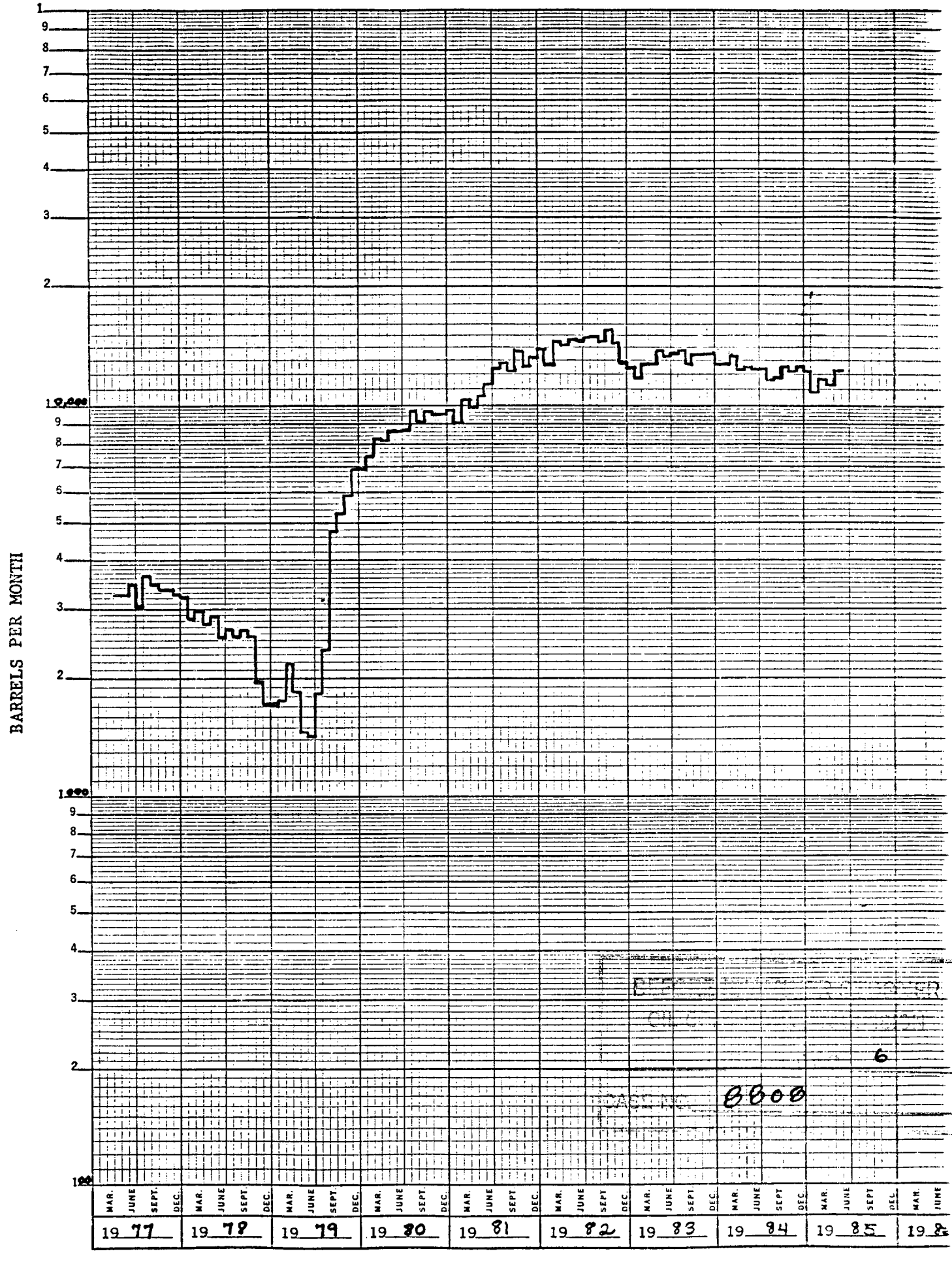
30 copies
51

BURK ROYALTY CO. DOUBLE "L" QUEEN UNIT PRODUCTION



47 6843 MADE IN U.S.A.
20 YEARS BY MONTHS
X 3 LOG CYCLES
KEUFFEL & ESSER CO.

CHAVES COUNTY, NEW MEXICO

APPLICATION
TO
WATERFLOOD

SOUTH LUCKY LAKE QUEEN FIELD UNIT
Chaves County, New Mexico

BEFORE EXAMINER STOGNER
OIL CONSERVATION DIVISION
EXHIBIT NO. 1
CASE NO. 8808

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: [XX] Secondary Recovery [ ] Pressure Maintenance [ ] Disposal [ ] Storage
Application qualifies for administrative approval? [ ] yes [ ] no

II. Operator: Burk Royalty Co.

Address: P. O. Box BRC, Wichita Falls, TX 76307

Contact party: Fred M. Lynch Phone: 817/322-5421

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? [ ] yes [X] no
If yes, give the Division order number authorizing the project _____.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

* VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)

* XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

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

Name: Fred M. Lynch Title Petroleum Engineer

Signature: Fred M Lynch Date: 2-4-86

If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division district office.

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells:

(3) the formation name and depth with expected maximum injection rates and pressures; and

(4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

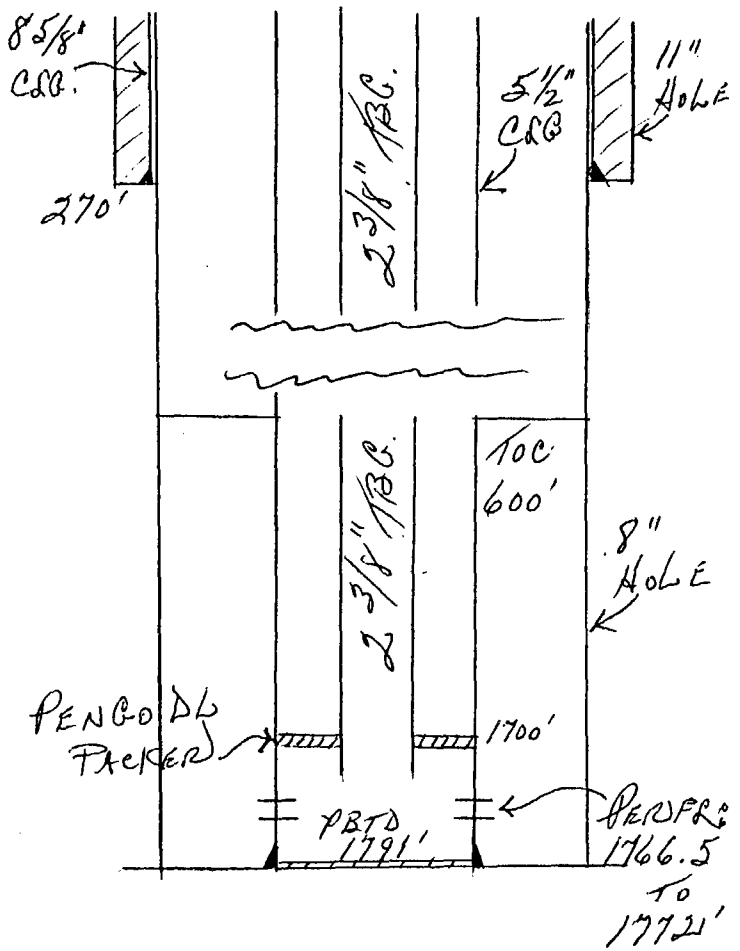
NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

INJECTION WELL DATA SHEET

SIDE 1

Dalport Oil Corp.	Jones-Federal			
OPERATOR	LEASE			
1	2310' FSL & 330' FWL	22	15S	29E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing to 270'

Size 8 5/8" - 20# " Cemented with 150 sx "C" sx.

TOC Surface feet determined by circulated

Hole size 11"

Intermediate Casing

Size _____" Cemented with _____sx.

TOC _____ feet determined by _____

Hole size _____

Long string to 1,794'

Size 5½" - 15.5# " Cemented with 275 sx.

TOC 600 feet determined by volume

Hole size 8"

Total depth 1,796' PBTD 1,791'

Injection interval Queen

1,766½ feet to 1,772 feet

(perforated ~~or open hole~~, indicate which)

Tubing size 2 3/8" lined with fiberglass tubing (material) set in a

Pengo DL (brand and model) packer at 1,700'± feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Queen

2. Name of Field or Pool (if applicable) South Lucky Lake

3. Is this a new well drilled for injection? /_/ Yes /X/ No

   If no, for what purpose was the well originally drilled?

