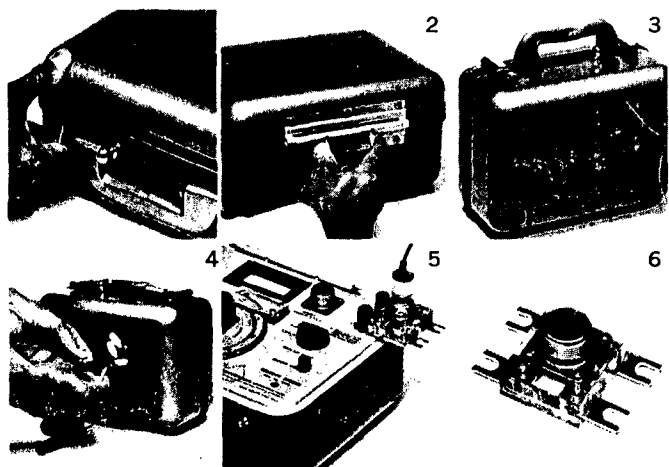
Leg D of the bridge contains a network of resistances which includes the thermistor in the soil salinity sensor. This network is so adjusted that when the temperature of the soil salinity sensor changes, the resistance of Leg D changes in the same proportion as Leg C. Therefore, changes in conductance of the electrolytic element due to temperature do not disturb the balance of the bridge and hence make the bridge balance independent of temperature changes. The values of the resistances in Leg D are adjusted so that the conductivity value indicated by the read-out reostat of Leg A corresponds to the conductivity of the measured solution at 25°C.



Reading of miscellaneous non inductive, unknown resistance values can be made by connecting to the Resistance Terminals (8). The Resistance Terminal Switch (4) is turned to the "NORMAL RESISTANCE MEASUREMENTS" position. The Selector Switch is set at the resistance range desired, the On Off Switch pushed down and the bridge balance by turning the Read-Out Dial. The resistance value of the unknown is then read out on the outer ohms scale of the Read-Out Dial (5).

The separate resistance value of the electrolytic element of the soil salinity sensor can be made at the resistance terminals by using the Cat. No. 5501 Plug Terminal Adapter. For this measurement, the Terminal Resistance Switch (4) is turned to the "SOIL SALINITY SENSOR MEASUREMENTS AT RESISTANCE TERMINALS" position, the Selector Switch moved to the desired resistance range, the bridge balanced and the resistance read on the outer ohms scale of the Read-Out Dial.

CAT No. 5500 SALINITY BRIDGE



- (1) Smooth design, snap latches mounted on cover, seal cover securely in place during transport.
- (2) Slip pin hinge permits easy dismantling of cover from meter case.
- (3) Bumpers on bottom and back of case provide flexibility of handling during transport.
- (4) Battery case in base of unit permits easy replacement of batteries.
- (5) Independent resistance measurements of the electrolytic element and the thermistor of the sensor can be read at the resistance terminals by use of the Cat. No. 5501 Plug Terminal Adapter.

The Cat. No. 5500 Salinity Bridge is a 1,000 Hertz, solid state, sine wave AC resistance bridge. Powered by four 9 volt transistor batteries, Eveready #216 or equivalent. Bridge circuit is normally off. Spring loaded, push button switch is used to energize circuit when reading is made. Separate test switch on panel checks battery power. Resistance terminals on panel accept banana plugs, wire, or wire lugs. Receptacle on panel accepts polarized plug from Salinity Sensor.

Three 1% accuracy resistance ranges available: 0-1,000 ohms, 0-10,000 ohms, 0-100,000 ohms. One direct reading conductivity range for use with the Cat Nos. 5000-A and 5100-A Soil Salinity Sensors, range $1\frac{1}{2}$ to 40 millimhos/cm.

Panels and dials clear anodized, sealed aluminum. Dials are friction loaded for ease of setting. Index read-out line for dials is made of two vertically spaced lines to eliminate parallax. Case and cover are of heavy aluminum with baked enamel finish. Neoprene seals.

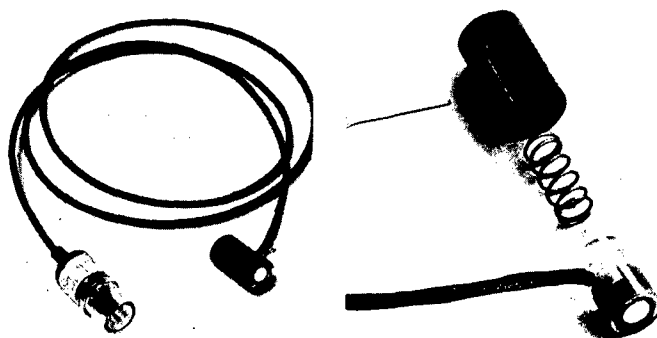
Overall dimensions: 11-1/4"L x 9-3/8"W x 6"H
Net weight 6.7 lbs.

Shipping weight 10.0 lbs.

- (6) The Cat. No. 5501 Plug Terminal Adapter, an accessory item ordered separately, is used when separate resistance measurements of the electrolytic element and the thermistor within the soil salinity sensor are measured separately. Valuable for calibration work on the soil salinity sensors, the adapter is fabricated from plexiglass with standard polarized receptacle to accept the plug of the salinity sensor. Two sets of brass plated lugs extend from opposite sides of the adapter, one set for the thermistor, and one set for the electrolytic element to fit the resistance terminals on the Salinity Bridge.

Overall dimensions: 2-3/4"L x 1-7/8"W x 1-3/4"H
Net weight .2 lb.
Shipping weight .5 lb.

CAT. No. 5000-A SOIL SALINITY SENSOR



The Cat. No. 5000-A Soil Salinity Sensor is a spring loaded unit designed to fit crosswise into a 1 1/4" diameter cored hole, such as made with our Cat. No. 215 Soil Sampling Tubes. The overall dimensions are 5/8" outside diameter by 1-1/8" long. The outer housing covers all but the sensing surface of the electrolytic element in the end of the unit, held in place with inner assembly by a stainless steel release pin. An internal stainless steel coiled spring is provided to keep the sensing surface in good contact with the soil after insertion in the ground. Release pin is pulled out after unit is inserted in cored hole thus actuating the spring. A four-conductor electrical cable, 4 feet long, leads from sensor to polarized plug. Each conductor in cable is #27 gauge stranded copper with PVC insulation, color coded with two blue conductors going to two electrodes of the electrolytic element, and two red wires going to two leads of the thermistor. The four conductors are encased in heavy black polythelene jacket. Longer lengths of connecting cables can be provided on special order. All elements of sensor are solidly potted in place and are exceptionally weather and corrosion proof. Each unit supplied with calibration data. Sensor Intercept Setting and Slope-Thermistor Setting values marked on plug of each sensor.

Net weight .1 lb.

Shipping weight .7 lb.

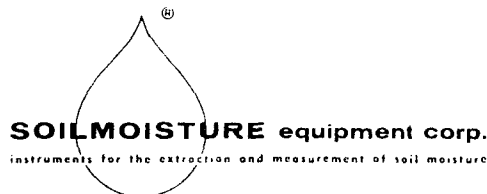


CAT No. 5100-A SOIL SALINITY SENSOR

The Cat. No. 5100-A Soil Salinity Sensor is the same as the Cat. No. 5000-A Soil Salinity Sensor except that it is of coaxial design and does not incorporate the spring loading feature. The overall dimensions are 1/2" outside diameter by 5/8" long. The electrical cable comes out from the end of the sensor opposite to the sensing surface. The unit is designed to fit into a 1/2" diameter hole cored in the soil.

Net weight .1 lb.

Shipping weight .7 lb



FOR FURTHER INFORMATION WRITE TO:
SOILMOISTURE EQUIPMENT CORP.
P.O. BOX 30025
SANTA BARBARA, CALIF. 93105
U.S.A.
TELEPHONE: AREA CODE 805 964-3525
CABLE ADDRESS: SOILCORP
TELEX: 65-8424



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION

P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

Linda S. Broom, President
Broom Transportation, Inc.
PO Box 1031
Artesia, NM 88210

September 25, 1985

Dear Linda:

Thank you for your letters of September 9th and 13th, keeping me posted on your planning toward improving the leak detection arrangements at the Tracy brine station. I am encouraged that the gypsum blocks may offer a solution to the problem of retrofitting the brine storage pond with a leak detection system.

As to your proposal to install a pressure recorder for continuous monitoring of pressure during brine production: this would be a considerably more sophisticated system than has been installed at any other brine station. If you choose to carry through this proposal, EID would applaud you for a job well done and avail itself of your records; but I do not believe it is necessary in a brine well with no history of problems, so long as you commit to the following:

- 1) Annually, check the accuracy of the pressure guages and particularly the automatic shutoff switch.
- 2) Report brine sales to EID on a quarterly basis. This will not contribute to waterbalance measurements, but it will allow monitoring of approximate cavity size.
- 3) Run an annual pressure test on the well and cavity. EID will make every effort to be present and provide EID pressure recording equipment for this test.
- 4) Install a leak detection system under the storage pond and set up a schedule on which to monitor it.

Thank you for your efforts at bringing this brine facility into full compliance with the Water Quality Control Commission regulations.

Sincerely,

Paige Grant Morgan
Water Resource Specialist

PGM:pgm

cc: John Guinn, EID District IV Manager.

Broom Transportation, Inc.

Post Office Box 1031
ARTESIA, NEW MEXICO 88210

Caprock Radio Units

#6214 #7208

#7203 #7213

#7205 #7301

— Phone —
(505) 746-3304
(505) 746-4463

RECEIVED
SEP 19 1985
GROUND WATER/HAZARDOUS WASTE
BUREAU

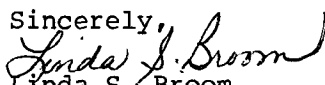
September 13, 1985

Ms. Paige Grant Morgan
Water Resource Specialist,
Ground Water Section
N.M. Environmental Improvement Division
P.O. Box 968
Santa Fe, New Mexico 87504-0968

RE: Tracy Brine well near Carlsbad

Dear Paige:

Steve Cullen with Soilmoisture Equipment Corporation responded to my letter with a call yesterday. He stated that gypsum blocks have indeed been used to detect leakage under storage ponds and that they have also been especially useful in monitoring pits for mining operations. He requested some particular information on the lagoon, which I am sending him. He plans to design a system compatible with our brine type and the size of the lagoon. I will let you know as soon as I hear something definite from him. If the soilmoisture blocks turn out to be a suitable solution to our problem, perhaps they will also be of help to other brine station owners struggling with the same problem.

Sincerely,

Linda S. Broom,
President

cc

Broom Transportation, Inc.

Post Office Box 1031
ARTESIA, NEW MEXICO 88210

Caprock Radio Units

#6214 #7208
#7203 #7213
#7205 #7301

— Phone —
(505) 746-3304
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September 9, 1985

RECEIVED

SEP 12 1985

Paige Grant Morgan,
Water Resource Specialist
Environmental Improvement Division
P.O. Box 968
Santa Fe, New Mexico 87504-0968

GROUND WATER/HAZARDOUS WASTE
BUREAU

RE: Metering system at Tracy brine well

Dear Paige:

Please find attached a copy of the letter I have written to Soilmoisture Equipment Corporation regarding the soil moisture blocks. While we await their response, I will also be asking a couple of local construction companies about auguring diagonally under the pond and installing the perforated pipe as you suggested. Surely one or the other or a combination of both of these possibilities will provide us the reliable leak detection system we are searching for.

I will have Don McDaniel arrange for the testing of the pressure guages on the pump and wellhead as you suggested. I was not aware that these guages had never been tested.

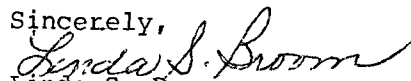
You will remember that I had invited ten or twelve different meter companies to submit bids on the metering system to measure brine water balance. Only one company from Hobbs responded. Apparently, the meter companies in the Midland and Odessa areas are not as willing to come to New Mexico to work as they used to be. Mr. Martin of Martin Meters in Hobbs spent a couple of hours with Don at the brine station reviewing the situation. In turn, he did some consulting with an engineer he has worked with for several years. He then informed me that the metering system probably would not give us the accurate measurements we are seeking. There is a backpressure problem in the line that runs into the lagoon, such that a meter would measure air flow along with water flow. He also cited one other place where we would be measuring air. If I remember correctly, it was in the line where the water goes into the well itself. At any rate, he says that the metering system will not tell us what we need to know, and it would cost a minimum of \$5000 for the meters alone. We would have to hire a roustabout crew to do the installation, which would be considerable added expense. If we solved the backpressure problem with a series of valves, the expense would be an added \$5000 or so. The brine station was recently appraised at \$9000, and we spent over \$6000 on the paving and catchment pond. I think it would be poor money management to sink another \$6000 or so into the installation because we will probably never be able to recoup those expenses. Mr. Martin suggested that we install a single pen pressure recorder to check for casing leaks. We could run 7-day

test charts constantly to check for casing leaks. An adequate pressure recorder installed would only cost \$591.00. This seems to be much more reasonable than something over \$5000 for the metering system.

Let me know what you think about using the pressure recorder, plus the soil moisture blocks and the perforated pipes to check for leak detection. I am anxious to find a reasonable solution and get it implemented. If these two solutions seem to you to be satisfactory to comply with EID requirements, please let me know so that I can submit a formal proposal to the EID staff.

Thanks for your concern.

Sincerely,


Linda S. Broom,
President

cc

Broom Transportation, Inc.

Post Office Box 1031
ARTESIA, NEW MEXICO 88210

Caprock Radio Units

#6214 #7208

#7203 #7213

#7205 #7301

— Phone —

(505) 746-3304

(505) 746-4463

September 9, 1985

Soilmoisture Equipment Corporation
P.O. Box 30025
Santa Barbara, California 93105

Gentlemen:

Broom Transportation, Inc. owns a brine station which furnishes brine for oilfield purposes in southeastern New Mexico. Part of this brine station consists of a plastic-lined lagoon containing several thousand barrels of brine. The Environmental Improvement Division in New Mexico is now requiring that we install some kind of leak detection system under or near the pit liner, since the pit was built several years ago before leak detection systems began to be built into open pits. We are considering the feasibility of using soil moisture blocks for leak detectors. I would be interested in any information you could furnish me in this matter. I am particularly interested to know whether soil moisture blocks have ever been used for leak detection before, and if so, how reliable they were.

I look forward to hearing from you soon.

Sincerely,

Linda S. Broom
Linda S. Broom,
President

cc: file
Paige Grant Morgan, EID



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION

P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

TONY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

September 4, 1985

Linda S. Broom, President
Broom Transportation, Inc.
PO Box 1031
Artesia, NM 88210

Dear Linda:

During Steve Sares' and my inspection of the Tracy Brine Station on August 21st, I was glad to see the paved ramp, sump and catchment pond you have installed to catch any spillage in the truck loading area. Thank you for taking these steps to meet the terms of your discharge plan and comply with state ground water quality protection regulations.

Thank you also for your letter of August 23rd explaining your plans for installing accurate meters to gain water balance information for your purposes as well as the state's. Please note that, under the terms of your discharge plan, the next date on which a report of your water balance is due at EID is September 30th. If you cannot provide a water balance report on that date, please submit a status report on installation of the metering system.

While you are addressing the issue of accurate measurements at the Tracy station, please test the accuracy of and, if necessary, replace the pressure guages on the pump and wellhead. In conversation with Don McDaniel during our inspection, he indicated that the guages had never been checked during the period of his association with the Tracy brine station. Pressure guages in constant use should be checked at least annually to ensure the accuracy of the readings. In your operation, since the facility is often unattended during the production of brine, you rely heavily on an automatic shutoff switch which is supposed to suspend operation when pressures at the pump reach 500 psi. If the shutoff switch is receiving inaccurate information, pressures may be approaching the tolerance of your piping or the fracture pressure of the salt formation, and you could have a catastrophic system failure. I urge you to check into this situation as soon as possible.

In response to your question about the gypsum blocks (more accurately called soil moisture blocks) which I mentioned as a possible means of detecting leakage under the brine pond: I am enclosing some descriptive material on these devices. I know of no situation in which they have been used to detect leakage (they are usually used to measure soil moisture, for instance to measure the effectiveness of an irrigation regime); however, it seems to me they might be applicable to your situation. The only source of supply that I know of is:

Soilmoisture Equipment Corporation
PO Box 30025
Santa Barbara, CA 93105
(805) 964-3525

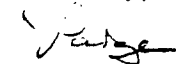
I strongly recommend that you thoroughly discuss with them the possible application of soil moisture blocks for the purpose of detection of brine leakage.

The suggestion to examine the salt cake on the bottom of the lagoon in order to check for leakage is problematic and would require draining the lagoon periodically, which you have been loath to do. If the soil moisture block method looks unpromising, I suggest that you investigate augering diagonally under the pond and installing pipe perforated on the upper surface only. The end of the pipe should be plugged so that it would retain any moisture. The pipe should then be monitored on a schedule to be agreed upon, to check for moisture. If fluid is encountered, it should be analyzed for TDS and chloride. It may be necessary to install more than one pipe under the pond to give adequate coverage.

Please bear in mind that these suggestions are only suggestions. It is up to you to present the EID with a proposal for a leak detection system and for the technical staff at EID to review it from the standpoint of whether it would be effective at protecting ground water quality.

Please be in touch if you have any questions.

Sincerely,



Paige Grant Morgan
Water Resource Specialist

PGM:pgm

cc: John Guinn, EID District IV Manager.

Broom Transportation, Inc.

Post Office Box 1031
ARTESIA, NEW MEXICO 88210

Caprock Radio Units

#6214 #7208
#7203 #7213
#7205 #7301

RECEIVED

— Phone —
(505) 746-3304
(505) 746-4463

AUG 27 1985

August 23, 1985

Ms. Paige Grant Morgan
Water Resource Specialist,
Ground Water Section
N.M. Environmental Improvement Division
P.O. Box 968
Santa Fe, New Mexico 87504-0968

GROUND WATER/HAZARDOUS WASTE
BUREAU

CERTIFIED
RETURN RECEIPT REQUESTED

RE: Tracy Brine Well near Carlsbad

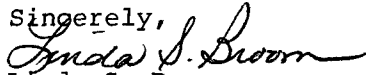
Dear Paige:

Thank you for your visit to the Tracy well site last Wednesday. I regret that I was unable to greet you personally, but I understand that you and Don McDaniel were able to accomplish the inspection of our paved loading area and catchment pond drainage system. We were pleased to be able to finish this first since it was the most expensive component of the compliance work to be done.

I have tried diligently but unsuccessfully to calculate some accurate input-output data for you. As I told you on the telephone Wednesday, I thought I could make some reasonable computations using the amount of water we have bought from the City of Carlsbad and using the amount of brine we have sold and paid royalties on this year. Even after accounting for the estimated amount of brine on hand at the first of the year, my calculations continue to show that we have delivered more brine than we have made! Obviously, the solution to this problem is to get the metering system installed as soon as possible so that we can begin recording realistic figures. Attached please find a copy of the letter I have sent to ten different companies. As soon as we receive bids, I will try to figure out how to pay for and get a metering system installed in the next six weeks. I will keep you informed of the progress. I had not intended for it to take us this long after last February to finish compliance work, but I had no idea how restricted our cash flow would be. I seem to have no difficulty finding four urgent spending priorities for every penny that comes in.

Also, please send me available information on the gypsum moisture detectors you were telling me about. I would be interested in considering these as a first step in a leak detection system. My uncle suggested that an additional means of spotting leak detection could be changes in or absence of salt cake in the bottom of the lagoon. If you have any particular thoughts on this, please let me know.

Meanwhile, best wishes as you continue your work. Let me know if I can be of further help to you.

Sincerely,

Linda S. Broom,
President

cc

24 HOUR OILFIELD TANK TRUCK SERVICE

Broom Transportation, Inc.

Post Office Box 1031
ARTESIA, NEW MEXICO 88210

Caprock Radio Units

#6214 #7208
#7203 #7213
#7205 #7301

— Phone —
(505) 746-3304
(505) 746-4463

August 19, 1985

Chromalloy Compression & Measurement Co.
2120 Kermit Highway
Odessa, Texas

Gentlemen:

Broom Transportation will be accepting competitive bids for a metering system for our brine station until Monday, September 2, 1985 at 5:00 p.m. Enclosed for your convenience is a simplified sketch of the system we will be installing. Meters #1 and #2 may be identical and need to have a pumping capacity of 90 gal/min. Meter #3 will be metering water as trucks load, and it needs to have a capacity of 400 gal/min. Any quotations you send should be itemized for equipment and installation costs. We will be available at the brine station on Thursday, August 29, between the hours of 2:00 and 4:00 p.m. in case you would like to inspect the facility. The brine station is located just out of Carlsbad on the Hobbs highway. There are a Champion Chemical sign and a cattle guard at the turnoff from the main highway onto county road 605. Travel about 1½ miles on county road 605 (south), and then turn west on county road 606. You will see the brine station on the left.

Thank you for your time and effort in this matter.

Sincerely,

Linda S. Broom
Linda S. Broom,
President

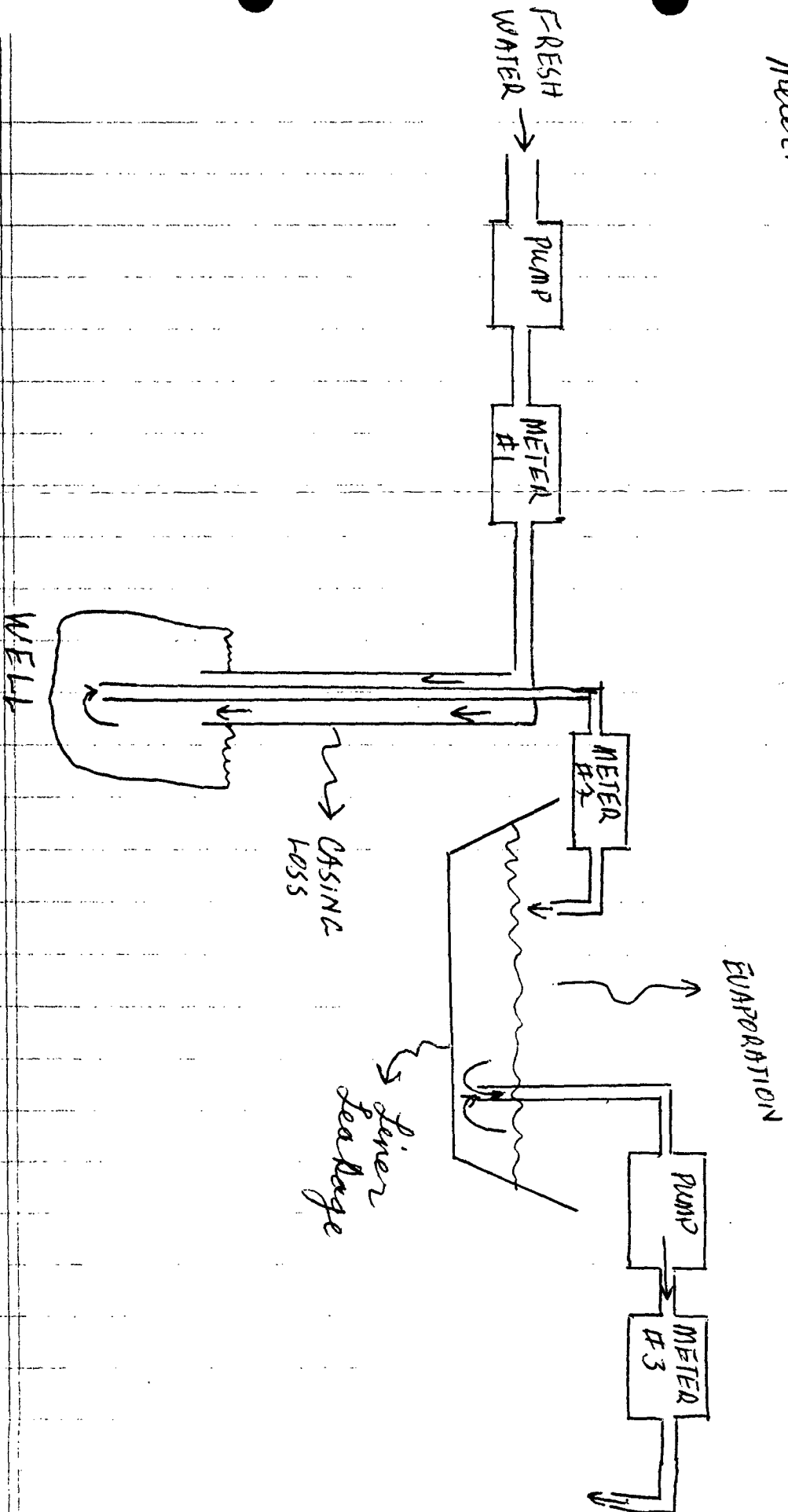
cc

Well Balance

meter #1 - meter #2 = casing loss

Lagoon Balance

meter #2 - meter #3 - EVAP = liner leakage



o. of
amples Ion

FIELD TRIP REPORT
GROUND WATER SECTION

SLD USER CODES

Ground Water: 59300

NO₃, HC, & Toxics: 59600

UIC: 59500

County Eddy

FACILITY VISITED

Name of Facility: Tracy Brine Station

Location: east of Carlsbad about 2 miles. Cross river, look for "Changston Chemicals" sign on s. side of Hobbs Hwy.

Discharge Plan Number: DP-351

Type of Operation: brine manufacturing & sale.

ENVIRONMENTAL IMPROVEMENT DIVISION FIELD VISIT

EID Inspector(s): Fatzy Morgan & Steve Sares

Date of Inspection or Visit: 8/21/85

Discharger's Representative Present During EID Visit:

Name: Don McDaniel

Title or Position: Foreman

Purpose of Visit:

a. Evaluation of Proposed Discharge Plan

b. Compliance Inspection of Discharge with Approved Plan ☒

c. Other (specify)

Inspection Activities During Field Visit:

a. Inspection of Facilities or Construction (specify)

Looked at paved loading ramp and emergency pond. Both looked adequate.

b. Sampling of Effluents (give sampling locations)

c. Sampling of Ground Water (give names or locations of wells)

d. Evaluation of geology, soils, water levels or other physical characteristics of the location (specify)

e. Other (specify) Discussed requirements in DP for monitoring pressure while pumping and for leak detection at pond.

Observations and Information Obtained during the Visit:

Pressure gauges on well and shut-off switch have not been checked since they took over facility 3-4 years ago.

ACTION REQUIRED

Check pressures w/ EID gauges on next trip. Be sure wellhead pressure is < 500 psi.

pressure w/ our gauge -
problems w/ our gauge.
Went to check wellhead -
valves frozen, couldn't
install a gauge.

Agreed that they should
come up w/ proposal for
leak monitoring under
pond.

SAMPLES

METALS - "A" - 5ml HNO₃

NO₃'S - "B" - 2ml H₂SO₄

CAT/ANIONS "C" —

Tracy Byrne Sta (Broom
Transportation).

Spoke to Linda Broom by
phone - she chose not to be
present at inspection. Said
she would send in records
of brine sold & water purchased
this afternoon.

Mt Don McDaniel at brine sta.
inspected paved loading area,
pump, Hypalon-lined emergency
pond. Looks like a good
system. considerable oily
spillage collected. They
pump it as often as necessary.
Freeboard \approx 1' when we
saw it.

Well was pumping - their gauge
read 450-420. They have auto.
shut-off at 500. We checked

8/7/85

Eugene Broom called 10:30 a.m. We discussed DP requirements. He was under the impression that the terms of the DP were dictated by EID; I said that a discharger designed his own DP and EID just approved or disapproved based on whether ground water would be adequately protected. I said that I realized no one at Broom Transportation had done a critical review of what their consultants had drawn up for them and that if they wanted to amend the DP monitoring requirements to something that they could commit to, I would be glad to consider an amendment. We discussed present monitoring requirements: I said it would be adequate to record pressure by written entry at the wellhead when injecting. We discussed various options for a leak detection system for the lagoon - he will submit a modification soon. He will encourage Linda to send in volume balance quarterly report immediately.

Patsy Morgan

TELEPHONE CONVERSATION

8-1-85, 300 PM

EUGENE BROOM - STEVE SARES.

BROOM CALLED TO ASK SOME QUESTIONS ON DP MONITORING AND COMMITMENTS

- MONITORING ANNULAR PRESSURE DURING INJECTION; RETAIN RECORDS -- DOES THIS MEAN STRIP CHART? DO OTHERS DO THIS?
- DRAWING DOWN POND & WASHING FOR VISUAL INSPECTION OF LINER. THIS WILL PUT THEM OUT OF BUSINESS FOR 2-3 WEEKS, BUSINESS WOULDN'T BE ABLE TO TAKE THAT. ALSO WASHING AND INSPECTING MAY CAUSE MORE DAMAGE, ASKED ABOUT OTHER METHODS - FLUID MASS BALANCE? I EXPRESSED SOME DOUBTS ABOUT THAT. - NEW LINER WITH UNDERDRAIN WOULD COST ~ \$4,000 - NOT REALISTIC
- CALL HIM MONDAY AT HIS HOME IN ^{Lin.} MASS, AFTER 3PM NM TIME (617) 894-5279.

Steve Sares

7/23/85:

Called Linda Brown to point out that their report of their water balance was late and so was their report on draining and inspecting the pond. She said she'd been aware of the first commitment and hadn't known the deadline for the second - said she didn't recall receiving a summary sheet regarding monitoring/reporting requirements. I said I'd send her one. →
Meanwhile, regarding the other commitments of their DP, they have paved the loading dock and installed the emergency catchment pond.

She said they were concerned about the requirement to drain and inspect their pond for fear the process would stress the liner and cause leaks. I said I was open to an amendment such that they wouldn't have to do it annually, but given that there had been no inspection of the liner since installation and no other means of leak detection, I thought it important to get some reading on the status of the liner. We discussed →

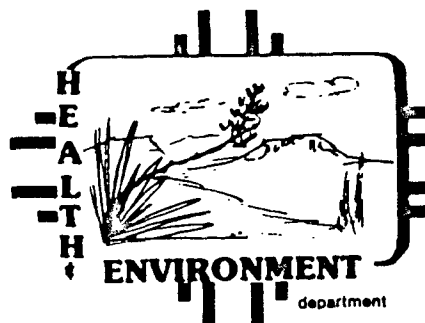
mechanics: she said they had nowhere to put the brine if they emptied their pond, I said I thought the intention was to draw down the pond during brine sales; she said what about additional demand, I said what about washing the salt deposits in the pond to make brine rather than bringing more out of the well. I said she was free to propose other means of establishing that the pond didn't leak, it was a small matter to change monitoring requirements.

She agreed to begin the process of drawing down the pond and experimenting with ways of washing the lined in order to inspect it, in anticipation of an inspection by ED in late August. She requested that we give as much advance notice as possible.

Patsy Morgan.

TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION

P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

July 25, 1985

Linda Broom
Broom Transportation Co.
P.O. Box 1031
Artesia, New Mexico 88210

Dear Ms. Broom: *Linda*

Enclosed is the summary sheet I referred to during our telephone conversation July 23rd, which lists your monitoring and reporting responsibilities under the discharge plan for the Tracy Brine Station. Please go ahead and send in the report of volumes of water injected and brine extracted from approximately the date of discharge plan approval through mid-June, which was due June 30th. As we discussed by phone, I hope your experiment with drawing down the brine lagoon and washing the salt deposits has the hoped-for result: a method of checking for any leaks in the lagoon.

I will let you know as soon as we have firm dates for our next inspection trip to your part of the country.

Sincerely,

Paige Grant Morgan
Water Resource Specialist
Ground Water Section

PGM/mp

Enclosures

SIC NUMBER: _____

Modification:
Date Received: 7/25/84NAME OF FACILITY: Tracy Brine StationADDRESS OF FACILITY: SEE BELOWALTERNATE OR PAST NAME OF FACILITY: Champion Chemical Co. Brine StationCITY OR CLOSEST TOWN: CarlsbadCOUNTY: Eddy TWP: 22 S RGE: 27 E SEC: 3CONTACT PERSON: Broom, Linda
last firstADDRESS OF CONTACT PERSON: PO Box 1031
Artesia, NM 88210TELEPHONE NUMBER: 746-3304TYPE OF FACILITY: brine extraction wellMEANS OF DISCHARGE (lagoon, leach field, other -specify): injection well; extracted
brine is stored in a lagoonREVIEWER: Morgan, Paige
last firstDATE APPROVED: 2/22/85 DATE OF EXPIRATION: 2/22/90

MONITORING REQ: (Comment, if necessary, on back)

| SAMPLING SITE & ID | STORET CODE | PARAMETER(S) | DATE DUE |
|-----------------------|----------------|---|---|
| Injection well | | Volume of water injected, volume of brine extracted | 6/30; 9/30; 12/31; 3/31 - begin 6/30/85 |
| Brine storage lagoon | | Drain, wash, inspect liner for damage | 6/30 |
| Injection well | | Monitor annular pressure during injection; retain records for inspection by EID. | |
| | | | |

EID REPORTS TO: Ground Water Section
EID: Ground Water/Hazardous Waste Bureau
P.O. Box 963
Santa Fe, NM 87504-0963

DISCHARGE PLAN NUMBER: 351Original DP: X

SIC NUMBER: _____

Renewal: _____

Modification: _____

Date Received: 7/25/84NAME OF FACILITY: Tracy Brine Station

ADDRESS OF FACILITY: _____

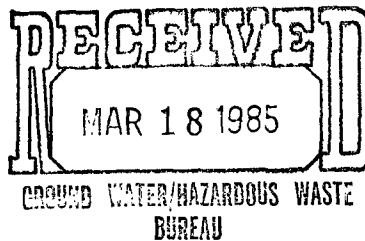
ALTERNATE OR PAST NAME OF FACILITY: Champion Chemical Co. Brine StationCITY OR CLOSEST TOWN: CarlsbadCOUNTY: Eddy TWP: 22 S RGE: 27 E SEC: 3CONTACT PERSON: Broom, Linda
last firstADDRESS OF CONTACT PERSON: PO Box 1031Artesia, NM 88210TELEPHONE NUMBER: 746-3304TYPE OF FACILITY: brine extraction wellMEANS OF DISCHARGE (lagoon, leach field, other -specify): injection well; extracted
brine is stored in a lagoonREVIEWER: Morgan, Paige
last firstDATE APPROVED: 2/22/85 DATE OF EXPIRATION: 2/22/90

MONITORING REQ: (Comment, if necessary, on back)

| SAMPLING SITE & ID | STORET CODE | PARAMETER(S) | DATE DUE |
|-----------------------|----------------|---|---|
| Injection well | | Volume of water injected, volume of brine extracted | 6/30; 9/30; 12/31; 3/31 - begin 6/30/85 |
| Brine storage lagoon | | Drain, wash, inspect liner for damage | 6/30 |
| Injection well | | Monitor annular pressure during injection; retain records for inspection by EID. | |
| | | | |

SEND REPORTS TO: Ground Water Section
 EID: Ground Water/Hazardous Waste Bureau
 P.O. Box 968
 Santa Fe, NM 87504-0968

 **Champion
Chemicals, Inc.**
1003 W. MURPHY
ODESSA, TEXAS 79763



(915) 563-1162
(915) 337-2356

March 13, 1985

Mrs. Paige Grant Morgan
State of New Mexico
Environmental Improvement Division
P. O. Box 968
Santa Fe, New Mexico 87504-0968


Subject: Sale of Tracy Brine Facility
File: EJC-32-85

Dear Paige:

The Tracy Brine Facility near Carlsbad has been sold to Broom Transportation.
Any correspondence concerning this facility should now go to Broom exclusively.

Thanks for your pleasant, constructive handling of the disposal plan on this well.

Cordially,


E. J. Claassen

EJC/ng

AF

cc: Ms. Linda Broom



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION

P.O. Box 968, Santa Fe, New Mexico 87504-0961
(505) 984-0020

TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

P 612 425 038

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

| | | |
|-------------------------|--------------------------|-------------------|
| U.S.G.P.O. 1983-403-517 | Sent to | Linda Broom |
| | Street and No. | P.O. Box 1031 |
| | P.O., State and ZIP Code | Artesia, NM 88210 |
| | Postage | \$ |

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

February 22, 1985

Linda Broom
BROOM TRANSPORTATION, INC.
P.O. Box 1031
Artesia, NM 88210

E.J. Claassen
CHAMPION CHEMICALS, INC.
1003 W. Murphy
Odessa, TX 79763

RE: Tracy Brine Station discharge plan approval

Dear Ms. Broom/Dr. Claassen:

The discharge plan (DP-351) for Tracy Brine Station located in the south half of Section 3, T22S, R27E near Carlsbad, Eddy County, New Mexico is hereby approved (subject to the conditions listed below). The approved discharge plan consists of the plan dated July 13, 1984, and in the letters from your consultant James Hunter of Glorieta Geoscience dated December 11, 1984 and February 5, 1985, and the pressure recorder chart submitted January 28, 1985 by Linda Broom, submitted as supplements to the discharge plan.

Approval of this discharge plan is contingent on the following:

1. Construction of the truck loading platform and spill catchment pond as described in Section 5.1 of the discharge plan; to be completed by June 30, 1985.
2. Installation of flow meters on the water line to the brine well and on the brine line from the well to the storage pond; to be installed by June 30, 1985. (The meter on the brine line should be flushed with fresh water periodically to keep it from clogging.)
3. Injection shall cease and the EID shall be notified immediately should a pressure test or annular pressure monitoring show a steady drop in pressure (as opposed to a slight initial drop as salt and air enter into solution in the injected water). Such a pressure drop will be interpreted as a casing leak until you have demonstrated otherwise. Your obligations in this regard are spelled out in Section 1-203 of the New Mexico Water Quality Control Commission regulations.

Linda Broom
E.J. Claassen
February 22, 1985
Page 2

4. It is understood that the plugging of the brine well upon closure of the facility is subject to Section 5-209 of the WQCC regulations. As stipulated in 5-209.A., a revised or updated abandonment plan may be required prior to closure.

The discharge plan was submitted pursuant to Section 5-101.B. of the N.M. Water Quality Control Commission Regulations. It is approved pursuant to Section 3-109. Please note subsections 3-109.E. and 3-109.F., which provide for possible future amendment of the plan. Please be advised that the approval of this plan does not relieve you of liability should your operation result in actual pollution of surface or ground waters which may be actionable under other laws and/or regulations.

The monitoring and reporting shall be as specified in the discharge plan and supplements thereto. These requirements are summarized on the attached sheet. Any inadvertent omissions from this summary of a discharge plan monitoring or reporting requirement shall not relieve you of responsibility for compliance with that requirement.

Please note that Section 3-104 of the regulations requires that "When a plan has been approved, discharges must be consistent with the terms and conditions of the plan."

Please be aware that in this discharge plan you have made commitments which are legally enforceable under the New Mexico Water Quality Act. These include constructing all aspects of your installation as designed, and completely fulfilling all monitoring commitments on schedule. You are susceptible to fines should you not fulfill these obligations.

Pursuant to subsection 3-109.G.4., this plan approval is for a period of five (5) years. This approval will expire February 22, 1990, and you should submit an application for new approval in ample time before that date.

On behalf of the staff of the Ground Water Section, I wish to thank you and your consultants for your cooperation during this discharge plan review.

Sincerely,

for Anthony Deppolter
Denise Fort
Director
DF:PGM:jba

cc: John Guinn, EID District IV, Roswell
James Hunter, Geoscience Consultants, Albuquerque

P 612 425 039

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

| | | |
|-------------------------|--------------------------|------------------|
| U.S.G.P.O. 1983-403-517 | Sent to | E.J. Claassen |
| | Street and No. | 1003 W. Murphy |
| | P.O., State and ZIP Code | Odessa, TX 79763 |
| | Postage | \$ 1 |

DISCHARGE PLAN

Monitoring and Reporting

Discharge Plan Number: 351

Original DP ☒

Date Approved: February 22, 1985

Modification ☐

Date Expires: February 22, 1990

Type of Facility: _____

Name and Location of Facility: Tracy Brine Station

S $\frac{1}{2}$ Sec. 3 T22S R27E

approx. 2 miles east of Carlsbad

Eddy County

Name, address and Telephone Number of Discharger's Representative to Contact: Linda Broom
Broom Transportation, Inc.

P.O. Box 1031

Artesia, NM 88210

EID Reviewer of Discharge Plan: Paige Grant Morgan

Monitoring Requirements:

Annular pressure will be monitored during injection and records maintained for inspection by EID.

Volume of water injected and volume of brine extracted from the brine well will be metered and the volume balance reported quarterly.

The brine storage pond will be drained and washed once a year and visually inspected for damage. EID shall be notified in time to inspect the liner. Inspection to be performed within 6 weeks before reporting date.

Reporting Requirements:

Quarterly for volume balance; annually for liner inspection.

Reports Due: Volume balance: June 30, September 30, December 31, and March 31, beginning June 30, 1985.

Liner inspection: on or before June 30, beginning 1985.

CHECK ONE:

☒ LETTER TO Broom Transportation & Champion Chemical
for Drypolcher's signature

☐ MEMO TO _____

☐ PRESS RELEASE

☐ OTHER

SUBJECT: approval of IP

DRAFTED BY: Larry Grant Morgan 2/21/85
(Date)

CONCURRENCES:

| NAME: | INITIAL | DATE REC'D | DATE APPROVED |
|-----------------------------------|------------|----------------|----------------|
| <u>Maxine Good</u> Sect. Mgr. | <u>MSG</u> | <u>2/25/85</u> | <u>2/25/85</u> |
| <u>Tony Drypolcher</u> Bur. Chief | <u>AD</u> | <u>2/25/85</u> | _____ |
| <u>Richard Holland</u> Dep. Dir. | _____ | _____ | _____ |
| <u>Denise Fort</u> Director | _____ | _____ | _____ |

FINAL DECISION NEEDED BY 2/22/85 BECAUSE - so as not
(date)
to redraft letter and because we are already
past the deadline specified in the Assurance (2/14)
for approval/disapproval of this plan.

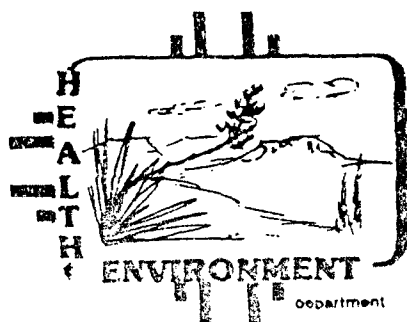
COMMENTS BY DRAFTER OR REVIEWER(S):

Since Champion still owns this well but
Broom is operating it and in the process
of buying it, so both require an original
letter.

Tony - Please note that there are two
originals needing signatures.

TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION

P.O. Box 968, Santa Fe, New Mexico 87504-0968

(505) 984-0020

February 11, 1985

Linda Broom
Broom Transportation, Inc.
P.O. Box 1031
Artesia, NM 88210

Dear Linda:

Thank you for sending me the chart from the pressure recorder used on a retest of the Tracy Brine well on January 26th. On studying the chart, it appears to me that it was set slightly off-center on the recorder so that the pen travelled an eccentric path, recording an apparent rise of about 4 psi and then a drop of about 6 psi so that the final pressure appears to be about 3 psi lower than starting pressure.

Even without any possible error of setting up the recorder, the chart used for the test had too large a scale to record such a low-pressure test (95 psi) with accuracy. This is reflected in the fact that one is forced to interpret pressure rises and losses that represent up to six percent of test pressure, over a distance of about a millimeter on the chart. For future reference, a test conducted at a pressure of at least 200 psi would give more confidence that a casing leak would be detected if present. A six psi pressure change in a 200 psi test would represent only three percent variation, which would be a tolerable fluctuation over a 24-hour test. In addition, an EID witness of the test will be instructed in the future to request that the well be pumped up to starting pressure in the event of even a three percent pressure loss. The amount of fluid required to raise the well to starting pressure would be recorded, thus giving an additional measurement by which to assess the mechanical integrity of the well.

The retest of the Tracy well showed no catastrophic failure, and it will be accepted for purposes of demonstrating mechanical integrity for the discharge plan. The EID is in the process of refining a pressure test procedure for brine wells which will provide the most accurate information possible with the least disruption to the operators. We hope to run a couple of different types of pressure test on all brine extraction wells in New Mexico this summer, and using the results of this large number of tests finalize a test procedure and distribute it to all brine well operators so that you will know exactly what will be required by the EID by way of demonstration of mechanical integrity of the wells.

Thank you for your cooperation.

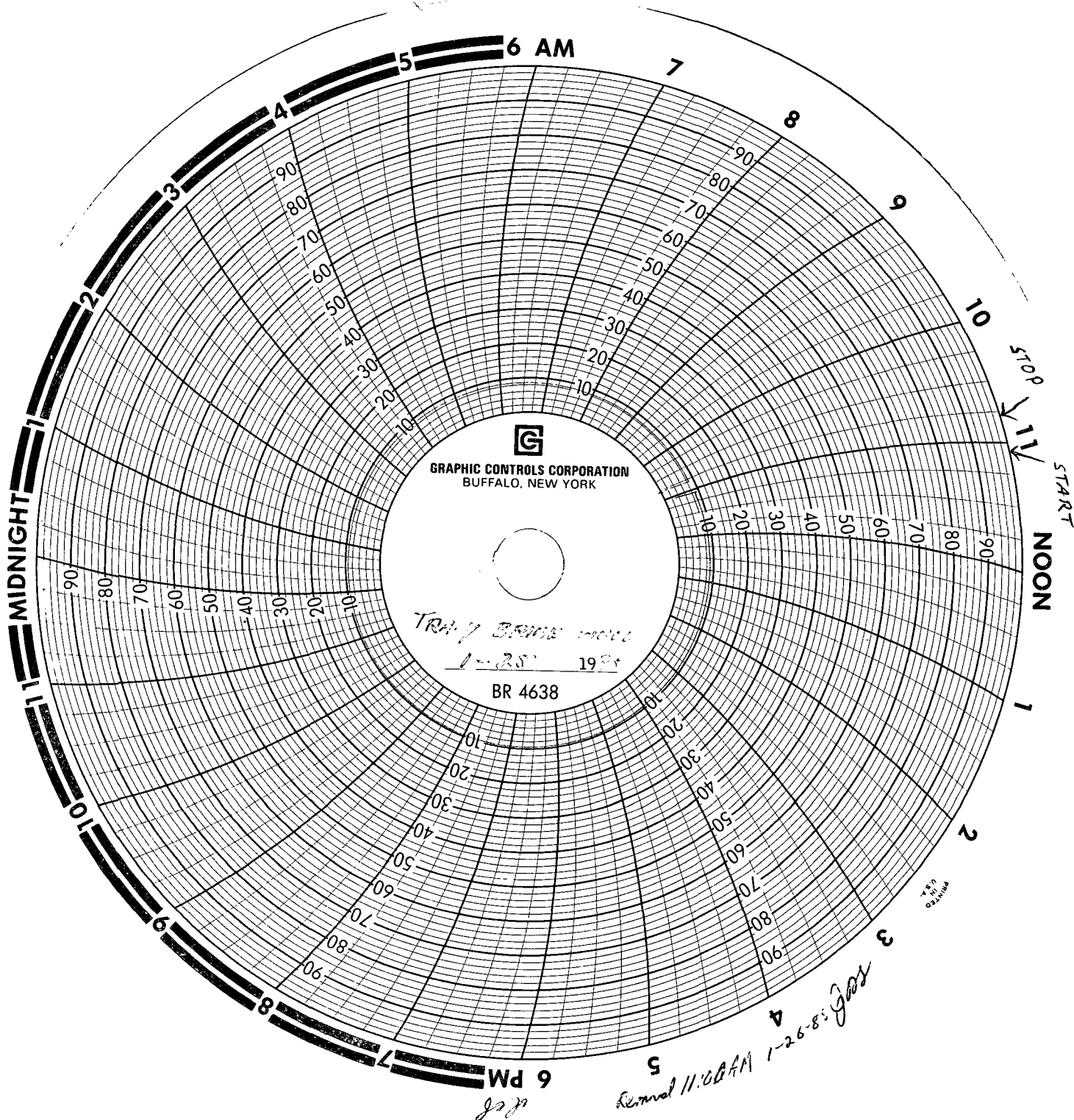
Sincerely,

Steve Sares

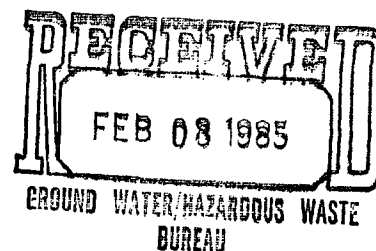
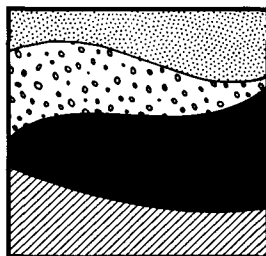
FOR Paige Grant Morgan
Water Resource Specialist
Ground Water Section

PGM:jba

cc: John Guinn, EID Dist. IV, Roswell
Tom Burt, EID, Carlsbad
E.J. Claassen, Champion Chemical Co-
James Hunten, Geoscience Consultants



**Geoscience
Consultants, Ltd.**



February 5, 1985

Ms. Paige G. Morgan
Water Resources Specialist
Ground Water Section
NMEID
P.O. Box 968
Santa Fe, New Mexico 87504-0968

RE: Discharge Plan (DP-351) for Tracy Brine Well

Dear Ms. Morgan:

In response to our telephone conversation, I am enclosing the information and clarification which you requested.

- 1) Copies of the New Mexico plugging and reclamation bonds are enclosed.
- 2) Brine samples will be analysed, as necessary, for sodium and potassium as well as other required parameters. *Leaves it open as to whether they think it's necessary or we do*
- 3) We are pleased to hear that the second pressure test verified the integrity of the well.
- 4) When the brine facility is closed, the well will be plugged in accordance with OCD Rule 202, which stipulates filling the casing with cement from the top of the cavity to the well head. Complete filling of the casing should prevent any upward migration of brine, even if minor corrosion occurs at the top of the cavity. *It does not!*
so long as your cement bond is good
- 5) Following plugging of the well, the pipelines connecting the well and the brine facility will be removed, and the right-of-way regraded to approximately original contours. The brine and spill-control ponds will be drained and cleaned, the liners removed, and the site will be regraded. Lines, pumps, tanks and miscellaneous equipment will be salvaged or junked, according to condition.

Thank you for your cooperation and assistance in this discharge plan application. We look forward to working with you in the future.

Sincerely,
GEOSCIENCE CONSULTANTS, LTD.



James C. Hunter
Senior Geologist

Enclosure
JCH/pg

cc. Dr. E.J. Claassen, Champion Chemicals, Inc.
Mr. Ernest Broom, Broom Transportation Company

HARDIN-HOUSTON, INC.

PRINCIPAL

P. O. Box 102, Hobbs, New Mexico

Address

By

Signature

Title

FEDERAL INSURANCE COMPANY

SURETY

2000 South Post Oak Road, Suite 2000

Houston, Texas 77056

Address

By

M. G. Hutson Attorney-in-Fact

(Note: Principal, if corporation, affix corporate seal here.)

(Note: Corporate surety affix corporate seal here.)

ACKNOWLEDGEMENT FORM FOR NATURAL PERSONS

STATE OF _____)
COUNTY OF _____) ss.

On this _____ day of _____, 19____, before me personally appeared _____, to me known to be the person (persons) described in and who executed the foregoing instrument and acknowledged that he (they) executed the same as his (their) free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on the day and year in this certificate first above written.

Notary Public

My Commission expires _____

ACKNOWLEDGEMENT FORM FOR CORPORATION

STATE OF TEXAS)
COUNTY OF ECTOR) ss.

On this 27th day of August, 1980, before me personally appeared Sidney S. Lindley, to me personally known who, being by me duly sworn, did say that he is President of Hardin-Houston, Inc. and that the foregoing instrument was signed and sealed on behalf of said corporation by authority of its board of directors, and acknowledged said instrument to be the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on the day and year in this certificate first above written.

February 28, 1981

Notary Public

My Commission expires _____

ACKNOWLEDGEMENT FORM FOR CORPORATE SURETY

STATE OF Texas)
COUNTY OF Harris) ss.

On this 8th day of August, 1980, before me appeared M. G. Hutson, to me personally known, who, being by me duly sworn, did say that he is Attorney-in-Fact of Federal Insurance Company and that the foregoing instrument was signed and sealed on behalf of said corporation by authority of its board of directors, and acknowledged said instrument to be the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on the day and year in this certificate first above written.

8/13/81

Carolyn Piper Notary Public in Harris County
for the State of Texas.

My Commission expires _____

(Note: Corporate surety attach power of attorney.)

APPROVED BY:

OIL CONSERVATION DIVISION OF NEW MEXICO

By _____

Date _____

STATE OF NEW MEXICO
ONE-Well PLUGGING BOND

FOR CHAVES, EDDY, LEA, MCKINLEY, RIO ARriba, ROOSEVELT,
SANDOVAL, AND SAN JUAN COUNTIES ONLY

BOND NO. 8083-02-48

(This is the Surety Company)

AMOUNT OF BOND \$5,000.00

COUNTY Eddy

NOTE: For wells less than 5,000 feet deep, the minimum bond is \$5,000.00*
For wells 5,000 feet to 10,000 feet deep, the minimum bond is \$7,500.00*
For wells more than 10,000 feet deep, the minimum bond is \$10,000.00

* Under certain conditions, a well being drilled under a \$5,000.00 or \$7,500.00 bond may be permitted to be drilled as much as 500 feet deeper than the normal maximum depth, i.e., a well being drilled under a \$5,000.00 bond may be permitted to go to 5,499 feet, and a well being drilled under a \$7,500.00 bond may be permitted to go to 7,999 feet (See Rule 101)

File with Oil Conservation Division, P.O. Box 2088, Santa Fe 87501

KNOW ALL MEN BY THESE PRESENTS:

That HARDIN-HOUSTON, INC., (An individual)(a partnership)
(a corporation organized in the State of New Mexico, with its principal office in the city of
Hobbs, State of New Mexico, and authorized to do business
in the State of New Mexico), as PRINCIPAL, and FEDERAL INSURANCE COMPANY, a
corporation organized and existing under the laws of the State of New Jersey,
and authorized to do business in the State of New Mexico, as SURETY, are held firmly bound unto the State of New
Mexico, for the use and benefit of the Oil Conservation Division of New Mexico pursuant to Section 65-3-11, New
Mexico Statutes Annotated, 1953 Compilation, as amended, in the sum of Five Thousand and No/100-----
Dollars lawful money of the United States, for the payment of which, well and truly to be made, said PRINCIPAL and
SURETY hereby bind themselves, their successors and assigns, jointly and severally, firmly by these presents.

The conditions of this obligation are such that:

WHEREAS, The above principal has heretofore or may hereafter enter into oil and gas leases, or carbon dioxide (CO₂) gas leases, or
helium gas leases with the State of New Mexico; and

WHEREAS, The above principal has heretofore or may hereafter enter into oil and gas leases, or carbon dioxide (CO₂) gas leases, or
helium gas leases on lands patented by the United States of America to private individuals, and on lands otherwise owned by private
individuals; and

WHEREAS, The above principal, individually, or in association with one or more other parties, has commenced or
may commence the drilling of one well not to exceed a depth of 1400 feet, to prospect for and produce oil
or gas, or carbon dioxide (CO₂) gas or helium gas, or does own or may acquire, own or operate such well, or such well
started by others on land embraced in said State oil and gas leases, or carbon dioxide (CO₂) leases, or helium gas leases,
and on land patented by the United States of America to private individuals, and on land otherwise owned by private
individuals, the identification and location of said well being S/W of SW/4 of

(This state name legal subdivision by 40 acre tract or less)

Section 3, Township 22 (~~North~~) (South), Range 27 (East ~~West~~) N.M.P.M.
Eddy County, New Mexico.

NOW, THEREFORE, If the above bounden principal and surety or either of them or their successors or assigns, or any of them, shall
plug said well when dry or when abandoned in accordance with the rules, regulations, and orders of the Oil Conservation Division of New
Mexico in such way as to confine the oil, gas, and water in the strata in which they are found, and to prevent them from escaping into other
strata;

THEN, THEREFORE, This obligation shall be null and void; otherwise and in default of complete compliance with any and all of said
obligations, the same shall remain in full force and effect.

This bond shall be effective July 14, 1980.

JOHN L. WORTHAM & SON

Insurance

No. 333048

P. O. BOX 1368

2727 ALLEN PARKWAY

HOUSTON, TEXAS 77251

713/526-1366

May 15, 1984

Hardin-Houston, Inc.
P. O. Box 1671
Odessa, Texas 79763

ACCOUNT
NUMBER: 43194

PREMIUMS ARE DUE ON OR BEFORE THE EFFECTIVE DATE OF COVERAGE

Bond No.

| EFFECTIVE DATE | COMPANY | POLICY NUMBER | TERM |
|--------------------------|---------------------------|---------------|----------|
| 07/14/84 | Federal Insurance Company | 8083-02-48 | 07/14/85 |
| PROPERTY AND DESCRIPTION | | CHARGE | CREDITS |

\$5,000. One-Well Plugging Bond

\$25.00

For: Hardin-Houston, Inc.

To: The State of New Mexico

REMITTANCE COPY

| NET AMOUNT → | |
|-----------------|---------|
| | \$25.00 |

for *John L. Wortham & Son*
 BUSINESS FORMS AND SYSTEMS
 QUERRELL LUBBOCK SAN ANGELO
 655 75/6

HARDIN-HOUSTON, INC.

| DATE | INVOICE NO. | DESCRIPTION | GROSS | DISCOUNT |
|---------|-------------|---------------|-------|----------|
| 5-23-84 | | Plugging Bond | 25.00 | |

COMMERCIAL BANK & TRUST CO.
 MIDLAND, TEXAS

P. O. BOX 102
 HOBBBS, N. M.

HARDIN-HOUSTON, INC.

13975

88-2283
 1163

PAY TO:

| |
|---------|
| DATE |
| 5-23-84 |

John L. Wortham & Son
 P. O. Box 1388
 Houston, Texas 77251

| | |
|--------------------|----|
| PROTECTED AMOUNT | |
| 125.00 | 00 |
| VOID AFTER 60 DAYS | |

| |
|--------------|
| CHECK AMOUNT |
| 125.00 |

HARDIN-HOUSTON, INC.

NOT NEGOTIABLE

Paige - here are the charts I promised on the brine well pressure test. If there's anything else we can do to facilitate your work, please let us know.

Best regards,

Best night
Lynda Broom
Broom Transportation
P.S. Let's have lunch when
you're in town
sometime?

EFFICIENCY® LINE NO. 2725 AN AMPAD PRODUCT 60 SHEETS



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

December 6, 1989

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Linda Broom
TRACY BRINE STATION
P. O. Box 1031
Artesia, New Mexico 88210

RE: Delegation of Responsibilities Brine Manufacturing Operations

Dear Ms. Broom:

On June 13, 1989, the Water Quality Control Commission (WQCC) transferred the responsibility for the administration and enforcement of Commission regulations at brine manufacturing operations, including all brine production wells, holding ponds and tanks, from the Environmental Improvement Division (EID) to the Oil Conservation Division (OCD). The OCD has jurisdiction over all manufactured brine once it is transported, used or disposed of off brine plant premises for use in or directly related to oil and gas operations regulated by OCD. OCD regulates brine injection through its Class II Underground Injection Control (UIC) Program if the brine is used in the drilling for or production of oil and gas. EID shall regulate brine injection through its UIC Program if the brine is used for other purposes.

Brine production facilities that were transferred to OCD's jurisdiction must operate pursuant to an approved and current discharge plan. The discharge plan renewal process will be continued by OCD Environmental Bureau Staff. Approximately eight (8) months before the expiration date of an approved discharge plan, the discharger will be notified of the pending expiration of the plan. The discharge plan review process can, depending on circumstances, take several months. If the holder of an approved discharge plan submits a renewal application at least 180 days before discharge plan expiration, and the discharger is in compliance with his approved plan on the date of expiration, then the existing plan will not expire until the renewal application has been approved or disapproved.

Ms. Linda Broom
December 6, 1989
Page -2-

Guidelines to aid you in determining what will be required for the renewal of your discharge plan are being prepared. When the guidelines are finalized, they will be supplied to each operator of a brine production facility.

The OCD requires that any person, firm corporation or association that is in ownership of an oil, gas, or service well in the State of New Mexico shall furnish the Division with a surety bond in an amount prescribed in the OCD regulations. The current bond for well less than 5000 feet deep in Chaves, Eddy, Lea and Roosevelt Counties is \$5000. I am enclosing the OCD bond forms for your use. All surety bonds previously submitted to the OCD did not include brine wells. Those surety bonds submitted to the EID must be changed to the OCD. Once the proper bond form are received and approved, all other sureties and bonds can be cancelled.

If you have any questions, please do not hesitate to contact me at (505) 827-5884.

Sincerely,



Roger C. Anderson
Environmental Engineer

RCA/sl

Enclosures

CC: Artesia District Office
Hobbs District Office

BRINE STATION INSPECTION FORM

DATE 12/5 1988 1430
 FACILITY TRACY Brine EID INSPECTOR Lambert
 FACILITY REP ON SITE — LOCATION Carlsbad
 COUNTY Eddy

out - of - business

WELL OPERATION

unknown

WELL IS INJECTING: — THROUGH ANNULUS — THROUGH TUBING
 SOURCE OF FRESH WATER —
 TRACE INJECTION/PRODUCTION LINES —

WELL HEAD PRESSURE — PSIG PUMP PRESSURE — PSIG
 LEAKS AROUND WELL OR PUMP —

STORAGE AREA

FOR PONDS: 1 pond
 GENERAL LINER APPEARANCE OK no apparent liner defect
pond fence needs repair
 AMOUNT OF FREEBOARD empty w/ salt buildup on bottom
 ANY SIGN OF OVERFLOW OR LEAKS —
 LEAK DETECTION SYSTEM — FLUIDS — DRY None

FOR TANKS: 4 tanks 1 fresh & brine 1-3
 GENERAL APPEARANCE brine tank shows leakage salt crust on
 LABELED PLAINLY YES X NO SURFACE
 BERMED TO PREVENT RUNOFF X YES — NO
 CHECK CONTENTS TO ASSURE PROPER FLUID/LABLE MATCH —

NUMBER OF TANKS FOR BRINE 1-3 FRESH WATER 1 ? UNKNOWN
General area needs maintenance what tank configuration

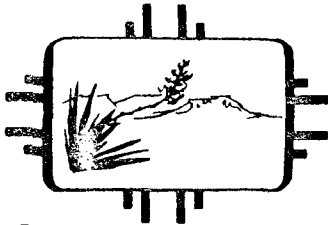
LOADING AREA

PROPERLY GRADED AND BERMED TO CONTAIN SPILLAGE ✓ YES — NO
 ANY EVIDENCE OF RECENT SPILLAGE ✓ YES — NO
 DOES FACILITY HAVE A SPILL COLLECTION SYSTEM ✓ YES — NO
 ANY EVIDENCE OF OIL SPILLING/DUMPING ✓ YES — NO
presences of waste oil in collection system

MONITORING WELLS

DEPTH — FT STATIC WATER LEVEL — FT BELOW CASING
 SAMPLED THIS VISIT — YES — NO TEMP — Ec —

COMMENTS Facility Abandoned needs repair
Maintenance Overgrown collection
system needs cleanup, & Brine leaks
need repair, pond need cleanup
GENERAL SURFACE
Cleanup Required



NEW MEXICO
HEALTH AND ENVIRONMENT
DEPARTMENT

Post Office Box 968
Santa Fe, New Mexico 87504-0968

GARREY CARRUTHERS
Governor

CARLA L. MUTH
Secretary

MEMORANDUM

DATE: August 11, 1988

TO: Robert G. Stovall, Office of General Council, Energy Minerals
and Natural Resources Department

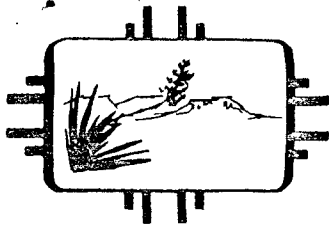
FROM: *Rm* Richard Mitzelfelt, Deputy Director, Water Management Branch

SUBJ: Plugging and Abandonment of the Tracy Brine Well

The Environmental Improvement Division (EID) has determined that the Tracy Brine Station near Carlsbad, New Mexico is abandoned. Further, it is my understanding that the Oil Conservation Division (OCD) cancelled the plugging and abandonment bond for this facility on January 15, 1986, having received notification of the insurance company which issued the bond going bankrupt. It is also my understanding that when there is neither a viable company or viable surety, OCD may use a reclamation fund, supported by a tax on oil production, to plug an abandoned well. By this memorandum, EID is requesting that OCD undertake the requisite administrative actions to authorize use of the reclamation fund to plug and abandon this well.

