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? [XXX] yes [ ] no

II. Operator: GREENHILL PETROLEUM CORPORATION

Address: 11490 Westheimer, Suite 200, Houston, Texas 77077

Contact party: Mike Newport Phone: (713) 589-8484

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? [XXX] yes [ ] no
If yes, give the Division order number authorizing the project R3124.

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

BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
GREENHILL EXHIBIT NO. 4
CASE NO. 10549

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: 8-11-92

* 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.

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

Company : GREENHILL PETROLEUM
Address : LOVINGTON, NM
Lease : SENE SEC~~26~~ 35 TI6S R36E
Well : PAD 18
Sample Pt. : WINDMILL

Date : 8-22-90
Date Sampled : 8-22-90
Analysis No. : 2

	ANALYSIS		mg/L		* meq/L
1.	pH	7.6			
2.	H2S	0			
3.	Specific Gravity	1.001			
4.	Total Dissolved Solids		2086.2		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	244.0	HCO3	4.0
12.	Chloride	Cl	1035.2	Cl	29.2
13.	Sulfate	SO4	200.0	SO4	4.2
14.	Calcium	Ca	350.0	Ca	17.5
15.	Magnesium	Mg	224.9	Mg	18.5
16.	Sodium (calculated)	Na	32.1	Na	1.4
17.	Iron	Fe	0.0		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO3)		1800.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

17	*Ca <------ *HCO3	4
	/------->	
19	*Mg ------> *SO4	4
	<----------/	
1	*Na ------> *Cl	29

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	4.0	324
CaSO4	68.1	4.2	283
CaCl2	55.5	9.3	516
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	18.5	881
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	1.4	82

Saturation Values Dist. Water 20 C
CaCO3 13 mg/L
CaSO4 * 2H2O 2090 mg/L
BaSO4 2.4 mg/L

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,
D. SWEATT

"A"

WATER ANALYSIS REPORT

Company : GREENHILL PETROLEUM
Address : LOVINGTON, NM
Lease : SENE SEC 2 TI7S R36E
Well : S. A. #44
Sample Pt. : WINDMILL

Date : 8-22-90
Date Sampled : 8-22-90
Analysis No. : 1

	ANALYSIS		mg/L		* meq/L
1.	pH	7.5			
2.	H2S	0			
3.	Specific Gravity	1.001			
4.	Total Dissolved Solids		2222.8		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	244.0	HCO3	4.0
12.	Chloride	Cl	917.6	Cl	25.9
13.	Sulfate	SO4	325.0	SO4	6.8
14.	Calcium	Ca	720.0	Ca	35.9
15.	Magnesium	Mg	0.5	Mg	0.0
16.	Sodium (calculated)	Na	15.7	Na	0.7
17.	Iron	Fe	0.0		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO3)		1800.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

36	*Ca <----- *HCO3	4
	/------->	
0	*Mg -----> *SO4	7
	<----------/	
1	*Na -----> *Cl	26

Saturation Values Dist. Water 20 C

CaCO3	13 mg/L
CaSO4 * 2H2O	2090 mg/L
BaSO4	2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	4.0	324
CaSO4	68.1	6.8	461
CaCl2	55.5	25.2	1396
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	0.0	2
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	0.7	40

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,
D. SWEATT

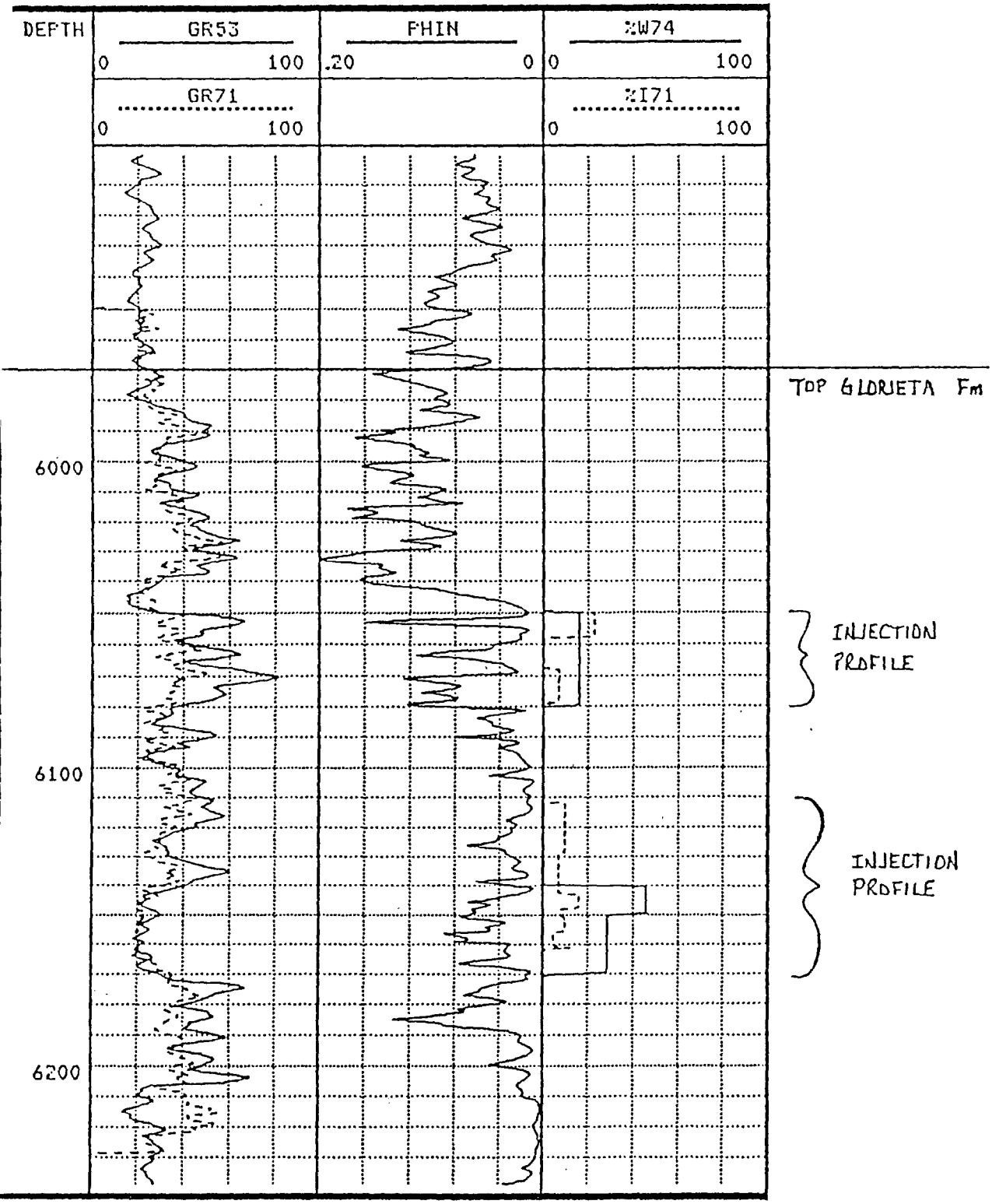
VIII Geologic Data

The zone of interest for this application to inject is the Paddock interval of the Glorieta Formation. In the area of the Lovington Field Paddock Unit, the Paddock interval is found at an average depth of 6150′ and consists of light brown, finely crystalline dolomite, with thin lenticular fine-grained sandstone beds interbedded with the dolomite. Attached is a type log from the Lovington Field Paddock Unit. The well log (LPU #36) is an injection well and shows two main zones within the field unit where water has been injected.

The only known underground source of fresh water in the Lovington Field Paddock Unit Area is the Ogalalla Formation. The approximate base of the formation is 200′. No source is known to be immediately underlying the proposed injection interval.

WELL NAME - SKELLY STATE O#19 (LPFH36)
LOCATION - 660 FSL 2160 FEL 31-16S-37E
WELL DATA - KB, ELEV. DF 3816, TD 6245, 5-1/2 6050
LOGS - LANE RA 12-6-53
LOG PARAMETERS-

DATA FILE NAME: b:lpf36.cm1 DATE OF PLOT: 10/ 3/1990



IX

PROPOSED STIMULATION PROGRAM
FOR CONVERSIONS FROM PROCEDURES TO INJECTION WELLS
LOVINGTON PADDOCK UNIT
LEA COUNTY, NM

1. MIRU PU w/reverse unit. Check and report pressure on casing strings. Inspect wellhead connections for condition and pressure rating. Insure all casing valves are at least 2000 psig W. P. Pull and lay down rods and pump.

2. Rig up and pressure test BOP to 3000 psig for 5 min. Pull tubing and TAC. Lay down TAC.

3. PU bit, casing scraper and collars and TIH to 200' above casing shoe. Scrape casing to 10 ft. above shoe. Do not go below casing shoe with scraper. POOH and lay down scraper. TIH to 10 ft. above casing shoe and circulate hole clean with clean water. Rotate and clean out bottom of open-hole interval below casing shoe.

4. Spot enough 20% NEFE HCL acid to cover the open-hole interval. Slowly pull bit above top of acid and POOH.

5. Rig up perforating contractor. String shoot water flood intervals w/400 grains per foot primacord. TIH with bit and tubing and circulate open hole interval clean to TD w/water. POOH laying down workstring.

6. PU new 2 3/8" IPC tubing string w/new water flood packer and TIH to 20' above casing shoe. Circulate inhibited fresh water into tubing-casing annulus and set packer. Pressure test annulus to 500 psig for 5 min. Release pressure. RD BOP and install waterflood and wellhead.

7. Pressure test annulus per NMOCD requirements. Release rig.

8. Rig up acid contractor and treat below packer with 15 tons CO_2 and 3000 gal. 20% NEFE HCL acid using diverter in 3 stages. Flow well back to recover load and clean-up formation. SI well.

9. Install wellhead filter cartridge housing and filter. Hook up new water injection line.

10. Put well on injection. When rate and pressure stabilize, run water injection survey.

XI

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

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

RESULT OF WATER ANALYSES

LABORATORY NO. 1189311

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

SAMPLE RECEIVED 11-27-89
RESULTS REPORTED 12-4-89

COMPANY Greenhill Petroleum Corporation LEASE Lovington San Andres Unit
FIELD OR POOL Lovington
SECTION ___ BLOCK ___ SURVEY ___ COUNTY Lea STATE NM
SOURCE OF SAMPLE AND DATE TAKEN:
NO. 1 Produced water - taken from injection pump discharge. 11-27-89
NO. 2
NO. 3
NO. 4
REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0160			
pH When Sampled	6.8			
pH When Received	6.90			
Bicarbonate as HCO_3	1,464			
Supersaturation as $CaCO_3$	70			
Undersaturation as $CaCO_3$	---			
Total Hardness as $CaCO_3$	5,700			
Calcium as Ca	1,540			
Magnesium as Mg	450			
Sodium and/or Potassium	5,369			
Sulfate as SO_4	2,358			
Chloride as Cl	9,730			
Iron as Fe	0.32			
Barium as Ba	0			
Turbidity, Electric	72			
Color as Pt	56			
Total Solids, Calculated	20,910			
Temperature °F.	67			
Carbon Dioxide, Calculated	381			
Dissolved Oxygen, - chemets	0.000			
Hydrogen Sulfide	480			
Resistivity, ohms/m at 77° F.	0.420			
Suspended Oil	15			
Filtrable Solids as mg/l	22.9			
Volume Filtered, ml	850			

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The above results show no direct or indirect evidence of air contamination in this study, therefore indicating effective control against this condition is being accomplished. Our microscopic study of the filtrable solids showed them to be essentially all a very fine paraffin, therefore indicating no particular significance to the higher quantity we have encountered as compared to recent studies. We have identified no evidence of any other development of concern and therefore see no need to make any changes at this time.

Form No. 3

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

By Waylan C. Martin, M.A.