   Oil production

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used)

   No

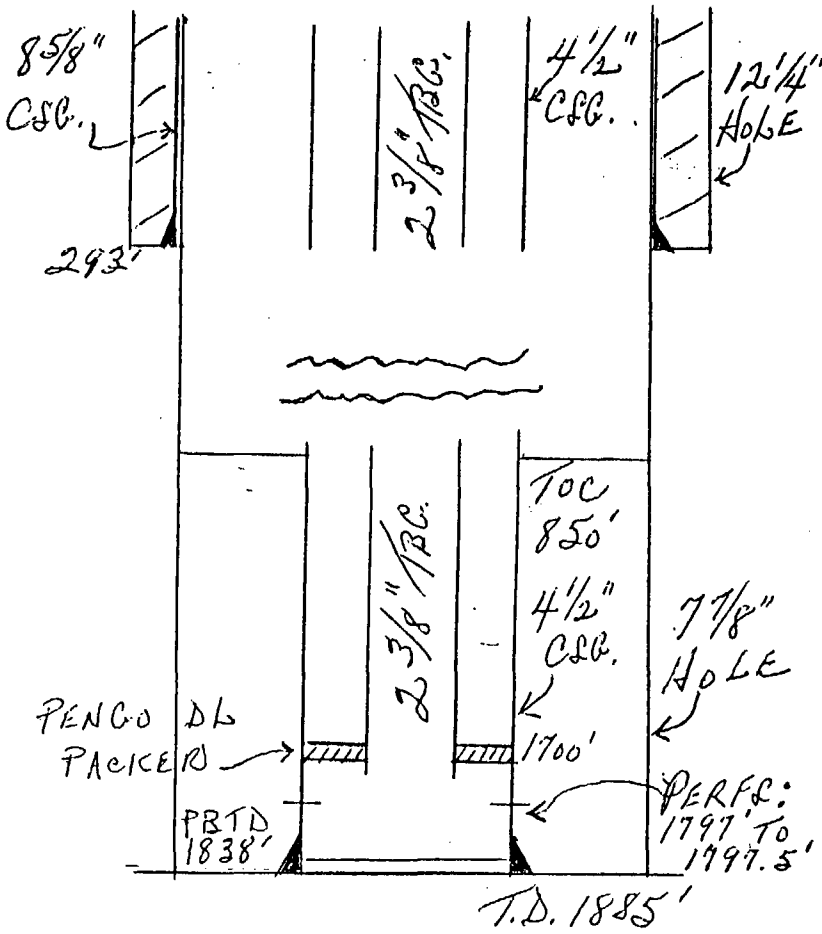
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

   None

INJECTION WELL DATA SHEET SIDE 1

Dalport Oil Corp.	Jones-Federal			
OPERATOR	LEASE			
4	990' FSL & 1477' FWL	22	15S	29E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing 293'

Size 8 5/8" 20# Cemented with 150 sx.

TOC Surface feet determined by circulated

Hole size 12 1/4"

Intermediate Casing

Size _____" Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string to 1,885'

Size 4½" - 9½" " Cemented with 275 sx.

TOC 850 feet determined by volume

Hole size 7 7/8"

Total depth 1,885' PBTD 1,838'

Injection interval Queen

1,797 feet to 1,797.5 feet

(perforated ~~xxxxxxxxxxxx~~, indicate which)

Tubing size 2 3/8" lined with fiberglass tubing (material) set in a

Pengo DL (brand and model) packer at 1,700± feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Queen

2. Name of Field or Pool (if applicable) South Lucky Lake

3. Is this a new well drilled for injection? /_/ Yes /X/ No

   If no, for what purpose was the well originally drilled?

   Oil production

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used)

   No

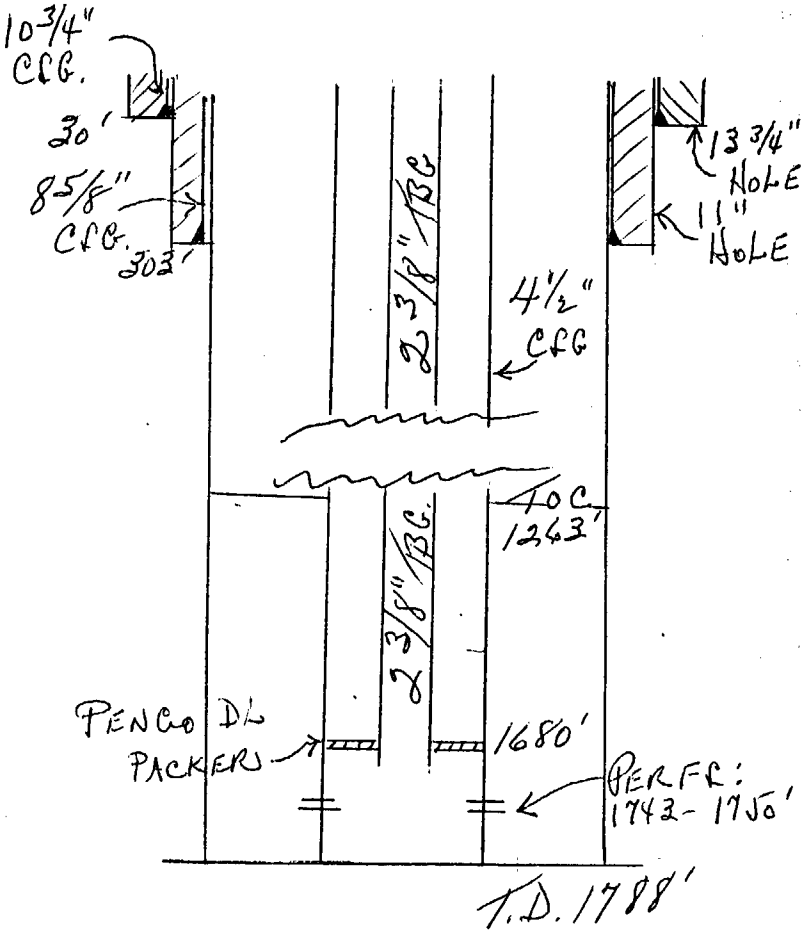
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

   None

INJECTION WELL DATA SHEET SIDE 1

Yates Petroleum Corp.	Federal "DH"			
OPERATOR	LEASE			
1	1980' FNL & 330' FWL	27	15S	29E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing 30'

Size 10 3/4" 30# " Cemented with 25 sx.

TOC surface feet determined by circulated

Hole size 13 3/4"

Intermediate Casing 303'

Size 8 5/8" - 24# " Cemented with 50 sx.

TOC Surface feet determined by circulated

Hole size 11"

Long string 1,788'

Size 4½" - 10.5# " Cemented with 125 sx.

TOC 1263' feet determined by volume

Hole size 8"

Total depth 1,788'

Injection interval Queen

1,743 feet to 1,750 feet

(perforated ~~or open hole~~, indicate which)

Tubing size 2 3/8" lined with fiberglass tubing (material) set in a Baker Model D (brand and model) packer at 1,680'± feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Queen