RM:JP:dg

cc: Doug Hoag, BLM
Gini Nelson, Office of General Council, EID
Charles Roybal, Office of General Council, Energy and Minerals Dept.
William J. LeMay, Director, OCD



NEW MEXICO
HEALTH AND ENVIRONMENT
DEPARTMENT

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Santa Fe, New Mexico 87504-0968

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RM:JP:dg

cc: Doug Hoag, BLM
Gini Nelson, Office of General Council, EID
Charles Roybal, Office of General Council, Energy and Minerals Dept.
William J. LeMay, Director, OCD

*Rogers - Can
we get this
plugged? See
me*

A.



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

MEMORANDUM

TO: RICHARD MITZELFELT, DEPUTY DIRECTOR,
WATER MANAGEMENT BRANCH

FROM: ROBERT G. STOVALL, GENERAL COUNSEL
OIL CONSERVATION DIVISION 11/7

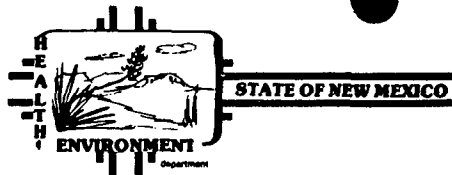
SUBJECT: PLUGGING AND ABANDONMENT OF TRACY BRINE WELL

The Oil Conservation Division does not have any jurisdiction over the subject brine well and therefore it is my opinion the OCD does not have the authority to undertake the administrative actions to use the Reclamation Fund to plug and abandon this well. The Reclamation Fund is to be used to plug and abandon oil and gas wells, and there is no provision in the Statute for the plugging of brine wells.

Furthermore, because these wells are not under the Administrative Authority of the OCD, I do not believe we can utilize those funds for plugging and abandonment.

August 23, 1988

dr/



MEMORANDUM

DATE: 9/23/88

TO: Richard

FROM: Lorraine

SUBJECT:

Back in July a letter was written for your signature to Bob Stoval, OCD General Council regarding Tracy Brine Station.

The ground water section would like to know if you have a copy of Mr. Stovals' response.

(Hope this all makes sense)



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

*check with
State Land
Office on
ownership of
land where this
well is*

2088
JILDING
1 87504

MEMORANDUM

TO: RICHARD MITZELFELT, DEPUTY DI
WATER MANAGEMENT BRANCH

FROM: ROBERT G. STOVALL, GENERAL CO
OIL CONSERVATION DIVISION

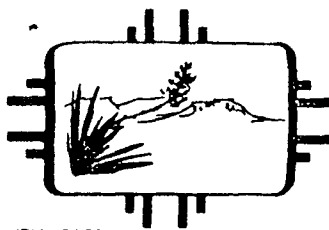
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Furthermore, because these wells are not under the Administrative Authority of the OCD, I do not believe we can utilize those funds for plugging and abandonment.

August 23, 1988

dr/



NEW MEXICO
HEALTH AND ENVIRONMENT
DEPARTMENT

Post Office Box 968
Santa Fe, New Mexico 87504-0968

GARREY CARRUTHERS
Governor

CARLA L. MUTH
Secretary

MEMORANDUM

DATE: August 11, 1988

TO: Robert G. Stovall, Office of General Council, Energy Minerals
and Natural Resources Department

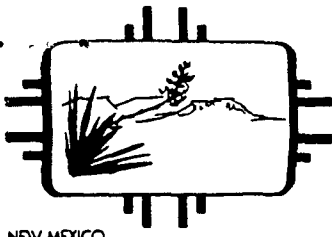
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RM:JP:dg

cc: Doug Hoag, BLM
Gini Nelson, Office of General Council, EID
Charles Roybal, Office of General Council, Energy and Minerals Dept.
William J. LeMay, Director, OCD



NEW MEXICO
HEALTH AND ENVIRONMENT
DEPARTMENT

Post Office Box 968
Santa Fe, New Mexico 87504-0968

ENVIRONMENTAL IMPROVEMENT DIVISION

Michael J. Burkhardt
Director

GARREY CARRUTHERS
Governor

LARRY GORDON
Secretary

CARLA L. MUTH
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 18, 1988

Linda Broom, President
Broom Transportation, Inc.
Post Office Box 505
Artesia, NM 88210

Dear Ms. Broom:

The New Mexico Environmental Improvement Division (EID) has made numerous unsuccessful attempts to contact you over the past two years regarding the Tracy Brine Station. EID staff who have visited the facility over the same time period believe it to be deserted. Additionally, EID has received correspondence from the Oil Conservation Division stating that Broom Transportation, Inc. has gone out of business.

The discharge plan authorizing Broom Transportation, Inc. to operate Tracy Brine Station, DP-351, is due to expire on February 22, 1990. DP-351 was approved with monitoring and reporting requirements. EID has not received any reports from Broom Transportation, Inc. since the February 1985 renewal date. This is a violation of Section 5-207.C. of the New Mexico Water Quality Control Commission (WQCC) Regulations. In addition, Broom Transportation, Inc. no longer has any financial assurance in place after cancellation of its bond on January 15, 1986. This is a violation of Section 5-210.B.17 of the WQCC Regulations. If Broom Transportation, Inc. does not initiate a good faith effort to bring its brine operation into compliance with the regulations, EID may terminate DP-351 in accordance with Section 3-109.E.3 of the regulations and/or undertake appropriate legal action.

Please respond within 14 days from receipt of this letter stating your intentions regarding possible future operations of the Tracy Brine Station. Thank you in advance for your cooperation.

Sincerely,

Richard Mitzelfelt
Deputy Director
Water Management Programs

RM:JP:dg

cc: Gini Nelson, HED Office of General Counsel, Santa Fe
Garrison McCaslin, EID District IV, Roswell
Doug Hoag, Bureau of Land Management

☒ Telephone☐ Personal

Time

Date

1/28/85

Originating Party

Other Parties

Jim Smith, Carlsbad EID

Subject

Re-test of Tracy well

Discussion

In 24-hr test, Friday ^{1/25} 11 a.m. to Saturday ^{1/26} 11 a.m., pressure dropped from about 195 psi to about 190 psi: acceptable test, although we would have pressured up to original pressure again to see how much water it took to do so. Drop in pressure assumed to be due to water dissolving salt. ~~Smith will send us~~

Linda Brown called later with the same message; promised to send us the chart from the pressure recorder.

Conclusions or Agreements

1/29/85 I called Jim Hunter, Geoscience Consultants, to tell him about the test results and prompt him to get his final remarks in to me ASAP so I can get out the approval letter by 2/14/85 as specified in Assurance (assuming all is well).

Distribution

Signed

Linda Morgan.

REPORT TO:

Morgan/Saves

Ground Water & Hazardous Waste Bureau
Environmental Improvement Division
Health & Environment Department
P.O. Box 968 - Crown Building
Santa Fe, NM 87504-0968

LAB NUMBER

NE 5649

DATE RECEIVED

11/30/84

DATE REPORTED

CD 1/22/85

Initials

SLD USER CODE NUMBER

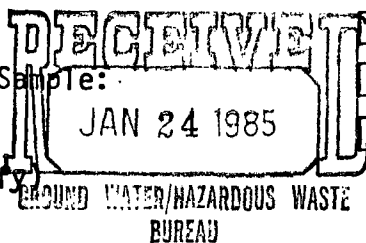
58500Well Location Address Co Rd 606, Eddy Co NMPoint of Collection Brine PondWell Owner/User Tracy Brine Well (Broom)Number of People Drinking Water from Well 0Collected 11/26/84
Date0845
TimeBy Paige Morgan
NameEID
AgencyWell Depth N/ApH field (6.30)Water Level N/AConductivity
(Uncorrected) _____ umho/cm

Taste? Odor? Color? Collectors Remarks

Temperature _____ °C

Strong Brine, in field we diluted to 20%Conductivity at
25°C _____ umho/cmStrength and EC was >>50,000 umhos

PROJECT:

Na 32.7From _____, A-H₂SO₄ Sample:From F, NA Sample:Date
Analyzed☐ Nitrate-N⁺ _____ mg/l
Nitrite-N☒ Calcium 1579 mg/l 1/16☐ Ammonia-N _____ mg/l☒ Potassium 156 mg/l 12/17☐ Chemical
oxygen demand _____ mg/l☒ Magnesium 717 mg/l 1/21☐ _____☒ Sodium 120060 mg/l 12/17☒ Bicarbonate 78.1 mg/l 1/14☒ Chloride 230349 mg/l 1/17☒ Sulfate 3962 mg/l 1/4☒ Total Solids 312,630 mg/l 1/2From _____, A-HNO₃ Sample:☐ ICAP Scan☐ Metals by AA (Specify)

This form accompanies _____ sample(s) marked as follows to indicate field treatment:

NF: Whole sample (no filtration).

F: Filtered in field with 0.45u membrane filter

A-H₂SO₄: Acidified with 2 ml conc H₂SO₄/lA-HNO₃: Acidified with 5ml conc HNO₃/l

NA: No acid added

1/10/85:

Called Don McDaniel (746-3304) to find out what he was going to do about the pressure test (re: my 12/4/84 letter). Spoke with Linda Broom, Ernest Broom's daughter, who is taking over management of the business following her father's death on January 2. She will be in Santa Fe next week, we made an appointment to discuss the history & status of the well then. Meanwhile I explained that the well should be retested before February 14 so we can abide by the deadline on approval/disapp. of the d.p. as specified in the Assurance.

Patsy Grant Morgan

1/23/85:

Met with Linda Broom in Santa Fe - discussed history of our dealing with the Irony well, and pressure test procedure. She copied portions of the file.

1/15/85. Called Jim Hunter to clarify his 12/11/84 letter based on our phone conversation of 12/10/84.

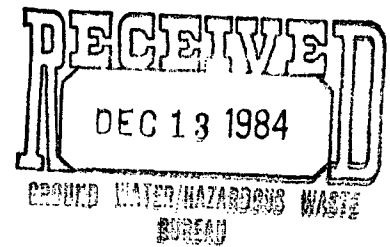
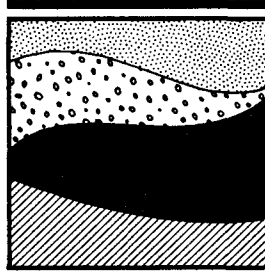
#1. "Agreed" - They agree that the Heat well & irrigation well are too far away to serve as monitoring wells, and that in the future they will submit laboratory analyses (not computations based on TDS) for Na & K, and indicate what lab performed the analysis.

#2. (An response to #5 in my 11/6/84 letter): OK on monitoring annular pressure ^{during injection} and keeping records for EID inspection; OK on pressure test as means of mech. integ.

#7 of my 11/6/84 letter: They have no info on B-grade casing either, nor on cement integrity except that Dave Boyer at OCI told him that they were pretty satisfied with the integrity of cement grout in brine wells.

A. Left message for Jim that I need a copy of plugging bond(s); he will send in closure plan for

**Geoscience
Consultants, Ltd.**



December 11, 1984

Ms. Paige G. Morgan
Water Resources Specialist
Ground Water Section
NMEID
P.O. Box 968
Santa Fe, New Mexico 87504-0968

RE: Tracy Brine Well (DP-315)

Dear Ms. Morgan:

Thank you for taking the time on December 10 to discuss our responses to your November 6 letter. My responses follow the sequence of that letter.

1. Agreed
2. We will agree to monitoring annular pressure during injection, and to keeping records for EID inspection.
 - A. Plugging costs average \$1.50 to \$1.75 per foot of well plugged. The state plugging bond (8083-02-48) is for \$5000.00, this easily exceeds any reasonable costs for a 1200 foot well.
 - B. NMEID will be notified prior to drainage the brine pond for liner inspection.
 - C. NMEID will be immediately notified of any significant leak or spill, and well injection will be shut down in the event of a casing leak.

I hope that these responses will satisfy all of your concerns. Please forward me the results of your second pressure test when

they become available. If the pressure test results are favorable, we look forward to the EID Director's action on this plan by the February 14, 1985 date agreed to in the Assurance of Discontinuance.

Sincerely,
GEOSCIENCE CONSULTANTS, Ltd.

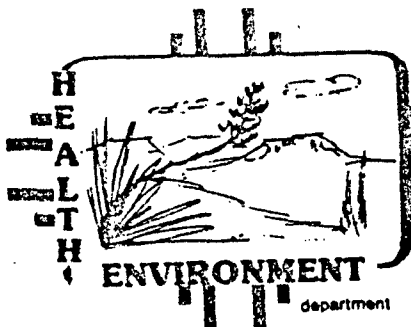
A handwritten signature in cursive script, appearing to read "J. Hunter".

James C. Hunter
Senior Geologist

JCH/pg

cc: Dr. Jack Claassen, Champion Chemicals, Inc.
Mr. Ernest Broom, Broom Transportation Company

TONEY ANAYA
GOVERNOR



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87501
(505) 984-0020
Denise Fort, Director

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

December 4, 1984

Don McDaniel
Broom Transportation, Inc.
P.O. Box 1031
Artesia, NM 88210

P 612 423 445
RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

| | | |
|-------------------------|-------------------------|-------------------|
| U.S.G.P.O. 1983-403-517 | Sent to | Don Daniel |
| | Street and No. | P.O. Box 1031 |
| | P.O. State and ZIP Code | Artesia, NM 88210 |
| | Postage | \$ |

RE: Repeat of pressure test to ascertain mechanical integrity of "Tracy Brine Well".

Dear Mr. McDaniel:

Enclosed is a copy of the chart used to record the pressure test on the Champion/Broom brine well, located in the south half of Section 3, T22S, R27E, about two miles east of Carlsbad. As we discussed by phone, the recorded test result does not demonstrate the mechanical integrity of your brine well: it shows a steady rise in pressure, which I interpret as due to either faulty pressure recording equipment (most likely) or a leak of natural gas into the salt formation from which you produce brine. In either case, the apparent rise in pressure recorded on the chart could mask an actual drop in pressure due to a casing leak.

Therefore, as per our phone conversation of Monday, December 3rd, please repeat the pressure test with a different pressure transducer and recorder. Please check with Tom Burt, EID Carlsbad, to schedule the test so that an EID representative can be present to witness the start-up of the test and to collect the chart at the end of the test. Please allow the test to run for a full 24 hours.

If a pressure rise is recorded in the well on this second occasion, I have requested Mr. Burt to instruct the staff member who witnesses the test to collect a sample of brine at the wellhead for analysis for natural gas contamination. In the event that gas is detected in the brine, we will notify the Oil Conservation Division to investigate the source. Also in the event of a rise in pressure on this well, you will be required to run a pressure test using a temporary packer in the well, to isolate the casing from the cavity and test the casing alone.

Thank you for your cooperation in conducting appropriate tests on this well to demonstrate its mechanical integrity.

Sincerely,

Paige Grant Morgan
Water Resource Specialist
Ground Water Section

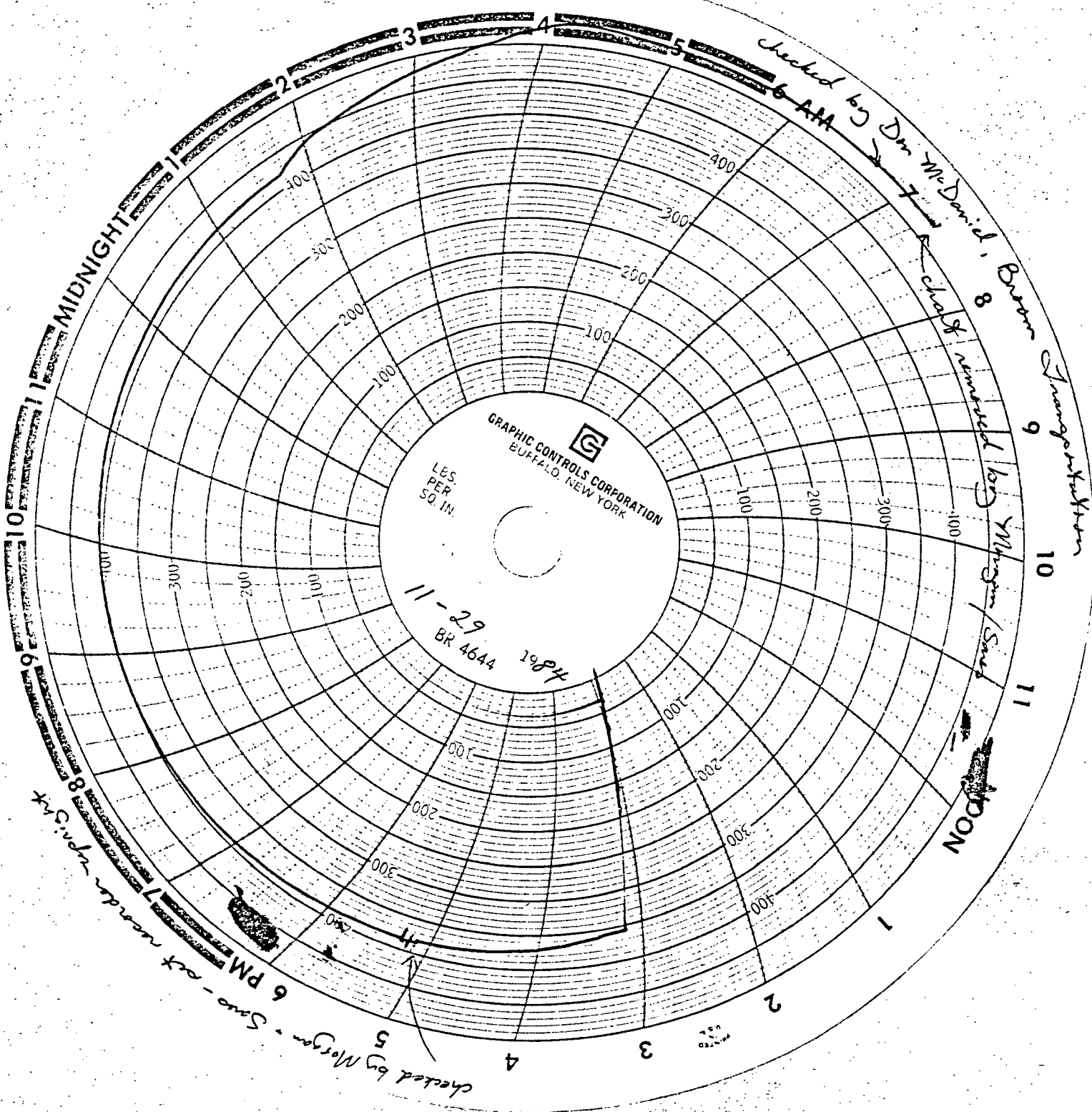
PGM:jba

m sm

cc: John Guinn, EID District IV, Roswell
Tom Burt, EID Field Office, Carlsbad
E.J. Claassen, Champion Chemical Co.
James Hunter, Geoscience Consultants

Enclosure

EQUAL OPPORTUNITY EMPLOYER



moles, Ion

FIELD TRIP REPORT
GROUND WATER SECTION

SLD USER CODES

Ground Water: 59300

NO₃, HC, & Toxics: 59600

UIC: 59500

County Eddy

FACILITY VISITED

Name of Facility: Broom/Chamilton "Tracy Brine Well"

Location: ~ 2 mi east of Carlsbad

Discharge Plan Number: DP-351

Type of Operation: brine well

ENVIRONMENTAL IMPROVEMENT DIVISION FIELD VISIT

EID Inspector(s): Patty Morgan - Steve Sans

Date of Inspection or Visit: 11/29-30/84

Discharger's Representative Present During EID Visit:

Name: Don McDaniel

Title or Position: foreman

Purpose of Visit:

- a. Evaluation of Proposed Discharge Plan ☒
- b. Compliance Inspection of Discharge with Approved Plan ☐
- c. Other (specify) witness pressure test

Inspection Activities During Field Visit:

- a. Inspection of Facilities or Construction (specify)
- b. Sampling of Effluents (give sampling locations)
- c. Sampling of Ground Water (give names or locations of wells)
- d. Evaluation of geology, soils, water levels or other physical characteristics of the location (specify)
- e. Other (specify)

Observations and Information Obtained during the Visit:

We arrived ~ 1 1/2 hours after he had pressured up
brine well & connected recorder. Chart showed
rise in pressure. Left it overnight, checked again in
morning - rise continued. Inconclusive pressure test

ACTION REQUIRED

Discussed follow-up action w/ McDaniel and
Tom Bent, EID Carlsbad. Letter in Broom file.

moles Ion

FIELD TRIP REPORT GROUND WATER SECTION

SLD USER CODES

County EDDY

Ground Water: 59300

NO₃, HC, & Toxics: 59600

UIC: 59500

FACILITY VISITED

Name of Facility: TRACY Brine Well (Broom)

Location: Co. Rd 606, Just East of Carlsbad NM

Discharge Plan Number: DP-351

Type of Operation: Brine Well

ENVIRONMENTAL IMPROVEMENT DIVISION FIELD VISIT

EID Inspector(s): Doris Morgan / Steve Sares

Date of Inspection or Visit: 11/26/84

Discharger's Representative Present During EID Visit:

Name: Don McDaniel

Title or Position: Foreman

Purpose of Visit:

a. Evaluation of Proposed Discharge Plan ☒

b. Compliance Inspection of Discharge with Approved Plan ☐

c. Other (specify) ☐

Inspection Activities During Field Visit:

a. Inspection of Facilities or Construction (specify)

Inspected ponds, storage tanks, and pumps. All were in good order one pump used to load trucks was encrusted with salt, Foreman said he had cleaned it 3 months ago

b. Sampling of Effluents (give sampling locations)

1 Brine Sample (8411260845) taken from pump which runs to bottom of pond

c. Sampling of Ground Water (give names or locations of wells)

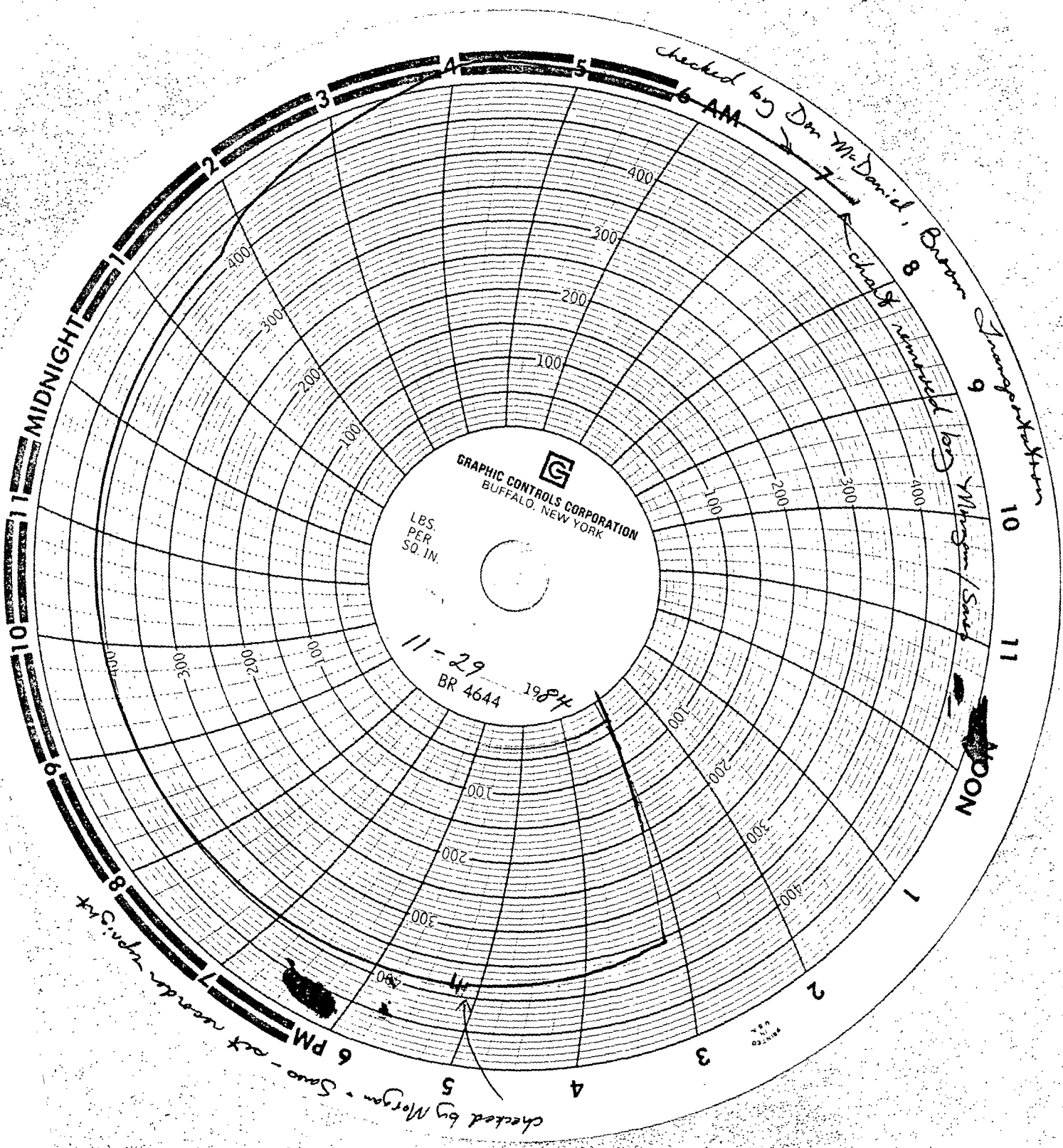
None

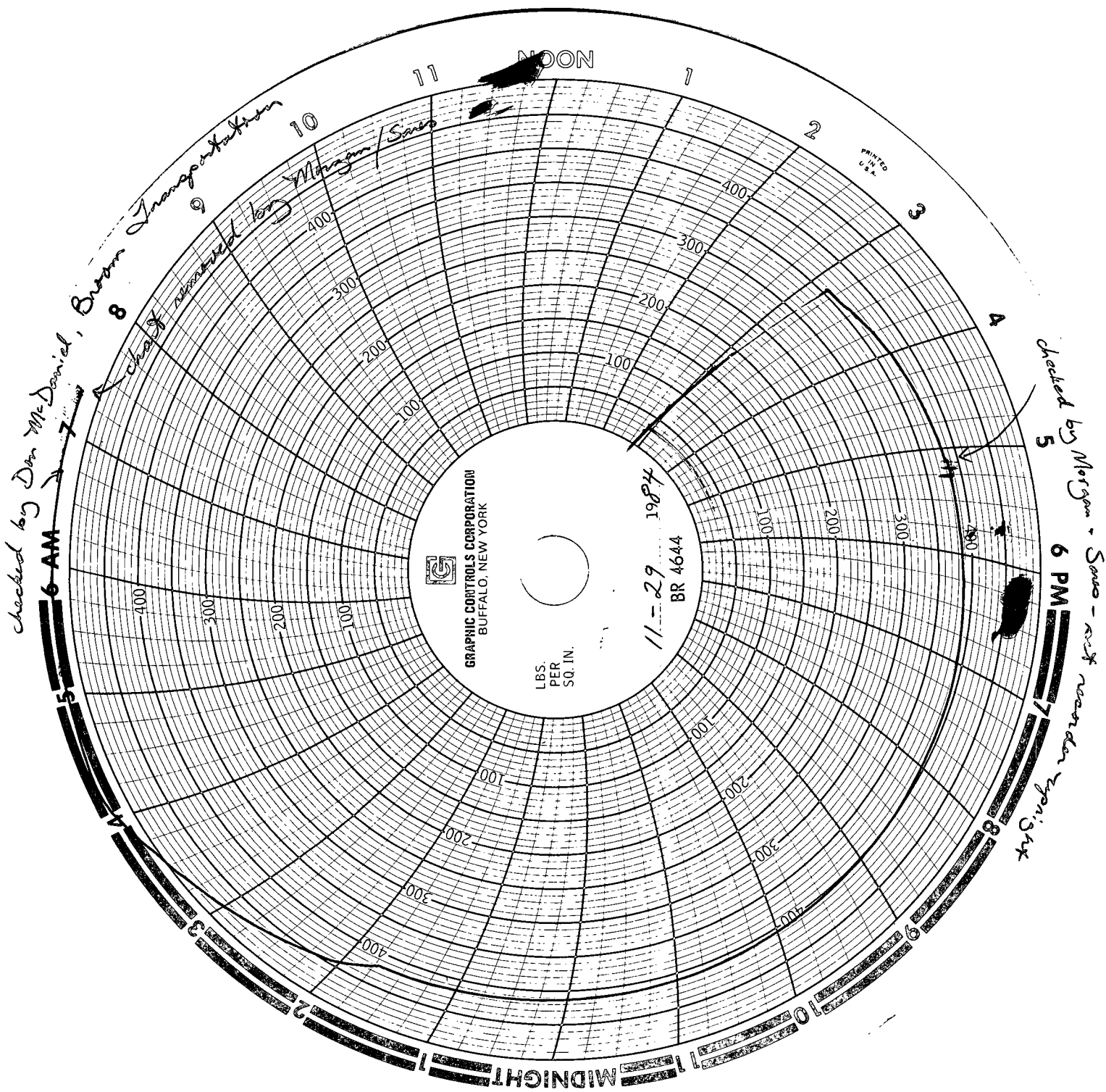
d. Evaluation of geology, soils, water levels or other physical characteristics of the location (specify) Area was wet, Several Puddles of standing water; however it had been raining. There is an earthen dam which looks like its designed to catch runoff. In it there was water (Brine??) with oil floating on top

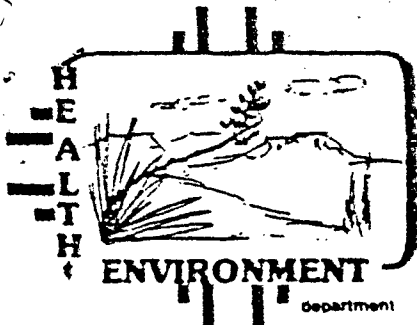
e. Other (specify)

Purpose of trip was to run a pressure test on the well. The foreman misunderstood and thought he would have to set a packer. He couldn't make the arrangement in time, so we just looked at the surface facilities. Observations and Information Obtained during the Visit: Made arrangements for a pressure test later in the week.

ACTION REQUIRED







STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

DENISE FORT, DIRECTOR

November 6, 1984

James C. Hunter, Senior Geologist
Geoscience Consultants, Ltd.
500 Copper Avenue, NW Suite 220
Albuquerque, NM 87102

RE: Discharge Plan (DP-351) for Tracy Brine Well

Dear Mr. Hunter:

Thank you for your letter of October 24th answering my questions on the above-referenced discharge plan. My comments below follow the sequence of your responses.

1. The method you suggest for determination of sodium and potassium concentrations is based on a general rule of thumb and is not appropriate to provide a characterization of the various fluids for which you submitted analyses. For the purposes of this report, the Neal well and the irrigation well are too far from the brine well to be useful for monitoring purposes, and you need not submit additional data for these wells. However, please submit analyses for sodium and potassium concentrations in the produced brine (recognizing that brine quality varies and the analyses for Na and K may differ from what it was on the day your previously reported sample was collected). In this and future submittals, please indicate what laboratory performed any chemical analysis.
2. Noted.
5. Monitoring of annular pressure is a good plan. My original question, however, stemmed from the statement on page 3-10 of the discharge plan, that a pressure-monitoring valve was attached to the brine return line, e.g. the tubing. Does Mr. Broom commit to carrying out a monitoring program for annular pressure, and keeping records for inspection by EID?

Even with records of annular pressure, EID requires an additional back-up method of verifying mechanical integrity of injection wells. I believe that the simplest, least costly method to test mechanical integrity in a brine well is by means of the pressure test I described in my letter to you of September 24, 1984. Feel free to propose another comparable method. Since at this stage we do not even have records of annular

James C. Hunter
November 6, 1984
Page 2

pressure by which to ascertain mechanical integrity, a suitably recorded pressure test indicating no casing leaks will be required prior to approval of this discharge plan. Please notify me prior to running this test, so that we have the opportunity to send a representative to witness the test.

6. Noted.
7. I am unable to find any information on B grade casing or 6.5 lbs/ft tubing from the standpoint of corrosion resistance in the environment of a brine well. Although this information has no bearing on approval or disapproval of this discharge plan (we would not require replacement of the tubing or casing except in the case of mechanical failure), it would be very helpful from the standpoint of flagging potential future problems. Any information you could provide to me on the corrosion resistance of materials used in this well, including the 100-foot cement plug at the base of the salt section, would be very helpful.

The following points were not raised in my September 24th letter, which contained only preliminary comments on DP-351. The questions which follow constitute my final comments on this discharge plan, apart from any that may occur to me during a site visit.

- A. The preferred method of plugging a brine well so as to achieve the standard specified in OCD's Rule 202 is to leave the cavity full of brine and to fill the casing from the bottom to top with cement. Please submit a plugging plan including these elements, as well as a plan to prevent eventual corrosion of the plug at the base of the salt section and migration of brine into the lower section of the hole (see Section 5-209.B of the Water Quality Control Commission regulations).

6 With the plugging plan, please also submit an estimate of the cost of carrying out such a plan, and a surety bond or "other adequate assurance" (see Section 5-210.B.17 of the WQCC regulations) sufficient to carry out such a plan.

- B. You have made a good case that a leak detection system beneath the lined brine pond would afford no additional environmental protection at this site, due to the apparent absence of any ground water in the immediate area and the shallow, calcareous soil cover over caliche, which would probably induce most fluids leaking from the pond to appear at the surface rather than to infiltrate to subsurface formations. Please include as part of your commitment to monitoring and reporting an agreement to notify the EID prior to draining the pond for its annual inspection, so that EID may send a representative to witness the inspection of the liner.

James C. Hunter
November 6, 1984
Page 3

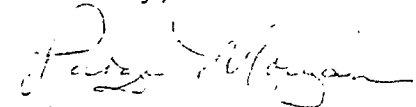
- C. Please note the requirement in Section 1-203 of the WQCC regulations that this Division be notified immediately in the event of any significant leak or spill (rather than within 10 working days, as specified in the discharge plan).

Due to the uncertainties inherent in using flow monitoring to detect a casing failure, please commit to shutting down operations if a pressure test or the monitoring of annular pressure indicates a casing leak, rather than waiting for a quarterly volume comparison to ascertain whether any fluids are unaccounted for.

I would like to arrange for a visit to the Champion/Broom brine facility after receiving your response to these comments and before I make a recommendation to the Director to approve or disapprove discharge plan DP-351. Ideally, I would like to schedule my visit to coincide with the pressure test of the well. Tentatively, I suggest the week of November 26-30 for this visit. Please let me know what would be most convenient for you and your client.

I look forward to your response to these remarks.

Sincerely,



Paige G. Morgan
Water Resource Specialist
Ground Water Section

PGM:jba

cc: John Guinn, EID District IV, Roswell
E.J. Claassen, Champion Chemicals, Inc., Texas
Ernest Broom, Broom Transportation Co., New Mexico

7nsc



4-25-84



4-25-84



4-25-84



4-25-89



Broom Trans. Co 4/17/54
Resault, N.M. *Jeffrey*
Lined Truck Wash Pit



Tracy Brine Station
DP-351

12/5/88

Tankage



Tracy Brine Station - Calsbad
DP - 351

12/5/88

Pit filled with produced waters



Tracy Brine Station - Cutsback

12/5/88

Brine Storage Pond; tankage in rear.



Tracy Brine Station - Calsbad
DP-351

12/5/88

"Empty" Brine Storage Pond.

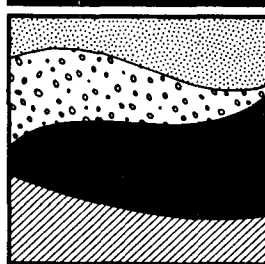


Tracy Brine Station

12/3/88

Leakage around Tank, pump shed.

**Geoscience
Consultants, Ltd.**



October 24, 1984

Ms. Paige Grant
NMEID
Ground Water Section
P.O. Box 968
Santa Fe, New Mexico 87504

RECEIVED

OCT 25 1984

GROUND WATER/HAZARDOUS WASTE
BUREAU

RE: Response to Comments DP-351

Dear Ms. Grant:

Thank you for your comments on the Tracey Brine well discharge plan (DP-351). Listed below are the responses to your questions.

1. The EID is welcome to sample the referenced wells for any and all parameters which you feel may be required for your investigations. Determination of sodium or potassium is made by totaling cations plus anions; the difference is Na plus K, with 90% or more typically being Na. Calculated values from Appendix C of the Discharge Plan are:

| <u>Source</u> | <u>Na + K</u> |
|-----------------|---------------|
| Brine Well | 5174 ppm |
| Irrigation Well | 50 |
| Neal Well | 1 |
| Carlsbad Water | 2 |

The test for "organics" refer to an oilfield test for any suspended matter caught on a millipore filter, which is then analyzed. "Organics" refers to material which is soluble in toluene. The test does not refer to slime, bacteria, etc. The only solid, suspended material in any of these waters is a trace of sand in the irrigation well.

2. Monthly brine production in Appendix B is based upon truck loads sold.

5. Long-term monitoring of annular pressure is a useful indicator of mechanical integrity. A decrease in annular pressure could be the result of casing leaks of fresh water into the underlying formations. The annular pressure will be recorded every time fresh water is injected into the well. A five year record of annular pressure is adequate to monitor the integrity of the well. A pressure test can be performed if necessary.
6. The pipe connections will be temporarily modified to permit injection of fresh water through the production tubing and dissolution of encrusted salt. After production through the annulus, standard injection will commence and annular pressure measured to insure proper clean-out. Fresh water produced during clean-out will be diverted to land surface and produced brine will be piped to the holding pond.
7. Casing specifications:

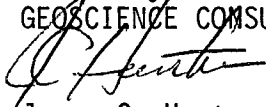
B grade (High grade) casing (CSG)
Short threaded and coupled (ST&C)
Seamless in random lengths (RL)

Tubing specifications:

6.5 pounds per linear foot
#8 round thread, seamless short thread and coupled

The above responses should address all questions raised in your letter. We look forward to your decision on the plan.

Sincerely,
GEOSCIENCE CONSULTANTS, LTD.


James C. Hunter
Senior Geologist

cc. Ernest Broom, Broom Transportation Co.
Jack Claassen, Champion Chemicals

TONY ANAYA
GOVERNOR



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
DENISE FORT, DIRECTOR

October 12, 1984

E.J. Claassen
Champion Chemicals, Inc.
1003 W. Murphy
Odessa, TX 79763

Dear Mr. Claassen:

Enclosed, at last, is a copy of your Assurance of Discontinuance signed by all parties. With this instrument in hand, I look forward to completing the review of the Broom/Champion discharge plan (DP-351) as soon as possible.

Thank you for your help.

Sincerely,

Paige Grant Morgan
Water Resource Specialist
Ground Water Section

PGM:egr

Enclosure

TONEY ANAYA
GOVERNOR



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
DENISE FORT, DIRECTOR

October 12, 1984

Ernest Broom
Broom Transportation Co.
P.O. Box 1031
Artesia, NM 88210

Dear Mr. Broom:

Enclosed is your copy of the Assurance of Discontinuance covering the brine well you operate. With this instrument in hand, I look forward to completing the review of the Broom/Champion discharge plan ~~(22-351)~~ as soon as possible.

Thank you for your help.

Sincerely,

Paige Grant Morgan
Water Resource Specialist
Ground Water Section

PGM:egr

Enclosure

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 663, Santa Fe, New Mexico 87504-0663
(505) 824-0020

DENTSE FORT, DIRECTOR

October 11, 1984

Jim Hunter
Geoscience Consultants, Inc.
500 Copper Ave., NW, Suite 220
Albuquerque, NM 87102

Dear Mr. Hunter:

Enclosed you will find a copy of the Broom/Champion Assurance of Discontinuance signed by all parties. With this instrument in hand, I look forward to completing the review of the Broom/Champion discharge plan (DP-351) as soon as possible.

Thank you for your help.

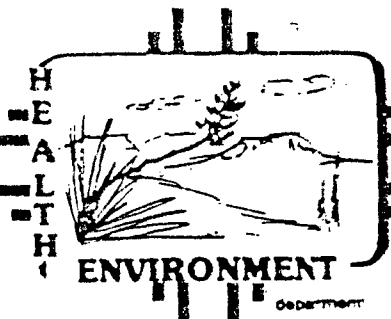
Sincerely,



Paige Grant Morgan
Water Resource Specialist
Ground Water Section

PGM:egr

Enclosure

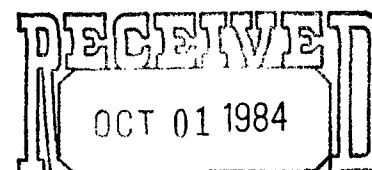


TONEY ANAYA
GOVERNOR

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

DENISE FORT, DIRECTOR



GROUND WATER/HAZARDOUS WASTE
BUREAU

RECEIVED

SEP 24 1984

ROSWELL

MEMORANDUM

TO: John Guinn, Manager, EID District IV

FROM: Paige Grant, EID Ground Water Section *PG*

DATE: September 17, 1984

SUBJ: Request for assistance in obtaining signed and notarized Assurance of Discontinuance from Ernest Broom.

As we discussed by phone September 14th, I have not been able to obtain Mr. Broom's notarized signature on the Assurance of Discontinuance (enclosed), which commits Broom Transportation, the operator, and Champion Chemical, the owner of a brine facility near Carlsbad, to preparing a discharge plan for the brine well and operating in a manner consistent with the discharge plan once it is approved. Champion Chemical sent a representative to the meeting of the Water Quality Control Commission on August 14, 1984, at which this Assurance was discussed and approved; the representative brought with him a copy of the Assurance signed by an official of the company, and notarized. However, as Broom is the operator of this facility and plans to assume ownership as soon as the paperwork is completed to allow transfer of ownership, we feel it is important that he also sign the Assurance and commit to fulfilling the terms of the Assurance and of the discharge plan when it is approved by the Director.

I request that you assign a staff member to hand-carry the enclosed Assurance to Ernest Broom in Artesia (I have no street address for his business), and arrange for him to sign it in the presence of a notary public; then please return the signed document to me. I will submit it to the EID Director for her signature, and then send copies of the Assurance containing all three signatures to Mr. Broom, to Champion Chemical, and to their jointly employed consultant, who has already submitted a discharge plan on their behalf. I will then turn my attention to reviewing the discharge plan for this facility and providing my comments on the plan to their consultant as soon as possible.

Thank you for your help.

PG:jba

cc: Ernest Broom, Broom Transportation Company
Jack Claassen, Champion Chemical Company
Jim Hunter, Geoscience Consultants, Ltd.

ASSURANCE OF DISCONTINUANCE

WHEREAS, pursuant to Subsection 3-104 and 5-101.B.3 of the New Mexico Water Quality Control Commission (Commission) Regulations, a discharge plan is required for discharges from the Tracy Brine Well and associated facilities located in Section 3, Township 22 South, Range 27 East, N.M.P.M., Eddy County, New Mexico; and

WHEREAS, neither the regulations nor an extension of time to discharge without an approved Discharge Plan issued by the Director, nor any Court Order, allows Champion Chemical Company (Champion), the owner of the above-named facility, and Broom Transportation Company (Broom), the operator of the above-named facility, or Champion or Broom individually or separately, to operate an injection well and associated surface facilities beyond December 20, 1982, and

WHEREAS, there are no water wells within a mile of the facility, due to the poor background quality of water in the vicinity, such that no present or near future contamination of drinking water sources is believed to be caused as a result of operating the above-named facility, and

WHEREAS, Champion and Broom have committed to the Commission to proceed with all diligence to prepare and secure an approved Discharge Plan; and

WHEREAS, the Commission, Champion and Broom deem it appropriate to enter into this Assurance of Discontinuance:

Champion and Broom assure the Commission as follows:

1. ASSURANCE: All unapproved discharges at the Tracy Brine Facility shall be discontinued as set forth in Paragraph 2 of the Assurance of Discontinuance.

2. SCHEDULE OF COMPLIANCE: It is agreed that the Discharge Plan shall comply with the following schedule:

A. Champion and Broom, through their jointly employed consultant, shall submit a complete Discharge Plan which shall address all applicable requirements of the Water Quality Control Commission Regulations, Parts 3 and 5,

on or before August 15, 1984.

B. EID shall complete review of Discharge Plan Application and EID shall provide comments to Champion and Broom

on or before October 15, 1984.

C. Champion and Broom, through their jointly employed consultant, shall submit responses to the EID comments

on or before December 14, 1984.

D. EID Director's approval or disapproval of Discharge Plan Application shall be promulgated

on or before February 14, 1985.

If a public hearing is scheduled by the EID Director pursuant to Subsection 3-108 of the Commission's Regulations, all deadlines in Paragraphs 2.B through 2.D shall be 45 days later.

3. MUTUAL COOPERATION: Champion, Broom and the EID shall mutually cooperate in accomplishing on a timely basis the matters contemplated by this Assurance. In this respect, direct communication among Champion and Broom representatives and EID personnel is encouraged.

4. EXTENSIONS FOR GOOD CAUSE: It is expressly agreed and understood by the parties hereto that events not reasonably foreseeable on the date of execution of this Assurance may occur which will make it impossible or extremely difficult for Champion and Broom to comply in a timely fashion with those compliance dates set out in numbered paragraph 2. In the event such unforeseen events do occur, Champion and Broom may apply to Commission for an extension for an additional reasonable period of time to comply with such tasks in numbered paragraph 2. The additional reasonable period of time, if granted, shall in all cases be governed by the relevant circumstances.

5. ENFORCEMENT: Except in the event of emergency, the Commission shall not undertake enforcement against Champion and Broom or either Champion or Broom individually or separately for the continuation of current discharges occurring during the pendency of this Assurance without first giving both Champion and Broom 15 days prior written notice by the Director that Champion and Broom or either Champion or Broom individually or separately are in violation of the terms of this Assurance. This Paragraph shall not preclude appropriate action by the Director or the Commission under Subsection 74-6-11 N.M.S.A. 1978, as applicable.

Nothing in this Assurance of Discontinuance shall relieve Champion or Broom from the responsibility for complying with all the provisions of the Water Quality Act, the regulations promulgated thereunder or any other provision of law except as otherwise specifically provided herein.

6. NO ADMISSION: The terms, execution, and any conduct in accordance herewith shall not constitute an admission of any kind by Champion or Broom relating to matters under the Water Quality Act, Commission regulations, or any other matters relating to health or environment.

7. CONDITIONAL RELEASE FROM THIS ASSURANCE: If the transfer of ownership of the Tracy Brine Facility which is presently pending shall be voided for any reason, Broom shall be exempted from this Assurance and the full responsibility for completion of the terms of the Assurance shall fall upon Champion. If the transfer of ownership is completed and Broom becomes full owner of the Tracy Brine Facility, then Champion shall be exempted from this Assurance and the full responsibility for completion of its terms shall fall upon Broom. The Director shall be notified within ten (10) days of the completion of said transfer of ownership.

Signed and acknowledged this 9th day of August, 1984.

J.D. Chandler/Secretary
Name and Title
CHAMPION CHEMICAL COMPANY

J.D. Chandler
Signature

STATE OF Texas)
 : SS
COUNTY OF Ector)

The foregoing instrument was acknowledged before me this 9th day of
August, 1984, by J.D. Chandler
d/b/a Champion Chemicals, Inc.

My Commission Expires:

April 21, 1987

Sharon A. Jones
Notary Public

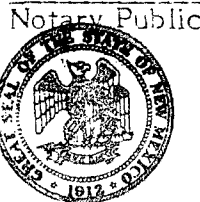
Ernest L. Broom pres.
Name and Title
BROOM TRANSPORTATION COMPANY

STATE OF New Mexico
 : SS
COUNTY OF Chaves)

The foregoing instrument was acknowledged before me this 26th day of
September, 1984, by Ernest L. Broom, President
d/b/a Broom Transportation, Inc.

My Commission Expires:

7/25/87



OFFICIAL SEAL

SIGNATURE

Teena K. Myers
TEENA K. MYERS

NOTARY PUBLIC—NEW MEXICO

NOTARY BOND FILED WITH SECRETARY OF STATE

MY COMMISSION EXPIRES 7/25/87

APPROVED:
WATER QUALITY CONTROL COMMISSION

By Richard Holland
Richard Holland, Acting Chairman
Water Quality Control Commission

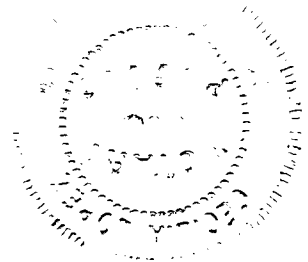
STATE OF NEW MEXICO)
: SS
COUNTY OF SANTA FE)

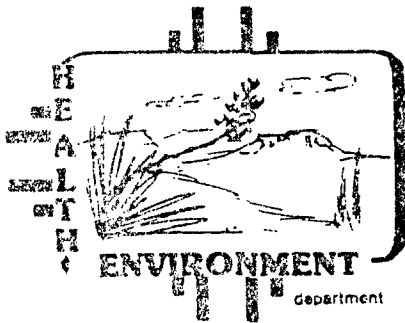
The foregoing instrument was acknowledged before me this 10th
day of October, 19 84, by Richard Holland, Acting Chairman of the
Water Quality Control Commission, on behalf of the Water Quality Control
Commission.

My Commission Expires:

10-25-86

Cecilia Lopez
Notary Public





TONEY ANAYA
GOVERNOR

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87505
(505) 984-0020
DENISE FORT, Director

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

September 24, 1984

Jim Hunter
Geoscience Consultants, Ltd.
500 Copper Avenue, NW - Suite 220
Albuquerque, NM 87102

RE: Discharge Plan (DP-351) for Tracy Brine Well

Dear Mr. Hunter:

As I discussed with you by phone last week, I have not attempted a complete review of the above-referenced discharge plan. I have delayed doing so until we receive a signed Assurance from Mr. Broom, the present operator and potential owner of the facility, indicating that he will abide by the terms of the discharge plan. I have enlisted the help of the EID District Office in Roswell to obtain Mr. Broom's signature on the Assurance, which has already been signed by the present owner of the facility (J.D. Chandler, for Champion Chemical). I hope that this matter is resolved very soon.

In the meantime, I can offer the following preliminary comments on the discharge plan:

1. On the chemical analyses: it would be helpful to include Na and K in the analyses for the wells listed in Appendix C, to facilitate comparison of the water chemistry from the various sources using tri-linear diagrams. Also, what test or tests were performed for "organics"? And why is this parameter listed under "suspended solids"? Finally, what laboratory performed these analyses?
2. Are the records of monthly brine production (Appendix B) from meter readings or records of truckloads sold? Mr. Broom has told me that meters used on brine lines are very prone to plugging up, resulting in faulty records. It would be worth checking sales records against meter readings, at the very least, to see if the two are approximately equal.
3. Please see that a pressure test is conducted on the brine well. An acceptable method is to fill the cavity, casing, and tubing with brine or fresh water (the use of brine would avoid the problem of a possible slight drop in pressure as fresh water dissolves some of the salt); then pressure up to about 1½ times normal operating pressure, shut in the well and watch for any pressure drop-off. Allow at least an hour. Please submit the chart from a graphical recorder used to record the test.
4. A high-low pressure shut-off switch on the pump is a good safety feature, but of course a leak can occur at greater than 0 psi. The switch in itself is not a guarantee against leaks.

P 612 423 368

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

| | | |
|-------------------------|--------------------------|-----------------------------|
| U.S.G.P.O. 1983-403-517 | Sent to: | Jim Hunter |
| | Street and No. | 500 Copper Ave. - Suite 220 |
| | P.O., State and ZIP Code | Alb., NM 87102 |
| | Postage | \$ |

Jim Hunter
September 24, 1984
Page 2

5. Why is a pressure gauge on the tubing a useful indicator of well integrity, since the brine is presumably flowing at 0 pressure from the tubing to the pond? Please discuss.
6. There is no reference to "blowing down" the well - in fact, the schematic of the well seems to show that the direction of flow cannot be reversed in this well. How is salt encrustation on the tubing dealt with?
7. By phone, you reported the following casing specs to me:

5½ inch casing: 5.50 inch B CGS ST & C seamless RL
production tubing, 2 7/8 inch: 6.50 #8 rnd seamless ST & C RL

and you promised to send an interpretation of those codes. Please do.

By and large, the discharge plan and the facility it describes look good. I look forward to your response to these points I've raised, and I will plan to complete my review of the original submittal and your response to this letter soon after we straighten out the business of the Assurance.

Thank you for your cooperation.

Sincerely,

Paige Grant
Paige Grant *by MSH*
Water Resource Specialist
Ground Water Section

PG:jba

cc: Ernest Broom, Broom Transportation Co.
J.C. Claassen, Champion Chemical Co.
John Guinn, EID District IV, Roswell

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

DENISE FORT, DIRECTOR

MEMORANDUM

TO: John Guinn, Manager, EID District IV

FROM: Paige Grant, EID Ground Water Section *PG*

DATE: September 17, 1984

SUBJ: Request for assistance in obtaining signed and notarized Assurance of Discontinuance from Ernest Broom.

As we discussed by phone September 14th, I have not been able to obtain Mr. Broom's notarized signature on the Assurance of Discontinuance (enclosed), which commits Broom Transportation, the operator, and Champion Chemical, the owner of a brine facility near Carlsbad, to preparing a discharge plan for the brine well and operating in a manner consistent with the discharge plan once it is approved. Champion Chemical sent a representative to the meeting of the Water Quality Control Commission on August 14, 1984, at which this Assurance was discussed and approved; the representative brought with him a copy of the Assurance signed by an official of the company, and notarized. However, as Broom is the operator of this facility and plans to assume ownership as soon as the paperwork is completed to allow transfer of ownership, we feel it is important that he also sign the Assurance and commit to fulfilling the terms of the Assurance and of the discharge plan when it is approved by the Director.

I request that you assign a staff member to hand-carry the enclosed Assurance to Ernest Broom in Artesia (I have no street address for his business), and arrange for him to sign it in the presence of a notary public; then please return the signed document to me. I will submit it to the EID Director for her signature, and then send copies of the Assurance containing all three signatures to Mr. Broom, to Champion Chemical, and to their jointly employed consultant, who has already submitted a discharge plan on their behalf. I will then turn my attention to reviewing the discharge plan for this facility and providing my comments on the plan to their consultant as soon as possible.

Thank you for your help.

PG:jba

cc: Ernest Broom, Broom Transportation Company
Jack Claassen, Champion Chemical Company
Jim Hunter, Geoscience Consultants, Ltd.

msr

ASSURANCE OF DISCONTINUANCE

WHEREAS, pursuant to Subsection 3-104 and 5-101.B.3 of the New Mexico Water Quality Control Commission (Commission) Regulations, a discharge plan is required for discharges from the Tracy Brine Well and associated facilities located in Section 3, Township 22 South, Range 27 East, N.M.P.M., Eddy County, New Mexico; and

WHEREAS, neither the regulations nor an extension of time to discharge without an approved Discharge Plan issued by the Director, nor any Court Order, allows Champion Chemical Company (Champion), the owner of the above-named facility, and Broom Transportation Company (Broom), the operator of the above-named facility, or Champion or Broom individually or separately, to operate an injection well and associated surface facilities beyond December 20, 1982, and

WHEREAS, there are no water wells within a mile of the facility, due to the poor background quality of water in the vicinity, such that no present or near future contamination of drinking water sources is believed to be caused as a result of operating the above-named facility, and

WHEREAS, Champion and Broom have committed to the Commission to proceed with all diligence to prepare and secure an approved Discharge Plan; and

WHEREAS, the Commission, Champion and Broom deem it appropriate to enter into this Assurance of Discontinuance:

Champion and Broom assure the Commission as follows:

1. ASSURANCE: All unapproved discharges at the Tracy Brine Facility shall be discontinued as set forth in Paragraph 2 of the Assurance of Discontinuance.

2. SCHEDULE OF COMPLIANCE: It is agreed that the Discharge Plan shall comply with the following schedule:

A. Champion and Broom, through their jointly employed consultant, shall submit a complete Discharge Plan which shall address all applicable requirements of the Water Quality Control Commission Regulations, Parts 3 and 5,

on or before August 15, 1984.

B. EID shall complete review of Discharge Plan Application and EID shall provide comments to Champion and Broom

on or before October 15, 1984.

C. Champion and Broom, through their jointly employed consultant, shall submit responses to the EID comments

on or before December 14, 1984.

D. EID Director's approval or disapproval of Discharge Plan Application shall be promulgated

on or before February 14, 1985.

If a public hearing is scheduled by the EID Director pursuant to Subsection 3-108 of the Commission's Regulations, all deadlines in Paragraphs 2.B through 2.D shall be 45 days later.

3. MUTUAL COOPERATION: Champion, Broom and the EID shall mutually cooperate in accomplishing on a timely basis the matters contemplated by this Assurance. In this respect, direct communication among Champion and Broom representatives and EID personnel is encouraged.

4. EXTENSIONS FOR GOOD CAUSE: It is expressly agreed and understood by the parties hereto that events not reasonably foreseeable on the date of execution of this Assurance may occur which will make it impossible or extremely difficult for Champion and Broom to comply in a timely fashion with those compliance dates set out in numbered paragraph 2. In the event such unforeseen events do occur, Champion and Broom may apply to Commission for an extension for an additional reasonable period of time to comply with such tasks in numbered paragraph 2. The additional reasonable period of time, if granted, shall in all cases be governed by the relevant circumstances.

5. ENFORCEMENT: Except in the event of emergency, the Commission shall not undertake enforcement against Champion and Broom or either Champion or Broom individually or separately for the continuation of current discharges occurring during the pendency of this Assurance without first giving both Champion and Broom 15 days prior written notice by the Director that Champion and Broom or either Champion or Broom individually or separately are in violation of the terms of this Assurance. This Paragraph shall not preclude appropriate action by the Director or the Commission under Subsection 74-6-11 N.M.S.A. 1978, as applicable.

Nothing in this Assurance of Discontinuance shall relieve Champion or Broom from the responsibility for complying with all the provisions of the Water Quality Act, the regulations promulgated thereunder or any other provision of law except as otherwise specifically provided herein.

6. NO ADMISSION: The terms, execution, and any conduct in accordance herewith shall not constitute an admission of any kind by Champion or Broom relating to matters under the Water Quality Act, Commission regulations, or any other matters relating to health or environment.

7. CONDITIONAL RELEASE FROM THIS ASSURANCE: If the transfer of ownership of the Tracy Brine Facility which is presently pending shall be voided for any reason, Broom shall be exempted from this Assurance and the full responsibility for completion of the terms of the Assurance shall fall upon Champion. If the transfer of ownership is completed and Broom becomes full owner of the Tracy Brine Facility, then Champion shall be exempted from this Assurance and the full responsibility for completion of its terms shall fall upon Broom. The Director shall be notified within ten (10) days of the completion of said transfer of ownership.

Signed and acknowledged this 9th day of August, 1984.

By Steven Asher, Chairman
Water Quality Control Commission

Notary Public

8/14/84

Memo to the file:

Two last-minute changes were made on the Assurance just prior to the Water Quality Control Commission meeting. Steve Reynolds proposed a slight clarification in the second "Whereas" to read "... an extension of time to discharge ..." (the words "of time" added for clarity). Barbara Stevenson, ^(Commission attorney) recommended the addition of a sentence in numbered paragraph #7 to the effect that the EID Director would be notified when the transfer of ownership went through. Both changes were accepted: The first was done on the word processor and the ^{corrected} first page substituted for the first page of the signed Assurance that Mr. Claassen brought for Champton to the meeting. Mr. Broom couldn't make it to the meeting; he plans to send a signed & notarized copy of his Assurance to EID. Alberto Gutierrez, Geoscience Consultants, speaking for Broom, said he's sure Broom would not object to substituting the changed

* I made the second change on his copy, on a computer at the meeting.



1003 W. MURPHY
ODESSA, TEXAS 79763

(915) 563-1162
(915) 337-2356

August 9, 1984

Ms. Paige Grant
Ground Water Section
Environmental Improvement Division
Box 968
Santa Fe, New Mexico 87504-0968

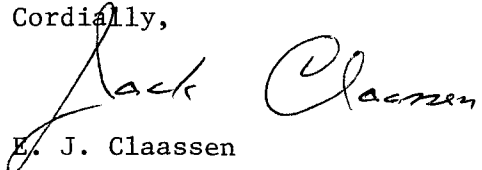
Subject: Address Change
File: EJC-69-84

Dear Paige:

In future correspondence with me, please use the following address:

E. J. Claassen
Champion Chemicals, Inc.
1003 W. Murphy
Odessa, Tx. 79763

Cordially,


E. J. Claassen


EJC/ng

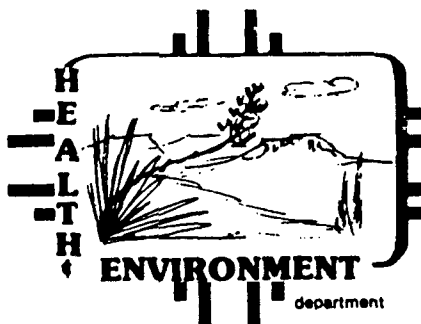
A.F.

