



GREENHILL PETROLEUM CORPORATION

12777 JONES ROAD, SUITE 375
HOUSTON, TEXAS 77070
TELEPHONE (713) 955-1146
FAX (713) 955-5105

Incorporated in Delaware, U.S.A.

May 23, 1991

Oil Conservation Division
P.O. Box 2088
Santa Fe, NM

Attn: David Catanach

Re: West Lovington
Lea County, NM

Enclosed please find the application whereby Greenhill proposes to convert the following producing oil wells to injection wells in the West Lovington Unit area.

Well Nos. 21, 32, 33, 34

Also enclosed are copies of certified receipts whereby I have contacted all parties as required by the NMOC. I will forward the publication information when I receive it from the newspaper.

Sincerely,

A handwritten signature in cursive script, which appears to read "Michael J. Newport".

Michael J. Newport
Land Manager-Permian Basin

MJN:jb

Enclosure



GREENHILL PETROLEUM CORPORATION

12777 JONES ROAD, SUITE 375
HOUSTON, TEXAS 77070
TELEPHONE (713) 955-1146
FAX (713) 955-5105

Incorporated in Delaware, U.S.A.

May 22, 1991

Ms. Eleanor Graham
P.O. Box 1117
Lovington, NM 88260

Re: West Lovington Unit
Lea County, NM

Dear Ms. Graham:

Enclosed please find the copies of the applications for conversions of producers to injection wells within the West Lovington Unit area on your surface acreage. Operators are required to furnish the copies of these applications to the surface owners. Listed below are the wells which we plan to convert to injection wells on your acreage:

Well Nos. 21, 32, 33, 34

We are required to notify offset operators within a one-half mile radius of these conversions.

Please call me at (713) 955-1146 in the event you have any questions.

Very truly yours,
Michael J. Newport

Michael J. Newport
Land Manager-Permian Basin

MJN:jb
Enclosures

PS Form 3800, Feb. 1982

★ U.S.G.P.O. 1984-446-014

Sent to: Eleanor Graham	
Street and No.: P.O. Box 1117	
P.O. State and ZIP Code: NM 88260	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$
Postmark or Date	5/31/91

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

P 083 037 177



GREENHILL PETROLEUM CORPORATION

12777 JONES ROAD, SUITE 375
HOUSTON, TEXAS 77070
TELEPHONE (713) 955-1146
FAX (713) 890-2405

Incorporated in Delaware, U.S.A.

CERTIFIED MAIL

May 22, 1991

Exxon Company USA
P.O. Box 1600
615 W. Missouri
Midland, TX 79702-1600

Re: West Lovington Unit
Lea County, NM

Dear Sirs:

This letter is to hereby notify you that Greenhill Petroleum Corporation will be converting the following wells to injection within the West Lovington Unit.

Well Numbers: 21, 32, 33, 34

We are required to notify offset operators within a one-half mile radius of these conversions

Very truly yours,

Michael J. Newport
Land Manager-Permian Basin

MJN:jb

P 083 037 061

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

SENT TO Exxon Company USA P.O. Box 1600 615 W. Missouri Midland, TX 79702-1600	DATE MAY 22 1991	TIME 10:10 AM	POSTAGE \$1.10	RECEIVED MAY 22 1991
NO INSURANCE COVERAGE PROVIDED NOT FOR INTERNATIONAL MAIL				
POSTAGE WILL BE PAID BY ADDRESSEE				
NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES				

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ yes ☐ no
- II. Operator: Greenhill Petroleum Corporation
Address: 11490 Westheimer, Ste., 200, Houston, TX 77077
Contact party: Mike Newport Phone: 955-1146
- 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 ☐ no
If yes, give the Division order number authorizing the project R2071.
- 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: Michael J. Newport Title Land Manager-Permian Basin
Signature: *Michael J. Newport* Date: 5-22-91
- * 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.

II. 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

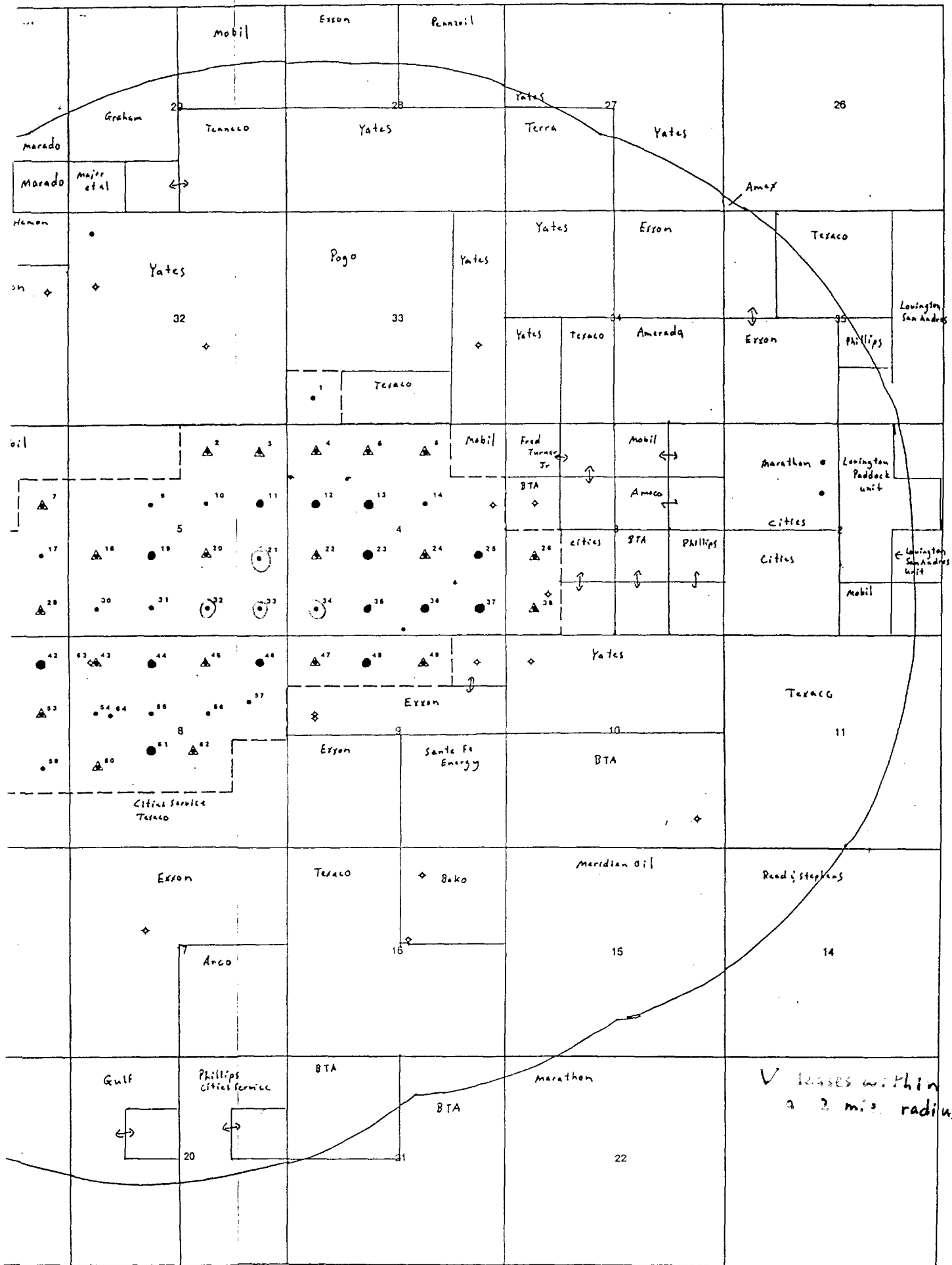
All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

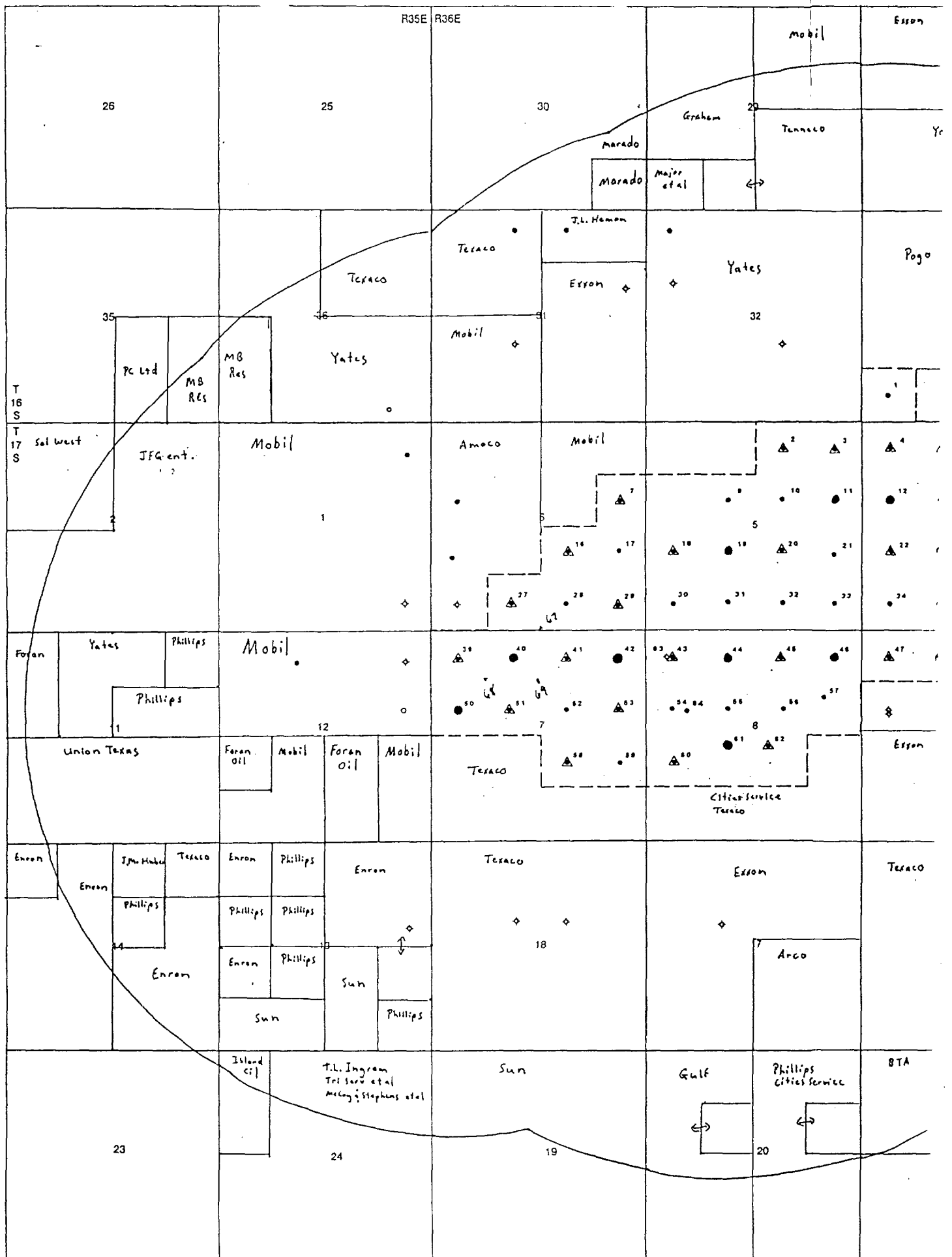
Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

