

wfx 7-17-95

674



## Shell Western E&P Inc.

An affiliate of Shell Oil Company

P. O. Box 576  
Houston, TX 77001

June 26, 1995

State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
2040 South Pacheco  
Santa Fe, NM 87505

Gentlemen:

SUBJECT: EXPANSION OF WATERFLOOD PROJECT  
SHELL - NORTHEAST DRINKARD UNIT  
NORTH EUNICE BLINBRY-TUBB-DRINKARD OIL & GAS POOL  
WELL NOS. 110, 224, 308, 318 & 902  
LEA COUNTY, NEW MEXICO

Shell Western E&P Inc. (SWEPI) respectfully requests administrative approval for expansion of the subject waterflood project. Division Order No. R-8541 granted November 9, 1987, authorized SWEPI to conduct the Northeast Drinkard Unit Waterflood Project within the subject pool.

The following information is submitted in support of this request:

1. Form C-108, with miscellaneous data attached;
2. A map reflecting the location of each of the proposed injection wells. Each map identifies wells and leases located within a two (2) miles radius of each of the proposed injectors and reflects a one-half (1/2) mile radius around each of the proposed injectors, this area being described as the well's Area of Review;
3. An Injection Well Data Sheet for each of the proposed injectors;
4. Tabulation of Data on wells located within the Area of Review;
5. List of Offset Operators and Surface Owners;
6. An Affidavit of Publication and "Legal Notice" newspaper clipping, and
7. All entities in Item Five have been notified by certified mail. (Copies of certified receipts are attached.)

Should you need any additional information or have any questions regarding this application, please contact the undersigned at (713) 544-3226.

Yours very truly,

A handwritten signature in black ink.

Yvonne T. Iverson  
Western Asset - Asset Administration  
Continental Division

cc: State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
P. O. Box 1980  
Hobbs, NM 88241-1980

State of New Mexico  
Office of Land Commissioner  
P. O. Box 1148  
Santa Fe, NM 87504-1148

Offset Operators (See Attached List)

Surface Owners (See Attached List)

**NORTHEAST DRINKARD UNIT  
LIST OF OFFSET OPERATORS & SURFACE OWNERS**

**OFFSET OPERATORS**

S.E. Cone, Jr.  
P. O. Box 10321  
Lubbock, TX 79408-3321

Conoco Inc.  
1410 N. West County Road  
Hobbs, NM 88240

Elliott Oil Company  
P. O. Box 1355  
Roswell, NM 88202-1355

Exxon Corporation  
P. O. Box 1600  
Midland, TX 79702-1600

John H. Hendrix, Corporation  
P. O. Box 910  
Eunice, NM 88231

**SURFACE OWNERS**

Muriel T. McNeill,  
Individually and as  
Trustee of the Will N. Terry Trust  
P. O. Box 686  
Hobbs, NM 88241

Marcia McNeill Blackburn  
P. O. Box 3989  
Abilene, TX 79604

Marilyn McNeill Cates  
5661 S. Crestbrook  
Morrison, CO 80465

Chris M. Furneaux  
P. O. Box 575  
Walden, CO 80480

Millard Deck  
C/O National Bank of Texas  
1777 N.E. Loop, #410, Suite 1250  
San Antonio, TX 78217

Dallas McCasland  
P. O Box 206  
Eunice, NM 88231

State of New Mexico  
Office of Land Commissioner  
P. O. Box 1148  
State Land Office Bldg.  
Santa Fe, NM 87504-1148

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose:  Secondary Recovery  Pressure Maintenance  Disposal  Storage  
Application qualifies for administrative approval?  yes  no
- II. Operator: SHELL WESTERN E&P INC.
- Address: P. O. BOX 576, HOUSTON, TX 77001 (5236 WCK)
- Contact party: YVONNE T. IVERSON Phone: (713) 544-3226
- 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 R-8541.
- 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: YVONNE T. IVERSON Title: LAND REPRESENTATIVE

Signature: Yvonne T. Iverson Date: 6/26/95

- \* 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.

HEARING SEPTEMBER 24, 1987

CASE NO. 9232, ORDER NO. R-8541

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

## III. WELL DATA

- A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:
- (1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.
  - (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
  - (3) A description of the tubing to be used including its size, lining material, and setting depth.
  - (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