RECEIVED

AUG 13 1984

GROUND WATER/HAZARDOUS WASTE
BUREAU





STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

TONEY ANAYA
GOVERNOR

Joseph Goldberg
SECRETARY

Ted Guambana
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

August 9, 1984

Jack Classen
TRACY BRINE WELL
Champion Chemical Company
105 Wilco Building
Midland, TX 79701

P 612 423 310
RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

| | | |
|-------------------------|-------------------------|--------------------|
| U.S.G.P.O. 1983-403-517 | Sent to | Jack Classen |
| | Street and No. | 105 Wilco Building |
| | P.O. State and ZIP Code | Midland TX 79701 |
| | Postage | \$ |

Dear Mr. Classen:

Enclosed is a copy of the public notice pertaining to your proposed discharge which was issued by this division pursuant to New Mexico Water Quality Control Commission Regulations, Section 3-108.

If you have any questions, please do not hesitate to contact me at the above address and telephone number (ext. 279).

Sincerely,

Maxine S. Goad
Program Manager
Ground Water Section

MSG:jba

Enclosure



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

TONEY ANAYA
GOVERNOR

Joseph Goldberg
SECRETARY

Ted Guambana
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

August 9, 1984

Ernest Broom
Broom Transportation Co.
P.O. Box 1031
Artesia, New Mexico 88210

Dear Mr. Broom:

Enclosed is a copy of the public notice pertaining to your proposed discharge which was issued by this division pursuant to New Mexico Water Quality Control Commission Regulations, Section 3-108.

If you have any questions, please do not hesitate to contact me at the above address and telephone number (ext. 279).

Sincerely,

Maxine S. Goad
Program Manager
Ground Water Section

MSG:jba

Enclosure

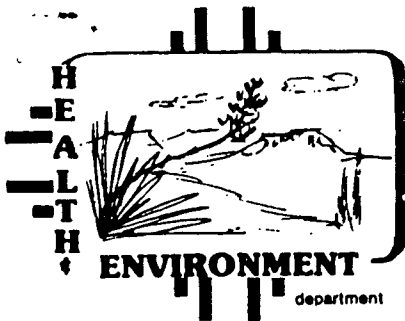
P 612 423 311

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

| | | |
|-------------------------|--------------------------|-------------------|
| U.S.G.P.O. 1983-403-517 | Sent To | Ernest Broom |
| | Street and No. | P.O. Box 1031 |
| | P.O., State and ZIP Code | Artesia, NM 88210 |
| | Postage | \$ |
| | Certified Fee | |



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

TONY ANAYA
GOVERNOR

Joseph Goldberg
SECRETARY

Ted Guambana
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

August 9, 1984

The Honorable Walter Gerrells
MAYOR, CITY OF CARLSBAD
P.O. Box 1569
Carlsbad, NM 88220

Dear Mayor Gerrells:

Enclosed is a public notice which includes notice of a proposed discharge plan(s) for one or more operations in or near your city.

If you have any questions, please do not hesitate to contact me at the above address and telephone number (ext. 279).

Sincerely,

Maxine S. Goad
Program Manager
Ground Water Section

MSG:jba

Enclosure

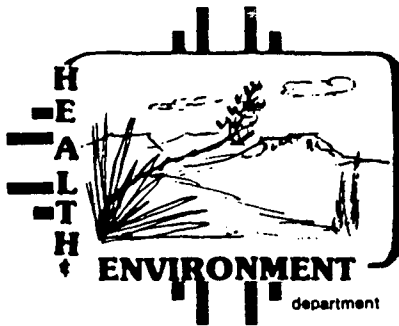
P 612 423 304

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

| | | | |
|-------------------------|--------------------------|------------------------|----|
| U.S.G.P.O. 1983-403-517 | Sent to | Walter Gerrells, Mayor | |
| | Street and No. | P.O. Box 1569 | |
| | P.O., State and ZIP Code | Carlsbad, NM 88220 | |
| | Postage | | \$ |



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

TONEY ANAYA
GOVERNOR

Joseph Goldberg
SECRETARY

Ted Guambana
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

August 9, 1984

Eddy County Commissioners
Eddy County Courthouse
Carlsbad, New Mexico 88220

Board of County Commissioners:

Enclosed is a public notice which includes notice of proposed discharge plan(s) for one or more operations located in your county.

If you have any questions, please do not hesitate to contact me at the address and telephone number given above.

Sincerely,

Maxine S. Goad
Program Manager
Ground Water Section

MSG:jba

Enclosure

P 612 423 302

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

| | | |
|-------------------------|-------------------------|--------------------|
| U.S.G.P.O. 1983-403-517 | Sent to | Eddy Cnty Comm. |
| | Street and No. | Eddy Cnty Ctrhse |
| | P.O. State and ZIP Code | Carlsbad, NM 88220 |
| | Postage | \$ |

August 9, 1984

TO BE PUBLISHED ON OR BEFORE AUGUST 17, 1984

PUBLIC NOTICE
NEW MEXICO ENVIRONMENTAL IMPROVEMENT DIVISION
HEALTH AND ENVIRONMENT DEPARTMENT

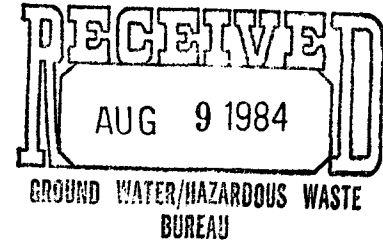
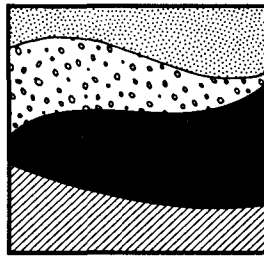
Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following proposed discharge plans have been submitted for approval to the Director of the New Mexico Environmental Improvement Division, P.O. Box 968, Crown Bldg., Santa Fe, New Mexico 87504-0968; telephone (505) 984-0020.

(DP-94) QUIVIRA MINING COMPANY, (formerly Kerr-McGee Corporation), J.C. Stauter, Director, Nuclear Licensing and Regulation, Kerr McGee Center, Oklahoma City, OK 73125, proposes to renew previously approved discharge plan DP-94 for discharge of approximately 3000 gallons per day of domestic type effluent treated in an extended aeration package treatment plant. The effluent is from the Miner's Training School near Kerr-McGee's Church Rock I Mine northwest of Gallup, New Mexico, and will be discharged to an arroyo near the school. The location of the discharge is in Section 36, T17N, R16W, McKinley County, New Mexico. The ground water most likely to be affected is that in the shallow alluvium at a depth of over 25 feet and having a total dissolved solids concentration of approximately 800 mg/l.

(DP-254) THE CITY OF RATON, P.O. Box 910, Raton, New Mexico 87740 proposes to modify its previously approved discharge plan DP-254. The previously approved plan is for disposal of treated sludge from the city wastewater treatment plant on a land application site adjacent to the plant, and for irrigation of the municipal golf course and football fields and the Charles Springer Cattle Company properties with treated effluent from the plant. The proposed modification involves additional treatment of the sludge before disposal which will result in an increased volume (to total 20,000 gallons per day) of sludge of better quality, and the injection of the sludge using a specialized sludge application vehicle versus the present surface spreading procedures. The sludge land application site is unchanged and remains in T30N, R24E, Section 6 projected, south of the City of Raton in Colfax County, New Mexico. The ground water most likely to be affected is at an estimated depth of 65 feet and has a total dissolved solids content of approximately 900 mg/l.

(DP-324) ST. CLOUD MINING COMPANY, P.O. Box 1670, Truth or Consequences, New Mexico 87901 proposes to modify its previously approved discharge plan (DP-314). The modification consists of constructing an additional tailings pond in the vicinity of the existing pond. The quality of the discharge will not change and will continue at 200,000 gallons per day. The discharge is effluent from a silver and copper extraction flotation mill in Section 4, T12S, R8W, Sierra County, New Mexico. The ground water at the site is at a depth of approximately 100 feet and has a total dissolved solids concentration of approximately 360 mg/l.

**Geoscience
Consultants, Ltd.**



August 2, 1984

Ms. Paige Grant
Ground Water Section
NMEID
P.O. Box 968
Santa Fe, New Mexico 87503

RE: Signatory Requirement - Champion Chemicals, Inc. Brine
Facility

Dear Ms. Grant:

Please find enclosed the signatory requirement for the
Champion Chemicals, Inc. Brine Facility. Please consider this as
part of the discharge plan.

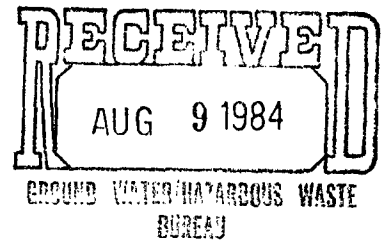
Sincerely,

Alberto A. Gutierrez
President

Enclosure
AAG/pg

cc. Ernest Broom, Broom Transportation
Jack C. Claassen, Champion Chemicals

RECEIVED AUG 0 2 1984



SIGNATORY REQUIREMENT
FOR
CHAMPION BRINE FACILITY
CARLSBAD, NEW MEXICO

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

Ernest L. Brown

Pres.
TITLE



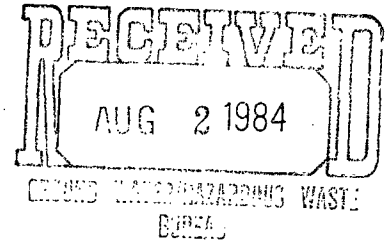
STATE OF NEW MEXICO

WATER QUALITY CONTROL COMMISSION

Paige

CONSTITUENT AGENCIES:

Environmental Improvement Division
State Engineer & Interstate Stream Commission
Game and Fish Department
Oil Conservation Division
Department of Agriculture
State Park & Recreation Division
Soil and Water Conservation Division
Bureau of Mines and Mineral Resources
Member-at-Large



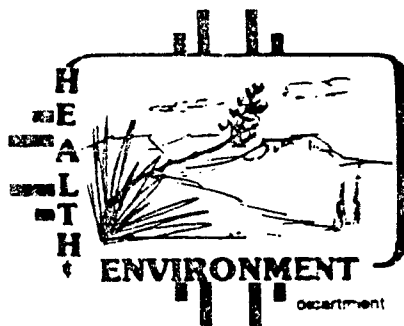
PROPOSED AGENDA*

NM WATER QUALITY CONTROL COMMISSION
MEETING
August 14, 1984
Room 341
CAPITOL BUILDING
Santa Fe, New Mexico
9 a.m.

-
1. Approval of Agenda.
 2. Review and approval of minutes of July 10, 1984 Water Quality Control Commission meeting.
 3. Discussion and action on Joint Assurance of Discontinuance for Champion Chemical Co. and Broom Transportation Co. in situ extraction facility located in Eddy County.
 4. Discussion and action on Assurance of Discontinuance between the City of Las Cruces and the NM Water Quality Control Commission.
 5. Discussion and action on Updates to Work Elements 4.1, 4.2, 4.3, 13 and 14 of the Water Quality Management Plan.
 - 5/6. Presentation by EID of language clarifying delegation, to EID by the WQCC, of full certification authority under Section 401 of the Federal Clean Water Act.
 7. Report on litigation.

fmg

*The Commission is not confined to the items listed on the agenda. Other items may be considered that are not listed on the agenda.



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

TONEY ANAYA
GOVERNOR

Joseph Goldberg
SECRETARY

Ted Guambana
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

MEMORANDUM

TO: WATER QUALITY CONTROL COMMISSIONERS

FROM: PAIGE GRANT, WATER RESOURCE SPECIALIST *Ref*

RE: JOINT ASSURANCE OF DISCONTINUANCE FOR CHAMPION CHEMICAL CO.
AND BROOM TRANSPORTATION CO.

DATE: JULY 31, 1984

This Assurance is designed to bring both owner and operator of the Tracy brine well into compliance with the regulations. The owner and operator have jointly employed a consultant, who has already submitted a discharge plan for the facility on their behalf. Nonetheless, it was deemed useful by owner, operator, and technical staff of EID to have the brine well and associated facilities under an Assurance during the several months of EID review of their plan and their response to EID comments. Since the operator, Broom Transportation Co., is in the process of purchasing the subject brine well and associated facilities from Champion Chemical Co., the joint Assurance is also seen as a necessary tool to commit the operator and eventual owner, as well as the present owner, to the terms of the discharge plan.

The copy of the Assurance you have received with this memo is unsigned. Broom Transportation and Champion Chemical each plan to bring a signed and notarized copy of the Assurance to the Commission meeting, where the other party will sign their copy before a notary prior to consideration of the Assurance by the Commission.

Final approval or disapproval of the Broom/Champion discharge plan is scheduled to be promulgated on or before February 14, 1985.

PG/cm

msz



☒ Telephone ☐ Personal Time — 7 — Date ~ July 27, 1984

Originating Party

Other Parties

*Jim Hunter**Geoscience Consultants*

Subject

*Letter from Alberto Gutierrez of July 24th
transmitting the Champton / Brown Discharge
plan to EID*

Discussion

*Ref: The final paragraph, in which he
states the discharge plan is being submitted
in lieu of an Assurance. This arose from
a misunderstanding between Hunter and
Gutierrez, and the Assurance will in
fact be submitted.*

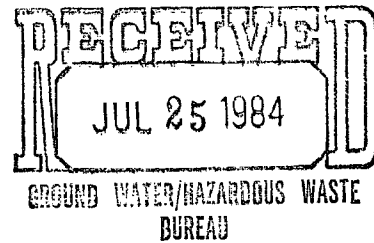
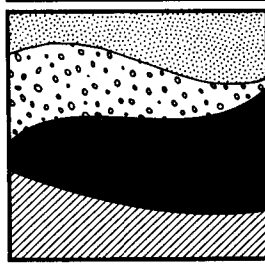
Conclusions or Agreements

Distribution

Signed

Large Grant

**Geoscience
Consultants, Ltd.**



July 24, 1984

Ms. Paige Grant
Water Resources Specialist
Ground Water Section
Environmental Improvement Division
P.O. Box 968
Santa Fe, New Mexico 87503

Dear Ms. Grant:

Geoscience Consultants, Ltd. is pleased to submit the "Discharge Plan, Champion Chemicals, Inc., Brine Production Facility, Carlsbad, New Mexico ", on behalf of Champion Chemicals Inc. and Broom Transportation Company.

We feel that the enclosed discharge plan meets all the technical requirements of the WQCC regulations. Statements of financial responsibility and signatory requirements will be supplied after we receive technical comments regarding this plan.

This two-stage process is necessary to facilitate the transfer of ownership of the well from Champion Chemicals, Inc. to the intended purchaser, Broom Transportation Company. This transfer will occur after technical approval of the plan.

In order to avoid submitting an Assurance of Discontinuance and other unnecessary administrative procedures, we are submitting this complete discharge plan in lieu of an Assurance of Discontinuance. We wish to accelerate this permitting process by asking you to contact Geoscience Consultants by telephone if the need for additional information or clarification arises. We can then respond to your inquiries in the timely fashion.

Sincerely,

Alberto A. Gutierrez
President

Enclosure
AAG/pg

cc. Bruce Garber,
Ernest Broom
E.J. Claassen



☒ Telephone ☐ Personal Time *morning* Date *7/25/84*

Originating Party

Other Parties

Jack Claassen

Subject

my letter of 7/24.

Discussion

He has no problems with the Assurance and will be present at the WQCC meeting August 14.

I didn't hear from Ernest Broom, ~~but~~ so I called 7/30 and left a message to let me know by next morning when I had to have agenda items in.

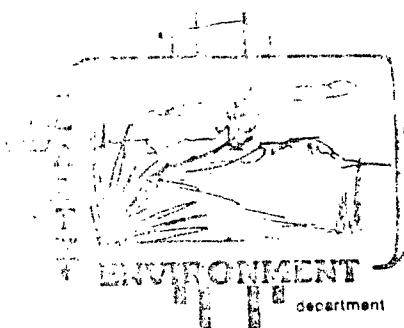
8/3/84 - Ernest Broom called to say he'd be there.

Conclusions or Agreements

Distribution

Signed

Large Grant



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

TONY ANAYA
GOVERNOR

Joseph Goldberg
SECRETARY

Ted Guambana
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

July 24, 1984

*sent Federal
Express*

Jack Claassen, Training Director
Champion Chemical Company
105 Wilco Building
Midland, TX 79701

RE: Assurance of Discontinuance for Tracy Brine Well, Section 3, T22S, R27E, Eddy
County, New Mexico

Dear Mr. Claassen:

I apologize for the delay in sending you the enclosed Assurance of Discontinuance. Please contact me by telephone no later than Tuesday, July 31st at 9:00 a.m., to let me know if it is acceptable or if you would like to alter it in any way. Tuesday the 31st is the deadline for submitting agenda items for consideration by the Water Quality Control Commission at their August 14th meeting.

Alberto Gutierrez of Geoscience Consultants has informed me that the discharge plan which his firm has prepared for the Tracy Brine Well will be submitted long before the August 15th date specified in Paragraph 2.A. of the Assurance. However, I would like to retain the schedule as it stands because it would be difficult for me to commit to responding to your submittals except on the dates I have given.

Please be sure that the representative of your company who attends the WQCC meeting in August 14th, Assurance in hand, is empowered to sign the Assurance and speak for the company as its legal representative. There may be some changes proposed on the Assurance by the Commission at the meeting, and it simplifies matters if the company representatives can speak for the company.

I look forward to hearing from you by telephone by Tuesday morning, July 31st.

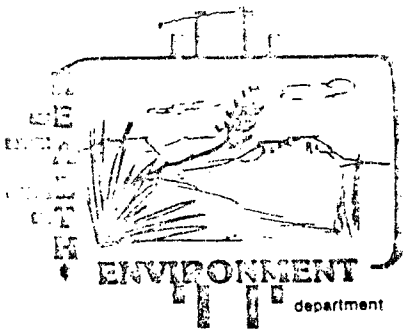
Sincerely,

Paige Grant
Water Resource Specialist
Ground Water Section

PG:egr

cc: Alberto Gutierrez, Geoscience Consultants
Ernest Broom, Broom Transportation Company

msz



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

STEVEN ASHER, Director

TONEY ANAYA
GOVERNOR

Joseph Goldberg
SECRETARY

Ted Guambana
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

July 24, 1984

Ernest Broom, President
Broom Transportation Company
P.O. Box 1031
Artesia, NM 88210

(sent Federal
Express)

RE: Assurance of Discontinuance for Tracy Brine Well, Section 3, T22S, R27E, Eddy
County, New Mexico

Dear Mr. Broom:

I apologize for the delay in sending you the enclosed Assurance of Discontinuance. Please contact me by telephone no later than Tuesday, July 31st at 9:00 a.m., to let me know if it is acceptable or if you would like to alter it in any way. Tuesday the 31st is the deadline for submitting agenda items for consideration by the Water Quality Control Commission at their August 14th meeting.

Alberto Gutierrez of Geoscience Consultants has informed me that the discharge plan which his firm has prepared for the Tracy Brine Well will be submitted long before the August 15th date specified in Paragraph 2.A. of the Assurance. However, I would like to retain the schedule as it stands because it would be difficult for me to commit to responding to your submittals except on the dates I have given.

Please be sure that the representative of your company who attends the WQCC meeting in August 14th, Assurance in hand, is empowered to sign the Assurance and speak for the company as its legal representative. There may be some changes proposed on the Assurance by the Commission at the meeting, and it simplifies matters if the company representatives can speak for the company.

I look forward to hearing from you by telephone by Tuesday morning, July 31st.

Sincerely,

Paige Grant
Water Resource Specialist
Ground Water Section

PG:egr

cc: Alberto Gutierrez, Geoscience Consultants
Jack Claassen, Champion Chemical Company

Enclosure

ASSURANCE OF DISCONTINUANCE

WHEREAS, pursuant to Subsection 3-104 and 5-101.B.3 of the New Mexico Water Quality Control Commission (Commission) Regulations, a discharge plan is required for discharges from the Tracy Brine Well and associated facilities located in Section 3, Township 22 South, Range 27 East, N.M.P.M., Eddy County, New Mexico; and

WHEREAS, neither the regulations nor an extension to discharge without an approved Discharge Plan issued by the Director, nor any Court Order, allows Champion Chemical Company (Champion), the owner of the above-named facility, and Broom Transportation Company (Broom), the operator of the above-named facility, or Champion or Broom individually or separately, to operate an injection well and associated surface facilities beyond December 20, 1982, and

WHEREAS, there are no water wells within a mile of the facility, due to the poor background quality of water in the vicinity, such that no present or near future contamination of drinking water sources is believed to be caused as a result of operating the above-named facility, and

WHEREAS, Champion and Broom have committed to the Commission to proceed with all diligence to prepare and secure an approved Discharge Plan; and

WHEREAS, the Commission, Champion and Broom deem it appropriate to enter into this Assurance of Discontinuance:

Champion and Broom assure the Commission as follows:

1. ASSURANCE: All unapproved discharges at the Tracy Brine Facility shall be discontinued as set forth in Paragraph 2 of the Assurance of Discontinuance.

2. SCHEDULE OF COMPLIANCE: It is agreed that the Discharge Plan shall comply with the following schedule:

A. Champion and Broom, through their jointly employed consultant, shall submit a complete Discharge Plan which shall address all applicable requirements of the Water Quality Control Commission Regulations, Parts 3 and 5,

on or before August 15, 1984.

B. EID shall complete review of Discharge Plan Application and EID shall provide comments to Champion and Broom

on or before October 15, 1984.

C. Champion and Broom, through their jointly employed consultant, shall submit responses to the EID comments

on or before December 14, 1984.

D. EID Director's approval or disapproval of Discharge Plan Application shall be promulgated

on or before February 14, 1985.

If a public hearing is scheduled by the EID Director pursuant to Subsection 3-108 of the Commission's Regulations, all deadlines in Paragraphs 2.B through 2.D shall be 45 days later.

3. MUTUAL COOPERATION: Champion, Broom and the EID shall mutually cooperate in accomplishing on a timely basis the matters contemplated by this Assurance. In this respect, direct communication among Champion and Broom representatives and EID personnel is encouraged.

4. EXTENSIONS FOR GOOD CAUSE: It is expressly agreed and understood by the parties hereto that events not reasonably foreseeable on the date of execution of this Assurance may occur which will make it impossible or extremely difficult for Champion and Broom to comply in a timely fashion with those compliance dates set out in numbered paragraph 2. In the event such unforeseen events do occur, Champion and Broom may apply to Commission for an extension for an additional reasonable period of time to comply with such tasks in numbered paragraph 2. The additional reasonable period of time, if granted, shall in all cases be governed by the relevant circumstances.

5. ENFORCEMENT: Except in the event of emergency, the Commission shall not undertake enforcement against Champion and Broom or either Champion or Broom individually or separately for the continuation of current discharges occurring during the pendency of this Assurance without first giving both Champion and Broom 15 days prior written notice by the Director that Champion and Broom or either Champion or Broom individually or separately are in violation of the terms of this Assurance. This Paragraph shall not preclude appropriate action by the Director or the Commission under Subsection 74-6-11 N.M.S.A. 1978, as applicable.

Nothing in this Assurance of Discontinuance shall relieve Champion or Broom from the responsibility for complying with all the provisions of the Water Quality Act, the regulations promulgated thereunder or any other provision of law except as otherwise specifically provided herein.

6. NO ADMISSION: The terms, execution, and any conduct in accordance herewith shall not constitute an admission of any kind by Champion or Broom relating to matters under the Water Quality Act, Commission regulations, or any other matters relating to health or environment.

7. CONDITIONAL RELEASE FROM THIS ASSURANCE: If the transfer of ownership of the Tracy Brine Facility which is presently pending shall be voided for any reason, Broom shall be exempted from this Assurance and the full responsibility for completion of the terms of the Assurance shall fall upon Champion. If the transfer of ownership is completed and Broom becomes full owner of the Tracy Brine Facility, then Champion shall be exempted from this Assurance and the full responsibility for completion of its terms shall fall upon Broom.

Signed and acknowledged this _____ day of _____, 1984.

Name and Title
CHAMPION CHEMICAL COMPANY

Signature

STATE OF)
 : SS
COUNTY OF)

The foregoing instrument was acknowledged before me this _____ day of
_____, 1984, by _____
d/b/a _____.

My Commission Expires:

Notary Public

Name and Title
BROOM TRANSPORTATION COMPANY

STATE OF)
 : SS
COUNTY OF)

The foregoing instrument was acknowledged before me this _____ day of
_____, 1984, by _____
d/b/a _____.

My Commission Expires:

Notary Public

By Steven Asher, Chairman
Water Quality Control Commission

The foregoing instrument was acknowledged before me this _____ day of _____, 19 __, by Steven Asher, Chairman of the Water Quality Control Commission, on behalf of the Water Quality Control Commission.

Notary Public

☒ Telephone☐ Personal

Time

8:45

Date

6/15/84

Originating Party

Ladze Grant

Other Parties

Jack Claassen
(915) 337-2356~~Subject~~

On the basis of my discussions 6/14 w/ Louis Rose & Maxine Good, I informed Mr. Claassen that (a) whether or not a d.p. was prepared had no bearing on the legality of the sale of the Brine well. (b) that an Assurance was required. They had already arrived at that conclusion. I said we were willing to wait until the August WQCC meeting to present their Assurance to the Commission, because our lawyers needed time to study whether Mr. Brown should be a signatory to the same Assurance or should be brought in under one of his own. Mr. Claassen said he felt that since Champton was the owner of the well, Champton should assume responsibility for the operation of it - they would be in touch with Brown to get him to split the cost of preparing the discharge plan and get him to operate in accordance with it. They have a consultant and are starting on the d.p. already; will have Assurance to us by July 31st in time for consideration at August 14th WQCC mtg.

~~Distribution~~

Signed

Ladze Grant.

☐ Telephone☒ Personal

Time

4:15

Date

6/14/84

Originating Party

Patsy Grant

Other Parties

Louis Rose

EID Adm

Subject

Does Champion need an Assurance or can they just send in a d.p. w/ all possible speed? Should Broom be included in the Assurance?

Discussion

Louis wondered whether Champion was in fact responsible for the Assurance. The wording of the reg (5-101.B.3) is that "any person who does not have d.p. approval... shall not discharge into an ... in situ extraction well..." Louis thinks that infers the actual act of causing fluid to go down the well, e.g. Broom not Champion. I asked Louis to come up with a considered opinion on the subject, since his off-the-cuff opinion ^{contradicts} ~~conflicts~~ Jane Cohen's off-the-cuff opinion. He said to go through

Conclusions or Agreements

Channels. Meanwhile he suggested I find out from Champion what if any interim agreements exist between them and Broom.

If Champion has any contractual leverage over Broom, it would simplify figuring out who's responsible for the Assurance.

Distribution

Signed

Also, we want some assurance that Broom will abide by the d.p. once it's prepared.

Patsy Grant



| | | | |
|---|-----------------------------------|---------------|-----------------|
| <input checked="" type="checkbox"/> Telephone | <input type="checkbox"/> Personal | Time 12:30 | Date 6/14/84 |
| Originating Party Jack Claassen, Champion Chemical (915) 337-2356 | | Other Parties | |
| Subject My letter of 6/6/84 to John Eubank | | | |

Discussion

Mr. Claassen agreed to begin the process of preparing a discharge plan immediately, and hoped to have it completed by August 1st or thereabouts. He requested the names of consultants who could prepare the d.p. for them - I read him the names & telephone numbers of the 7 consultants on our UTC list (with a disclaimer that providing these names did not constitute an endorsement). He had two other questions: (1) he

Conclusions or Agreements

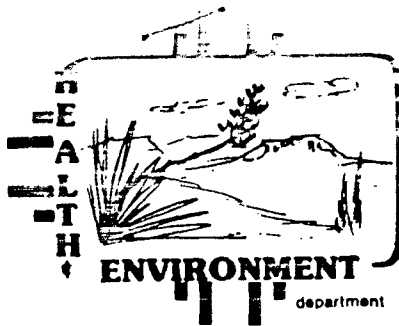
Tracy well was in question if there was no approved discharge plan for the facility, and (2) he wondered if it would be acceptable to present us with the d.p. rather than going through the Assurance procedure. I told him I'd check & get

Distribution

back to him on both questions.

Signed

Pete Grant



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

TONEY ANAYA
GOVERNOR

Joseph Goldberg
SECRETARY

Ted Guambana
DEPUTY SECRETARY

JOSEPH F. JOHNSON

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

June 6, 1984

John Eubank
Champion Chemical Company
105 Wilco Building
Midland, TX 79701

P 456 371 351

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

| | |
|--------------------------|----|
| Sent to | |
| John Eubank | |
| Street and No. | |
| 105 Wilco Bldg | |
| P.O., State and ZIP Code | |
| Midland, TX | |
| Postage | \$ |
| Certified Fee | |

RE: New Mexico regulatory requirements for Champion's brine extraction well near Tracy, New Mexico.

Dear Mr. Eubank,

Enclosed you will find copies of my correspondence with Ernest Broom, who has been operating the Tracy brine well pending the transfer of ownership from your company to Broom Transportation. To summarize the information presented in my letters to Mr. Broom:

1) Any operation that results in the discharge of "water contaminants" (defined in the Water Quality Control Commission (WQCC) regulations (enclosed) as "any substance which alters the physical, chemical or biological qualities of water"; Section 1-101.BBB) - is required to notify the Environmental Improvement Division prior to discharging. On the basis of the information provided, the technical staff at EID will determine whether a discharge plan is needed. In the case of a brine in situ extraction well, the decision whether or not to require a discharge plan is not left to the discretion of technical staff: the WQCC regulations require that all in situ extraction wells have an approved discharge plan prior to start-up of operations.

The purpose of a discharge plan is to provide the EID technical staff with sufficient information about your operation to demonstrate that your activities will not degrade the quality of ground water that contains less than 10,000 mg/l of total dissolved solids. Since the high-density brine produced and stored above ground has the potential to raise the chloride content of ground water in the area, the discharge plan must cover surface facilities also. Please note the enclosed outline, which condenses the discharge plan requirements for a brine well facility, and sets up a logical sequence in which to present the information required in your discharge plan. Using this format is optional. The final reference for what must be contained in your discharge plan is the WQCC regulations. The codes in bold type in the outline refer to Sections of the WQCC regulations, for your convenience.

John Eubank
Page -2-
June 6, 1984

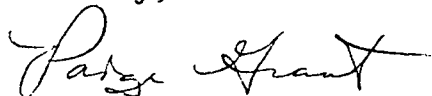
2) Technically, the WQCC regulations stipulate that no facility which involves a discharge of water contaminants may begin operation without approval from the Director of EID. However, where there is good cause (see paragraph #2 of my April 11th letter to Mr. Broom), it is possible to allow an existing facility to remain in operation while preparing a discharge plan.

The means for setting up such an arrangement is called an "Assurance of Discontinuance". An Assurance form is enclosed. The next meeting of the Water Quality Control Commission at which you could submit an Assurance will be held July 10th. Material to be considered by the Commission must be put on their agenda two weeks before the meeting date, or by June 25th. I recommend that you have an Assurance prepared and submitted to me by that date. Please be in touch with me to set up a mutually agreeable Schedule of Compliance for your Assurance.

I realize that you are in an odd position with regard to accepting the responsibility for the Tracy well, since Mr. Broom is the operator and will presumably be the owner at some undetermined time in the future. However, our EID attorney has advised me that since Champion Chemical is the present owner, Champion is in fact responsible for bringing the Tracy brine well into compliance with the New Mexico WQCC regulations. You may wish to involve Broom Transportation in the preparation of a discharge plan: once the plan is approved, it is transferrable along with ownership of the well, so long as there is no change in the operation of the facility.

I will be glad to answer any questions you may have regarding the contents of this letter. Please contact me at the address and telephone number shown on the letterhead, extension 285.

Sincerely,



Paige Grant
Water Resource Specialist

cc: Ernest Broom
District IV Manager, John Guinn

PG/cm

m. SA

☒ Telephone☐ Personal

Time

10:40

Date

5/24/84

Originating Party

Large Grant

Other Parties

Broom Trans. spokes-
Pattman

Subject

ownership status of Tracy well

Discussion

Ernest Broom out of town - will
call tomorrow w/ answer.

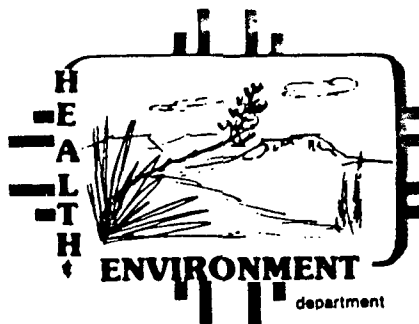
5/31/84: Called again - Broom out of town
again - got name & number of Champion
Chemical contact: John Eulank / 105
Wilco Bldg. / Midland, TX 79701. Called
there - Eulank out, will return my call
tomorrow. Plan to write Champion with
info about regulatory requirements for well,
including cc's of my correspondence w/ Broom.

Conclusions or Agreements

Distribution

Signed

Large Grant.



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

TONY ANAYA
GOVERNOR

Joseph Goldberg
SECRETARY

Ted Guambana
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 11, 1984

Ernest Broom
Broom Transportation
P.O. Box 1031
Artesia, NM 88210

Dear Mr. Broom:

Enclosed you will find a copy of my letter to you of April 11th, explaining what is required to bring the Tracy Brine well into compliance with the Water Quality Control Commission Regulations. Also enclosed are the attachments I referred to in that letter: a copy of the regulations and a copy of an Assurance of Discontinuance.

I have not highlighted the pertinent sections of the regulations this time, as I did in April; instead, I am also enclosing a copy of an outline for a brine well discharge plan which refers to the regulations which apply in your case (see the codes in bold type). This outline is still in draft form, and the format will remain optional even when the outline is approved; but I hope it will help to clarify the requirements.

I look forward to receiving word from you by around the 21st of this month regarding the ownership status of the Tracy Brine well. We do feel it is important to begin the process of bringing the well into compliance.

Sincerely,

Paige Grant
Water Resource Specialist
Ground Water Section

PG:egr

Enclosures

cc: District IV Manager, John Guinn

msx

No. 250423

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED -
NOT FOR INTERNATIONAL MAIL
(See Reverse)

| | | |
|--------------------------|---------------------|---|
| SENT TO | | |
| Ernest Broom | | |
| STREET AND NO. | | |
| P.O. Box 1031 | | |
| P.O., STATE AND ZIP CODE | | |
| Artesia, NM | | |
| POSTAGE | \$ | |
| SECTION 101 | CERTIFIED FEE | ¢ |
| | SPECIAL DELIVERY | ¢ |
| | RESTRICTED DELIVERY | ¢ |

☒ Telephone☐ Personal

Time

4:45

Date

5/10/84

Originating Party

Large Grant

Other Parties

Ernest Brown

746-3304

Subject

Lack of response to my 4/11 letter.

Discussion

Mr. Brown said he'd never received it. Said further that, whereas at the time of our conversation it seemed just a matter of time before he was granted final ownership of the well, things were much more up in the air now: it may even be that the transfer from Hardin-Houston to Champion Chemical was never legal, & H-H is out of business now so it couldn't be straightened out. Brown is unwilling to enter an Assurance until he knows whether or not he will be owner.

Conclusions or Agreements

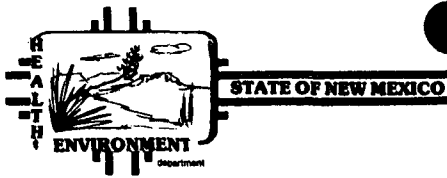
I agreed to send him a copy of my ~~4/11~~ letter and attachments by certified mail; he said he would have an idea next week about the ownership thing. I said if it still looked dubious next week, I'd contact Champion, because we needed to

Distribution

bring the well into compliance, whoever the owner might be.

Signed

Large Grant



MEMORANDUM

DATE: May 1, 1984

TO: Doug Jones

FROM: Jeff M. Sheyka, HPM I

SUBJECT: DISCHARGE WATER WASTE INTO PIT - BROOM TRANSPORTATION

Please be advised that the originally unlined wastewater wash pit at Broom Transportation has been lined as of 4/25/84 (see pictures). The POTW notified us there have been no further discharges into a previously abandoned sewer line.

Enclosures (5)

RECEIVED

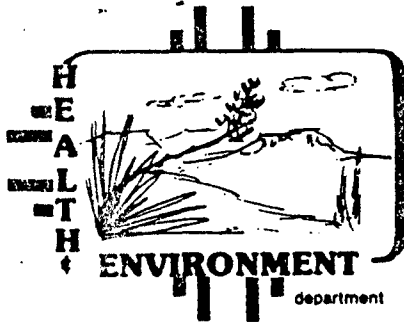
MAY 7 1984

Ernest Broom
Artesia

Broom Transportation

1104 W. Garden Ave
5 1/2 N 1/2 NW 1/4 Sec 23
+ 105, R 24E

GROUND WATER/HAZARDOUS WASTE
BUREAU



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

TONEY ANAYA
GOVERNOR

Joseph Goldberg
SECRETARY

Ted Guambana
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

April 11, 1984

Ernest Broom
Broom Transportation
P.O. Box 1031
Artesia, NM 88210

Dear Mr. Broom:

Pursuant to our conversation on Friday, April 6th, I am sending you a copy of the Water Quality Control Commission (WQCC) Regulations which govern the operation of brine extraction facilities as well as other activities that pose a potential hazard to ground water quality. The sections of these regulations which apply directly to preparation of your discharge plan are highlighted in yellow. Although the requirements appear lengthy and complex, much of the material required is already in your files, e.g. plans and specifications for your brine well and pond(s), reported results of your pressure test(s), and the quantity, quality and flow characteristics of the water you inject and the brine you extract. However, some portions of the required discharge plan do call for information of a highly technical nature, and you would be well advised to consider retaining the services of a consulting hydrogeologist who can prepare these elements of your discharge plan, rather than investing the time that would be required for you to learn how to put together this technical material yourself. I can provide you with the names of some consultants who have demonstrated familiarity with the New Mexico regulations governing underground injection, if you so request.

As I mentioned over the telephone, there are a number of brine well operators in your position: that is, their wells have been in production since before the enclosed WQCC Regulations went into effect, and for lack of clear guidance from the regulatory agencies, they have never prepared a discharge plan. This places an operator in non-compliance with New Mexico state regulations. However, where (1) there is sufficient evidence that present operations are not causing ground water contamination and (2) requiring that a brine facility be shut down until its discharge plan is prepared and approved would cause severe economic hardship to the operator, there is a mechanism to allow the operator to continue in production while preparing a discharge plan.

April 11, 1984

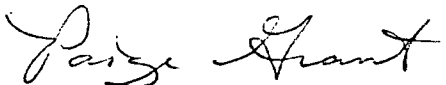
The mechanism for setting up such an arrangement is called an "Assurance of Discontinuance". I enclose a copy of the form for an Assurance. The language of the first "Whereas" in this document will need to be changed somewhat to reflect the transfer of ownership of the "Tracy well". Although you have told me that you do not expect to receive formal ownership of the "Tracy well" for several more months, I advise that you begin the process of preparing a discharge plan at this stage, so that as full owner you will be operating without a plan for as short a time as possible. We can allow you up to 18 months from the time you submit your Assurance at a meeting of the Water Quality Control Commission, to the time the final form of your discharge plan is prepared and approved (see Schedule of Compliance, page 2 and 3 of the enclosed Assurance form).

The next scheduled meeting of the Commission is Tuesday, May 8th. If you wish to have an Assurance considered at that time, you should complete the enclosed Assurance - conferring with me by telephone to set up a Schedule of Compliance - and send it in to me by Monday, April 23rd, in order to have it placed on the May 8th agenda. If you wish to have more time in order to confer with an attorney and/or locate a consultant hydrogeologist to help prepare your discharge plan, you may want to shoot for the Commission meeting of June 12th, in which case I must have your Assurance by May 28th in order to have it included on the June 12th agenda. I recommend that you do not delay past June in submitting your Assurance.

If you have any questions on any of the above, please contact me at the address or telephone number (ext. 285) shown on our letterhead.

Thank you for your cooperation.

Sincerely,



Paige Grant
Water Resource Specialist
Ground Water Section

PG:egr

Enclosure

m.s.r.

MEMORANDUM OF MEETING OR CONVERSATION

| | | | |
|---|--|---|----------------|
| <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Personal | | Time 11:15 | Date 4/6/84 |
| Originating Party Paz Grant | | Other Parties Ernest Broom 746-3304 | |
| Subject ascertaining that Broom Transportation now owns the Tracy well and whether they are aware of discharge plan requirement | | | |
| Discussion Transfer of ownership has not yet gone through but Broom is operating facility in interim. Uses city water, low pressure, line up tubing, discharges to lined pits, has received clean bill from OCD inspectors, wants us to come inspect and satisfy ourselves that the operation is clean. I explained our discharge plan requirement, and Assurance of Discontinuance, promised to send him regs and model Assurance. My first feeling was that we can hold off on requiring the Assurance | | | |
| Conclusions or Agreements until after the ownership transfer is cleared up; but on second thought will suggest in letter that he begin to get on track, submit Assurance in, say, the June (if there's a ^{work} meeting). | | | |
| Distribution | | Signed Paz Grant. | |

INVENTORY OF SOLUTION MINING WELLS

OIL CONSERVATION DIVISION, 1981

* = please attach pertinent documents

I. OPERATOR / LOCATION INFORMATION

Operator HARDIN / HOUSTON INC. ^{CHAMPION - CHEM. CORP.} RE-ENTRY OF UNION OIL CO. TRACY #3.
Address BOX 4188 ODESSA, TX. 79760 1-915-337-2356 - J.D. CHANDLER
or P.O. Box 2187 HOBBS NM. Phone 1-505-343-7726
Well unit # 3 TRACY #3 Location UT. M 560 FSL / 610 FWL
T. 22S R. 27E Sec. 3 1/4 SW 1/4 SW 1/4 33
County Eddy
Purpose of well (brine supply, LPG storage, potash dissolution) BRINE SUPPLY

II. DRILLING / SITING INFORMATION

Contractor NONN DRILNG. CO. (Mr. Elms)
Date drilling started 9-14-70 Date drilling completed 9-23-70
Drilling method ROTARY.
Elevation of ground surface 3102 RKB How measured _____
Date measured 8-9-69 Order of survey _____
Name of surveyor John W. West.
Total depth of hole 3470' PBTD 1274'.

Attach schematic of well, include open hole interval, perforations, etc. *

Type of drilling fluid _____

Type of drilling mud if used (brand if known) _____

List any additives to the drilling mud, or any other chemicals put down well:

_____Describe casing tests performed 8 5/8" 24# @ 551' CMT. Circ woc 18 hrs.
Tested CSQ. to 600 psi 30 min. OKOther tests Deviation see attach.

| | |
|------------------------|---|
| NO. OF COPIES RECEIVED | 3 |
| DISTRIBUTION | |
| SANTA FE | / |
| FILE | / |
| U.S.G.S. | |
| LAND OFFICE | |
| OPERATOR | / |

RECEIVED

NEW MEXICO OIL CONSERVATION COMMISSION

SEP 30 1970

Form C-103
Supersedes Old
C-102 and C-103
Effective 1-1-65

O. C. C.
ARTESIA, OFFICE

| | |
|--------------------------------|---|
| 5a. Indicate Type of Lease | |
| State <input type="checkbox"/> | Fee <input checked="" type="checkbox"/> |
| 5. State Oil & Gas Lease No. | |

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT -" (FORM C-101) FOR SUCH PROPOSALS.)

| | | |
|---|--|--|
| 1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> | | 7. Unit Agreement Name |
| 2. Name of Operator Union Oil Company of California | | 8. Farm or Lease Name Tracy |
| 3. Address of Operator P. O. Box 671 Midland, Texas 79701 | | 9. Well No. 3 |
| 4. Location of Well UNIT LETTER M 560 FEET FROM THE South LINE AND 610 FEET FROM THE West LINE, SECTION 3 TOWNSHIP 22-S RANGE 27-E NMPM. | | 10. Field and Pool, or Wildcat Undesignated |
| 15. Elevation (Show whether DF, RT, GR, etc.) Unknown | | 12. County Eddy |

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data
NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐
TEMPORARILY ABANDON ☐
PULL OR ALTER CASING ☐
OTHER ☐

PLUG AND ABANDON ☐
CHANGE PLANS ☐
OTHER ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐
COMMENCE DRILLING OPNS. ☐
CASING TEST AND CEMENT JOBS ☐
OTHER ☐
ALTERING CASING ☐
PLUG AND ABANDONMENT ☒

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

Cement Plugs as follows:

Plug #1 3370-3470' 35 SX.
#2 3250-3350' 35 SX.
#3 1850-1950' 35 SX.
#4 1300-1400' 35 SX.
#5 440-560' 40 SX.
#6 0-60' 20 SX.

8 3/4 casing at 551'

Welded plate on casing & installed abandonment marker.

Well plugged & abandoned 9-26-70.

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED J. R. Gray TITLE District Drilling Supt. DATE September 29, 1970

APPROVED BY [Signature] TITLE OIL AND GAS INSPECTOR DATE DEC 14 1970

CONDITIONS OF APPROVAL, IF ANY:

| | |
|------------------------|---|
| NO. OF COPIES RECEIVED | 5 |
| DISTRIBUTION | |
| SANTA FE | 1 |
| FILE | 1 |
| U.S.G.S. | 2 |
| LAND OFFICE | |
| OPERATOR | |

Form C-105
Revised 1-1-65

RECEIVED
NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG
OCT 9 1970

5a. Indicate Type of Lease
State ☐ Fee ☒
5. State Oil & Gas Lease No.

1a. TYPE OF WELL
OIL WELL ☒ GAS WELL ☐ DRY ☒ OTHER ☐
1b. TYPE OF COMPLETION
NEW WELL ☐ WORK OVER ☐ DEEPEN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ OTHER ☐

7. Unit Agreement Name

8. Farm or Lease Name

Tracy

9. Well No.

3

2. Name of Operator
UNION OIL COMPANY OF CALIFORNIA

3. Address of Operator
P. O. Box 671 Midland, Texas 79701

10. Field and Pool, or Wildcat

Esperanza Delaware

4. Location of Well
UNIT LETTER M LOCATED 560 FEET FROM THE South LINE AND 610 FEET FROM

12. County

Eddy

THE West LINE OF SEC. 3 TWP. 22-S RGE. 27-E NMPM

15. Date Spudded 9-14-70 16. Date T.D. Reached 9-23-70 17. Date Compl. (Ready to Prod.) 3102 RKB 18. Elevations (DF, RKB, RT, GR, etc.) 3102 RKB 19. Elev. Casinghead

20. Total Depth 3470' 21. Plug Back T.D. 22. If Multiple Compl., How Many 23. Intervals Drilled By Rotary Tools 0-3470' Cable Tools

24. Producing Interval(s), of this completion - Top, Bottom, Name None 25. Was Directional Survey Made No

26. Type Electric and Other Logs Run Gamma Ray Sonic, Induction Log 27. Was Well Cored No

| 28. CASING RECORD (Report all strings set in well) | | | | | |
|--|----------------|-----------|-----------|------------------|---------------|
| CASING SIZE | WEIGHT LB./FT. | DEPTH SET | HOLE SIZE | CEMENTING RECORD | AMOUNT PULLED |
| 8-5/8" | 24 | 551' | 11" | 200 | None |
| | | | | | |
| | | | | | |
| | | | | | |

| 29. LINER RECORD | | | | | 30. TUBING RECORD | | |
|------------------|-----|--------|--------------|--------|-------------------|-----------|------------|
| SIZE | TOP | BOTTOM | SACKS CEMENT | SCREEN | SIZE | DEPTH SET | PACKER SET |
| | | | | | | | |
| | | | | | | | |

| 31. Perforation Record (Interval, size and number) | | | | 32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC. | |
|--|--|--|--|--|-------------------------------|
| | | | | DEPTH INTERVAL | AMOUNT AND KIND MATERIAL USED |
| | | | | | |
| | | | | | |
| | | | | | |

33. PRODUCTION
Date First Production Production Method (Flowing, gas lift, pumping - Size and type pump) Well Status (Prod. or Shut-in) P.&A.
Date of Test Hours Tested Choke Size Prod'n. For Test Period Oil - Bbl. Gas - MCF Water - Bbl. Gas - Oil Ratio
Flow Tubing Press. Casing Pressure Calculated 24-Hour Rate Oil - Bbl. Gas - MCF Water - Bbl. Oil Gravity - API (Corr.)

34. Disposition of Gas (Sold, used for fuel, vented, etc.) Test Witnessed By

35. List of Attachments
Gamma Ray Sonic, Induction Log, Deviation Test, Drill Stem Test

36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED J. R. Gray J. R. Gray TITLE District Drilling Supt. DATE 10-5-70

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Commission not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, Items 30 through 34 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico

Northwestern New Mexico

| | | | |
|--------------------------|--------------------------------|-----------------------------|------------------------|
| T. Anhy <u>270'</u> | T. Canyon _____ | T. Ojo Alamo _____ | T. Penn. "B" _____ |
| T. Salt <u>625'</u> | T. Strawn _____ | T. Kirtland-Fruitland _____ | T. Penn. "C" _____ |
| B. Salt <u>1,285'</u> | T. Atoka _____ | T. Pictured Cliffs _____ | T. Penn. "D" _____ |
| T. Yates _____ | T. Miss _____ | T. Cliff House _____ | T. Leadville _____ |
| T. 7 Rivers _____ | T. Devonian _____ | T. Menefee _____ | T. Madison _____ |
| T. Queen _____ | T. Silurian _____ | T. Point Lookout _____ | T. Elbert _____ |
| T. Grayburg _____ | T. Montoya _____ | T. Mancos _____ | T. McCracken _____ |
| T. San Andres _____ | T. Simpson _____ | T. Gallup _____ | T. Ignacio Qtzte _____ |
| T. Glorieta _____ | T. McKee _____ | Base Greenhorn _____ | T. Granite _____ |
| T. Paddock _____ | T. Ellenburger _____ | T. Dakota _____ | T. _____ |
| T. Blinebry _____ | T. Gr. Wash _____ | T. Morrison _____ | T. _____ |
| T. Tubb _____ | T. Granite _____ | T. Todilto _____ | T. _____ |
| T. Drinkard _____ | T. Delaware Sand <u>1,995'</u> | T. Entrada _____ | T. _____ |
| T. Abo _____ | T. Bone Springs _____ | T. Wingate _____ | T. _____ |
| T. Wolfcamp _____ | T. _____ | T. Chinle _____ | T. _____ |
| T. Penn. _____ | T. _____ | T. Permian _____ | T. _____ |
| T. Cisco (Bough C) _____ | T. _____ | T. Penn. "A" _____ | T. _____ |

FORMATION RECORD (Attach additional sheets if necessary)

| From | To | Thickness in Feet | Formation | From | To | Thickness in Feet | Formation |
|-------|-------|----------------------|--------------------|------|----|----------------------|-----------|
| 0 | 160 | 160 | Lime & Sand | | | | |
| 160 | 270 | 110 | Red Beds | | | | |
| 270 | 625 | 355 | Anhydrite | | | | |
| 625 | 650 | 25 | Salt | | | | |
| 650 | 1,060 | 410 | Anhydrite | | | | |
| 1,060 | 1,285 | 225 | Salt | | | | |
| 1,285 | 1,995 | 710 | Banded Anhydrite | | | | |
| 1,995 | 2,730 | 735 | Sand, Shale & Lime | | | | |
| 2,730 | 2,840 | 110 | Lime | | | | |
| 2,840 | 3,470 | 630 | Sand, Shale & Lime | | | | |

RECEIVED

OCT 9 1970

DEVIATION TEST DETAIL

OPERATOR: Union Oil Company of California ✓

LEASE: Tracy

WELL NO: 3

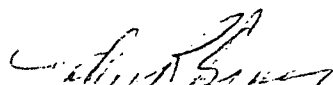
FIELD AND POOL: Undesignated

O. C. C.
ARTESIA, OFFICE
LOCATION: Unit Letter M 560'
from the South line
and 610' from the West
line of Section 3, Townshi
22-S, Range 27-E, Eddy
County, New Mexico.


| <u>FOOTAGE DEPTH</u> | <u>DEGREE</u> |
|----------------------|---------------|
| 276 | 1/2 |
| 555 | 1 |
| 932 | 1-1/4 |
| 1385 | 1-1/2 |
| 1890 | 1-1/2 |
| 2229 | 1-1/2 |
| 2810 | 1-1/2 |
| 3380 | 1-1/2 |
| 3470 | 1-1/2 |

A F F I D A V I T

Before me, the undersigned authority, personally appeared J. R. Gray, known to me to be the person whose name is subscribed hereto, whom after being duly sworn, on oath states; that he is authorized to make this detail of deviation which he states was taken from actual slope test during the course of drilling the above mentioned well, and that the detail of deviation is true and correct.


J. R. Gray - District Drilling Supt.
Signature and Title of Affiant

SWORN AND SUBSCRIBED TO BEFORE ME, this the 28 day of September, 1970.


Notary in and for the County of Midland, State of Texas.

| FLUID SAMPLER DATA | | | | Date 9-25-70 | | Ticket Number 286996 | |
|--|---------|----------------------------------|------------------------------------|---|------------------------------|--|---------------------|
| Sampler Pressure _____ P.S.I.G. at Surface Recovery: Cu. Ft. Gas _____ cc. Oil _____ cc. Water 2500 cc cc. Mud _____ Tot. Liquid cc. 2500 cc Gravity _____ ° API @ _____ ° F. Gas/Oil Ratio _____ cu. ft./bbl. | | | | Kind of Job OPEN HOLE Holliburton District LOVINGTON Tester MR. THRUMAN Witness MR. PIE Drilling Contractor NLYNN DRILLING COMPANY IC S | | Legal Location Sec. 100 - Rm. 3 - 22S - 27E | |
| EQUIPMENT & HOLE DATA | | | | | | | |
| Formation Tested Delaware Elevation _____ Ft. Net Productive Interval 5' _____ Ft. All Depths Measured From Kelly Bushing Total Depth 3476' _____ Ft. Main Hole/Casing Size 7 7/8" Drill Collar Length 555' I.D. 2.50" Drill Pipe Length 2809' I.D. 3.826" Packer Depth(s) 3340' - 3390' _____ Ft. Depth Tester Valve 3310' _____ Ft. | | | | | | | |
| Recovery Water _____ @ _____ ° F. _____ ppm Recovery Mud _____ @ _____ ° F. _____ ppm Recovery Mud Filtrate _____ @ _____ ° F. _____ ppm Mud Pit Sample _____ @ _____ ° F. _____ ppm Mud Pit Sample Filtrate _____ @ _____ ° F. _____ ppm Mud Weight 10 vis 85 cp | | RESISTIVITY CHLORIDE CONTENT | | TYPE AMOUNT Cushion _____ Ft. Depth Back Pres. Valve _____ Surface Choke 1" ADJ. Bottom Choke 5/8" | | | |
| Recovered 58 Feet of Muddy water Recovered 32 Feet of Water cut mud Recovered _____ Feet of _____ Recovered _____ Feet of _____ Recovered _____ Feet of _____ | | | | RECEIVED OCT 9 1970 B.C.C. ARTESIA, OFFICE | | | |
| Remarks Opened tool for 21 minute first flow with a light blow throughout flow. Closed tool for 61 minute initial closed in pressure. Reopened tool for 59 minute second flow period with a very light blow. Closed tool for 120 minute second closed in pressure. | | | | | | | |
| TEMPERATURE | | Gauge No. 35 Depth: 3315' Ft. | Gauge No. 1636 Depth: 3370' Ft. | Gauge No. 255 Depth: 3471' Ft. | TIME | | |
| Est. 100 ° F. | | 12 Hour Clock Blanked Off NO | 24 Hour Clock Blanked Off YES | 24 Hour Clock Blanked Off YES | Tool A.M. Opened 3:47 XPM | | |
| Actual ° F. | | Pressures | | Pressures | | Tool A.M. Closed 6:08 XPM | |
| | Field | Office | Field | Office | Field | Office | Reported Minutes |
| Initial Hydrostatic | 1773 | 1734 | 1213 | 1771 | 1808 | 1807 | Computed Minutes |
| First Period Flow | Initial | 21 | 15 | 69 | 62 | HYDROSTATIC RELEASE | 20 |
| | Final | 42 | 28 | 69 | 67 | | 61 |
| Second Period Flow | Initial | 42 | 32 | 69 | 72 | 1812 | 60 |
| | Final | 63 | 67 | 92 | 101 | | 59 |
| Third Period Flow | Initial | 1542 | 1555 | 1190 | 1590 | | 120 |
| | Final | 1542 | 1562 | 1190 | 1595 | | 120 |
| Final Hydrostatic | 1733 | 1727 | 1211 | 1764 | 1808 | 1802 | |

Legal Location

3 - 22S - 27E

Field Area E. CARLSBAD

County EDDY

State NEW MEXICO

Lease Name

Well No.

Test No.

Tested Interval

Drill Company Name

[illegible]

| Gauge No. | 1636 | Depth | 3370' | Clock No. | 6728 | 24hour |
|--------------------|-------|-------|-------|-----------|------|--------|
| 0 | .000 | 62 | .000 | .000 | 101 | |
| 1 | .0233 | 59 | .0201 | .0337 | 1328 | |
| 2 | .0466 | 63 | .0402 | .0675 | 1427 | |
| 3 | .0700 | 67 | .0603 | .1012 | 1477 | |
| 4 | | | .0804 | .1349 | 1514 | |
| 5 | | | .1005 | .1686 | 1538 | |
| 6 | | | .1206 | .1990 | 1554 | |
| 7 | | | .1407 | | 1568 | |
| 8 | | | (.152 | | 1579 | |
| 9 | | | .1608 | | 1587 | |
| 10 | | | .1809 | | 1595 | |
| 11 | | | .2040 | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| Recording Interval | 7 | 6 | 10 | 12 | | |

REMARKS: *Last interval equal to 7 minutes **Last interval equal to 9 minutes UTR=Unable to read. Tool bypassed after 46 minutes of initial closure in pressure.

| | O. D. | I. D. | LENGTH | DEPTH |
|-------------------------------------|--------|--------|--------|-------|
| Reversing Sub | 6.12" | 2.75" | 1' | |
| Water Cushion Valve | | | | |
| Drill Pipe | 4 1/2" | 3.826" | 2809' | |
| Drill Collars | 6 1/2" | 2.50" | 555' | |
| Handling Sub & Choke Assembly | | | | |
| Dual CIP Valve | | | | |
| Dual CIP Sampler | | | | |
| Hydro-Spring Tester | 5" | .75" | 60.21" | 3310' |
| Multiple CIP Sampler | 5" | .87" | 54.19" | |
| Extension Joint | 5" | .87" | 54.94" | |
| AP Running Case | 5" | 3.06" | 49.63" | 3315' |
| Hydraulic Jar | 5" | 1.75" | 60" | |
| VR Safety Joint | 5" | 1.00" | 33.40" | |
| Pressure Equalizing Crossover | 5" | | | |
| Packer Assembly | | | | |
| Distributor | | | | |
| Packer Assembly | 6 3/4" | 1.75" | 72.33" | 3340' |
| Flush Joint Anchor | | | | |
| Pressure Equalizing Tube | | | | |
| Blanked-Off B.T. Running Case | 5" | 2.50" | 5' | 3370' |
| Drill Collars | | | | |
| Anchor Pipe Safety Joint | | | | |
| Packer Assembly | | | | |
| Packer Assembly | 6 3/4" | 1.75" | 72.33" | 3390' |
| Anchor Pipe Safety Joint | | | | |
| Side Wall Anchor | | | | |
| Drill Collars | | | | |
| Flush Joint Anchor | | | | |
| Blanked-Off B.T. Running Case | 5 3/4" | 4.75" | 5' | 3471' |

| | |
|------------------------|---|
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RECEIVED NEW MEXICO OIL CONSERVATION COMMISSION

SEP 23 1970

O. C. C.
ARTESIA, OFFICE

Form C-103
Supersedes Old
C-102 and C-103
Effective 1-1-65

| | | |
|---|--|--|
| <p align="center">SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT --" (FORM C-101) FOR SUCH PROPOSALS.)</p> | | <p>5a. Indicate Type of Lease State <input type="checkbox"/> Fee <input checked="" type="checkbox"/></p> |
| <p>1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER- <input type="checkbox"/></p> | | <p>5. State Oil & Gas Lease No.</p> |
| <p>2. Name of Operator Union Oil Company of California</p> | | <p>7. Unit Agreement Name</p> |
| <p>3. Address of Operator P. O. Box 671 Midland, Texas 79701</p> | | <p>8. Farm or Lease Name Tracy</p> |
| <p>4. Location of Well UNIT LETTER M 560 FEET FROM THE South LINE AND 610 FEET FROM THE West LINE, SECTION 3 TOWNSHIP 22-S RANGE 27-E NMPM.</p> | | <p>9. Well No. 3</p> |
| <p>15. Elevation (Show whether DF, RT, GR, etc.) Unknown</p> | | <p>10. Field and Pool, or Wildcat Esperanza Delaware</p> |
| <p>12. County Eddy</p> | | |

| | |
|---|--|
| <p>16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data</p> | |
| <p>NOTICE OF INTENTION TO:</p> <p>PERFORM REMEDIAL WORK <input type="checkbox"/></p> <p>TEMPORARILY ABANDON <input type="checkbox"/></p> <p>PULL OR ALTER CASING <input type="checkbox"/></p> <p>OTHER <input type="checkbox"/></p> | <p>SUBSEQUENT REPORT OF:</p> <p>PLUG AND ABANDON <input type="checkbox"/></p> <p>CHANGE PLANS <input type="checkbox"/></p> <p>OTHER <input type="checkbox"/></p> |

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

Nunn Drilling Co. spudded 11" hole at 11:15 P.M., September 14, 1970 and drilled to 540'.

Ran and cemented 8-5/8", 24#, J-55 casing at 551' with 200 sacks. Cement circulated to surface. WOC 18 hours. Tested casing to 600 psi for 30 minutes. OK.