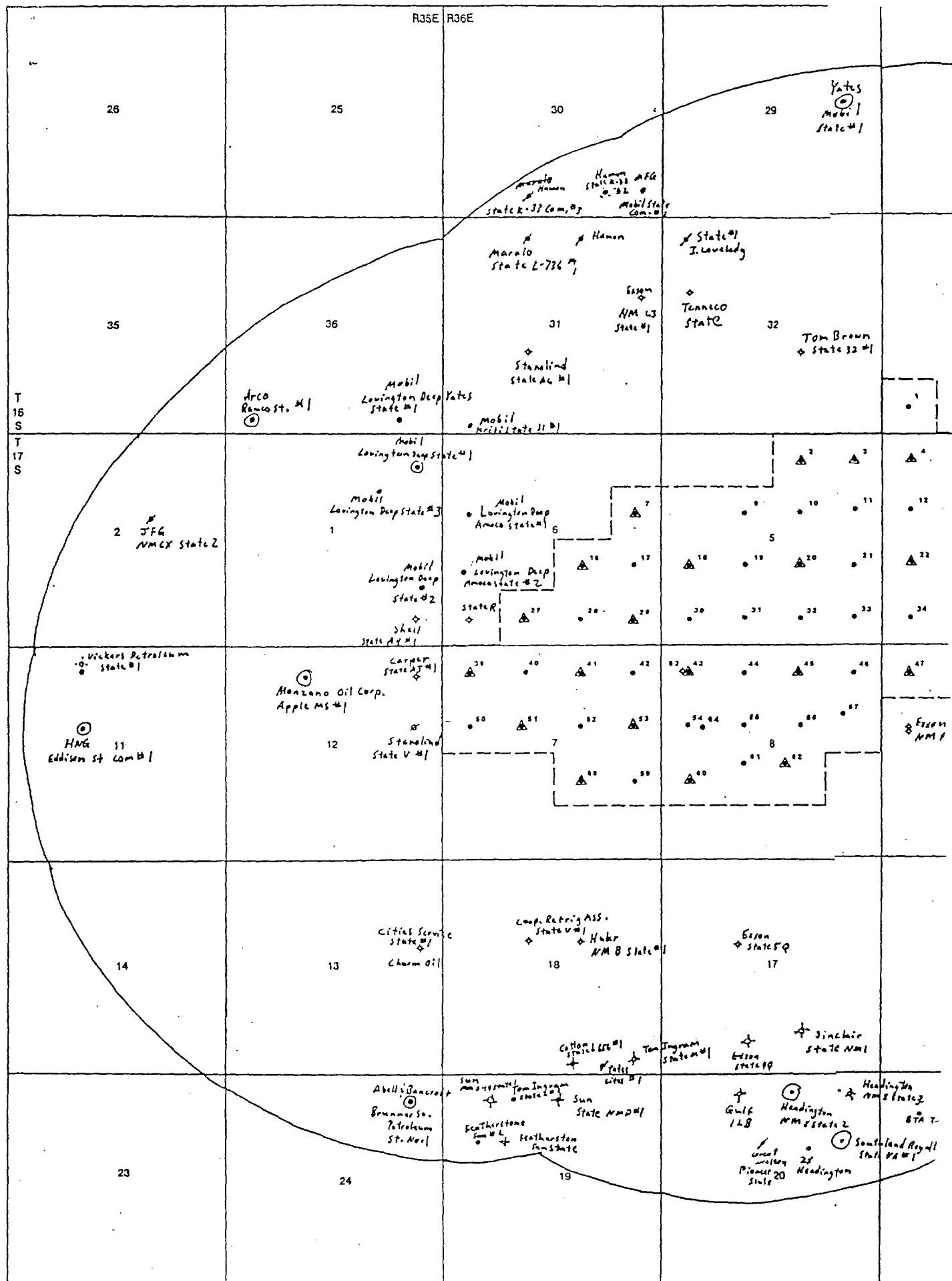
- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates 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.

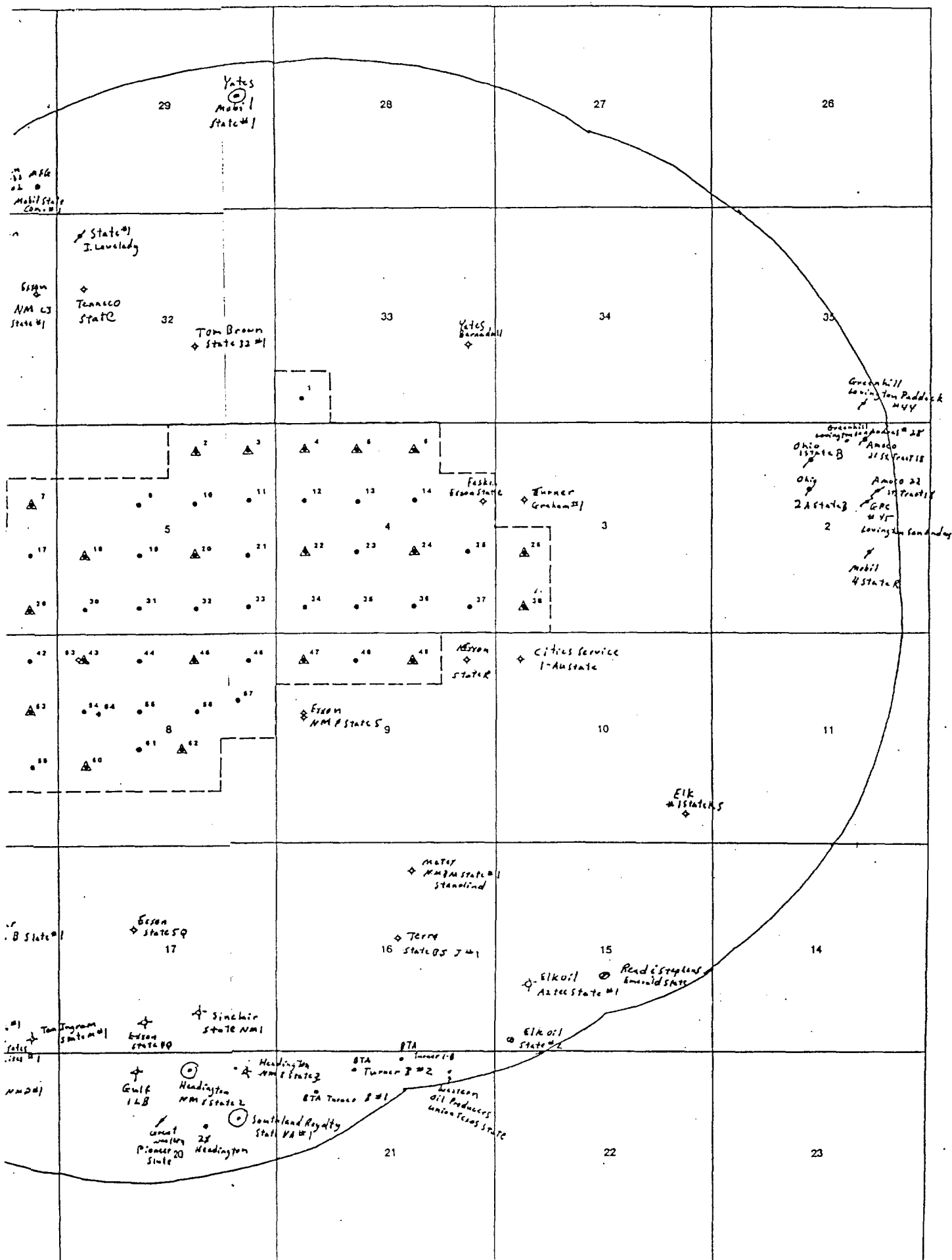
NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

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.









VII

1. The proposed average and maximum daily rate and volume to be injected are 2000 PSI and 1500 BWPD.
2. The system will be a closed system.
4. The sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water is attached hereto as Exhibit "A".

"A"

WATER ANALYSIS REPORT

K-58T175R36E

Company : GREENHILL PETROLEUM
 Address : HOBBS, NM
 Lease : WEST LOVINGTON UNIT
 Well : SOUTHWEST WINDMILL
 Sample Pt. : WINDMILL

Date : 7-17-90
 Date Sampled : 7-17-90
 Analysis No. : 2

ANALYSIS		mg/L	* meq/L	
-----		----	-----	
1.	pH	7.7		
2.	H ₂ S	NEG.		
3.	Specific Gravity	1.002		
4.	Total Dissolved Solids	690.5		
5.	Suspended Solids			
6.	Dissolved Oxygen			
7.	Dissolved CO ₂			
8.	Oil In Water			
9.	Phenolphthalein Alkalinity (CaCO ₃)			
10.	Methyl Orange Alkalinity (CaCO ₃)			
11.	Bicarbonate	HCO ₃ 2.0	HCO ₃	0.0
12.	Chloride	Cl 321.0	Cl	9.1
13.	Sulfate	SO ₄ 125.0	SO ₄	2.6
14.	Calcium	Ca 180.0	Ca	9.0
15.	Magnesium	Mg 0.1	Mg	0.0
16.	Sodium (calculated)	Na 62.0	Na	2.7
17.	Iron	Fe 0.3		
18.	Barium	Ba 0.0		
19.	Strontium	Sr 0.0		
20.	Total Hardness (CaCO ₃)	450.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter				Compound	Equiv wt	X meq/L	= mg/L
+-----+				+-----+			
9	*Ca <-----	*HCO ₃	0	Ca(HCO ₃) ₂	81.0	0.0	3
	/----->			CaSO ₄	68.1	2.6	177
0	*Mg ----->	*SO ₄	3	CaCl ₂	55.5	6.3	352
	<-----/			Mg(HCO ₃) ₂	73.2		
3	*Na ----->	*Cl	9	MgSO ₄	60.2		
				MgCl ₂	47.6	0.0	0
Saturation Values Dist. Water 20 C				NaHCO ₃	84.0		
	CaCO ₃	13 mg/L		Na ₂ SO ₄	71.0		
	CaSO ₄ * 2H ₂ O	2090 mg/L		NaCl	58.4	2.7	158
	BaSO ₄	2.4 mg/L					