XI

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

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

RESULT OF WATER ANALYSES

LABORATORY NO. 98943

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

SAMPLE RECEIVED 9-1-89
RESULTS REPORTED 9-8-89

COMPANY Greenhill Petroleum Corporation LEASE Lovington Paddock/San Andres Unit
FIELD OR POOL Lovington
SECTION ___ BLOCK ___ SURVEY ___ COUNTY Lea STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Raw water - taken from water supply well #1. 9-1-89 ULB S1 T17S R36E
NO. 2 Raw water - taken from water supply well #2. 9-1-89 ULC S1 T17S R36E
NO. 3
NO. 4

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0025	1.0018		
pH When Sampled	7.2	7.4		
pH When Received	7.03	7.34		
Bicarbonate as HCO_3	229	249		
Supersaturation as $CaCO_3$	8	4		
Undersaturation as $CaCO_3$	---	---		
Total Hardness as $CaCO_3$	370	164		
Calcium as Ca	120	51		
Magnesium as Mg	17	9		
Sodium and/or Potassium	171	130		
Sulfate as SO_4	99	89		
Chloride as Cl	320	107		
Iron as Fe	0.48	0.64		
Barium as Ba	0	0		
Turbidity, Electric	3	5		
Color as Pt	7	3		
Total Solids, Calculated	956	634		
Temperature °F.	65	66		
Carbon Dioxide, Calculated	25	16		
Dissolved Oxygen, Winkler - Chemets	4.7	3.0		
Hydrogen Sulfide	0.0	0.0		
Resistivity, ohms/m at 77° F.	6.75	12.25		
Suspended Oil				
Filtrable Solids as mg/l	2.1	3.2		
Volume Filtered, ml	10,000	1,000		

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks: The primary significance in the above results at water well #1 is that we again identified only a very minor amount of sand in the filtrable solids. This generally confirms the results of the sample taken 7-27-89 and reported on laboratory #789270 that the previously high level of sand was temporary. We also identified no significant sand in the suspended material at water well #2. In general, we find the current chemical and physical properties of these waters to be satisfactory, thereby indicating no need for any action.

Form No. 3

By Waylan C. Martin, M.A.

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

3 PRECIPITATION

Calcium Carbonate Scale Prediction
Lovington San Andres Unit
Paragon Engineering Services

Water "A": 50% Lovington WSW #1 + 50% WSW #2, Analysis No. 1188285
Water "B": Calculated produced water analysis assuming injection water is 56% produced & 44% source. Analysis No. 1188290
Analysis: Martin Water Laboratories, Inc.
Date Reported: 12/07/88.

Hypothetical Composition of Mixed Waters
mg/l

% Water "A"	100	80	44	40	20	0
% Water "B"	0	20	56	60	80	100
Components:						
CATIONS						
Calcium, Ca	138.50	646.18	1560.00	1661.54	2169.21	2676.89
Magnesium, Mg	15.50	122.82	316.00	337.46	444.79	552.11
Iron, Fe	1.09	1.74	2.90	3.03	3.68	4.32
Barium, Ba	0.00	0.00	0.00	0.00	0.00	0.00
Sodium, Na	150.00	1931.43	5138.00	5494.29	7275.71	9057.14
ANIONS						
Chloride, Cl	323.00	3555.86	9375.00	10021.57	13254.43	16487.29
Sulfate, SO4	99.50	655.04	1655.00	1766.11	2321.64	2877.18
Carbonate, CO3	0.00	0.00	0.00	0.00	0.00	0.00
Bicarbonate, HCO3	223.00	766.57	1745.00	1853.71	2397.29	2940.86
Tot. Dsol'd Solids	950.59	7679.63	19791.90	21137.71	27866.75	34595.79
Measured pH Values	7.00		6.70			
1/H+ = 10^pH	10000000		5011872.34			
H+ = 1/10^pH	.0000001	.0000001355	.0000001995	.000000207	.000000242	.000000278
1/H+ = 10^pH		7377619.17		4839445.40	4129154.49	3600678.77
Calculated pH Values		6.87		6.68	6.62	6.56

Calcium Carbonate Solubility Calculation.

1. Calculate molar ionic strength of water, (u).
   (u) = sum of (mg/l x Conv. Factor) for all ions.

	Conv. Factor						
Ca	.00005	.006925	.032309	.078000	.083077	.108461	.133845
Mg	.000082	.001271	.010071	.025912	.027672	.036472	.045273
Ba	.000015	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Na	.000022	.003300	.042491	.113036	.120874	.160066	.199257
Cl	.000014	.004522	.049782	.131250	.140302	.185562	.230822
SO4	.000021	.002090	.013756	.034755	.037088	.048754	.060421
CO3	.000033	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
HCO3	.000008	.001784	.006133	.013960	.014830	.019178	.023527
u =		.02	.15	.40	.42	.56	.69

Calcium Carbonate Stability Index (Cont.)

Water: "A"	100	80	44	40	20	0
Water: "B"	0	20	56	60	80	100

2. Determine K from Stiff & Davis graph for (u); pCa and pAlk are calculated by this program from the equations below.

pCa = log(1/mols Ca++/Liter)
pAlk = log(1/Equiv. Total Alk/Liter)

Temperature: 80F (26.7C)
120F (49C)

Look Up K:						
K for 80F	2.06	2.60	3.07	3.08	3.21	3.29
K for 120F	1.68	2.16	2.56	2.58	2.70	2.78
Calculated pCa	2.46	1.79	1.41	1.38	1.27	1.18
Calculated pAlk	2.44	1.90	1.54	1.52	1.41	1.32

3. Calculate the Stiff & Davis CaCO3 Stabilllity Index (SI).

SI = pH - (K + pCa + pAlk)

(K + pCa + pAlk)						
At 80F =	6.96	6.29	6.02	5.98	5.88	5.78
At 120F =	6.58	5.85	5.51	5.48	5.37	5.27
CaCO3 SI =						
At 80F =	.04	.57	.68	.70	.73	.77
At 120F =	.42	1.0	1.19	1.20	1.24	1.28

SI = Calcium Carbonate Stability Index. A positive value indicates the water has a tendency to precipitate CaCO3 under these conditions. A negative SI indicates the water is non-scaling .

Note: All calculations above are made and stored in the computer to eleven significant figures. Only eight decimal places are shown in this print out.

O_3 I_s Across System

Calculation of Oddo & Thomson CaCO3 Scaling Index - Is
Two Phase System (Water & Gas)
Oddo and Thomson Method
Lovington San Andres Unit
Paragon Engineering Services

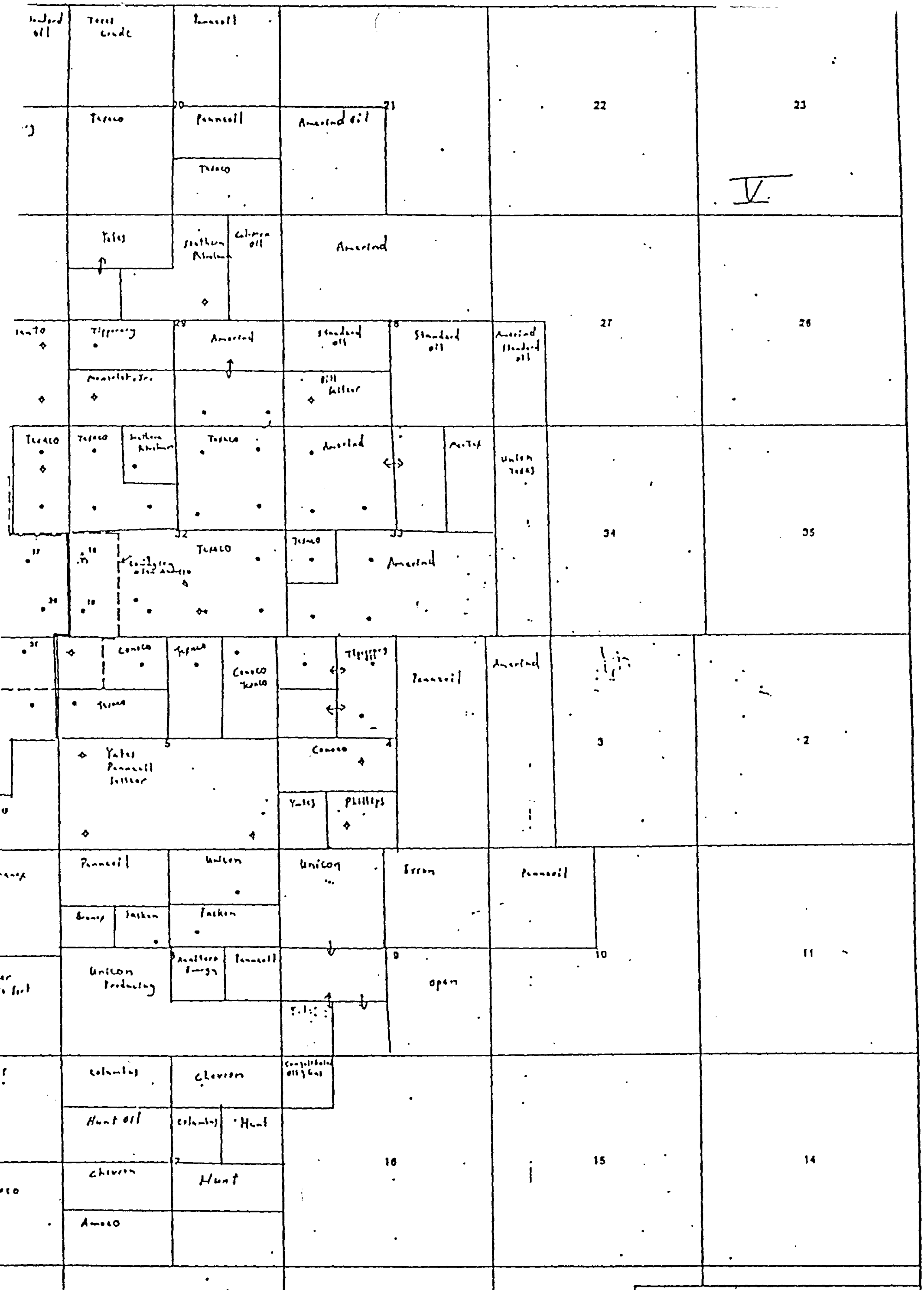
Water: Calculated produced water composition. See CaCO3 calculation.
Analysis: Martin Water Laboratories, Inc. No. 1188286
Date Reported: 12/07/88.
Approximate Location in System: Reservoir

$$Is = D + (1.549 \times 10^{-2} \times T) - (4.26 \times 10^{-6} \times T^2) - (7.44 \times 10^{-5} \times P) + 0.919u - 2.52(u)^{0.5} + 5.89$$