2. Name of Field or Pool (if applicable) South Lucky Lake

3. Is this a new well drilled for injection? /7/ Yes XX No

   If no, for what purpose was the well originally drilled? Oil production

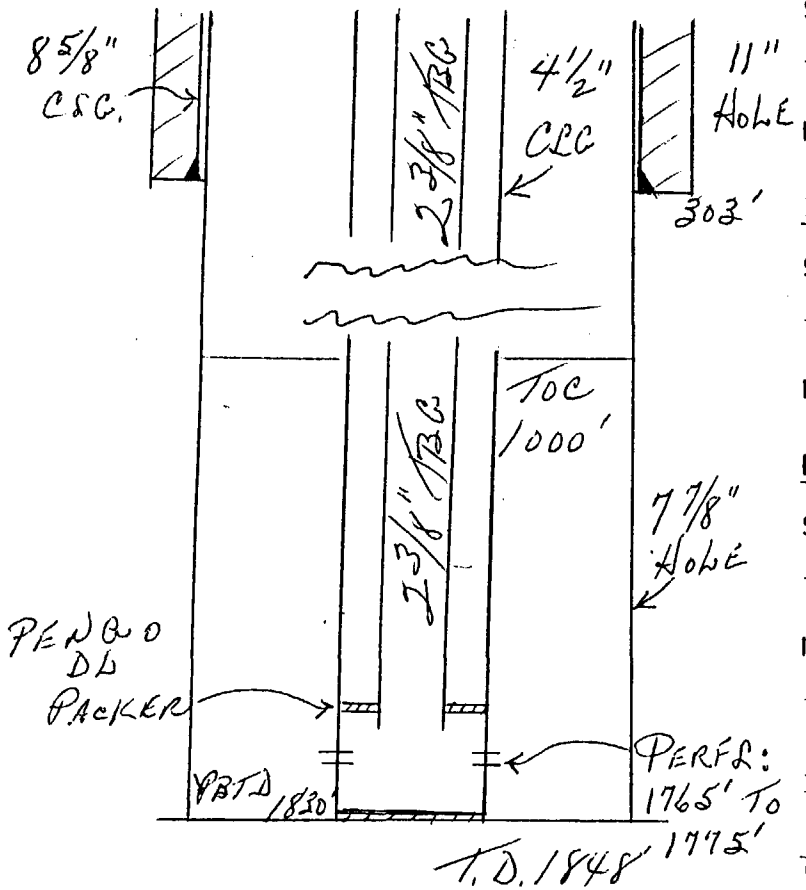
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) No

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. None

INJECTION WELL DATA SHEET SIDE 1

Read & Stevens	Harris State 16			
OPERATOR	LEASE			
1	660' FSL & 1980' FEL	16	15S	29E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing 303'

Size 8 5/8" - 24# " Cemented with 100 sx.

TOC Surface feet determined by circulated

Hole size 11"

Intermediate Casing

Size _____ " Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string 1,848'

Size 4½" - 9.5# " Cemented with 100 sx.

TOC 1,000 feet determined by volume

Hole size 7 7/8"

Total depth 1,848' PBTD 1,830'

Injection interval Queen

Perf. 1,765 feet to 1,775 feet

(perforated ~~or open hole~~, indicate which)

INJECTION WELL DATA SHEET -- SIDE 2

Tubing size 2 3/8" lined with fiberglass tubing (material) set in a Pengo DL (brand and model) packer at 1,680'± feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Queen

2. Name of Field or Pool (if applicable) South Lucky Lake

3. Is this a new well drilled for injection? /_/ Yes /X/ No

   If no, for what purpose was the well originally drilled?

   Oil production

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used)

   No

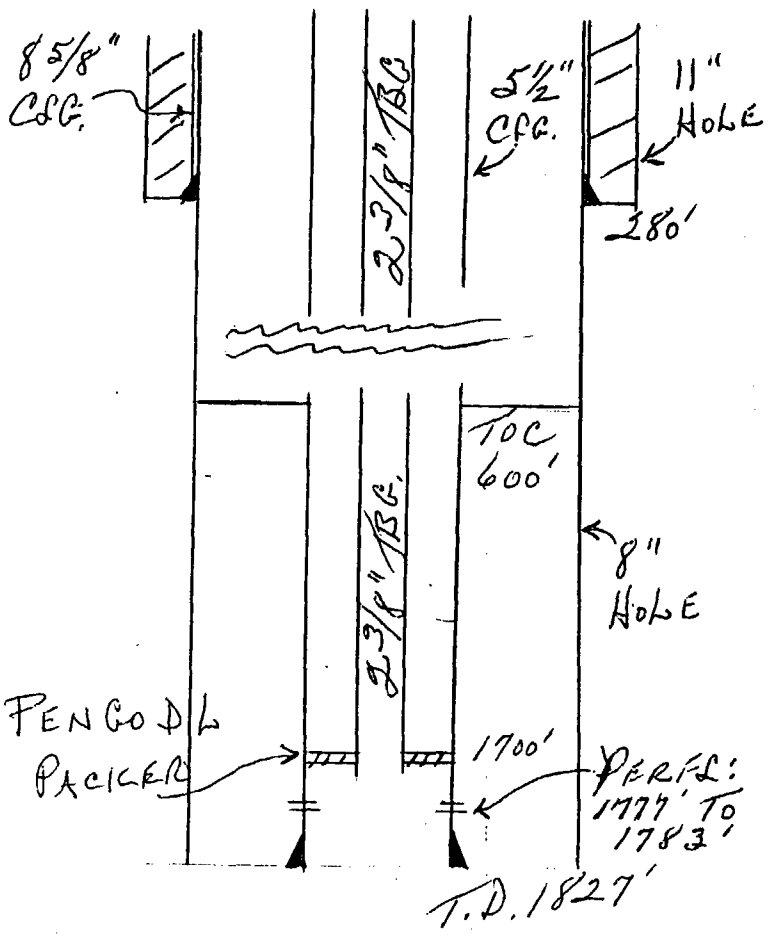
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

   None

INJECTION WELL DATA SHEET SIDE 1

Dalport Oil Corp.	Todhunter-Federal			
OPERATOR	LEASE			
1	2,310' FNL & 1,650' FWL	22	15S	29E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing 280'

Size 8 5/8" - 20# " Cemented with 150 sx.

TOC Surface feet determined by circulated

Hole size 11"

Intermediate Casing

Size _____ " Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string 1,826'

Size 5½" - 14# " Cemented with 275 sx.

TOC 600' feet determined by volume

Hole size 8"

Total depth 1,827'

Injection interval Queen

1,777 feet to 1,783 feet

(perforated ~~xxxxxxxxxxxx~~ indicate which)

Tubing size 2 3/8" lined with fiberglass tubing (material) set in a Pengo DL (brand and model) packer at 1,700' ± feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Queen

2. Name of Field or Pool (if applicable) South Lucky Lake

3. Is this a new well drilled for injection? /_/ Yes /X/ No

   If no, for what purpose was the well originally drilled?

   Oil production

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used)

   No

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

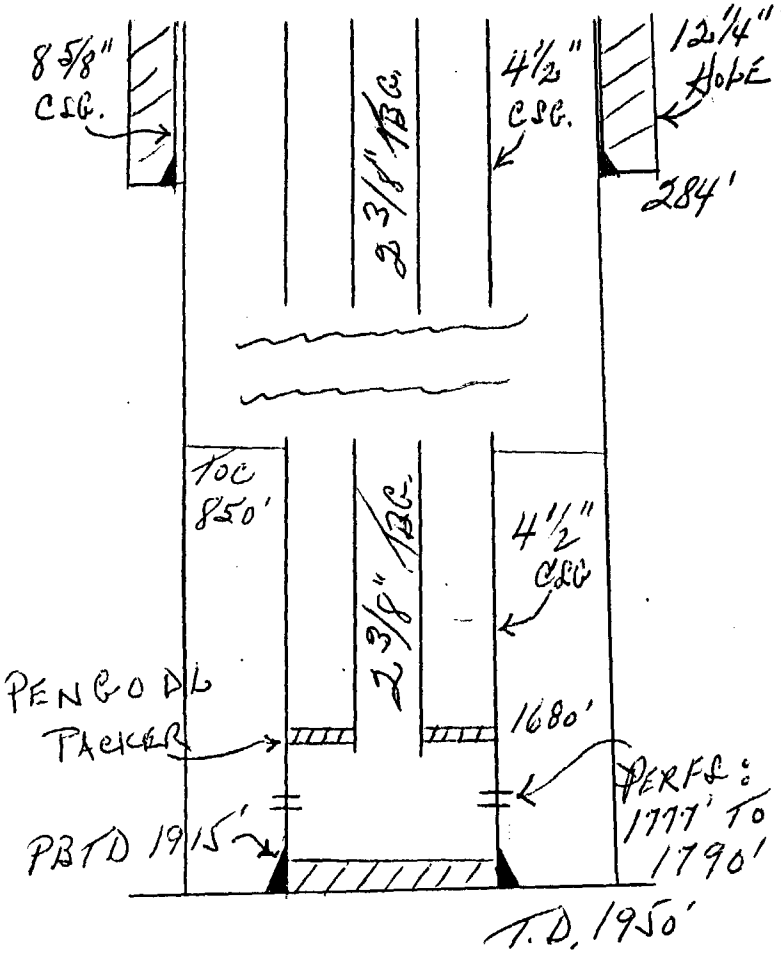
   None

INJECTION WELL DATA SHEET

SIDE 1

Read & Stevens	South Lucky Lake Federal			
OPERATOR	LEASE			
1	330' FSL & 330' FWL	15	15S	29E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing 284'

Size 8 5/8" - 24# " Cemented with 150 sx.