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,
R. MATTHEWS

"A"

E- 54 T175236E

WATER ANALYSIS REPORT

Company : GREENHILL PETROLEUM
 Address : HOBBS, NM
 Lease : WEST LOVINGTON UNIT
 Well : NORTH WINDMILL
 Sample Pt. : WINDMILL

Date : 7-17-90
 Date Sampled : 7-17-90
 Analysis No. : 1

ANALYSIS		mg/L	* meq/L	
-----		----	-----	
1.	pH	7.6		
2.	H ₂ S	NEG.		
3.	Specific Gravity	1.001		
4.	Total Dissolved Solids	724.6		
5.	Suspended Solids			
6.	Dissolved Oxygen			
7.	Dissolved CO ₂			
8.	Oil In Water			
9.	Phenolphthalein Alkalinity (CaCO ₃)			
10.	Methyl Orange Alkalinity (CaCO ₃)			
11.	Bicarbonate	HCO ₃ 2.0	HCO ₃	0.0
12.	Chloride	Cl 350.0	Cl	9.9
13.	Sulfate	SO ₄ 135.0	SO ₄	2.8
14.	Calcium	Ca 190.0	Ca	9.5
15.	Magnesium	Mg 30.5	Mg	2.5
16.	Sodium (calculated)	Na 16.7	Na	0.7
17.	Iron	Fe 0.4		
18.	Barium	Ba 0.0		
19.	Strontium	Sr 0.0		
20.	Total Hardness (CaCO ₃)	600.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter		Compound Equiv wt X meq/L = mg/L			
-----	-----	-----	-----	-----	-----
9	*Ca <----- *HCO ₃	0	Ca(HCO ₃) ₂	81.0	0.0 3
-----	/----->	-----	CaSO ₄	68.1	2.8 191
3	*Mg -----> *SO ₄	3	CaCl ₂	55.5	6.6 368
-----	<-----/	-----	Mg(HCO ₃) ₂	73.2	
1	*Na -----> *Cl	10	MgSO ₄	60.2	
-----	-----	-----	MgCl ₂	47.6	2.5 119
Saturation Values Dist. Water 20 C			NaHCO ₃	84.0	
CaCO ₃	13 mg/L		Na ₂ SO ₄	71.0	
CaSO ₄ * 2H ₂ O	2090 mg/L		NaCl	58.4	0.7 43
BaSO ₄	2.4 mg/L				

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,
R. MATTHEWS

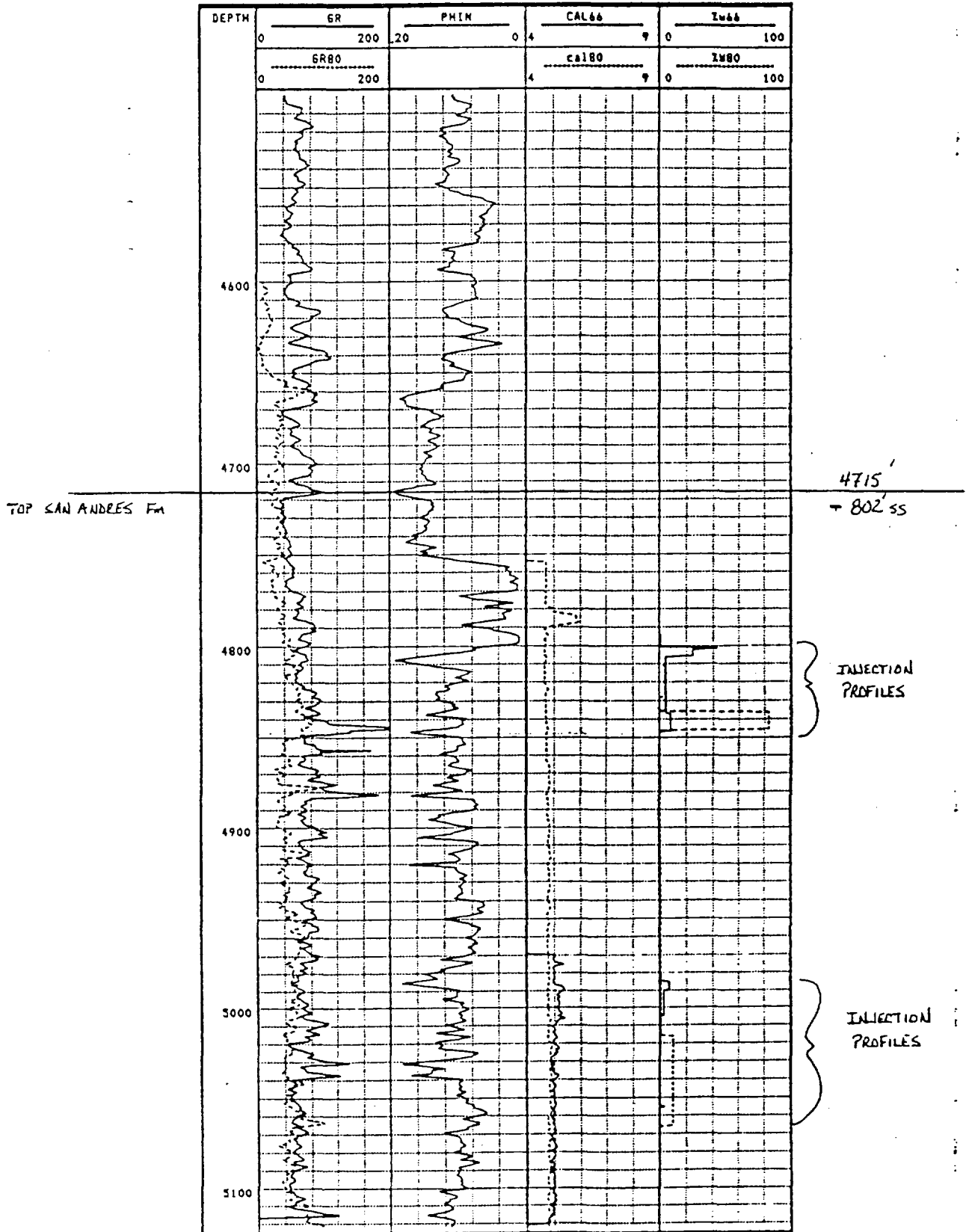
VIII Geologic Data

The zone of interest for this application to inject is the San Andres Formation. In the area of the West Lovington San Andres Field, the San Andres formation is approximately 1350' of dolomite; however, only the upper 400' - 500' is productive. The top of the San Andres formation occurs between 4650' and 5160' (log depth) in the West Lovington San Andres Field. Attached is a type log from the West Lovington San Andres Field. The well log (WLU#18) is an injection well and shows two main zones within the field unit where water has been injected.

The only known underground source of drinking water in the West Lovington Field area is the Ogallala Formation. The approximate base of the formation is 200'. No source is known to be immediately underlying the proposed injection interval.

VIII

CYPRESS PETROLEUM CONSULTANTS	
WELL NAME	- TEXACO INC. (UNIT 18)
LOCATION	- 660 FNL 660 FEL 5-175-36E WLU
WELL DATA	- OF 3913 TO 5150. 3-1/2 4746
LOGS	- NORTH GRM (11-15-62)
LOG PARAMETERS-	
DATA FILE NAME: wlu18.lq1	
DATE OF PLOT: 3/23/1989	



PROPOSED STIMULATION PROGRAM
FOR CONVERSIONS FROM PRODUCERS TO INJECTION WELLS

WEST LOVINGTON UNIT
LEA COUNTY, NEW MEXICO

1. MIRU pulling unit w/reverse unit. Check and report press. on all csg. strings. Inspect wellhead connections for condition and press. rating. Ensure all csg. valves are at least 2000 psig W.P. Rig up & test BOP.
2. Pull and lay down IPC tbg. string (see note). PU 4 3/4" bit w/csg. scraper on 2 3/8" work string and TIH. [Rotate scraper thru interval of 4050' to 4675'. Do not take scraper below 4675'.] POOH w/tools. Lay down scraper. TIH w/bit on 2 3/8" work string. Clean out from below packer (possibly 4160') to TD @ 5155' w/clean water (fresh or brine). POOH w/tools.
3. PU 5 1/2" pkr on tbg. and TIH. Set pkr. at $\pm 4650'$. Open pkr. bypass and spot 2-5 tons of CO₂ to 100 ft. above the pkr. Close bypass and displace CO₂ into formation under pressure with fresh water. Do not overdisplace. Shut-in overnight.
4. Open well and flowback to recover load. POOH w/tbg. & pkr.
5. Pick up BJ Titan PFT tool and TIH to 5150'±.
6. Pump in 2000 gallons of clean water (fresh or brine) through PFT in circulation mode while moving across interval 5150' to 4780'.

Treat the following intervals:

A. 5150-5100	E 8-10	E. 4850-40	C-7
B. 5070-5030	E 1-4	F. 4820-4780	B-3 to C-2
C. 4990-4970	D 7-9		

NOTE: EXCLUDE 4715-4780

7. Pump 3200 gal of 15% NEFE HCL treated with Iron and Sulfur control agents (to prevent reprecipitation of FeS) through the PFT in injection mode utilizing approximately 20 gal/ft in each interval specified above.
8. Pull up to 4700' - flush with 20 Bbls clean water. SI for 1 hr., then flowback to recover load. POH w/2 3/8" tubing & PFT, laying down tubing. Lay down PFT tools. Release B.J.
9. PU Inj string w/packer. Rerun and try to set packer at 4650'± (records

show packer at 4160'±.

10. Circulate inhibited water into annulus. Set packer w/12M tension. Flange up.
11. Perform leakage test per NMOCD requirements. Release rig.
12. Install cartridge housing and filter.
13. R.T.I. Monitor and report pressures, rates, etc. and pressure on filter.