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED G. W. Coombes TITLE District Operations Manager DATE September 21, 1970

APPROVED BY W. A. Gressett TITLE OIL AND GAS INSPECTOR DATE SEP 23 1970

CONDITIONS OF APPROVAL, IF ANY:

| | |
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NEW MEXICO OIL CONSERVATION COMMISSION
RECEIVED

SEP 10 1970

36-015-20331

Form C-101
Revised 1-1-65

| | |
|--------------------------------|---|
| 5A. Indicate Type of Lease | |
| STATE <input type="checkbox"/> | FEE <input checked="" type="checkbox"/> |
| 5. State Oil & Gas Lease No. | |

O. C. C.

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

| | | | |
|---|--|--|--|
| 1a. Type of Work | | 7. Unit Agreement Name | |
| b. Type of Well DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/> | | 8. Farm or Lease Name Tracy | |
| 2. Name of Operator Union Oil Company of California | | 9. Well No. 3 | |
| 3. Address of Operator P. O. Box 671 Midland, Texas 79701 | | 10. Field and Pool, or Wildcat Undesignated | |
| 4. Location of Well UNIT LETTER M LOCATED 560 FEET FROM THE South LINE AND 610 FEET FROM THE West LINE OF SEC. 3 TWP. 22-S RGE. 27-E NMPM | | 12. County Eddy | |
| 19. Proposed Depth 3550 | | 19A. Formation Delaware | |
| 20. Rotary or C.T. Rotary | | 21. Elevations (Show whether DF, RT, etc.) Unknown | |
| 21A. Kind & Status Plug. Bond Blanket | | 21B. Drilling Contractor Contract not let | |
| 22. Approx. Date Work will start On approval | | | |

23.

PROPOSED CASING AND CEMENT PROGRAM

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | SACKS OF CEMENT | EST. TOP |
|--------------|----------------|-----------------|---------------|-----------------|------------------|
| 11" | 8-5/8" | 24# | 550' | 200 | Circ. to surface |
| 7-7/8" | 4-1/2" | 9.5# | 3550' | 300 | 2650' |

3000 psi double manual preventers

APPROVAL VALID
FOR 90 DAYS UNLESS
DRILLING COMMENCED,
EXPIRES 12-10-70

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signed J. R. Gray Title District Drilling Supt. Date September 8, 1970

(This space for State Use)

APPROVED BY W. A. Gressett TITLE OIL AND GAS INSPECTOR DATE SEP 10 1970

CONDITIONS OF APPROVAL, IF ANY:

If the Capitan Reef is encountered contact this office prior to running the 4 1/2" casing

Cement must be circulated to surface behind 8 5/8" casing

| | |
|--------------|---|
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NEW MEXICO OIL CONSERVATION COMMISSION

RECEIVED

30-015-203
Form C-101
Revised 1-1-65

AUG 24 1978

O. C. C.
ARTESIA, OFFICE

| | |
|---|---|
| 5A. Indicate Type of Lease | |
| STATE <input checked="" type="checkbox"/> | FEE <input checked="" type="checkbox"/> |
| 5. State Oil & Gas Lease No. | |

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

| | | | | | |
|---|--|---|--|---|--|
| 1a. Type of Work | | | | 7. Unit Agreement Name | |
| b. Type of Well DRILL <input type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> Re-entry SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/> | | | | 8. Farm or Lease Name Tracy | |
| 2. Name of Operator Hardin Houston Inc. ✓ | | | | 9. Well No. 3 | |
| 3. Address of Operator Box 4188, Odessa, Texas 79760 | | | | 10. Field and Pool, or Wildcat Brine Source | |
| 4. Location of Well UNIT LETTER <u>M</u> LOCATED <u>560</u> FEET FROM THE <u>S</u> LINE AND <u>610</u> FEET FROM THE <u>W</u> LINE OF SEC. <u>3</u> TWP. <u>22S</u> RGE. <u>27E</u> N41PM | | | | 12. County Eddy | |
| 19. Proposed Depth 1300 | | | | 19A. Formation Salt | |
| 20. Rotary or C.T. Plng. Unit | | | | | |
| 21. Elevations (Show whether DF, RT, etc.) 3102' RKB | | 21A. Kind & Status Plug. Bond One Well | | 21B. Drilling Contractor Wilson Well Serv. | |
| | | | | 22. Approx. Date Work will start On Approval | |

PROPOSED CASING AND CEMENT PROGRAM

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | SACKS OF CEMENT | EST. TOP |
|--------------|----------------|-----------------|---------------|-----------------|----------|
| 11" | 8 5/8" | 24# | 551' | 200 | |
| 8 3/4" | 5 1/2" | 14# | 1050' | 300 | circ. |

It is proposed to re-enter old P&A well and drill to TD of 1300'. Will set approximately 1050' of 5½" casing with packer shoe and circulate to surface. To be completed as a brine source well.

Well is former Union Oil Co. of Calif., OTD @ 3470', P&A 9-26-70.

*Posted
ID-1 - Re Entry
9-1-78*

APPROVAL VALID
FOR 90 DAYS UNLESS
DRILLING COMMENCED,

EXPIRES 11-28-78

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM; IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signed A. M. Morgan Title Local Rep. Date 8-18-78

(This space for State Use)

APPROVED BY W. A. Gressett TITLE SUPERVISOR, DISTRICT II DATE AUG 28 1978

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RECEIVED
NEW MEXICO OIL CONSERVATION COMMISSION

JAN 15 1979

O. C. C.
ARTESIA, OFFICE

Form C-103
Supersedes G14
C-102 and C-101
Effective 1-1-65

SUNDRY NOTICES AND REPORTS ON WELLS

DO NOT USE THIS FORM FOR PROPOSAL TO DRILL OR TO RE-ENTER OR PLUG BACK TO A DIFFERENT RESERVOIR.
USE APPLICATION FOR PERMIT TO DRILL (FORM C-101) FOR SUCH PROPOSALS.

OIL WELL ☐ GAS WELL ☐ OTHER- Brine Source Well

1. Name of Operator

Hardin Houston Inc. ✓

2. Address of Operator

Box 4188 Odessa, Texas 79760

3. Location of Well

UNIT LETTER M 560 FEET FROM THE South LINE AND 610 FEET FROM
THE West LINE, SECTION 3 TOWNSHIP 22S RANGE 27E NMPM.

15. Elevation (Show whether DF, RT, GR, etc.)
3102' RKB

5a. Indicate Type of Lease

State ☐ Fee ☒

5. State Oil & Gas Lease No.

7. Unit Agreement Name

8. Form or Lease Name

Tracy

9. Well No.

#3

10. Field and Pool, or Wildcat

Brine Source

12. County

Eddy

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data
NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐
TEMPORARILY ABANDON ☐
PULL OR ALTER CASING ☐

PLUG AND ABANDON ☐
CHANGE PLANS ☐

OTHER ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐
COMMENCE DRILLING OPNS. ☐
CASING TEST AND CEMENT JOBS ☐

ALTERING CASING ☐
PLUG AND ABANDONMENT ☐

OTHER Re-entry of Well ☒

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1503.

Re-entered old P&A well on 12-23-78.
Drilled out surface plug and plug 440'-560',
cleaned out to plug @ 1274'.

Ran 5½", 15.5# casing to 1031', cemented w/275 sx.
Class C Cement, w/6# salt/sx.. Circulated 11 sx.
Plug down @ 2:45 pm, 12-26-78. Drilled plug, ran
tubing and set @ 1224', 12-28-78. Put well on
production.

*Re-entered ID-2
Brine Supply well
1-19-79*

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED Raymond B. Beck by M. M. M. TITLE By DATE 1-15-79

APPROVED BY W. A. Gressett TITLE SUPERVISOR, DISTRICT II DATE JAN 16 1979

CONDITIONS OF APPROVAL, IF ANY:

* = please attach pertinent documents

II. DRILLING / SITING (continued)

Casing, tubing, and cementing record (please attach copy)*

Note: if a copy is not available detail casing record on back of this sheet using the following format. Include brand or type of cement if known.

| From | To | Size of Hole | Size of Casing | Weight per Foot | Sacks of Cement | Estimated Top of cmt. |
|------|----|--------------|----------------|-----------------|-----------------|-----------------------|
|------|----|--------------|----------------|-----------------|-----------------|-----------------------|

Was mudcake on bore wall removed before cementing production casing? NO

Was salt saturated cementing material used opposite salt formation? NO

Is site within 1/2 mile of another well? If so, use note to explain. YES

Producing wells closest. ~~Butte~~ Union Oil of Calif. Fed. A-1 ut.

10-225-27E. 1050 FNL, 2310 FEL & Union oil of Calif. Pennzoil #2 ut.
660 FNL, 2310 FEL

Site preparation (concrete pad, graded dirt, pit, etc) Graded dirt/caliche

Type of surface seal or well-head (locking security cap, welded, etc.) _____

well shack locked,

Comments (include problems encountered while drilling, loss of circulation, deviation of hole from vertical, centralizers used, tools lost or stuck, fracturing techniques used, etc.) cent @ btm of sur. 1 @ 700' 1 at btm
1st jt. No loss. 100% ret. DO w/ Brine @ 55'

_____ (use back of sheet if more space is required)

* = please attach pertinent documents .

III. FORMATION INFORMATION

| Formation Record | | | |
|------------------|----|-----------|-------------------------------|
| From | To | Thickness | Formation (name, description) |

Logs (specify type) GAMMA-RAY (SONIC) INDUCTION LOG, DEVIATION TEST.
DRILL STEM TEST. INT. 3340-90.

Identify where logs are on file NMOC D ARTESIA.

* = please attach pertinent documents

IV. AQUIFER INFORMATION

Aquifers encountered during drilling

| From | To | Aquifer Description | Amount of Water entering hole | Quality of Water |
|------|----|------------------------|-------------------------------------|---------------------|
|------|----|------------------------|-------------------------------------|---------------------|

NO WATER ENCOUNTERED / PER OPR.

Note: if water quality analyses are available please attach.*

Source of aquifer description _____

Depth at which water was first encountered _____

Depth to which water rose _____

Source of water level data _____

Comments (include information regarding determination of piezometric level and method of sealing off water zone) Sur. & int csg. circ.

Csg. landed & cmt'd. 100' ^{amin of} below lowest known H₂O bearing strata.
(or suspected)

* = please attach pertinent documents

V. PRODUCTION / BRINE STORAGE (continued)

Brine storage facilities (describe) ^{Lined} Pit. for Brine, 3+500 bbl tanks
pit

Current condition/status of brine storage pit ^{Sand} Lined & in good condition

Is brine storage pit currently being monitored for leakage? NO

Specify company or agency which is monitoring leakage —

If pit leakage has been monitored in past use note to explain. —

Comments on production history (note if production rates or brine stable/per opr.
concentrations have changed through time)

* = please attach pertinent documents

V. PRODUCTION / BRINE STORAGE INFORMATION

Method of production (describe fully) Pump FW down 5 1/2" csg annulus
& produce ^{br}thru tbg.

Was well used previously for some purpose other than brine supply, potash dissolution, or LPG storage. If so use note to explain. NO OTHER USE.

Use of brine _____

Source of injection water (be specific) CITY OF CARLSBAD WATER LINE.
FROM ROAD ACROSS MR. WERSELL'S LAND TO WELL FAC.

Attach detailed production history (include dates of production, amount of water injected, injection rates, amount of brine produced, production rates, method of gaging injection/production rates)*

Note: If the cavity was used for LPG storage include volumes of product injected and withdrawn as well as a summary of the maximum and minimum pressures during injection, storage and withdrawal.

Chemical analyses of injection water (attach)* CITY WATER

Note : Chemical analyses should include sampling point and method, pH, temperature, method of analysis, name and location of laboratory, etc.

Chemical analyses of water produced (attach)*

* = please attach pertinent documents

VI. ABANDONMENT / PLUGGING RECORD

Date well abandoned/plugged _____

Reason for well abandonment or plugging _____

Method of Plugging (describe fully, include amounts of cement, est. top, plug type, depth, etc.) _____

VII. Further comments (subsidence noted, subsidence monitoring, leakage noted, natural subsidence features noted nearby, LPG storage data, etc.)

No subs. noted, no leakage noticed.

Farming 1 1/2 Miles SE on Hwy. Phreatophytes w/in 1/2 mile of site.

Recorded by Larry Brooks

Date 10/26/81

HARDIN/HOUSTON
TRACY #3.

3-22-27 U.T.M

Fm tanks
On. Anhy. Ls.

To Pit

GL. 3102 (RKB)

160' Ls. & Sd.

270' Red-beds.

T. Anhy.

8 5/8" @ 551' CMT. CIRC.

625' B. Anhy.

SALT, 625-650.

TX @ 25'
T. Anhy. 650

5 1/2" @ 1031 CMT. CIRC.

B. Anhy 1060
TX. 1060

OH 1031 - 1274

243' t.

BX 1285'
T. BANDED ANHY. 1285

T3G @ 1224'

PB
TD 1274'

100' p.

1374'

SCALE C4G.

B. Band. Anhy. 1995
T. Del. Sand, sh, Ls.

Plug @ 1850 - 1950 T.O.F. Del.
B.O.F. Anhy

2730'
T. Del Ls. 2730

B. Del. Ls. 2840

T. Del. sd. Sh. Ls. 2840

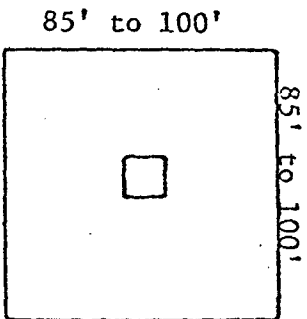
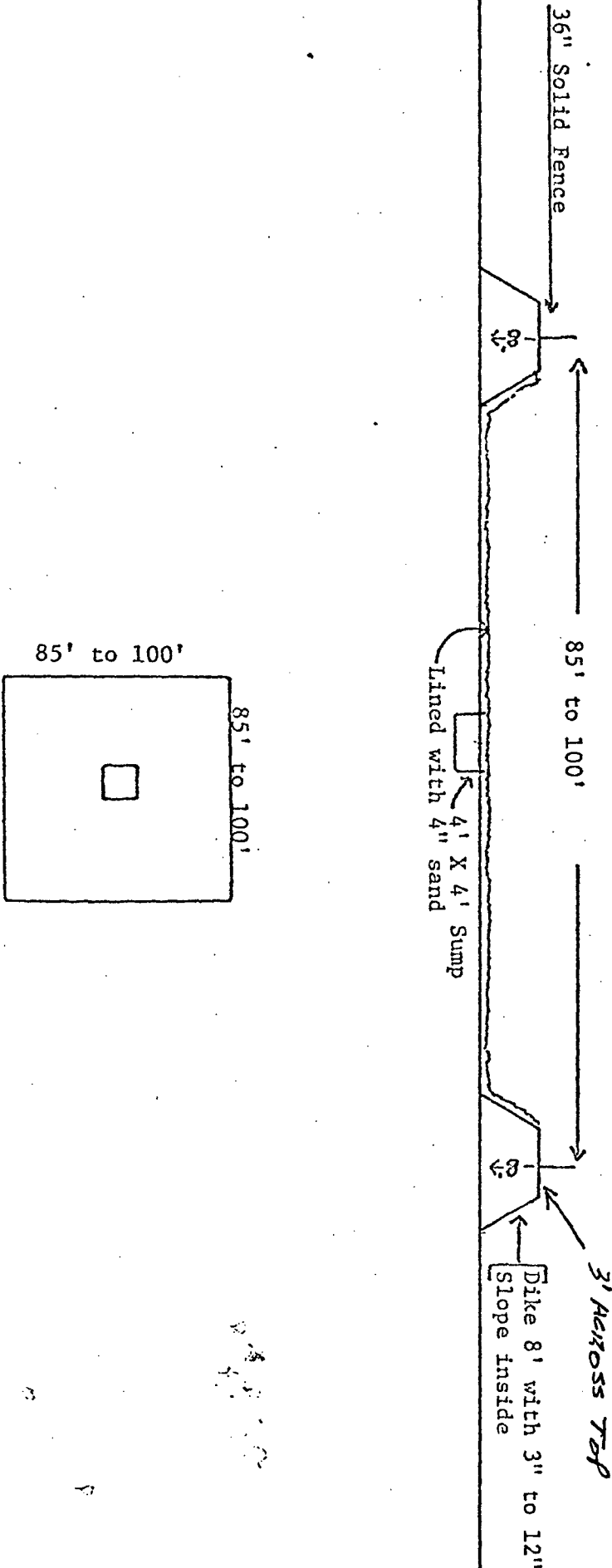
Drilled TD " " " " 3470

Plug @ 3250 - 3350

TD 3470.

BRINE STORAGE POND AT CARLSBAD BRINE STATION

Will be 85' to 100' square depending on fitting into present location of old pit. Must be 8' deep above sand liner to hold 6' of brine water will give 7500 to 10,000 barrels capacity. Pit must be absolutely level on all sides with 3" to 12" slope. Will be lined with 4" of sand for installation of nylon re-inforced rubber liner. 2" pipe posts set 6' apart 36" above dike for solid sheet iron or metal fence. Dike may be constructed of caliche or dirt, but cannot have rocks inside that cannot be adequately covered with sand liner. After completion of pit all loose material on location to be smoothed out or removed. Entire location shall be cleaned bladed and leveled. 4' X 4' Sump in middle of pit.



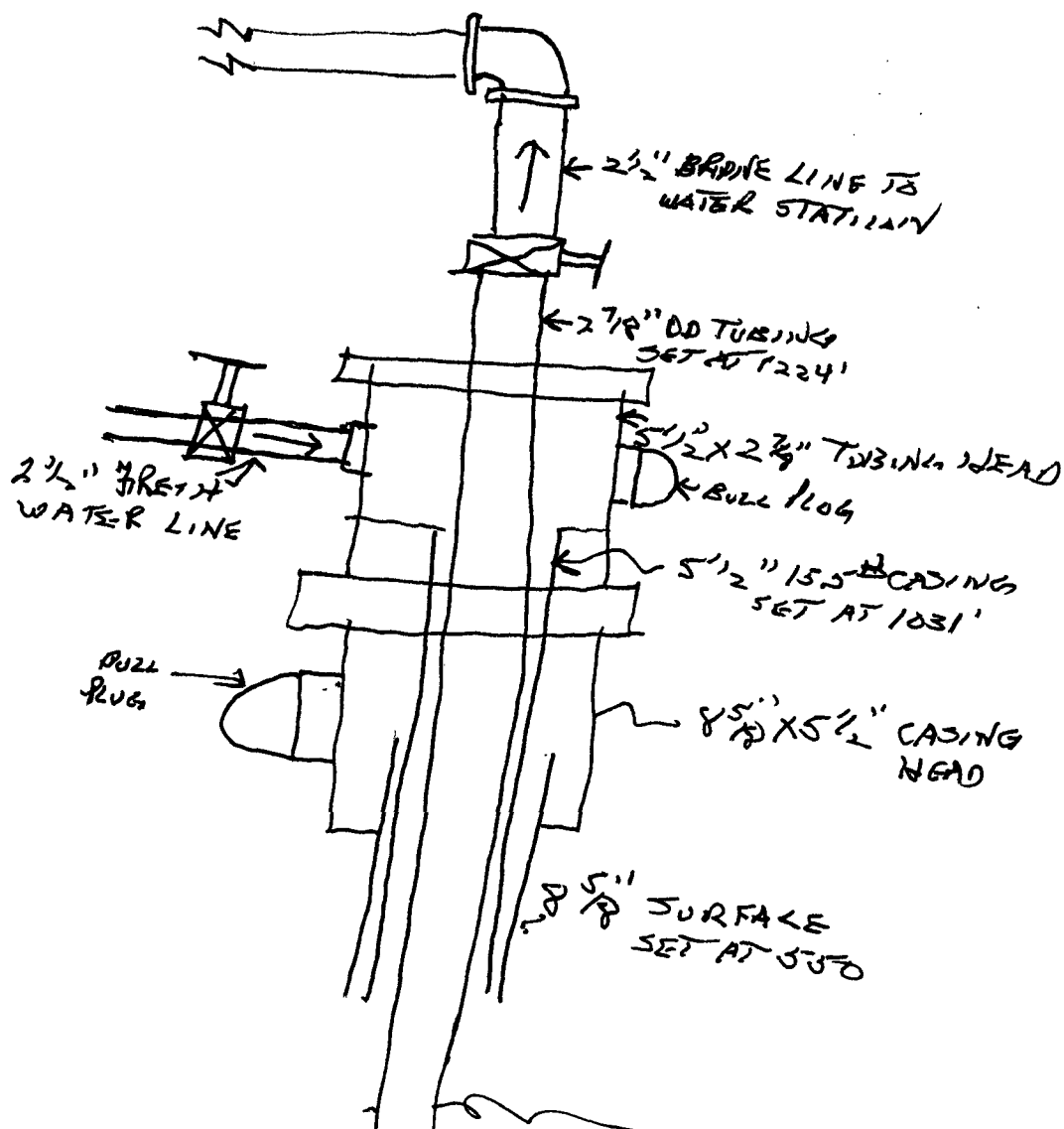


1003 W. MURPHY
ODESSA, TEXAS 79763

(915) 563-1162
(915) 337-2356

November 13, 1981

Diagram #9



Champion Chemicals, Inc.

1003 W. MURPHY • ODESSA, TEXAS 79763 • (915) 337-2356 563-1162



1003 W. MURPHY
ODESSA, TEXAS 79763

(915) 563-1162
(915) 337-2356

November 11, 1981

New Mexico Oil & Gas Commission
P. O. Drawer DD
Artesia, New Mexico 88210

Attn: Mr. Larry Brooks

Re: Tracy Well #3
Solution Salt Mine
Carlsbad, New Mexico

Dear Sir:

As per our telephone conversation you will find the following enclosed information:

1. Complete production by the month since beginning this operation January 1979. Note although the production is in barrels of brine this may be converted at 83.8# of calcium chloride per barrel.
2. Complete water analysis on produced brine
3. Pipeline specifications for two (2) 2-1/2" lines layed from well to brine station
4. Plat of pipeline right of way from Tracy #3 to brine station
5. Plat of pipeline ROW for fresh water from station to point immediately North of highway 62.
6. Plate showing all pipelines and roads used in this operation.
7. Plat showing location of plant site
8. Diagram showing construction of lined surface brine pit
9. Diagram of well head

This should complete all the requirements requested by you.
If you need further information please direct your request
to Mrs. Billie Brockman, at this same address.

Yours truly,

A handwritten signature in cursive script that reads "Raymond Brooks". The signature is written in dark ink and is positioned above the printed name.

Raymond Brooks

RMB/bb

enc. 9

Champion Chemical Co. Carlsbad Brine Station
Bbls Brine Sold from Tracy Well #3

| | 1 | 2 | 3 | 4 |
|---|----------|----------|----------|----|
| | 1979 | 1980 | 1981 | |
| 1 Jan | 239916 | 3096000 | 1720500 | 1 |
| 2 Feb | 2166000 | 1161000 | 3867300 | 2 |
| 3 Mar | 1744250 | 2609600 | 3736500 | 3 |
| 4 Apr | 2221916 | 4815500 | 2411000 | 4 |
| 5 May | 1455850 | 2505000 | 2958200 | 5 |
| 6 June | 1017250 | 2565500 | 3244333 | 6 |
| 7 July | 2155000 | 2880000 | 3623400 | 7 |
| 8 Aug | 4717000 | 2629567 | 3302000 | 8 |
| 9 Sept | 2608100 | 3722500 | 2200000 | 9 |
| 10 Oct | 3694000 | 2638500 | | 10 |
| 11 Nov | 4262000 | 2227500 | | 11 |
| 12 Dec. | 1260000 | 2915000 | | 12 |
| 13 TOTAL Bbls. | 27541282 | 33765667 | 27063233 | 13 |
| 14 | | | | 14 |
| 15 | | | | 15 |
| 16 | | | | 16 |
| 17 100 # water holds 83.8# Salt | | | | 17 |
| 18 1 bbl. of fresh water 8.3# per gal. weighs 332# | | | | 18 |
| 19 Average Brine produced at Carlsbad Brine Station is 9.9#, Weight per gal per | | | | 19 |
| 20 bbl. weighs 415.8# | | | | 20 |
| 21 Therefore the average salt produced per water is 83.3# | | | | 21 |
| 22 | | | | 22 |
| 23 | | | | 23 |
| 24 | | | | 24 |
| 25 TOTAL 83.32% 33 mos | | | | 25 |
| 26 83.32% 82 | | | | 26 |
| 27 | | | | 27 |
| 28 | | | | 28 |
| 29 | | | | 29 |
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| 39 | | | | 39 |
| 40 #1 | | | | 40 |

WATER ANALYSIS REPORT



BOX 4513
ODESSA, TEXAS 79760

SERVICE LABORATORY: Odessa, Texas Phone (915) 362-2353 & 563-0863
RESEARCH LABORATORY: Houston, Texas Phone (713) 431-2561
PLANT: Odessa, Texas Phone (915) 362-2353 & 563-0863

REPORT FOR New Mexico Oil & Gas Commission
Raymond Brooks DATE SAMPLED 10-28-81
cc Hitchel, Murphy DATE REPORTED 11-4-81
cc Carlsbad, New Mexico FIELD, LEASE, OR WELL
COMPANY Champion Brine Station COUNTY EDDY STATE NEW MEX
ADDRESS Well Tracy #3 FORMATION SALADO
SERVICE ENGINEER Albert Means DEPTH 1050 TO 1275
SUBMITTED BY Albert Means

CHEMICAL ANALYSIS (AS PARTS PER MILLION)

| Chemical Component | Field, Lease, or Well | | | | | |
|--------------------------------------|-----------------------|---------|--|--|--|--|
| | | | | | | |
| Chloride (Cl) | 153,000 | 159,000 | | | | |
| Iron (Fe) | | | | | | |
| Total Hardness (Ca CO ₃) | 800 | 900 | | | | |
| Calcium (Ca) | 240 | 280 | | | | |
| Magnesium (Mg) | 49 | 49 | | | | |
| Bicarbonate (HCO ₃) | 122 | 122 | | | | |
| Carbonate (CO ₃) | 0 | 0 | | | | |
| Sulfate (SO ₄) | 3950 | 4150 | | | | |
| Hydrogen Sulfide (H ₂ S) | neg. | neg. | | | | |
| Specific Gravity | 1.175 | 1.175 | | | | |
| Density, lb./gal. | | | | | | |
| pH - Beckman [] Strip [] | 6.15 | 5.95 | | | | |
| | | | | | | |
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| | | | | | | |

OTHER DESCRIPTION, REMARKS AND RECOMMENDATIONS

REPORTED BY Albert Means TITLE mgr.

PIPELINE BRINE STATION TO WELL AS PER SURVEYOR'S PLAT

1. R. O. W. Cleared 25' wide 2876 feet from Station to well.
2. Pipeline ditch 12' deep in rock the entire length. May be dug with ripper and blade if desired. Sand or suitable dirt pad in ditch under 2-2" lines. Line covered with same material, sand or dirt, and rocky material removed from ditch, backfilled on top.
3. Road crossing pavement at brine station in 7"-8" casing 24" below pavement and pavement restored to County specifications.
4. Lines will cross existing water lines in 2 places, will go under water lines sufficient to protect all lines.

PIPELINES:

1. Two lines to be layed. Fresh water to well and brine to return.
2. 2-3/8" 8rd steel tubing will be used, lines layed side by side.
3. Each joint will be teflon taped and doped with Baker seal teflon base dope, must be well made up to stand 700# pressure.
4. Stub-out lines at well and station with changeover 8rd thread to reg. pipe thread.
5. Install 2" full opening ball valves in boxes at top of hill, approximately 1900 ft. from station. Valves will be covered with steel boxes ~~as~~ large pipes accessible to surface.
(Note: Ball valves will be furnished)
6. NOTE: Bid separately external coating of 2 lines with pressures sensitive pipeline tape.
7. All ranch roads, fences, and land at well site to be restored to original conditions.

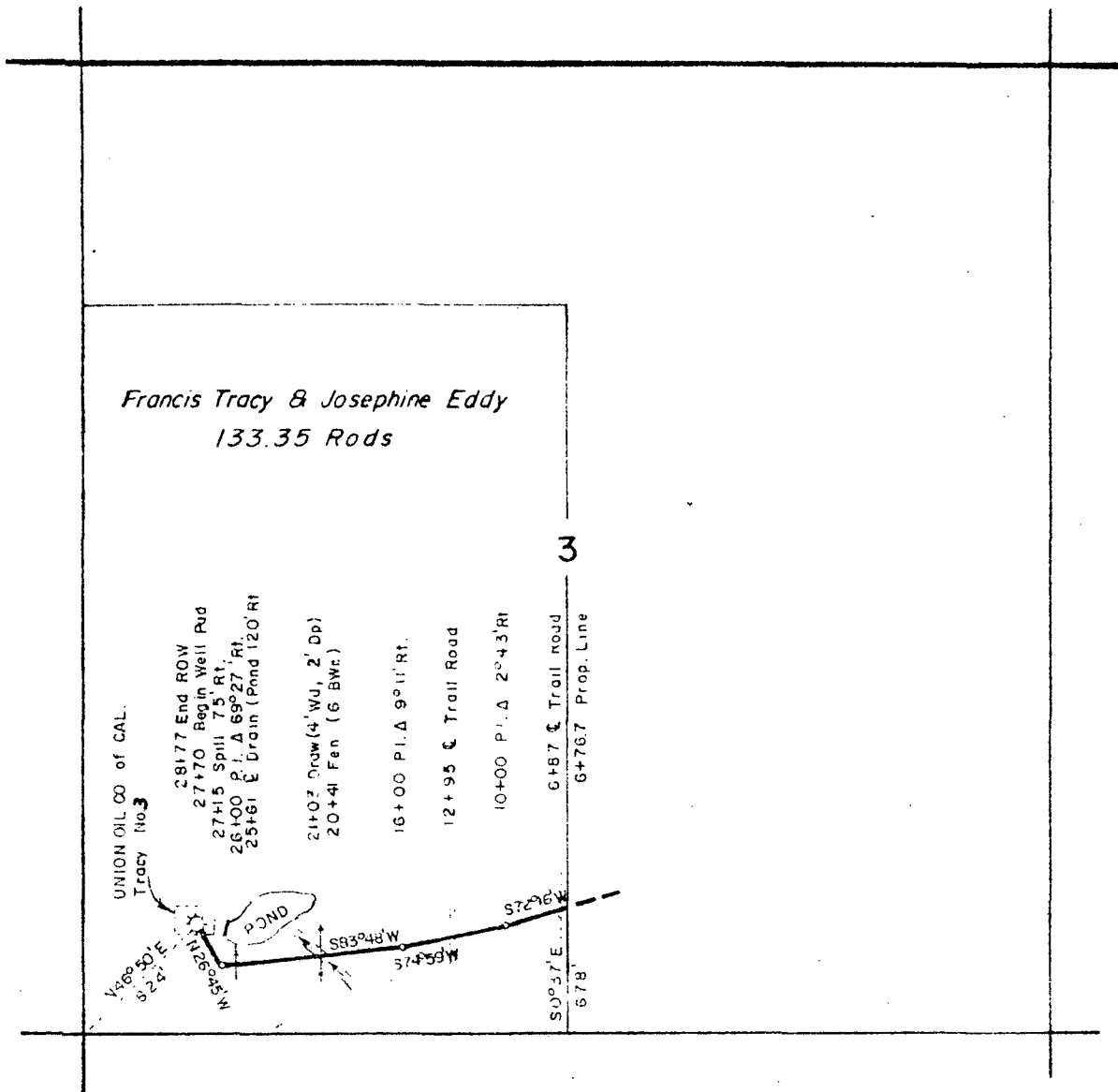
BRINE STATION AND WELL SITE:

Connection work at well and brine station will be done on an hourly basis.

1. Manifold triplex pump so flow can be reversed in lines to well and to pump out of pit or tanks.
2. Build overhead loading rack and set pump to pump out of pit.
3. Build building over loading rack pump and repair building over triplex pump.
4. Anchor triplex pump to existing cement foundation.
5. Clean and paint all tanks, color specified by goverment.
6. Brine station location is 5 acres which is 466 ft. square, please bid 5 ft. chain link fence with 16 ft. aluminum gate on property fronting paved road and 4 wire barbed wire stock proof fence on side and back location.

SEC. 3, T22S, R27E, N. M. P. M.,

EDDY COUNTY, NEW MEXICO

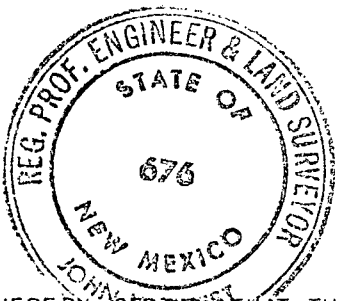


DESCRIPTION OF RIGHT-OF-WAY

A strip of land 30 feet wide, being 15 feet right, and 15 feet left of the following described survey of centerline:

Beginning at Eng. Sta. 6+76.7, a point on the east boundary line of the west half of Section 3, Township 22 South, Range 27 East, N. M. P. M., Eddy County, New Mexico, bearing north 00°37' west a distance of 678 feet from the south quarter corner of the said Section 3; thence, south 72°16' west, crossing the Francis Tracy, and Josephine Eddy property a distance of 323.3 feet to Eng. Sta. 10+00; thence, south 74°59' west a distance of 600 feet to Eng. Sta. 16+00; thence, south 83°48' west a distance of 1000 feet to Eng. Sta. 26+00; thence, north 26°45' west a distance of 277 feet to Eng. Sta. 28+77, ending this right-of-way, bearing north 46°50' east a distance of 824 feet from the southwest corner of the said Section 3.

133.35 Rods



I HEREBY CERTIFY THAT THIS PLAT WAS MADE FROM NOTES TAKEN IN THE FIELD IN A BONA FIDE SURVEY MADE UNDER MY SUPERVISION, AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

John W. West
JOHN W. WEST, N.M. P.E. & L.S. NO. 676
TEXAS R.P.S. NO. 1138
RONALD J. EIDSON, N.M. L.S. NO. 3239
TEXAS R.P.S. NO. 1883

CHAMPION CHEMICALS, INS.

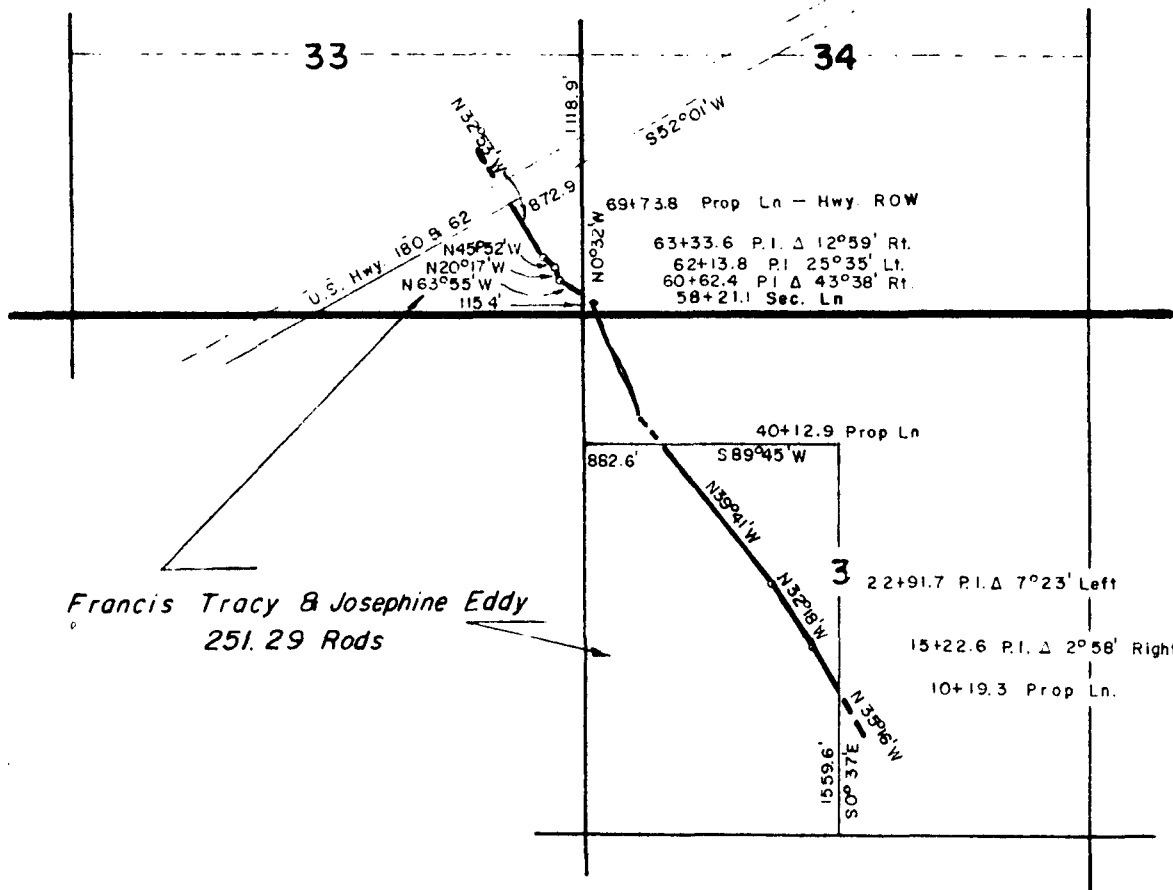
Proposed brine pipeline crossing the Francis Tracy, and Josephine Eddy property in Section 3, Township 22 South, Range 27 East, N. M. P. M., Eddy County, New Mexico.

JOHN W. WEST ENGINEERING COMPANY
CONSULTING ENGINEERS HOBBS, NEW MEXICO

| | |
|---------------------|---------------------|
| Scale: 1" = 1000' | Drawn by: chb |
| Date: June 23, 1978 | Sheet 1 of 1 Sheets |

SEC. 33, T21S, R27E, & SEC. 3, T22S, R27E, N.M.P.M.,

EDDY COUNTY, NEW MEXICO



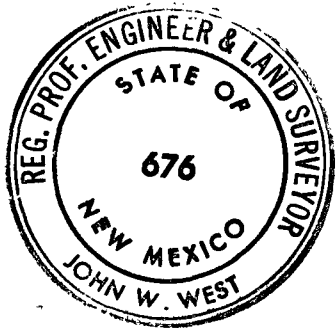
DESCRIPTION OF RIGHT-OF-WAY

A strip of land in Two Parts, 30 feet wide, being 15 feet right, and 15 feet left of the following described survey of centerline:

Part One: Beginning at Eng. Sta. 10+19.3, a point on the east boundary line of the SW $\frac{1}{4}$ of Sec. 3, T22S, R27E, N. M. P. M., Eddy County, New Mexico, from which the SE $\frac{1}{4}$ Cor. of the said Sec. 3 bears S 0°37' E, 1559.6 feet; thence, N 35°16' W, crossing the Francis Tracy, and Josephine Eddy property, 503.3 feet to Eng. Sta. 15+22.6; thence, N 32°18' W, 769.1 feet to Eng. Sta. 22+91.7; thence, N 39°41' W, 1721.2 feet to Eng. Sta. 40+12.9, ending Part One, a point on the north boundary line of the S $\frac{1}{2}$ of the NW $\frac{1}{4}$ of the said Sec. 3, from which the NW Cor. of the said Sec. 3 bears S 89°45' W, 882.6 feet, and N 0°57' W, 1315.14 feet.

Part Two: Beginning at Eng. Sta. 58+21.1, a point on the east boundary line of Sec. 33, T21S, R27E, N. M. P. M., Eddy County, New Mexico, from which the SE Cor. of the said Sec. 33 bears S 0°32' E, 115.4 feet; thence, N 63°55' W, across the said property, 241.3 feet to Eng. Sta. 60+62.4; thence, N 20°17' W, 151.4 feet to Eng. Sta. 62+13.8; thence, N 45°52' W, 119.8 feet to Eng. Sta. 63+33.6; thence, N 32°53' W, 640.2 feet to Eng. Sta. 69+73.8, ending Part Two, from which the E $\frac{1}{4}$ Cor. of the said Sec. 33 bears N 52°01' E, 872.9 feet, and N 0°32' W, 1118.9 feet.

251.29 Rods



I HEREBY CERTIFY THAT THIS PLAT WAS MADE FROM NOTES TAKEN IN THE FIELD IN A BONA FIDE SURVEY MADE UNDER MY SUPERVISION, AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

John W. West
JOHN W. WEST, N.M. P.E. & L.S. NO. 676
TEXAS R.P.S. NO. 1138
RONALD J. EIDSON, N.M. L.S. NO. 3239
TEXAS R.P.S. NO. 1883

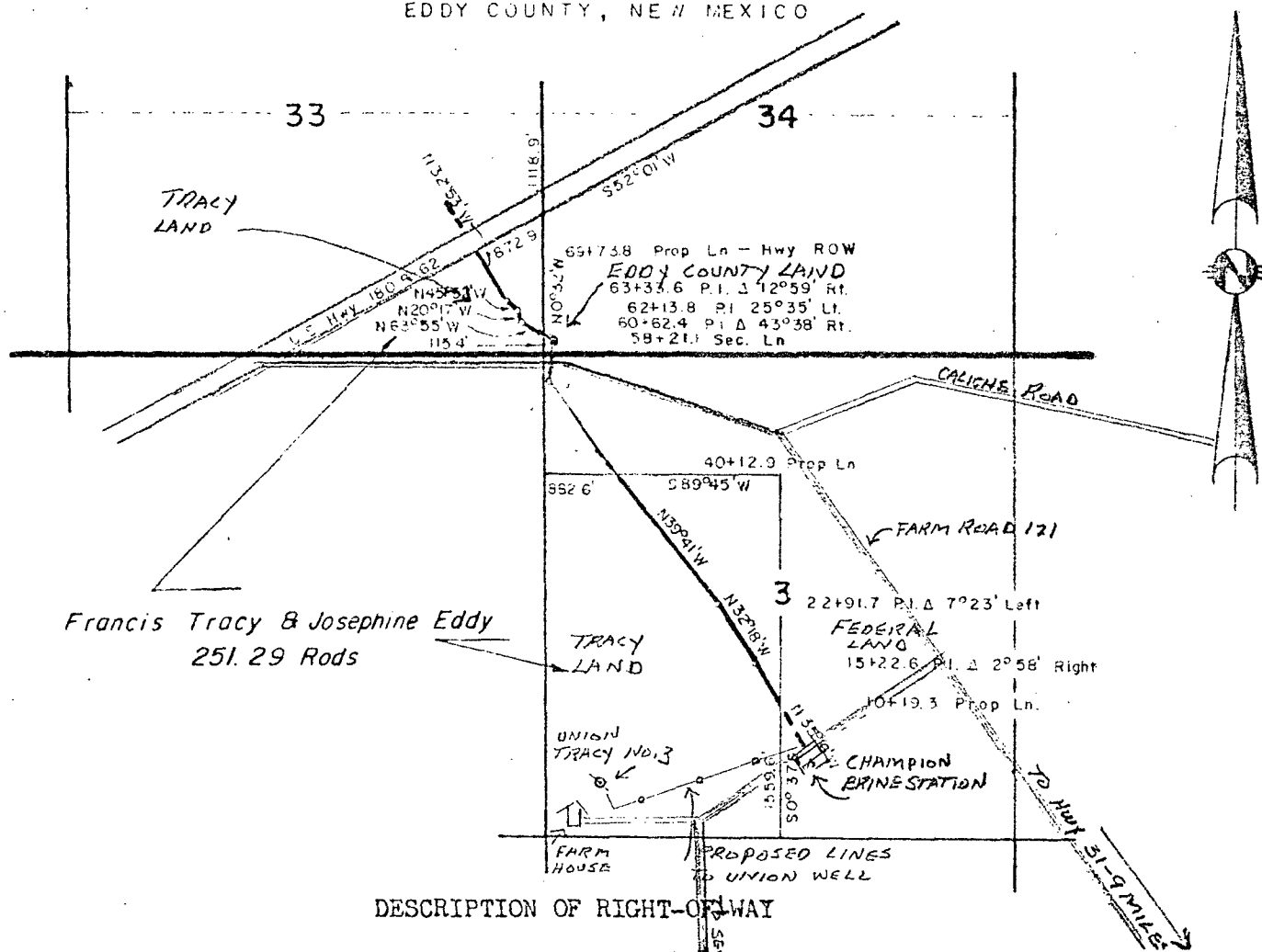
CHAMPION CHEMICALS, INC.

Water pipeline crossing the Francis Tracy, & Josephine Eddy property in Sec. 33, T21S, R27E, and Sec. 3, T22S, R27E, N. M. P. M., Eddy County, New Mexico.

JOHN W. WEST ENGINEERING COMPANY
CONSULTING ENGINEERS HOBBS, NEW MEXICO
Scale: 1" = 2000'
Date: June 26, 1978
Drawn by: chb
Sheet 1 of 1 Sheets

Plat #5

EDDY COUNTY, NEW MEXICO



plat # 6



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

December 6, 1989

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Linda Broom
TRACY BRINE STATION
P. O. Box 1031
Artesia, New Mexico 88210

RE: Delegation of Responsibilities Brine Manufacturing Operations

Dear Ms. Broom:

On June 13, 1989, the Water Quality Control Commission (WQCC) transferred the responsibility for the administration and enforcement of Commission regulations at brine manufacturing operations, including all brine production wells, holding ponds and tanks, from the Environmental Improvement Division (EID) to the Oil Conservation Division (OCD). The OCD has jurisdiction over all manufactured brine once it is transported, used or disposed of off brine plant premises for use in or directly related to oil and gas operations regulated by OCD. OCD regulates brine injection through its Class II Underground Injection Control (UIC) Program if the brine is used in the drilling for or production of oil and gas. EID shall regulate brine injection through its UIC Program if the brine is used for other purposes.

Brine production facilities that were transferred to OCD's jurisdiction must operate pursuant to an approved and current discharge plan. The discharge plan renewal process will be continued by OCD Environmental Bureau Staff. Approximately eight (8) months before the expiration date of an approved discharge plan, the discharger will be notified of the pending expiration of the plan. The discharge plan review process can, depending on circumstances, take several months. If the holder of an approved discharge plan submits a renewal application at least 180 days before discharge plan expiration, and the discharger is in compliance with his approved plan on the date of expiration, then the existing plan will not expire until the renewal application has been approved or disapproved.

Ms. Linda Broom
December 6, 1989
Page -2-

Guidelines to aid you in determining what will be required for the renewal of your discharge plan are being prepared. When the guidelines are finalized, they will be supplied to each operator of a brine production facility.

The OCD requires that any person, firm corporation or association that is in ownership of an oil, gas, or service well in the State of New Mexico shall furnish the Division with a surety bond in an amount prescribed in the OCD regulations. The current bond for well less than 5000 feet deep in Chaves, Eddy, Lea and Roosevelt Counties is \$5000. I am enclosing the OCD bond forms for your use. All surety bonds previously submitted to the OCD did not include brine wells. Those surety bonds submitted to the EID must be changed to the OCD. Once the proper bond form are received and approved, all other sureties and bonds can be cancelled.

If you have any questions, please do not hesitate to contact me at (505) 827-5884.

Sincerely,



Roger C. Anderson
Environmental Engineer

RCA/sl

Enclosures

CC: Artesia District Office
Hobbs District Office

STATE OF NEW MEXICO
\$50,000 BLANKET PLUGGING BOND

BOND NO. _____

File with Oil Conservation Division, P. O. Box 2088, Santa Fe 87501

KNOW ALL MEN BY THESE PRESENTS:

That _____, (An individual) (a partnership) (a corporation organized in the State of _____, with its principal office in the city of _____, State of _____, and authorized to do business in the State of New Mexico), as PRINCIPAL, and _____, a corporation organized and existing under the laws of the State of _____, and authorized to do business in the State of New Mexico, as SURETY, are held firmly bound unto the State of New Mexico, for the use and benefit of the Oil Conservation Division of New Mexico pursuant to Section 70-2-12, New Mexico Statutes Annotated, 1978 Compilation, as amended, in the sum of Fifty Thousand Dollars (\$50,000) lawful money of the United States, for the payment of which, well and truly to be made, said PRINCIPAL and SURETY hereby bind themselves, their successors and assigns, jointly and severally, firmly by these presents.

The conditions of this obligation are such that:

WHEREAS, The above principal has heretofore or may hereafter enter into oil and gas leases, or carbon dioxide (CO₂) gas leases, or helium gas leases or brine mineral leases with the State of New Mexico; and

WHEREAS, The above principal has heretofore or may hereafter enter into oil and gas leases, or carbon dioxide (CO₂) gas leases, or helium gas leases or brine mineral leases on lands patented by the United States of America to private individuals, and on lands otherwise owned by private individuals; and

WHEREAS, The above principal, individually, or in association with one or more other parties, has commenced or may commence the drilling of wells to prospect for and produce oil or gas, or carbon dioxide (CO₂) gas or helium gas, or does own or may acquire, own or operate such well, or such wells started by others on land embraced in said State oil and gas leases or brine minerals, or carbon dioxide (CO₂) gas leases, or helium gas leases or brine mineral leases, and on land patented by the United States of America to private individuals, and on land otherwise owned by private individuals, the identification and location of said well being expressly waived by both principal and surety hereto.

NOW, THEREFORE, If the above bounden principal and surety or either of them or their successors or assigns, or any of them, shall plug all of said wells when dry or when abandoned in accordance with the rules, regulations, and orders of the Oil Conservation Division of New Mexico in such way as to confine the oil, gas, brine and water in the strata in which they are found, and to prevent them from escaping into other strata;

THEN, THEREFORE, This obligation shall be null and void; otherwise and in default of complete compliance with any and all of said obligations, the same shall remain in full force and effect.

PROVIDED, HOWEVER, That thirty (30) days after receipt by the Oil Conservation Division of New Mexico of written notice of cancellation from the surety, the obligation of the surety hereunder shall terminate as to property or wells acquired, drilled, or started after said thirty (30) day period but shall continue in effect, notwithstanding said notice, as to property or wells theretofore acquired, drilled or started.

| | |
|---|---|
| PRINCIPAL | SURETY |
| Address | Address |
| By _____ Signature | _____ Attorney-In-Fact |
| _____ Title | |
| (Note: Principal, if corporation, affix corporate seal here.) | (Note: Corporate surety affix corporate seal here.) |

ACKNOWLEDGEMENT FORM FOR NATURAL PERSONS

STATE OF _____)
COUNTY OF _____) ss.

On this _____ day of _____, 19____, before me personally appeared _____, to me known to be the person (persons) described in and who executed the foregoing instrument and acknowledged that he (they) executed the same as his (their) free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on the day and year in this certificate first above written.

Notary Public

My Commission Expires

ACKNOWLEDGEMENT FORM FOR CORPORATION

STATE OF _____)
COUNTY OF _____) ss.

On this _____ day of _____, 19____, before me personally appeared _____, to me personally known who, being by me duly sworn, did say that he is _____ of _____ and that the foregoing instrument was signed and sealed on behalf of said corporation by authority of its board of directors, and acknowledged said instrument to be the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on the day and year in this certificate first above written.

Notary Public

My Commission Expires

ACKNOWLEDGEMENT FORM FOR CORPORATE SURETY

STATE OF _____)
COUNTY OF _____) ss.

On this _____ day of _____, 19____, before me appeared _____, to me personally known, who, being by me duly sworn, did say that he is _____ of _____ and that the foregoing instrument was signed and sealed on behalf of said corporation by authority of its board of directors, and acknowledged said instrument to be the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on the day and year in this certificate first above written.

Notary Public

My Commission Expires

(Note: Corporate surety attach power of attorney.)

APPROVED BY:

OIL CONSERVATION DIVISION OF NEW MEXICO

By: _____

Date: _____

STATE OF NEW MEXICO

ONE-WELL PLUGGING BOND

FOR CHAVES, EDDY, LEA, MCKINLEY, RIO ARRIBA, ROOSEVELT,
SANDOVAL, AND SAN JUAN COUNTIES ONLY

BOND NO. _____
AMOUNT OF BOND _____
COUNTY _____

NOTE: For wells less than 5,000 feet deep, the minimum bond is \$5,000.00*
For wells 5,000 to 10,000 feet deep, the minimum bond is \$7,500.00*
For wells more than 10,000 feet deep, the minimum bond is \$10,000.00

*Under certain conditions, a well being drilled under a \$5,000.00 or \$7,500 bond may be permitted to be drilled as much as 500 feet deeper than the normal maximum depth, i.e., a well being drilled under a \$5,000.00 bond may be permitted to go to 5,500 feet, and a well being drilled under a \$7,500.00 bond may be permitted to go to 10,500 feet. (See Rule 101)

File with Oil Conservation Division, P. O. Box 2088, Santa Fe 87501

KNOW ALL MEN BY THESE PRESENTS:

That _____, (An individual) (a partnership)
(a corporation organized in the State of _____, with its principal office in the city
of _____, State of _____, and authorized to do business
in the State of New Mexico), as PRINCIPAL, and _____,
a corporation organized and existing under the laws of the State of
_____, and authorized to do business in the State of New
Mexico, as SURETY, are held firmly bound unto the State of New Mexico, for the use and benefit of the Oil
Conservation Division of New Mexico pursuant to Section 70-2-12, New Mexico Statutes Annotated, 1978
Compilation, as amended, in the sum of _____ Dollars lawful money of the United
States, for the payment of which, well and truly to be made, said PRINCIPAL and SURETY hereby bind
themselves, their successors and assigns, jointly and severally, firmly by these presents.

The conditions of this obligation are such that:

WHEREAS, The above principal has heretofore or may hereafter enter into oil and gas lease, or carbon
dioxide (CO₂) gas leases, or helium gas leases, or brine mineral leases with the State of New Mexico; and

WHEREAS, The above principal has heretofore or may hereafter enter into oil and gas leases, or carbon
dioxide (CO₂) gas leases, or helium gas leases, or brine mineral leases on lands patented by the United
States of America to private individuals, and on lands otherwise owned by private individuals; and

WHEREAS, The above principal, individually, or in association with one or more other parties, has
commenced or may commence the drilling of one well not to exceed a depth of _____
feet, to prospect for and produce oil or gas, or carbon dioxide (CO₂) gas or helium gas, or does own or
may acquire, own or operate such well, or such well started by others on land embraced in said State oil
and gas leases, or carbon dioxide (CO₂) leases, or helium gas leases, or brine minerals, and on land
patented by the United States of America to private individuals, and on land otherwise owned by private
individuals, the identification and location of said well being being
_____, Section _____, Township _____ (North)(South)

(Here state exact legal footage description)

Range _____ (East)(West), N.M.P.M., _____ County, New Mexico.

NOW, THEREFORE, If the above bounden principal and surety or either of them or their successors or
assigns, or any of them, shall plug said well when dry or when abandoned in accordance with the rules,
regulations, and orders of the Oil Conservation Division of New Mexico in such way as to confine the oil,
gas, brine, and water in the strata in which they are found, and to prevent them from escaping into other
strata;

THEN, THEREFORE, This obligation shall be null and void; otherwise and in default of complete
compliance with any and all of said obligations, the same shall remain in full force and effect.

| | |
|---|---|
| _____ PRINCIPAL | _____ SURETY |
| _____ Address | _____ Address |
| By _____ Signature | _____ Attorney-In-Fact |
| _____ Title | |
| (Note: Principal, if corporation, affix corporate seal here.) | (Note: Corporate surety affix corporate seal here.) |

ACKNOWLEDGEMENT FORM FOR NATURAL PERSONS

STATE OF _____)
COUNTY OF _____) ss.

On this _____ day of _____, 19____, before me personally appeared _____, to me known to be the person (persons) described in and who executed the foregoing instrument and acknowledged that he (they) executed the same as his (their) free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on the day and year in this certificate first above written.

Notary Public

My Commission Expires

ACKNOWLEDGEMENT FORM FOR CORPORATION

STATE OF _____)
COUNTY OF _____) ss.

On this _____ day of _____, 19____, before me personally appeared _____, to me personally known who, being by me duly sworn, did say that he is _____ of _____ and that the foregoing instrument was signed and sealed on behalf of said corporation by authority of its board of directors, and acknowledged said instrument to be the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on the day and year in this certificate first above written.

Notary Public

My Commission Expires

ACKNOWLEDGEMENT FORM FOR CORPORATE SURETY

STATE OF _____)
COUNTY OF _____) ss.

On this _____ day of _____, 19____, before me appeared _____, to me personally known, who, being by me duly sworn, did say that he is _____ of _____ and that the foregoing instrument was signed and sealed on behalf of said corporation by authority of its board of directors, and acknowledged said instrument to be the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on the day and year in this certificate first above written.

Notary Public

My Commission Expires

(Note: Corporate surety attach power of attorney.)

APPROVED BY:

OIL CONSERVATION DIVISION OF NEW MEXICO

By: _____

Date: _____

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Name 12-08
1st Notice 12-08
2nd Notice 12-08
Return 12-08

Fold at line over top of envelope to the right
of the return address.

CERTIFIED

P-106 675 182

MAIL

ERD 31 99091081 12/09/89

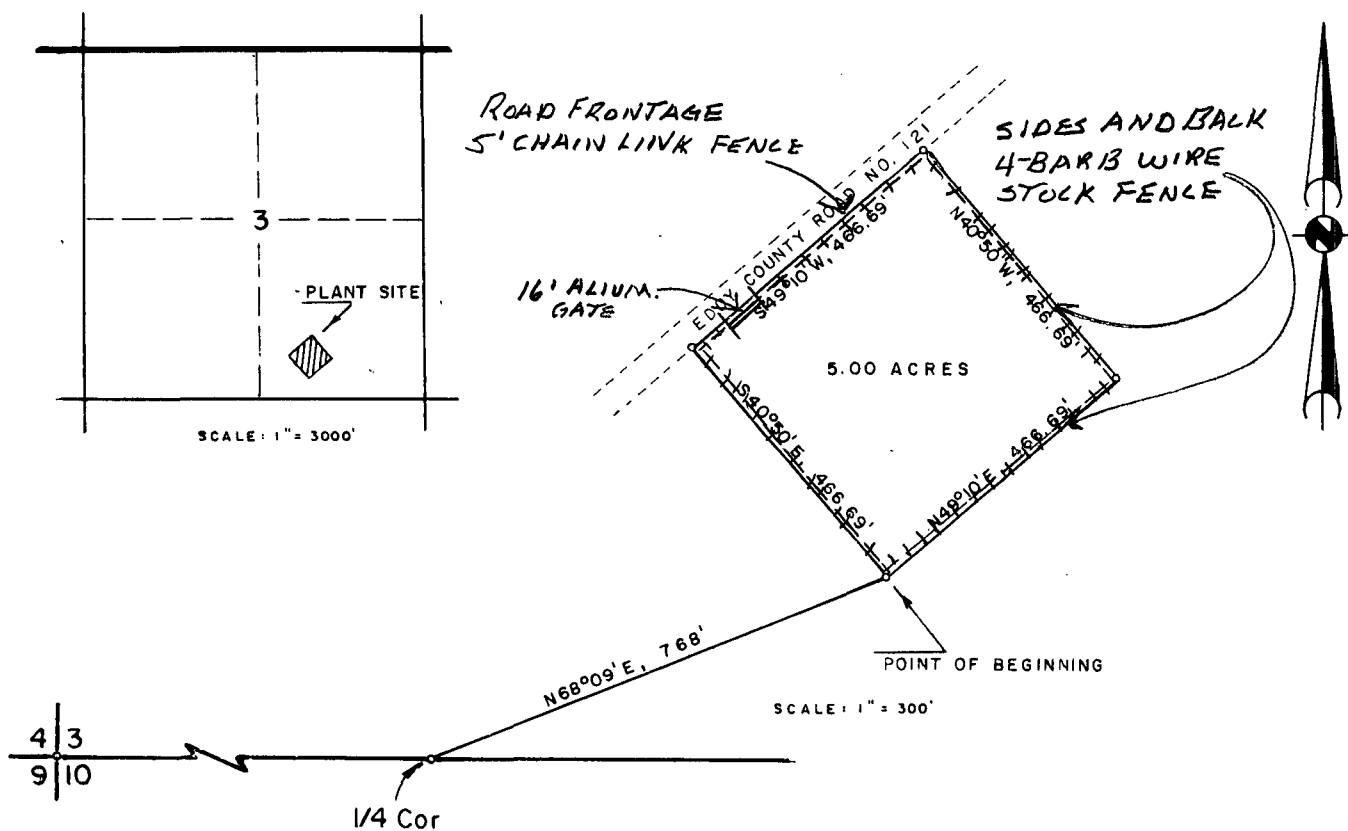
ERD TRANSPORT
RETURN TO SENDER
BOX CLOSED

Ms. Linda Broom
TRACY BRINE STATION
P.O. Box 1031
Artesia, NM 88210



SEC. 3, T22S, R27E, N.M.P.M.,

EDDY COUNTY, NEW MEXICO



DESCRIPTION

A TRACT OF LAND CONTAINING 5.00 ACRES, MORE OR LESS, BEING A CERTAIN PARCEL OF THE SOUTHEAST QUARTER OF SECTION 3, TOWNSHIP 22 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT NORTH 68°09' EAST A DISTANCE OF 768.00 FEET FROM THE SOUTH QUARTER CORNER OF THE SAID SECTION 3; THENCE, NORTH 49°10' EAST A DISTANCE OF 466.69 FEET; THENCE, NORTH 40°50' WEST A DISTANCE OF 466.69 FEET; THENCE, SOUTH 49°10' WEST A DISTANCE OF 466.69 FEET; THENCE, SOUTH 40°50' EAST A DISTANCE OF 466.69 FEET TO THE POINT OF BEGINNING.

ENGINEER'S CERTIFICATE

JOHN W. WEST STATES HE IS BY OCCUPATION A CIVIL ENGINEER EMPLOYED BY CHAMPION CHEMICALS, INC. TO MAKE THE SURVEY OF THE PLANT SITE AS DESCRIBED AND SHOWN ON THIS PLAT, THAT THE SURVEY OF SAID WORKS WAS MADE UNDER HIS SUPERVISION AND UNDER AUTHORITY, COMMENCING ON THE 19TH DAY OF JUNE, 1978 AND ENDING ON THE 20TH DAY OF JUNE, 1978 AND THAT SUCH SURVEY IS ACCURATELY REPRESENTED ON THIS PLAT.



John W. West
ENGINEER

APPLICANT'S CERTIFICATE

I HEREBY CERTIFY THAT JOHN W. WEST WHO SUBSCRIBED THE STATEMENT HEREON IS THE PERSON EMPLOYED BY THE UNDERSIGNED APPLICANT TO PREPARE THIS PLAT, WHICH HAS BEEN ADOPTED BY THE APPLICANT AS THE APPROXIMATE FINAL LOCATION OF THE WORKS THEREBY SHOWN; AND THAT THIS PLAT IS FILED AS PART OF THE COMPLETE APPLICATION, AND IN ORDER THAT THE APPLICANT MAY OBTAIN THE BENEFITS OF F.L.P. & M. ACT OF OCT. 21, 1976, AND I FURTHER CERTIFY THAT THE RIGHT-OF-WAY HEREIN DESCRIBE IS DESIRED FOR PLANT SITE.

APPLICANT'S SIGNATURE

TITLE

CHAMPION CHEMICALS, INC.

A 5.00 ACRE TRACT OF LAND FOR A PLANT SITE IN TH SE 1/4 OF SEC. 3, T22S, R27E, N.M.P.M., EDDY COUNTY, NEW MEXICO.