TOC Surface feet determined by circulated

Hole size 12 1/4"

Intermediate Casing

Size _____ " Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string 1,950'

Size 4½" - 9.5# " Cemented with 400 sx.

TOC 850 feet determined by volume

Hole size 7 7/8"

Total depth 1,950' PBTD 1,915'

Injection interval Queen

1,777 feet to 1,790 feet

(perforated ~~xxxxxxxxxxxx~~, indicate which)

Tubing size 2 3/8" lined with fiberglass tubing (material) set in a

Pengo DL (brand and model) packer at 1,680' ± feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Queen

2. Name of Field or Pool (if applicable) South Lucky Lake

3. Is this a new well drilled for injection? /_/ Yes /X/ No

   If no, for what purpose was the well originally drilled? Oil production

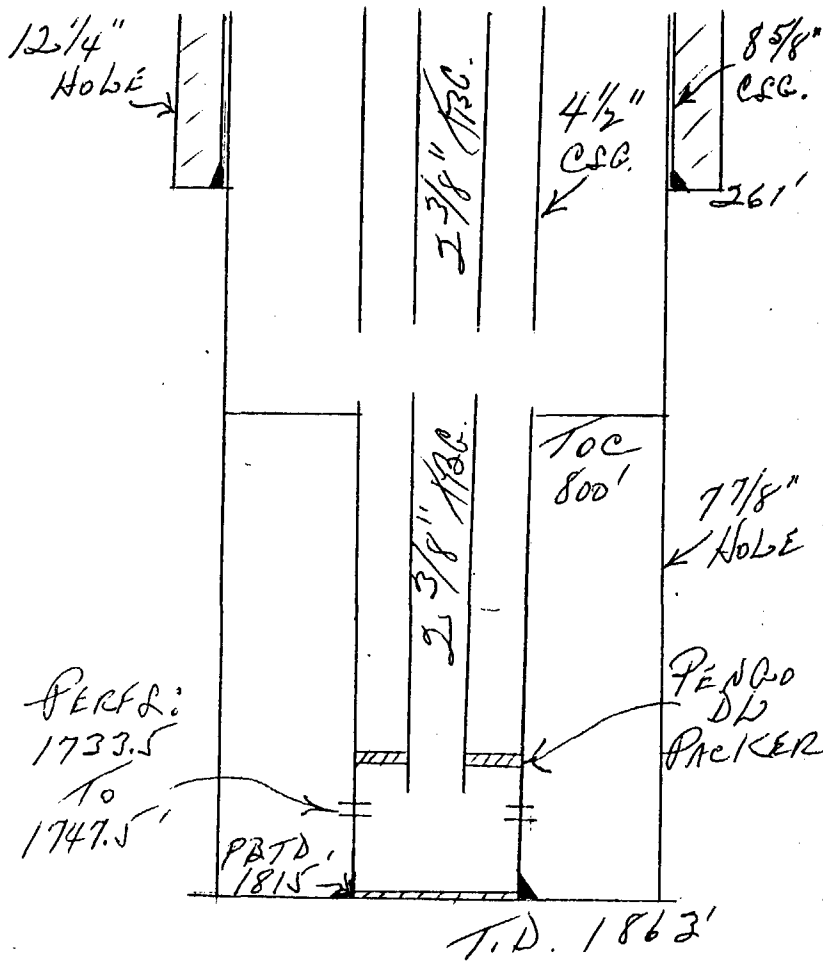
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) No

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. None

INJECTION WELL DATA SHEET SIDE 1

Bison Petroleum Corp.	Owen-Federal			
OPERATOR	LEASE			
1	660' FEL & 1980' FNL	21	15S	29E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing 261'

Size 8 5/8" - 20# " Cemented with 300 sx.

TOC Surface feet determined by circulated

Hole size 12 1/4"

Intermediate Casing

Size _____ " Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string 1,853'

Size 4½" - 9.5# " Cemented with 300 sx.

TOC 800 feet determined by volume

Hole size 7 7/8"

Total depth 1,863' PBTD 1,815'

Injection interval Queen

1,733½ feet to 1,747½ feet

(perforated ~~xxxxxxxxxx~~, indicate which)

INJECTION WELL DATA SHEET -- SIDE 2

Tubing size 2 3/8" lined with fiberglass tubing (material) set in a Pengo DL (brand and model) packer at 1,650'± feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Queen

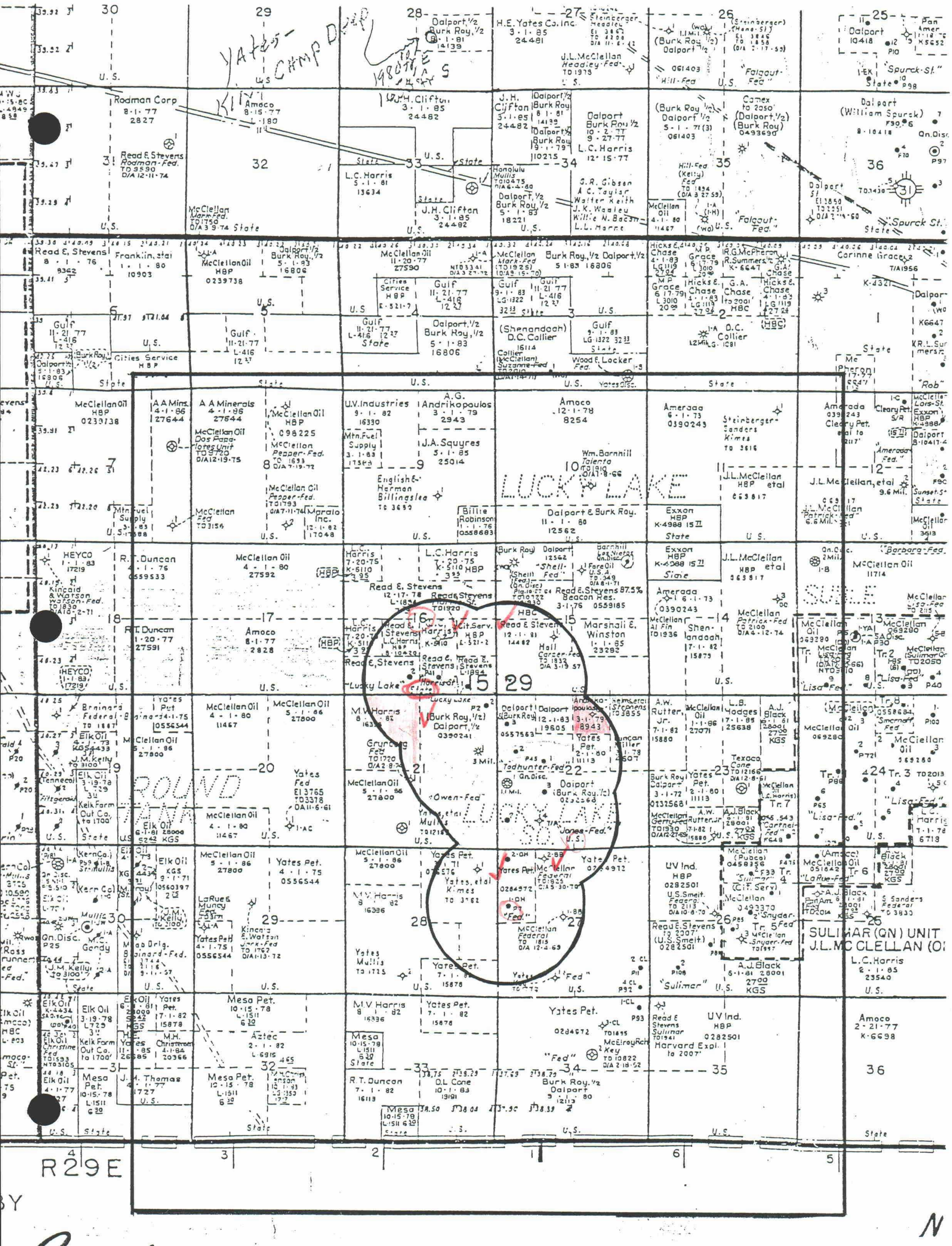
2. Name of Field or Pool (if applicable) South Lucky Lake