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

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

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

## XIV. PROOF OF NOTICE

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

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

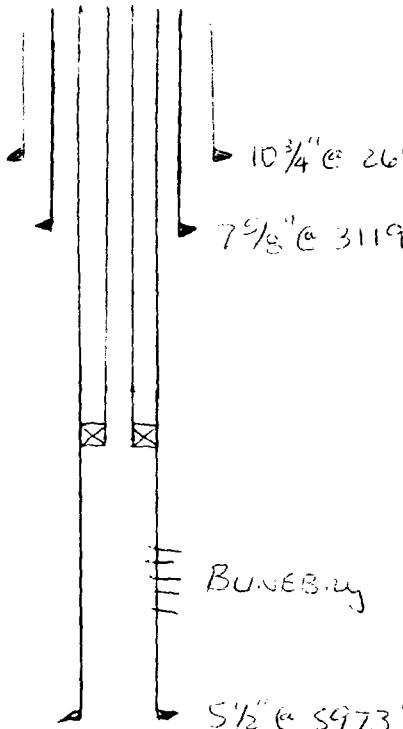
- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

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

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

## INJECTION WELL DATA SHEET

OPERATOR SWENI  
LEASE (Fleming CONCERN)  
WELL NO. NORTHEAST DRUNKAN UNIT HAWK B-3 #18  
FOOTAGE LOCATION SECTION TOWNSHIP RANGE  
110 1980 FTL & 1980 FBL S-21S-37E

SchematicTabular DataSurface Casing

Size 10 3/4" " Cemented with 250 sx.  
TOC SURE feet determined by CIRC  
Hole size 10 1/2"

Intermediate Casing

Size 7 1/8" " Cemented with 1150 sx.  
TOC 1350' feet determined by \_\_\_\_\_  
Hole size 7 1/4"

Long string

Size 5 1/2" " Cemented with 400 sx.  
TOC 3000' feet determined by \_\_\_\_\_  
Hole size 5 1/4"  
Total depth 5973'

Injection interval

5750 feet to 5950 feet PERFORATED  
(perforated or open-hole, indicate which)

Tubing size 2 3/8" lined with FIBERGLASS EPOXY set in a  
(CHUBERSON UNIT VI) (material) packer at ± 5700 feet  
(brand and model)

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation BUNEBLY

2. Name of Field or Pool (if applicable) N. ELGIN I/I/D OIL & GAS POOL

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

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

BUNEBLY OIL & GAS

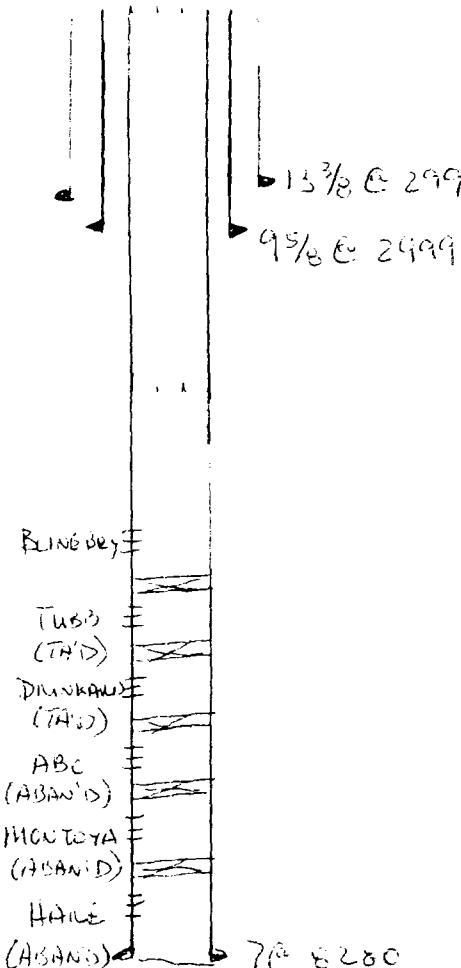
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used)

None

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 SWEP! LEASE (FORMERLY CHEVRON'S)  
WELL NO. 224 FOOTAGE LOCATION NORTHEAST DRINKARD UNIT (HARRY LEONARD #7)  
SECTION 2317 TOWNSHIP C-215 RANGE 3IE

SchematicTabular DataSurface Casing

Size 13 3/8" Cemented with 350 sx.

TOC SURF feet determined by CILC

Hole size \_\_\_\_\_

Intermediate Casing

Size 9 5/8" Cemented with 1657 sx.

TOC 235 feet determined by TS

Hole size \_\_\_\_\_

Long string

Size 7" Cemented with 700 sx.