DATE JUNE 24, 1978

DRAWN BY chb

SCALE AS SHOWN

SHEET 1 OF 1 SHEETS

Plat #7

WATER ANALYSIS REPORT



**Champion
Chemicals, Inc.**

38

BOX 4513
ODESSA, TEXAS 79760

SERVICE LABORATORY: Odessa, Texas Phone (915) 362-2353 & 563-0863
RESEARCH LABORATORY: Houston, Texas Phone (713) 431-2561
PLANT: Odessa, Texas Phone (915) 362-2353 & 563-0863

| | | | |
|------------------|---|-----------------------|--------------------|
| REPORT FOR | New Mexico Oil & Gas Commission Raymond Brooks | DATE SAMPLED | 10-28-81 |
| CC | | DATE REPORTED | 11-4-81 |
| cc | Hitchel, Murphy | FIELD, LEASE, OR WELL | |
| cc | Carlsbad, New Mexico | COUNTY | Eddy STATE NEW MEX |
| COMPANY | Champion Brine Station | FORMATION | SALADO |
| ADDRESS | Well Tracy #3 | DEPTH | 1050 TO 1225 |
| SERVICE ENGINEER | | SUBMITTED BY | Albert Means |

CHEMICAL ANALYSIS (AS PARTS PER MILLION)

| Chemical Component | Field, Lease, or Well | | | | |
|--------------------------------------|-----------------------|-------------------------|--|--|--|
| | | $\times 1.65 = 262,300$ | | | |
| Chloride (Cl) | 153.000 | 159.000 | | | |
| Iron (Fe) | | | | | |
| Total Hardness (Ca CO ₃) | 800 | 900 | | | |
| Calcium (Ca) | 240 | 280 | | | |
| Magnesium (Mg) | 49 | 49 | | | |
| Bicarbonate (HCO ₃) | 122 | 122 | | | |
| Carbonate (CO ₃) | 0 | 0 | | | |
| Sulfate (SO ₄) | 3950 | 4150 | | | |
| Hydrogen Sulfide (H ₂ S) | neg. | neg. | | | |
| Specific Gravity | 1.175 | 1.175 | | | |
| Density, lb./gal. | | | | | |
| pH - Beckman [] Strip [] | 6.15 | 5.95 | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

OTHER DESCRIPTION, REMARKS AND RECOMMENDATIONS

REPORTED BY

[Signature]

TITLE

[Signature]



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
ARTESIA DISTRICT OFFICE

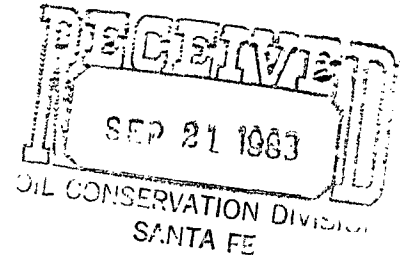
October 10, 1982

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

P.O. DRAWER DD
ARTESIA, NEW MEXICO 88210
(505) 748-1283

Unichem International
P. O. Box 217
Carlsbad, New Mexico 88220



Re: Tracy
#3-M-3-22-27
Brine Source

Gentlemen:

Please find enclosed Request for Discharge Plans for the Tracy well #3-M-3-22-27. This plan was mailed by our Santa Fe office to the last owner shown on this well.

Please file with our office in Artesia a change in ownership on this well. The discharge plan is to be sent to our Santa Fe office.

Very truly yours,

Leslie A. Clements
District Supervisor

LAC:fc

Enclosures

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED James Earl Ray TITLE 1st DATE 1-15-79

APPROVED BY W.A. Gressett TITLE SUPERVISOR, DISTRICT II DATE JAN 15 1979

CONDITIONS OF APPROVAL, IF ANY:

| | |
|--------------|---|
| DISTRIBUTION | 5 |
| SANTA FE | 1 |
| FILE | 1 |
| U.S.G.S. | 2 |
| LAND OFFICE | 1 |
| OPERATOR | 1 |

NEW MEXICO OIL CONSERVATION COMMISSION

NOV 28 1978

O. C. C.
ARTESIA, OFFICE

Form C-103
Supersedes Old
C-102 and C-103
Effective 1-1-65

5a. Indicate Type of Lease
State ☒ Fee ☒
5. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

DO NOT USE THIS FORM FOR PROPOSALS TO DRILL ON THE LEASE OR FIELD BACK TO A DIFFERENT RESERVOIR.
(SEE APPLICATION FOR PERMIT TO DRILL C-101, FOR SUCH PROPOSALS.)

OIL WELL ☐ GAS WELL ☐ OTHER- Re-entry (Brine Source Well)

1. Name of Operator
Hardin Houston Inc. ✓

2. Address of Operator
Box 4188 Odessa, Texas 79760

3. Location of Well
UNIT LETTER X 560 FEET FROM THE South LINE AND 610 FEET FROM

THE West LINE, SECTION 3 TOWNSHIP 22S RANGE 27E NMPM.

15. Elevation (Show whether DF, RT, GR, etc.)

3102' RKB

12. County

Eddy

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data
NOTICE OF INTENTION TO: SUBSEQUENT REPORT OF:

PERFORM REMEDIAL WORK ☐

PLUG AND ABANDON ☐

REMEDIAL WORK ☐

ALTERING CASING ☐

TEMPORARILY ABANDON ☐

COMMENCE DRILLING OPNS. ☐

PLUG AND ABANDONMENT ☐

PULL OR ALTER CASING ☐

CHANGE PLANS ☐

CASING TEST AND CEMENT JOBS ☐

OTHER Request for Extention

K

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1402.

A Thirty day extention is being requested on the proposal to re-enter this old P&A well and drill to TD of 1300'. The Surface Lease approval has just now been received from the Bureau of Land Management.

APPROVAL VALID
FOR 30 DAYS UNLESS
DRILLING COMMENCED,

EXPIRES 12-30-78

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED Raymond Brook

TITLE

DATE

11-28-78

APPROVED BY W. A. Gressett

TITLE

SUPERVISOR, DISTRICT II

DATE

NOV 30 1978

19. COPIES OF APPROVAL, IF ANY:

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
ARTESIA DISTRICT OFFICE

JERRY APODACA
GOVERNOR

NICK FRANKLIN
SECRETARY

P.O. DRAWER DD
ARTESIA, NEW MEXICO 68210
(505) 746-4861

November 28, 1978

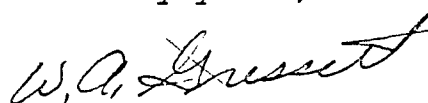
Hardin-Houston, Inc.
Box 4188
Odessa, Texas 79760

Re: Tracy
#3-M-3-22-27
Eddy County, N.M.

Gentlemen:

Ninety days have elapsed since approval of Commission Form C-101, Application For Permit To Drill, for the subject well and to date no progress reports, Forms C-103, have been received. Therefore, Commission approval of Form C-101 has now expired and no drilling operations are to be initiated or continued without further notice to and approval by the Commission. Pending such approval, this will be considered an abandoned location.

Sincerely yours,



W. A. Gressett
Supervisor, District II

WAG:ro

Xc/ Santa Fe, OCD

| | |
|--------------|---|
| DISTRIBUTION | 5 |
| SANTA FE | 1 |
| FILE | 1 |
| U.S.G.S. | 2 |
| LAND OFFICE | |
| OPERATOR | 1 |

NEW MEXICO OIL CONSERVATION COMMISSION

AUG 24 1978

O. C. C.
ARTESIA, OFFICE

30-015-20326
Form C-101
Revised 1-1-65

5A. Indicate Type of Lease
STATE ☒ FEE ☒
5. State Oil & Gas Lease No.

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

| | | |
|--|---|--|
| 1a. Type of Work DRILL <input type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> | | 7. Unit Agreement Name |
| b. Type of Well OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER Re-entry SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/> | | 8. Farm or Lease Name Tracy |
| 2. Name of Operator Hardin Houston Inc. ✓ | | 9. Well No. 3 |
| 3. Address of Operator Box 4188, Odessa, Texas 79760 | | 10. Field and Pool, or Wildcat Brine Source |
| 4. Location of Well UNIT LETTER M LOCATED 560 FEET FROM THE S LINE AND 610 FEET FROM THE W LINE OF SEC. 3 TWP. 22S RGE. 27E NNMPM | | 12. County Eddy |
| 19. Proposed Depth 1300 | | 19A. Formation Salt |
| 20. Rotary or C.T. Plng. Unit | | |
| 21. Elevations (show whether DF, RT, etc.) 3102' RKB | 21A. Kind & Status Plug. Bond One Well | 21B. Drilling Contractor Wilson Well Serv. |
| 22. Approx. Date Work will start On Approval | | |

| 23. PROPOSED CASING AND CEMENT PROGRAM | | | | | |
|--|----------------|-----------------|---------------|-----------------|----------|
| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | SACKS OF CEMENT | EST. TOP |
| 11" | 8 5/8" | 24# | 551' | 200 | |
| 8 3/4" | 5 1/2" | 14# | 1050' | 300 | circ. |

It is proposed to re-enter old P&A well and drill to TD of 1300'. Will set approximately 1050' of 5½" casing with packer shoe and circulate to surface. To be completed as a brine source well.

Well is former Union Oil Co. of Calif., OTD @ 3470', P&A 9-26-70.

APPROVAL VALID
FOR 90 DAYS UNLESS
DRILLING COMMENCED,

EXPIRES 11-28-78

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM; IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signed [Signature] Title Local Rep. Date 8-12-78
(This space for State Use)

APPROVED BY W. A. Gressett TITLE SUPERVISOR, DISTRICT II DATE AUG 28 1978

CONDITIONS OF APPROVAL, IF ANY:

| | |
|------------------------|---|
| NO. OF COPIES RECEIVED | |
| DISTRIBUTION | |
| SANTA FE | / |
| FILE | / |
| U.S.G.S. | |
| LAND OFFICE | |
| OPERATOR | / |

RECEIVED

NEW MEXICO OIL CONSERVATION COMMISSION
SEP 30 1970

O. C. C.
ARTESIA, OFFICE

Form C-103
Supersedes Old
C-102 and C-103
Effective 1-1-65

| |
|--|
| 5a. Indicate Type of Lease |
| State <input type="checkbox"/> Fee <input checked="" type="checkbox"/> |
| 5. State Oil & Gas Lease No. |

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR.
USE "APPLICATION FOR PERMIT -" (FORM C-101) FOR SUCH PROPOSALS.)

| | |
|--|--|
| 1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> | 7. Unit Agreement Name |
| 2. Name of Operator Union Oil Company of California | 8. Farm or Lease Name Tracy |
| 3. Address of Operator P. O. Box 671 Midland, Texas 79701 | 9. Well No. 3 |
| 4. Location of Well UNIT LETTER M, 560 FEET FROM THE South LINE AND 610 FEET FROM THE West LINE, SECTION 3 TOWNSHIP 22-S RANGE 27-E NMPM. | 10. Field and Pool, or Wildcat Undesignated |
| 15. Elevation (Show whether DF, RT, GR, etc.) Unknown | 12. County Eddy |

16.

Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

PERFORM REMEDIAL WORK ☐
TEMPORARILY ABANDON ☐
PULL OR ALTER CASING ☐
OTHER ☐

PLUG AND ABANDON ☐
CHANGE PLANS ☐
OTHER ☐

REMEDIATION WORK ☐
COMMENCE DRILLING OPNS. ☐
CASING TEST AND CEMENT JOB ☐
OTHER ☐
ALTERING CASING ☐
PLUG AND ABANDONMENT ☒

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

Cement Plugs as follows:

Plug #1 3370-3470' 35 SX.
#2 3250-3350' 35 SX.
#3 1850-1950' 35 SX.
#4 1300-1400' 35 SX.
#5 440- 560' 40 SX.
#6 0- 60' 20 SX.

Welded plate on casing & installed abandonment marker.

Well plugged & abandoned 9-26-70.

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED J. R. Gray J. R. Gray TITLE District Drilling Supt. DATE September 29, 1970

APPROVED BY [Signature] TITLE OIL AND GAS INSPECTOR

DATE DEC 14 1970

CONDITIONS OF APPROVAL, IF ANY:

| | |
|------------------------|---|
| NO. OF COPIES RECEIVED | 3 |
| DISTRIBUTION | |
| SANTA FE | 1 |
| FILE | 1 |
| U.S.G.S. | 2 |
| LAND OFFICE | |
| OPERATOR | |

Form C-105
Revised 1-1-65

RECEIVED
NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG
OCT 9 1970

| | |
|--------------------------------|---|
| 5a. Indicate Type of Lease | |
| State <input type="checkbox"/> | Fee <input checked="" type="checkbox"/> |
| 5. State Oil & Gas Lease No. | |

| | | | |
|--|------------------------------------|---|------------------------------------|
| 1a. TYPE OF WELL | | ARTESIA, OFFICE | |
| OIL WELL <input checked="" type="checkbox"/> | GAS WELL <input type="checkbox"/> | DRY <input checked="" type="checkbox"/> | OTHER <input type="checkbox"/> |
| 1b. TYPE OF COMPLETION | | | |
| NEW WELL <input type="checkbox"/> | WORK OVER <input type="checkbox"/> | DEEPEN <input type="checkbox"/> | PLUG BACK <input type="checkbox"/> |
| DIFF. RESVR. <input type="checkbox"/> OTHER <input type="checkbox"/> | | | |
| 2. Name of Operator | | | |
| UNION OIL COMPANY OF CALIFORNIA | | | |
| 3. Address of Operator | | | |
| P. O. Box 671 Midland, Texas 79701 | | | |
| 4. Location of Well | | | |

| |
|--------------------------------|
| 7. Unit Agreement Name |
| 8. Farm or Lease Name |
| Tracy |
| 9. Well No. |
| 3 |
| 10. Field and Pool, or Wildcat |
| Esperanza Delaware |

| | | | | | | | | |
|-------------|------|--------------|-----|---------------|-------|----------|------|-----------|
| UNIT LETTER | M | LOCATED | 560 | FEET FROM THE | South | LINE AND | 610 | FEET FROM |
| THE | West | LINE OF SEC. | 3 | TWP. | 22-S | RGE. | 27-E | NMPM |

| |
|------------|
| 12. County |
| Eddy |

| | | | | |
|------------------|-----------------------|----------------------------------|--|----------------------|
| 15. Date Drilled | 16. Date T.D. Reached | 17. Date Compl. (Ready to Prod.) | 18. Elevations (DF, RKB, RT, GR, etc.) | 19. Elev. Casinghead |
| 9-14-70 | 9-23-70 | | 3102 RKB | |
| 20. Total Depth | 21. Plug Back T.D. | 22. If Multiple Compl., How Many | 23. Intervals Drilled By | Rotary Tools |
| 3470' | | | | Cable Tools |

| | |
|---|---------------------------------|
| 24. Producing Interval(s), of this completion - Top, Bottom, Name | 25. Was Directional Survey Made |
| None | No |

| | |
|--------------------------------------|--------------------|
| 26. Type Electric and Other Logs Run | 27. Was Well Cored |
| Gamma Ray Sonic, Induction Log | No |

| 29. CASING RECORD (Report all strings set in well) | | | | | |
|--|----------------|-----------|-----------|------------------|---------------|
| CASING SIZE | WEIGHT LB./FT. | DEPTH SET | HOLE SIZE | CEMENTING RECORD | AMOUNT PULLED |
| 8-5/8" | 24 | 551' | 11" | 200 | None |
| | | | | | |
| | | | | | |

| 29. LINER RECORD | | | | | 30. TUBING RECORD | | |
|------------------|-----|--------|--------------|--------|-------------------|-----------|------------|
| SIZE | TOP | BOTTOM | SACKS CEMENT | SCREEN | SIZE | DEPTH SET | PACKER SET |
| | | | | | | | |
| | | | | | | | |

| | | |
|--|--|-------------------------------|
| 31. Perforation Record (Interval, size and number) | 32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC. | |
| | DEPTH INTERVAL | AMOUNT AND KIND MATERIAL USED |
| | | |
| | | |
| | | |

| 33. PRODUCTION | | | | | | | |
|-----------------------|-----------------|---|-------------------------|------------|--------------|--------------------------------|-----------------|
| Date First Production | | Production Method (Flowing, gas lift, pumping - Size and type pump) | | | | Well Status (Prod. or Shut-in) | |
| | | | | | | P.&A. | |
| Date of Test | Hours Tested | Choke Size | Prod'n. For Test Period | Oil - Bbl. | Gas - MCF | Water - Bbl. | Gas - Oil Ratio |
| | | | | | | | |
| Flow Tubing Press. | Casing Pressure | Calculated 24-Hour Rate | Oil - Bbl. | Gas - MCF | Water - Bbl. | Oil Gravity - API (Corr.) | |
| | | | | | | | |

| | |
|--|-------------------|
| 34. Disposition of Gas (Sold, used for fuel, vented, etc.) | Test Witnessed By |
| | |

| |
|---|
| 35. List of Attachments |
| Gamma Ray Sonic, Induction Log, Deviation Test, Drill Stem Test |

| | | |
|---|------------|-------------------------------|
| 36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief. | | |
| SIGNED | J. R. Gray | TITLE District Drilling Supt. |
| | | DATE 10-5-70 |

2

This form is to be filed with the appropriate District Office of the Commission not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, Items 30 through 34 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico

Northwestern New Mexico

| | | | | |
|--------------------------|--------|------------------------|-----------------------------|------------------------|
| T. Anhy _____ | 270' | T. Canyon _____ | T. Ojo Alamo _____ | T. Penn. "B" _____ |
| T. Salt _____ | 625' | T. Strawn _____ | T. Kirtland-Fruitland _____ | T. Penn. "C" _____ |
| B. Salt _____ | 1,285' | T. Atoka _____ | T. Pictured Cliffs _____ | T. Penn. "D" _____ |
| T. Yates _____ | | T. Miss _____ | T. Cliff House _____ | T. Leadville _____ |
| T. 7 Rivers _____ | | T. Devonian _____ | T. Menefee _____ | T. Madison _____ |
| T. Queen _____ | | T. Silurian _____ | T. Point Lookout _____ | T. Eibert _____ |
| T. Grayburg _____ | | T. Montoya _____ | T. Mancos _____ | T. McCracken _____ |
| T. San Andres _____ | | T. Simpson _____ | T. Gallup _____ | T. Ignacio Qtzte _____ |
| T. Glorieta _____ | | T. McKee _____ | Base Greenhorn _____ | T. Granite _____ |
| T. Paddock _____ | | T. Ellenburger _____ | T. Dakota _____ | T. _____ |
| T. Blinebry _____ | | T. Gr. Wash _____ | T. Morrison _____ | T. _____ |
| T. Tubb _____ | | T. Granite _____ | T. Todilto _____ | T. _____ |
| T. Drinkard _____ | | T. Delaware Sand _____ | 1,995' | T. Entrada _____ |
| T. Abo _____ | | T. Bone Springs _____ | | T. Wingate _____ |
| T. Wolfcamp _____ | | T. _____ | | T. Chinle _____ |
| T. Penn. _____ | | T. _____ | | T. Permian _____ |
| T. Cisco (Bough C) _____ | | T. _____ | | T. Penn. "A" _____ |

FORMATION RECORD (Attach additional sheets if necessary)

| From | To | Thickness in Feet | Formation | From | To | Thickness in Feet | Formation |
|-------|-------|----------------------|--------------------|------|----|----------------------|-----------|
| 0 | 160 | 160 | Lime & Sand | | | | |
| 160 | 270 | 110 | Red Beds | | | | |
| 270 | 625 | 355 | Anhydrite | | | | |
| 625 | 650 | 25 | Salt | | | | |
| 650 | 1,060 | 410 | Anhydrite | | | | |
| 1,060 | 1,285 | 225 | Salt | | | | |
| 1,285 | 1,995 | 710 | Banded Anhydrite | | | | |
| 1,995 | 2,730 | 735 | Sand, Shale & Lime | | | | |
| 2,730 | 2,840 | 110 | Lime | | | | |
| 2,840 | 3,470 | 630 | Sand, Shale & Lime | | | | |

RECEIVED

OCT 9 1970

DEVIATION TEST DETAIL

OPERATOR: Union Oil Company of California ✓

LEASE: Tracy

WELL NO: 3

FIELD AND POOL: Undesignated

O. C. C. .
ARTESIA, OFFICE
LOCATION: Unit Letter M 560'
from the South line
and 610' from the West
line of Section 3, Township
22-S, Range 27-E, Eddy
County, New Mexico.

| <u>FOOTAGE DEPTH</u> | <u>DEGREE</u> |
|----------------------|---------------|
| 276 | 1/2 |
| 555 | 1 |
| 932 | 1-1/4 |
| 1385 | 1-1/2 |
| 1890 | 1-1/2 |
| 2229 | 1-1/2 |
| 2810 | 1-1/2 |
| 3380 | 1-1/2 |
| 3470 | 1-1/2 |

A F F I D A V I T

Before me, the undersigned authority, personally appeared J. R. Gray, known to me to be the person whose name is subscribed hereto, whom after being duly sworn, on oath states; that he is authorized to make this detail of deviation which he states was taken from actual slope test during the course of drilling the above mentioned well, and that the detail of deviation is true and correct.

J. R. Gray - District Drilling Supt.
Signature and Title of Affiant

SWORN AND SUBSCRIBED TO BEFORE ME, this the 28 day of September, 1970.

Notary in and for the County of Midland, State of Texas.

FLUID SAMPLER DATA

Sampler Pressure _____ P.S.I.G. at Surface
 Recovery: Cu. Ft. Gas _____
 cc. Oil _____
 cc. Water 2500 cc
 cc. Mud _____
 Tet. Liquid cc. 2500 cc

Gravity _____ ° API @ _____ ° F.
 Gas/Oil Ratio _____ cu. ft./bbl.

RESISTIVITY _____ CHLORIDE
 CONTENT _____

Recovery Water _____ @ _____ ° F. _____ ppm
 Recovery Mud _____ @ _____ ° F. _____ ppm
 Recovery Mud Filtrate _____ @ _____ ° F. _____ ppm
 Mud Pit Sample _____ @ _____ ° F. _____ ppm
 Mud Pit Sample Filtrate _____ @ _____ ° F. _____ ppm
 Mud Weight 10 vis 85 cp

Date 9-25-70 Ticket Number 286996
 Kind of Job OPEN HOLE Halliburton District LOVINGTON
 STRADDLE
 Tester MR. THURMAN Witness MR. PIE
 Drilling Contractor NYN DRILLING COMPANY IC S

EQUIPMENT & HOLE DATA

Formation Tested Delaware
 Elevation _____ Ft.
 Net Productive Interval 5' _____ Ft.
 All Depths Measured From Kelly Bushing
 Total Depth 3476' _____ Ft.
 Main Hole/Casing Size 7 7/8"
 Drill Collar Length 555' I.D. 2.50"
 Drill Pipe Length 2809' I.D. 3.826"
 Packer Depth(s) 3340' - 3390' _____ Ft.
 Depth Tester Valve 3310' _____ Ft.

TYPE AMOUNT Depth Back Surface Bottom
 Cushion - Ft. Pres. Valve - Choke 1" ADJ. Choke 5/8"

Recovered 58 Feet of Muddy water

Recovered 32 Feet of Water cut mud

Recovered _____ Feet of _____

Recovered _____ Feet of _____

Recovered _____ Feet of _____

RECEIVED

OCT 9 1970

B. C. C.
 ARTESIA, OFFICE

Remarks Opened tool for 21 minute first flow with a light blow throughout flow. Closed tool for 61 minute initial closed in pressure. Reopened tool for 59 minute second flow period with a very light blow. Closed tool for 120 minute second closed in pressure.

| TEMPERATURE | Gauge No. 35 | Gauge No. 1636 | Gauge No. 255 | TIME |
|---------------------|------------------|------------------|------------------|------------------|
| | Depth: 3315' Ft. | Depth: 3370' Ft. | Depth: 3471' Ft. | |
| Est. 100 ° F. | 12 Hour Clock | 24 Hour Clock | 24 Hour Clock | Tool A.M. |
| | Blanked Off NO | Blanked Off YES | Blanked Off YES | Opened 3:47 XPM |
| Actual ° F. | Pressures | Pressures | Pressures | Tool A.M. |
| | Field Office | Field Office | Field Office | Closed 6:08 XPM |
| Initial Hydrostatic | 1773 1734 | 1213 1771 | 1808 1807 | Reported Minutes |
| Flow Initial | 21 15 | 69 62 | | Computed Minutes |
| Flow Final | 42 28 | 69 67 | HYDROSTATIC | 20 21 |
| Closed in | 1542 1555 | 1190 1590 | RELEASE | 61 61 |
| Flow Initial | 42 32 | 69 72 | 1812 | |
| Flow Final | 63 67 | 92 101 | | 60 59 |
| Closed in | 1542 1562 | 1190 1595 | | 120 120 |
| Flow Initial | | | | |
| Flow Final | | | | |
| Closed in | | | | |
| Final Hydrostatic | 1733 1727 | 1211 1764 | 1808 1802 | |

FORMATION TEST DATA

LITTLE 5 83429 154 4/60-33, 34-13

Legal Location

Locate Name

3 - 22S - 27E

Well No.

Field Area

E. CARLSBAD

Test Interval

County EDDY

State

NEW MEXICO

Lessor Owner/Company Name

| Gauge No. 35 | | Depth 3315' | | Clock No. 6112 | | 12 hour | | Ticket No. 286996 | |
|-------------------|------------------|--------------------------|---|--------------------|------------------|---|------------------|-------------------|---|
| First Flow Period | | First Closed In Pressure | | Second Flow Period | | Second Closed In Pressure | | Third Flow Period | |
| Time Defl. .000" | PSIG Temp. Corr. | Time Defl. .000" | $\text{Log } \frac{t + \theta}{\theta}$ | PSIG Temp. Corr. | Time Defl. .000" | $\text{Log } \frac{t + \theta}{\theta}$ | PSIG Temp. Corr. | Time Defl. .000" | $\text{Log } \frac{t + \theta}{\theta}$ |
| 0 .000 | 15 | .000 | | .000 | 32 | .000 | 67 | | |
| 1 .0473 | 18 | .0401 | | .0683 | 39 | .082 | 1295 | | |
| 2 .0946 | 23 | .0802 | | .1366 | 45 | .164 | 1399 | | |
| 3 .1420 | 28 | .1203 | | .2049 | 51 | .246 | 1450 | | |
| 4 | | .1604 | | .2732 | 56 | .328 | 1482 | | |
| 5 | | .2005 | | .3415 | 63 | .410 | 1505 | | |
| 6 | | .2406 | | .4030 | 67** | .492 | 1522 | | |
| 7 | | .2807 | | | | .574 | 1535 | | |
| 8 | | (.308 | | | | .656 | 1546 | | |
| 9 | | .3208 | UTR | | | .738 | 1554 | | |
| 10 | | .3609 | UTR | | | .820 | 1562 | | |
| 11 | | .4070 | UTR* | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |

| Gauge No. 1636 | | Depth 3370' | | Clock No. 6728 | | 24 hour | |
|--------------------|------------------|--------------------------|---|--------------------|------------------|---|------------------|
| First Flow Period | | First Closed In Pressure | | Second Flow Period | | Second Closed In Pressure | |
| Time Defl. .000" | PSIG Temp. Corr. | Time Defl. .000" | $\text{Log } \frac{t + \theta}{\theta}$ | PSIG Temp. Corr. | Time Defl. .000" | $\text{Log } \frac{t + \theta}{\theta}$ | PSIG Temp. Corr. |
| 0 .000 | 62 | .000 | | .000 | 72 | .000 | 101 |
| 1 .0233 | 59 | .0201 | | .0337 | 76 | .0406 | 1328 |
| 2 .0466 | 63 | .0402 | | .0675 | 80 | .0812 | 1427 |
| 3 .0700 | 67 | .0603 | | .1012 | 86 | .1218 | 1477 |
| 4 | | .0804 | | .1349 | 92 | .1624 | 1514 |
| 5 | | .1005 | | .1686 | 98 | .2030 | 1538 |
| 6 | | .1206 | | .1990 | 101** | .2436 | 1554 |
| 7 | | .1407 | | | | .2842 | 1568 |
| 8 | | (.152 | | | | .3248 | 1579 |
| 9 | | .1608 | UTR | | | .3654 | 1587 |
| 10 | | .1809 | UTR | | | .4060 | 1595 |
| 11 | | .2040 | UTR * | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| Working Interval 7 | | 6 | | 10 | | 12 | |

REMARKS: *Last interval equal to 7 minutes **Last interval equal to 9 minutes UTR=Unable to read. Tool bypassed after 46 minutes of initial closed in pressure.

| | O. D. | I. D. | LENGTH | DEPTH |
|-------------------------------|--------|--------|--------|-------|
| Reversing Sub | 6.12" | 2.75" | 1' | |
| Water Cushion Valve | | | | |
| Drill Pipe | 4 1/2" | 3.826" | 2809' | |
| Drill Collars | 6 1/2" | 2.50" | 555' | |
| Handling Sub & Choke Assembly | | | | |
| Dual CIP Valve | | | | |
| Dual CIP Sampler | | | | |
| Hydro-Spring Tester | 5" | .75" | 60.21" | 3310' |
| Multiple CIP Sampler | 5" | .87" | 54.19" | |
| Extension Joint | 5" | .87" | 54.94" | |
| AP Running Case | 5" | 3.06" | 49.63" | 3315' |
| Hydraulic Jar | 5" | 1.75" | 60" | |
| VR Safety Joint | 5" | 1.00" | 33.40" | |
| Pressure Equalizing Crossover | 5" | | | |
| Packer Assembly | | | | |
| Distributor | | | | |
| Packer Assembly | 6 3/4" | 1.75" | 72.33" | 3340' |
| Flush Joint Anchor | | | | |
| Pressure Equalizing Tube | | | | |
| Blanked-Off B.T. Running Case | 5" | 2.50" | 5' | 3370' |
| Drill Collars | | | | |
| Anchor Pipe Safety Joint | | | | |
| Packer Assembly | | | | |
| Packer Assembly | 6 3/4" | 1.75" | 72.33" | 3390' |
| Anchor Pipe Safety Joint | | | | |
| Side Wall Anchor | | | | |
| Drill Collars | | | | |
| Flush Joint Anchor | | | | |
| Blanked-Off B.T. Running Case | 5 3/4" | 4.75" | 5' | 3471' |

| | |
|------------------------|---|
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NEW MEXICO OIL CONSERVATION COMMISSION

SEP 29 1970

Form C-103
Supersedes Old
C-102 and C-103
Effective 1-1-65

5a. Indicate Type of Lease
State ☐ Fee ☒

5. State Oil & Gas Lease No.

O. C. C.
ARTESIA, OFFICE

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR.
USE "APPLICATION FOR PERMIT -" (FORM C-101) FOR SUCH PROPOSALS.)

| | |
|---|--|
| 1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> | 7. Unit Agreement Name |
| 2. Name of Operator Union Oil Company of California | 8. Farm or Lease Name Tracy |
| 3. Address of Operator P. O. Box 671 Midland, Texas 79701 | 9. Well No. 3 |
| 4. Location of Well UNIT LETTER M 560 FEET FROM THE South LINE AND 610 FEET FROM THE West LINE, SECTION 3 TOWNSHIP 22-S RANGE 27-E N.M.P.M. | 10. Field and Pool, or Wildcat Undesignated |
| 15. Elevation (Show whether DF, RT, GR, etc.) Unknown | 12. County Eddy |

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data
NOTICE OF INTENTION TO: SUBSEQUENT REPORT OF:

| | | | |
|--|--|--|---|
| PERFORM REMEDIAL WORK <input type="checkbox"/> | PLUG AND ABANDON <input checked="" type="checkbox"/> | REMEDIAL WORK <input type="checkbox"/> | ALTERING CASING <input type="checkbox"/> |
| TEMPORARILY ABANDON <input type="checkbox"/> | CHANGE PLANS <input type="checkbox"/> | COMMENCE DRILLING OPNS. <input type="checkbox"/> | PLUG AND ABANDONMENT <input type="checkbox"/> |
| PULL OR ALTER CASING <input type="checkbox"/> | OTHER <input type="checkbox"/> | CASING TEST AND CEMENT JOBS <input type="checkbox"/> | OTHER <input type="checkbox"/> |

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

9-25-70 Verbal approval obtained from Mr. W. A. Gressett on proposed plugging operations as follows:

35 sx T.D.
35 sx 3470-3370'
35 sx 3350-3250'
35 sx 1950-1850'
35 sx 1400-1300'
120' in & out of 8-5/8" casing at 560-440' 40 sx
20 sx surface

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED J. R. Gray TITLE District Drilling Supt. DATE 9-28-70

APPROVED BY W. A. Gressett TITLE CHIEF GAS INSPECTOR DATE SEP 29 1970

CONDITIONS OF APPROVAL, IF ANY:

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NEW MEXICO OIL CONSERVATION COMMISSION

SEP 23 1970

O. O. C.
ARTESIA, OFFICE

Form C-103
Supersedes Old
C-102 and C-103
Effective 1-1-65

| | |
|--------------------------------|---|
| 5a. Indicate Type of Lease | |
| State <input type="checkbox"/> | Fee <input checked="" type="checkbox"/> |
| 5. State Oil & Gas Lease No. | |

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR.
USE "APPLICATION FOR PERMIT -" (FORM C-101) FOR SUCH PROPOSALS.)

| | | | |
|---|--|--|--|
| 1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER- <input type="checkbox"/> | | 7. Unit Agreement Name | |
| 2. Name of Operator Union Oil Company of California ✓ | | 8. Farm or Lease Name Tracy | |
| 3. Address of Operator P. O. Box 671 Midland, Texas 79701 | | 9. Well No. 3 | |
| 4. Location of Well UNIT LETTER <u>M</u> <u>560</u> FEET FROM THE <u>South</u> LINE AND <u>610</u> FEET FROM THE <u>West</u> LINE, SECTION <u>3</u> TOWNSHIP <u>22-S</u> RANGE <u>27-E</u> N.M.P.M. | | 10. Field and Pool, or Wildcat Esperanza Delaware | |
| 15. Elevation (Show whether DF, RT, GR, etc.) Unknown | | 12. County Eddy | |

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

| | | | |
|-------------------------|--|-----------------------|--|
| NOTICE OF INTENTION TO: | | SUBSEQUENT REPORT OF: | |
|-------------------------|--|-----------------------|--|

| | | | |
|--|---|--|---|
| PERFORM REMEDIAL WORK <input type="checkbox"/> | PLUG AND ABANDON <input type="checkbox"/> | REMEDIAL WORK <input type="checkbox"/> | ALTERING CASING <input type="checkbox"/> |
| TEMPORARILY ABANDON <input type="checkbox"/> | CHANGE PLANS <input type="checkbox"/> | COMMENCE DRILLING OPNS. <input checked="" type="checkbox"/> | PLUG AND ABANDONMENT <input type="checkbox"/> |
| PULL OR ALTER CASING <input type="checkbox"/> | OTHER <input type="checkbox"/> | CASING TEST AND CEMENT JOB <input checked="" type="checkbox"/> | OTHER <input type="checkbox"/> |

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

Nunn Drilling Co. spudded 11" hole at 11:15 P.M., September 14, 1970 and drilled to 540'.

Ran and cemented 8-5/8", 24#, J-55 casing at 551' with 200 sacks. Cement circulated to surface. WOC 18 hours. Tested casing to 600 psi for 30 minutes. OK.

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED G. W. Coombes TITLE District Operations Manager DATE September 21, 1970

APPROVED BY W. A. Gressett TITLE OIL AND GAS INSPECTOR DATE SEP 23 1970

CONDITIONS OF APPROVAL, IF ANY:

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NEW MEXICO OIL CONSERVATION COMMISSION
RECEIVED

SEP 10 1970

30-015-20331

Form C-101
Revised 1-1-65

| | |
|--------------------------------|---|
| 5A. Indicate Type of Lease | |
| STATE <input type="checkbox"/> | FEE <input checked="" type="checkbox"/> |
| 5. State Oil & Gas Lease No. | |

O. C. C.

APPLICATION FOR PERMIT TO DRILL, DEEPEN OR PLUG BACK

| | | | | | |
|---|--|---|--|--|-------------------------------------|
| 1a. Type of Work | | | 7. Unit Agreement Name | | |
| b. Type of Well DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/> | | | 8. Farm or Lease Name Tracy | | |
| 2. Name of Operator Union Oil Company of California | | | 9. Well No. 3 | | |
| 3. Address of Operator P. O. Box 671 Midland, Texas 79701 | | | 10. Field and Pool, or Wildcat Undesignated | | |
| 4. Location of Well UNIT LETTER M LOCATED 560 FEET FROM THE South LINE AND 610 FEET FROM THE West LINE OF SEC. 3 TWP. 22-S RGE. 27-E NMPM | | | 12. County Eddy | | |
| 19. Proposed Depth 3550 | | | 19A. Formation Delaware | | 20. Rotary or C.T. Rotary |
| 21. Elevations (Show whether DF, RT, etc.) Unknown | | 21A. Kind & Status Plug. Bond Blanket | | 21B. Drilling Contractor Contract not let. | |
| | | | 21. Approx. Date Work will start On approval | | |

23. PROPOSED CASING AND CEMENT PROGRAM

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | SACKS OF CEMENT | EST. TOP |
|--------------|----------------|-----------------|---------------|-----------------|------------------|
| 11" | 8-5/8" | 24# | 550' | 200 | Circ. to surface |
| 7-7/8" | 4-1/2" | 9.5# | 3550' | 300 | 2650' |

3000 psi double manual preventers

APPROVAL VALID
FOR 90 DAYS UNLESS
DRILLING COMMENCED,
EXPIRES 12-10-70

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signed J. R. Gray Title District Drilling Supt. Date September 8, 1970

(This space for State Use)

APPROVED BY W. A. Grossett TITLE OIL AND GAS INSPECTOR

DATE SEP 10 1970

CONDITIONS OF APPROVAL, IF ANY:

If the operator has encountered contact this
operator is to running the 4 1/2" casing

Cement must be circulated to
surface behind 8 3/8" casing

MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form No. 1
 Supersedes Form No. 1
 1-6-69

All distances must be from the outer boundaries of the Section

| | | | | | |
|---|--|-----------------------------|--|-----------------------|-----------------------------|
| Lessor UNION OIL CO. OF CALIFORNIA | | | Lease T RACY | | Acres 3 |
| Map Letter M | Section 3 | Township 22 SOUTH | Range 27 EAST | County EDDY | |
| Actual Portage Location of Wells: 560 feet from the SOUTH line and 610 feet from the WEST line | | | | | |
| Ground Level Elev. Unknown | Producing Formation Delaware | | Producing Formation Undesignated | | Section Number 40 |

- 1 Outline the acreage dedicated to the subject well by colored pencil or hardware marks on the plat below.
- 2 If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
- 3 If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

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☐ Yes ☐ No If answer is "yes," type of consolidation SEP 10 1970

If answer is "no," list the owners and tract descriptions which have actually been consolidated (if so reverse side of this form if necessary.) D. C. C.

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

CERTIFICATION

I hereby certify that the information furnished herein is true and complete to the best of my knowledge and belief.

J. R. Gray

J. R. Gray

District Drilling Supt.

Union Oil Company of California

September 8, 1970

I hereby certify that the well location shown on this plat was plotted from field notes of oil field surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

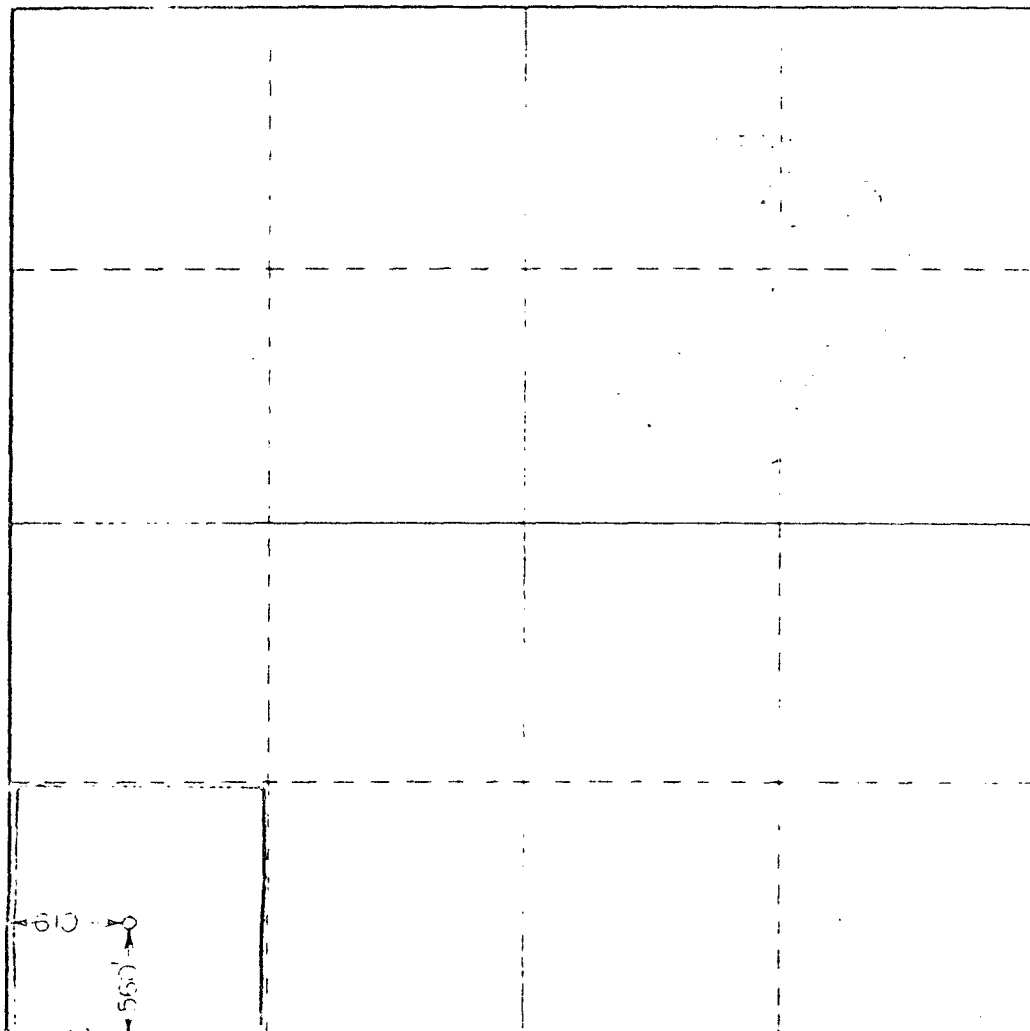
DATE

AUGUST 9, 1969

Registered Professional Engineer
 and Oil Field Surveyor

John W. West

676



Union Oil and Gas Division: Central Region

Union Oil Company of California
500 North Marienfeld, Midland, Texas 79701
Telephone (915) 682-9731

RECEIVED

UNION

SEP 10 1970

Midland District

September 8, 1970

C. C. C.
ARTESIA, OFFICE

State of New Mexico
Oil Conservation Commission
P. O. Drawer DD
Artesia, New Mexico 88210

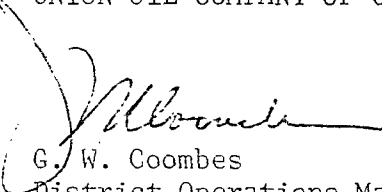
Gentlemen:

We are enclosing five copies of Form C-101 and three copies of Form C-102 requesting a permit to drill our Tracy Well No. 3, Undesignated Pool, Eddy County, New Mexico.

Forms C-101 and C-102 have previously been submitted and location for the drilling of this well was approved on August 17, 1970. The original drillsite location had to be moved 100' South and 50' West in order to be sufficient distance from farm equipment buildings erected on the surface. As per phone conversation to Mr. Gressett from our Mr. John Gray, the enclosed new Forms C-101 and C-102 are being submitted for approval.

Yours very truly,

UNION OIL COMPANY OF CALIFORNIA


G. W. Coombes
District Operations Manager

GWC:LKC/sl
Enclosures

| | |
|------------------------|---|
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| FILE | 1 |
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| OPERATOR | 1 |

NEW MEXICO OIL CONSERVATION COMMISSION

AUG 17 1970

O. C. C.
ARTESIA, OFFICE

30-015-203.26

Form C-101
Revised 1-4-65

| |
|--|
| 5A. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/> |
| 5. State Oil & Gas Lease No. |
| 7. Unit Agreement Name |
| 8. Farm or Lease Name Tracy |
| 9. Well No. 3 |
| 10. Field and Pool, or Wildcat Esperanza Delaware |
| 12. County Eddy |
| 19. Proposed Depth 3550 |
| 19A. Formation Delaware |
| 20. Rotary or C.T. Rotary |
| 21. Elevations (Show whether DF, RT, etc.) Unknown |
| 21A. Kind & Status Plug. Bond Blanket |
| 21B. Drilling Contractor Contract not let. |
| 22. Approx. Date Work will start On approval |

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

| | | | |
|---|--|--|---|
| 1a. Type of Work b. Type of Well DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/> | 2. Name of Operator Union Oil Company of California | 3. Address of Operator P. O. Box 671 - Midland, Texas 79701 | 4. Location of Well UNIT LETTER E-1 LOCATED 660 FEET FROM THE South LINE AND 660 FEET FROM THE West LINE OF SEC. 3 TWP-22-S RGE-27-E NMPM |
| 23. PROPOSED CASING AND CEMENT PROGRAM | | | |

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | SACKS OF CEMENT | EST. TOP |
|--------------|----------------|-----------------|---------------|-----------------|------------------|
| 11" | 8-5/8" | 24# | 550' | 200 | Circ. to surface |
| 7-7/8" | 4 1/2" | 9.5# | 3550' | 300 | 2650' |

3000 psi double manual preventers

APPROVAL VALID
FOR 90 DAYS UNLESS
DRILLING COMMENCED,
EXPIRES 11-17-70

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signed J. R. Grey Title District Drilling Supt. Date August 12, 1970

(This space for State Use)

APPROVED BY W. A. Gressett TITLE OIL AND GAS INSPECTOR DATE AUG 17 1970

CONDITIONS OF APPROVAL, IF ANY:

Blowout preventer is encountered contact this office prior to running the 4 1/2" casing.

Cement must be circulated to surface behind 8 3/8" casing

**NEW MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT**

Form C-102
Supersedes C-128
Effective 1-4-65

All distances must be from the outer boundaries of the Section.

| | | | | | |
|--|--|-----------------------------|-----------------------------------|-----------------------|---------------------------------------|
| Operator UNION OIL COMPANY OF CALIFORNIA | | | Lease TRACY | | Well No. 3 |
| Unit Letter M | Section 3 | Township 22 SOUTH | Range 27 EAST | County EDDY | |
| Actual Footage Location of Well: 660 feet from the SOUTH line and 660 feet from the WEST line | | | | | |
| Ground Level Elev. Unknown | Producing Formation Delaware | | Pool Esperanza Delaware | | Dedicated Acreage: 40 Acres |

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

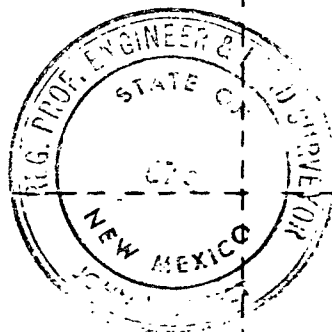
If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

RECEIVED

AUG 17 1970

**O. C. C.
ARTESIA, OFFICE**



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

J. R. Gray
Name

J. R. Gray
Position

District Drilling Supt.
Company

Union Oil Co. of California
Date

August 12, 1970

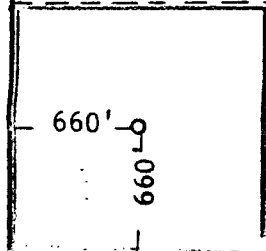
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed
8-9-1969

Registered Professional Engineer
and/or Land Surveyor

John W. West
Certificate No.

676



NEW MEXICO
OIL CONSERVATION COMMISSION

FIELD TRIP REPORT

DATE 8-17-73

Name of Employee Lelan A. Mermis

Time of Departure 6:15 A. M.

Time of Return 6:45 P. M.

Miles Travelled 120

In the space below please indicate purpose of trip and duties performed, listing wells or leases visited.

Witness cementing for Hardin & Houston, Inc. Carlsbad Brine State #1, 10-22-27, set 5½" used cgs. at 1093'. Cemented with 200/sx Class C 5# salt 14.5 plug down 5:55. Did not circulate. They will run bond log.

Checked Pennzoil Co. Moore Com. #1, 23-22-26, drilling at 9735'.

Checked Cities Service Oil Co. Merland C #1, 19-22-27, setting up heater. Will check again.

*Operator re entered old Union Pennzoil Fed. #1
6605-1980e Sec. 3-22-27 in error.*

They were to enter the well in sec 10-22-27 -

They are working with Feds to get this approved.

*as of 8-1-77 nothing in USGS to date
used till late 1978 Then P & A*



Lelan Mermis

Employee's Signature
District #II

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN
(Other instructions on re-
verse side)

Form approved.
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

MI-0473000-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

Pennzoil Federal

9. WELL NO.

1

10. FIELD AND POOL, OR WILDCAT

Undesignated

11. SEC., T., R., M., OR BLE. AND

Sec. 3, T-22-S, R-27-E

12. COUNTY OR PARISH

Eddy

13. STATE

N. Mexico

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

1.

OIL WELL ☐ GAS WELL ☐ OTHER ☒ Dry hole

2. NAME OF OPERATOR

Union Oil Company of California

3. ADDRESS OF OPERATOR

P. O. Box 671 Midland, Texas 79701

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*
See also space 17 below.)

At surface

66' FSL and 1980' FEL

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

16.

Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF ☐

FRACTURE TREAT ☐

SHOOT OR ACIDIZE ☐

REPAIR WELL ☐

(Other) ☐

PULL OR ALTER CASING ☐

MULTIPLE COMPLETE ☐

ABANDON* ☒

CHANGE PLANS ☐

SUBSEQUENT REPORT OF:

WATER SHUT-OFF ☐

FRACTURE TREATMENT ☐

SHOOTING OR ACIDIZING ☐

(Other) ☐

REPAIRING WELL ☐

ALTERING CASING ☐

ABANDONMENT* ☒

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Drilled to total depth of 3536'.

With mud circulated through drill pipe cement plugs were set as follows:

| | |
|--------|---------------|
| 25 EX. | 3535 - 3430' |
| 25 EX. | 2860 - 2758' |
| 35 EX. | 1970 - 1870' |
| 25 EX. | 1296 - 1185' |
| 35 EX. | 550 - 443' |
| 10 EX. | 26' - Surface |

Welded plate on 8 5/8" casing and installed dry hole marker.
Well plugged and abandoned 10-4-69.

Verbal permission to plug in the manner above obtained from Mr. Beckman 10-8-69.

Drine Sygma well

18. I hereby certify that the foregoing is true and correct

SIGNED

TITLE District Drilling Supt.

DATE 10-8-69

(This space for Federal or State office use)

APPROVED BY

CONDITIONS OF APPROVAL, IF ANY:

TITLE

DATE

*See Instructions on Reverse Side

RECEIVED

OCT 15 1969

D. C. C.
ARTERIA, OFFICE

APPROVED

A. L. Beckman
A. L. BECKMAN

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEYSUBMIT IN PLICATE
(Other insti BS ON re-
verse side)Form approved.
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

NM-0473303-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

Fennzoil Federal

9. WELL NO.

1

10. FIELD AND POOL, OR WILDCAT

Undesignated

11. SEC., T., R., M., OR BLK. AND
SURVEY OR AREASec. 3, T²²-S, R-27E

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

12. COUNTY OR PARISH

Eddy

13. STATE

N. Mexico

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT*

(NOTE: Report results of multiple completion on Well
Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Circulating mud through drill pipe set cement plugs as follows:

| | |
|--------|---------|
| 25 SX. | T.D. |
| 25 SX. | 2860' |
| 35 SX. | 1970' |
| 25 SX. | 1290' |
| 35 SX. | 550' |
| 10 SX. | Surface |

Weld on plate and install dry hole marker.

Verbal permission to plug in the above manner obtained from Mr. Beekman 10-3-69.

18. I hereby certify that the foregoing is true and correct

SIGNED

K. Ladd

TITLE

District Drilling Supt.

DATE

10-15-69

(This space for Federal or State office use)

APPROVED BY

CONDITIONS OF APPROVAL, IF ANY:

TITLE

DATE

*See Instructions on Reverse Side

L. BECKMAN

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 16: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "Sacks Cement". Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

| 37. SUMMARY OF POROUS ZONES: | | | | 38. GEOLOGIC MARKERS | | |
|--|-----|--------|-----------------------------|----------------------|-------------|------------------|
| SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES | | | | | | |
| FORMATION | TOP | BOTTOM | DESCRIPTION, CONTENTS, ETC. | NAME | MEAS. DEPTH | TRUE VERT. DEPTH |
| | | | | Delaware Sand | 2097 | |

N. M. O. C. C. COPY
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
SUBMIT IN PLICATE*
(Other ins on re-
verse side)Form approved.
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

NM-0473303-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

Pennzoil Federal

9. WELL NO.

1

10. FIELD AND POOL, OR WILDCAT

Undesignated

11. SEC., T., R., M., OR BLK. AND
SURVEY OR AREA

Sec. 3

T-22-S, R-27-E

12. COUNTY OR PARISH 13. STATE

Eddy

N. Mexico

SUNDRY NOTICES AND REPORTS ON WELLS
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)1. OIL WELL ☒ GAS WELL ☐ OTHER ☐

2. NAME OF OPERATOR

Union Oil Company of California

3. ADDRESS OF OPERATOR

P. O. Box 671 - Midland, Texas 79701

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*
See also space 17 below.)
At surface

660' FSL and 1980' FSL

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF ☐FRACTURE TREAT ☐SHOOT OR ACIDIZE ☐REPAIR WELL ☐(Other) ☐PULL OR ALTER CASING ☐MULTIPLE COMPLETE ☐ABANDON* ☐CHANGE PLANS ☐

SUBSEQUENT REPORT OF:

WATER SHUT-OFF ☐FRACTURE TREATMENT ☐SHOOTING OR ACIDIZING ☐(Other) Spud and Casing Test ☒REPAIRING WELL ☐ALTERING CASING ☐ABANDONMENT* ☐(NOTE: Report results of multiple completion on Well
Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

9-23-69 Tom Brown Drilling Company spudded 11" hole at 12:00 Noon. Drilled to 146', lost circulation. Mixed lost circulation material, did not regain circulation.

9-25-69 Drilled to 525' without circulation. Cemented 8-5/8" OD 24# and 32# Casing at 520' with 200 sacks cement, no returns to surface. Tagged top of cement outside 8-5/8" OD Casing at 73' from surface. Filled hole outside casing from 73' to surface with ready mix cement. W.O.C. 18 hours and tested casing to 800 psi for 30 minutes, held OK.

RECEIVED

RECEIVED

OCT 8 1969

OCT-7 1969

O. C. C.
ARTESIA, OFFICEU. S. GEOLOGICAL SURVEY
ARTESIA, NEW MEXICO

18. I hereby certify that the foregoing is true and correct

SIGNED R. G. Ladd, Jr. TITLE District Drilling Supt.DATE October 3, 1969

(This space for Federal or State office use)

APPROVED BY _____
CONDITIONS OF APPROVAL, IF ANY:

TITLE _____

DATE _____

ACCEPTED FOR RECORD PURPOSES
OCT - 7 1969
Date ACTING
District Engineer

*See Instructions on Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

30-015-20255

5. LEASE DESIGNATION AND SERIAL NO.

N1-0473303-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

Pennzoil Federal

9. WELL NO.

1

10. FIELD AND POOL, OR WILDCAT

Undesignated

11. SEC., T., R., M., OR BLK.
AND SURVEY OR AREA

Sec. 3, T22S, R27E

12. COUNTY OR PARISH 13. STATE

Eddy

N. Mexico

1a. TYPE OF WORK

DRILL ☒DEEPEN ☐PLUG BACK ☐

b. TYPE OF WELL

OIL
WELL ☒GAS
WELL ☐

OTHER

SINGLE
ZONE ☒MULTIPLE
ZONE ☐

2. NAME OF OPERATOR

Union Oil Company of California

3. ADDRESS OF OPERATOR

P.O. Box 671, Midland, Texas 79701

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)*
At surface

660' FSL & 1980' FEL

At proposed prod. zone

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

2 1/2 east of Carlsbad, New Mexico

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST
PROPERTY OR LEASE LINE, FT.
(Also to nearest drlg. unit line, if any)

16. NO. OF ACRES IN LEASE

239.85

17. NO. OF ACRES ASSIGNED
TO THIS WELL

40

18. DISTANCE FROM PROPOSED LOCATION*
TO NEAREST WELL, DRILLING, COMPLETED,
OR APPLIED FOR, ON THIS LEASE, FT.

19. PROPOSED DEPTH

3600'

20. ROTARY OR CABLE TOOLS

Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

Unknown

22. APPROX. DATE WORK WILL START*

On approval

23.

PROPOSED CASING AND CEMENTING PROGRAM

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | QUANTITY OF CEMENT |
|--------------|----------------|-----------------|---------------|-----------------------|
| 11" | 8-5/8" | 24" | 525' | 200 sacks - circulate |
| 7-7/8" | 4-1/2" | 9.5" | 3600' | 300 sacks |

RECEIVED
SEP 17 1969
U. S. GEOLOGICAL SURVEY
ARTESIA, NEW MEXICO

RECEIVED

SEP 24 1969

O. C. C.
ARTESIA, OFFICE

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED

R. C. Ladd, Jr.

R.C. Ladd, Jr.

TITLE

District Drilling Supt.

DATE

Sept. 16, 1969

(This space for Federal or State office use)

PERMIT NO.

APPROVED BY
SIGNATURES OF APPROVAL, IF ANY:THIS APPROVAL IS RESCINDED IF OPERATIONS
ARE NOT COMMENCED WITHIN 3 MONTHS.
EXPIRES
DEC 23 1969

DATE

NOTIFY USGS IN SUFFICIENT TIME TO
WITNESS CEMENTING THE 8 1/8" CASING.

*See Instructions On Reverse Side

**MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT**

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section

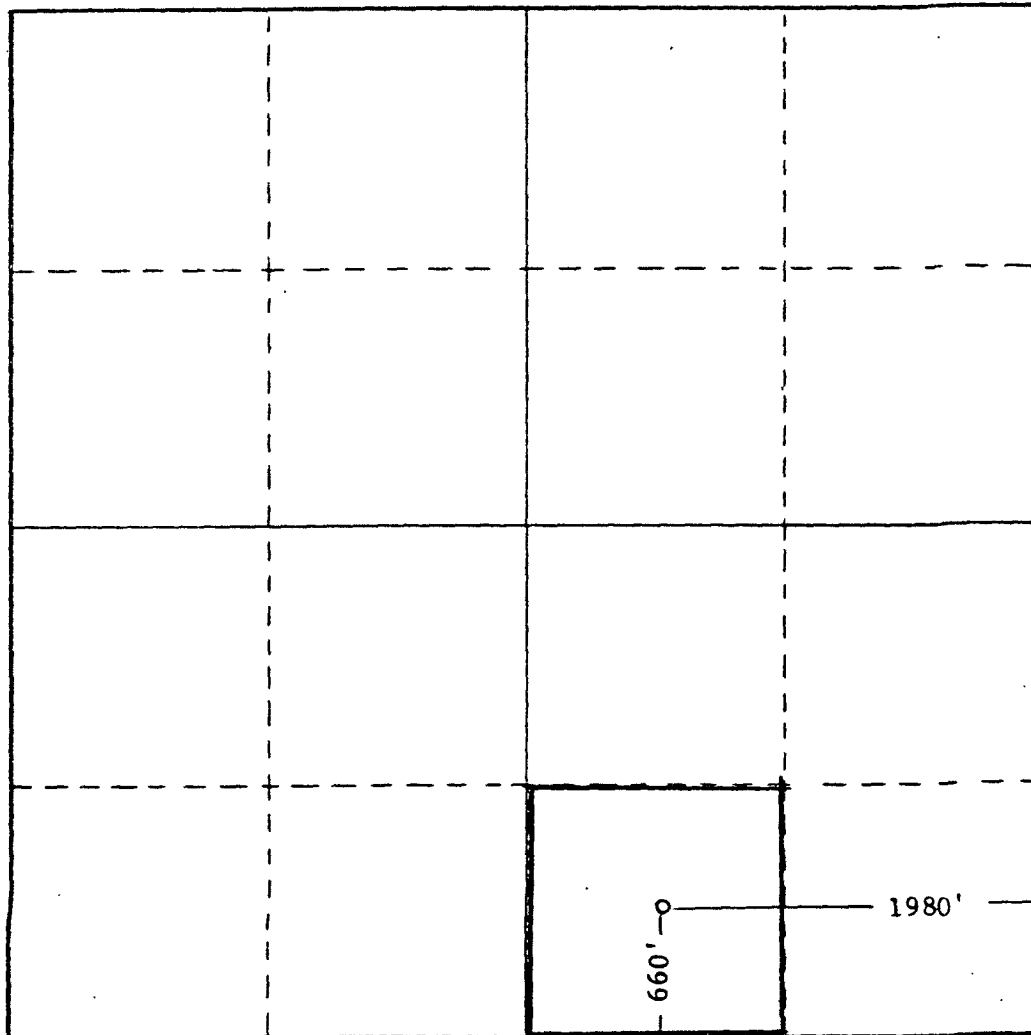
| | | | | |
|---|---|----------------------------------|---------------------------------------|-----------------------|
| Operator UNION OIL COMPANY OF CALIFORNIA | | Lease PENNZOIL FEDERAL | | Well No. 1 |
| Unit Letter O | Section 3 | Township 22 SOUTH | Range 27 EAST | County EDDY |
| Actual Footage Location of Well: <div style="display: flex; justify-content: space-between;"> 660 feet from the SOUTH line and 1980 feet from the EAST line </div> | | | | |
| Ground Level Elev. Unknown | Producing Formation Cherry Canyon (Del.) Sand | Pool Undesignated | Dedicated Acreage: 40 Acres | |

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name: *R. T. Ladd*
 Position: **Dist. Drilling Supt.**
 Company: **Union Oil Co. of California**
 Date: **September 16, 1969**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: **8-5-1969**
 Registered Professional Engineer and/or Land Surveyor:
John W. Abert
 Certificate No. **676**

0 330 660 990 1320 1650 1980 2310 2640 2970 3300 3630 3960 4290 4620 4950 5280 5610 5940 6270 6600



12/9/86



12/9/86



8/27/91

• **Prevalence** is the proportion of a population that has a disease at a particular point in time. It is a snapshot of the disease in a population at a particular point in time. It is a measure of the burden of disease in a population.