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

to: Mr. Dan Westover
12777 Jones Road, Suite 375, Houston, TX

LABORATORY NO. 989178
SAMPLE RECEIVED 9-13-89
RESULTS REPORTED 9-20-89

COMPANY Greenhill Petroleum Corporation LEASE West Lovington Unit
FIELD OR POOL Lovington
SECTION BLOCK SURVEY COUNTY Lea STATE NM
SOURCE OF SAMPLE AND DATE TAKEN:

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Raw water - taken from water supply well #4084. 9-13-89

NO. 2 Raw water - taken from water supply well #4085. 9-13-89

NO. 3 Produced water - taken from injection pump discharge. 9-13-89

NO. 4 _____

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0018	1.0016	1.0324	
pH When Sampled	7.3	7.6	7.0	
pH When Received	7.58	7.90	6.50	
Bicarbonate as HCO ₃	200	185	1,220	
Supersaturation as CaCO ₃	4	4	20	
Undersaturation as CaCO ₃	---	---	---	
Total Hardness as CaCO ₃	200	176	8,100	
Calcium as Ca	66	54	2,320	
Magnesium as Mg	9	10	559	
Sodium and/or Potassium	25	23	11,788	
Sulfate as SO ₄	50	44	2,100	
Chloride as Cl	27	20	21,661	
Iron as Fe	0.36	4.88	0.36	
Barium as Ba	0	0	0	
Turbidity, Electric	12	34	71	
Color as Pt	7	7	109	
Total Solids, Calculated	377	336	39,648	
Temperature °F.	60	60	70	
Carbon Dioxide, Calculated	16	8	195	
Dissolved Oxygen, mg/l	6.0	2.5	0.20	
Hydrogen Sulfide	0.0	0.0	600	
Resistivity, ohms/m at 77° F.	23.90	26.75	0.210	
Suspended Oil			20	
Filtrable Solids as mg/l	10.8	12.0	7.5	
Volume Filtered, ml	1,000	1,000	2,000	

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks Letter of recommendation attached.

cc: Mr. Bryant Bradley, Ozark
Training & Consulting, Austin
Mr. Cy Jones, Hobbs

By Waylan C. Martin, M.A.

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT		
OPERATOR		LEASE		
21	1980 FSL & 660 FEL	5	17S	36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
LEA COUNTY, NEW MEXICO				

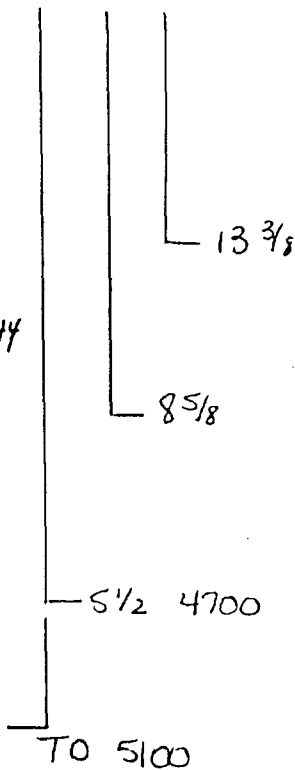
Tubular DataSurface CasingSize: 13 3/8 " Cemented with 200 SXTOC: SURFACE feet determined by CALCHole size: 17 1/4Intermediate CasingSize: 8 5/8 " Cemented with 200 SXTOC: 1364 feet determined by CALC 50%Hole Size: 11Long StringSize: 5 1/2 " Cemented with 200 SXTOC: 3266 feet determined by CALC 80%Hole Size: 7 3/8Total Depth: 5100Injection Interval4767 feet to 5100 feet
(perforated or open-hole, indicate which)

Tubing size 2 7/8" lined with IPC set in a
(material)
Baker AD-1 packer at 4717' feet.
(brand & model)
(or describe any other casing-tubing seal).

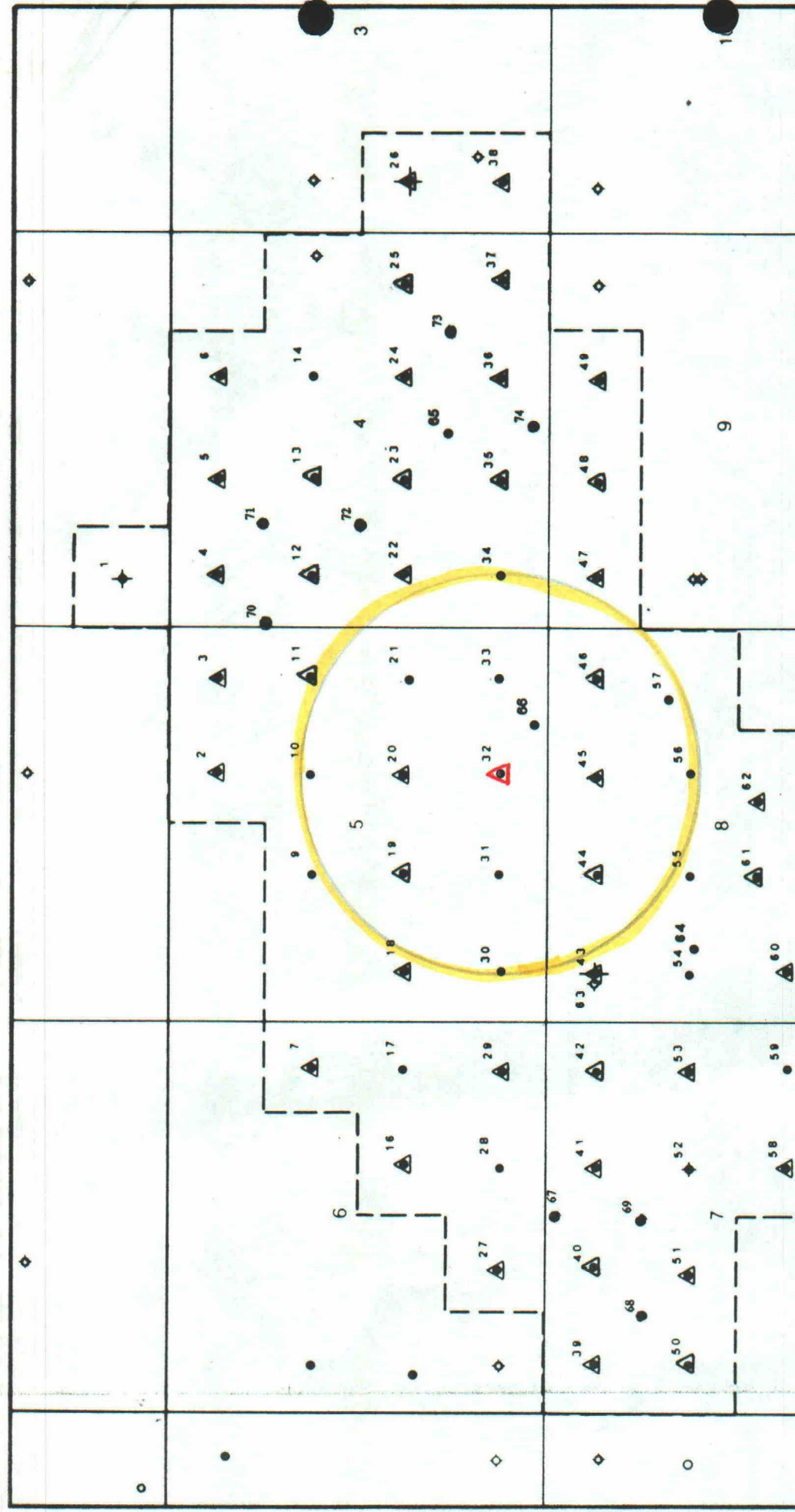
Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
GRAYBURG - OVERLYING

completed 11/4/44
open hole



GREENHILL PETROLEUM CORPORATION	
WEST LOVINGTON UNIT Lea County, New Mexico	
Well # 21	
0 2000' 4000'	VER 06/90



- Producer
- ▲ Injector
- Proposed Location
- Unit Boundary

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT		
OPERATOR		LEASE		
32	660 FSL & 1980 FEL	5	17S	36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
LEA COUNTY, NEW MEXICO				

Tubular DataSurface CasingSize: 13 3/8 " Cemented with 200 SXTOC: SURFACE feet determined by CALCHole size: 17Intermediate CasingSize: 8 5/8 " Cemented with 200 SXTOC: 1364 feet determined by CALC 50%Hole Size: 11Long StringSize: 5 1/2 " Cemented with 200 SXTOC: 3241 feet determined by CALC 80%Hole Size: 7 3/8Total Depth: 5080Injection Interval

4700 feet to 5080 feet
 (perforated or open-hole, indicate which)

Tubing size 2 7/8 " lined with IPC set in a
 (material)

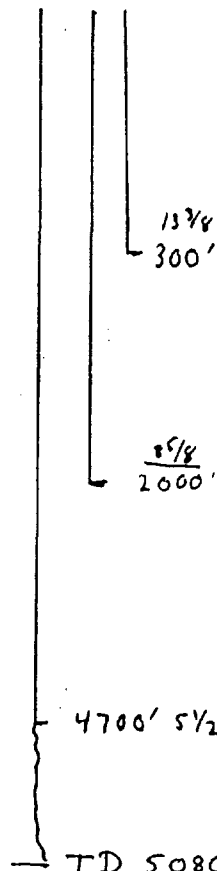
Baker AD-1 packer at 4650 feet.
 (brand & model)
 (or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
 If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