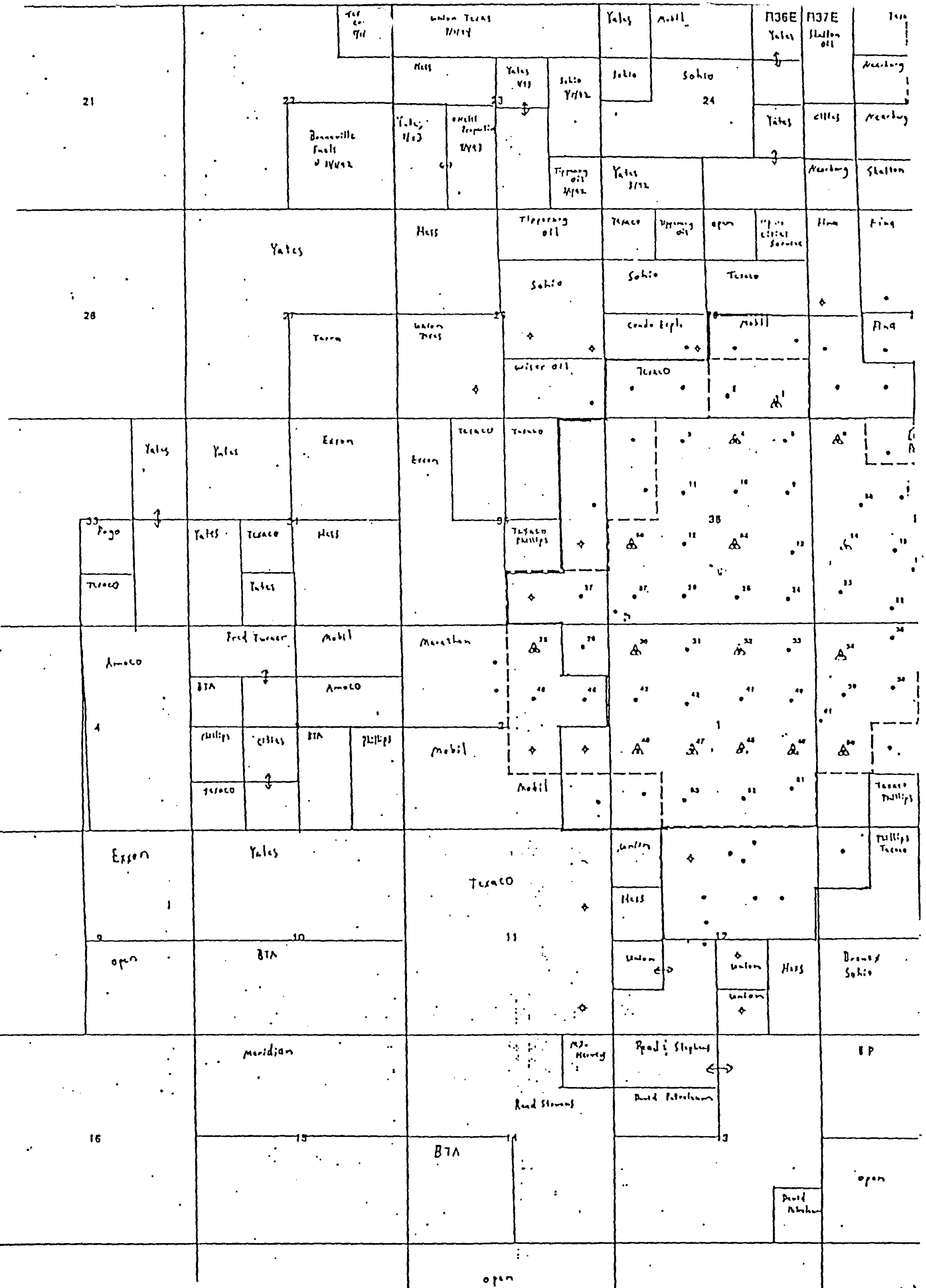
P =	2000.00	psia	
X =	.05	Mole Fraction CO2	
Ca =	.066755	Moles/l	
Alk =	.048211		
D =	-5.80922	log[(C)(Alk)^2/(P)(X)]	
T =	120.00	Temp, F	
u =	.69	Molar Ionic Strength	

C = Ca(mg/l)/40100 = .066755
Alk = (HCO3 + CO3(mg/l))/61000 = .0482108
D = log(((C)(Alk)^2/((P)(X))) = -5.80922

Variable	Value	x Constant	=	Product
D	-5.80922	1.00	=	-5.81
T	120.00	.01549	=	1.86
(T)(T)	14400.00	-.000004	=	-.06
P	2000.00	-.000074	=	-.15
u	.69	.919	=	.63
(u)^0.5	.8306624	-2.52	=	-2.09
				5.89
		Sum = Is	=	.27



GREENHILL PETROLEUM CORPORATION



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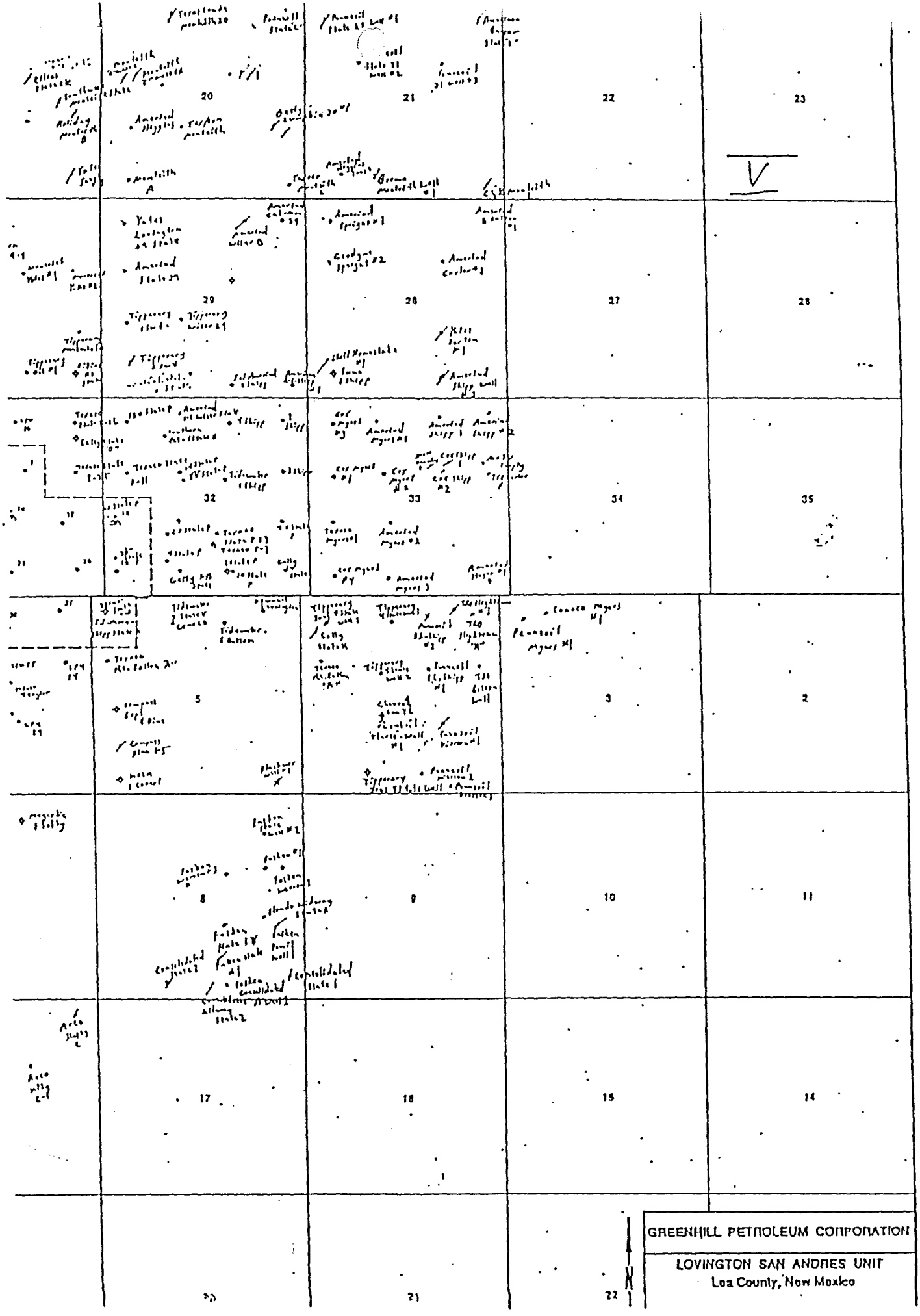
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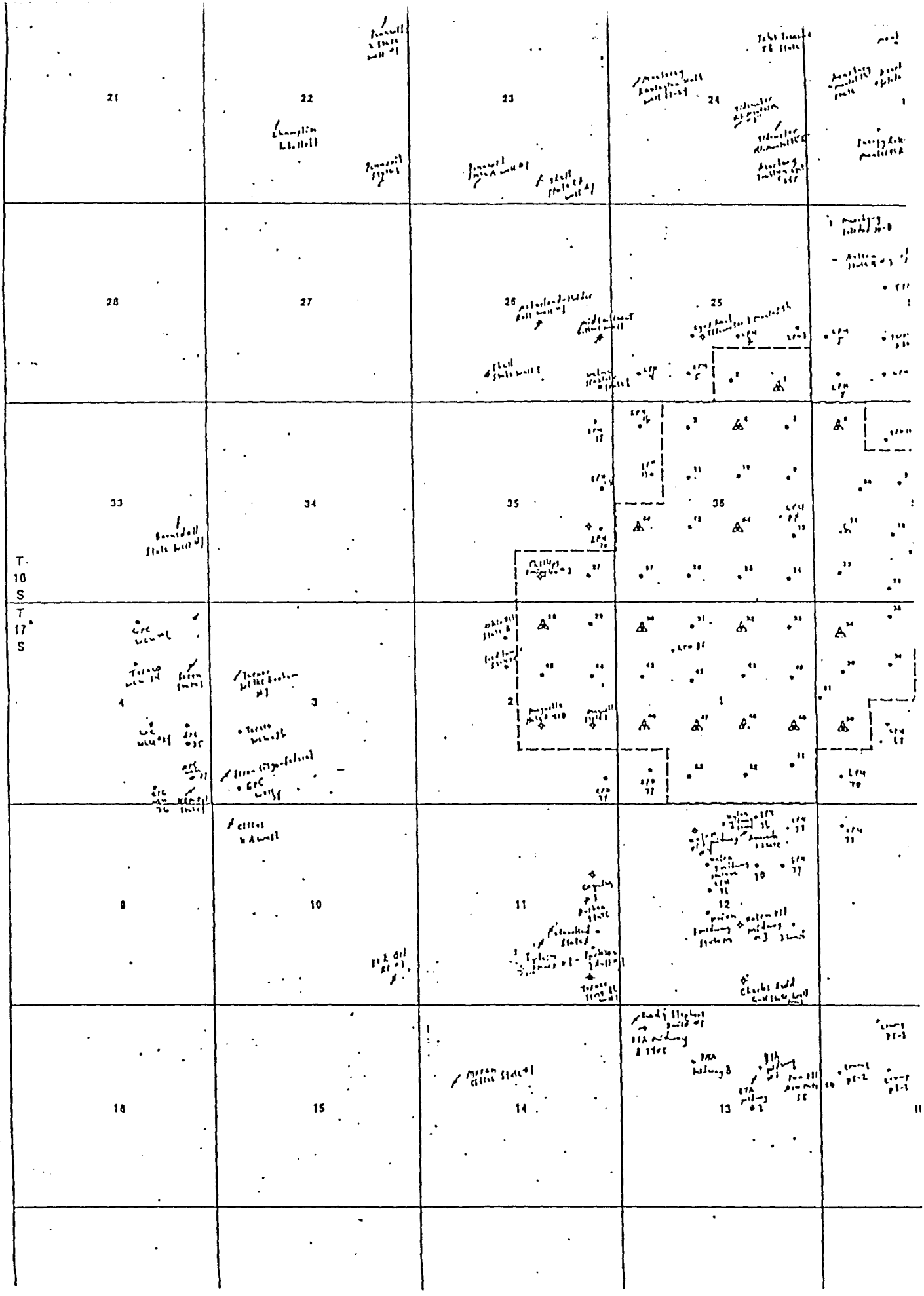
GREENHILL PETROLEUM CORPORATION
LOVINGTON SAN ANDRES UNIT
Lea County, New Mexico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AREA OF REVIEW
WELLS WITHIN 1/2 MILE RADIUS OF
10-P

9-P
Tipperary 1 Monsanto State
Cities Service 1 State
105P
127P
10P
Texaco 26 State O
11P
Texas Crude 1 State
89P
108P
8SA
7SA
25P
Texaco 25 State O
58SA
24P
Rice 31 SWD
109P
26P
16SA
130P

MJN:sjs
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AREA OF REVIEW
WELLS WITHIN 1/2 MILE RADIUS OF
9-P

Tenneco 4 State
Tenneco 2 State
1P
8P
9P
Tipperary 1 Monsanto State
7P
104P
105P
127P
6SA
12P
10P
11P
89P
108P
2P

MJN:sjs
92.576

GREENHILL PETROLEUM CORPORATION

COMPOSITE LSALP UNIT

LEA COUNTY, NEW MEXICO

0 1000 2000

JULY 1991

LOVINGTON PADDOCK

LOVINGTON SAN ANDRES

9 8 7 12 11 10

4 5 6 1 2 3

33 32 31 36 35 34

28 29 30 25 26 27

GREENHILL PETROLEUM CORPORATION

COMPOSITE LSA/LP UNIT

LEA COUNTY, NEW MEXICO

0 1000 2000

SCALE: 1" = 2000'

JULY 1991

MKG

LOVINGTON PADDOCK

LOVINGTON SAN ANDRES

9 8 7 12 11 10

4 5 6 1 2 3

33 32 31 36 35 34

28 29 30 25 26 27

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION	Lovington Paddock Unit			
OPERATOR	LEASE			
9	660 FSL & 1980 FWL	30	T16S-R37E	
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Tubular Data

Surface Casing

Size: 13 3/8" Cemented with 350 SX

TOC: surface feet determined by circ.