Tracy Brine

Unlined pit with dirty water in it - no oil floating

KMB



Broom Transportation

12/4/86



12/9/86



12/9/86



12/9/86



12/9/86



12.19/56



12/9/86



8/27/91

Tracy Bnhr

T/A

1991-1992

KMB



8/27/91

8/27/91 1:30 PM

Tracy Brine

Unlined pit (see other photo)
on left side of tank

KMB



8/27/91

Tracy Brine

T/A

Lined pond with layer
of salt & water

KMB



8/27/91

1

Tracy, Bruce

T/A

Corroded Tank

SEP 10 1991 11:55 AM

KMB



8/27/91

11 10 10 10 10 10

~~Broom~~ Tracy Brine Facility

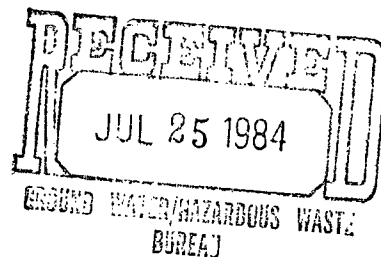
T/A - Surface facilities
on BLM land

KMB



12/9/86

DISCHARGE PLAN — DP 351
CHAMPION CHEMICALS, INC.
BRINE PRODUCTION FACILITY
CARLSBAD, NEW MEXICO



July 13, 1984

Prepared for:

Champion Chemicals, Inc.
1003 W. Murphy
Odessa, Texas 79763

Prepared by:

Geoscience Consultants, Ltd.
500 Copper Ave N.W.
Suite 220
Albuquerque, New Mexico 87102

842-000/

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| | |
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1.0 EXECUTIVE SUMMARY

This discharge plan details the facilities, operation, discharge control measures, monitoring and contingency plans for the Champion Chemicals, Inc. brine production and storage plant located in the south half of Section 3, T 22S, R 27E, near Carlsbad, New Mexico. Champion Chemicals, Inc. P.O. Box 4513, Odessa, Texas, 79760 has requested that a discharge plan be approved by NMEID for an existing in-situ brine extraction well and associated surface facilities for storage and loading of brine.

Brine is produced by injecting fresh water, purchased from the City of Carlsbad (total dissolved solids (TDS) concentration of 356-1,120 mg/l) into dry salt beds of the Salado Formation (Permian) at a depth of 1050 feet. Production ranges from 2700 to 30,000 barrels of brine per month, with a brine chloride concentration of about 185,000 ppm.

*why such
variation? lots
in city water?
(different
wells)*

Brine is stored in a Hypalon-lined storage pond with a capacity of about 12,000 barrels (504,000 gallons), from which it is pumped to tank trucks. Steel holding tanks at the plant site hold only fresh water.

The brine well (Union Oil of California, Tracy #3) was re-entered in November, 1978 and relined with 5 1/2" steel casing to 1050 feet. Fresh water is pumped down the annulus, and brine returns through a 2 7/8" production line. The well and plant site are connected by a 2875 foot set of parallel steel pipes. The well and pipelines are protected against leakage by a pressure-sensitive switch on the circulation pump.

The well and plant site are located on a bedrock bluff, 0.6 to 1.1 miles from the Pecos River. No shallow alluvial aquifer exists beneath the well or plant. The only known ground water in the area which may be affected by the operations is an artesian aquifer in the Culebra Dolomite of the Rustler Formation (Permian). This water would be encountered at a depth of 250 to 280 feet, and has a TDS of less than 1000 mg/l.; however, a well drilled into this zone, 1000 feet south west of the brine well, was dry. *check*

Monitoring plans include quarterly inspection of all pumps, pipes, lines and the well head; yearly drainage and inspection of the pond liner, and metering of flow into and out of the well. Should leaks be discovered in the pumps or lines, repair or replacement shall be done within 10 days. If leakage occurs in the Hypalon-lined pond or in the well, they will be drained and repaired or replaced before the pond is refilled, or before well circulation resumes. *what far from well through salt deposits inadequate meters for brine can't be trusted how can you tell?*

2.0 SITE LOCATION AND PHYSIOGRAPHIC FEATURES

The Champion Chemicals, Inc. brine production facility is located in the south half of Section 3, T.22 S., R.27 E. N.M.P.M., Eddy County New Mexico (Figure 2-1). General location is 2 1/2 miles east of Carlsbad on Eddy County Road number 121. The brine well is located 560' from the south line and 610' from the west line of Section 3. A dual pipeline (approximately 2875' long) connects the brine well to the plant facility, which encompasses approximately 5 acres in the SE 1/4 of Section 3. A full set of drawings including legal descriptions of the property are included as Appendix A.

The brine production facility encompasses 5 acres on a flat mesa northeast of the Pecos River (Figure 2-1). The average elevation at the site is 3125 feet ASL. This places the site 70 to 80 feet above where the Pecos River comes closest (0.6 mile) to the site (Figure 2-1).

The facility is owned by Champion Chemicals, Inc., P.O. Box 4513, Odessa, Texas, 79760, (915) 337-0055. The plant is operated by Broom Transportation Co., P.O. Box 1031, Artesia, New Mexico, 88210, (505) 746-3304.

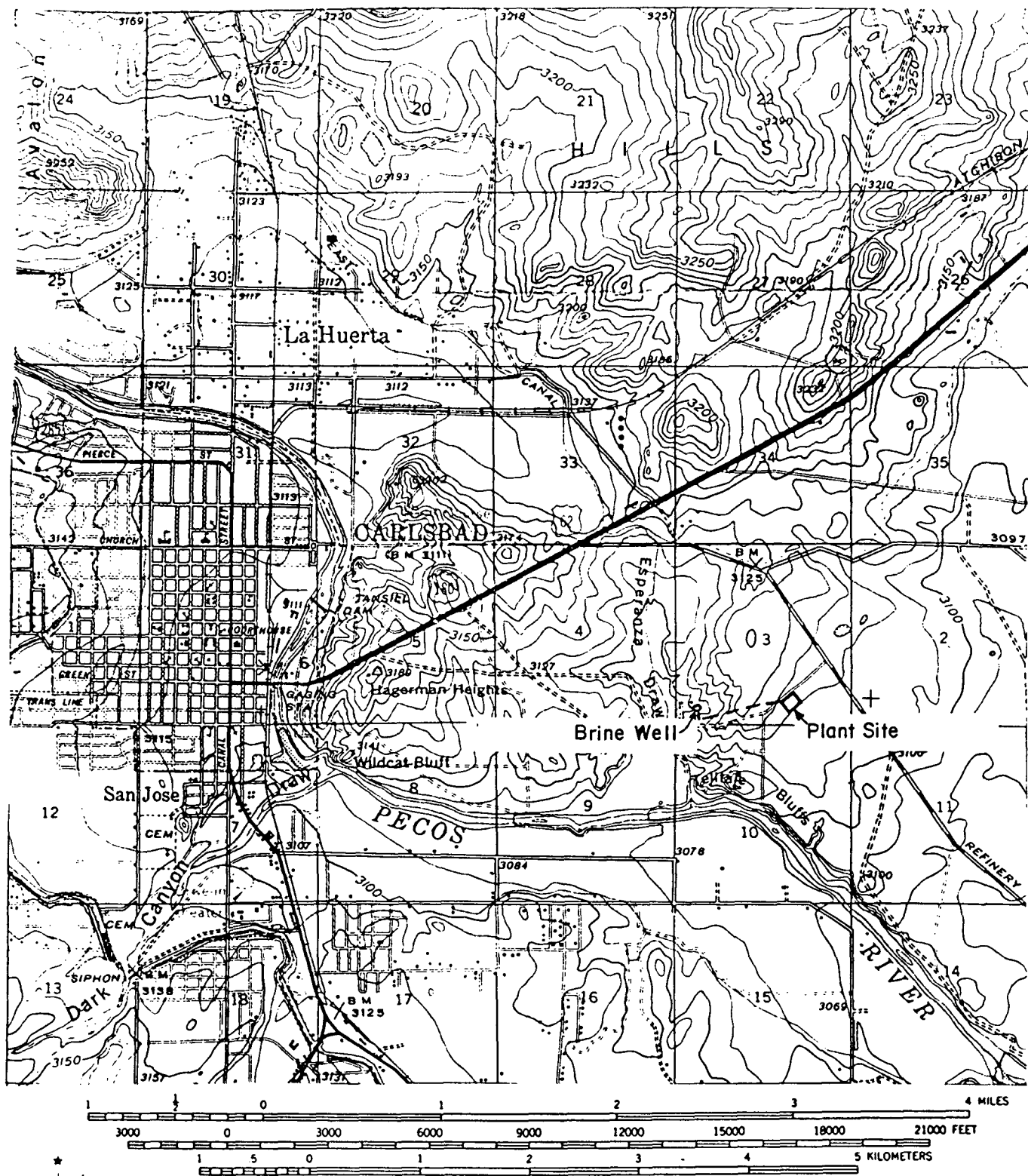


Figure 2-1

3.0 FACILITIES AND PROCESS DESCRIPTION

3.1 FACILITIES

The Champion brine operation comprises 2 sites: the plant site where brine is stored, mixed and loaded into tank trucks; and the well where fresh water is injected and brine is removed from the subsurface. These sites are about 2875 feet apart (Figures 3-1 and 3-2) and are connected by 2 parallel lines of 2 3/8 inch threaded-joint steel pipe, sealed with teflon joint tape. One line carries fresh water (purchased from the City of Carlsbad) from the plant to the well, while the other returns the brine to the plant (Figure 3-3).

Brine, which is used to prepare drilling mud, is stored in a lined pond, from which it is pumped into tank trucks for transportation to the customers' well sites. The plant site also has three 1000 barrel (42,000 gallon) holding tanks, ^{for fresh water} pumps for circulating fluids to and from the well, pumps and piping for loading brine, and a house trailer for the operator. All surface tanks are used for fresh-water storage only. A fourth tank is no longer used and will be junked (Figure 3-4).

3.2 PROCESS DESCRIPTION

Brine is produced by pumping fresh water down the annulus of a cased well to a salt-bearing stratum in the Salado Formation (Permian). The fresh water dissolves the salt (which is overlain and underlain by ^{★ (later discussed)} impermeable anhydrite beds) and the resulting brine is returned to the surface via an inner production pipe. Thus, all operations are performed by a single well. Each barrel (42 gallons) of fresh water dissolves about 80 pounds of salt,

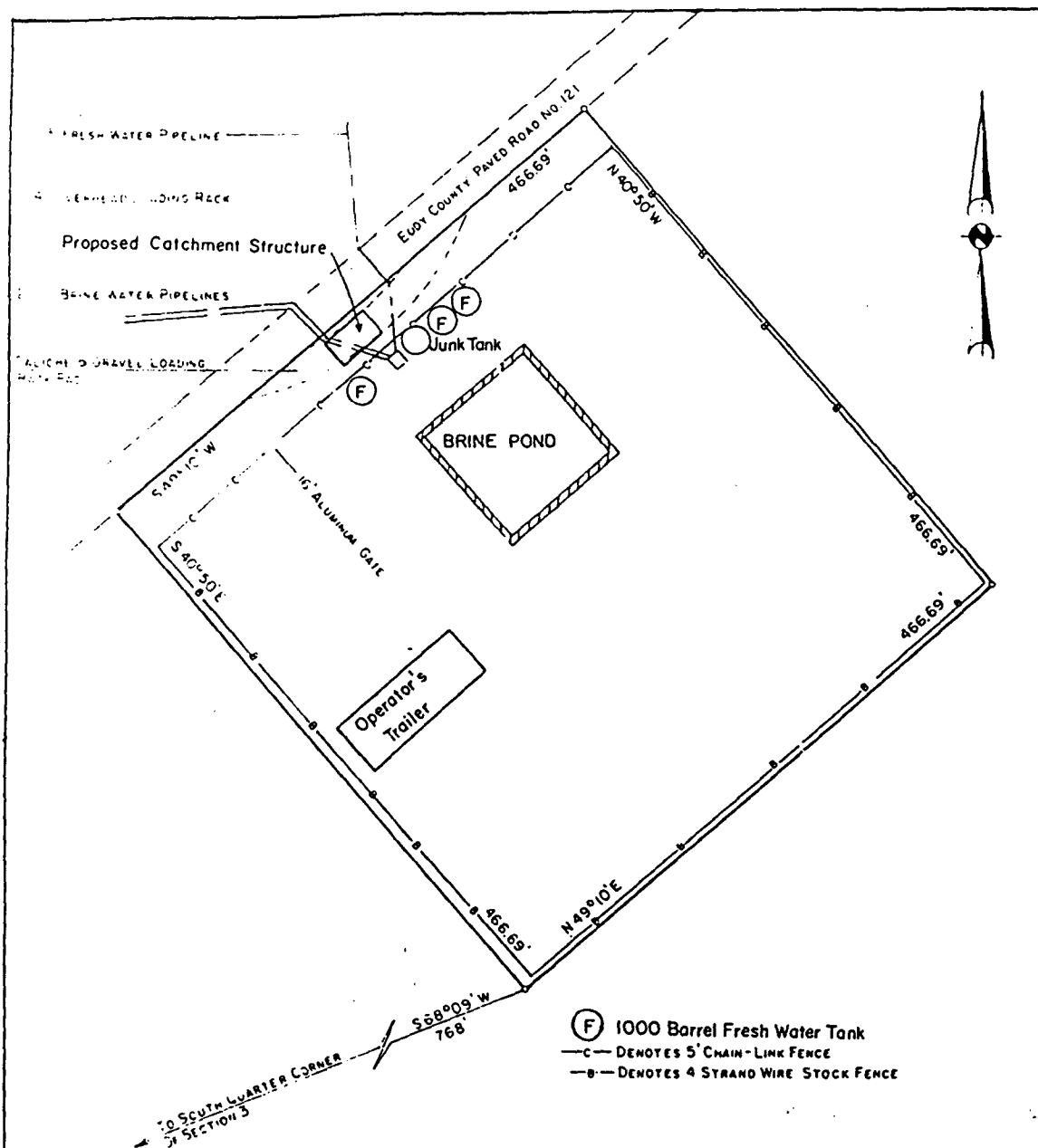


Figure 3-1
Champion Plant Site

CHAMPION CHEMICALS, INC.

LAYOUT OF A PROPOSED PLANT SITE ON A 5.00 ACRE TRACT LOCATED
IN SECTION 3, TOWNSHIP 22 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY
COUNTY, NEW MEXICO.

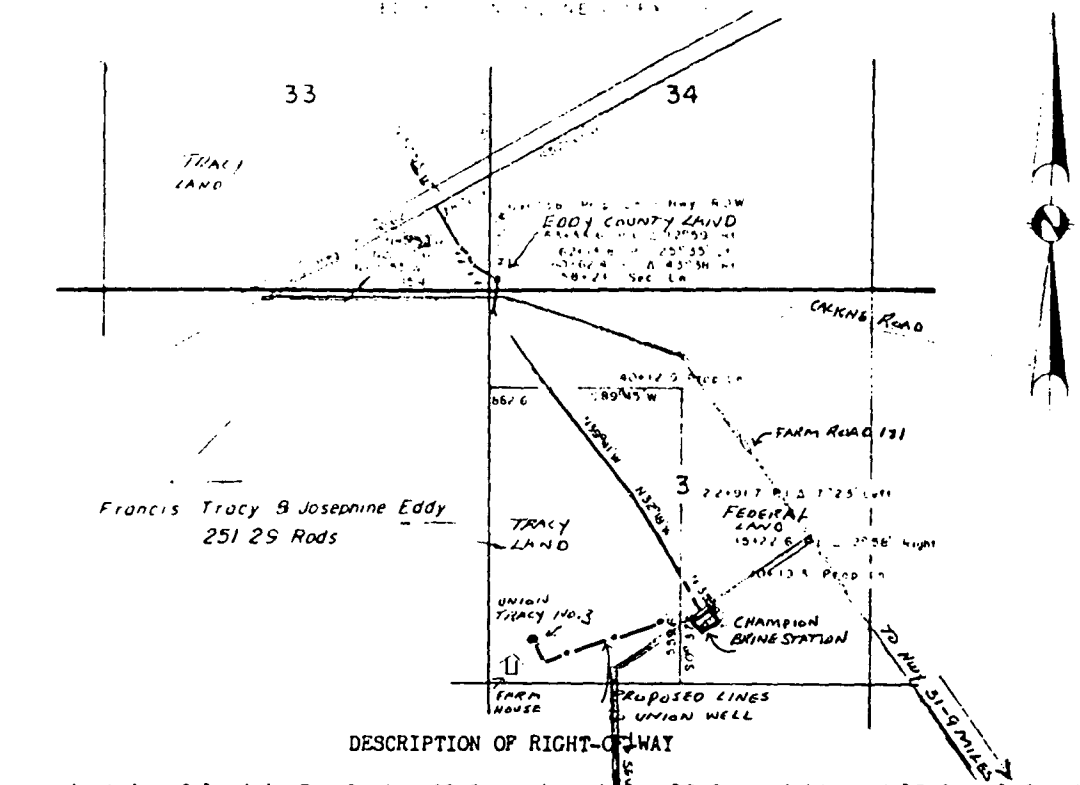
DATE OCTOBER 20, 1978

DRAWN BY PRESLEY

SCALE 1"=100'

SHEET 2 OF 2 SHEETS

SEC. 33, T21S, R27E, & SEC. 3, T22S, R27E, N.M.P.M.,



DESCRIPTION OF RIGHT-OF-WAY

A strip of land in Two Parts, 30 feet wide, being 15 feet right, and 15 feet left of the following described survey of centerline:

Part One: Beginning at Eng. Sta. 10+19.3, a point on the east boundary line of the $\frac{3}{4}$ of Sec. 3, T22S, R27E, N. M. P. M., Eddy County, New Mexico, from which the $\frac{1}{4}$ Cor. of the said Sec. 3 bears S $0^{\circ}37'$ E, 1559.6 feet; thence, N $35^{\circ}16'$ W, crossing the Francis Tracy, and Josephine Eddy property, 503.3 feet to Eng. Sta. 15+22.6; thence, N $32^{\circ}18'$ W, 769.1 feet to Eng. Sta. 22+91.7; thence, N $39^{\circ}41'$ W, 1721.2 feet to Eng. Sta. 40+12.9, ending Part One, a point on the north boundary line of the $\frac{3}{4}$ of the NW $\frac{1}{4}$ of the said Sec. 3, from which the NW Cor. of the said Sec. 3 bears S $89^{\circ}45'$ W, 882.6 feet, and N $0^{\circ}57'$ W, 1315.14 feet.

Part Two: Beginning at Eng. Sta. 58+21.1, a point on the east boundary line of Sec. 33, T21S, R27E, N. M. P. M., Eddy County, New Mexico, from which the SE Cor. of the said Sec. 33 bears S $0^{\circ}32'$ E, 115.4 feet; thence, N $63^{\circ}55'$ W, across the said property, 241.3 feet to Eng. Sta. 60+62.4; thence, N $20^{\circ}17'$ W, 151.4 feet to Eng. Sta. 62+13.8; thence, N $45^{\circ}52'$ W, 119.8 feet to Eng. Sta. 63+33.6; thence, N $32^{\circ}53'$ W, 640.2 feet to Eng. Sta. 69+73.8, ending Part Two, from which the E $\frac{1}{4}$ Cor. of the said Sec. 33 bears N $52^{\circ}01'$ E, 873.9 feet, and N $0^{\circ}32'$ W, 1118.9 feet.

251.29 Rods

Figure 3-2

General map of brine well and plant site location.

| CHAMPION CHEMICALS, INC. | |
|--|---------------------|
| Water pipeline crossing the Francis Tracy, & Josephine Eddy property in Sec. 33, T21S, R27E, and Sec. 3, T22S, R27E, N. M. P. M., Eddy County, New Mexico. | |
| JOHN W WEST ENGINEERING COMPANY CONSULTING ENGINEERS MOBBS, NEW MEXICO | |
| Scale 1" = 2000' | Drawn by chb |
| Date June 26, 1978 | Sheet 1 of 1 Sheets |



Figure 3-3 Pipelines connecting plant and brine well, view southeast towards well.



Figure 3-4 Brine pond and fresh water tanks. Note liner and barrier fence. View southeast.

forming a dense (1.20 grams/cubic centimeter) brine. ~~The well is~~
circulated at about 260 psi, at a rate of about 2400 barrels
(100,800 gallons) per day. Production of brine, which began in
January, 1979, is not continuous but is episodic and dependent
upon demand. Discussions with the operators (personal
communications, Broom Transportation Co.) indicate that
production varies from about 2,700 barrels (113,400 gallons) to
30,000 barrels (1,260,000 gallons) per month. The pond holds
about 12,000 barrels, so monthly production ranges from about .25
to 2.5 times the pond's volume. Appendix B summarizes recent
production. At a production rate of 2400 barrels per day, the
pond could be filled in about 5 days.

The brine salinity varies, but chemical analyses performed
in June, 1984 (Appendix C) indicates a chloride concentration of
about 185,000 ppm. Brine may be mixed with fresh water from the
holding tanks to adjust salinity to the customer's
specifications.

The pond is equipped with level-sensing float switches,
which automatically shut off the circulating pump when the brine
in the pond reaches a maximum working level (2 feet of
freeboard). The pump, however, must be manually activated when
the pond level drops to the level at which circulation generally
resumes, about half its maximum working level.

3.3 PLANS AND SPECIFICATIONS

3.3.1 Brine Well

The well from which brine is produced was originally drilled as
Union Oil Company of California Tracy #3, an oil and gas
exploration well. It was drilled to a total depth of 3476 feet

but was an unsuccessful oil test. It was plugged and abandoned in December, 1969 with cement plugs set at 0-60 feet, 440 to 550 feet and 1300 to 1400 feet. Drilling and plugging reports are included as Appendix D. The well was originally cased to 555 feet with 8 5/8 inch threaded-joint steel surface casing (24 lb/ft, 0.528" wall thickness) in an 11 inch hole, cemented in place by circulating 200 sacks of cement to the surface.

The well was re-entered in November, 1978 for Champion Chemicals, Inc. by Wilson Well Service. The plugs at 0-60' and 440-560' were drilled out, and new 5 1/2 inch threaded-joint steel casing (14 lb/ft, 0.448" wall thickness) was installed to a depth of 1050 feet and cemented in place by circulating 300 sacks of cement to the surface. The original bore was not reamed or otherwise enlarged and the original casing was left in place. Inside the 5 1/2 inch casing is a 2 7/8 inch steel production line (Figure 3-5). Fresh water is circulated down the annulus between the casing and the production line, and brine returns through the inner pipe. A casing failure would release only fresh water, and no brine, because no brine is carried in the annular space between the casing and the production line and the pressure is higher in the annulus than in the production tubing. Perforation of the production tubing would allow fresh water to flow into the brine, but not vice versa. Finally, the brine is much denser than water (1.20 gram/cc versus 1.0 grams/cc) so it would remain in the solution cavity rather than migrate up the well bore. Pressure in the well is hydrostatic; therefore, no danger of "blowout" exists.

Figure 3-6 is a photograph of the well head assembly. The

Because tubing is flowing to pond at 0 pressure, during

thought
the brine
in some wells
produced
very little
pumping

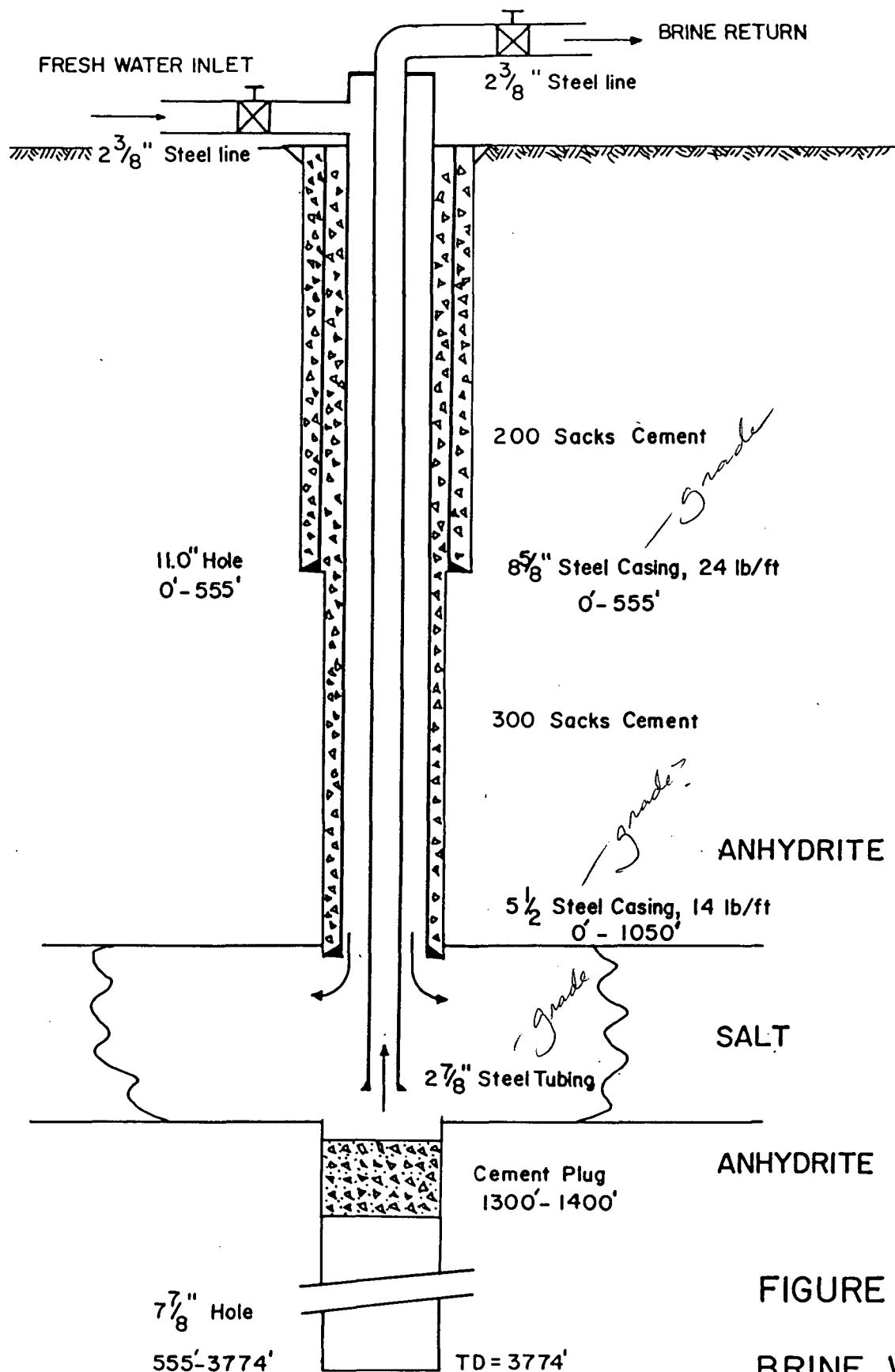


FIGURE 3-5
BRINE WELL
PLANS AND SPECIFICATIONS



Figure 3-6 Wellhead assembly, Tracy #3 Brine well.
Lower line carries fresh water into casing,
upper line return brine. Note insulation,
valves, pressure gauge. View south.

fresh water and brine lines are insulated to prevent rupture by freezing. The lower line carries fresh water into the casing, and the upper line is the brine return. Both lines are valved, and a pressure-monitoring valve is attached to the brine return line. A welded steel plate seals the brine line to the casing, which sticks up about 1 foot above ground level, preventing surface-water entry.

Another plugged oil test (Union Oil of California, Pennzoil #1) is located on the brine plant site (see Figure 4-4). ^{~ 2100 ft away} This well was plugged and abandoned in 1969. — *records?* ✓

3.3.2 Pipelines and Pumping System

Fresh water is supplied to the Champion Site by a pipeline from the City of Carlsbad. The water supply for the Champion site is shared with 2 other adjacent landowners, as a condition of obtaining an easement for the water supply line. This water line is metered above the withdrawal points for all 3 users, so exact figures on water consumption by the plant alone are not presently available. Flow meters attached to both the water injection and brine return lines could be used to detect any losses of either fresh water or brine, either in the lines or in the solution cavity. At the site the fresh water is stored in three 1000 barrel (42,000 gallon) steel tanks. These tanks feed a Triplex piston pump by gravity. The pump raises the water pressure to 260 psi and conveys it through a 2 3/8 inch steel pipeline a distance of 2875 feet to the well head. Brine returns to the site in a similar pipe (Figure 3-4). These pipelines lie in the center of a cleared, 30 foot-wide right-of-way and are covered by approximately 24 inches of earth. The pipes are

threaded-joint steel, and all joints are sealed with teflon tape. After installation, the lines were pressure tested at 1200 psi. The lines do not cross any bodies of surface water, and are buried 24 to 36 inches below any roads which they cross.

The pump and lines are protected by a "high-low" pressure shut off switch, which turns off the pump if the pressure exceeds 500 psi (possible blockage) or falls to 0 psi (possible leaks). In the event of line or well failure, only a few barrels of fluid would be lost. This amount could easily be contained and cleaned up.

*could be
leaking
at
70 psi*

At the plant site, brine is moved in steel, plastic and neoprene lines from the storage pond to tank trucks by low-pressure centrifugal pumps, which can move about 600 gallons per minute. These pumps are controlled by an automatic timer, which shuts them off after 10 minutes. The tank trucks hold 150 barrels (6300 gallons) so the timer prevents overflow even if the loading personnel are inattentive.

All lines which enter the brine pond pass over rather than through the liner, and all lines entering the pond are protected from siphoning by one-way check valves.

3.3.3 Fresh Water Holding Tanks and Brine Pond

Fresh water is stored in three 1000 barrel (42,000 gallon) steel tanks, located on the northeast side of the brine pond (Figure 3-7). A fourth tank, second from the left, is no longer used and will be junked. These tanks store only fresh water from the City of Carlsbad, and pose no danger to ground or surface water in the event of failure. As seen in Figures 3-4 and 3-7 all brine is contained in an above-ground pond which is



Figure 3-7 Tanks and brine pond. View south.

lined with 30 mil Hypalon. This liner was installed by Kem-Kil liners of Odessa, Texas on January 11, 1979 (see Appendix E). The excavation was smoothed and cleared of rocks, and a 4 inch thick sand layer was put down before the liner was installed. The liner is secured by burial in an 18 inch deep perimeter anchor trench.

The inner dimensions of the pond are about 100 by 100 feet by 8 feet with 2:1 side slopes. The berm surrounding the pond is a compacted earth embankment, 18 to 20 feet wide at the top, widening to about 40 feet at the base. The bottom of the pond and the top of the berm are level, with the slope of the site about 2° to the southeast. The top of the pond berm is about 3.0 feet above grade on the west side, and 7.0 feet above grade on the east (Figure 3-8).

The design capacity of the pond is 12,000 barrels (504,000 gallons). Brine is moved from the pond to the truck loading rack by an auxiliary pump, and is passed at low pressure through threaded steel, PVC and reinforced neoprene lines.

Geoscience Consultants, Ltd. visited and inspected the Champion facility on June 28 and 29, 1984. The brine pond, brine well and associated pipelines and other equipment were certified to be in good operating condition at the time and appear to be adequately designed. Brine lines entering the pond are protected by one-way check valves to prevent siphoning, and pumps are automatically shut off in the event of abnormal fluid levels or pressures. Failure of a brine line would result in losses of only 1 or 2 barrels before automatic shutdown occurred. This small volume would be cleaned up as soon as the leak is repaired.

CROSS SECTION

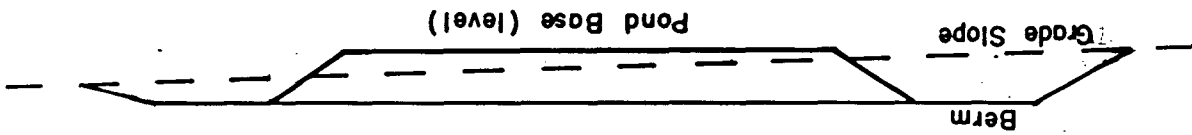
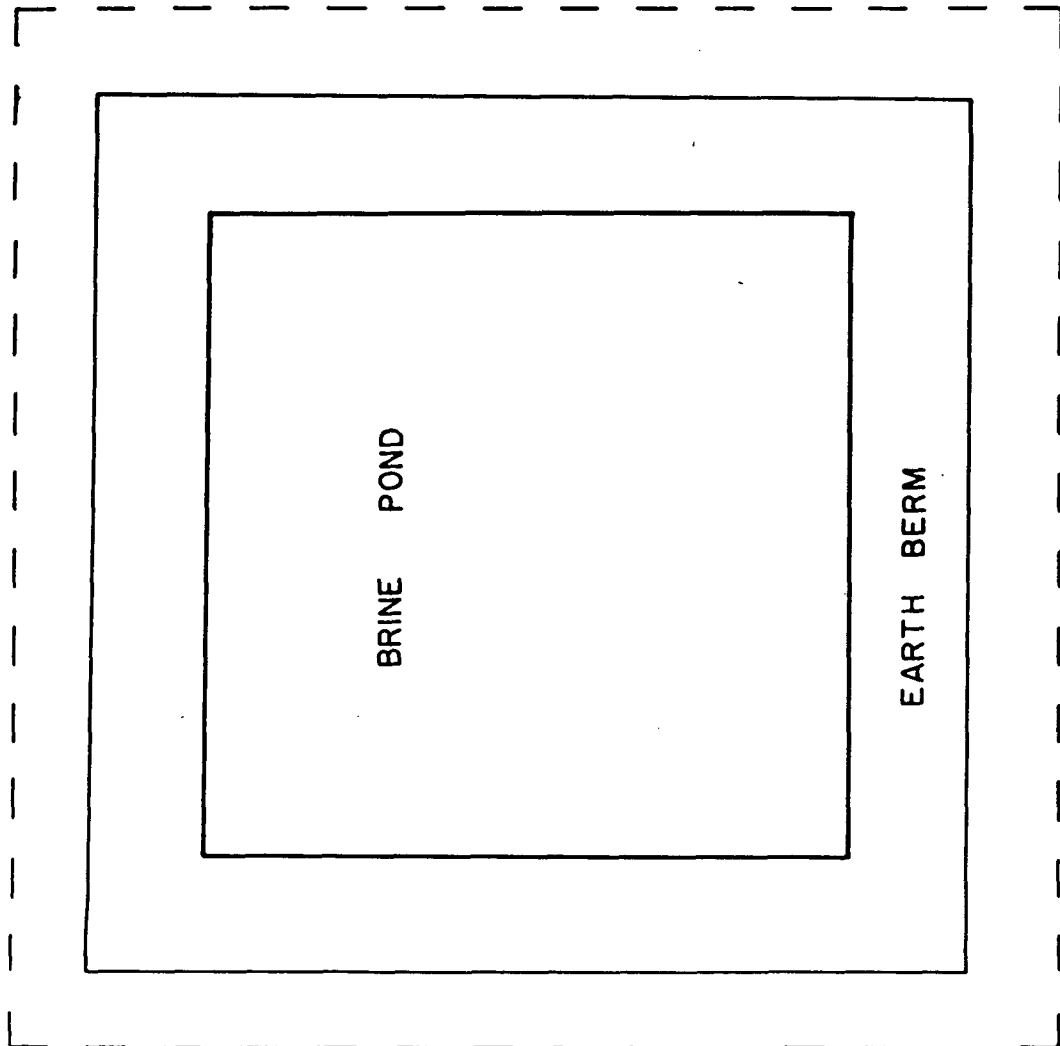


Figure 3-8 As - built
diagram of brine
pond.



PLAN VIEW



The general design of the well, pipelines, tanks and pond are such that any line failure would release, at most, the volume of fluid contained in the lines. The brine pond is surrounded by a thick berm of compacted earth, which appears to be free of any settling or erosion. Even a major failure of the liner would only result in slow seepage rather than rapid release, of brine due to the soil properties described in Section 4.2.

3.4 CLOSURE AND RESTORATION OF SITE

Following cessation of brine production, the brine well will be plugged according to appropriate New Mexico OCD regulations. *check*
Any salt crusts and residual brine will be removed from the area. The pond liner will be removed, and the site restored to its approximate original contour. Tanks, pumps and pipelines remaining on the operator's property will be disposed of at his convenience.

*demonstration of
financial responsibility*

4.0 SITE HYDROGEOLOGY

4.1 GEOLOGY

The Champion brine well and brine storage/loading facility are located in the Permian Basin of southeastern New Mexico, and in the Carlsbad Underground Water Basin as defined by the New Mexico State Engineer. In the Carlsbad area, bedrock is composed of carbonates, evaporites and redbeds of the Ochoan Series (Permian), overlain by Tertiary and Quaternary alluvial and residuum cover (Table 4-1).

Figure 4-1 is a geologic map of the Champion site area, and Figure 4-2 is a log cross-section from the brine well to the plant site. The underlying Rustler and Salado formations are nearly flat-lying, or dip gently towards the southeast at about 2 degrees.

The Champion site is situated on an eroded bluff of the Rustler Formation, about 0.6 miles north of and 70 to 80 feet above the Pecos River (Figure 2-1). Brine is produced from a 225 foot thick salt bed in the Salado Formation, which underlies the Rustler. The salt bed lies between 1046 and 1271 feet in depth, and is overlain and underlain by beds of anhydrite, which are both greater than 400 feet thick. Logs and drilling records were obtained from all oil and gas wells in the vicinity of the brine well and plant site. Logs from 3 typical wells were analyzed and their lithologies interpreted (Figure 4-3). These interpretations show that the anhydrite beds which enclose the Salado salt are thick and continuous over an area of at least 1 mile around the brine well. The locations of these wells are shown in Figure 4-4.

STRATIGRAPHY OF THE PECOS COUNTRY

| | | Formations & Members | | Thick | Description | | |
|--------------------------|-------------------|---|--|--|--|--|---|
| Holocene and Pleistocene | | Assorted surficial deposits | | 0-300 | Valley alluvium, terrace and pediment gravel, caliche soils, aeolian sand, travertine | | |
| Pleistocene-Pliocene | | Gatuna Formation | | 0-200 | Sandstone, sand gravel, siltstone, limestone, red, brown, tan, gray, yellowish | | |
| Oligocene | | Sierra Blanca Volcanics | | 700-4,000 | Andesite breccia and tuff; some flows | | |
| Paleocene | | Cub Mountain Formation | | 500-2,000 | Sandstone, mudstone, conglomerate, arkose; white, buff, lavender, purple, maroon | | |
| Cretaceous | | Mesaverde Formation | | 500-1,500 | Sandstone, shale, coal, conglomerate; buff, gray, black | | |
| | | Mancos Shale | | 400-700 | Shale, siltstone, with local thin sandstone and limestone; black, grayish-black | | |
| | | Dakota Sandstone | | 100-150 | Sandstone, conglomerate, black shale; gray to tan | | |
| Upper Triassic | | Chinle Shale | | 0-300 | Mudstone with some claystone and thin sandstone; reddish brown | | |
| | | Santa Rosa Sandstone | | 0-300 | Sandstone, conglomerate, mudstone; brown, buff, lavender | | |
| PERMIAN | Ochoan Series | Dewey Lake Formation | | 200-250 | Sandstone, siltstone; orange-brown; commonly laminated | | |
| | | Rustler Formation: Upper Member | | 150-200 | Dolomite, gypsum, mudstone, white, red-brown, green, gray, deep orange; Magenta dolomite at base | | |
| | | Lower Member | | 100-250 | Dolomite, gypsum, mudstone, sandstone; white, red-brown, gray, green; salt in subsurface; Culebra dolomite at base. | | |
| | | Salado Formation | | 0-2,500 | Gypsum, mudstone, thin local dolomite; white, red, brown, green, deep orange; breccia residue at surface, thick salt, potash in subsurface | | |
| | | Castile Formation Upper Member* (surface) | | 1,000± | Gypsum (anhydrite), salt; white, gray | | |
| | | Lower Member (surface) | | 1,000± | Laminated gypsum (anhydrite) and limestone, laminated limestone, laminated gypsum; gray, black, white | | |
| | Guadalupe Series | Artesia Group | Tansill Formation | | Captain La ↑ Bell Canyon Fm.* | 200-300 | Dolomite and siltstone (south); dolomite, gypsum, and anhydrite (north); Ocotillo siltstone tongue near exposed top |
| | | | Yates Formation | | | 250-350 | Siltstone, sandstone, dolomite, limestone and gypsum (south); gypsum, siltstone and thin dolomite (north) |
| | | | Seven Rivers Formation | | | 450-600 | Dolomite, siltstone (south); gypsum and siltstone (north) |
| | | | Queen Formation | | Coat Seep Do. ↑ Cherry Canyon Fm.* | 200-400 | Dolomite and sandstone (south); gypsum, red mudstone, dolomite (north); Shattuck member near top |
| | | | Grayburg Formation | | | 250-450 | Dolomite and sandstone (south); gypsum, mudstone, dolomite (north) |
| | Leonardian Series | | San Andres Formation: Fourmile Draw Member | | 0-700 | Dolomite, gypsum, reddish mudstone; sandstone locally at top; thin-bedded | |
| | | | Bonney Canyon Member | | 0-300 | Dolomite, local limestone; gray, light-gray, local black; thin-bedded | |
| | | | Rio Bonito Member | | 250-350 | Dolomite, limestone, sandstone (Glorieta); gray, brownish gray; thick-bedded | |
| Yeso Formation | | | 0-1,400 | Sandstone, siltstone, dolomite, gypsum; tan, red-yellow, gray, white | | | |
| Precambrian | | | Syenite, gneiss, and diabase | | | | |

* Delaware basin facies only
† Reef facies only

Table 4-1 From Kelley, V.C., 1971, Geology of the Pecos Country, southeastern New Mexico, New Mexico Bureau of Mines and Mineral Resources, Memoir 24.

do we have this?

| | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
|----|----|----|----|----|----|----|----|----|

The situation of streams and valley bottoms (1) is the same but the basin soil and dunes (2) conditions (3), disturbed ground are affected by collapse (4) travertine
valley incisions (5) terrace ground (6), sediment ground (7) is the

979

Red tan, and buff sand, gravel, and mudstone

Red tan, and buff sand, gravel, and mudstone

English mudstone and buff, conglomeratic sandstone

Olive-gray to black shale, grayish sandstone, and coal

Black photo, local conditions, and limestone

Gray to white sandstone, local shale, and conglomerate

Online Information:
Available from: <http://www.elsevier.com/locate/bsc>

Brown, buff, and red sandstone: local conglomerate

Lowdown steam engines

Dolomite, gypsum, and reddish sandstone; Frs. upper member; Fv, lower member

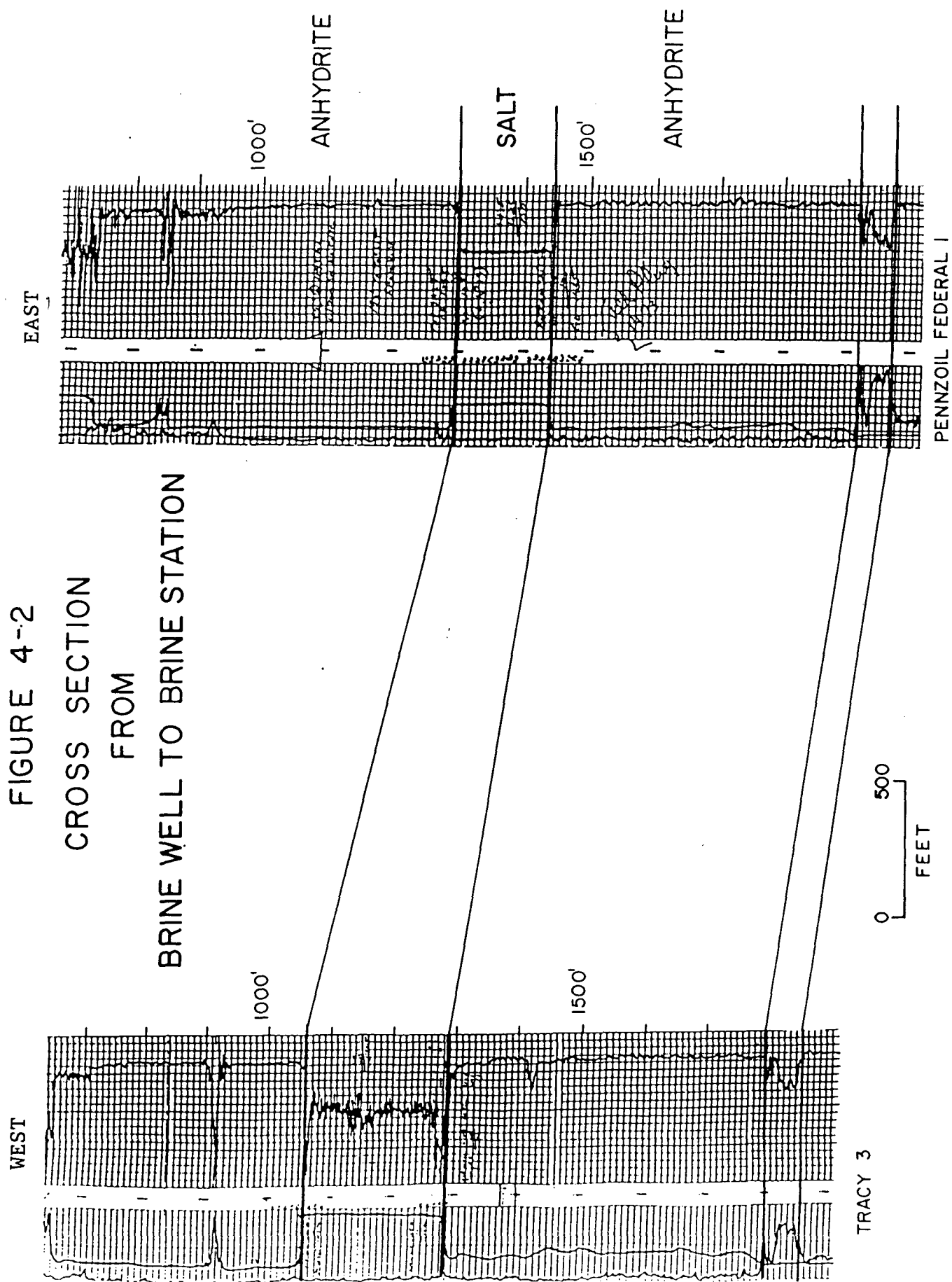
Pe

Crysom. dolomitic, mudstone, and orange-red, collapsed, recrystallized, residual breccia

Castile Formation

4-3

FIGURE 4-2
CROSS SECTION
FROM
BRINE WELL TO BRINE STATION



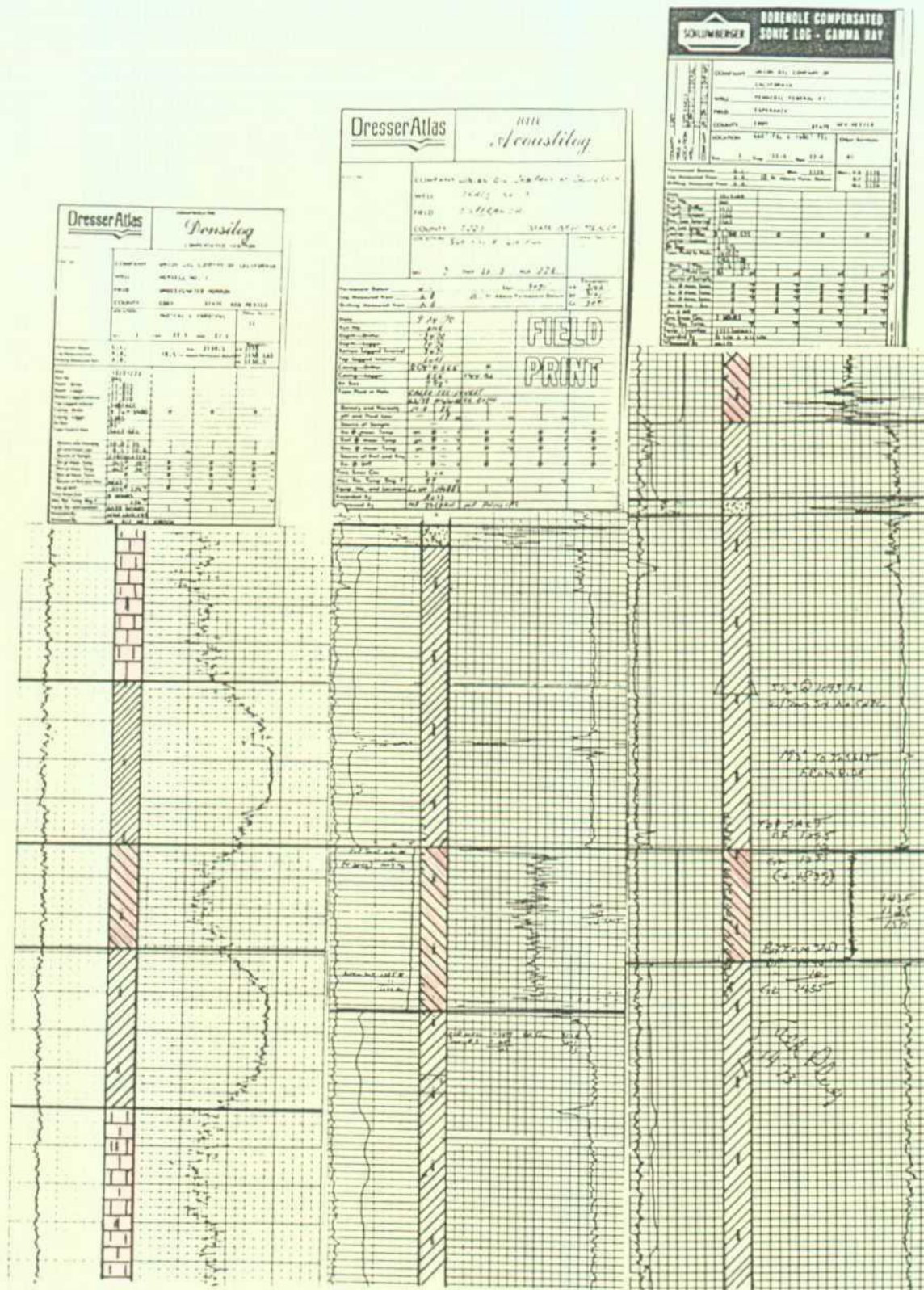
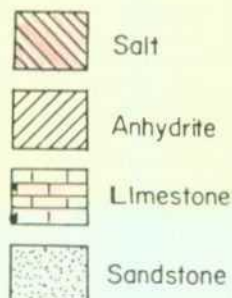


FIGURE 4-3
WELL LOGS

— for what wells?
— "3 typical wells" in the area



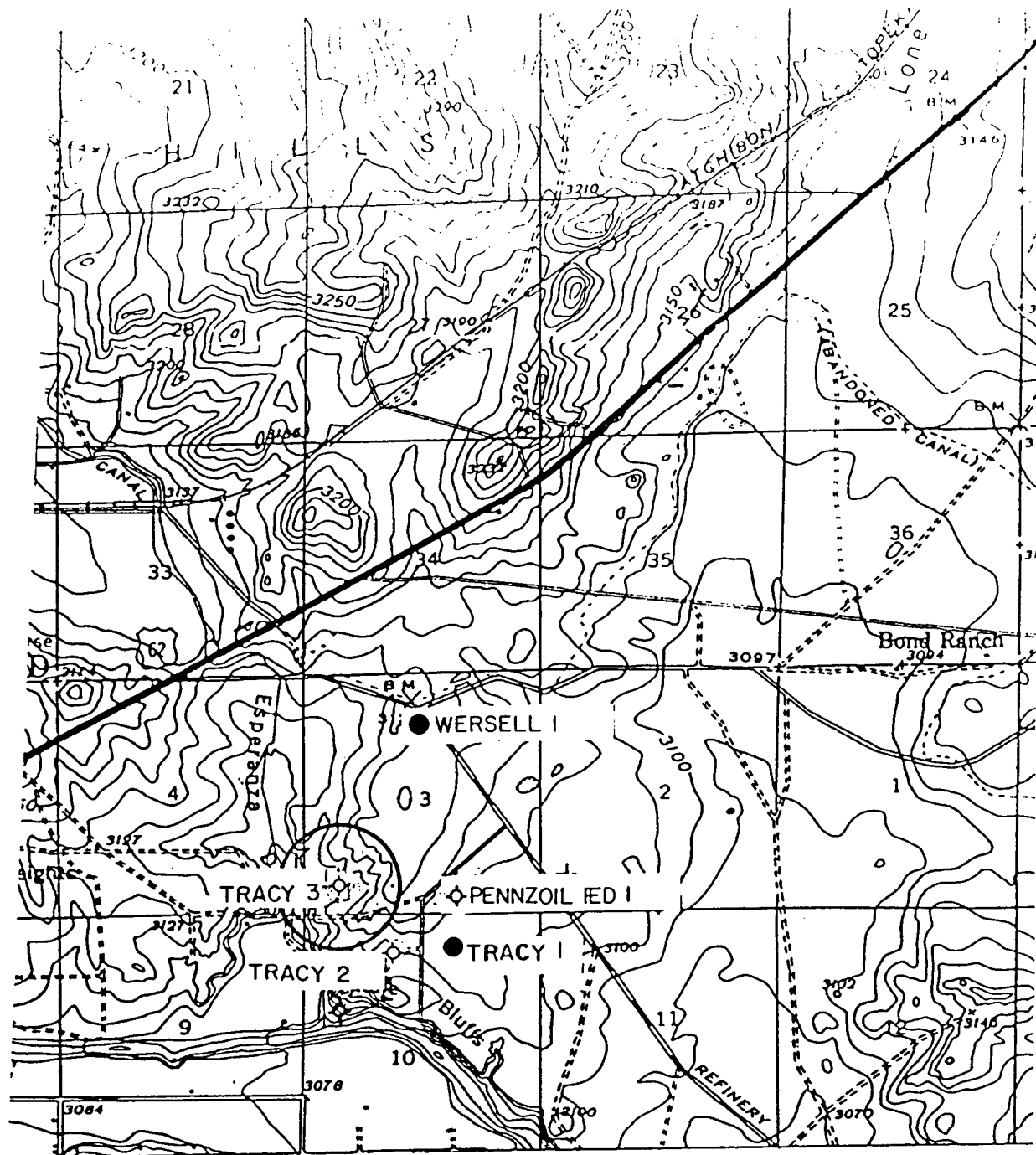


Figure 4-4

Location of oil and gas wells near the Tracy #3 Brine well. Pennzoil Federal #1 is located on the plant site. Circle represents 1/4 mile radius.

Surface and subsurface data were combined in Figure 4-5, which is an interpreted east-west geologic cross-section from the brine well (Tracy #3) to the plant site (Pennzoil Federal #1). There is no surface or subsurface evidence for faulting or other structures which might form conduits for upward migration of brine. The anhydrite beds which overlies and underlie the Salado salt are virtually impermeable. In addition, small fractures (if they exist) would tend to "heal" by recrystallization of anhydrite.

All wells shown on Figure 4-4 penetrate the Salado Salt. Tracy #1 and Pennzoil Federal #1 are dry, plugged and abandoned. Both are plugged above and below the salt. Tracy #2 and Wersell #1 produce oil from the Delaware Group, which is found below the Castile (Figure 4-5) and are cased through the salt. No wells penetrating either the salt or the anhydrite seal are known to exist within a 1/4 mile radius of the brine well (Tracy #3).

Calculation of fracture pressure at the salt bed depth in based on several conservative assumptions:

- 1) The lithostatic pressure is purely compressive, and due only to the density and thickness of the overlying strata.
- 2) The density of overlying strata is chosen as a minimum value, if a range is given for a particular lithology.
- 3) The static pressure of the fluid column is calculated for brine rather than fresh water.
- 4) Pump pressure is used, assuming no pressure loss in the pipelines.

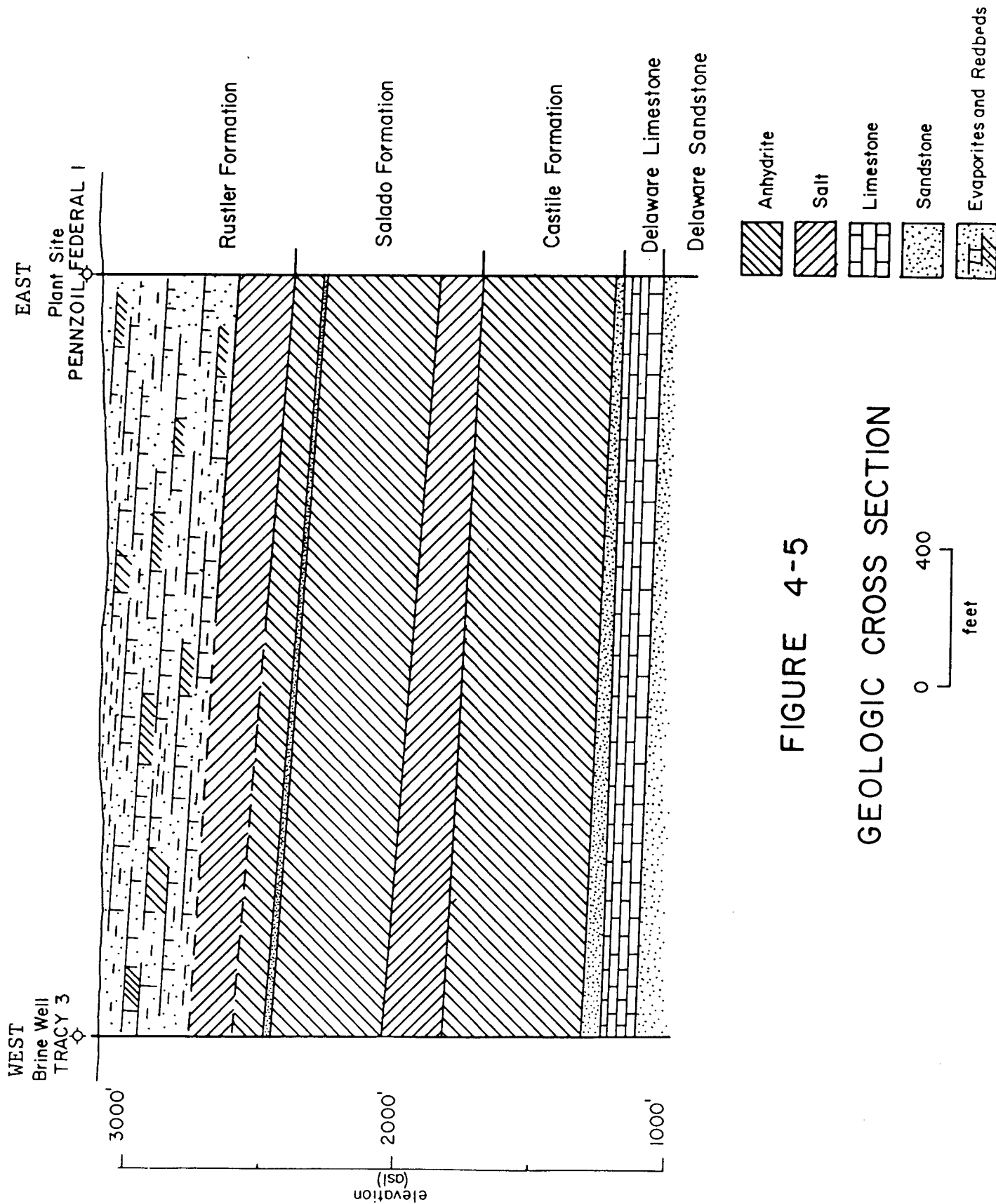


FIGURE 4-5
GEOLOGIC CROSS SECTION

The data and the pressure calculations are presented in Table 4-2.

4.2 SOILS

The Champion facility is located on soils of the Upton Series, as defined by the United States Soil Conservation Service (1971). Figure 4-6 is a soils map of the area surrounding the Champion site. The Upton soils are gravelly loams, developed as regoliths on deeply weathered bedrock. These soils typically have an indurated caliche layer 2 to 20 inches below the surface. This caliche layer is moderately permeable (where fractured) to poorly permeable, and commonly makes Upton soils unsuitable for irrigation because downward movement of water is severely inhibited. These soils generally support sparse vegetation, suitable only for native grazing. Depth to bedrock is generally 2 to 3 feet. At the site, weathered bedrock is typically 1 foot or less below the surface. These soils would strongly inhibit any downward movement of brine, if a spill were to occur.

| Layer | Lithology | Thickness Ft | m | Density g/cm ³ | Partial Pressure g/cm ² | Pressure psi |
|------------------------|----------------|-----------------|-----|------------------------------|---------------------------------------|-----------------|
| 1 | Evap.& redbeds | 330 | 101 | 2.5 | 25,250 | 359 |
| 2 | Salt | 160 | 49 | 2.16 | 10,370 | 147 |
| 3 | Anhydrite | 556 | 170 | 2.9 | 49,300 | 705 |
| TOTAL LITHOSTATIC LOAD | | | | | 84,920 | 1206 |

Pressure is calculated as:

Pressure (gram/cm²) = density (grams/cm³) x height (cm)

This yields pressure in units of grams/cm². To convert to more commonly used units, such as pounds per square inch (psi), a conversion factor of 1 g/cm² = 0.0142 psi is used.

The brine pressure calculation is based on a brine density of 1.2 g/cm³. This yields a pressure (at the top of the Salado) of 545 psi. If we add to this the pump pressure of 260 psi, a maximum brine pressure of 805 psi is possible. This is about 400 psi less than the lithostatic pressure of 1206 psi from Table 1. Given these parameters, it is not possible for fracturing to occur as a result of the injection operation.

