SKELLY OIL COMPANY

P. O. BOX 1650

TULSA, OKLAHOMA 74102

PRODUCTION DEPARTMENT

C. L. BLACKSHER, VICE PRESIDENT

W. P. WHITMORE, MGR. PRODUCTION
GEORGE W. SELINGER, MGR. CONSERVATION
D. E. SMITH, MGR. TECHNICAL SERVICES
J. R. TEEL, MGR. JOINT OPERATIONS



SWD-97

February 6, 1969

Re: Salt Water Disposal
Mexico Fed. "P" W.S.W. No. 1
Unit F, Sec. 21-T26S-R35E
Lea County, New Mexico

Mr. A. L. Porter, Jr., Secretary-Director
Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Porter:

Skelly Oil Company respectfully requests administrative approval to convert the water supply well above captioned to salt water disposal. In support of this application we are attaching, in triplicate, the following:

1. New Mexico Oil Conservation Commission Form C-108
2. Two-Mile Radius Map
3. A log section on the Mexico Fed. "P" No. 1 through the proposed injection interval.
4. A diagrammatic sketch of the proposed injection well.
5. Produced water analysis from the Mexico Fed. "P" No. 1 and an analysis from the upper Rustler Zone in the proposed well.

By carbon copy of this letter we are also sending a copy of the application to the surface owner shown below.

Recently the Mexico Fed. "P" No. 1 well was drilled and is now being completed as an Atoka gas well. The well produced approximately 10 barrels of salt water per hour when produced at a rate of 2.9 MMCFPD. To dispose of the salt water is a problem due to the isolated location of the well.

We propose to utilize the existing Water Supply Well No. 1, which is located adjacent to the drilling pad, for disposal purposes. The Water Supply Well No. 1 is located 1630' FWL and 2300' FNL of Section 21-T26S-R35E, and is 350' south and 350' west of the Mexico Fed. "P" No. 1.

This well was drilled to 1360' then plugged back to 390' and completed in the fresh water interval 300'-380'. The fresh water zone tested only 5-7 gallons per minute, and it was necessary to move three miles east to obtain

sufficient drilling water. We propose to clean the well out to 1360'; deepen it to 1600'; install 4-1/2" O.D. casing by circulating cement to the surface; and complete as a disposal well. Water samples from the Water Supply Well No. 1, collected during drilling in the 1240'-1360' interval, indicated a chloride content of 63,400 PPM and other mineral content which would render this water unfit for any other use.

Respectfully submitted,

SKELLY OIL COMPANY

George W Selinger

RJJ:br
Attach.

cc-Mr. Malcolm Madera
P. O. Box 94
Orla, Texas 79720 w/ attach.

Form C-108
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION

# APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

| OPERATOR | ADDRESS |
|---|---|
| SKELLY OIL COMPANY | P.O. Box 730, Hobbs, New Mexico 88240 |

| LEASE NAME | WELL NO. | FIELD | COUNTY |
|---|---|---|---|
| MEXICO FED. "P" | WSW NO. 1 | UNDESIGNATED | LEA |

LOCATION

UNIT LETTER F ; WELL IS LOCATED 1630 FEET FROM THE WEST LINE AND 2330 FEET FROM THE NORTH LINE, SECTION 21 TOWNSHIP 26 S RANGE 35 E NMPM.

CASING AND TUBING DATA

| NAME OF STRING | SIZE | SETTING DEPTH | SACKS CEMENT | TOP OF CEMENT | TOP DETERMINED BY |
|---|---|---|---|---|---|
| SURFACE CASING | 7" | 392' | Dumped 6 Sxs. | 380' | |
| INTERMEDIATE | | | | | |
| LONG STRING | 4-1/2" | 1600' | 600 Sxs. | Surface | To Circulate |
| TUBING | 2-3/8" | Approx. 1500' | NAME, MODEL AND DEPTH OF TUBING PACKER: Tension Type, Baker Model "A" or Equal @ 1500' | | |

| NAME OF PROPOSED INJECTION FORMATION | TOP OF FORMATION | BOTTOM OF FORMATION |
|---|---|---|
| Rustler | 1018' | 1600' |

| IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? | PERFORATIONS OR OPEN HOLE? | PROPOSED INTERVAL(S) OF INJECTION |
|---|---|---|
| Tubing | Perforations | Approx. 1560'-1585' |

| IS THIS A NEW WELL DRILLED FOR DISPOSAL? | IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? | HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? |
|---|---|---|
| No | Well was originally drilled for drilling water. | Yes |