Hole size: 17 1/2

Intermediate Casing

Size: 8 5/8" Cemented with 1500 SX

TOC: surface feet determined by circ.

Hole Size: 11

Long String

Size: 5 1/2" Cemented with 1000 SX

TOC: 3153 feet determined by TS

Hole Size: 7 7/8

Total Depth: 6270'

Injection Interval

6144 feet to 6262 feet
(perforated or open-hole, indicate which)

Tubing size 2 3/8 lined with IPC set in a
(material)
(brand & model) packer at 6050 feet.
(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Paddock

2. Name of Field or Pool (If applicable) Lovington Paddock

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

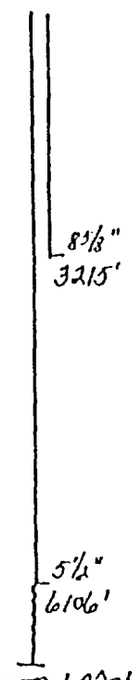
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   Above-Glorietta

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation		Lovington Paddock		
OPERATOR		LEASE		
#25	2130' FNL & 1980' FWL	31	16S	37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Spud Date
11-16-54

Converted
to Inj.
12/54



Tubular Data

Surface Casing

Size: 8-5/8" Cemented with 1550 SX

TOC: Surface feet determined by ~~calc~~ circ

Hole size: 11

Intermediate Casing

Size: Cemented with SX

TOC: feet determined by

Hole size:

Long String

Size: 5-1/2" Cemented with 450 SX

TOC: 4160 feet determined by temp survey

Hole size: 7⅞

Total Depth: 6270'

Injection Interval

6107 feet to 6270 feet
(perforated or open-hole, indicate which)

Tubing size 2-3/8" lined with IPC set in a - packer

at 6043 feet. (Or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation: Paddock

2. Name of Field or Pool (If applicable) Paddock

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 been perforated in any other zone(s)? List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used.
   No

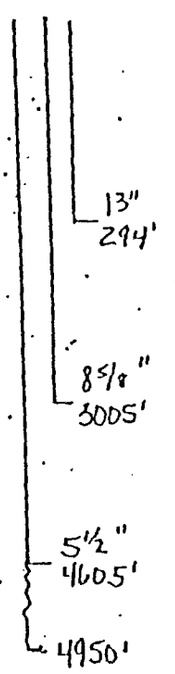
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   Above Glorieta

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation	Lovington San Andres Unit			
OPERATOR	LEASE			
#16	2310 FEL & 1980 FSL	31	T16S	R37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Completed 12/6/39

Converted to Injection 3/16/63



Tubular Data

Surface Casing

Size: 13 " Cemented with 200 SX

TOC: _____ feet determined by _____

Hole size: 15 1/4

Intermediate Casing

Size: 8 5/8 " Cemented with 500 SX

TOC: _____ feet determined by _____

Hole Size: 10 1/4

Long String

Size: 5 1/2 " Cemented with 200 SX

TOC: 2343 feet determined by Calc

Hole Size: 6 3/4

Total Depth: 4950'

Injection Interval

4605 feet to 4950 feet
(perforated or open-hole, indicate which)

Tubing size 2 3/8 lined with IPC set in a
(material)
_____ packer at 4557 feet.
(brand & model)
(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation San Andres

2. Name of Field or Pool (if applicable) Lovington San Andres

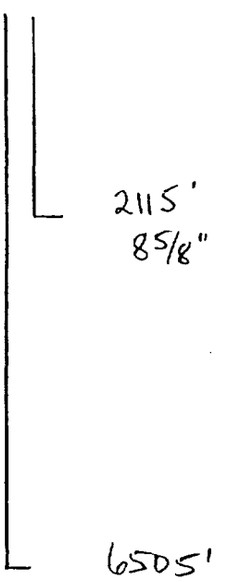
3. Is this a new well drilled for injection? No
   If no, for what purpose was the well originally drilled? Production

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.
   Underlying - Grayburg

INJECTION WELL DATA SHEET

TENNECO OIL COMPANY		State Q		
OPERATOR		LEASE		
4	2310 FNL & 1983 FWL	30	T16S-R37E	
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE



Tubular Data

Surface Casing

Size: 8 5/8" " Cemented with 600 SX

TOC: surface feet determined by circ.

Hole size: 11

Intermediate Casing

Size: _____" Cemented with _____ SX

TOC: _____ feet determined by _____

Hole Size: _____

Long String

Size: 4 1/2" " Cemented with 770 SX

TOC: 2900 feet determined by T.S.

Hole Size: 7 7/8"

Total Depth: 6505'

Injection Interval

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

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

Other Data

1. Name of the injection formation -------

2. Name of Field or Pool (If applicable) --------

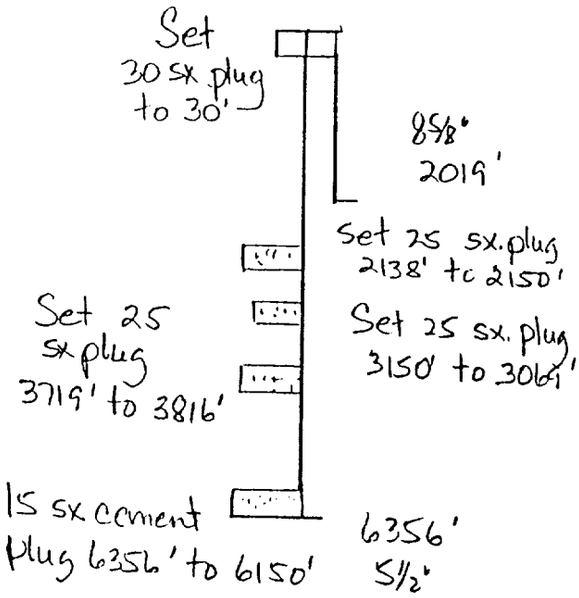
3. Is this a new well drilled for injection? -------
   If no, for what purpose was the well originally drilled? -------

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.
   ----

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

INJECTION WELL DATA SHEET

CITIES SERVICE OIL COMPANY		STATE CG		
OPERATOR		LEASE		
1	660 FSL & 660 FEL	30	T16S-R37E	
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE



P & A
1-29-66

Tubular Data

Surface Casing

Size: 8 5/8" " Cemented with 900 SX

TOC: surface feet determined by 60% calc.

Hole size: 11 1/4"

Intermediate Casing

Size: _____" Cemented with _____ SX

TOC: _____ feet determined by _____

Hole Size: _____

Long String

Size: 5 1/2" " Cemented with 400 SX

TOC: 4592 feet determined by 60% calc.

Hole Size: 7 7/8"

Total Depth: 6356'

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

1. Name of the injection formation _____

2. Name of Field or Pool (If applicable) _____

3. Is this a new well drilled for injection? _____
   If no, for what purpose was the well originally drilled? _____

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.

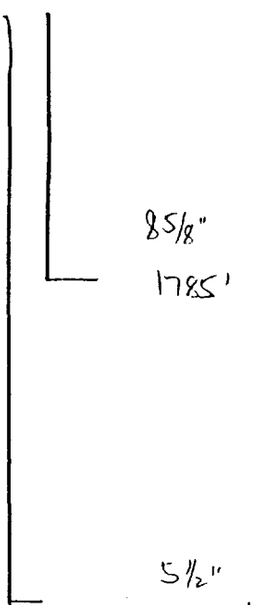
   _____

5. 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		Lovington Paddock		
OPERATOR		LEASE		
109	2540 FNL & 2855FWL	31	T16S-R37E	
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE



Tubular Data

Surface Casing

Size: 8 5/8" ~ Cemented with 700 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 1585 SX

TOC: surface feet determined by circulation

Hole Size: 7 7/8"

Total Depth: 6450'

Injection Interval

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

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

Other Data

1. Name of the injection formation ---------

2. Name of Field or Pool (If applicable) Lovington Paddock

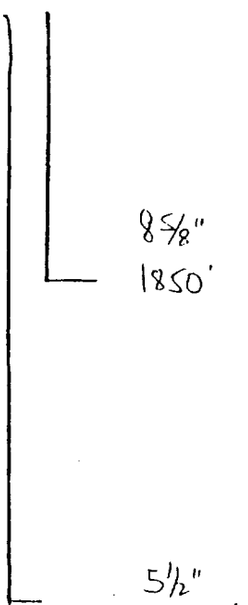
3. Is this a new well drilled for injection? no
   If no, for what purpose was the well originally drilled? prod.

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.
   above-Glorietta

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		Lovington Paddock		
OPERATOR		LEASE		
108	1615 FNL & 2715 FWL	31	T16S-R37E	
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE



Tubular Data

Surface Casing

Size: 8 5/8" " Cemented with 700 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 1520 SX

TOC: surface feet determined by circulation

Hole Size: 7 7/8"

Total Depth: 6500'

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

1. Name of the injection formation ---------

2. Name of Field or Pool (If applicable) Lovington Paddock

3. Is this a new well drilled for injection? no
   If no, for what purpose was the well originally drilled? prod.

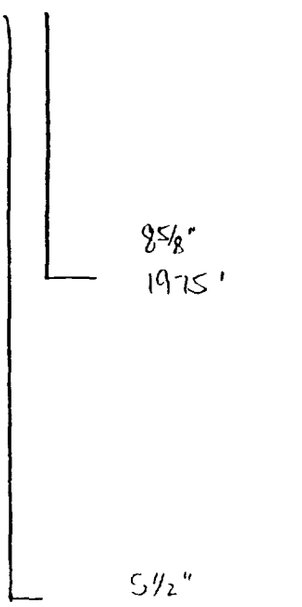
4. Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used.
   no

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

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		Lovington Paddock	
OPERATOR		LEASE	
104	240 FWL & 75 FNL	31	T16S-R37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP RANGE

Tubular Data



Surface Casing

Size: 8 5/8" " Cemented with 750 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 1600 SX

TOC: surface feet determined by circulation

Hole Size: 7 7/8"

Total Depth: 6425'

Injection Interval

_____ feet to _____ feet

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

Tubing size _____ lined with _____ (material) set in a

_____ (brand & model) packer at _____ feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation ---------

2. Name of Field or Pool (If applicable) Lovington Paddock

3. Is this a new well drilled for injection? no
   If no, for what purpose was the well originally drilled? prod.

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.

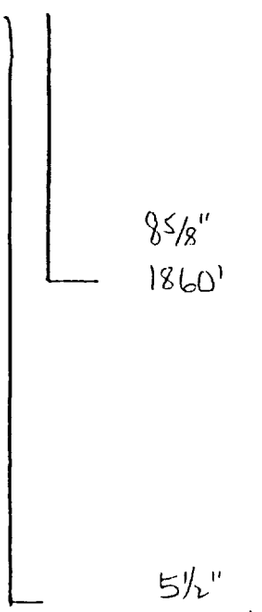
   no

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

   above-Glorietta

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION		Lovington Paddock		
OPERATOR		LEASE		
105	69 FNL & 1324 FWL	31	T 16S-R37E	
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE



Tubular Data

Surface Casing

Size: 8 5/8" " Cemented with 700 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 1360 SX

TOC: surface feet determined by circulation

Hole Size: 7 7/8"

Total Depth: 6450'

Injection Interval

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

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

Other Data

1. Name of the injection formation _____---------_____

2. Name of Field or Pool (If applicable) Lovington Paddock

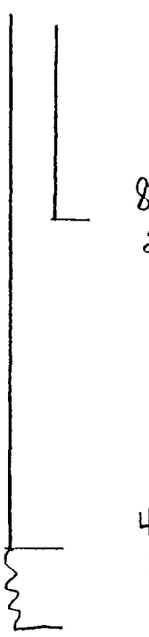
3. Is this a new well drilled for injection? no
   If no, for what purpose was the well originally drilled? prod.