3. Is this a new well drilled for injection? /_/ Yes /X/ No

   If no, for what purpose was the well originally drilled? Oil production

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) No

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. None



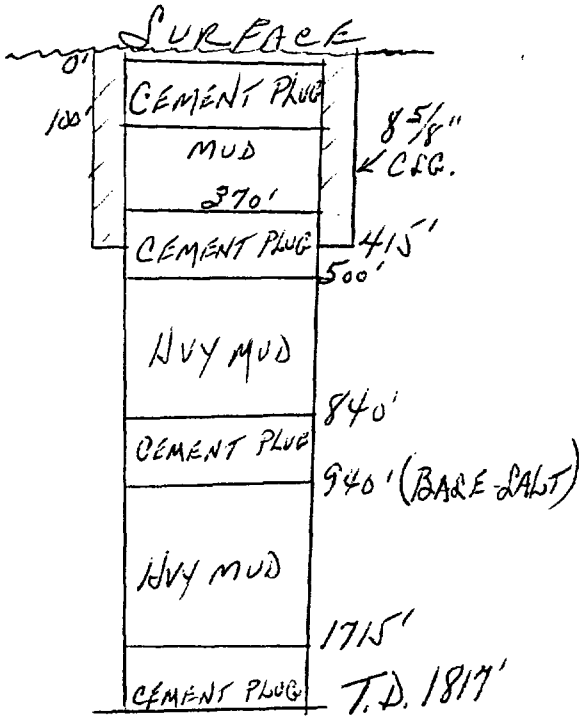
R29E
LUCKY LAKE
ROUND TANK
SULIMAR (QN) UNIT
J.L. MC CLELLAN (O
Rodman Corp
Read & Stevens
McClellan Oil
Dalport & Burk Roy.
Amoco
Yates Pet.
Elk Oil
Mesa Pet.
L.C. Harris
M.V. Harris
J.H. Clifton
Gulf
Cities Service
Amerada
Exxon
HEYCO
R.T. Duncan
A.A. Minerals
U.V. Industries
A.G. Andrikopoulos
J.A. Squyres
Wm. Barnhill
Marshall & Winston
UV Ind.
Burk Roy, 1/2 Dalport
A.J. Black
H.E. Yates Co. Inc.

DALPORT #2 Todhunter-Fed	22-E	7-13-75	1,875	1,831	255'/175	1872'/275	QUEEN	14"	1759-66	1300	18 BO 1 BW	Oil
DALPORT #3 Todhunter-Fed	22-D	9-19-75	1,875	1,833	275'/150	1875'/275	QUEEN	14"	1760-73	1300	60 BOPD	Oil
HELMS-MARTIN #1 Stephens	22-B	8-10-40	3,855	---	343'/50	---	QUEEN	---	---	---	SW	P&A
YATES #1 Fed "DH"	27-E	12-11-74	1,788	1,780	303'/50	1788'/125	QUEEN	15	1743-50	---	7 BO 12 BW	Oil
YATES #2 Fed "DH"	27-D	8-31-76	1,818	1,804	303'/150	1804'/150	QUEEN	15"	1760-70	---	32 BOPD	Oil
MCCLELLAN #1 BB Fed	27-F	12-4-69	1,817	---	327'/150	---	QUEEN	---	---	---	SW	P&A
MCCLELLAN #2 BB Fed	27-C	5-30-70	1,825	---	308'/50	---	QUEEN	15"	---	---	SW	P&A
YATES #1 Kimes	28-A	10-27-48	3,762	1,755	None	1766'/200	QUEEN	14"	1751-56	1100	gas - oil	P&A

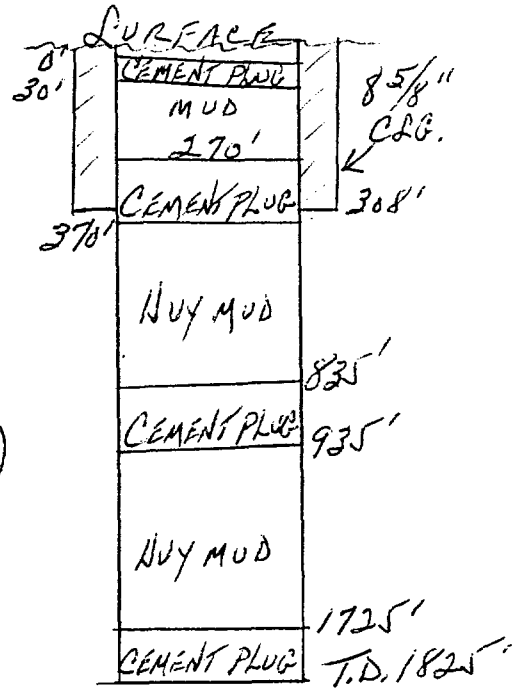
TABULATION OF DATA
ALL WELLS WITHIN 1/2 MILE OF AN INJECTION WELL

WELL NAME	SEC-LOC T15S R29E	DATE COMP	T.D.	PBTD	DPT SURF CSG & SX CMT	DPT SURF CSG & SX CMT	ZONE	THK	PERFS	FRAC ISDP #	POT OR RESULTS	CURRENT STATUS
READ & STEVENS #1 South Lucky Lake	15-M	1-29-82	1,950	1,915	284'/180	1950'/400	QUEEN	13"	1777-90	2150	1 BO 19 W	Oil
HALL #1 Carper-Fed	15-K	3-19-57	1,853	---	477'/125	1844'/50	QUEEN	--	---	---	40' SW	P&A
READ & STEVENS #1 Lucky Lake	16-P	2-15-76	1,825	1,800	280'/100	1825'/100	QUEEN	13"	1761-71	---	55 BO	Oil
READ & STEVENS #2 Lucky Lake	16-N	5-10-76	1,800	1,798	288'/100	1800'/100	QUEEN	14"	1738-48	1200	10 BO	Oil
READ & STEVENS #1 Harris-State "16"	16-O	5-1-75	1,848	1,830	303'/100	1848'/100	QUEEN	15"	1765-75	1200	41 BO	Oil
READ & STEVENS #2 Harris-State "16"	16-J	5-22-75	1,920	---	300'/100	1850'/100	QUEEN	12"	---	---	salt wtr.	P&A
DALPORT #1 Owen-Fed	21-H	12-23-72	1,863	1,815	261'/300	1853'/300	QUEEN	16"	1733-47	1300	3051 mcf	Gas
DALPORT #2 Owen-Fed	21-A	3-20-76	1,860	1,808	260'/175	1860'/275	QUEEN	14"	1762-69	1100	25 BO	Oil
MCCLELLAN #1 Harris-Fed	21-C	1-29-83	1,805	---	331'/200	1805'/150	QUEEN	12"	1726-35	---	85 MCF	Gas
GRYNBERG #1 Federal	21-K	2-8-74	1,730	---	276'/180	---	QUEEN	--	---	---	tite	P&A
DALPORT #1 Jones-Fed	22-L	3-30-72	1,796	1,791	270'/150	1794'/275	QUEEN	14"	1766-73	1300	1191 MCF 3 BO	Oil
DALPORT #2 Jones-Fed	22-M	4-16-76	1,870	1,818	256'/150	1869'/150	QUEEN	16"	1773-76	1100	38 BO	Oil
DALPORT #3 Jones-Fed	22-M	5-14-76	1,884	1,867	256'/150	1882'/275	QUEEN	14"	1804-16	1300	29 BO 17 BSW	Oil
DALPORT #4 Jones-Fed	22-N	10-25-76	1,885	1,838	293'/150	1885'/275	QUEEN	17"	1797-97.5	---	55 BWPD	TA
DALPORT #1 Todhunter-Fed	22-F	5-22-72	1,827	1,801	279'/150	1826'/275	QUEEN	14"	1777-83	1400	45 BO 45 BSW	Oil