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH
Bottom 98' of 7" casing was slotted. Will attempt to recover 7" from hole, Set 4 1/2" from surface to Total Depth, and circulate cement.

| DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA | DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA | DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA |
|---|---|---|
| 380' | NONE | No Shallow Zones Known. |

| ANTICIPATED DAILY INJECTION VOLUME (BBLS.) MINIMUM | MAXIMUM | OPEN OR CLOSED TYPE SYSTEM | IS INJECTION TO BE BY GRAVITY OR PRESSURE? | APPROX. PRESSURE (PSI) |
|---|---|---|---|---|
| 240 BPD | Est 500 BPD | Closed | Pressure | 1000 |

| ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE — | WATER TO BE DISPOSED OF | NATURAL WATER IN DISPOSAL ZONE | ARE WATER ANALYSES ATTACHED? |
|---|---|---|---|
| | Yes | Yes | Yes |

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)
Mr. Malcolm Madera, P.O. Box 94, Orla, Texas 79720

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL
Skelly Oil Company is the operator of all the acreage within 1/2 mile of the proposed disposal well.

| HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING? | SURFACE OWNER | EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL | THE NEW MEXICO STATE ENGINEER |
|---|---|---|---|
| | Yes | Yes | No |
| ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B) | PLAT OF AREA | ELECTRICAL LOG | DIAGRAMMATIC SKETCH OF WELL |
| | Yes | Yes | Yes |

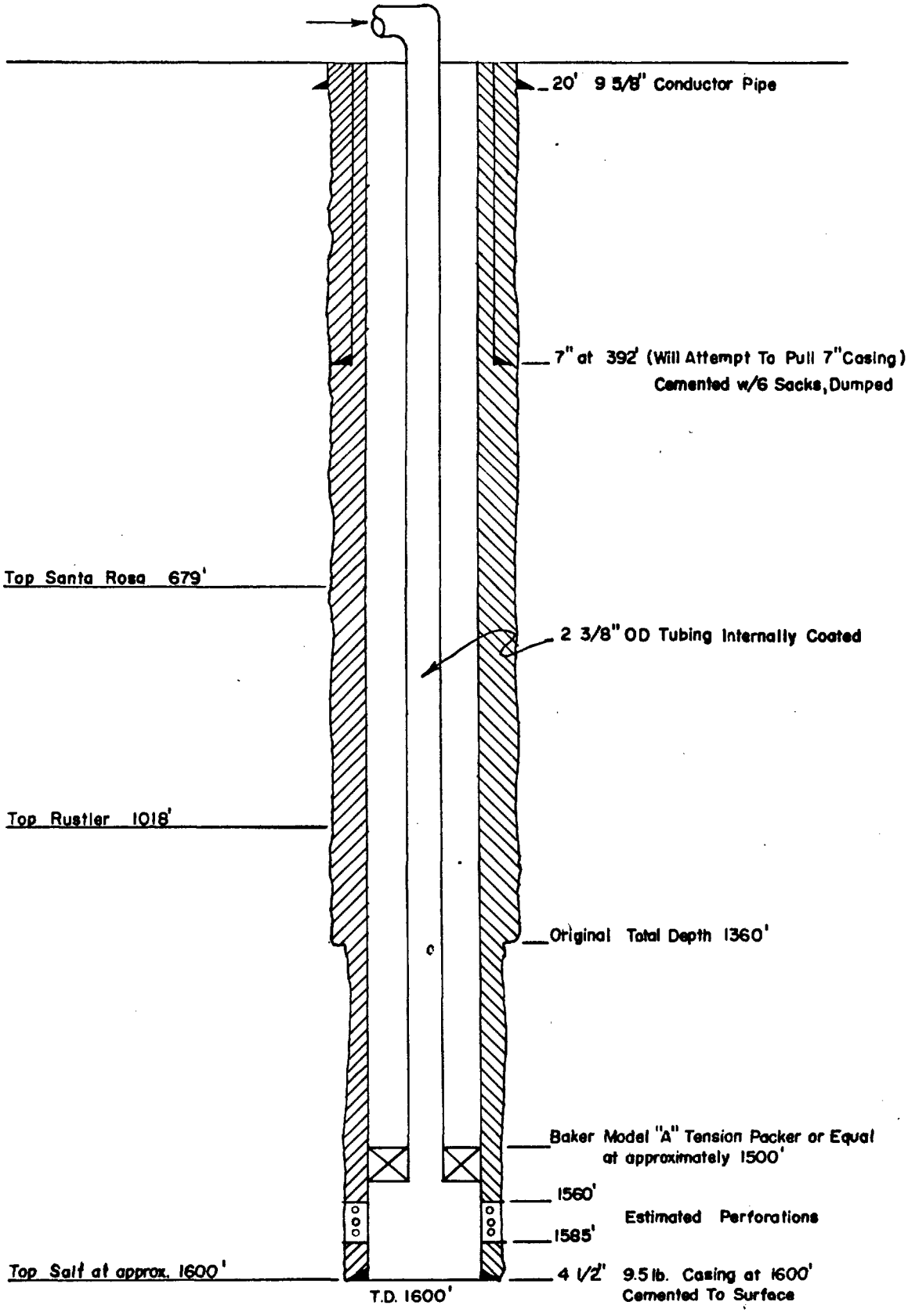
I hereby certify that the information above is true and complete to the best of my knowledge and belief.