Table 4-2 Lithostatic Load and Fracture Pressure Calculations

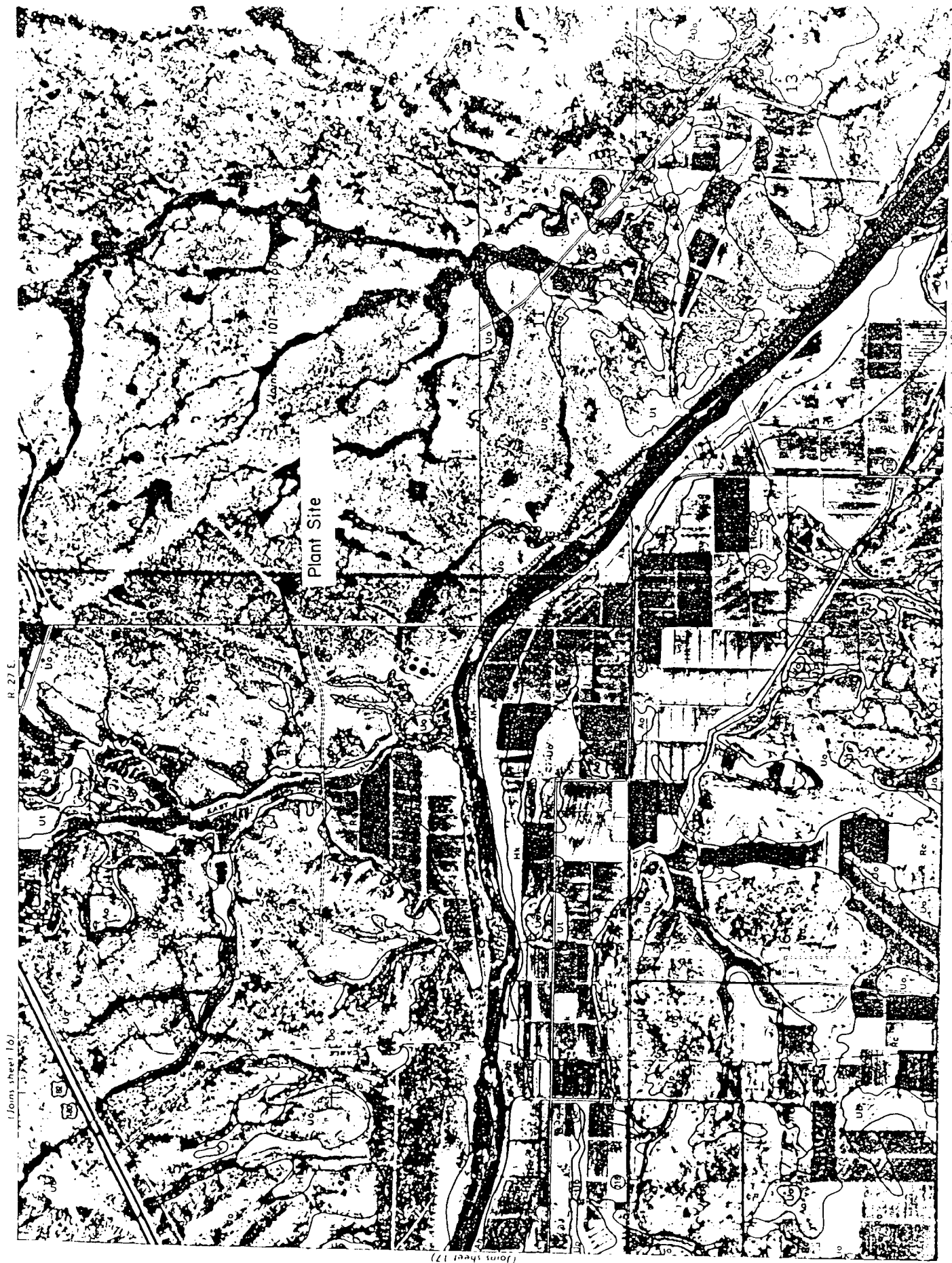


Figure 4-6 Soils in brine plant area. USSCS, 1971 U₀=Upton Loam

4.3 HYDROLOGY

4.3.1 Ground Water

Ground water is produced from the shallow alluvial cover near the Pecos River, and from artesian wells completed in the Culebra dolomite near the base of the Rustler Formation (Table 4-1).

Figure 4-7 is a map of the potentiometric surface of the shallow, alluvial ground water. The Champion facility is located on bedrock, so the shallow aquifer does not extend beneath this site. The shallow aquifer does not appear to exist closer than 0.6 miles from the brine site.

Artesian water is locally available from the Culebra Dolomite Member of the Rustler Formation. No producing artesian wells are logged with the State Engineer's Office within 1.5 miles of the brine site. The Culebra Dolomite was penetrated at 220 feet by a well drilled about 1/5 miles SW of the brine well ("dry well" in Figure 4-7). This well has produced no water, and was plugged and abandoned. Driller's records for Tracy #3 and Pennzoil Federal #1 make no mention of encountering ground water at any depth (Appendix D). Logs of water wells in sections adjoining the brine well are included as Appendix F.

The Neal Well (Appendix C) is not listed in the State Engineer's records, and produces water from an unknown depth, with an unknown static level. This well is located in the south 1/2 of Section 34, near the Eddy County Arena, 1.5 miles north of the brine station, and probably produces water from the artesian aquifer.

The irrigation well analyzed in Appendix C is located in SW

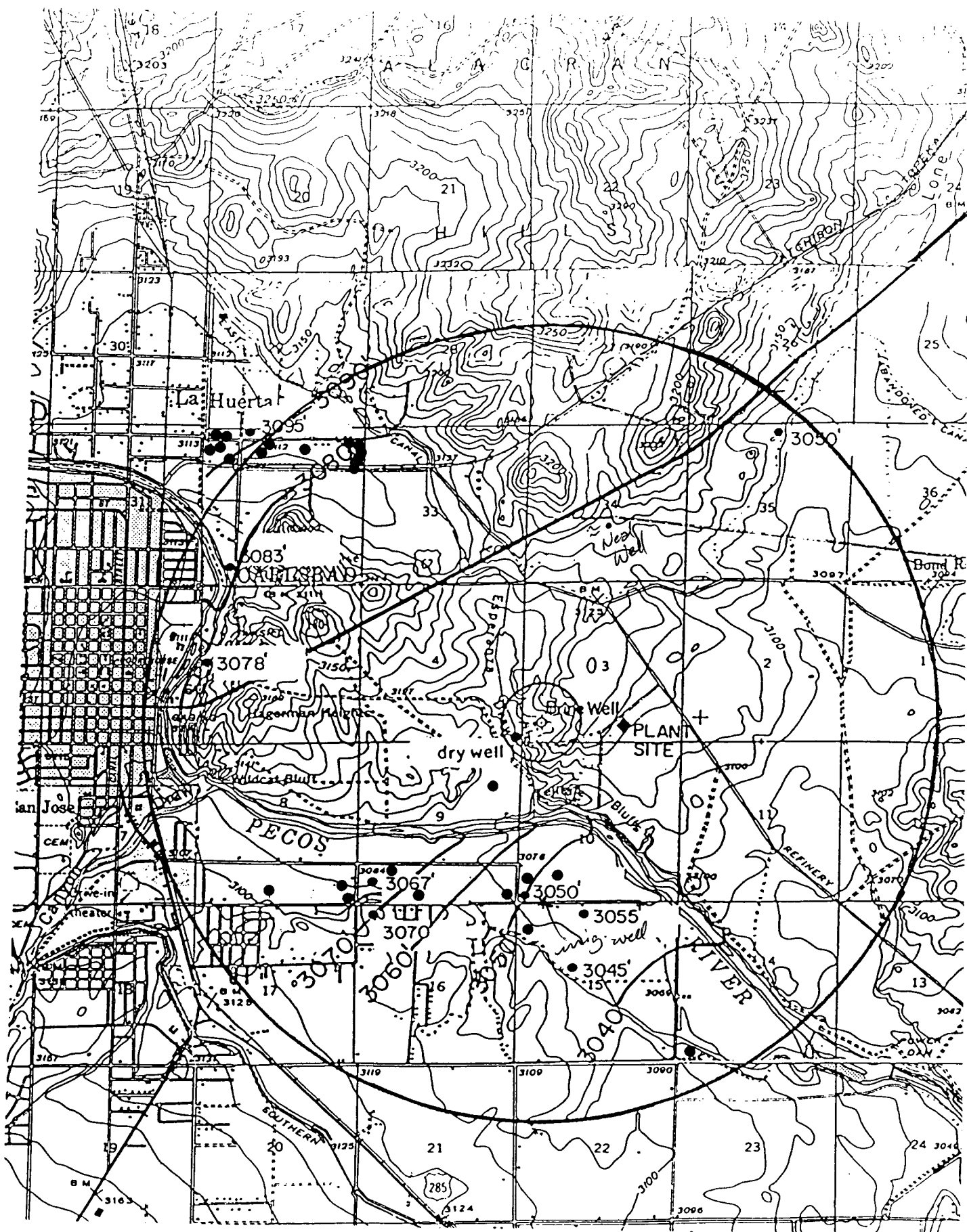


Figure 4-7
Location of water wells within 2 1/2 mile radius (small circle) of brine well. Contours on potentiometric surface of shallow aquifer.

SW SW Section 10, about 1 mile south of the brine well. It produces water from the alluvial aquifer.

Based on the dry well (Figure 4-7), general site geology and drillers' records, it appears that the alluvial aquifer does not extend closer than 0.6 miles to the brine site, and that the Culebra aquifer is either dry or nonexistent beneath the site. If the Culebra aquifer existed, it would lie 250 to 280 feet below the surface in this area. No ground water with less than 10,000 ppm TDS is known to exist below the Culebra in this area.

4.3.2 Surface Water

Surface water is confined to the Pecos River (0.6 to 1.1 miles away) and to ephemeral overland and arroyo flow during runoff events. There are no irrigated fields, irrigation ditches or bodies of surface water near the brine plant. There is a small, shallow stock pond about 500 feet to the northeast of the brine well, upslope from the well, and separated from it by a 2 to 3 foot high earthen dam.

The plant site is located on a broad, relatively level bluff (Figure 2-1). The contributing area of runoff in the plant area is very small, and the plant is located on a slight rise. The pond itself is built up above the original grade, and surrounded by a 3 to 7 foot high embankment, which isolates the pond from all surface runoff. A broad, shallow (about 30 feet) arroyo known as Esperanza Draw drains south into the Pecos River and passes about 600 feet to the west of the brine well. Automatic pump shut-off, as described in Section 3.3.2, prevents any potential leaks from ever reaching Esperanza Draw or the Pecos River.

4.4 GROUND WATER QUALITY

Background data on ground water quality is limited to analyses from two wells (Appendix C). The water from the irrigation well is of rather poor quality, and is produced from the shallow aquifer. The Neal well is believed to produce water from the artesian aquifer, and this water is of good quality.

Surface water quality (Pecos River) is quite variable, and is generally acceptable only where flow is high. During periods of low flow, Pecos River water is commonly too saline for irrigation.

5.0 MONITORING AND REPORTING PROGRAM

5.1 MONITORING PLAN

The hydrogeological characteristics of the site, design and operation of the Champion facilities, and the safeguards discussed in Section 3.0 all minimize the probability and potential volume of any possible accidental discharge. A casing failure in the well would release only fresh water, and failure of the brine lines from well to plant would cause an immediate shut-down of the circulating pumps. The brine-holding pond is very well designed, constructed and maintained (see Section 3.3) and the Hypalon liner is in very good condition.

We propose the following monitoring schedule:

- 1) On a quarterly basis the plant operator will walk and visually inspect the lines from the well to the plant, looking for seepage or any signs of pipe corrosion, at the same time inspect the well head assembly.

I thought it was buried

- 2) Annually, drain and wash down the brine pond, and inspect the liner. Drainage could be accomplished by refraining from refilling from the well.

- 3) The plant operator will visually inspect all pipes and pump equipment on the plant site on a quarterly basis, including quarterly testing of all automatic shut-off devices.

how about pressuring up on lines 1x yr or so, too?

- 4) Install flow meters on the lines leading from the plant to the well. Check pressures, flow rates and volume balance (volume injected versus volume returned) on a quarterly basis, to detect any possible subsurface loss.

monitoring injection pressure sufficient

*Brown delbafe
quality of
meters on
brine lines
do A-*

The only potential source of small, uncontrolled brine discharge is spillage from truck loading. Although the loading pump has an automatic shut-off, it is possible that some minor spillage may occur. Figure 5-1 illustrates the proposed design

for collecting small brine spills from the loading area. The area under the loading rack will be paved with asphalt, and will gently slope into the sump drain, connected by a buried pipe to a 35 mil Hypalon-lined pond, with about 3000 gallons capacity. Spilled brine will flow through the pipe to the pond, where it will evaporate. The spill catchment pond will be inspected on the same schedule as the main brine pond.

5.2 REPORTING SCHEDULE

The results of the monitoring outlined in Section 5.1 will be reported to NMEID on an annual basis, on the anniversary of the date of discharge plan approval. In the event that an unexpected problem occurs, resulting in an uncontrolled brine discharge (such as a line break or an overflow shut-off malfunction) this occurrence will be reported to NMEID within 10 working days and appropriate corrective action followed by monitoring will be taken.

6.0 CONTINGENCY PLAN

If inspection reveals a leak in the pipelines from the brine station to the well, the defective portions of the line shall be repaired or replaced within 10 working days. The line shall be pressure tested following any repairs, prior to returning the line to service.

Leaks in the pumps or piping at the brine station shall be repaired within 10 working days, and all repairs shall be pressure-tested. Automatic shut-off devices on pump equipment shall be tested on a quarterly basis, and repaired or replaced within 10 working days if found defective.

If annual inspection of the pond liner reveals any leaks, then the liner will be repaired or replaced with equivalent material before the pond is re-filled.

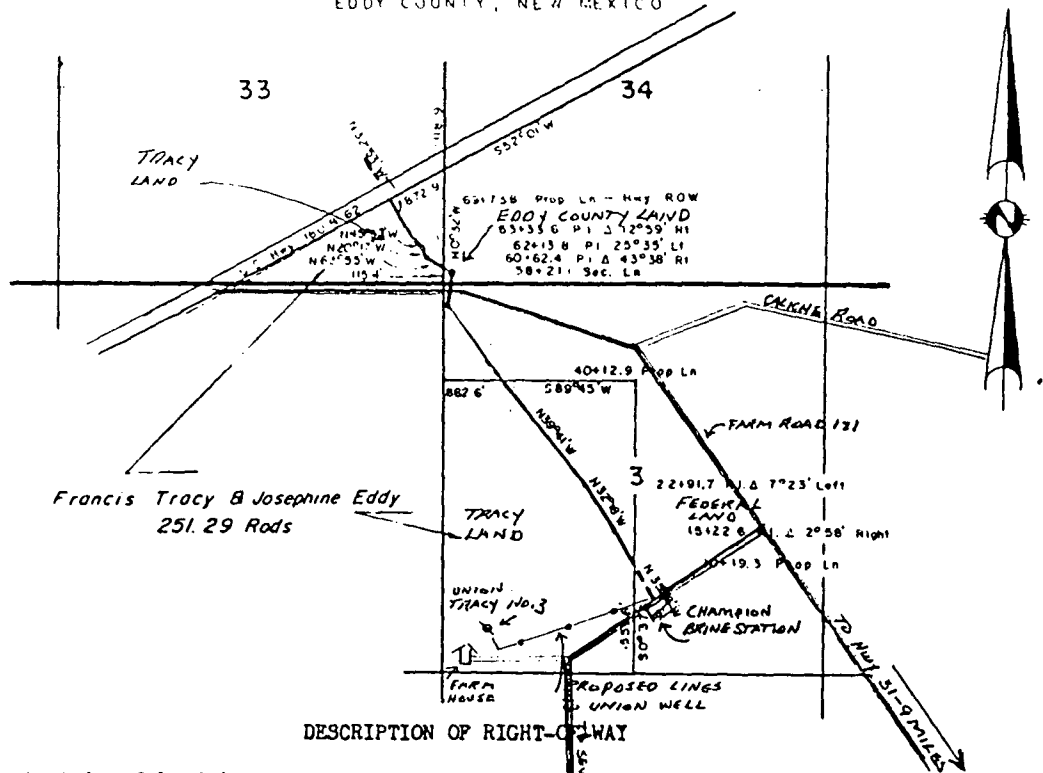
If ^{Pressure} flow monitoring indicates a casing failure in the well, circulation will be halted until the casing is repaired or replaced with equivalent material. New or repaired casing will be inspected by sonic or caliper logs, as required by OCD, to insure its integrity. If the production line fails, it will be removed from the well and inspected, repaired or replaced with equivalent material.

notification

APPENDIX A

Plats and legal descriptions of plant site.

SEC. 33, T21S, R27E, & SEC. 3, T22S, R27E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO



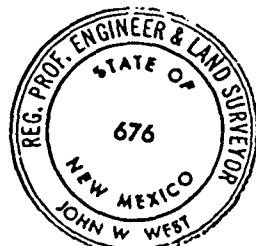
DESCRIPTION OF RIGHT-OF-WAY

A strip of land in Two Parts, 30 feet wide, being 15 feet right, and 15 feet left of the following described survey of centerline:

Part One: Beginning at Eng. Sta. 10+19.3, a point on the east boundary line of the SW 1/4 of Sec. 3, T22S, R27E, N. M. P. M., Eddy County, New Mexico, from which the SE Cor. of the said Sec. 3 bears S 0°37' E, 1559.6 feet; thence, N 35°16' W, crossing the Francis Tracy, and Josephine Eddy property, 503.3 feet to Eng. Sta. 15+22.6; thence, N 32°18' W, 769.1 feet to Eng. Sta. 22+91.7; thence, N 39°41' W, 1721.2 feet to Eng. Sta. 40+12.9, ending Part One, a point on the north boundary line of the SW 1/4 of the NW 1/4 of the said Sec. 3, from which the NW Cor. of the said Sec. 3 bears S 89°45' W, 882.6 feet, and N 0°57' W, 1315.14 feet.

Part Two: Beginning at Eng. Sta. 58+21.1, a point on the east boundary line of Sec. 33, T21S, R27E, N. M. P. M., Eddy County, New Mexico, from which the SE Cor. of the said Sec. 33 bears S 0°32' E, 115.4 feet; thence, N 63°55' W, across the said property, 241.3 feet to Eng. Sta. 60+62.4; thence, N 20°17' W, 151.4 feet to Eng. Sta. 62+13.8; thence, N 45°52' W, 119.8 feet to Eng. Sta. 63+33.6; thence, N 32°53' W, 640.2 feet to Eng. Sta. 69+73.8, ending Part Two, from which the E Cor. of the said Sec. 33 bears N 52°01' E, 872.9 feet, and N 0°32' W, 1118.9 feet.

251.29 Rods



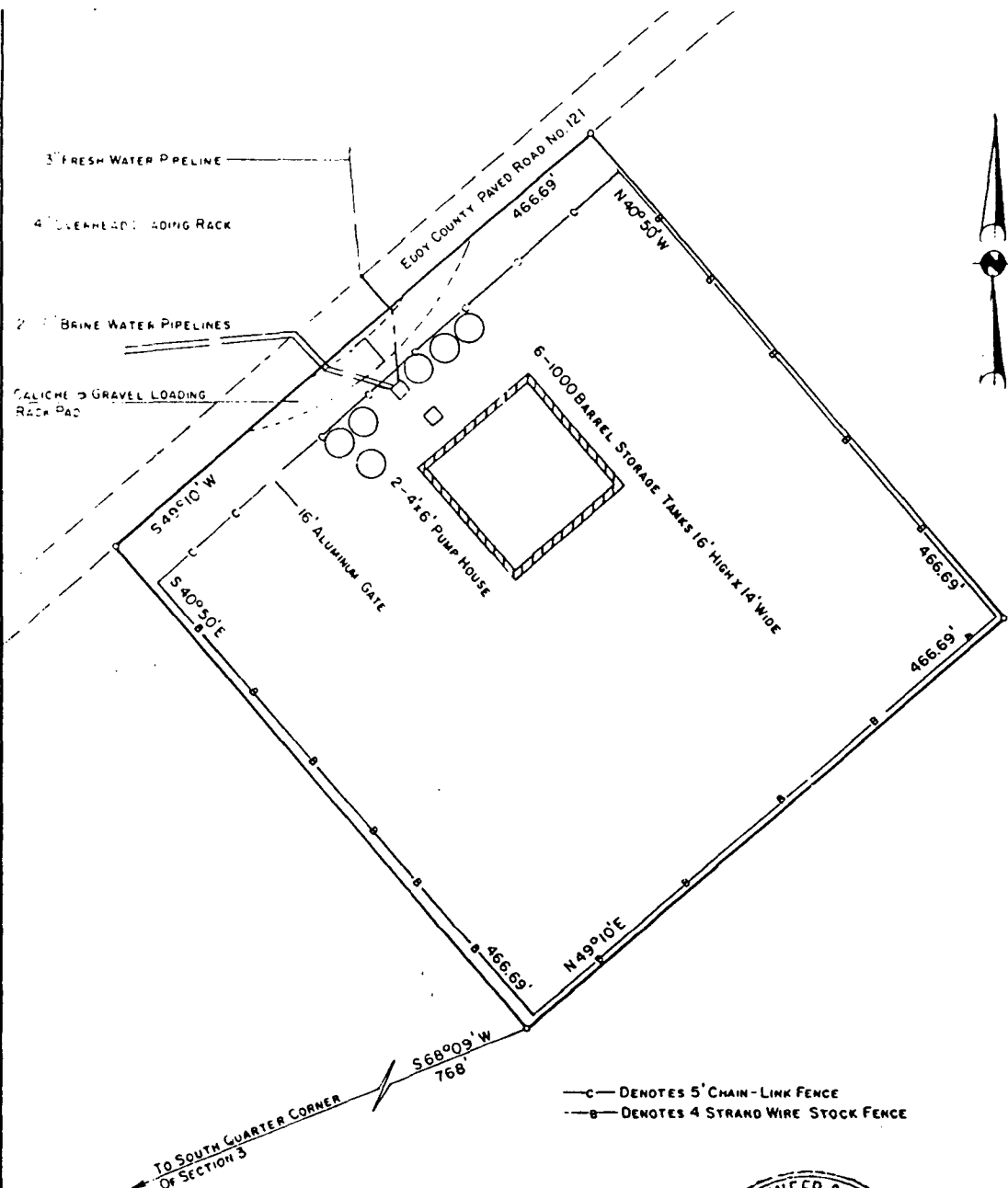
I HEREBY CERTIFY THAT THIS PLAT WAS MADE FROM NOTES TAKEN IN THE FIELD IN A BONA FIDE SURVEY MADE UNDER MY SUPERVISION, AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

John W. West
JOHN W. WEST, N.M. P.E. & L.S. NO 676
TEXAS R.P.S. NO. 1138
RONALD J. EIDSON, N.M. L.S. NO 3239
TEXAS R.P.S. NO 1883

CHAMPION CHEMICALS, INC.

Water pipeline crossing the Francis Tracy, & Josephine Eddy property in Sec. 33, T21S, R27E, and Sec. 3, T22S, R27E, N. M. P. M., Eddy County, New Mexico.

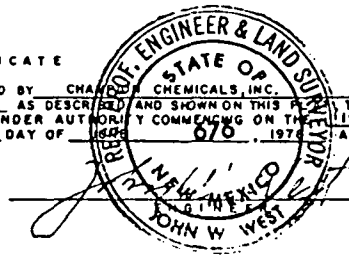
JOHN W. WEST ENGINEERING COMPANY
CONSULTING ENGINEERS HOBBS, NEW MEXICO
Scale: 1" = 2000'
Date: June 26, 1978
Drawn by: chb
Sheet 1 of 1 Sheets



—C— DENOTES 5' CHAIN-LINK FENCE
 —B— DENOTES 4 STRAND WIRE STOCK FENCE

ENGINEER'S CERTIFICATE

JOHN W. WEST STATES HE IS BY OCCUPATION A CIVIL ENGINEER EMPLOYED BY CHAMPION CHEMICALS, INC. TO MAKE THE SURVEY OF THE PLANT SITE AS DESCRIBED AND SHOWN ON THIS PLAN. THAT THE SURVEY OF SAID WORKS WAS MADE UNDER HIS SUPERVISION AND UNDER AUTHORITY COMMENCING ON THE 19TH DAY OF JUNE, 1978, AND ENDING ON THE 20TH DAY OF JUNE, 1978, AND THAT SUCH SURVEY IS ACCURATELY REPRESENTED UPON THIS PLAN.



APPLICANT'S CERTIFICATE

"THIS IS TO CERTIFY THAT JOHN W. WEST, WHO SUBSCRIBED THE STATEMENT HEREON, IS THE PERSON EMPLOYED BY THE UNDERSIGNED APPLICANT TO PREPARE THIS PLAN, WHICH HAS BEEN ADOPTED BY THE APPLICANT AS THE APPROXIMATE FINAL LOCATION OF THE WORKS THEREBY SHOWN; AND THAT THIS PLAN IS FILED AS PART OF THE COMPLETE APPLICATION, AND IN ORDER THAT THE APPLICANT MAY OBTAIN THE BENEFITS OF F.L.P.M. ACT OF OCT. 21, 1976, AND THAT I FURTHER CERTIFY THAT THE RIGHT-OF-WAY HEREIN DESCRIBED IS DESIRED FOR PLANT SITE."

APPLICANT'S SIGNATURE

TITLE

CHAMPION CHEMICALS, INC.

LAYOUT OF A PROPOSED PLANT SITE ON A 5.00 ACRE TRACT LOCATED IN SECTION 3, TOWNSHIP 22 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

DATE OCTOBER 20, 1978

DRAWN BY PRESLEY

SCALE 1"=100'

SHEET 2 OF 2 SHEETS

APPENDIX B

Monthly brine production.

| | | Barrels of Brine |
|------|-----------|---------------------|
| 1979 | January | 2735 |
| | February | 26139 |
| | March | 20939 |
| | April | 26663 |
| | May | 17471 |
| | June | 12207 |
| | July | 21550 |
| | August | 47170 |
| | September | 26081 |
| | October | 36940 |
| | November | 42620 |
| | December | 12600 |
| 1980 | January | 30960 |
| | February | 11610 |
| | March | 26096 |
| | April | 48155 |
| | May | 25050 |
| | June | 25655 |
| | July | 28800 |
| | August | 27295 |
| | September | 37225 |
| | October | 26385 |
| | November | 22275 |
| | December | 29150 |
| 1981 | January | 17205 |
| | February | 38673 |
| | March | 37365 |
| | April | 24110 |
| | May | 29582 |
| | June | 32445 |
| | July | 36234 |
| | August | 33020 |
| | September | 22000 |
| | October | 25680 |
| | November | 72877 |
| | December | --- |
| 1982 | January | 79000 |
| | February | 92750 |
| | March | 62217 |
| | April | 55135 |
| | May | 22715 |
| | June | 25865 |

~~measured on~~
truckloads

| | | |
|------|-----------|-------|
| 1982 | July | 5005 |
| | August | 11165 |
| | September | 6470 |
| | October | 0 |
| | November | 3510 |
| | December | 43351 |
| 1983 | January | 13171 |
| | February | 9385 |
| | March | 0 |
| | April | 735 |
| | May | 0 |
| | June | 3214 |
| | July | 11250 |
| | August | --- |
| | September | 600 |
| | October | 1650 |
| | November | 5100 |
| | December | 12150 |
| 1984 | January | 16660 |
| | February | 2750 |
| | March | 15250 |

APPENDIX C

Brine, well and Carlsbad water analyses.

Champion Chemicals, Inc.
Carlsbad Brine Well/Ground Water Analyses
Mineral Analysis Results

A. Dissolved Components (mg/l)

All Samples Taken 6-19-84

| <u>Component</u> | <u>Brine Well</u> | <u>Irrigation Well</u> | <u>Neal Well</u> | <u>Carlsbad Water</u> |
|--------------------------------------|-------------------|------------------------|------------------|-----------------------|
| Chloride | 184,000 | 2,000 | <40 | <40 |
| Bicarbonate | 159 | 342 | 329 | 354 |
| Carbonate | 0 | 0 | 0 | 0 |
| Hydroxide | 0 | 0 | 0 | 0 |
| Sulfate | 4,150 | 2,700 | 85 | 88 |
| Nitrate | 2.5 | 4.0 | 2.0 | 0.0 |
| Chromate | 0.0 | 0.0 | 0.0 | 0.0 |
| Silica | 4.0 | 4.8 | 3.2 | 3.8 |
| Phosphate | 0.0 | 0.0 | 0.0 | 0.0 |
| Hardness, Total (CaCO ₃) | 4,900 | 3,400 | 370 | 370 |
| Calcium | 1,680 | 1,000 | 100 | 100 |
| Magnesium | 170 | 219 | 29 | 24 |
| Iron | 0.0 | 0.0 | 0.0 | 0.0 |
| Barium | 0 | 0 | 0 | 0 |
| Chlorine (Free Residual | 0.0 | 0.0 | 0.0 | 0.0 |
| Chlorine (Total Residual) | 0.35 | 0.0 | 0.0 | 0.0 |
| Ammonia | 0.0 | 0.0 | 0.0 | 0.0 |
| Specific Gravity | 1.205 | 1.010 | 1.001 | 1.001 |
| pH (Field Meter) | 5.50 | 7.02 | 7.52 | 7.83 |

B. Suspended Solids (mg/l)

| <u>Component</u> | <u>Brine Well</u> | <u>Irrigation Well</u> | <u>Neal Well</u> | <u>Carlsbad Water</u> |
|--------------------------------|-------------------|------------------------|------------------|-----------------------|
| Organics ^{↑?} TOC? | 0.00 | 0.00 | 0.00 | 0.00 |
| Calcium carbonate | 0.00 | 0.00 | 0.00 | 0.00 |
| Iron oxide | 0.00 | 0.03 | 0.00 | 0.00 |
| Sand silicates | 0.00 | 0.12 | 0.00 | 0.00 |

APPENDIX D

**Workover specifications for Tracy #3 and
plugging record for Pennzoil Federal #1.**

| | |
|------------------------|---|
| NO. OF COPIES RECEIVED | |
| DISTRIBUTION | |
| SANTA FE | |
| FILE | |
| U.S.G.S. | |
| LAND OFFICE | |
| OPERATOR | 1 |

NEW MEXICO OIL CONSERVATION COMMISSION

30-015-203³¹
Form O-101
Revised 1-1-65

AUG 24 1978

O. C. C.
ARTESIA, OFFICE

3A. Indicate Type of Lease
STATE ☒ FEDERAL ☒

5. State Oil & Gas Lease No.

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

| | | |
|---|---|--|
| 1a. Type of Work DRILL <input type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> | | 7. Unit Agreement Name |
| b. Type of Well OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input checked="" type="checkbox"/> Re-entry | | 8. Firm or Lease Name Tracy |
| c. Name of Operator Hardin Houston Inc. | | 9. Well No. 3 |
| d. Address of Operator Box 4188, Odessa, Texas 79760 | | 10. Field and Pool, or Wildcat Brine Source |
| 4. Location of Well UNIT LETTER M LOCATED 560 FEET FROM THE S LINE AND 610 FEET FROM THE W LINE OF SEC. 3 TWP. 22S RGE. 27E NMPM | | 11. County Eddy |
| 12. Proposed Depth 1300 | | 13. Formation Salt |
| 14. History or C.T. Plng. Unit | | |
| 15. Interventions (Show whether DE, RI, etc.) 3102' RKB | 21A. Kind & Status Plug. Bond One Well | 21B. Drilling Contractor Wilson Well Serv. |
| 22. Approx. Date Work will start On Approval | | |

| 23. PROPOSED CASING AND CEMENT PROGRAM | | | | | |
|--|----------------|-----------------|---------------|-----------------|----------|
| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | SACKS OF CEMENT | EST. TOP |
| 11" | 8 5/8" | 24# | 551' | 200 | |
| 8 3/4" | 5 1/2" | 14# | 1050' | 300 | circ. |

It is proposed to re-enter old P&A well and drill to TD of 1300'. Will set approximately 1050' of 5½" casing with packer shoe and circulate to surface. To be completed as a brine source well.

Well is former Union Oil Co. of Calif., OTD @ 3470', P&A 9-26-70.

APPROVAL VALID
FOR 90 DAYS UNLESS
DRILLING COMMENCED,

EXPIRES 11-28-78

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signed W.A. Gressett Title Local Rep. Date 8-18-78
(This space for State Use)

APPROVED BY W.A. Gressett TITLE SUPERVISOR, DISTRICT II DATE AUG 28 1978
CONDITIONS OF APPROVAL, IF ANY:

CHAMPION CHEMICALS, INC.

INTER-OFFICE CORRESPONDENCE

JAN 4 1978

To: Sid Lindley, Midland, Texas
Johnny Johnson, Houston, Texas

Date: December 29, 1978

From: Raymond Brooks

Subject: Carlsbad Brine Well
Tracy #3
Eddy County, New Mexico

BRINE WELL OPERATIONS:

Found top of cement plug at 40 foot to 124 feet, from here down hole was filled with silty sand. Making slight show of oil and gas, apparantly from 30 foot zone of sand, 620' to 650'. Had to wash down, drill and circulate sand to 1000', where we broke through bridge. Went on to 1124', found hole cleat and circulated clean. Come out of hole and ran caliper survey and found some extra wash out from our operations. Top of salt at 1046' (old log, 1049'). Found good casing seat at 1031', cemented with 275 sacks and cement circulated. We then drilled out packer shoe and found TD at 1274'. This appears to be cement plug, also this is the bottom of the salt section, as per log. Hole cleaned up after two hours circulating. Making clean 9.8 brine. This should be a very good well.

PIPELINE:

Layed two 2-1/2" steel lines from the plant to the well site. Pressure tested line to 1200#, blew up one joint and found three collar leaks. Joints replaced, collars welded, retested to 1200#. All O.K. Line put in ditch and back filled minimum cover at any point 24".

BRINE STATION:

We have two 1000 barrel tanks with polythene liners in which we will circulate brine, one 1000 barrel which is junk, will have to be torn down, one 1000 barrel fresh water tank, which is in good condition, and one low 500 barrel tank, skid mounted fresh water tank which we should probably move later. All of the piping, connections and valves are in unusable condition and we are replacing with 2-1/2" extra pipe left over from pipeline. As agreed with land-owners and BLM, the triplex pump circulating the well will be operated with a hi-lo safety switch, which will shut the pump down in the event of sudden increase in pressure from plugging or freezing and also shut down in case of sudden loss of pressure from a ruptured line or leak. We will be able to circulate brine either from the tanks or the pit or any combination. The connection work should be finished and we can start circulating the well into the tanks by January 3rd or 4th. This could be done sooner except for the shut down for the three day holiday. The earthen storage pit turned out to be 134 x 110 as it was built to fit the old pit. Approximate volume of this

pit will be 15,000 barrels. The liner will not be installed until approximately January 5th, as we will not be ready to pump water into it until that time. We will be ready to deliver brine sales from tanks next week. The 4" overhead loading rack will be ready to deliver out of the pit within the next 10 days, and it will be this long before we will be able to accumulate any volume in the big pit. We will have shut down controls on fresh water tank, brine water tanks and storage pit to control spillage. We will also have automatic fill up on the fresh water tank which will protect our pump. We have as much automation as practical for our protection and simplicity of operation.

3" FRESH WATER LINE:

This line has a number of bad places with seepage leaks. After brine station completed, all of these leaks will be repaired and the line put in good order. We will also install water meters on the two land owners private lines as our contract, with them, limits the number of gallons they may use each month free. This will stop them from being dilatory about repairing leaks and wasting water as they have done in the past.

(May 1969)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STANDARD FORM NO. 100-10
(Other instructions on reverse side)

Budget Bureau No. 42-R1424

5. LEASE DESIGNATION AND SERIAL NO.

MI-047360-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT" for such proposals.)

1.

OIL WELL ☐ GAS WELL ☐ OTHER ☒ Dry hole

2. NAME OF OPERATOR

Union Oil Company of California

3. ADDRESS OF OPERATOR

P. O. Box 671 Midland, Texas 79701

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*
See also space 17 below.)
At surface

35° 12' E and 3930' FEL

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

Pennzoil Federal

9. WELL NO.

1

10. FIELD AND POOL, OR WILDCAT

Undesignated

11. SEC., T., R., M., OR BLK. AND
SURVEY OR AREA

Sec. 3, T-22-S, R-27-E

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

12. COUNTY OR PARISH

Eddy

13. STATE

N. Mexico

16.

Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT*

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Drilled to total depth of 3536'.

With mud circulated through drill pipe cement plugs were set as follows:

| | |
|--------|---------------|
| 25 SK. | 3535 - 3430' |
| 25 SK. | 2960 - 2753' |
| 35 SK. | 1970 - 1870' |
| 25 SK. | 1290 - 1135' |
| 35 SK. | 550 - 443' |
| 10 SK. | 20' - Surface |

Welded plate on 8 5/8" casing and installed dry hole marker.
Well plugged and abandoned 10-4-69.

Verbal permission to plug in the manner above obtained from Mr. Beckman 10-8-69.

RECEIVED
OCT 15 1969
D. C. C.
ARTESIA, OFFICE

18. I hereby certify that the foregoing is true and correct

SIGNED

TITLE District Drilling Supt.

DATE 10-8-69

(This space for Federal or State office use)

APPROVED BY
CONDITIONS OF APPROVAL, IF ANY:

TITLE

DATE

*See Instructions on Reverse Side

APPENDIX E
Receipt for liner installation

SOLD TO
 CHAMPION CHEMICALS
 P.O. BOX 1571
 ODESSA, TEXAS 79760
 ATTN: KAYMOND BROOKS

kem-kil liners
 TANK AND PIT LININGS
a division of kem-kil, Inc.

PURCHASE ORDER OR CONTRACT #
 LEASE OR LOCATION CARLSBAD BRINE STATION
 COUNTY AND TOWN EDDY - NEW MEXICO

P. O. Box 6707
 ODESSA, TEXAS 79762
 Phone (915) 563-1697

Page 1 of 1 Pages
 INVOICE NO. O-113
 INVOICE DATE JANUARY 15, 1979
 DATE INSTALLED JANUARY 11, 1979
 DATE SHIPPED
 F.O.B.

| QUANTITY | DESCRIPTION | UNIT PRICE | AMOUNT |
|----------|---|-----------------------------|---|
| | FURNISH AND INSTALL PERMANENT PIT LINER AT THE ABOVE LOCATION. 18,350' SQ. FT. <i>30 mil Klypalin</i> | \$.58/FT.SQ. 4% TAX | 10,648.80 <u>425.95</u> \$11,074.75 |
| | THANK YOU | | |

INVOICE

APPENDIX F
Water well logs.

WELL RECORD

Date of Receipt Permit No. C-105Name of permittee, Francis G. TracyStreet or P. O. Box 712, City and State Carlsbad, New Mexico1. Well location and description: The shallow well is located in SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 4, Township 22 S, Range 27 E

Elevation of top of casing above sea level, feet; diameter of hole, inches; total depth, feet;

depth to water upon completion, feet; drilling was commenced 19.....

and completed 19.....; name of drilling contractor Howard Hemlar203 S. Mesquite; Address, Carlsbad, New Mex, Driller's License No.

2. Principal Water-bearing Strata:

| | Depth in Feet | | Thickness | Description of Water-bearing Formation |
|-------|---------------|-----------|-----------|--|
| | From | To | | |
| No. 1 | <u>70</u> | <u>90</u> | | <u>Lime-Small amount of water</u> |
| No. 2 | | | | |
| No. 3 | | | | |
| No. 4 | | | | |
| No. 5 | | | | |

3. Casing Record:

| Diameter in inches | Pounds per ft. | Threads per inch | Depth of Casing or Liner Top Bottom | Feet of Casing | Type of Shoe | Perforation From To |
|-----------------------|-------------------|---------------------|--|-------------------|--------------|------------------------|
| | | | | <u>none</u> | | <u>dry hole</u> |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

4. If above construction replaces old well to be abandoned, give location: $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$

of Section, Township, Range.....; name and address of plugging contractor,

date of plugging 19.....; describe how well was plugged:

FILED

Mar 4, 1949

Office

Artesian Well Supervisor

Roswell, New Mexico

5. Log of Well:

[illegible]

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Howard Hemler

Licensed Well Driller

Instructions

This form shall be executed, preferably typewritten, in triplicate and filed with the State Engineer's Office at Roswell, New Mexico, within 10 days after drilling has been completed. Data on water-bearing strata and on all formations encountered should be as complete and accurate as possible.

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |

(A) Owner of well Jim BakerStreet and Number 307 Moore DriveCity CarlsbadState N. Mex.Well was drilled under Permit No. C-717 and is located in the SE 1/4 Sec 12 Twp 22 S Rge 27 E(B) Drilling Contractor Sam Smith License No. W.D. 108Street and Number 306 E. RoseCity CarlsbadState N. Mex.Drilling was commenced May 1 19 58Drilling was completed May 15 19 58

(Plat of 640 acres)

Elevation at top of casing in feet above sea level 3110 tops Total depth of well 60State whether well is shallow or artesian Shallow Depth to water upon completion 22

(3078)

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation |
|-----|---------------|----|-------------------|--|
| | From | To | | |
| 1 | 35 | 42 | 7 | Consolidated Caliche |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

Section 3

RECORD OF CASING

| Dia in. | Pounds ft. | Threads in | Depth | | Feet | Type Shoe | Perforations | |
|---------|------------|------------|-------|--------|------|-----------|--------------|----|
| | | | Top | Bottom | | | From | To |
| | | | | | 60 | Reg. | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Diameter Hole in in. | Tons Clay | No. Sacks of Cement | Methods Used |
|---------------|----|----------------------|-----------|---------------------|--------------|
| From | To | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5

PLUGGING RECORD

Name of Plugging Contractor _____ License No. _____

Street and Number _____ City _____ State _____

Tons of Clay used _____ Tons of Roughage used _____ Type of roughage _____

Plugging method used _____ Date Plugged _____ 19 _____

Plugging approved by: _____

Cement Plugs were placed as follows:

FOR USE OF STATE ENGINEER ONLY

FILED

SEP 11 1958

OFFICE

GROUND WATER DIVISION

ROSWEIL, NEW MEXICO

| No. | Depth of Plug | | No. of Sacks Used |
|-----|---------------|----|-------------------|
| | From | To | |
| | | | |
| | | | |
| | | | |
| | | | |

File No. C-717 Use Perm. Location No. 22.27.5.133

LOG OF WELL

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Ernest Smith
Well Driller

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |

(A) Owner of well Bruce Robertson
 Street and Number 512 E. Brown
 City Carlsbad State N. Mex.
 Well was drilled under Permit No. C-783 and is located in the
S.W. 1/4 NW 1/4 Sec. 5 Twp. 22S Rge. 27E
 (B) Drilling Contractor Sam Smith License No. W.P. 108
 Street and Number 306 E. Rose
 City Carlsbad State N. Mex.
 Drilling was commenced Nov 1 1957
 Drilling was completed Nov 30 1957

(Plat of 640 acres)

Elevation at top of casing in feet above sea level 3180.4 Total depth of well 135
 State whether well is shallow or artesian Shallow Depth to water upon completion 125 73/10
3107

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation |
|-----|---------------|-----|-------------------|--|
| | From | To | | |
| 1 | 124 | 135 | 11 | Conglomerate Rock |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

Section 3

RECORD OF CASING

| Dia. in. | Pounds ft. | Threads in | Depth | | Feet | Type Shoe | Perforations | |
|----------|------------|------------|-------|--------|------|-----------|--------------|----|
| | | | Top | Bottom | | | From | To |
| | | | | | 135 | Reg | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Diameter Hole in in. | Tons Clay | No. Sacks of Cement | Methods Used |
|---------------|----|----------------------|-----------|---------------------|--------------|
| From | To | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5

PLUGGING RECORD

Name of Plugging Contractor _____ License No. _____
 Street and Number _____ City _____ State _____
 Tons of Clay used _____ Tons of Roughage used _____ Type of roughage _____
 Plugging method used _____ Date Plugged _____ 19 _____
 Plugging approved by: _____

Cement Plugs were placed as follows:

| No. | Depth of Plug | | No. of Sacks Used |
|-----|---------------|----|-------------------|
| | From | To | |
| | | | |
| | | | |
| | | | |
| | | | |

Basin Supervisor

FOR USE OF STATE ENGINEER ONLY

Date Received SEP 11 1958

OFFICE
GROUND WATER SUPERVISOR
BOSSWELL, NEW MEXICO

File No. C-783 Use Sam Location No. 2227.5.313

LOG OF WELL

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Sam Smith
Well Driller

STATE ENGINEER OFFICE
WELL RECORD

FIELD BOOK 100

Section 1. GENERAL INFORMATION

(A) Owner of well Ed Walterscheid Owner's Well No. C - 22
 Street or Post Office Address Rt. 1, Box 154
 City and State Carlsbad, N.M. 88220

Well was drilled under Permit No. C - 22 and is located in the:

a. $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW of Section 10 Township 22 S Range 27 E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
 Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in
 the _____ Grant.

(B) Drilling Contractor H. Hemler License No. WD - 24

Address Frijoles Rt., Carlsbad, N.M.

Drilling Began 12/16/77 Completed 1/3/78 Type tools Cable Size of hole 16 in.

Elevation of land surface or 3080 + at well is _____ ft. Total depth of well _____ ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 30 ft.
(3050)

Section 2. PRINCIPAL WATER-BEARING STRATA

| Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation | Estimated Yield (gallons per minute) |
|---------------|-----|----------------------|--|---|
| From | To | | | |
| 49 | 80 | 31 | Cong. - yellow | |
| 85 | 140 | 65 | Cong. - yellow | |
| 145 | 175 | 30 | Lime - yellow | |
| 180 | 195 | 15 | Lime - yellow | |
| | | | Total | 1250 |

Section 3. RECORD OF CASING

| Diameter (inches) | Pounds per foot | Threads per in. | Depth in Feet | | Length (feet) | Type of Shoe | Perforations | |
|----------------------|--------------------|--------------------|---------------|--------|------------------|--------------|--------------|-----|
| | | | Top | Bottom | | | From | To |
| 16 | 40 | weld | -1 | 200 | 201 | none | 85 | 200 |
| | | | | | | | | |
| | | | | | | | | |

Section 4. RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Hole Diameter | Sacks of Mud | Cubic Feet of Cement | Method of Placement |
|---------------|----|------------------|-----------------|-------------------------|---------------------|
| From | To | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5. PLUGGING RECORD

Plugging Contractor _____
 Address _____
 Plugging Method _____
 Date Well Plugged _____
 Plugging approved by: _____

State Engineer Representative

| No. | Depth in Feet | | Cubic Feet of Cement |
|-----|---------------|--------|-------------------------|
| | Top | Bottom | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

FOR USE OF STATE ENGINEER ONLY

Date Received _____

Quad _____ FWL _____ FSL _____

File No. C-22 Use IRR. Location No. 22.27.10.33333

[illegible]

78 JAN 5 11 AM 8 32
STATE ENGINEER OFFICE
ROSELAND, N.M.

Al F Brinninstool
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 4 need be completed.

WELL RECORD

Date of Receipt _____ Permit No. C-22Name of permittee, I. L. CargillStreet or P. O. Box 512, City and State Carlsbad, N.M.1. Well location and description: The shallow well is located in SW $\frac{1}{4}$, SW $\frac{1}{4}$,
(shallow or artesian)SW $\frac{1}{4}$ of Section 10, Township 22S, Range 27E; Elevation of top ofcasing above sea level, _____ feet; diameter of hole, _____ inches; total depth, 200 feet;depth to water upon completion, _____ feet; drilling was commenced 7-19-54, 19____,and completed 7-23-54, 19____; name of drilling contractor B. & F. Drilling Co.210 N. Mesquite; Address, Carlsbad, N.M.; Driller's License No. R.D. 161

2. Principal Water-bearing Strata:

| | Depth in Feet | | Thickness | Description of Water-bearing Formation |
|-------|---------------|----|-----------------|--|
| | From | To | | |
| No. 1 | | | <u>Deepened</u> | |
| No. 2 | | | | |
| No. 3 | | | | |
| No. 4 | | | | |
| No. 5 | | | | |

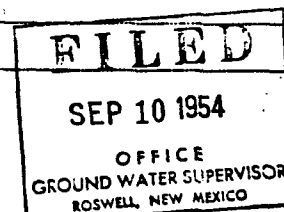
3. Casing Record:

| Diameter in inches | Pounds per ft. | Threads per inch | Depth of Casing or Liner | | Feet of Casing | Type of Shoe | Perforation | |
|-----------------------|-------------------|---------------------|--------------------------|--------|-------------------|--------------|-------------|-------|
| | | | Top | Bottom | | | From | To |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

4. If above construction replaces old well to be abandoned, give location: _____ $\frac{1}{4}$, _____ $\frac{1}{4}$, _____ $\frac{1}{4}$

of Section _____, Township _____, Range _____; name and address of plugging contractor,

date of plugging _____, 19____; describe how well was plugged: _____



A. Log of Well:

[illegible]

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Licensed Well Driller

Instructions

This form shall be executed; preferably typewritten, in triplicate and filed with the State Engineer's Office at Roswell, New Mexico, within 10 days after drilling has been completed. Data on water-bearing strata and on all formations encountered should be as complete and accurate as possible.

(This form is to be executed in triplicate)

WELL RECORD

Date of Receipt June 14, 1949 Permit No. C-160

Name of permittee, Edda D. Ennefer

Street or P. O. _____, City and State Carlsbad

1. Well location and description: The shallow well is located in NE $\frac{1}{4}$ SW $\frac{1}{4}$ (shallow or artesian)

SW $\frac{1}{4}$ of Section 10, Township 22, Range 27 E; Elevation of top of

casing above sea level, _____ feet; diameter of hole, 7 inches; total depth, 85 feet;

depth to water upon completion, _____ feet; drilling was commenced May 7, 1948, 19

and completed May 10, 1948; name of drilling contractor A. N. Brininstool

_____ ; Address, Carlsbad ; Driller's License No. _____

2. Principal Water-bearing Strata:

| | Depth in Feet | | Thickness | Description of Water-bearing Formation |
|-------|----------------|----|-----------|--|
| | From | To | | |
| No. 1 | 0 | 20 | | loose dirt |
| No. 2 | <u>xx99</u> 20 | 25 | | sand red |
| No. 3 | 25 | 78 | | red shale |
| No. 4 | 78 | 85 | | sand lime |
| No. 5 | | | | |

3. Casing Record:

| Diameter in inches | Pounds per ft. | Threads per inch | Depth of Casing or Liner | | Feet of Casing | Type of Shoe | Perforation | |
|-----------------------|-------------------|---------------------|------------------------------|--------|-------------------|--------------|-------------|----|
| | | | Top | Bottom | | | From | To |
| <u>7</u> | | | <u>with thread and coup.</u> | | <u>80</u> | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

4. If above construction replaces old well to be abandoned, give location: _____ $\frac{1}{4}$, _____ $\frac{1}{4}$, _____ $\frac{1}{4}$

of Section _____, Township _____, Range _____; name and address of plugging contractor,

date of plugging _____, 19 _____; describe how well was plugged: _____

[illegible]

Licensed Well Driller

This form shall be executed, preferably typewritten, in triplicate and filed with the State Engineer's Office at Roswell, New Mexico, within 10 days after drilling has been completed. Data on water-bearing strata and on all formations encountered should be as complete and accurate as possible.

**STATE ENGINEER OFFICE
WELL RECORD**

FIELD OVER LOG

Section 1. GENERAL INFORMATION

(A) Owner of well Sunset Gardens Memorial Park Owner's Well No. C - 21 - A
 Street or Post Office Address P.O. Box 4446
 City and State El Paso, Tex. 76106

Well was drilled under Permit No. C - 21 # A and is located in the:

a. SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 9 Township 22S Range 27E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
 Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in
 the _____ Grant.

(B) Drilling Contractor Howard Hemler License No. WD-24

Address Frijole Pt., Carlshad, N.M. 88220

Drilling Began 5/24/77 Completed 6/7/77 Type tools Cable Size of hole 12 in.

Elevation of land surface or 3110 ft. at well is _____ ft. Total depth of well 196 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 40 ft.

(3070)

Section 2. PRINCIPAL WATER-BEARING STRATA

| Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation | Estimated Yield (gallons per minute) |
|---------------|-----|----------------------|--|---|
| From | To | | | |
| 50 | 60 | 10 | Sand (cased off - caving) | |
| 70 | 150 | 80 | Congl. (small stratas of water) | |
| 160 | 163 | 3 | Yellow Lime | |
| Total | | | | 600 |

Section 3. RECORD OF CASING

| Diameter (inches) | Pounds per foot | Threads per in. | Depth in Feet | | Length (feet) | Type of Shoe | Perforations | |
|----------------------|--------------------|--------------------|---------------|--------|------------------|--------------|--------------|------------|
| | | | Top | Bottom | | | From | To |
| 16 | 44 | weld. | 0 | 78 | 78 | None | None | |
| 11 $\frac{1}{4}$ | 54 | T & C weld | -1 | 196 | 197 | None | 80 | 186 189 |
| | | | | | | | | |

Section 4. RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Hole Diameter | Sacks of Mud | Cubic Feet of Cement | Method of Placement |
|---------------|----|------------------|-----------------|-------------------------|---------------------|
| From | To | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by: _____

State Engineer Representative

| No. | Depth in Feet | | Cubic Feet of Cement |
|-----|---------------|--------|-------------------------|
| | Top | Bottom | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

FOR USE OF STATE ENGINEER ONLY

Date Received _____

Quad _____ FWL _____ FSL _____

File No. C-21-A Use IRR Location No. 22.27.9.44444

[illegible]

C-21-A

Note: 11 $\frac{1}{4}$ " casing perf. 4 times around w/ $\frac{1}{2}$ " perf. 1' long

ENGINEER'S OFFICE
DET. L. N. H.

77 JUN 10 AM 8 20

W. E. Remington
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

WELL RECORD

Name of permittee, Joe Bryan

1. Well location and description: The shallow well is located in SE 1/4 SW 1/4.
(shallow or artesian)
SW 1/4 of Section 9, Township 22 S., Range 27 E.; Elevation of top of
casing above sea level, feet; diameter of hole, 14 inches; total depth, 90 feet;
depth to water upon completion, 40 feet; drilling was commenced April, 1954,
and completed April, 1954; name of drilling contractor Howard Hemler
: Address, Fryole Route : Driller's License No. W. D. 24

| | Depth in Feet | | Thickness | Description of Water-bearing Formation |
|-------|---------------|----|-----------|--|
| | From | To | | |
| No. 1 | 70 | 90 | 20 | Cong. rock |
| No. 2 | | | | |
| No. 3 | | | | |
| No. 4 | | | | |
| No. 5 | | | | |

[illegible]

date of plugging 19.....; describe how well was plugged:

[illegible]

..Howard..Henlax

Licensed Well Driller

Instructions

This form shall be executed, preferably, typewritten, in triplicate and filed with the State Engineer's Office at Roswell, New Mexico, within 10 days after drilling has been completed. Data on water-bearing strata and on all formations encountered should be as complete and accurate as possible.

1990

27. 02. 1992

25

45-15000

• • • • •

STATE ENGINEER OFFICE WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Arb Drilling Company Owner's Well No. Calvani # 1
Street or Post Office Address P.O. Box 174
City and State Midland, Texas 79701

Well was drilled under Permit No. C-1493 and is located in the:
NW SE NE
a. 1/4 1/4 1/4 SW of Section 9 Township 22 Range 27 N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in
the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

| Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation | Estimated Yield (gallons per minute) |
|---------------|----|----------------------|--|---|
| From | To | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Section 3. RECORD OF CASING

| Diameter (inches) | Pounds per foot | Threads per in. | Depth in Feet | | Length (feet) | Type of Shoe | Perforations | |
|----------------------|--------------------|--------------------|---------------|--------|------------------|--------------|--------------|----|
| | | | Top | Bottom | | | From | To |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4. RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Hole Diameter | Sacks of Mud | Cubic Feet of Cement | Method of Placement |
|---------------|----|------------------|-----------------|-------------------------|---------------------|
| From | To | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5. PLUGGING RECORD

Plugging Contractor Abbott Bros.
Address P.O. Box 637, Hobbs, New Mexico 88240
Plugging Method Plugged with steel cap.
Date Well Plugged 1/30/74
Plugging approved by: [Signature]
State Engineer Representative

| No. | Depth in Feet | | Cubic Feet of Cement |
|-----|---------------|--------|-------------------------|
| | Top | Bottom | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

FOR USE OF STATE ENGINEER ONLY

Date Received _____

File No. C-1493

Use CWD

Location No. 22.27.9.32411 ✓

Quad Carlsbad FWL 2930 FSL 1880

[illegible]

1974 FEB -8 AM 8:26
STATE ENGINEER OFFICE
DISTRICT II
ROSWELL, N.M.

1974 FEB-6 AM 8:25
STATE ENGINEER OFFICE
DISTRICT II
ACQUITTAL BOX.

the foregoing is a true and correct record of the above

Merrill Abbott
Nelson Baker
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

STATE ENGINEER OFFICE
WELL RECORD

FIELD ENGR. LOG

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. C-1493 and is located in the:

a. 1/4 1/4 SW 1/4 of Section 9 Township 22 Range 27 N.M.P.M.
Co.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in
the _____ Grant.

(B) Drilling Contractor Robert J. Jones License No. 15-16

Address 201 1st St. N. Moorhead, Minn.

Drilling Began Aug. 20 Completed Aug. 30 Type tools 1 1/2 in. bit Size of hole 8 1/2 in.

Elevation of land surface or 3085 ft at well is _____ ft. Total depth of well 60 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 18 ft.
3067

Section 2. PRINCIPAL WATER-BEARING STRATA

| Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation | Estimated Yield (gallons per minute) |
|---------------|----|----------------------|--|---|
| From | To | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Section 3. RECORD OF CASING

| Diameter (inches) | Pounds per foot | Threads per in. | Depth in Feet | | Length (feet) | Type of Shoe | Perforations | |
|----------------------|--------------------|--------------------|---------------|--------|------------------|--------------|--------------|----|
| | | | Top | Bottom | | | From | To |
| 4 1/2 | 27 | 6 | 1 | 33 | 32 | none | | |
| 7 | 27 | 6 | 1 | 61 | 60 | none | | |
| | | | | | | | | |

Section 4. RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Hole Diameter | Sacks of Mud | Cubic Feet of Cement | Method of Placement |
|---------------|----|------------------|-----------------|-------------------------|---------------------|
| From | To | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____
State Engineer Representative

| No. | Depth in Feet | | Cubic Feet of Cement |
|-----|---------------|--------|-------------------------|
| | Top | Bottom | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

[illegible]

Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |

(A) Owner of well J H Singleton
 Street and Number 809 S ave C
 City Portales State NM
 Well was drilled under Permit No. C 260 and is located in the
S 8 1/4 S E 1/4 S 11 1/4 of Section 8 Twp. 22 S Rge. 27 E
 (B) Drilling Contractor Grinnell License No. W 2410
 Street and Number 906 S Hologuene
 City Carlsbad State NM
 Drilling was commenced 1-20 1965
 Drilling was completed 2-6 1965

(Plot of 640 acres)

Elevation at top of casing in feet above sea level _____ Total depth of well _____
 State whether well is shallow or artesian _____ Depth to water upon completion _____

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation |
|-----|---------------|----|-------------------|--|
| | From | To | | |
| 1 | 70 | 90 | 20 | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

Section 3

RECORD OF CASING

| Dia in. | Pounds ft. | Threads in | Depth | | Feet | Type Shoe | Perforations | |
|---------|------------|------------|-------|--------|------|-----------|--------------|----|
| | | | Top | Bottom | | | From | To |
| 7 1/2 | 20 | 8 | 0 | 90 | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Diameter Hole in in. | Tons Clay | No. Sacks of Cement | Methods Used |
|---------------|----|----------------------|-----------|---------------------|--------------|
| From | To | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5

PLUGGING RECORD

Name of Plugging Contractor _____ License No. _____
 Street and Number _____ City _____ State _____
 Tons of Clay used _____ Tons of Roughage used _____ Type of roughage _____
 Plugging method used _____ Date Plugged _____ 19 _____
 Plugging approved by: _____ Cement Plugs were placed as follows:

| No. | Depth of Plug | | No. of Sacks Used |
|-----|---------------|----|-------------------|
| | From | To | |
| | | | |
| | | | |
| | | | |
| | | | |

FOR USE OF STATE ENGINEER ONLY

Date Received 1966 FEB 23 AM 8:44

File No. C-360 Use Ors Location No. 22.27.8344

Section 6

LOG OF WELL

| Depth in Feet | | Thickness in Feet | Color | Type of Material Encountered |
|---------------|------|----------------------|-------|------------------------------|
| From | To | | | |
| 0 | 20 | 20 | | Reddish clay |
| 20 | 30 | 10 | | clay |
| 30 | 40 | 10 | | clay |
| 40 | 50 | 10 | | clay |
| 50 | 60 | 10 | | clay |
| 60 | 70 | 10 | | clay |
| 70 | 80 | 10 | | clay |
| 80 | 90 | 10 | | clay |
| 90 | 100 | 10 | | clay |
| 100 | 110 | 10 | | clay |
| 110 | 120 | 10 | | clay |
| 120 | 130 | 10 | | clay |
| 130 | 140 | 10 | | clay |
| 140 | 150 | 10 | | clay |
| 150 | 160 | 10 | | clay |
| 160 | 170 | 10 | | clay |
| 170 | 180 | 10 | | clay |
| 180 | 190 | 10 | | clay |
| 190 | 200 | 10 | | clay |
| 200 | 210 | 10 | | clay |
| 210 | 220 | 10 | | clay |
| 220 | 230 | 10 | | clay |
| 230 | 240 | 10 | | clay |
| 240 | 250 | 10 | | clay |
| 250 | 260 | 10 | | clay |
| 260 | 270 | 10 | | clay |
| 270 | 280 | 10 | | clay |
| 280 | 290 | 10 | | clay |
| 290 | 300 | 10 | | clay |
| 300 | 310 | 10 | | clay |
| 310 | 320 | 10 | | clay |
| 320 | 330 | 10 | | clay |
| 330 | 340 | 10 | | clay |
| 340 | 350 | 10 | | clay |
| 350 | 360 | 10 | | clay |
| 360 | 370 | 10 | | clay |
| 370 | 380 | 10 | | clay |
| 380 | 390 | 10 | | clay |
| 390 | 400 | 10 | | clay |
| 400 | 410 | 10 | | clay |
| 410 | 420 | 10 | | clay |
| 420 | 430 | 10 | | clay |
| 430 | 440 | 10 | | clay |
| 440 | 450 | 10 | | clay |
| 450 | 460 | 10 | | clay |
| 460 | 470 | 10 | | clay |
| 470 | 480 | 10 | | clay |
| 480 | 490 | 10 | | clay |
| 490 | 500 | 10 | | clay |
| 500 | 510 | 10 | | clay |
| 510 | 520 | 10 | | clay |
| 520 | 530 | 10 | | clay |
| 530 | 540 | 10 | | clay |
| 540 | 550 | 10 | | clay |
| 550 | 560 | 10 | | clay |
| 560 | 570 | 10 | | clay |
| 570 | 580 | 10 | | clay |
| 580 | 590 | 10 | | clay |
| 590 | 600 | 10 | | clay |
| 600 | 610 | 10 | | clay |
| 610 | 620 | 10 | | clay |
| 620 | 630 | 10 | | clay |
| 630 | 640 | 10 | | clay |
| 640 | 650 | 10 | | clay |
| 650 | 660 | 10 | | clay |
| 660 | 670 | 10 | | clay |
| 670 | 680 | 10 | | clay |
| 680 | 690 | 10 | | clay |
| 690 | 700 | 10 | | clay |
| 700 | 710 | 10 | | clay |
| 710 | 720 | 10 | | clay |
| 720 | 730 | 10 | | clay |
| 730 | 740 | 10 | | clay |
| 740 | 750 | 10 | | clay |
| 750 | 760 | 10 | | clay |
| 760 | 770 | 10 | | clay |
| 770 | 780 | 10 | | clay |
| 780 | 790 | 10 | | clay |
| 790 | 800 | 10 | | clay |
| 800 | 810 | 10 | | clay |
| 810 | 820 | 10 | | clay |
| 820 | 830 | 10 | | clay |
| 830 | 840 | 10 | | clay |
| 840 | 850 | 10 | | clay |
| 850 | 860 | 10 | | clay |
| 860 | 870 | 10 | | clay |
| 870 | 880 | 10 | | clay |
| 880 | 890 | 10 | | clay |
| 890 | 900 | 10 | | clay |
| 900 | 910 | 10 | | clay |
| 910 | 920 | 10 | | clay |
| 920 | 930 | 10 | | clay |
| 930 | 940 | 10 | | clay |
| 940 | 950 | 10 | | clay |
| 950 | 960 | 10 | | clay |
| 960 | 970 | 10 | | clay |
| 970 | 980 | 10 | | clay |
| 980 | 990 | 10 | | clay |
| 990 | 1000 | 10 | | clay |

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

A. M. Brininstock
Well Driller

WELL RECORD

Date of Receipt Permit No. C- 412

Name of permittee, Hilda B. BriffithStreet or P. O. 112 W. Hagerman, City and State Carlsbad, N. M.