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.
   above-Glorietta

INJECTION WELL DATA SHEET

R. J. Nelson	State Q			
OPERATOR	LEASE			
2	1650FSL & 1950 FWL	30	T16S-R37E	
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE



Tubular Data

Surface Casing

Size: 8 5/8" Cemented with 425 SX

TOC: surface feet determined by circ.

Hole size: 11

Intermediate Casing

Size: _____" Cemented with _____ SX

TOC: _____ feet determined by _____

Hole Size: _____

Long String

Size: 4 1/2" Cemented with 690 SX

TOC: 4078 feet determined by 60% calc.

Hole Size: 7 7/8

Total Depth: 6500'

Injection Interval

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

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

Other Data

1. Name of the injection formation _____

2. Name of Field or Pool (IF applicable) Lovington Paddock

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

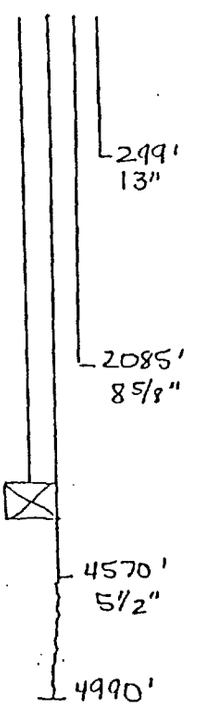
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   above Glorieta

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation	Lovington San Andres			
OPERATOR	LEASE			
#58	2310' FNL & 1309' FWL	31	16S	37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Completed
5-15-41

deepen to 5070



Tubular Data

Surface Casing

Size: 13 " Cemented with 180 SX

TOC: Surface feet determined by circ

Hole size: 17-1/4"

Intermediate Casing

Size: 8-5/8 " Cemented with 400 SX

TOC: 860 feet determined by calc

Hole Size: 11"

Long String

Size: 5-1/2 " Cemented with 200 SX

TOC: 3479 feet determined by calc

Hole Size: 7-7/8"

Total Depth: 4990'

Injection Interval

4570 feet to 5070 feet
(perforated or open-hole, indicate which)

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

(brand & model) packer at 4550 feet.
(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation San Andres

2. Name of Field or Pool (If applicable) Lovington San Andres

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.
Underlying-Grayburg

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation	Lovington San Andres Unit			
OPERATOR	LEASE			
#7	1980 FNL & 1980 FEL	31	T16S	R37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Completed 1/5/49

deepen to Yates 4990

8⅝" 2013'

5½" 4620' TD 4955'

Tubular Data

Surface Casing

Size: 8 5/8" Cemented with 485 SX

TOC: Surface feet determined by calc.

Hole size: 10 1/4

Intermediate Casing

Size: _____" Cemented with _____ SX

TOC: _____ feet determined by _____

Hole Size: _____

Long String

Size: 5 1/2" Cemented with 375 SX

TOC: 1711 feet determined by 80% calc.

Hole Size: 7 1/4

Total Depth: 4955'

Injection Interval

4620 feet to Yates 4990 feet
(perforated or open-hole, indicate which)

Tubing size 2⅜" lined with IPC (material) set in a ----- (brand & model) packer at 4530 feet.
(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation San Andres

2. Name of Field or Pool (If applicable) Lovington San Andres

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

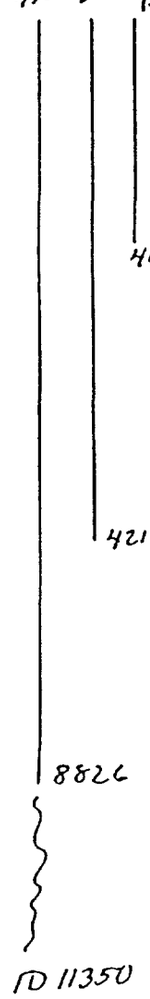
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   Underlying - Grayburg

INJECTION WELL DATA SHEET

Tipperary Oil & Gas Corp — Monsanto 30 ST
OPERATOR — LEASE

1	660S 1980E	30	16S	37E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing

Size 13 3/8 " Cemented with 405 sx.

TOC Surface feet determined by Circ

Hole size 17½

Intermediate Casing

Size 8 5/8 " Cemented with 1575 sx.

TOC Surface feet determined by Circ

Hole size 11

Long string

Size 4½ " Cemented with 1450 sx.

TOC 4350 feet determined by file

Hole size 7 7/8

Total depth 11 350

Injection interval

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

Tubing size _____ lined with _____ (material) set in a

_____ (brand and model) packer at _____ feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation _____

2. Name of Field or Pool (if applicable) _____

3. Is this a new well drilled for injection? ☐ Yes ☐ No

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

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) _____

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

INJECTION WELL DATA SHEET

Rice Engineering		Abo SWD (State "O")		
OPERATOR		LEASE		
~~1331~~	2310' FNL & 2626' FWL	31	16S	37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Completed 1-18-53

Converted to SWD (Inject thru 9730-10260)

Tubular Data

Surface Casing

Size: 13-3/8" Cemented with 246 SX

TOC: Surface feet determined by ~~calc~~ circ

13 3/8" 246'

Hole size: 18"

Intermediate Casing

Size: 9-5/8" Cemented with ~~1400~~ 1200 SX

TOC: ~~352~~ surface feet determined by ~~50% calc~~ circ

9 5/8" 3220'

Hole size: 12-1/4"

Long String

Size: 5-1/2" Cemented with 1982 SX (682 at shoe 1700 thru outer at 8988)

TOC: ~~247~~ 247 feet determined by 80% calc

cmt bond log 1964
top good cmt 3765
sqzd several intervals above and below this point.

Hole size: 7-7/8"

Total Depth: 12,251

Injection Interval

5 1/2" 11,044

TD 12,251'

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

Tubing size - lined with - set in a - packer at - feet. (Or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation:

2. Name of Field or Pool (If applicable) East Lovington (Penn)

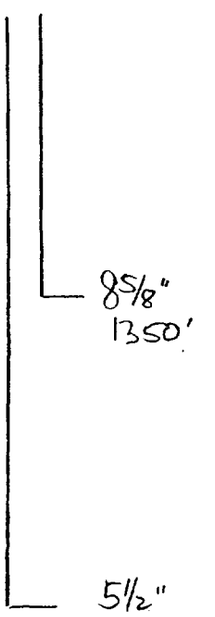
3. Is this a new well drilled for Injection? No
   If no, for what purpose was the well originally drilled? Production

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

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

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION	Lovington Paddock			
OPERATOR	LEASE			
89	1275 FWL & 1745 FNL	31	T16S-R37E	
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE



Tubular Data

Surface Casing

Size: 8 5/8" Cemented with 1350 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 1400 SX

TOC: surface feet determined by circ.

Hole Size: 7 7/8"

Total Depth: 6350

Injection Interval

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

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

Other Data

1. Name of the injection formation ------

2. Name of Field or Pool (If applicable) -----

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.

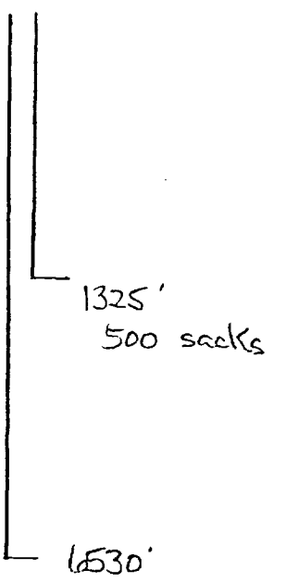
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

INJECTION WELL DATA SHEET

GREENHILL PETROLEUM CORPORATION — OPERATOR
Lovington Paddock — LEASE

130 — WELL NO.
2300 FSL & 1460 FEL — FOOTAGE LOCATION
31 — SEC.
T16S-R37E — TOWNSHIP RANGE

Tubular Data



Surface Casing

Size: 8 5/8" Cemented with 500 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 1450 SX

TOC: surface feet determined by circulation

Hole Size: 7 7/8"

Total Depth: 6530'

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

1. Name of the injection formation _____

2. Name of Field or Pool (If applicable) _____

3. Is this a new well drilled for injection? _____
   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.

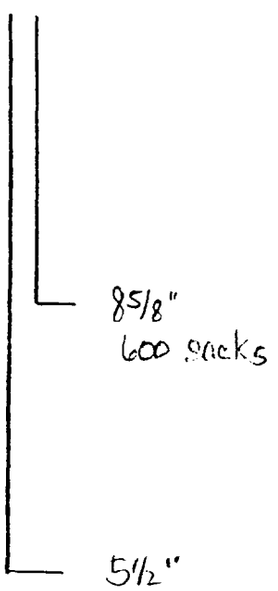
   _____

5. 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		Lovington Paddock		
OPERATOR		LEASE		
127	150 FNL and 2500 FWL	31	T16S-R37E	
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE



Tubular Data

Surface Casing

Size: 8 5/8" Cemented with 600 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 1275 SX

TOC: surface feet determined by circ.

Hole Size: 7 7/8"

Total Depth: 6465

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

1. Name of the injection formation _____

2. Name of Field or Pool (If applicable) _____

3. Is this a new well drilled for injection? _____
   If no, for what purpose was the well originally drilled? _____

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.

   _____

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

   _____

INJECTION WELL DATA SHEET

OPERATOR		LEASE		
Greenhill Petroleum Corporation		Lovington Paddock		
# 10	660' FNL & 2440' FEL	31	16S	37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Tubular Data

Spud Date
8-11-54

8⅝" 3912

5½" 6105

TD 6260'

Surface Casing

Size: 8-5/8 " Cemented with 1500 SX

TOC: Surface feet determined by calc

Hole size: 11"

Intermediate Casing

Size: _____ " Cemented with _____ SX

TOC: _____ feet determined by _____

Hole Size: _____

Long String

Size: 5-1/2" " Cemented with 300 SX

TOC: 4010 feet determined by temp survey

Hole Size: 7-7/8"

Total Depth: 6260'

Injection Interval

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

Tubing size 2 3/8 lined with - IPC set in a
(material)

- packer at - 6050 feet.
(brand & model)

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Paddock

2. Name of Field or Pool (If applicable) Paddock

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.

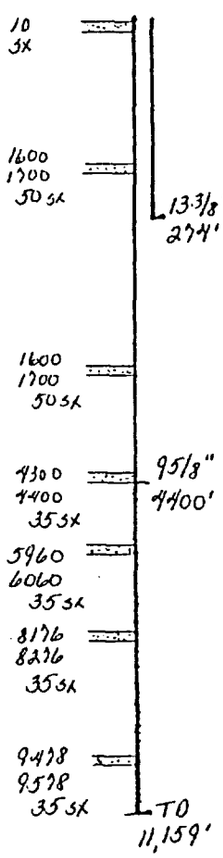
Above Glorieta

INJECTION WELL DATA SHEET

Texas Crude		State 31		
OPERATOR		LEASE		
1	990' FNL & 660' FEL	31	16S	37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Completed
9-16-68

P&A'd
9-16-68



Tubular Data

Surface Casing

Size: 13-3/8" Cemented with 200 SX

TOC: Surface feet determined by calc

Hole size: 17-1/2"

Intermediate Casing

Size: Cemented with SX

TOC: feet determined by

Hole size:

Long String

Size: 9-5/8" Cemented with 400 SX

TOC: 3194 feet determined by 80% calc

Hole size: 12-1/4"

Total Depth: 11,159'

Injection Interval

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

Tubing size - lined with - set in a - packer

at - feet. (Or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation:

2. Name of Field or Pool (If applicable) East Lovington (Penn)

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 been perforated in any other zone(s)? List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used.