TOC \_\_\_\_\_ feet determined by \_\_\_\_\_

Hole size \_\_\_\_\_

Total depth 8280

Injection interval

5740 feet to 6800 feet  
(perforated or open-hole, indicate which)

PERFORATED

Tubing size 2 3/8" lined with FIBERGLASS set in a

GUBERSON UNI III packer at 7580 feet

(brand and model)

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation BUNEBAY / TUBB / DRINKARD

2. Name of Field or Pool (if applicable) N. ELGIN B/T/D CIL & GAS POOL

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

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

HARE CIL & GAS

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) HARE (5000-5220) CIBPC 7712

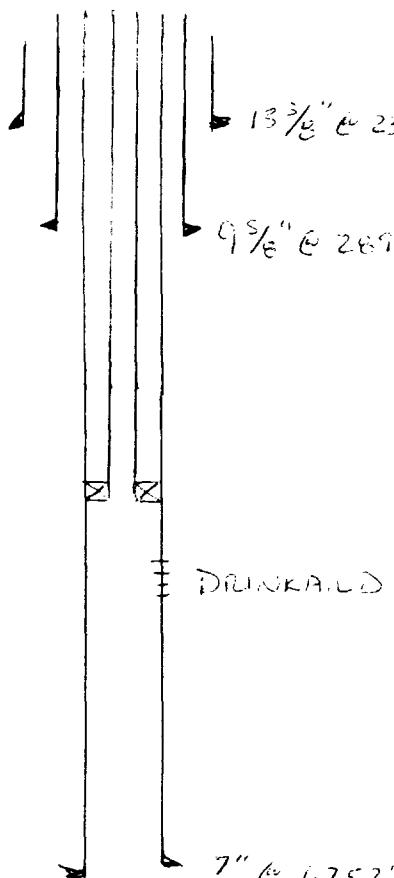
MONToya (7516-7102) CIBPC 7350, HBC (7112-7213) CIBPC 7050,

DRINKARD (6434-6872) CICKE 6409, LIBB (6382-6569) CIBPC 6350

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 <u>SWEPI</u>	LEASE <u>NORTHEAST DRINKARD UNIT</u>	FORMERLY CONOCO'S)
WELL NO. <u>30E</u>	FOOTAGE LOCATION <u>1980' FSL &amp; 640' PEL</u>	SECTION <u>HAWK B-3 #11</u>
		TOWNSHIP <u>7-21S-37E</u>
		RANGE

SchematicTabular DataSurface Casing

Size 13 3/8" Cemented with 2.50 sx.  
TOC SURF. feet determined by CIRC.  
Hole size 17 1/2"

Intermediate Casing

Size 9 5/8" Cemented with 1100 sx.  
TOC 1350 feet determined by TS  
Hole size 12 1/4"

Long string

Size 7" Cemented with 425 sx.  
TOC 2850 feet determined by TS  
Hole size 8 1/4"  
Total depth 6753'

Injection interval

6566 feet to 6750 feet PERFORATED

(perforated or open-hole, indicate which)

Tubing size 2 3/8" lined with FIBERGLASS EPOXY set in a  
GUBERSON UNI-EI (material) packer at ± 6500' feet  
(brand and model)

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation BLUEROB / TURB / DRINKARD

2. Name of Field or Pool (if applicable) N. ELGIN 1/T/D OIL & GAS POOL

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

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

DRINKARD OIL & GAS

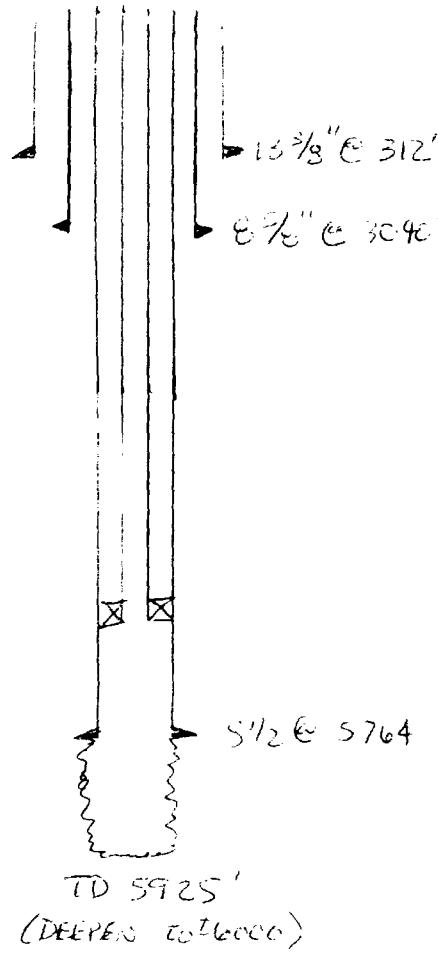
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) \_\_\_\_\_

A/C

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 SWEDI LEASE NORTHEAST DUNKALIS UNIT (FORMERLY CHEUNG'S)  
WELL NO. 31E FOOTAGE LOCATION 1650 FSL & 1980 FEL SECTION HARRY LEONARD #18  
TOWNSHIP 2-21S-37E RANGE

SchematicTabular DataSurface Casing

Size 13 3/8" " Cemented with 375 sx.

TOC Surf feet determined by CIRC

Hole size 17 1/2"

Intermediate Casing

Size 8 5/8" " Cemented with 1650 sx.