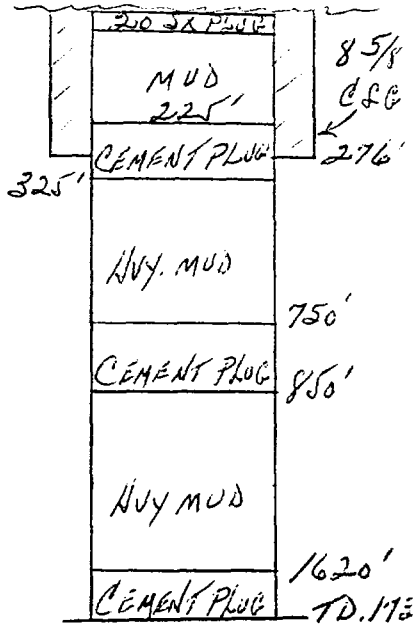
PLUGGED WELLS WITHIN AREA OF REVIEW



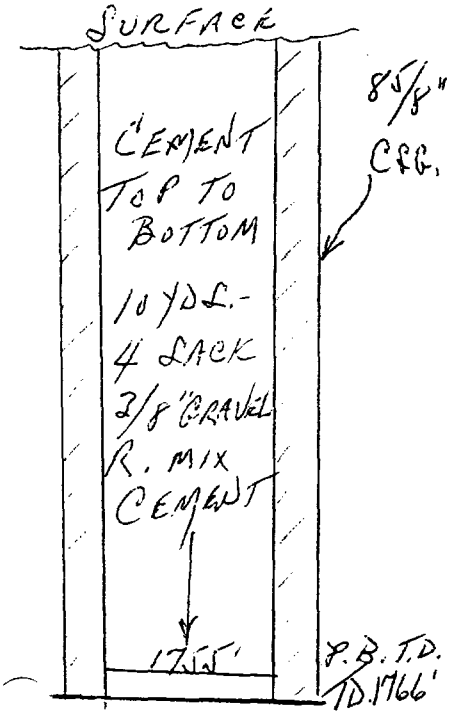
McCLELLAN-YATES "BB" FED No. 1
SEC 27 - T-15S - R-29E - CHAVES



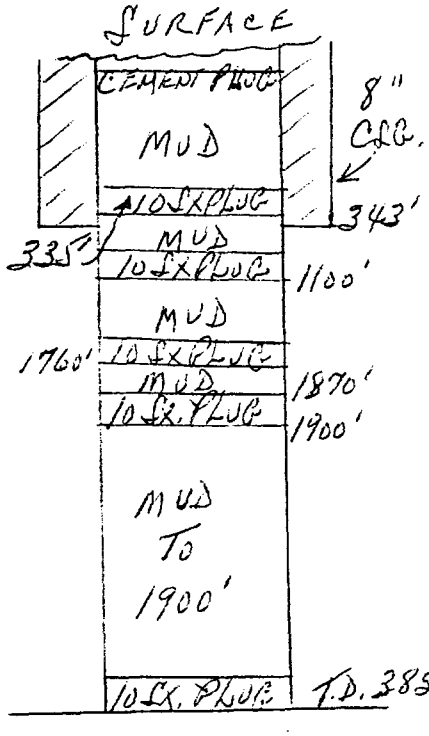
McCLELLAN-YATES "BB" FED No. 2
SEC 27 - T-15S - R-29E - CHAVES



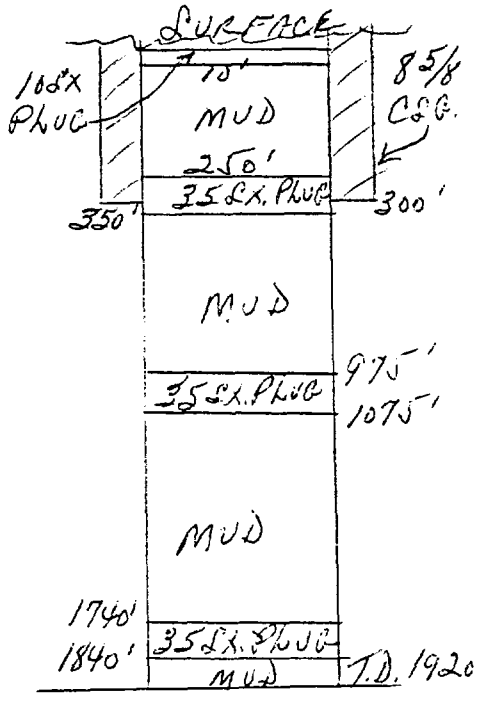
GRYNBERG FED "A" No. 1
SEC 21 - T-15-S R29E-CHA



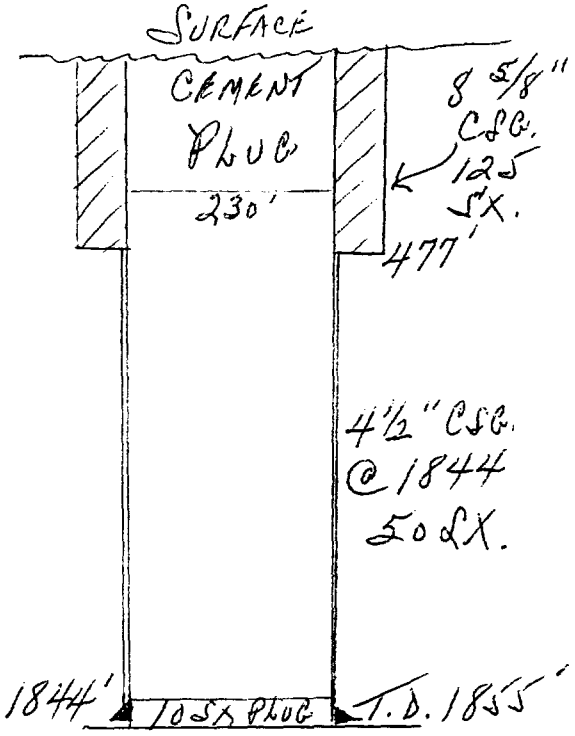
YATES-KMEL FED No. 1
SEC 28 - T15S - R29E



HELMS ETAL-STEPHENS No. 1
SEC 22 - T15S - R29E



R & STEVENS-HARRIS "16" ST. No. 2
SEC. 16 - T-15-S - R-29-E



HALL-CARPER FED No. 1

SEC 15 - T15S - R19E

REMARKS

Burk Royalty Co. operates the Double "L" Queen Unit Waterflood which lies within a few miles of the Proposed South Lucky Lake Flood. Jack McClellan of Roswell, New Mexico operates the Sulimar Queen Waterflood which lies approximatley 3 miles east of the Proposed South Lucky Lake Flood. The Burk flood is operating at 900 PSIG well head pressure and McClellan's flood is operating at 1,000 PSIG well head pressure. These floods have experienced no problems with respect to water injection. No channeling or loss of water up or down the hole has occurred.

A step rate test, which was run on Tract 1 #11 Sulimar Queen injection well, indicates no reservoir parting until a pressure of 1340 PSIG is reached. This pressure concurs with the instantaneous shut-in frac pressures of the South Lucky Lake Field. This test is shown on the following page.

The following page is a summary of the injection data for the Double "L" Queen Unit for the month of January, 1986.

AWLS SERVICES INC. HOBBS,

(505) 393-0119 STEP RATE TEST NEW MEXICO

FIELD DATA SHEET

1/4/83

Test Date

Type Test: ☐ Initial ☐ Annual ☒ Special

Lease No. or Serial No.

Company McClellan Oil Co.

Allottee

Field | Reservoir | Location | Unit

Completion Date | Total Depth 2014 | Plug Back TD | Elevation

Farm or Lease Name: Sulimar Queen

Csg. Size 5½ Wt. 15# d Set At | Perforations: From To

Well No.: Tract 1 - Well #11

Tbg. Size 2 3/8 Wt. Cement d Lined Set At | Perforations: From 1970 To 1978 Midway 1974

Sec. K - 24 Twp - Blk 15 Rge - 29

Type Completion (Describe): Water Injection Well | Packer Set At 1943

County or Parish: Chavez

Producing Thru | Reservoir Temp. F | Mean Ground Temp. F | Baro. Press. - P$_a$

State: New Mexico

CO. REPRESENTATIVE Paul Ragsdale

DATE Time of Reading	ELAP. TIME Hrs.	well information Rate BPD	Surf. Psig	B.H.P.	surf. psi.cor friction	remarks (Include liquid production data: Type - API Gravity - Amount)
11:30			875	1887		Shut In
12:00	0		875			1" Turbine Meter
12:15	15	80	900	1897		
12:15						
12:30	30	130	915	1928		
2						
2:	45	182	940	1954		Change Gears
2:45						
1:00	1	230	965	1985		
1:00						
1:15	15	280	1002	2015		
1:15						
1:30	30	330	1040	2051		Change Gears
1:30						
1:45	45	385	1070	2086		
1:45						
2:00	2	440	1102	2121		
:00						
2:15	15	485	1125	2147		
:15						
:30	30	545	1150	2167		
:30						
:4	45	592	1170	2186		38.4 Pump Truck
:45						
:00	3	650	1250	2192		