GRAYBURG - OVERLYING

open hole
 Completed - 2/13/45



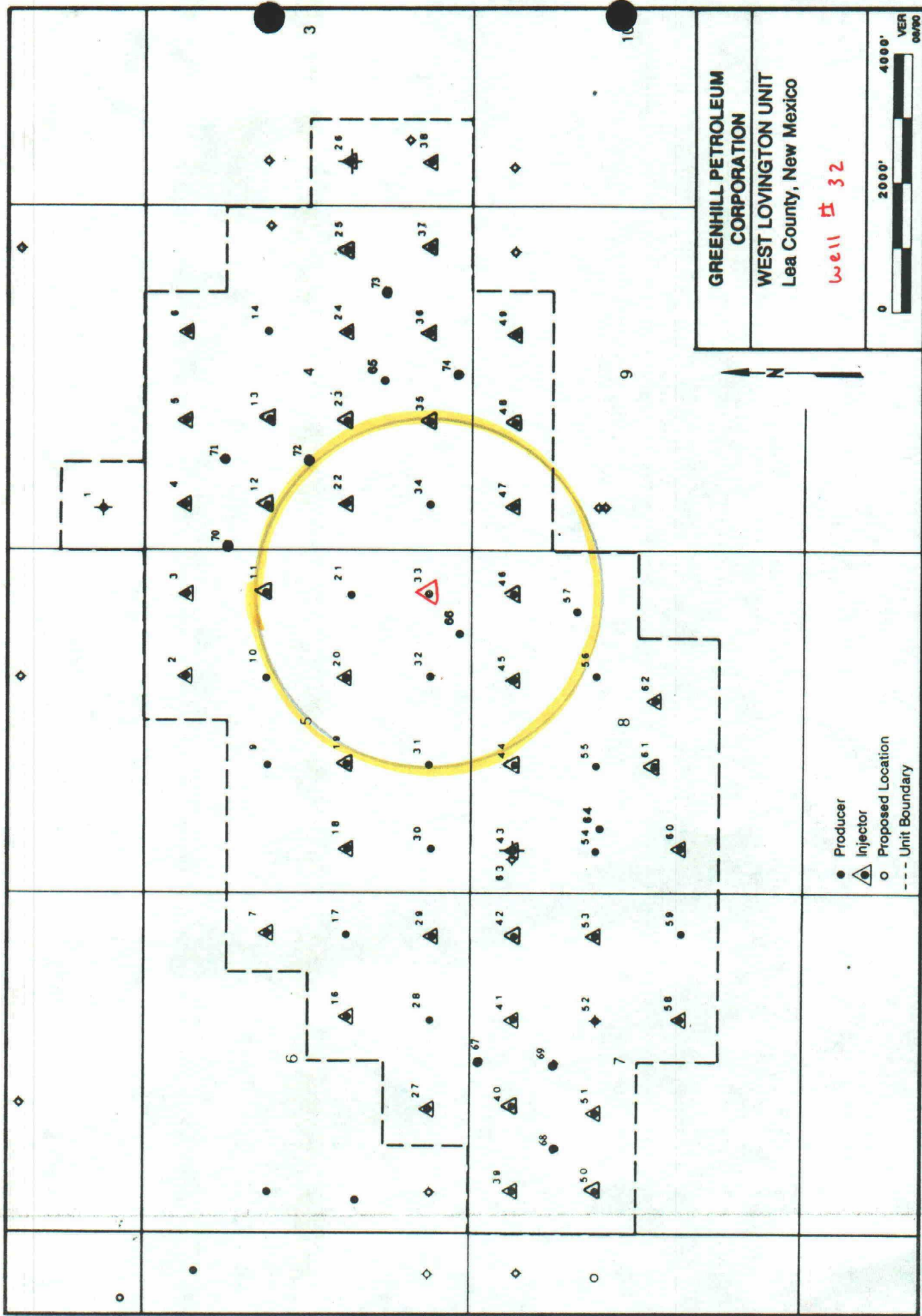
GREENHILL PETROLEUM
CORPORATION

WEST LOVINGTON UNIT
Lea County, New Mexico

Well # 32



- Producer
- ▲ Injector
- Proposed Location
- Unit Boundary



INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION

WEST LOVINGTON UNIT

OPERATOR

LEASE

33

660 FSL & 660 FEL

5

17S

36E

WELL NO.

FOOTAGE LOCATION

SEC.

TOWNSHIP

RANGE

LEA COUNTY, NEW MEXICO

Tubular Data

Surface Casing

Size: 13 " Cemented with 225 SX

TOC: SURFACE feet determined by CALC

Hole size: 17

Intermediate Casing

Size: 8 5/8 " Cemented with 250 SX

TOC: 1327 feet determined by CALC 50%

Hole Size: 11

Long String

Size: 5 1/2 " Cemented with 200 SX

TOC: 3585 feet determined by CALC 80%

Hole Size: 7 7/8

Total Depth: 5077

Injection Interval

4770 feet to 5077 feet
(perforated or open-hole, indicate which)

Tubing size 2 3/4 lined with IPC set in a
(material)
Baker A packer at 4720 feet.
(brand & model)

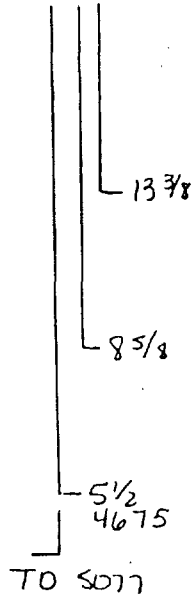
(or describe any other casing-tubing seal).

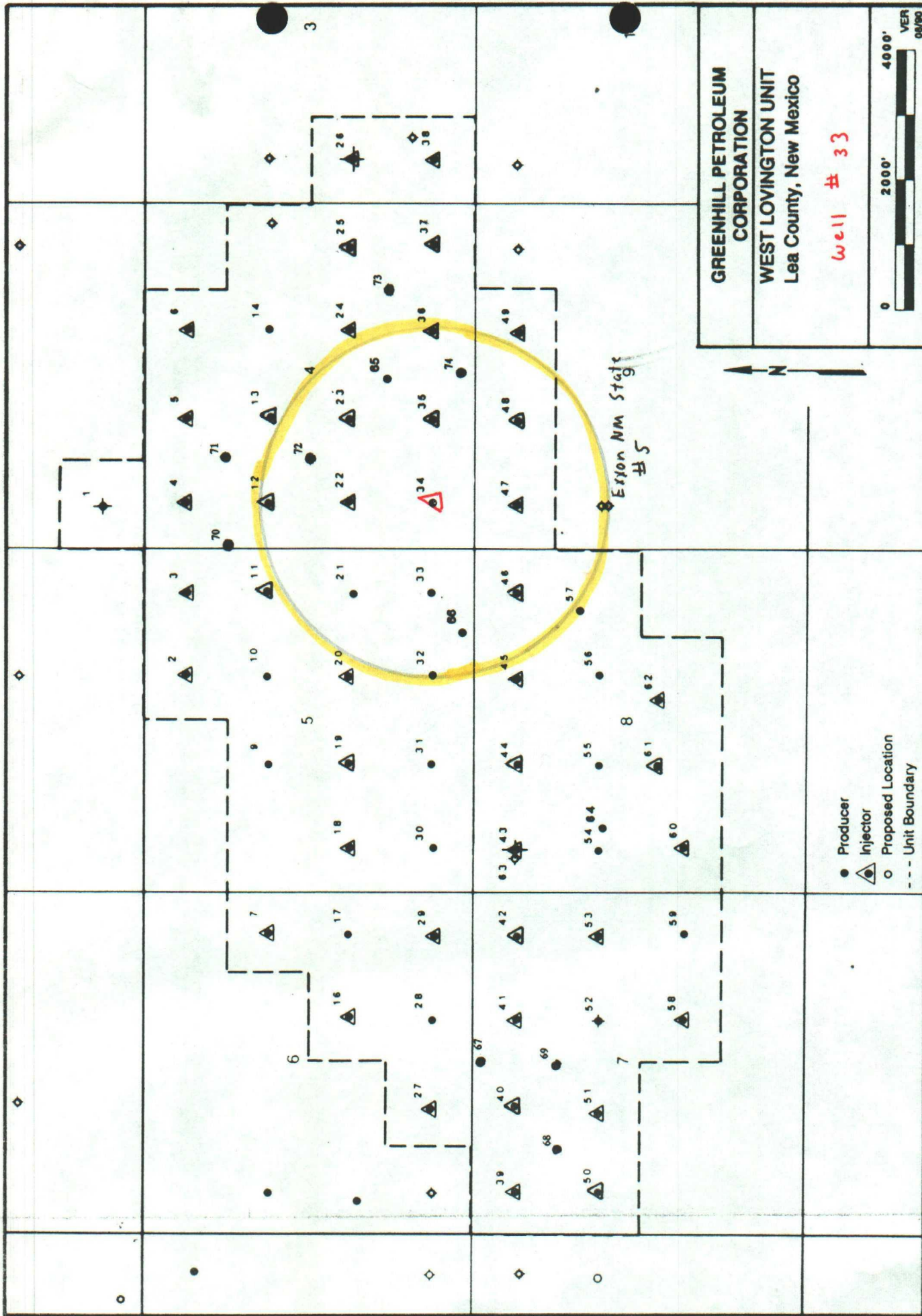
Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used.
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

GRAYBURG - OVERLYING

open hole
completed. 9/15/44

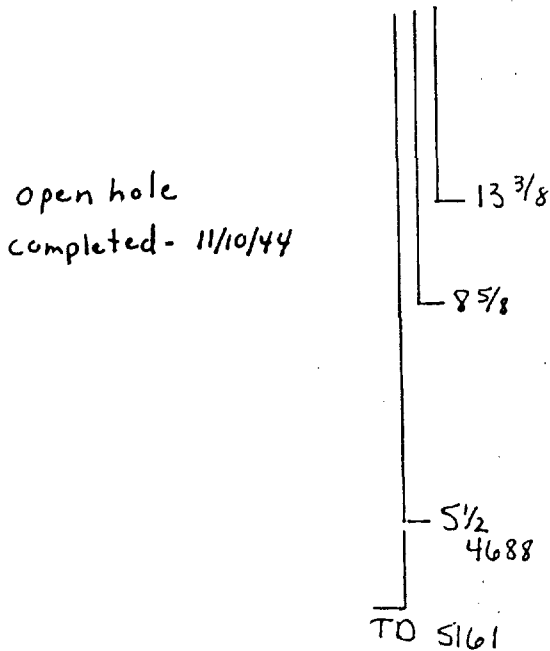




INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT		
OPERATOR		LEASE		
34	660 FWL & 660 FSL	4	17S	36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
LEA COUNTY, NEW MEXICO				