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

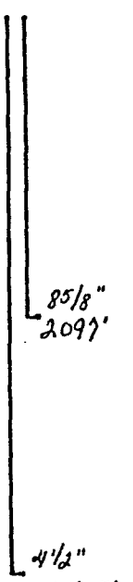
   Above Abo

INJECTION WELL DATA SHEET

~~Getty~~ Texaco		State "O"		
OPERATOR		LEASE		
26	660' FNL & 660' FEL	31	16S	37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Tubular Data

Completed 8-18-65



Surface Casing

Size: 8-5/8" Cemented with 1200 SX

TOC: Surface 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 950 SX

TOC: 2468 feet determined by 80% calc

Hole size: 7-7/8"

Total Depth: 6405'

Injection Interval

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

Tubing size - lined with - set in a - packer

at - feet. (Or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation:

2. Name of Field or Pool (If applicable) Lovington Paddock

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 been perforated in any other zone(s)? List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used.

---

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

   Glorieta (Overlying)

INJECTION WELL DATA SHEET

Texaco		State "O"		
OPERATOR		LEASE		
25	1980' FNL & 660' FEL	31	16S	37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Tubular Data

Completed
6-26-65

Surface Casing

Size: 8-5/8" Cemented with 925 SX

TOC: Surface 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 750 SX

TOC: 3292 feet determined by 80% calc

Hole size: 7-7/8"

Total Depth: 6400'

Injection Interval

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

Tubing size - lined with - set in a - packer

at - feet. (Or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation:

2. Name of Field or Pool (If applicable) Lovington Paddock

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 been perforated in any other zone(s)? List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used.

---

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

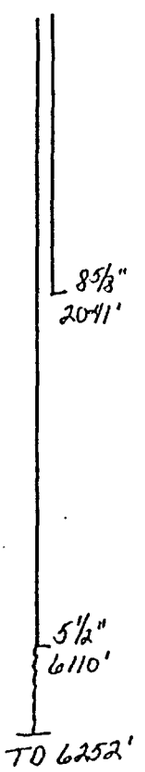
Glorieta (Overlying)

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation		Lovington Paddock		
OPERATOR		LEASE		
#26	2130' FSL & 2160' FEL	31	16S	37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Tubular Data

Spud Date
8-26-53



Surface Casing

Size: 8-5/8" Cemented with 975 SX

TOC: Surface feet determined by calc

Hole size:

Intermediate Casing

Size: Cemented with SX

TOC: feet determined by

Hole size:

Long String

Size: 5-1/2" Cemented with 400 SX

TOC: 4077 feet determined by temp survey

Hole size:

Total Depth: 6252'

Injection Interval

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

Tubing size - lined with - set in a - packer

at - feet. (Or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation:

2. Name of Field or Pool (If applicable) Paddock

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 been perforated in any other zone(s)? List all such perforated intervals and give plugging details (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.
   Above Glorieta

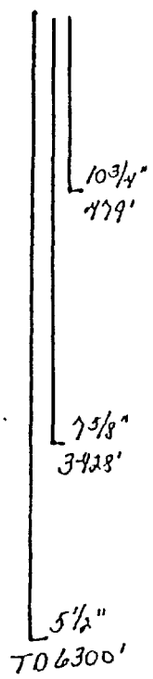
I outside 70R? 2

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation		Lovington Paddock		
OPERATOR		LEASE		
# 2	1650' FSL & 330' FEL	25	16S	36E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Tubular Data

Completed
10-31-53



Surface Casing

Size: 10-3/4 " Cemented with 300 SX

TOC: Surface feet determined by calc

Hole size: 13-3/4"

Intermediate Casing

Size: 7-5/8" Cemented with 1540 SX

TOC: Surface feet determined by calc

Hole size: 9-7/8"

Long String

Size: 5-1/2" Cemented with 730 SX

TOC: 3231 feet determined by temp survey

Hole size: 6-3/4"

Total Depth: 6300'

Injection Interval

5394 feet to 6300 feet
(perforated or open-hole, indicate which)

Tubing size 2-7/8" lined with IPC set in a - packer

at 5394 feet. (Or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation: Paddock

2. Name of Field or Pool (If applicable) Paddock

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 been perforated in any other zone(s)? List all such perforated intervals and give plugging details (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.
   Above Glorieta

11

INJECTION WELL DATA SHEET

OPERATOR		LEASE		
GREENHILL PETROLEUM CORPORATION		LOVINGTON PADDOCK		
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
# 7	330' FEL & 330' FSL	25	16S	36E

Tubular Data

Spud Date
8-1-53

Surface Casing

Size: 8-5/8" ". Cemented with 800 SX

TOC: Surface feet determined by calc

Hole size: 11"

8⅝" 2104'

Intermediate Casing

Size: _____" Cemented with _____ SX

TOC: _____ feet determined by calc

Hole Size: _____

5½" 6085'

Long String

Size: 5-1/2" " Cemented with 225 SX

TOC: 4859 feet determined by 80%

Hole Size: 7-7/8"

TD 6260'

Total Depth: 6260'

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

1. Name of the injection formation _____

2. Name of Field or Pool (If applicable) Paddock

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

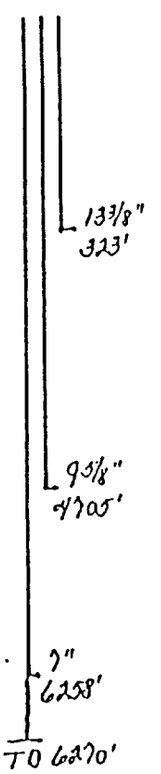
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
Above Glorieta

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation		Lovington Paddock		
OPERATOR		LEASE		
# 8	660' FSL & 660' FWL	30	16S	37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Tubular Data

Completed
6-20-53



Surface Casing

Size: 13-3/8 " Cemented with 350 SX

TOC: Surface feet determined by calc

Hole size: 17-1/4"

Intermediate Casing

Size: 9-5/8" Cemented with 2700 SX

TOC: Surface feet determined by calc

Hole size: 12-1/4"

Long String

Size: 7" Cemented with 450 SX

TOC: 4113 feet determined by 70% calc

Hole size: 8-3/4"

Total Depth: 6270'

Injection Interval

6109 feet to 6188 feet
(perforated or open-hole, indicate which)

Tubing size 2-3/8" lined with IPC set in a Nowco packer at 6076 feet. (Or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation: Paddock

2. Name of Field or Pool (If applicable) Paddock

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 been perforated in any other zone(s)? List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used.
   No

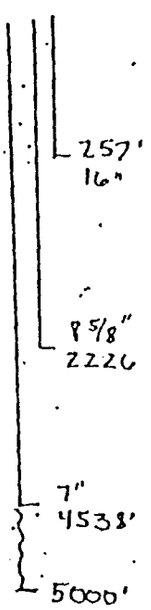
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   Above Glorieta

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation	Lovington San Andres Unit			
OPERATOR	LEASE			
#6	660 FNL & 660 FWL	31	T16S	R37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Completed 6/15/45

Converted to Injection 3/28/63



Tubular Data

Surface Casing

Size: 16 " Cemented with 100 SX

TOC; Surface feet determined by calc.

Hole size: 18

Intermediate Casing

Size: 8 5/8 " Cemented with 150 SX

TOC: 1271 feet determined by calc 50%

Hole Size: 11

Long String

Size: 7 " Cemented with 200 SX

TOC: 2229 feet determined by 80% calc

Hole Size: 8

Total Depth: 5000'

Injection Interval

4538 feet to 5000 feet
(perforated or open-hole, indicate which)

Tubing size 2 3/8 lined with IPC (material) set in a ----- (brand & model) packer at 4434 feet.
(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation San Andres

2. Name of Field or Pool (If applicable) Lovington San Andres

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

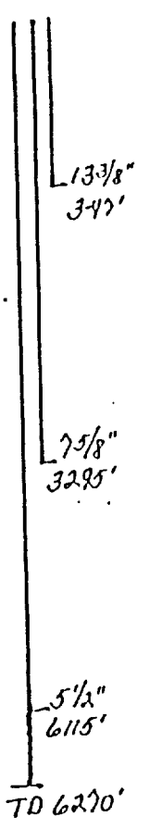
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   Underlying - Grayburg

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation		Lovington Paddock		
OPERATOR		LEASE		
#11	940' FNL & 1980' FWL	31	16S	37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Spud Date
9-01-53

Converted to
Injection
12/66



Tubular Data

Surface Casing

Size: 13-3/8 " Cemented with 330 SX

TOC: Surface feet determined by calc

Hole size: 17-1/4"

Intermediate Casing

Size: 7-5/8" Cemented with 2230 SX

TOC: Surface feet determined by calc

Hole size: 11"

Long String

Size: 5-1/2" Cemented with 350 SX

TOC: 4208 feet determined by 70% calc

Hole size: 7-7/8"

Total Depth: 6270'

Injection Interval

6115 feet to 6270 feet
(perforated or open-hole, indicate which)

Tubing size 2" lined with IPC set in a - packer at 6034 feet. (Or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation: Paddock

2. Name of Field or Pool (If applicable) Paddock

3. Is this a new well drilled for Injection? No
   If no, for what purpose was the well originally drilled? Production

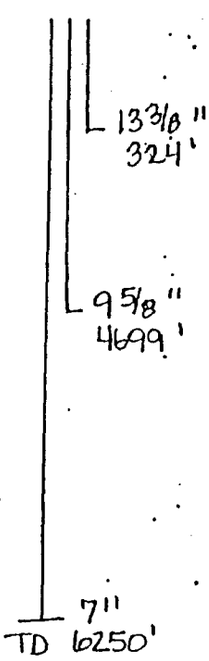
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used.
   No

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

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation		Lovington Paddock		
OPERATOR		LEASE		
12	781' FNL & 660' FWL	31	16S	37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

pud Date -5-53



Tubular Data

Surface Casing

Size: 13 3/8 " Cemented with 350 SX

TOC: Surface feet determined by calc.

Hole size: 17 1/4

Intermediate Casing

Size: 9 5/8 " Cemented with 2600 SX

TOC: Surface feet determined by calc.

Hole Size: 12 1/4

Long String

Size: 7 " Cemented with 450 SX

TOC: 2675 feet determined by 70%

Hole Size: 8 1/4

Total Depth: 6250'

Injection Interval

6115 feet to 6248 feet

(perforated or open-hole, indicate which)

Tubing size 2 3/8 lined with IPC (material) set in a AD 1 PC (brand & model) packer at 6100 feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Paddock

2. Name of Field or Pool (If applicable) Paddock

3. Is this a new well drilled for injection? No
   If no, for what purpose was the well originally drilled? production

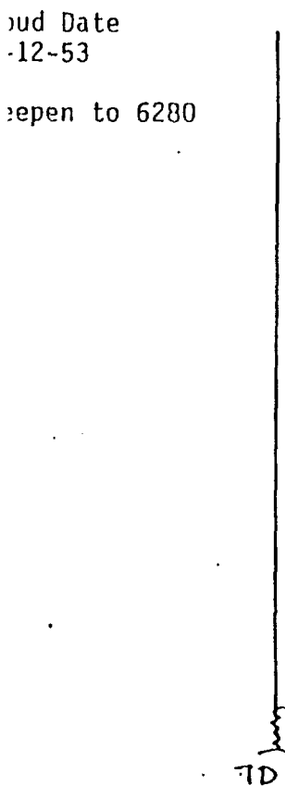
4. Has the well ever be perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used. No

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

INJECTION WELL DATA SHEET

OPERATOR	LEASE
eenhill Petroleum Corporation	Lovington Paddock

WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE
24	2310' FNL & 1968" FWL	31	16S	37E



Tubular Data

Surface Casing

Size: 8 5/8 " Cemented with 950. SX

TOC: Surface feet determined by calc.

Hole size: 11

Intermediate Casing

Size: _____ " Cemented with _____ SX

TOC: Surface feet determined by calc.

Hole Size: _____

Long String

Size: 5 1/2 " Cemented with 400 SX

TOC: 4077 feet determined by temp survey

Hole Size: 7 7/8

Total Depth: 6257'

Injection Interval

6111 feet to 6280 feet

(perforated or open-hole, indicate which)

Tubing size 2 3/8 lined with IPC set in a Baker AD-1 PC packer at 6050 feet.