1. Well location and description: The shallow well is located in SE $\frac{1}{4}$ SE $\frac{1}{4}$ (shallow or artesian)
 $\frac{1}{4}$ of Section 8, Township 22 S, Range 27 E; Elevation of top of
casing above sea level, feet; diameter of hole, inches; total depth, 237 feet;
depth to water upon completion, feet; drilling was commenced 9-5-51, 19.....
and completed 9-21-50, 19.....; name of drilling contractor Joe Donowho
302 Ferndale; Address, Carlsbad, New Mexico; Driller's License No.

2. Principal Water-bearing Strata:

| | Depth in Feet | | Thickness | Description of Water-bearing Formation |
|-------|---------------|----|-----------|--|
| | From | To | | |
| No. 1 | 50 | 51 | 1 | yellow lime |
| No. 2 | | | | |
| No. 3 | | | | |
| No. 4 | | | | |
| No. 5 | | | | |

3. Casing Record:

| Diameter in inches | Pounds per ft. | Threads per inch | Depth of Casing or Liner | | Feet of Casing | Type of Shoe | Perforation | |
|-----------------------|-------------------|---------------------|--------------------------|--------|-------------------|--------------|-------------|----|
| | | | Top | Bottom | | | From | To |
| 7.00 | | | | | 40 | sd | hold walls | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

4. If above construction replaces old well to be abandoned, give location: $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$

of Section, Township, Range.....; name and address of plugging contractor,

date of plugging, 19.....; describe how well was plugged:

RECEIVED
Mar 16, 1953
State Engineer
Santa Fe, New Mexico

5. Log of Well:

[illegible]

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Joe Donowho

Leonard Wolf Driller

Instructions

This form shall be executed, preferably typewritten, in triplicate and filed with the State Engineer's Office at Roswell, New Mexico, within 10 days after drilling has been completed. Data on water-bearing strata and on all formations encountered should be as complete and accurate as possible.

WELL RECORD

Date of Receipt March 17, 1953 Permit No. C-360Name of permittee, Bick MorrissonStreet or P. O. _____, City and State Carlsbad1. Well location and description: The shallow well is located in SE $\frac{1}{4}$, SE $\frac{1}{4}$,
(shallow or artesian)SE $\frac{1}{4}$ of Section 8, Township 22, Range 27; Elevation of top ofcasing above sea level, _____ feet; diameter of hole, _____ inches; total depth, 125 feet;depth to water upon completion, _____ feet; drilling was commenced November 15, 1952and completed November 25, 1952; name of drilling contractor Sam S. Smith

_____; Address, _____; Driller's License No. _____

2. Principal Water-bearing Strata:

| | Depth in Feet | | Thickness | Description of Water-bearing Formation |
|-------|---------------|------------|-----------|--|
| | From | To | | |
| No. 1 | <u>31</u> | <u>33</u> | | <u>sand</u> |
| No. 2 | <u>45</u> | <u>55</u> | | <u>sand and gravel</u> |
| No. 3 | <u>55</u> | <u>110</u> | | <u>sand</u> |
| No. 4 | | | | |
| No. 5 | | | | |

3. Casing Record:

| Diameter in inches | Pounds per ft. | Threads per inch | Depth of Casing or Liner | | Feet of Casing | Type of Shoe | Perforation | |
|------------------------|-------------------|---------------------|--------------------------|--------|-------------------|--------------|-------------|-----------|
| | | | Top | Bottom | | | From | To |
| <u>93' of 16" pipe</u> | | | | | | | <u>31</u> | <u>93</u> |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

4. If above construction replaces old well to be abandoned, give location: $\frac{1}{4}$, $\frac{1}{4}$, $\frac{1}{4}$

of Section _____, Township _____, Range _____; name and address of plugging contractor,

date of plugging _____, 19____; describe how well was plugged: _____

5. Log of Well:

[illegible]

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

.....Sam S. Smith.....
 Licensed Well Driller

Instructions

This form shall be executed, preferably typewritten, in triplicate and filed with the State Engineer's Office at Roswell, New Mexico, within 10 days after drilling has been completed. Data on water-bearing strata and on all formations encountered should be as complete and accurate as possible.

WELL RECORD

FILE NO. C-43

INSTRUCTIONS: This form should be typewritten, and filed in the office of the State Engineer, (P.O. Box 1079) Santa Fe, New Mexico, unless the well is situated in the Roswell Artesian Basin, in which case it should be filed in the office of the Artesian Well Supervisor, Roswell, New Mexico. Section 5 should be answered only if an old artesian well has been plugged. All other sections should be answered in full in every case, regardless of whether the well drilled is shallow or artesian in character. This report must be subscribed and sworn to before a Notary Public.

SEC. 1

| | |
|----|----|
| NW | NE |
| SW | SE |

(Plat of 640 acres)
Locate Well Accurately

Owner of well Lorne Bros
Street and Number Est. 11 Rm 155
Post Office Carlsbad New Mex.
Well was drilled under Permit No. C-43 and
is located in the SW 1/4 SW 1/4 SW 1/4 of Section 14
Township 22-S, Range 27-E
Drilling Contractor Harold H. Hensley
Street and Number 203 S. Main St.
Post Office Carlsbad New Mex.

Drilling was commenced _____ 19 _____ Drilling was completed _____ 19 _____

Elevation at top of casing in feet above sea level _____

State whether well is shallow or artesian Shallow

SEC. 2

PRINCIPAL WATER-BEARING STRATA

No. 1, from 100 to 115, Thickness in feet 15, Formation Gravel
No. 2, from _____ to _____, Thickness in feet _____, Formation _____
No. 3, from _____ to _____, Thickness in feet _____, Formation _____
No. 4, from _____ to _____, Thickness in feet _____, Formation _____
No. 5, from _____ to _____, Thickness in feet _____, Formation _____

SEC. 3

RECORD OF CASING

| DIAMETER IN INCHES | POUNDS PER FOOT | THREADS PER INCH | NAME OF MANUFACTURER | FEET OF CASING | TYPE OF SHOE | PERFORATED | | PURPOSE |
|-----------------------|--------------------|---------------------|-------------------------|-------------------|-----------------|------------|----|---------|
| | | | | | | FROM | TO | |
| <u>6</u> | | <u>10</u> | | <u>100</u> | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

SEC. 4

RECORD OF MUDDING AND CEMENTING

| DIAMETER OF HOLE IN INCHES | NUMBER OF SACKS OF CEMENT | METHODS USED | SPECIFIC GRAVITY WATER & MUD (24°) | TONS OF CLAY USED |
|-------------------------------|------------------------------|--------------|---------------------------------------|----------------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

SEC. 5

PLUGGING RECORD OF OLD WELL

Well is located in the _____ N _____ W _____ of Section _____ Township _____

Range _____ Name of plugging contractor _____

Street and Number _____ Post Office _____

Tons of clay used _____ Tons of roughage used _____ Type of roughage _____

Was plugging approved by Artesian Well Supervisor _____

Cement plugs were placed as follows:

No. 1 was placed at _____ feet Number of sacks of cement used _____
No. 2 was placed at _____ feet Number of sacks of cement used _____
No. 3 was placed at _____ feet Number of sacks of cement used _____
No. 4 was placed at _____ feet Number of sacks of cement used _____
No. 5 was placed at _____ feet Number of sacks of cement used _____

(OVER)

C-43

22-27-14-333

LOG OF WELL

| FROM (DEPTH IN FEET) | TO (DEPTH IN FEET) | THICKNESS IN FEET | CLASSIFICATION OF FORMATION |
|----------------------|--------------------|-------------------|-----------------------------|
| 1 | 40 | 40 | Boulders |
| 40 | 60 | 20 | Red Rock |
| 60 | 100 | 40 | Dry sand |
| 100 | 105 | 5 | Rock |
| 105 | 120 | 15 | Sand |

I, Edward J. Connelley, do solemnly swear that, to the best of my knowledge and belief, the foregoing information is a true and correct record of the well for which report is hereby made, insofar as can be determined from all available records.

SUBSCRIBED AND SWORN TO BEFORE ME this _____

day of _____, A. D., 19 _____

Notary Public

My Commission Expires

Signed

Position

Street and Number

Post Office

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |

(A) Owner of well Waltersheid Brothers
 Street and Number _____
 City Carlsbad State N.M.
 Well was drilled under Permit No. C-576 and is located in the
 SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 15 Twp. 22S Rge. 27E
 (B) Drilling Contractor B & J Drilg. License No. WD-460
 Street and Number 208 S. 38th
 City Artesia State N.M.
 Drilling was commenced June 15 1972
 Drilling was completed June 20 1972

(Plat of 640 acres)

Elevation at top of casing in feet above sea level 0 Total depth of well 184
 State whether well is shallow or artesian Shallow Depth to water upon completion 184

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation (Deepen) |
|-----|---------------|-----|-------------------|--|
| | From | To | | |
| 1 | 115 | 125 | 10 | Lime |
| 2 | 125 | 132 | 7 | Yellow Shale |
| 3 | 132 | 140 | 8 | Lime |
| 4 | 140 | 145 | 5 | Blue shale |
| 5 | 145 | 184 | 39 | Gyp and Shale Anhydrite |

Section 3

RECORD OF CASING

| Dia. in. | Pounds ft. | Threads in. | Depth | | Feet | Type Shoe | Perforations | |
|-------------|---------------|----------------|-------|--------|------|-----------|--------------|----|
| | | | Top | Bottom | | | From | To |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Diameter Hole in in. | Tons Clay | No. Sacks of Cement | Methods Used |
|---------------|----|-------------------------|--------------|------------------------|--------------|
| From | To | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5

PLUGGING RECORD

Name of Plugging Contractor Waltersheid Brothers License No. _____
 Street and Number _____ City _____ State _____
 Tons of Clay used _____ Tons of Roughage used _____ Type of roughage _____
 Plugging method used Hydraulic Fracturing Date Plugged 19
 Plugging approved by: JO ENG Cement Plugs were placed as follows:

Basin Supervisor _____
 FOR USE OF STATE ENGINEER ONLY
 Date Received June 26 1972 8:33 AM
 File No. C-576 Use IRR. Location No. 22.27.15.1131

| No. | Depth of Plug | | No. of Sacks Used |
|-----|---------------|----|-------------------|
| | From | To | |
| | | | |
| | | | |
| | | | |
| | | | |

LOG OF WELL

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Well Driller

(S) NAME: [REDACTED] DOB: [REDACTED]
 (M) MI: [REDACTED] SSN: [REDACTED]
 (A) MA: [REDACTED] PHONE: [REDACTED]
 (E) EMAIL: [REDACTED]
 (P) PASS: [REDACTED]

(U) ORIGIN OF INFO:----- DISCREPANCY RESOLVED

2004/05

1980-1981, 1982-1983, 1984-1985, 1986-1987, 1988-1989, 1990-1991, 1992-1993, 1994-1995, 1996-1997, 1998-1999, 2000-2001, 2002-2003, 2004-2005, 2006-2007, 2008-2009, 2010-2011, 2012-2013, 2014-2015, 2016-2017, 2018-2019, 2020-2021, 2022-2023, 2024-2025, 2026-2027, 2028-2029, 2030-2031, 2032-2033, 2034-2035, 2036-2037, 2038-2039, 2040-2041, 2042-2043, 2044-2045, 2046-2047, 2048-2049, 2050-2051, 2052-2053, 2054-2055, 2056-2057, 2058-2059, 2060-2061, 2062-2063, 2064-2065, 2066-2067, 2068-2069, 2070-2071, 2072-2073, 2074-2075, 2076-2077, 2078-2079, 2080-2081, 2082-2083, 2084-2085, 2086-2087, 2088-2089, 2090-2091, 2092-2093, 2094-2095, 2096-2097, 2098-2099, 2100-2101, 2102-2103, 2104-2105, 2106-2107, 2108-2109, 2110-2111, 2112-2113, 2114-2115, 2116-2117, 2118-2119, 2120-2121, 2122-2123, 2124-2125, 2126-2127, 2128-2129, 2130-2131, 2132-2133, 2134-2135, 2136-2137, 2138-2139, 2140-2141, 2142-2143, 2144-2145, 2146-2147, 2148-2149, 2150-2151, 2152-2153, 2154-2155, 2156-2157, 2158-2159, 2160-2161, 2162-2163, 2164-2165, 2166-2167, 2168-2169, 2170-2171, 2172-2173, 2174-2175, 2176-2177, 2178-2179, 2180-2181, 2182-2183, 2184-2185, 2186-2187, 2188-2189, 2190-2191, 2192-2193, 2194-2195, 2196-2197, 2198-2199, 2200-2201, 2202-2203, 2204-2205, 2206-2207, 2208-2209, 2210-2211, 2212-2213, 2214-2215, 2216-2217, 2218-2219, 2220-2221, 2222-2223, 2224-2225, 2226-2227, 2228-2229, 2230-2231, 2232-2233, 2234-2235, 2236-2237, 2238-2239, 2240-2241, 2242-2243, 2244-2245, 2246-2247, 2248-2249, 2250-2251, 2252-2253, 2254-2255, 2256-2257, 2258-2259, 2260-2261, 2262-2263, 2264-2265, 2266-2267, 2268-2269, 2270-2271, 2272-2273, 2274-2275, 2276-2277, 2278-2279, 2280-2281, 2282-2283, 2284-2285, 2286-2287, 2288-2289, 2290-2291, 2292-2293, 2294-2295, 2296-2297, 2298-2299, 2300-2301, 2302-2303, 2304-2305, 2306-2307, 2308-2309, 2310-2311, 2312-2313, 2314-2315, 2316-2317, 2318-2319, 2320-2321, 2322-2323, 2324-2325, 2326-2327, 2328-2329, 2330-2331, 2332-2333, 2334-2335, 2336-2337, 2338-2339, 2340-2341, 2342-2343, 2344-2345, 2346-2347, 2348-2349, 2350-2351, 2352-2353, 2354-2355, 2356-2357, 2358-2359, 2360-2361, 2362-2363, 2364-2365, 2366-2367, 2368-2369, 2370-2371, 2372-2373, 2374-2375, 2376-2377, 2378-2379, 2380-2381, 2382-2383, 2384-2385, 2386-2387, 2388-2389, 2390-2391, 2392-2393, 2394-2395, 2396-2397, 2398-2399, 2400-2401, 2402-2403, 2404-2405, 2406-2407, 2408-2409, 2410-2411, 2412-2413, 2414-2415, 2416-2417, 2418-2419, 2420-2421, 2422-2423, 2424-2425, 2426-2427, 2428-2429, 2430-2431, 2432-2433, 2434-2435, 2436-2437, 2438-2439, 2440-2441, 2442-2443, 2444-2445, 2446-2447, 2448-2449, 2450-2451, 2452-2453, 2454-2455, 2456-2457, 2458-2459, 2460-2461, 2462-2463, 2464-2465, 2466-2467, 2468-2469, 2470-2471, 2472-2473, 2474-2475, 2476-2477, 2478-2479, 2480-2481, 2482-2483, 2484-2485, 2486-2487, 2488-2489, 2490-2491, 2492-2493, 2494-2495, 2496-2497, 2498-2499, 2500-2501, 2502-2503, 2504-2505, 2506-2507, 2508-2509, 2510-2511, 2512-2513, 2514-2515, 2516-2517, 2518-2519, 2520-2521, 2522-2523, 2524-2525, 2526-2527, 2528-2529, 2530-2531, 2532-2533, 2534-2535, 2536-2537, 2538-2539, 2540-2541, 2542-2543, 2544-2545, 2546-2547, 2548-2549, 2550-2551, 2552-2553, 2554-2555, 2556-2557, 2558-2559, 2560-2561, 2562-2563, 2564-2565, 2566-2567, 2568-2569, 2570-2571, 2572-2573, 2574-2575, 2576-2577, 2578-2579, 2580-2581, 2582-2583, 2584-2585, 2586-2587, 2588-2589, 2590-2591, 2592-2593, 2594-2595, 2596-2597, 2598-2599, 2600-2601, 2602-2603, 2604-2605, 2606-2607, 2608-2609, 2610-2611, 2612-2613, 2614-2615, 2616-2617, 2618-2619, 2620-2621, 2622-2623, 2624-2625, 2626-2627, 2628-2629, 2630-2631, 2632-2633, 2634-2635, 2636-2637, 2638-2639, 2640-2641, 2642-2643, 2644-2645, 2646-2647, 2648-2649, 2650-2651, 2652-2653, 2654-2655, 2656-2657, 2658-2659, 2660-2661, 2662-2663, 2664-2665, 2666-2667, 2668-2669, 2670-2671, 2672-2673, 2674-2675, 2676-2677, 2678-2679, 2680-2681, 2682-2683, 2684-2685, 2686-2687, 2688-2689, 2690-2691, 2692-2693, 2694-2695, 2696-2697, 2698-2699, 2700-2701, 2702-2703, 2704-2705, 2706-2707, 2708-2709, 2710-2711, 2712-2713, 2714-2715, 2716-2717, 2718-2719, 2720-2721, 2722-2723, 27

NET RECORD

WOLFE AB-57

ELITE ENGINEER OFFICE

WELL RECORD

Date of Receipt September 12, 1951 Permit No. C-284Name of permittee, Mrs. Luigi GinanniStreet or P. O. Rt. 1, Box 149 City and State Carlsbad, New Mexico

1. Well location and description: The shallow well is located in NE NW 1/4, 1/4,
(shallow or artesian)
1/4 of Section 15, Township 22, Range 27; Elevation of top of
casing above sea level, 3075.6 feet; diameter of hole, 8 inches; total depth, 130 feet;
depth to water upon completion, 20 feet; drilling was commenced 3-14, 1952,
and completed 3-16 3085, 1952; name of drilling contractor Howard Hemler
; Address, Fujirole Route; Driller's License No. WD-24

2. Principal Water-bearing Strata:

| | Depth in Feet | | Thickness | Description of Water-bearing Formation |
|-------|---------------|------------|---------------|--|
| | From | To | | |
| No. 1 | <u>60</u> | <u>75</u> | <u>15 ft.</u> | <u>sand and gravel</u> |
| No. 2 | <u>110</u> | <u>130</u> | <u>20</u> | <u>lime rock</u> |
| No. 3 | | | | |
| No. 4 | | | | |
| No. 5 | | | | |

3. Casing Record:

| Diameter in inches | Pounds per ft. | Threads per inch | Depth of Casing or Liner | | Feet of Casing | Type of Shoe | Perforation | |
|-----------------------|-------------------|---------------------|--------------------------|--------|-------------------|--------------|-------------|----|
| | | | Top | Bottom | | | From | To |
| <u>7 OD</u> | <u>20</u> | <u>8</u> | | | <u>110</u> | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

4. If above construction replaces old well to be abandoned, give location: 1/4, 1/4, 1/4
of Section 15, Township 22, Range 27; name and address of plugging contractor,

date of plugging 1952; describe how well was plugged:

FILED

Mar 19, 1952

Office

Artesian Well Supervisor

Roswell, New Mexico

[illegible]

Howard Hemler

Licensed Well Driller

This form shall be executed, preferably typewritten, in triplicate and filed with the State Engineer's Office at Roswell, New Mexico, within 10 days after drilling has been completed. Data on water-bearing strata and on all formations encountered should be as complete and accurate as possible.

STATE ENGINEER OFFICE

WELL RECORD

FIELD ENGINEER

Section 1. GENERAL INFORMATION

(A) Owner of well Mrs. Cecilia Jimenez Owner's Well No. C-576-S
 Street or Post Office Address 1116 North 6th
 City and State Carlsbad, N. Mex.

Well was drilled under Permit No. C-571-S and is located in the:

a. SE 1/4 NW 1/4 of Section 15 Township 22S Range 27E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
 Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in
 the _____ Grant.

(B) Drilling Contractor Howard Hemler License No. W.D. 24

Address Trigate Rd. Carlsbad, N. Mex.

Drilling Began May 74 Completed May 12-74 Type tools Cable Size of hole 16 in.

Elevation of land surface or 3090 top at well is _____ ft. Total depth of well 172 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 48 ft.

~3040

Section 2. PRINCIPAL WATER-BEARING STRATA

| Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation | Estimated Yield (gallons per minute) |
|---------------|-----|-------------------|--|--------------------------------------|
| From | To | | | |
| 47 | 105 | 58 | Clay & sand | 1500 |
| 110 | 147 | 37 | fractured lime gray | 1500 |
| | | | | |
| | | | | |

Section 3. RECORD OF CASING

| Diameter (inches) | Pounds per foot | Threads per in. | Depth in Feet | | Length (feet) | Type of Shoe | Perforations | |
|-------------------|-----------------|-----------------|---------------|--------|---------------|--------------|--------------|-----|
| | | | Top | Bottom | | | From | To |
| 14" CD | 50 | 11/16" | 0 | 112 | 112 | Open | 56 | 112 |
| | | | | | | | | |
| | | | | | | | | |

Section 4. RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Hole Diameter | Sacks of Mud | Cubic Feet of Cement | Method of Placement |
|---------------|----|---------------|--------------|----------------------|---------------------|
| From | To | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by: _____

State Engineer Representative

| No. | Depth in Feet | | Cubic Feet of Cement |
|-----|---------------|--------|----------------------|
| | Top | Bottom | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

FOR USE OF STATE ENGINEER ONLY

Date Received _____

Quad _____ FWL _____ FSL _____

File No. C-576-S Use IRE Location No. 22.27.15.14221

[illegible]

1975 JUN -2 AM 8:33
STATE ENGINEER OFFICE
DISTRICT 1
ROOSEVELT, ALA.

W. G. Brininstock
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 2 need be completed.

**STATE ENGINEER OFFICE
WELL RECORD**

FIELD DIV. LOG

Section 1. GENERAL INFORMATION

(A) Owner of well Jerry G. Porter Owner's Well No. C-1581
 Street or Post Office Address Rt. 2, Box 18 H
 City and State Carlsbad, N. M. 88220

Well was drilled under Permit No. C-1581 and is located in the:

a. NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 32 Township 21 S Range 27 E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
 Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Jack L. Ingram License No. WD 591

Address Rt. 1, Box 280, Carlsbad, N. M. 88220

Drilling Began 3-10-76 Completed 3-10-76 Type tools Cable Size of hole 7 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

| Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation | Estimated Yield (gallons per minute) |
|---------------|----|-------------------|--|--------------------------------------|
| From | To | | | |
| 28 | 40 | 12 | Sand, gravel, & water | |
| | | | | |
| | | | | |
| | | | | |

Section 3. RECORD OF CASING

| Diameter (inches) | Pounds per foot | Threads per in. | Depth in Feet | | Length (feet) | Type of Shoe | Perforations | |
|-------------------|-----------------|-----------------|---------------|--------|---------------|--------------|--------------|----|
| | | | Top | Bottom | | | From | To |
| 6" ID | | None | 0 | 40 | | None | 20 | 40 |
| | | | | | | | | |
| | | | | | | | | |

Section 4. RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Hole Diameter | Sacks of Mud | Cubic Feet of Cement | Method of Placement |
|---------------|----|---------------|--------------|----------------------|---------------------|
| From | To | | | | |
| | | | None | | |
| | | | | | |
| | | | | | |

Section 5. PLUGGING RECORD

Plugging Contractor _____
 Address _____
 Plugging Method _____
 Date Well Plugged _____
 Plugging approved by: _____

State Engineer Representative

| No. | Depth in Feet | | Cubic Feet of Cement |
|-----|---------------|--------|----------------------|
| | Top | Bottom | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

Date Received 4/12/76

FOR USE OF STATE ENGINEER ONLY

Quad _____ FWL _____ FSL _____

File No. C-1581 Use D-5 Location No. 21.27.32.11/423

[illegible]

STATE ENGINEER OFFICE
PORTLAND, M. M.

76 600 12. 411 8 35

Jack L. Gorman
Driver

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

WELL RECORD

Name of permittee L. A. Johnson

1. Well location and description: The shallow well is located in Lot 5, Block 19, (shallow or artesian)

casing above sea level, 3110?? feet; diameter of hole, 7 inches; total depth, 340 feet;

and completed June 1954; name of drilling contractor Howard Hemler

; Address. Frijole Route ; Driller's License No. W. D. 24

| | Depth in Feet From | To | Thickness | Description of Water-bearing Formation |
|-------|-----------------------|-----|-----------|--|
| No. 1 | 12 | 15 | 3 | Cong. rock |
| No. 2 | 31 | 96 | 65 | Cong. rock |
| No. 3 | 276 | 340 | 64 | Black lime |
| No. 4 | | | | |
| No. 5 | | | | |

| Diameter in inches | Feet per ft. | Threads per inch | Depth of Casing or Liner Top | Bottom | Foot of Casing | Type of Shoe | Perforation From | To |
|---|-----------------|---------------------|---------------------------------|--------|-------------------|--------------|---------------------|----|
| 7 | 20 | 8 | top | 60 | 60 | | | |
| <p>Didn't get Carlsbad Limestone</p> <p>Surface water</p> | | | | | | | | |

of Section Township Range; name and address of plugging contractor,

73 74 , 75 76 77

U.S. DEPARTMENT OF COMMERCE
BUREAU OF ECONOMIC ANALYSIS
WASHINGTON, D.C. 20540

... ..

$\lambda = \frac{1}{2}$

18. How well was observed:

DATE OF PURCHASING AS DESCRIBING HOW WELL WAS PURCHASED.

[illegible]

JS JS S CORP LOGS

.....

Bent copy of log to SF 10-13-55

• **• • • • •**

[illegible]

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Howard Hemler

Licensed Well Driller

Instructions

This form shall be executed, preferably typewritten, in triplicate and filed with the State Engineer's Office at Roswell, New Mexico, within 10 days after drilling has been completed. Data on water-bearing strata and on all formations encountered should be as complete and accurate as possible.

2017年12月

4-22-68 C-225

МЕТЬ ВЕСОМ

DATE FILED: 2 16 1964 BY: [illegible]

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |

(A) Owner of well L. A. Johnson

Street and Number _____

City Carlsbad State New Mex.Well was drilled under Permit No. C-561 and is located in theLot 5 Block 19, P. 19, Twp. 21 S., Rge. 27 E.(B) Drilling Contractor Howard Hendler License No. 24124Street and Number Tripple RouteCity Carlsbad State New Mex.Drilling was commenced August 19 55Drilling was completed August 19 55

(Plat of 640 acres)

Elevation at top of casing in feet above sea level _____ Total depth of well 340

State whether well is shallow or artesian _____ Depth to water upon completion _____

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation |
|-----|---------------|-----|-------------------|--|
| | From | To | | |
| 1 | 285 | 340 | 55 | Black Limestone |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

Section 3

RECORD OF CASING

| Dia in. | Pounds ft. | Threads in | Depth | | Feet | Type Shoe | Perforations | |
|---------|------------|------------|-------|--------|------|-----------|--------------|----|
| | | | Top | Bottom | | | From | To |
| 70.0 | 20 | 8 | Top | 285 | 285 | | none | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Diameter Hole in in. | Tons Clay | No. Sacks of Cement | Methods Used |
|---------------|----|----------------------|-----------|---------------------|-------------------|
| From | To | | | | |
| | | | | 15 | Cable Tool Method |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5

PLUGGING RECORD

Name of Plugging Contractor _____ License No. _____

Street and Number _____ City _____ State _____

Tons of Clay used _____ Tons of Roughage used _____ Type of roughage _____

Plugging method used _____ Date Plugged _____ 19 _____

Plugging approved by: _____ Cement Plugs were placed as follows:

| No. | Depth of Plug | | No. of Sacks Used |
|-----|---------------|----|-------------------|
| | From | To | |
| | | | |
| | | | |
| | | | |

FOR USE OF STATE ENGINEER ONLY

Date Received 10 10 1955

OFFICE
GROUND WATER SUPERVISOR
ROSWELL, NEW MEXICO

File No. C-561

Use DOMESTICLocation No. 21.27.32.113

Section 6

LOG OF WELL .

[illegible]

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Howard Kemler
Vice Driller

Well Driller

22

(A) ON/OFF OF A/B

24.07.01

[illegible]

ADULT RECORDS

ENGINEER OFFICE

2

WELL RECORD

Permit No. C-106

Name of permittee. Oliver C and Francis G. Tracy

Street or P. O. Carlsbad, City and State New Mexico

1. Well location and description: The shallow well is located in NW $\frac{1}{4}$, NE $\frac{1}{4}$.
(shallow or artesian)

NW 1/4 of Section *32*, Township *21S*, Range *27E*; Elevation of top of

casing above sea level, feet; diameter of hole, inches; total depth, 105 feet;

depth to water upon completion, feet; drilling was commenced 19.....

and completed 19.....; name of drilling contractor Howard Hehler

2033 Mesquite : Address Carlsbad, New Mexico : Driller's License No. _____

2. Principal Water-bearing Strata:

| | Depth in Feet From | To | Thickness | Description of Water-bearing Formation |
|-------|-----------------------|-----|-----------|--|
| No. 1 | 20 | 60 | 10' | quicksand & |
| No. 2 | 65 | 105 | | gravel & sand |
| No. 3 | | | | |
| No. 4 | | | | |
| No. 5 | | | | |

3. Casing Record:

| Diameter in inches | Pounds per ft. | Threads per inch | Depth of Casing or Liner Top Bottom | Feet of Casing | Type of Shoe | Perforation From To |
|-----------------------|-------------------|---------------------|--|-------------------|--------------|------------------------|
| 18 | | welded | | 60 | | |
| 16 | | welded | | 90 | | 60 90 |
| | | | | | | Hld quick sand |
| | | | | | | Let water in |

4. If above construction replaces old well to be abandoned, give location: $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$

of Section, Township, Range.....; name and address of plugging contractor.

date of plugging 19.....; describe how well was plugged:

FILED

Mar 4, 1949

Office

Artesian Well Supervisor
Roswell, New Mexico

[illegible]

Howard Hemler
Licensed Wall Driller

This form shall be executed, preferably typewritten, in triplicate and filed with the State Engineer's Office at Roswell, New Mexico, within 10 days after drilling has been completed. Data on water-bearing strata and on all formations encountered should be as complete and accurate as possible.

ABSTRACT

**STATE ENGINEER OFFICE
WELL RECORD**

Section 1. GENERAL INFORMATION

(A) Owner of well L.A. Johnson Owner's Well No. _____
 Street or Post Office Address 1303 Muscatel
 City and State Carlsbad, New Mexico 88220

Well was drilled under Permit No. C-64A and is located in the:

a. 1/4 NW 1/4 NW 1/4 NW of Section 32 Township 21S Range 27E N.M.P.M.
 b. Tract No. _____ of Map No. _____ of the _____
 c. Lot No. 526 of Block No. 19 of the LaHuarta Subdivision
 Subdivision, recorded in Eddy County.
 d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in
 the _____ Grant.

(B) Drilling Contractor W.H. & Bill Taylor License No. WD-604 & WD-655

Address 1401 W. Fox St., Carlsbad, New Mexico 88220

Drilling Began 12/10/76 Completed 1/8/77 Type tools Cable Size of hole 10", 12"

Elevation of land surface or 3110 tops at well is _____ ft. Total depth of well 951 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 1418" ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

| Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation | Estimated Yield (gallons per minute) |
|---------------|----|-------------------|--|--------------------------------------|
| From | To | | | |
| 22 | 67 | 45 | Sand, Gravel, Gravel & Loose Limestone | |
| 75 | 78 | 3 | Gravel & Sand | 1700 G.P.M. |
| 94 | 96 | 2 | Brown Chatly Gravel | |
| | | | | |

Section 3. RECORD OF CASING

| Diameter (inches) | Pounds per foot | Threads per in. | Depth in Feet | | Length (feet) | Type of Shoe | Perforations | |
|-------------------|-----------------|-----------------|---------------|------------------|---------------|--------------|--------------|----|
| | | | Top | Bottom | | | From | To |
| 12 | --- | ---- | 0 | 41 1/2 | 41 1/2 | ----- | NONE | |
| 10 | 60 | Welded | 24 1/2 | above surface 83 | 85 1/2 | ----- | | |
| | | | | | | | | |

Section 4. RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Hole Diameter | Sacks of Mud | Cubic Feet of Cement | Method of Placement |
|---------------|----|---------------|--------------|----------------------|---------------------|
| From | To | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5. PLUGGING RECORD

| | | | | |
|-------------------------------------|-----|---------------|--------|----------------------|
| Plugging Contractor _____ | No. | Depth in Feet | | Cubic Feet of Cement |
| Address _____ | | Top | Bottom | |
| Plugging Method _____ | 1 | | | |
| Date Well Plugged _____ | 2 | | | |
| Plugging approved by: _____ | 3 | | | |
| State Engineer Representative _____ | 4 | | | |

Date Received Jan 17, 1977 FOR USE OF STATE ENGINEER ONLY

File No. C-64-A Use IRE Location No. 21-27-32-13211

Quad _____ FWL _____ FSL _____

[illegible]

STATE ENGINEER OFFICE
ROSWELL, N.M.

77 JAN 17 AM 11 18

Bill Taylor
Driller

Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. A well log, as defined in Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1, and Section 2 need be completed.

Use Domestic Location No. 21S.27.32.22234

[illegible]

Jul 63 30 AM '02

Louis H. Stephens
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

WELL RECORD

C-344

house check # 08217
Permit No.

Street or P. O. P O Box 352 City and State Carlsbad NM

NE 2.5 acres in lot 1 block 9 LaHuerza

1. Well location and description: The well is located in SW 1/4, Sec. 1, T. 1N, R. 1E, S. 1E, (shallow or artesian)

SW $\frac{1}{4}$ $\frac{1}{4}$ of Section / 32, Township / 21, Range / 27E; Elevation of top of

casing above sea level, 3100' feet; diameter of hole, 5 inches; total depth, 3200 feet;

depth to water upon completion, 17.3 feet; drilling was commenced Sept 1952, 19.....

and completed 1952, 19 ; name of drilling contractor Joe Donawho

.....: Address, Carlsbad N Mex : Driller's License No. 44P 75

2. Principal Water-bearing Strata:

| | Depth in Feet From | To | Thickness | Description of Water-bearing Formation |
|-------|-----------------------|-----|-----------|--|
| No. 1 | 175 | 180 | 5 | 212' cu. ft. fine |
| No. 2 | | | | |
| No. 3 | | | | |
| No. 4 | | | | |
| No. 5 | | | | |

3. Casing Record:

[illegible]

4. If above construction replaces old well to be abandoned, give location:%.%.%
In same back yard
of Section, Township, Range.....; name and address of plugging contractor.

date of plugging 19.....; describe how well was plugged: Capped
and hole filled in

FILED

APR 30 1954

OFFICE
GROUND WATER SUPERVISOR
ROSWELL, NEW MEXICO

FILED

MAR 22 1954

OFFICE
GROUND WATER SUPERVISOR
ROSWELL, NEW MEXICO

21. 27. 32, 333

C.344

WELL RECORD

5. Log of Well:

[illegible]

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

..Charles..Moore

Leonard Wall Driller

Instructions

This form shall be executed, preferably typewritten, in triplicate and filed with the State Engineer's Office at Roswell, New Mexico, within 10 days after drilling has been completed. Data on water-bearing strata and on all formations encountered should be as complete and accurate as possible.

STATE ENGINEER OFFICE
WELL RECORD

Revised June 1972

Section 1. GENERAL INFORMATION

(A) Owner of well W.D. Reed Owner's Well No. 6-2046
Street or Post Office Address Queen RT. Mc New Sub Division
City and State Carlsbad

FIELD ENGR. LOG

Well was drilled under Permit No. C-2046 and is located in the:

a. 1/4 1/4 1/4 1/4 of Section Township Range N.M.P.M.
b. Tract No. of Map No. of the
c. Lot No. 9 of Block No. 2 of the Mc NEW Sub Division
Subdivision, recorded in Eddy County.
d. X= feet, Y= feet, N.M. Coordinate System Zone in
the Grant.

(B) Drilling Contractor Jenkins Bros. Drilling License No. W.D. 460
Address 1418 W. Orchard Ln. Carlsbad N.M. 88220

Drilling Began 12-25-82 Completed 2-3-83 Type tools Cable Size of hole 9 in.

Elevation of land surface or ~3095' at well is ft. Total depth of well ft.

Completed well is ☐ shallow ☒ artesian. Depth to water upon completion of well 160 ft.
2035'

Section 2. PRINCIPAL WATER-BEARING STRATA

| Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation | Estimated Yield (gallons per minute) |
|---------------|-----|----------------------|--|---|
| From | To | | | |
| 175 | 185 | 10 | yellow shale & sand gravel | 25 gal. |
| | | | | |
| | | | | |
| | | | | |

Section 3. RECORD OF CASING

| Diameter (inches) | Pounds per foot | Threads per in. | Depth in Feet | | Length (feet) | Type of Shoe | Perforations | |
|----------------------|--------------------|--------------------|---------------|--------|------------------|--------------|--------------|----|
| | | | Top | Bottom | | | From | To |
| 7 | 20 | 8 | 0 | 175 | 40 | Texas Pat | N/A | |
| | | | | | | | | |
| | | | | | | | | |

Section 4. RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Hole Diameter | Sacks of Mud | Cubic Feet of Cement | Method of Placement |
|---------------|----|------------------|-----------------|-------------------------|---------------------|
| From | To | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5. PLUGGING RECORD

Plugging Contractor
Address
Plugging Method
Date Well Plugged
Plugging approved by:

State Engineer Representative

| No. | Depth in Feet | | Cubic Feet of Cement |
|-----|---------------|--------|-------------------------|
| | Top | Bottom | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

FOR USE OF STATE ENGINEER ONLY

Date Received February 11, 1983

Quad FWL FSL

File No. C-2046 Use Domestic Location No. 21.26.8.43224

[illegible]

[Signature]
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to appropriate district office of the State Engineer. All questions, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

STATE ENGINEER OFFICE
WELL RECORD600 FEL
200 FSL FIELD ENGR. LOG

Section 1. GENERAL INFORMATION

(A) Owner of well Lucio Perez Owner's Well No. 91957
Street or Post Office Address 1310 Aliv.
City and State Carlsbad N.M. 88220Well was drilled under Permit No. C-1958 and is located in the:a. SE $\frac{1}{4}$ SE $\frac{1}{4}$ $\frac{1}{4}$ of Section 8 Township 21S Range 26E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. 12 of Block No. 2 of the McNew #13
Subdivision, recorded in _____ County.d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in
the _____ Grant.(B) Drilling Contractor Tomblin Drilling License No. 592Address P.O. Box 1632 - Carlsbad N.M. 88220Drilling Began April 26-81 Completed May 5-81 Type tools Solid Size of hole 9 in.Elevation of land surface or ~3095 top at well is _____ ft. Total depth of well 180 ft.Completed well is ☐ shallow ☒ artesian. Depth to water upon completion of well 155 ft.2940'

Section 2. PRINCIPAL WATER-BEARING STRATA

| Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation | Estimated Yield (gallons per minute) |
|---------------|------------|----------------------|--|---|
| From | To | | | |
| <u>155</u> | <u>180</u> | <u>25</u> | <u>Sand & Gravel</u> | <u>189 g.p.m</u> |
| | | | | |
| | | | | |
| | | | | |

Section 3. RECORD OF CASING

| Diameter (inches) | Pounds per foot | Threads per in. | Depth in Feet | | Length (feet) | Type of Shoe | Perforations | |
|----------------------|--------------------|--------------------|---------------|------------|------------------|--------------|--------------|----|
| | | | Top | Bottom | | | From | To |
| <u>7</u> | <u>20</u> | <u>8</u> | <u>0</u> | <u>160</u> | <u>160</u> | <u>Texas</u> | <u>None</u> | |
| | | | | | | | | |
| | | | | | | | | |

Section 4. RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Hole Diameter | Sacks of Mud | Cubic Feet of Cement | Method of Placement |
|---------------|------------|------------------|-----------------|-------------------------|-----------------------------|
| From | To | | | | |
| <u>0</u> | <u>160</u> | <u>9</u> | | <u>80 Sacks</u> | <u>pumped & plugged</u> |
| | | | | | |
| | | | | | |

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by: _____

State Engineer Representative

| No. | Depth in Feet | | Cubic Feet of Cement |
|----------|---------------|--------|-------------------------|
| | Top | Bottom | |
| <u>1</u> | | | |
| <u>2</u> | | | |
| <u>3</u> | | | |
| <u>4</u> | | | |

FOR USE OF STATE ENGINEER ONLY

Date Received September 27, 1982

Quad _____ FWL _____ FSL _____

File No. C-1958Use Dom.-Artesian Location No. 21.26.8.44431
Off SE Corner

[illegible]

Josephine Dilling
Driller

INSTRUCTIONS: This form should be completed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 2 need be completed.

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |

(A) Owner of well Juan Talavaro
 Street and Number P. O. Box 932
 City Carlsbad State New Mexico
 Well was drilled under Permit No. C751 and is located in the
West 2 1/4 Acres, Lot 2 Block 29 Le Huerta SE 32 Twp 21
Sec. 27
 (B) Drilling Contractor R. H. Freek License No. WD212
 Street and Number N Y Van Camp
 City Carlsbad State New Mexico
 Drilling was commenced Jan. 17 1957
 Drilling was completed March 20 1957

(Plat of 640 acres)

Elevation at top of casing in feet above sea level ~3110 Total depth of well 325
 State whether well is shallow or artesian Artesian Depth to water upon completion 15

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation |
|-----|---------------|-----|-------------------|--|
| | From | To | | |
| 1 | 30 | 47 | 17 | Red sand rock |
| 2 | 240 | 268 | 28 | Blue shale |
| 3 | 288 | 325 | | Lime water |
| 4 | | | | |
| 5 | | | | |

Section 3

RECORD OF CASING

| Dia in. | Pounds ft. | Threads in | Depth | | Feet | Type Shoe | Perforations | |
|---------|------------|------------|-------|--------|------|-----------|--------------|----|
| | | | Top | Bottom | | | From | To |
| 7 | 24 | 8 | | 288 | | Shoe | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Diameter Hole in in. | Tons Clay | No. Sacks of Cement | Methods Used |
|---------------|-----|----------------------|-----------|---------------------|--|
| From | To | | | | |
| | 288 | | | 60 | Portland Denton Oil Well Cementing Co. |
| | | | | | |
| | | | | | |

Section 5

PLUGGING RECORD

Name of Plugging Contractor _____ License No. _____
 Street and Number _____ City _____ State _____
 Tons of Clay used _____ Tons of Roughage used _____ Type of roughage _____
 Plugging method used _____ Date Plugged _____ 19 _____
 Plugging approved by: _____

Cement Plugs were placed as follows:

Basin Supervisor _____

FOR USE OF STATE ENGINEER ONLY

Date Received APR 9 1957

OFFICE OF THE STATE ENGINEER
 CARLSBAD, N.M.

File No. C-751 Use Don Location No. 21-27-32

| No. | Depth of Plug | | No. of Sacks Used |
|-----|---------------|----|-------------------|
| | From | To | |
| | | | |
| | | | |
| | | | |
| | | | |

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |

(A) Owner of well Curtis Cox
 Street and Number 505 E. Orchard Lane, La Huerta
 City Carlsbad State New Mexico
 Well was drilled under Permit No. _____ and is located in the
 NW $\frac{1}{4}$ NW $\frac{1}{4}$ $\frac{1}{4}$ of Section 32 Twp. 21 Rge. 27
 (B) Drilling Contractor Emmett Barron License No. W.D. # 30
 Street and Number 307 South 10th St.
 City Carlsbad State N. Mex.
 Drilling was commenced March 10 19 65
 Drilling was completed April 2 19 65

(Plat of 640 acres)

Elevation at top of casing in feet above sea level 3110.6 Total depth of well 260'
 State whether well is shallow or artesian Artesian ? Depth to water upon completion 17'-0"
3093'

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation |
|-----|---------------|-----|-------------------|--|
| | From | To | | |
| 1 | 30 | 70 | 40 | Brown quick sand |
| 2 | 70 | 85 | 15 | Yellow Conglomerate rock and clay |
| 3 | 240 | 260 | 20 | Brown and white lime |
| 4 | | | | |
| 5 | | | | |

Section 3

RECORD OF CASING

| Dia. in. | Pounds ft. | Threads in | Depth | | Feet | Type Shoe | Perforations | |
|----------|------------|------------|-------|--------|------|-----------|--------------|------|
| | | | Top | Bottom | | | From | To |
| 7" O.D. | 32 | 8 | 0 | 212 | 212 | Collar | None | None |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Diameter Hole in in. | Tons Clay | No. Sacks of Cement | Methods Used |
|---------------|----|----------------------|-----------|---------------------|--------------------------|
| From | To | | | | |
| | | 9" | | 50 | Denton Cementing Company |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5

PLUGGING RECORD


Name of Plugging Contractor _____ License No. _____
 Street and Number _____ City _____ State _____
 Tons of Clay used _____ Tons of Roughage used _____ Type of roughage _____
 Plugging method used _____ Date Plugged _____ 19 _____
 Plugging approved by: _____

Cement Plugs were placed as follows:

| No. | Depth of Plug | | No. of Sacks Used |
|-----|---------------|----|-------------------|
| | From | To | |
| | | | |
| | | | |
| | | | |
| | | | |

Basin Supervisor _____

FOR USE OF STATE ENGINEER ONLY

Date Received 7:38 AM JUN 3 1965 

File No. C-1252 Use Don Location No. 212732110

LOG OF WELL

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Ernest H. Farnon
Well Driller

WELL RECORD

Date of Receipt Permit No. C-337.....

Name of permittee, W. E. Pickens.....

Street or P. O. Rl B9D Carlsbad..... City and State New M.....

1. Well location and description: The artesian well is located in NW ¼, NW ¼, NE ¼ of Section 32, Township 21 S, Range 27 E; Elevation of top of

casing above sea level, ~3110 feet; diameter of hole, 7od inches; total depth, 318 feet;

depth to water upon completion, 40 feet; drilling was commenced 1952

and completed Oct 12, 1952; name of drilling contractor A. M. Brininstool

; Address, Carlsbad, N.M.; Driller's License No. WD 17

~3070

2. Principal Water-bearing Strata:

| | Depth in Feet From | To | Thickness | Description of Water-bearing Formation |
|-------|-----------------------|-----|-----------|--|
| No. 1 | 85 | 50 | 5 | gravel |
| No. 2 | 250 | 318 | 68 | limestone |
| No. 3 | | | | |
| No. 4 | | | | |
| No. 5 | | | | |

3. Casing Record:

| Diameter in inches | Pounds per ft. | Threads per inch | Depth of Casing or Liner Top Bottom | Feet of Casing | Type of Shoe | Perforation From To |
|-----------------------|-------------------|---------------------|--|-------------------|--------------|------------------------|
| 7 od | 24 | 8 | | 250 | long | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

4. If above construction replaces old well to be abandoned, give location: ¼, ¼, ¼

of Section, Township, Range; name and address of plugging contractor,

date of plugging 1952; describe how well was plugged:

FILED

Jun 8, 1953

Office

Artesian Well Supervisor
Roswell, New Mexico

• • • • •

[illegible]

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

A. M. Brininstool
Licensed Well Driller

Instructions

This form shall be executed, preferably typewritten, in triplicate and filed with the State Engineer's Office at Roswell, New Mexico, within 10 days after drilling has been completed. Data on water-bearing strata and on all formations encountered should be as complete and accurate as possible.

Copy To S. F.

Form WR-23

STATE ENGINEER OFFICE

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

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| | | | |
| | | | |
| | | | |

(Plat of 640 acres)

(A) Owner of well Roque Elizondo
 Street and Number Rt. 1, Box 9 B
 City Carlsbad State New Mexico
 Well was drilled under Permit No. C-566 and is located in the
NE 1/4 NE 1/4 NE 1/4 of Section 32 Twp. 21 S. Rge. 27 E.
 (B) Drilling Contractor J. R. Jolly License No. WD-161
 Street and Number Rt. 1
 City Carlsbad State New Mexico
 Drilling was commenced NOVEMBER 7 1954
 Drilling was completed NOVEMBER 28 1954

Elevation at top of casing in feet above sea level _____ Total depth of well 324 Feet
 State whether well is shallow or artesian Artesian Depth to water upon completion ?

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation |
|-----|---------------|-----|-------------------|--|
| | From | To | | |
| 1 | 305 | 318 | 13 | White Lime |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

Section 3

RECORD OF CASING

| Dia in. | Pounds ft. | Threads in | Depth | | Feet | Type Shoe | Perforations | |
|---------|------------|------------|-------|--------|------|-----------|--------------|----|
| | | | Top | Bottom | | | From | To |
| 7 | 8 | 10 | | | 297 | Plain | NONE | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Diameter Hole in in. | Tons Clay | No. Sacks of Cement | Methods Used |
|---------------|----|----------------------|-----------|---------------------|-------------------------------|
| From | To | | | | |
| | | | | 15 | Plug-Weighted Down With Water |
| | | | | | |
| | | | | | |

Section 5

PLUGGING RECORD

Name of Plugging Contractor _____ License No. _____
 Street and Number _____ City _____ State _____
 Tons of Clay used _____ Tons of Roughage used _____ Type of roughage _____
 Plugging method used _____ Date Plugged _____ 19 _____
 Plugging approved by: _____

Cement Plugs were placed as follows:

| No. | Depth of Plug | | No. of Sacks Used |
|-----|---------------|----|-------------------|
| | From | To | |
| | | | |
| | | | |
| | | | |
| | | | |

Basin Supervisor _____

FOR USE OF STATE ENGINEER ONLY

Date Received **FILED**

NOV 3 1955

OFFICE
GROUND WATER SUPERVISOR

File No. C-566 ROSWELL NEW MEXICO Use Domestic Location No. 21.27.32.222

LOG OF WELL

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Well Driller

Orig. to S.F.

Form WR-23

STATE ENGINEER OFFICE

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A' and Section 5 need be completed.

Section 1

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |

(Plat of 640 acres)

(A) Owner of well Roque Elizondo
 Street and Number La Huerta, E. Orchard Lane
 City Carlsbad State N. Mex.
 Well was drilled under Permit No. C 566 and is located in the
NE ¼ NE ¼ NE ¼ of Section 32 Twp. 21 Rge. 27
 (B) Drilling Contractor Emmett Barron License No. ED30
 Street and Number 413 South Tenth
 City Carlsbad State N. Mex.
 Drilling was commenced August 26 1956
 Drilling was completed August 25 1956

Elevation at top of casing in feet above sea level 3125.4 Total depth of well 323
 State whether well is shallow or artesian Artesian Depth to water upon completion 18'
~3107

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation |
|-----|---------------|----|-------------------|--|
| | From | To | | |
| 1 | | | | Old well, cleaned out lime formation |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

Section 3

RECORD OF CASING

| Dia. in. | Pounds ft. | Threads in | Depth | | Feet | Type Shoe | Perforations | |
|----------|------------|------------|-------|--------|------|-----------|--------------|----|
| | | | Top | Bottom | | | From | To |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Old well, (Original drilling by J.R. Jolly)

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Diameter Hole in in. | Tons Clay | No. Sacks of Cement | Methods Used |
|---------------|----|----------------------|-----------|---------------------|--------------|
| From | To | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5

PLUGGING RECORD

Name of Plugging Contractor _____ License No. _____
 Street and Number _____ City _____ State _____
 Tons of Clay used _____ Tons of Roughage used _____ Type of roughage _____
 Plugging method used _____ Date Plugged _____ 19 _____
 Plugging approved by: _____ Cement Plugs were placed as follows:

Basin Supervisor _____

FOR USE OF STATE ENGINEER ONLY

Date Received _____

File No. C-566 Use Dom. Location No. 2127-32.222

| No. | Depth of Plug | | No. of Sacks Used |
|-----|---------------|----|-------------------|
| | From | To | |
| | | | |
| | | | |
| | | | |
| | | | |

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

| | | | |
|--|--|--|--|
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| | | | |

(A) Owner of well Ivan Kinter

Street and Number _____

City Carlsbad, New Mexico State _____Well was drilled under Permit No. C-632 and is located in theNE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 32 Twp 21 Rge 27(B) Drilling Contractor Emmett Barron License No. _____

Street and Number _____

City Carlsbad State _____Drilling was commenced July 12, 1955 19____Drilling was completed July 25, 1955 19____

(Plat of 840 acres)

Elevation at top of casing in feet above sea level _____ Total depth of well 180State whether well is shallow or artesian artesian Depth to water upon completion 18

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation |
|-----|---------------|-----|-------------------|--|
| | From | To | | |
| 1 | 155 | 169 | 14 | blue honey com lime and red mud |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

Section 3

RECORD OF CASING

| Dia in. | Pounds ft. | Threads in | Depth | | Feet | Type Shoe | Perforations | |
|---------|------------|------------|-------|--------|------|-----------|--------------|----|
| | | | Top | Bottom | | | From | To |
| 6 5/8 | 1d 22 | 8 | | | 149 | none | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Diameter Hole in in. | Tons Clay | No. Sacks of Cement | Methods Used |
|---------------|----|----------------------|-----------|---------------------|---------------------------------------|
| From | To | | | | |
| | | 11 | | 20 | 149 feet of 7" od set at 149 feet |
| | | | | | on plug 20 sacks cement used, in pipe |
| | | | | | circulated out with water pressure |

Section 5

PLUGGING RECORD

Name of Plugging Contractor _____ License No. _____

Street and Number _____ City _____ State _____

Tons of Clay used _____ Tons of Roughage used _____ Type of roughage _____

Plugging method used _____ Date Plugged _____ 19____

Plugging approved by: _____

Cement Plugs were placed as follows:

| Depth of Plug | | No. of Sacks Used |
|---------------|----|-------------------|
| From | To | |
| | | |
| | | |
| | | |
| | | |
| | | |

Basin Supervisor _____

FOR USE OF STATE ENGINEER ONLY

Date Received Aug. 19, 1955

File No. C-632 Use Domestic Location No. 21 27 32 222

LOG OF WELL

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

~~/s/ Emmett Barron~~
Well Driller

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

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(Plat of 640 acres)

(A) Owner of well IVAN KINTER
 Street and Number P. O. BOX 803
 City CARLEBAD State NEW MEXICO
 Well was drilled under Permit No. C-532 and is located in the
NE 1/4 NE 1/4 NE 1/4 of Section 32 Twp. 34 Rge. 27
 (B) Drilling Contractor R. H. FREEN License No. 80-242
 Street and Number VAN DAWSON COURTS - NORTH Y
 City CARLEBAD State NEW MEXICO
 Drilling was commenced JANUARY 20, 1958 19 58
 Drilling was completed FEBRUARY 20, 19 58

Elevation at top of casing in feet above sea level _____ Total depth of well 270
 State whether well is shallow or artesian ARTESIAN Depth to water upon completion 26

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation |
|-----|---------------|-----|-------------------|--|
| | From | To | | |
| 1 | 210 | 270 | 60 | LINE WATER |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | (REPAIRED DEEPEMED) |
| 5 | | | | |

Section 3

RECORD OF CASING

| Dia in. | Pounds ft. | Threads in | Depth | | Feet | Type Shoe | Perforations | |
|---------|------------|------------|-------|--------|------|-----------|--------------|----|
| | | | Top | Bottom | | | From | To |
| 5 1/2 | 60 | WELDED | | | | | | |
| 5 1/2 | 12 | | | 193 | | SHOE | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Diameter Hole in in. | Tons Clay | No. Sacks of Cement | Methods Used |
|---------------|-----|----------------------|-----------|---------------------|------------------|
| From | To | | | | |
| 5 1/2 | 100 | 5 1/2 | | 8 | PLUG BATTED HOLE |
| | | | | | DRY CEMENT PLUG |
| | | | | | FILL WITH WATER |

Section 5

PLUGGING RECORD

Name of Plugging Contractor _____ License No. _____
 Street and Number _____ City _____ State _____
 Tons of Clay used _____ Tons of Roughage used _____ Type of roughage _____
 Plugging method used _____ Date Plugged _____ 19 _____
 Plugging approved by: _____ Cement Plugs were placed as follows: _____

| | | | |
|--------------------------------|--|------------------|--|
| FOR USE OF STATE ENGINEER ONLY | | Basin Supervisor | |
| | | MAR 3 1958 | |
| Date Received | OFFICE GROUND WATER SUPERVISOR EDSWELL, NEW MEXICO | | |

| No. | Depth of Plug | | No. of Sacks Used |
|-----|---------------|----|-------------------|
| | From | To | |
| | | | |
| | | | |
| | | | |

File No. C-692 Use Dam Location No. 17 32 222

Ivan Kenton well - drilled to 180' - July 12, 1955

Form WR-23

STATE ENGINEER OFFICE

FIELD ENGR. LOG

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

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(A) Owner of well Kiel Bonnell
Street and Number Keystone Trailer Park
City Carlsbad State N.M. 88220
Well was drilled under Permit No. C-632 and is located in the
NE 1/4 NE 1/4 NE 1/4 of Section 32 Twp 21 Rge 27
(B) Drilling Contractor Emmett Barron License No. 30
Street and Number 307 So Tenth St
City Carlsbad State N.M. 8822
Drilling was commenced May 15 19 74
Drilling was completed May 16 19 74

(Plat of 640 acres)

Elevation at top of casing in feet above sea level _____ Total depth of well 270'
State whether well is shallow or artesian Artesian Depth to water upon completion 30'

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation |
|-----|---------------|----|-------------------|--|
| | From | To | | |
| 1 | | | | <u>unknown</u> |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | <u>clean out - Rusty pipe</u> |
| 5 | | | | <u>169' - 290'</u> |

Section 3

RECORD OF CASING

| Dia in. | Pounds ft. | Threads in | Depth | | Feet | Type Shoe | Perforations | |
|-----------------|------------|------------|----------------|--------|------------|-----------|----------------|----|
| | | | Top | Bottom | | | From | To |
| <u>5 1/2 00</u> | | | <u>unknown</u> | | <u>270</u> | | <u>unknown</u> | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Diameter Hole in in. | Tons Clay | No. Sacks of Cement | Methods Used |
|---------------|----|----------------------|-----------|---------------------|--------------|
| From | To | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5

PLUGGING RECORD

Name of Plugging Contractor _____ License No. _____
Street and Number _____ City _____ State _____
Tons of Clay used _____ Tons of Roughage used _____ Type of roughage _____
Plugging method used _____ Date Plugged _____ 19 _____
Plugging approved by: _____ Cement Plugs were placed as follows:

| | |
|--------------------------------|-----------------------|
| FOR USE OF STATE ENGINEER ONLY | |
| Date Received | 67 JUN 4 1974 |
| File No. | <u>2-632</u> |
| Use | <u>com</u> |
| Location No. | <u>21.27.32.22244</u> |

| No. | Depth of Plug | | No. of Sacks Used |
|-----|---------------|----|-------------------|
| | From | To | |
| | | | |
| | | | |
| | | | |
| | | | |

LOG OF WELL

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Ernest Turner
Well Driller

| | |
|--|--|
| | |
| | |

(F) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (G) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (H) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (I) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (J) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (K) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (L) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (M) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (N) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (O) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (P) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (Q) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (R) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (S) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (T) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (U) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (V) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (W) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (X) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (Y) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103
 (Z) LAURENCE CORRECTIONAL INSTITUTION, 1000 N. 10TH ST., ST. LOUIS, MO. 63103

જા. મુ. ૧૧૫.

DECLARATION OF THE PRESIDENT OF THE UNITED STATES OF AMERICA

NET RECORD

FILE # JK-53

2. VLE EXCHANGES OFFICE

НЕГО ЕМАУ ГОЗ

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |

(A) Owner of well Joe Stell Jr.Street and Number La HuertaCity CarlsbadState N. Mex.Well was drilled under Permit No. C 660

and is located in the

N. 1/4 S. 1/4 E. 1/4 of Section 32 Twp. 21 Rge. 27(B) Drilling Contractor Ernest BarronLicense No. WD 30Street and Number 413 So. 10thCity CarlsbadState N. Mex.Drilling was commenced Sept 519 55Drilling was completed Oct 219 56

(Plat of 640 acres)

Elevation at top of casing in feet above sea level _____ Total depth of well 325State whether well is shallow or artesian Artesian Depth to water upon completion 14' 0"

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation |
|-----|---------------|-----|-------------------|--|
| | From | To | | |
| 1 | 275 | 325 | 50 | Gray and white lime broken |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

Section 3

RECORD OF CASING

| Dia. in. | Pounds ft. | Threads in | Depth | | Feet | Type Shoe | Perforations | |
|----------|------------|------------|-------|--------|------|-----------|--------------|------|
| | | | Top | Bottom | | | From | To |
| 6 5/8 ID | 22 | 8 | 0 | 260 | 260 | LONG | LONG | LONG |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Diameter Hole in in. | Tons Clay | No. Sacks of Cement | Methods Used |
|---------------|----|----------------------|-----------|---------------------|--|
| From | To | | | | |
| | | | | 20 | cement put in bottom of pipe forced out of pipe with rubber plug |
| | | | | | |
| | | | | | |

Section 5

PLUGGING RECORD

Name of Plugging Contractor _____

Street and Number _____ City _____

Tons of Clay used _____ Tons of Roughage used _____

Plugging method used _____

Date Plugged _____ 19 _____

Plugging approved by: _____

Cement Plugs were placed as follows:

| No. | Depth of Plug | | No. of Sacks Used |
|-----|---------------|----|-------------------|
| | From | To | |
| | | | |
| | | | |
| | | | |
| | | | |

Basin Supervisor _____

FOR USE OF STATE ENGINEER ONLY

Date Received _____

File No. C-660Use DOMESTICLocation No. 21 2732 222

OCT 21 1955

 License No. _____
 GROUND WATER SUPERVISOR
 BUREAU OF NEW MEXICO

LOG OF WELL

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Arnold Bauer
Well Driller