O. E. Hatcher (Signature) — District Production Manager (Title) — February 4, 1969 (Date)

*NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests.* SEE RULE 701.

LRH/bh

SKELLY OIL COMPANY
PROPOSED COMPLETION
MEXICO FED "P" WSW No 1
1630 FWL & 2330 FNL
SECTION 21-T26S-R35E
Lea County, New Mexico



**DOWELL** DIVISION OF THE DOW CHEMICAL COMPANY

Skelly Oil Company

P.O. Box 730

Hobbs, New Mexico 88240

WATER ANALYSIS

Date January 25, 1969

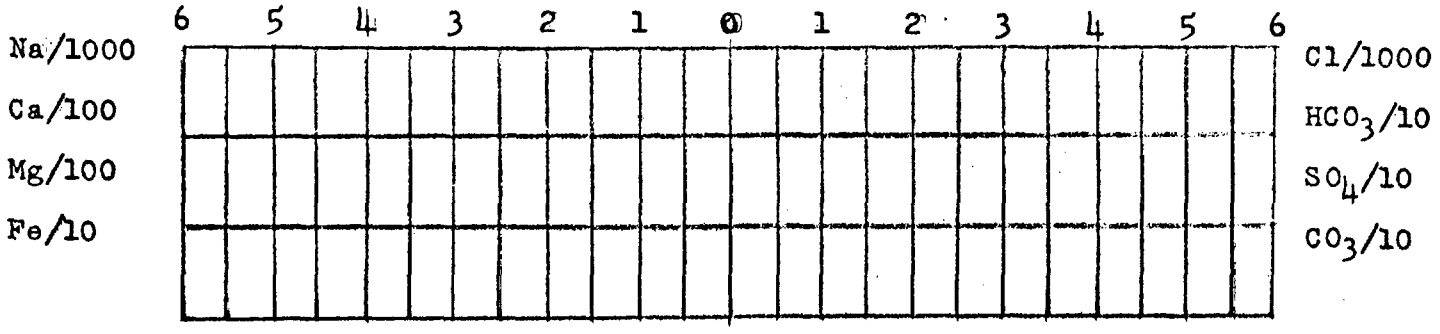
Lab no. 5256

Lab. Location Hobbs, New Mexico

S. no. 1

| | | | | | |
|---|---|---|---|---|---|
| | | | Pool Wildcat | Formation Atoka | |
| | | | Legal Description N.M. Federal "P" #1 | BHT | Depth Aprox. 15,500 |
| Source Well Head 1/25/69 | Total Solids | | pH 7.2 | Specific Gravity 1.010 @ 76 °F | |
| Constituents | mg/L | meq/L | Constituents | mg/L | meq/L |
| Sodium | 4,940 | 215 | Chloride | 8,875 | 250 |
| Calcium | 1,060 | 53 | Bicarbonate | 790 | 15 |
| Magnesium | 108 | 9 | Sulfate | 600 | 12 |
| Iron | Nil | 0 | Carbonate | 0 | 0 |

Stiff Diagram
( meq/L )




Remarks:

C. M. Rosson

Analysis Based On API Recommended Procedure by C. M. Rosson

TELEPHONE: HOBBS 393-6215

KE-TONE™

# UNITED CHEMICAL CORPORATION

OF NEW MEXICO

601 NORTH LEECH P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Company Skelly

Field

Lease New Mexico Fed. P (Water well) Sampling Date 1-9-68
(Upper Rustler)