RECEIVED

JAN 11 1983

O. C. D.

ARTESIA, OFFICE

DAVIS SERVICES INC. HOBBS,

(505) 393-0119 STEP RATE TEST NEW MEXICO

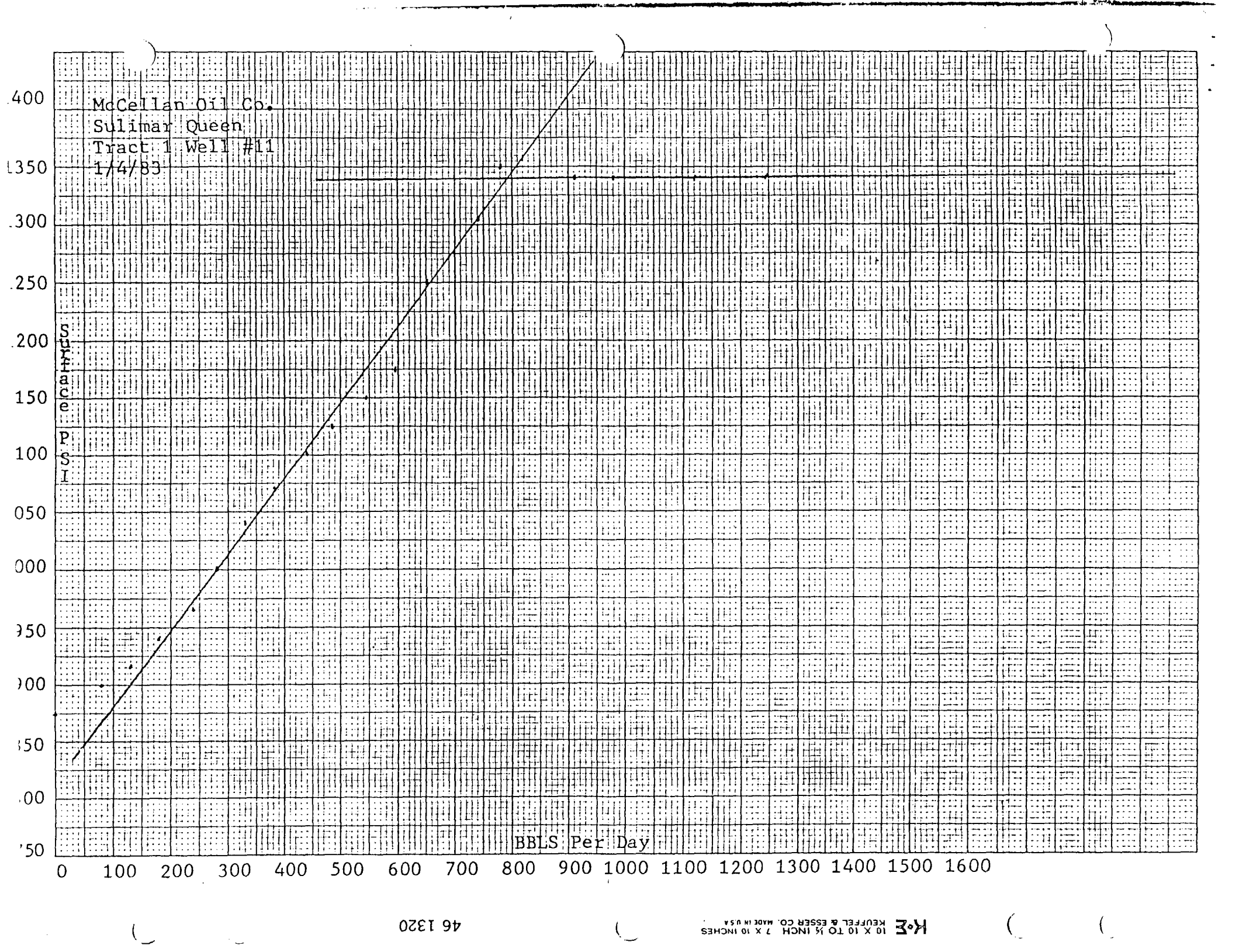
FIELD DATA SHEET

PAGE 2

Test: ☐ Initial ☐ Annual ☐ Special		Test Date	Lease No. or Serial No.
Company			Allottee
Field	Reservoir	Location	Unit
Completion Date	Total Depth	Plug Back TD / Elevation	Farm or Lease Name
Csg. Size / Wt. / d	Set At	Perforations: From / To	Well No.
Tbg. Size / Wt. / d	Set At	Perforations: From / To	Sec. / Twp – Blk / Rge – Survey
Type Completion (Describe)		Packer Set At	County or Parish
Producing Thru	Reservoir Temp. F	Mean Ground Temp. F / Baro. Press. – P_a	State

CO. REPRESENTATIVE

DATE Time of Reading	ELAP. TIME Hrs.	well information Rate BPD	Surf. Psig	B.H.P.	surf. psi.cor. friction	remarks (Include liquid production data: Type – API Gravity – Amount)
3:00						
3:15	15	700	1305	2197		
3:15						
3:30	30	780	1350	2212		
3:30						
45	45	910	1340	2110		
3:45						
4:00	4	980	1340	2110		
4:00						
4:15	15	1120	1340	2110		
4:15						
4:30	30	1245	1340	2110		End Test



WELL
NO

PROPOSED OPERATION

1. Average injection rate - 300 B/D. Maximum daily rate - 600 B/D.

2. Closed injection system.

3. Average injection pressure - 850 PSIG. Maximum injection pressure - 1100 PSIG.

4. Source water. Fresh water purchased from City of Carlsbad and produced Queen Sand Water. This same combination of water is being injected into the Double "L" Queen Flood with no problem of compatibility.

STIMULATION PROGRAM

The proposed injection wells will be cleaned out and acidized prior to injection.

REEF CHEMICAL COMPANY, INC.
P.O. BOX 529, SNYDER, TEXAS 79549

WATER ANALYSIS REPORT

18-FEB-1986

SAMPLE

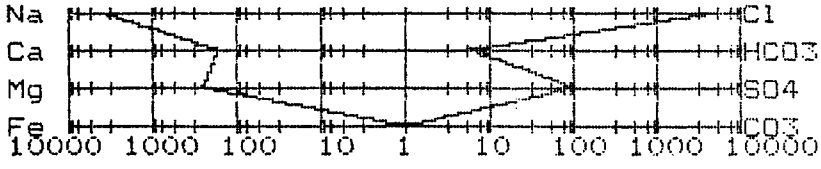
COMPANY : BURK ROYALTY CO
SOURCE :
NUMBER : 5323
LOCATION : PRODUCED
DATE SAMPLED : 04-FEB-1986
ATTENTION :

ANALYSIS

		MG/L	EQ. WT.	*MEQ
1.	PH	6.3		
2.	SPECIFIC GRAVITY	1.137		
3.	HYDROGEN SULFIDE	POSITIVE		
4.	CARBON DIOXIDE	NOT DETERMINED		
5.	DISSOLVED OXYGEN	NOT DETERMINED		
6.	HYDROXYL (OH)	0	/ 17.0 =	0
7.	CARBONATE (CO3)	0	/ 30.0 =	0
8.	BICARBONATE (HCO3)	354	/ 61.1 =	6
9.	CHLORIDES (CL)	133970	/ 35.5 =	3779
10.	SULFATES (SO4)	4500	/ 48.8 =	92
11.	CALCIUM (CA)	2887	/ 20.1 =	144
12.	MAGNESIUM (MG)	2892	/ 12.2 =	237
13.	SODIUM (NA)	80426	/ 23.0 =	3497
14.	BARIUM (BA)	NOT DETERMINED	/ 68.7 =	0
15.	TOTAL IRON (FE)	3	/ 18.2 =	0
19.	TOTAL HARDNESS (CACO3)	19100		
20.	RESISTIVITY (CALCULATED) .01 /CM			
16.	DISSOLVED SOLIDS	225029		
17.	FILTRABLE SOLIDS	0		
18.	TOTAL SOLIDS	225029		
21.	SUSPENDED OIL			
22.	VOLUME FILTERED (ML)			

LOGARITHMIC WATER PATTERN

*MEQ



* MILLIEQUIVALENTS

CALCULATED CALCIUM SULFATE SOLUBILITY IN THIS BRINE IS 5763 MG/L

PROBABLE MINERAL COMPOSITION

COMPOUND	EQ.WT.	X	*MEQ	= MG/L
CA(HCO3)2	81.04		6	470
CASO4	68.07		92	6277
CACL2	55.50		46	2574
MG(HCO3)	73.17		0	0
MGSO4	60.19		0	0
MGCL2	47.62		237	11288
NAHCO3	84.00		0	0
NASO4	71.03		0	0
NACL	58.46		3490	204050

ESTIMATED TEMPERATURE OF CALCIUM CARBONATE INSTABILITY IS 67 DEGREES F.