Tubular Data



Surface Casing

Size: 13 3/8 " Cemented with 250 SX

TOC: SURFACE feet determined by CALC

Hole size: 17

Intermediate Casing

Size: 8 5/8 " Cemented with 150 SX

TOC: 1470 feet determined by CALC 50%

Hole Size: 11

Long String

Size: 5 1/2 " Cemented with 150 SX

TOC: 3612 feet determined by CALC 80%

Hole Size: 7 3/8

Total Depth: 5161

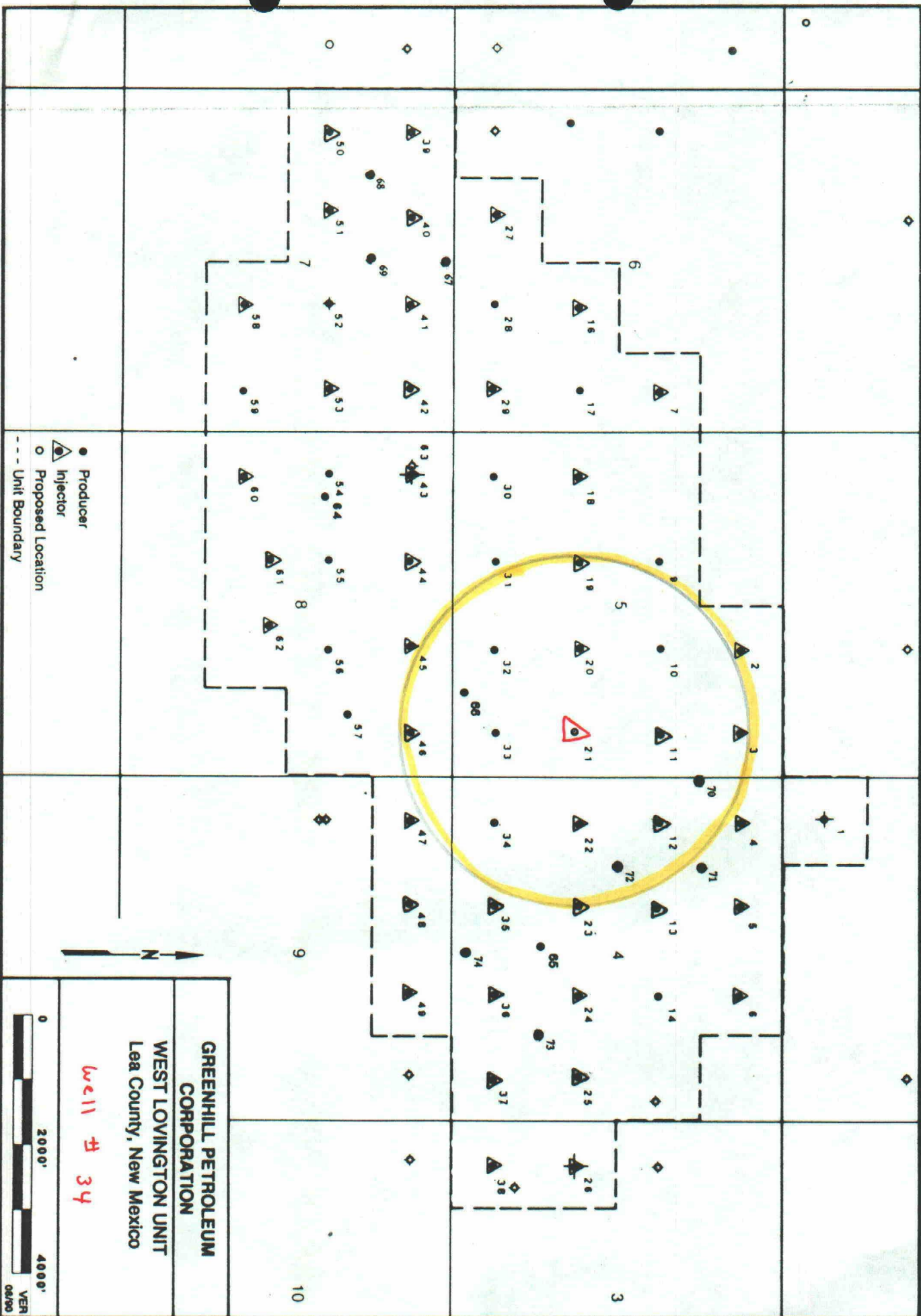
Injection Interval

4773 feet to 5036 feet
(perforated or open-hole indicate which)

Tubing size 2 3/4 lined with IPC set in a
(material)
Baker D-1 packer at 4723 feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
GRAYBURG - OVERLYING



INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT		
OPERATOR		LEASE		
3	660 FNL & 660 FEL	5	17S	36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
LEA COUNTY, NEW MEXICO				

Tubular Data

Surface Casing

Size: 12 3/4 " Cemented with 200 SX

TOC: SURFACE feet determined by CAL

Hole size: 14 1/2

Intermediate Casing

Size: 8 5/8 " Cemented with 200 SX

TOC: 1374 feet determined by CALC 50%

Hole Size: 10 3/4

Long String

Size: 5 1/2 " Cemented with 400 SX

TOC: 2263 feet determined by CALC 80%

Hole Size: 7 5/8

Total Depth: 5125

Injection Interval

4750 feet to 5125 feet
(perforated or open-hole, indicate which)

Tubing size 2 3/8" lined with IPC set in a
(material)
packer at 4653" feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation San Andres Dolomite
- Name of Field or Pool (If applicable) Lovington (San Andres) West
- Is this a new well drilled for injection? no
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

GRAYBURG - OVERLYING

open hole
completed 1/11/45
converted to
injection
4/2/69

13 3/8

8 5/8

5 1/2"
4720

TD 5125

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION

WEST LOVINGTON UNIT

OPERATOR

LEASE

10

1982 FNL & 1981 FEL

5

17S

36E

WELL NO.

FOOTAGE LOCATION

SEC.

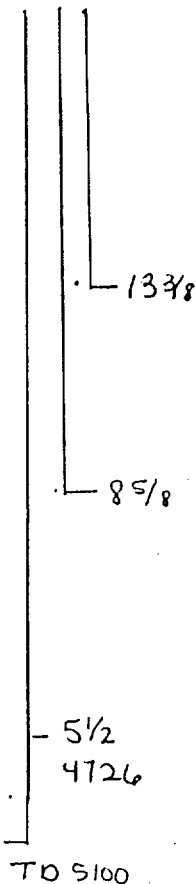
TOWNSHIP

RANGE

LEA COUNTY, NEW MEXICO

Tubular DataSurface CasingSize: 13 3/8" Cemented with 250 SXTOC: SURFACE feet determined by CALCHole size: 17 1/4Intermediate CasingSize: 8 5/8" Cemented with 600 SXTOC: 119 feet determined by CALC 50%Hole Size: 11Long StringSize: 5 1/2" Cemented with 300 SXTOC: 3091 feet determined by CALC 80%Hole Size: 7 7/8Total Depth: 5100Injection Interval4750 feet to 5100 feet
(perforated or open-hole indicate which)Tubing size 2 3/8" lined with IPC set in a
(material)
packer at 4551' feet.(brand & model)
(or describe any other casing-tubing seal).Other Data

1. Name of the injection formation SAN ANDRES DOLOMITE
2. Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
3. Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
4. Has the well ever be 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.

GRAYBURG - OVERLYINGopen hole
completed
2/28/45

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION
OPERATORWEST LOVINGTON UNIT
LEASE19
WELL NO.1980 FSL & 1980 FWL
FOOTAGE LOCATION5
SEC.17S
TOWNSHIP36E
RANGE

NMPM

WEST LOVINGTON FIELD, LEA COUNTY, NEW MEXICO

Tubular Data

Surface Casing

Size: 13 3/8 " Cemented with 190 SXTOC: CIRC feet determined by CALCHole size: 17"

Intermediate Casing

Size: 8 5/8 " Cemented with 150 SXTOC: 1494' @ 80% feet determined by CALCHole Size: 11 1/2"

Long String

Size: 5 1/2 " Cemented with 150 SXTOC: 3839' @ 80% FILL feet determined by CALCHole Size: 7 7/8Total Depth: 5085

Injection Interval

4740 feet to 5085 feet
(perforated or open-hole, indicate which)Tubing size 2-3/8" lined with IPC set in aBaker (brand & model)packer at 4720 feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation SAN ANDRES DOLOMITE
2. Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
3. Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
4. Has the well ever be 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.
GRAYBURG - OVERLYING - PRODUCTIVITY NEVER DETERMINED

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT		
OPERATOR		LEASE		
20	1980 FSL & 1980 FEL	5	17S	36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
LEA COUNTY, NEW MEXICO				

Tubular Data

Surface Casing

Size: 13 3/8 " Cemented with 200 SX

TOC: SURFACE feet determined by CALC

Hole size: 17

Intermediate Casing

Size: 8 1/4 " Cemented with 200 SX

TOC: 1364 feet determined by CALC 50%

Hole Size: 11

Long String

Size: 5 1/2 " Cemented with 200 SX

TOC: 3610 feet determined by CALC 80%

Hole Size: 7 7/8

Total Depth: 5104

Injection Interval

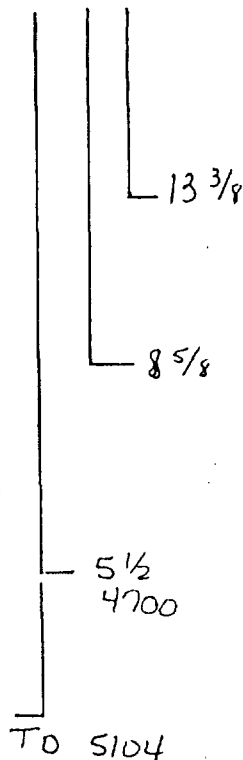
4700 feet to 5104 feet
(perforated or open-hole, indicate which)

Tubing size 2" lined with IPC set in a
(material)
-- packer at 4663' feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
GRAYBURG - OVERLYING

Converted to
injection
2/18/63
Completed 3/3/45
Open hole



INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT		
OPERATOR		LEASE		
22	1980 FSL & 660 FWL	4	17S	36S
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
LEA COUNTY, NEW MEXICO				

Tubular DataSurface CasingSize: 13 " Cemented with 190 SXTOC: SURFACE feet determined by CALCHole size: 17 1/2Intermediate CasingSize: 8 5/8 " Cemented with 150 SXTOC: 1485 feet determined by CALC 50%Hole Size: 11Long StringSize: 5 1/2 " Cemented with 150 SXTOC: 3772 feet determined by CALC 80%Hole Size: 7 5/8Total Depth: 5171Injection Interval4655 feet to 5171 feet
(perforated or open-hole, indicate which)

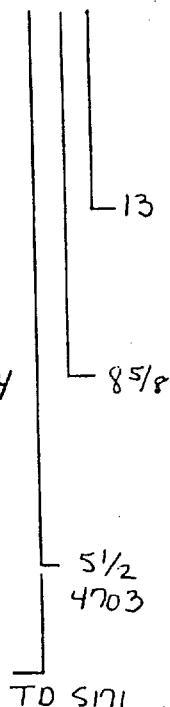
Tubing size 2 3/8" lined with IPC (material) set in a
BAKER packer at 4760' feet.
 (brand & model)
 (or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

GRAYBURG - OVERLYING

Converted to
 injection 2/18/63
 Completed 12/11/44
 Open hole



INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT		
OPERATOR		LEASE		
23	1980 FSL & 1980 FWL	4	17S	36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
WEST LOVINGTON FIELD, LEA COUNTY, NEW MEXICO				