(material) (brand & model)

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Paddock

2. Name of Field or Pool (If applicable) Paddock

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.
   Above Glorieta

INJECTION WELL DATA SHEET

Greenhill Petroleum Corporation		Lovington San Andres		
OPERATOR		LEASE		
8	2150' FNL & 366' FEL	31	16S	37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Tubular Data

Completed 7-24-44

8 5/8" 2048'

5 1/2" 4610'

TD 4978'

Surface Casing

Size: 8-5/8" Cemented with 500 SX

TOC: Surface feet determined by calc

Hole size:

Intermediate Casing

Size: Cemented with SX

TOC: feet determined by

Hole size:

Long String

Size: 5-1/2" Cemented with 500 SX

TOC: 1886 feet determined by 80% calc

Hole size: 7-7/8"

Total Depth: 4978'

Injection Interval

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

Tubing size - lined with - set in a - packer at - feet. (Or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation:

2. Name of Field or Pool (If applicable) Lovington San Andres

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 been perforated in any other zone(s)? List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used.

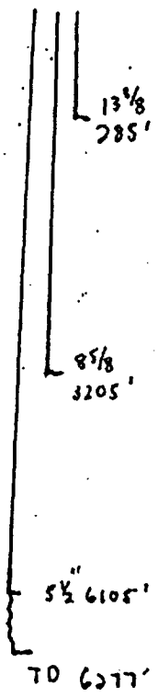
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

   (Above) Grayburg

INJECTION WELL DATA SHEET

OPERATOR		LEASE		
Greenhill Petroleum Corporation				Lovington Paddock
# 1	1655' FSL & 330' FEL	30	16S	37E
WELL NO.	FOOTAGE LOCATION	SEC.	TOWNSHIP	RANGE

Completed
8-25-54



Tubular Data

Surface Casing

Size: 13-3/8 " Cemented with 300 SX

TOC: Surface feet determined by calc

Hole size: 15"

Intermediate Casing

Size: 8-5/8 " Cemented with 1600 SX

TOC: _____ feet determined by calc

Hole Size: 10-3/4"

Long String

Size: 5-1/2 " Cemented with 425 SX

TOC: 4080 feet determined by 70%

Hole Size: 7-7/8"

Total Depth: 6277'

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

1. Name of the injection formation -

2. Name of Field or Pool (If applicable) Paddock

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.

   Above Glorieta

GREENHILL PETROLEUM CORPORATION

11490 WESTHEIMER ROAD, SUITE 200
HOUSTON, TEXAS 77077-6841
TELEPHONE (713) 589-8484
FAX. (713) 589-7892

Incorporated in Delaware, U.S.A.

August 11, 1992

Hobbs New-Sun
201 North Thorp
Hobbs, New Mexico 88241

Re: Lovington Paddock Unit
Lea County, New Mexico

Gentlemen:

Please print the following legal notice in your newspaper as soon as possible:

> Greenhill Petroleum Corporation, 11490 Westheimer, Suite 200, Houston, Texas 77077-Phone (713) 589-8484 Contact: Michael J. Newport. Greenhill Petroleum Corporation plans to convert the following producing wells to injection wells within the Lovington Paddock 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 wells are Well Numbers 9 and 10 within Section 31 T 16S R 37E, Lea County, New Mexico. The injection intervals are approximately between the depths of 6010' and 6838' in the Paddock Formation. The maximum injection rate 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, New Mexico 87501, within fifteen (15) days.

Please send the bill and affidavit to the following address:

> Greenhill Petroleum Corporation
> Attention: Mike Newport
> 11490 Westheimer, Suite 200
> Houston, Texas 77077

Very truly yours,

Michael J. Newport
Land Manager-Permian Basin

MJN:sjs
92.567

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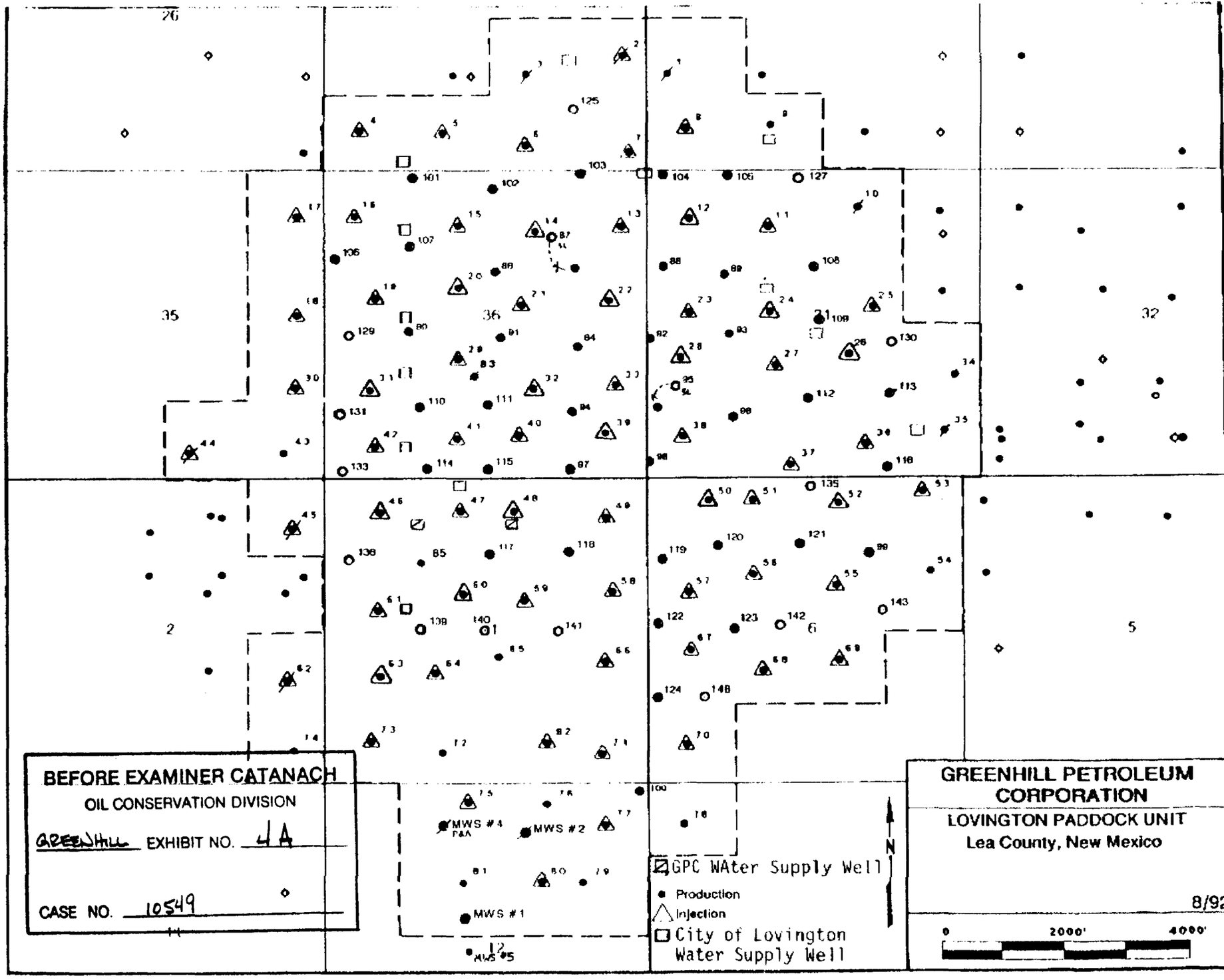
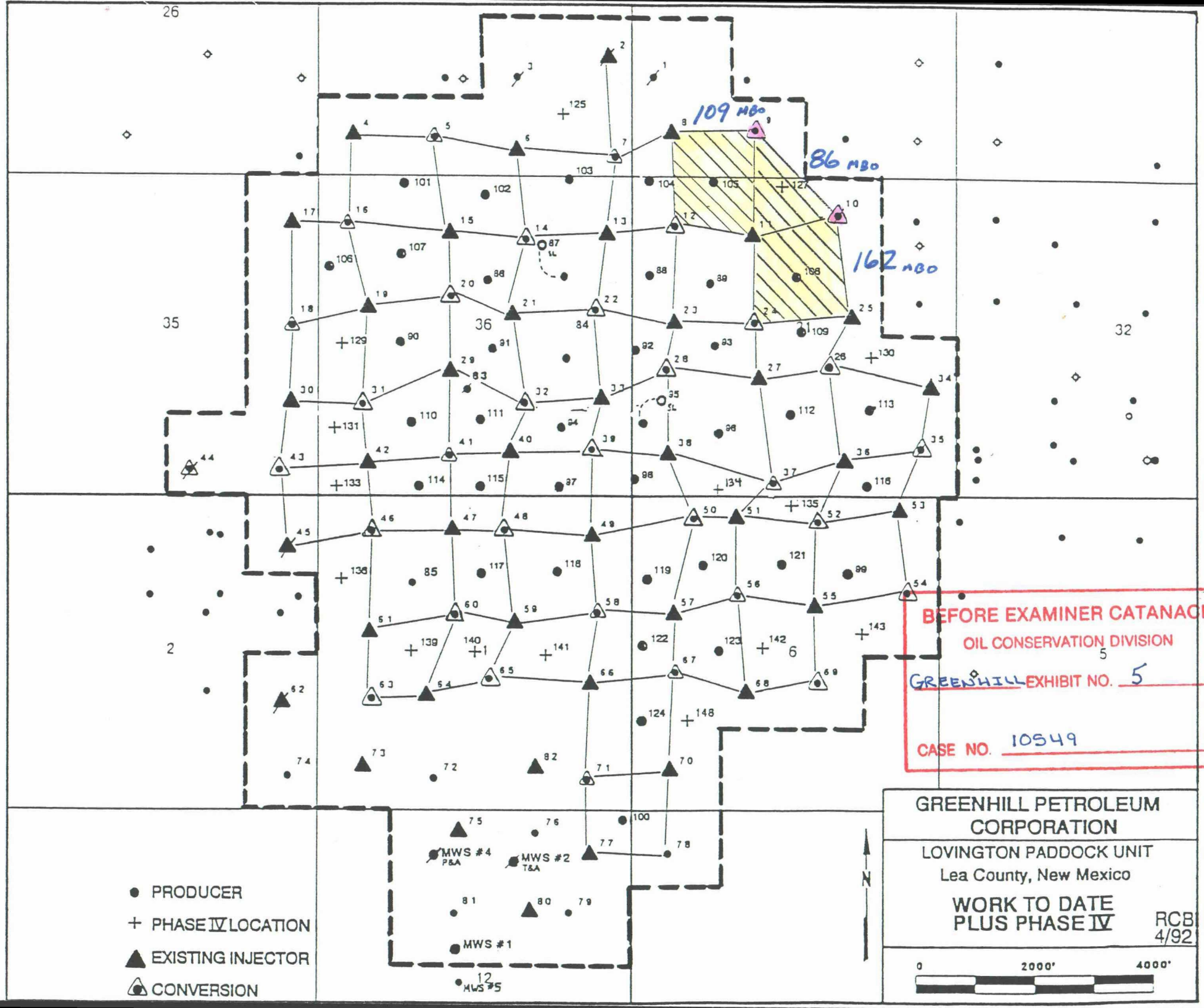
TEXACO (OPER)
LOVINGTON SA UNIT
TEXACO
(OPER)
LOVINGTON
(PADDOCK) UNIT
WEST
LOVINGTON
UNIT
TEXACO (OPER.)
LOVINGTON WEST
MIDLAND
LOVINGTON
LOWER DOLLEY
EMERALD
NEW MEX
483
City of Lovington
State