Gary Nettleton
CHEMIST

REEF CHEMICAL COMPANY, INC.
P.O. BOX 529, SNYDER, TEXAS 79549

WATER ANALYSIS REPORT

21-FEB-1986

SAMPLE

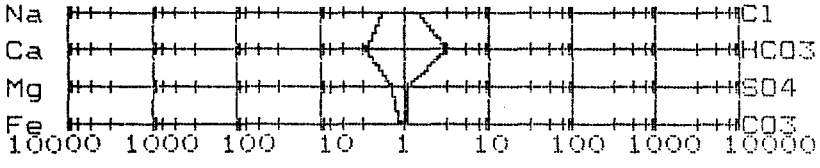
COMPANY : BURK ROYALTY
SOURCE :
NUMBER : 5324
LOCATION : FRESH
DATE SAMPLED : 04-FEB-1986
ATTENTION :

ANALYSIS

			MG/L	EQ. WT.	*MEQ
1.	PH	7.9			
2.	SPECIFIC GRAVITY	1.002			
3.	HYDROGEN SULFIDE	NEGATIVE			
4.	CARBON DIOXIDE	NOT DETERMINED			
5.	DISSOLVED OXYGEN	NOT DETERMINED			
6.	HYDROXYL (OH)		0	/ 17.0 =	0
7.	CARBONATE (CO3)		0	/ 30.0 =	0
8.	BICARBONATE (HCO3)		183	/ 61.1 =	3
9.	CHLORIDES (CL)		50	/ 35.5 =	1
10.	SULFATES (SO4)		45	/ 48.8 =	1
11.	CALCIUM (CA)		51	/ 20.1 =	3
12.	MAGNESIUM (MG)		14	/ 12.2 =	1
13.	SODIUM (NA)		38	/ 23.0 =	2
14.	BARIUM (BA)	NOT DETERMINED		/ 68.7 =	0
15.	TOTAL IRON (FE)		2	/ 18.2 =	0
19.	TOTAL HARDNESS (CACO3)		182		
20.	RESISTIVITY (CALCULATED)	2.374 /CM			
16.	DISSOLVED SOLIDS		381		
17.	FILTRABLE SOLIDS		0		
18.	TOTAL SOLIDS		381		
21.	SUSPENDED OIL				
22.	VOLUME FILTERED (ML)				

LOGARITHMIC WATER PATTERN

*MEQ



* MILLIEQUIVALENTS
CALCULATED CALCIUM SULFATE SOLUBILITY
IN THIS BRINE IS 1814 MG/L

PROBABLE MINERAL COMPOSITION

COMPOUND	EQ.WT.	X	*MEQ	= MG/L
CA(HCO3)2	81.04		3	207
CASO4	68.07		0	0
CACL2	55.50		0	0
MG(HCO3)	73.17		0	33
MGSO4	60.19		1	42
MGCL2	47.62		0	0
NAHCO3	84.00		0	0
NASO4	71.03		0	16
NACL	58.46		1	82

ESTIMATED TEMPERATURE OF CALCIUM CARBONATE INSTABILITY IS 60 DEGREES F.

Gary Nettleton
CHEMIST

REEF CHEMICAL COMPANY, INC.
P.O. BOX 529, SNYDER, TEXAS 79549

WATER ANALYSIS REPORT

18-FEB-1986

SAMPLE

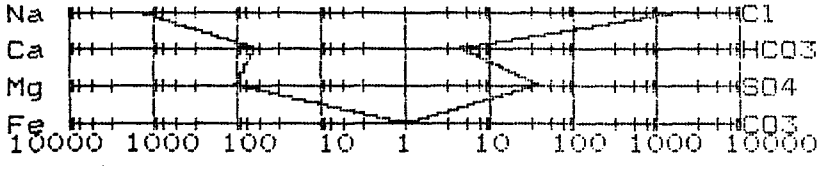
COMPANY : BURK ROYALTY CO
SOURCE :
NUMBER : 5325
LOCATION : 40% (F.)/60% F.
DATE SAMPLED : 04-FEB-1986
ATTENTION :

ANALYSIS

		MG/L		EQ. WT.		*MEQ
1.	PH	7.1				
2.	SPECIFIC GRAVITY	1.057				
3.	HYDROGEN SULFIDE	NEGATIVE				
4.	CARBON DIOXIDE	NOT DETERMINED				
5.	DISSOLVED OXYGEN	NOT DETERMINED				
6.	HYDROXYL (OH)	0	/	17.0	=	0
7.	CARBONATE (CO3)	0	/	30.0	=	0
8.	BICARBONATE (HCO3)	269	/	61.1	=	4
9.	CHLORIDES (CL)	52988	/	35.5	=	1495
10.	SULFATES (SO4)	1800	/	48.8	=	37
11.	CALCIUM (CA)	1123	/	20.1	=	56
12.	MAGNESIUM (MG)	1191	/	12.2	=	98
13.	SODIUM (NA)	31801	/	23.0	=	1383
14.	BARIUM (BA)	NOT DETERMINED	/	68.7	=	0
15.	TOTAL IRON (FE)	3	/	18.2	=	0
19.	TOTAL HARDNESS (CACO3)	7700				
20.	RESISTIVITY (CALCULATED)	.107 /CM				
16.	DISSOLVED SOLIDS	89172				
17.	FILTRABLE SOLIDS	0				
18.	TOTAL SOLIDS	89172				
21.	SUSPENDED OIL					
22.	VOLUME FILTERED (ML)					

LOGARITHMIC WATER PATTERN

*MEQ



* MILLIEQUIVALENTS
CALCULATED CALCIUM SULFATE SOLUBILITY
IN THIS BRINE IS 6179 MG/L

PROBABLE MINERAL COMPOSITION

COMPOUND	EQ.WT.	X	*MEQ	= MG/L
CA(HCO3)2	81.04		4	357
CASO4	68.07		37	2511
CACL2	55.50		15	825
MG(HCO3)	73.17		0	0
MGSO4	60.19		0	0
MGCL2	47.62		98	4649
NAHCO3	84.00		0	0
NASO4	71.03		0	0
NACL	58.46		1380	80683

ESTIMATED TEMPERATURE OF CALCIUM CARBONATE INSTABILITY IS 88 DEGREES F.

Gary N Littleton
CHEMIST

SOUTH LUCKY LAKE QUEEN UNIT

Chaves County, New Mexico

Working Interest Owners:

Yates Petroleum Corp.
207 S. 4th St.
Artesia, New Mexico 88210

Read & Stevens, Inc.
P. O. Box 1518
Roswell, New Mexico 88201

Bison Petroleum
5809 Southwestern #200
Amarillo, TX 79110-3607

Leasehold Operators:

McClellan Oil Corp.
P. O. Drawer 730
Roswell, New Mexico 88202

New Mexico Oil & Gas Co.
Attn: L. C. Harris
P. O. Box 1714
Roswell, New Mexico 88201

Armstrong Energy Corp.
P. O. Box 1973
Roswell, New Mexico 88201

Cities Service Oil Co.
500 W. Texas #700
Midland, TX 79702

BLM
P. O. Box 1379
Roswell, New Mexico 88201

Texas American Oil Corp.
300 W. Wall #400
Midland, TX 79701

Surface Owner:

Bogle Farms
Dexter, New Mexico 88230

Application to inject water into 7 wells in the South Lucky Lake Queen Unit were mailed to the above February 4, 1986.

Fred M. Lynch

FRED M. LYNCH