Tubular Data

<div style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 10px;"> <div style="border-bottom: 1px solid black; margin-bottom: 10px;"> <div style="border-right: 1px solid black; padding-right: 5px;">13 3/8</div> <div style="border-right: 1px solid black; padding-right: 5px;">290</div> </div> <div style="border-bottom: 1px solid black; margin-bottom: 10px;"> <div style="border-right: 1px solid black; padding-right: 5px;">8 5/8</div> <div style="border-right: 1px solid black; padding-right: 5px;">1953</div> </div> <div style="border-bottom: 1px solid black; margin-bottom: 10px;"> <div style="border-right: 1px solid black; padding-right: 5px;">5 1/2</div> <div style="border-right: 1px solid black; padding-right: 5px;">4695'</div> </div> <div> <div style="border-right: 1px solid black; padding-right: 5px;">OH</div> <div style="border-right: 1px solid black; padding-right: 5px;">TD 5150</div> </div> </div>	<u>Surface Casing</u>
	Size: <u>13 3/8</u> " Cemented with <u>200</u> SX
	TOC: <u>CIRC</u> feet determined by <u>CALC</u>
	Hole size: <u>17 1/4</u>
	<u>Intermediate Casing</u>
	Size: <u>8 5/8</u> " Cemented with <u>100</u> SX
	TOC: <u>1740 @ 75%EFF</u> feet determined by <u>CALC</u>
	Hole Size: <u>12 1/2</u>
	<u>Long String</u>
	Size: <u>5 1/2</u> " Cemented with <u>400</u> SX
TOC: <u>2670 @ 75%EFF</u> feet determined by <u>CALC</u>	
Hole Size: <u>7 7/8</u>	
Total Depth: <u>5150</u>	

Injection Interval

4695 feet to 5150 feet
(perforated or open-hole, indicate which)

Tubing size 2 3/8" lined with IPC set in a
(material)
BAKER packer at 4625' feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

GRAYBURG (UNEVALUATED)

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT		
OPERATOR		LEASE		
30	660 FSL & 660 FWL	5	17S	36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
LEA COUNTY, NEW MEXICO				

Tubular Data

open hole
completed 3/30/45

13 3/8

8 5/8

5 1/2
4729

To 5150

Surface Casing

Size: 13 3/8 " Cemented with 200 SX

TOC: SURFACE feet determined by CALC

Hole size: 15

Intermediate Casing

Size: 8 5/8 " Cemented with 300 SX

TOC: 1044 feet determined by CALC 50%

Hole Size: 11

Long String

Size: 5 1/2 " Cemented with 400 SX

TOC: 1861 feet determined by CALC 80%

Hole Size: 7 3/8

Total Depth: 5150

Injection Interval

4790 feet to 5150 feet
(perforated or open-hole, indicate which)

Tubing size NONE lined with -- (material) set in a
NONE packer at -- feet.
(brand & model)

(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used.
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

GRAYBURG - OVERLYING

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT		
OPERATOR		LEASE		
31	660 FSL & 1980 FWL	5	17S	36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
LEA COUNTY, NEW MEXICO				

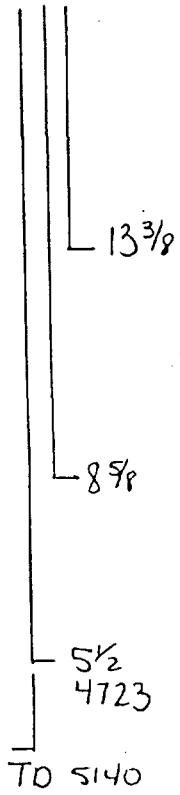
Tubular DataSurface CasingSize: 13 3/8 " Cemented with 190 SXTOC: SURFACE feet determined by CALCHole size: 17Intermediate CasingSize: 8 5/8 " Cemented with 150 SXTOC: 1478 feet determined by CALC 50%Hole Size: 11 1/2Long StringSize: 5 1/2 " Cemented with 150 SXTOC: 3905 feet determined by CALC 80%Hole Size: 7 7/8Total Depth: 5140Injection Interval4784 feet to 5055 feet
(perforated or open-hole, indicate which)

Tubing size NONE lined with -- set in a
 (material)
NONE packer at -- feet.
 (brand & model)
 (or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
GRAYBURG - OVERLYING

open hole
Completed 2/22/45



INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION

WEST LOVINGTON UNIT

OPERATOR

LEASE

35

660 FSL & 1980 FWL

4

17S

36E

NMPM

WELL NO.

FOOTAGE LOCATION

SEC.

TOWNSHIP

RANGE

WEST LOVINGTON FIELD, LEA COUNTY, NEW MEXICO

Tubular DataSurface CasingSize: 13 3/8 " Cemented with 225 SXTOC: CIRC @ 80%EFF feet determined by CALCHole size: 17 1/4Intermediate CasingSize: 8 5/8 " Cemented with 100 SXTOC: 1766 @ 75%EFF feet determined by CALCHole Size: 12 1/2Long StringSize: 5 1/2 " Cemented with 100 SXTOC: 4176' @ 75%EFF feet determined by CALCHole Size: 7 7/8Total Depth: 5175Injection Interval4682 feet to 5150 feet
(perforated or open-hole) indicate which)

Tubing size 2 7/8" lined with IPC set in a
(material)
BAKER packer at 4612' feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

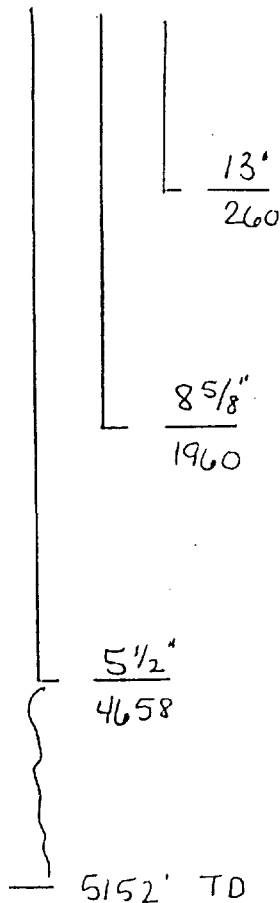
1. Name of the injection formation SAN ANDRES DOLOMITE
2. Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
3. Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
4. Has the well ever be perforated in any other zone(s)? List 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.

GRAYBURG - OVERLYING - UNEVALUATED

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT			
OPERATOR		LEASE			
36	660 FSL & 1980 FEL	4	17S	36E	NMPM
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE	
WEST LOVINTON FIELD, LEA COUNTY, NEW MEXICO					

Tubular Data



Surface Casing

Size: 13 " Cemented with 200 SX

TOC: CIRC feet determined by CALC

Hole size: 17

Intermediate Casing

Size: 8 5/8 " Cemented with 600 SX

TOC: CIRC @ 15%FILL feet determined by CALC

Hole Size: 11

Long String

Size: 5 1/2 " Cemented with 375 SX

TOC: 2758 @ 75%FILL feet determined by CALC

Hole Size: 7 7/8

Total Depth: 5152

Injection Interval

4658 feet to 5152 feet
(perforated or open-hole, indicate which)

Tubing size 2 3/8" lined with IPC set in a
(material)
BAKER packer at 4588' feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
GRAYBURG - OVERLYING - UNEVALUATED

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION

WEST LOVINGTON UNIT

OPERATOR

LEASE

46

660 FNL & 660 FEL

8

17S

36E

NMPM

WELL NO.

FOOTAGE LOCATION

SEC.

TOWNSHIP

RANGE

WEST LOVINGTON FIELD, LEA COUNTY, NEW MEXICO

Tubular Data

Surface Casing

Size: 10 3/4 " Cemented with 200 SXTOC: CIRC feet determined by CALCHole size: 13 3/4

Intermediate Casing

Size: 7 5/8 " Cemented with 650 SXTOC: CIRC feet determined by CALCHole Size: 9 7/8

Long String

Size: 5 1/2 " Cemented with 400 SXTOC: 1709 feet determined by CALCHole Size: 6 3/4 PERFS:

4730-60 5050-55

Total Depth: 5100 4780-4810 5085-95

4870-80

Injection Interval

4910-15

4980-5040

4730 feet to 5095 feet
(perforated) or open-hole, indicate which)

Tubing size 2 3/8" lined with IPC set in a
(material)
BARER packer at 4710 feet.
(brand & model)

(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCER
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

GRAYBURG - OVERLYING - UNEVALUATED

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION

WEST LOVINGTON UNIT

OPERATOR

LEASE

47

660 FWL & 660 FNL

9

17S

36E

WELL NO.

FOOTAGE LOCATION

SEC.

TOWNSHIP

RANGE

LEA COUNTY, NEW MEXICO

Tubular DataSurface CasingSize: 10 3/4 " Cemented with 210 SXTOC: SURFACE feet determined by CALCHole size: 13 3/4Intermediate CasingSize: 7 5/8 " Cemented with 600 SXTOC: CMT CIRC feet determined by CALCHole Size: 9 7/8Long StringSize: 5 1/2 " Cemented with 400 SXTOC: CMT CIRC feet determined by CALCHole Size: 6 3/4Total Depth: 5100Injection Interval4690 feet to 5100 feet
(perforated or open-hole, indicate which)

Tubing size 2 3/8" lined with IPC set in a
(material)
Baker packer at 4670' feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation SAN ANDRES DOLOMITE
2. Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
3. Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
4. Has the well ever be 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.

GRAYBURG - OVERLYING

Cased hole
Completed 2/6/45
Converted to injection
2/18/63

10 3/4
7 5/8
5 1/2 5100
TD 5100

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION WEST LOVINGTON UNIT
 OPERATOR LEASE
48 1980 FWL & 660 FNL 9 17S 36E NMPM
 WELL NO. FOOTAGE LOCATION SEC. TOWNSHIP RANGE
WEST LOVINGTON FIELD, LEA COUNTY, NEW MEXICO

Tubular Data

Surface Casing

Size: 13 " Cemented with 285 SX

TOC: CMT CIRC feet determined by OBSV.