Type of Sample O. W. Dillon 1-9-68

## WATER ANALYSIS

| IONIC FORM | me/l * | mg/l * |
|---|---|---|
| Calcium (Ca++) | ~~99.80~~ | ~~2000~~ |
| Magnesium (Mg++) | 25.82 | 314 |
| Sodium (Na+) (calculated) | 1863.05 | 42,832 |
| | | |
| | | |
| | | |
| Bicarbonate ($HCO_3$) | ~~3.00~~ | ~~183~~ |
| Carbonate ($CO_3$ -) | Not | Found |
| Hydroxide (OH-) | Not | Found |
| Sulphate ($SO_4$ -) | ~~197.79~~ | ~~9500~~ |
| Chloride (Cl-) | 1787.88 | 63,400 |
| Hydrogen Sulfide | Not | Found |
| | | |
| | | |
| 7.5 ph c 68°F | | |
| Dissolved Solids on Evap. at 103° - 105° C | | |
| Hardness as Ca $CO_3$ | 125.62 | 6281 |
| Carbonate Hardness as $CaCO_3$ (temporary) | 3.00 | 150 |
| Non-Carbonate Hardness as $CaCO_3$ (permanent) | ~~122.62~~ | ~~6131~~ |
| Alkalinity as $CaCO_3$ | 3.00 | 150 |
| Specific Gravity c 68° F 1.075 | | |
| | | |



* mg/l = milligrams per Liter

* me/l = milliequivalents per Liter

# SCHLUMBERGER

# BOREHOLE COMPENSATED SONIC LOG - GAMMA RAY

COUNTY LEA
FIELD or LOCATION WILDCAT
WELL NEW MEXICO FEDERAL "P" #1
COMPANY SKELLY OIL CO.

**COMPANY** SKELLY OIL COMPANY

**WELL** NEW MEXICO FEDERAL "P" #1

**FIELD** WILDCAT

**COUNTY** LEA **STATE** NEW MEXICO

**LOCATION** 1980' FN & WL'S

Sec. 21 Twp. 26-S Rge. 35-E

**Other Services:**
MLL, PML, CAL, FDC, SNP, L-DIL.

**Permanent Datum:** G.L., **Elev.** 3153
**Log Measured From** K.B., 26 **Ft. Above Perm. Datum**
**Drilling Measured From** K.B.

**Elev.: K.B.** 3179
**D.F.** 3178
**G.L.** 3153

| | | | | |
|---|---|---|---|---|
| Date | 2-18-68 | 4-14-68 | 9-15-68 | 12-6-68 |
| Run No. | ONE | TWO | THREE | FOUR |
| Depth—Driller | 5336 | 13315 | 18621 | 22926 |
| Depth—Logger | 5336 | 13306 | 18605 | 22914 |
| Btm. Log Interval | 5327 | 13296 | 18603 | 22912 |
| Top Log Interval | 0 | 5327 | 13296 | 18603 |
| Casing—Driller | 20 @ 805 | 13 3/8@ 5323 | 10 3/4@ 13315 | 7 5/8@ 18605 |
| Casing—Logger | 805 | 5321 | 13298 | 18590 |
| Bit Size | 17 1/2 | 12 1/4 | 9 1/2 | 6 1/2 |
| Type Fluid in Hole | BRINE | BRINE FLOSAL | BAR | SALT WATER |
| Dens. / Visc. | 10.2 | 9.3 / 34 | 15.7 / 47 | 8.4 / 28 |
| pH / Fluid Loss | 11.5 / NC ml | 11.0 / ml | 10.8 / 7.0 ml | 11.5 / ml |
| Source of Sample | PIT | PIT | PIT | CIRC. |
| $R_m$ @ Meas. Temp. | .047@ 73 °F | .06 @ 90 °F | 1.25 @ 70 °F | .29 @65 °F |
| $R_{mf}$ @ Meas. Temp. | .042@ 74 °F | .052 @ 85 °F | .62 @ 70 °F | .21 @65 °F |
| $R_{mc}$ @ Meas. Temp. | @ °F | 1.00 @ 75 °F | 2.05 @ 70 °F | .44 @65 °F |
| Source: $R_{mf}$ / $R_{mc}$ | M | M / M | M / M | M / M |
| $R_m$ @ BHT | .035@ 105°F | .04 @ 142°F | .41 @ 215°F | .07 @282°F |
| Time Since Circ. | 3 HOURS | 6½ HOURS | 7 HOURS | 6 HOURS |
| Max. Rec. Temp. | 105 °F | 142 °F | 215 °F | 282 °F |
| Equip. / Location | 3701 / HOBBS | 3722 / HOBBS | 3719 / MONA. | 3719 / MONA |
| Recorded By | RATLIFF | LEFLER | RUGH | KORDSMEIER |
| Witnessed By | ROGERS | ROGERS | EDMUNDSON | EDMUNDSON |

FOLD HERE

The well name, location and borehole reference data were furnished by the customer.