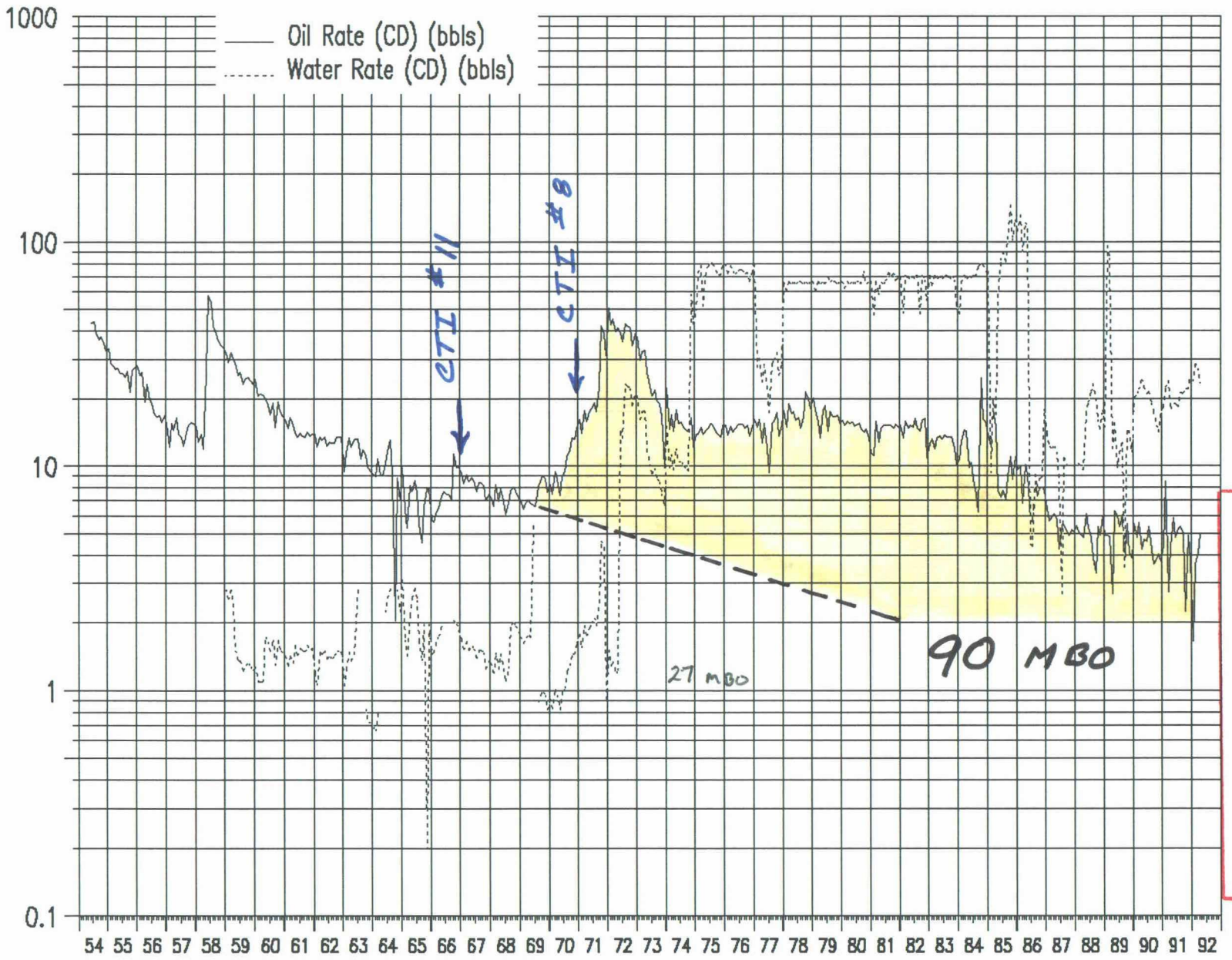
BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
GREENHILL EXHIBIT NO. 4A
CASE NO. 10549

GREENHILL PETROLEUM CORPORATION
LOVINGTON PADDOCK UNIT
Lea County, New Mexico
8/92


109 MBO
86 MBO
162 MBO
26
35
36
32
2
MWS #4 P&A
MWS #2 T&A
MWS #1
MWS #5
PRODUCER
PHASE IV LOCATION
EXISTING INJECTOR
CONVERSION
N
BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
GREENHILL EXHIBIT NO. 5
CASE NO. 10549
GREENHILL PETROLEUM CORPORATION
LOVINGTON PADDOCK UNIT
Lea County, New Mexico
WORK TO DATE PLUS PHASE IV
RCB 4/92
0
2000'
4000'

WELL: LPU # 09

UNIT : LPU

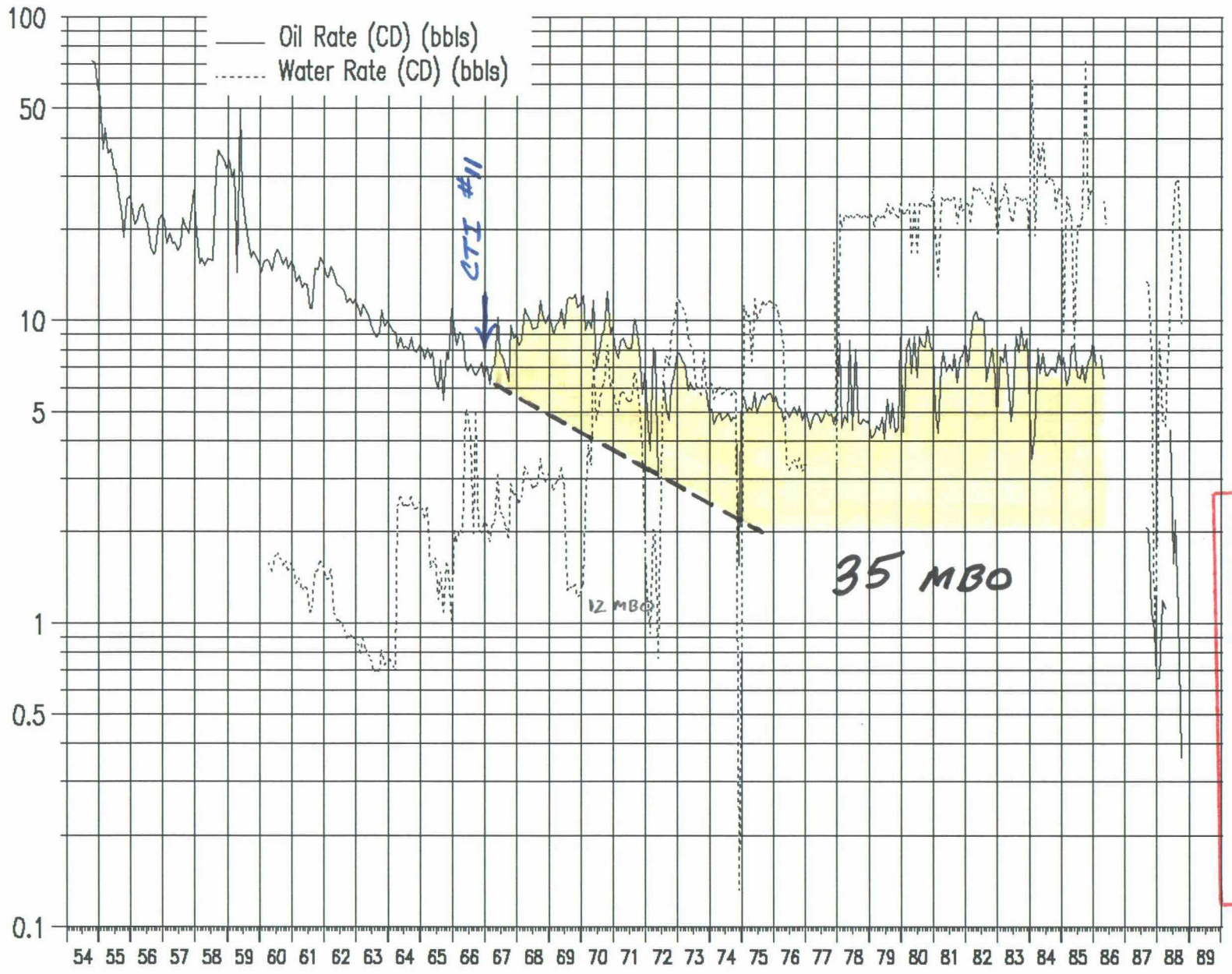


BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
GREENHILL EXHIBIT NO. 6
CASE NO. 10549

GPC Fri Sep 11 17:08:25 1992

WELL: LPU # 10

UNIT : LPU

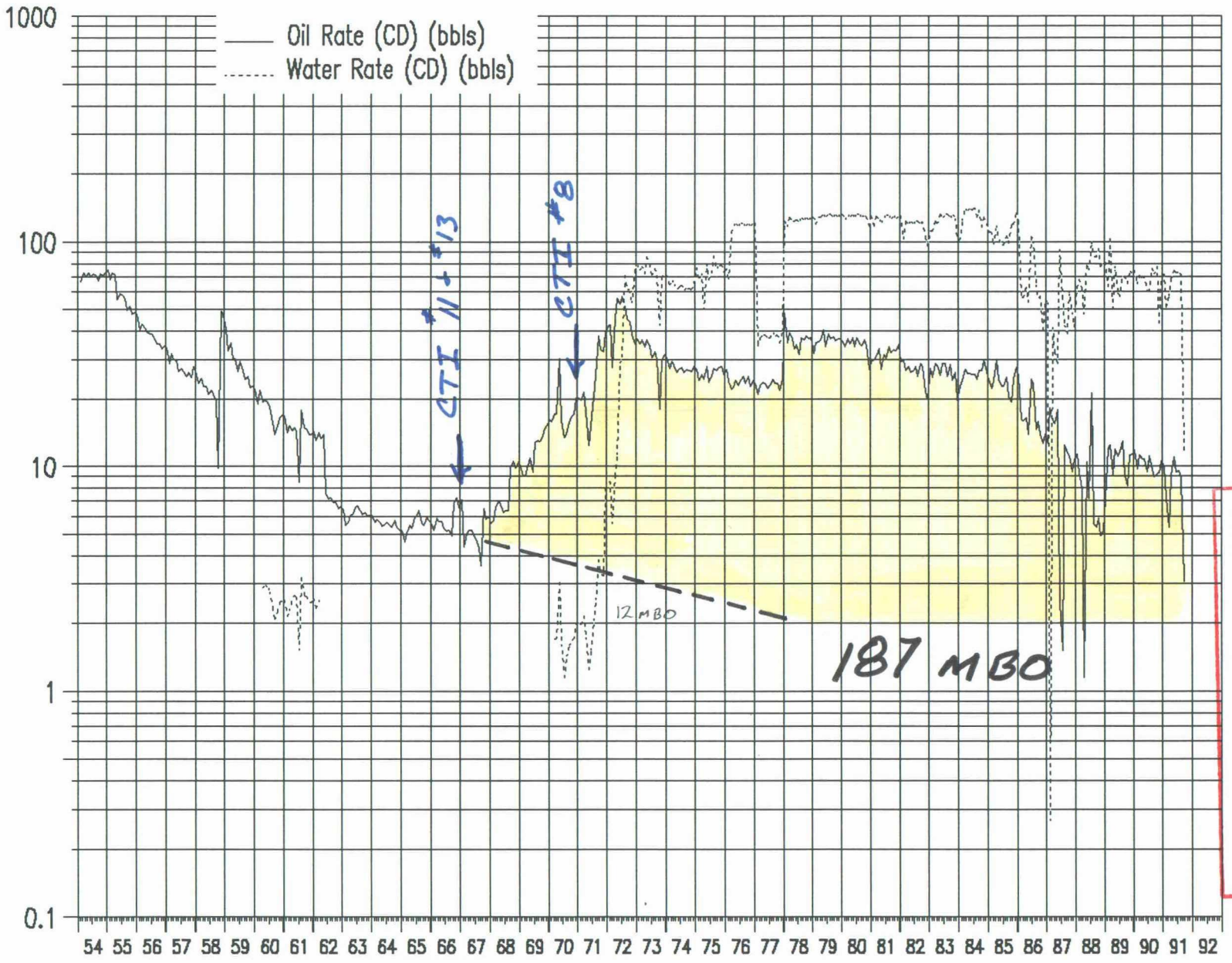


BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
GREENHILL EXHIBIT NO. 7
CASE NO. 10549

GPC Fri Sep 11 17:09:54 1992

WELL: LPU # 07

UNIT : LPU



BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
GREENHILL EXHIBIT NO. 8
CASE NO. 10549

GPC Fri Sep 11 17:05:47 1992