Hole size: 17 1/4

Intermediate Casing

Size: 8 5/8 " Cemented with 770 SX

TOC: CIRC @ 60%FILL feet determined by CALC

Hole Size: 11

Long String

Size: 5 1/2 " Cemented with 1800 SX

TOC: CIRC @ 60%FILL feet determined by CALC

Hole Size: 7 3/4

Total Depth: 5100

Injection Interval

CIBP @ 4630'
w/40' CMT on top

4678 feet to 5100 feet
(perforated or open-hole indicate which)

Tubing size 2-3/8" lined with IPC set in a
 Baker packer at 4658 feet.
 (brand & model)
 (or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

GRAYBURG - OVERLYING - UNEVALUATED

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT		
OPERATOR		LEASE		
56	1980 FNL & 1980 FEL	8	17S	36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
LEA COUNTY, NEW MEXICO				

Tubular Data

Surface Casing

Size: 10 3/4 " Cemented with 213 SX

TOC: SURFACE feet determined by CALC

Hole size: 13 3/4

Intermediate Casing

Size: 7 5/8 " Cemented with 600 SX

TOC: CMT CIRC feet determined by CALC

Hole Size: 9 7/8

Long String

Size: 5 1/2 " Cemented with 400 SX

TOC: 1363 feet determined by CALC 80%

Hole Size: 6 3/4

Total Depth: 5055

Injection Interval

4720 feet to 5050 feet
(perforated) or open-hole, indicate which)

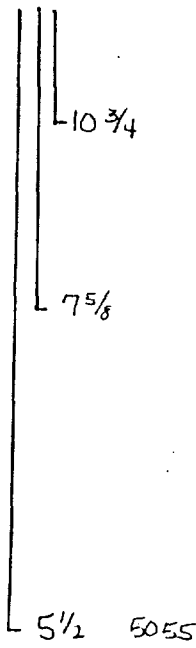
Tubing size NONE lined with -- set in a
(material)
NONE packer at -- feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

GRAYBURG - OVERLYING

cased hole
Completed - 3/14/45



INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT		
OPERATOR		LEASE		
57	1650 FNL & 989 FEL	8	17S	36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
LEA COUNTY, NEW MEXICO				

Tubular Data

Surface Casing

Size: 7 5/8 " Cemented with SX

TOC: CMT CIRC feet determined by CALC

Hole size: 11

Intermediate Casing

Size: -- " Cemented with -- SX

TOC: -- feet determined by --

Hole Size: --

Long String

Size: 4 1/2 " Cemented with 650 SX

TOC: 676 feet determined by CALC 80%

Hole Size: 6 3/4

Total Depth: 5120

Injection Interval

4682 feet to 5028 feet
(perforated or open-hole, indicate which)

Tubing size NONE lined with -- (material) set in a
NONE packer at -- feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
GRAYBURG - OVERLYING

Cased hole
Completed - 12/21/66

7 5/8 360

4 1/2 5120

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT		
OPERATOR		LEASE		
65	2610 FWL & 1330 FSL	4	17S	36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
LEA COUNTY, NEW MEXICO				

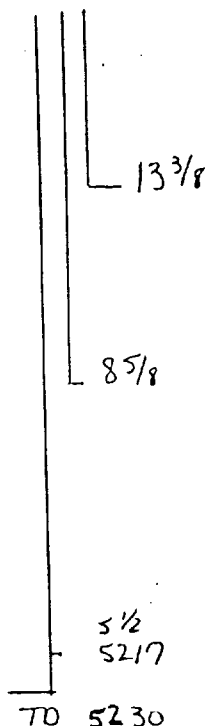
Tubular DataSurface CasingSize: 13 3/8 " Cemented with 450 SXTOC: SURFACE feet determined by CALCHole size: 17 1/2Intermediate CasingSize: 8 5/8 " Cemented with 375 SXTOC: 1010 feet determined by CALC 50%Hole Size: 12 1/2Long StringSize: 5 1/2 " Cemented with 770 SXTOC: 1022 feet determined by CALC 80%Hole Size: 7 7/8Total Depth: 5230Injection Interval4706 feet to 5110 feet
(perforated) or open-hole, indicate which)

Tubing size NONE lined with -- set in a
(material)
NONE packer at -- feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
GRAYBURG - OVERLYING

completed- 2/23/90
Cased hole



INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		WEST LOVINGTON UNIT		
OPERATOR		LEASE		
66	135 FSL & 1300 FEL	5	17S	36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
LEA COUNTY, NEW MEXICO				

Tubular DataSurface CasingSize: 13 3/8 " Cemented with 450 SXTOC: SURFACE feet determined by CALCHole size: 17 1/2Intermediate CasingSize: 8 5/8 " Cemented with 380 SXTOC: 937 feet determined by CALC 50%Hole Size: 12 1/4Long StringSize: 5 1/2 " Cemented with 1275 SXTOC: CMT CIRC feet determined by CALCHole Size: 7 7/8Total Depth: 5230Injection Interval4709 feet to 5062 feet
(perforated or open-hole, indicate which)

Tubing size NONE lined with -- set in a
(material)
NONE packer at -- feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation SAN ANDRES DOLOMITE
- Name of Field or Pool (If applicable) LOVINGTON (SAN ANDRES) WEST
- Is this a new well drilled for injection? NO
If no, for what purpose was the well originally drilled? PRODUCTION
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
NO
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
GRAYBURG - OVERLYING

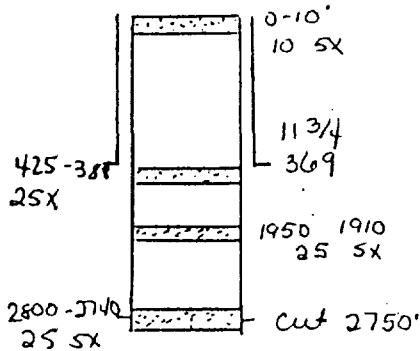
Completed - 2/23/90

13 3/8
8 5/8
5 1/2
5220
TD 5230

INJECTION WELL DATA SHEET

HUMBLE OIL & REFINING COMPANY		NEW MEXICO "P" STATE	
OPERATOR		LEASE	
5	2080' FNL & 660' FWL	9	T17S-R36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP RANGE

Tubular Data



Surface Casing

Size: 11-3/4 " Cemented with 375 SX

TOC: Surface feet determined by Calc.

Hole size: 15

Intermediate Casing

Size: " Cemented with SX

TOC: feet determined by

Hole Size:

Long String

Size: 8-5/8 " Cemented with 450 SX

TOC: 3517' feet determined by 80% calc

Hole Size: 11

Total Depth: 8700'

Injection Interval

feet to feet
(perforated or open-hole, indicate which)

Tubing size lined with set in a
(material)
packer at feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation
- Name of Field or Pool (If applicable)
- Is this a new well drilled for injection?
If no, for what purpose was the well originally drilled?
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation		West Lovington Unit		
OPERATOR		LEASE		
72	2600 FNL & 1350 FWL	4	T17S-R36E	
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Tubular Data

Surface Casing

Size: 8 5/8 " Cemented with 275 SX

TOC: Surf. feet determined by circ.

Hole size: 12 1/4

Intermediate Casing

Size: " Cemented with SX

TOC: feet determined by

Hole Size:

Long String

Size: 5 1/2 " Cemented with 700 SX

TOC: 1747 feet determined by 70% calc.

Hole Size: 7 7/8

Total Depth: 5140

Injection Interval

 feet to feet
(perforated or open-hole, indicate which)

Tubing size lined with set in a
(material)
 packer at feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation San Andres Dolomite
- Name of Field or Pool (If applicable) West Lovington-Upper San Andres
- Is this a new well drilled for injection? No
If no, for what purpose was the well originally drilled? Production
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
No
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
Grayburg

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation		West Lovington Unit		
OPERATOR		LEASE		
70	1300 FNL & 15 FWL	4	T17S-R36E	
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Tubular Data

Surface Casing

Size: 8 5/8 " Cemented with 250 SX

TOC: Surf. feet determined by circ

Hole size: 12 1/4

Intermediate Casing

Size: 8 5/8 " Cemented with 378 SX

TOC: 5 1/2 feet determined by 5264

Hole Size: 5 1/2

Long String

Size: 5 1/2 " Cemented with 675 SX

TOC: 1992 feet determined by 70% calc

Hole Size: 7 7/8

Total Depth: 5264

Injection Interval

 feet to feet
(perforated or open-hole, indicate which)

Tubing size lined with set in a
 (material)
 packer at feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation San Andres Dolomite
- Name of Field or Pool (If applicable) West Lovington Upper San Andres
- Is this a new well drilled for injection? No
If no, for what purpose was the well originally drilled? Production
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
No
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
Grayburg-Overlying

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation		West Lovington Unit	
OPERATOR		LEASE	
74	180 FSL & 2625 FEL	4	T17S-R36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP RANGE

Tubular Data

Surface Casing

Size: 8 5/8 " Cemented with 277 SX

TOC: Surface feet determined by circ.

Hole size: 12 1/4

Intermediate Casing

Size: _____ " Cemented with _____ SX

TOC: _____ feet determined by _____

Hole Size: _____

Long String

Size: 5 1/2 " Cemented with 1200 SX

TOC: Surf. feet determined by circ.

Hole Size: 7 7/8

Total Depth: 5130

Injection Interval

_____ feet to _____ feet
(perforated or open-hole, indicate which)

Tubing size _____ lined with _____ set in a
(material)
_____ packer at _____ feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation San Andres Dolomite
- Name of Field or Pool (If applicable) West Lovington Upper San Andres
- Is this a new well drilled for injection? No
If no, for what purpose was the well originally drilled? Production
- Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used).
No
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
Grayburg



GREENHILL PETROLEUM CORPORATION

11490 WESTHEIMER, SUITE 200
HOUSTON, TEXAS 77077
TELEPHONE (713) 589-8484
FAX. (713) 589-9399

Incorporated in Delaware, U.S.A.

July 30, 1991

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

Attention: David Catanach

Re: West Lovington Unit
Well Nos. 21, 32, 33, 34
Lea County, NM

Enclosed find the legal notice which covers the proposed conversions of Well Nos. 21, 32, 33 and 34 from producers to injection wells. This information should complete our application.

Sincerely,

Michael J. Newport
MJN:sjs

enclosure

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.

I, Kathi Bearden

of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not a supplement thereof for a period

of _____

One weeks.

Beginning with the issue dated

July 4, 1991

and ending with the issue dated

July 4, 1991

Kathi Bearden
General Manager

Sworn and subscribed to before

me this 15 day of

July, 1991

Thonda Copland
Notary Public.

My Commission expires _____

July 24, 1991

(Seal)

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

LEGAL NOTICE

July 4, 1991

Greenhill Petroleum Corporation, 11490 Westheimer, Ste., 200, Houston, TX 77077-Phone (713) 589-8484 Contact: Mike Newport. Greenhill Petroleum Corporation plans to convert the following producing wells to injection wells within the West Lovington Field Area. The purpose of the produced injection wells is to increase the reservoir pressure in order to improve the recovery of hydrocarbons. The location of the proposed injection wells are the following Well Nos. within Sections 4 & 5, T17S-R36E, Lea County, NM. Well Nos. 21, 32, 33 & 34. The injection intervals are approximately between the depths of 4650' and 5160' in the San Andres formation. The maximum injection rates and pressures are 2000 PSI 1500 BWPD. Interested parties must file objections or requests for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, NM 87501 within 15 days.