TOC Surf feet determined by CIRC

Hole size 11"

Long string

Size 5 1/2" " Cemented with 675 sx.

TOC 3375 feet determined by \_\_\_\_\_

Hole size 7 1/2"

Total depth 5925

Injection interval

5764 feet to 6000 feet OPEN HOLE  
 (perforated or open-hole, indicate which)

Tubing size 2 3/8" lined with FIBERGLASS EPOXY set in a  
GUIBERSON UNI III (material) packer at 15700 feet  
 (brand and model)

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation BUNEBRAY

2. Name of Field or Pool (if applicable) N. EUNICE B/T/D C/L & G/H Pool

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

If no, for what purpose was the well originally drilled? BELVE/BAY  
C/L & G/H

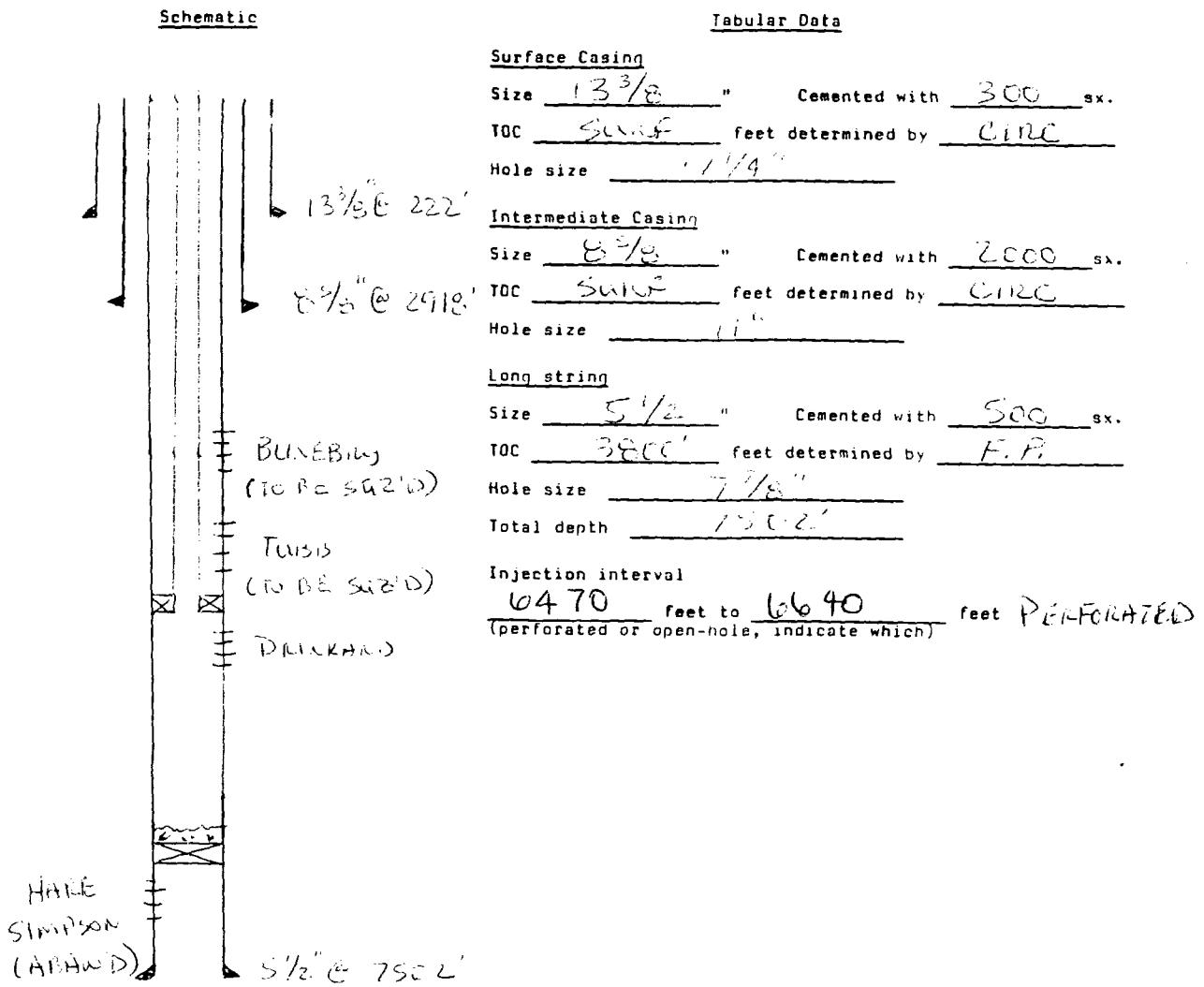
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used)

A10

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 SWEPI LEASE (Formerly SWEPIS)  
 WELL NO. 5102 FOOTAGE LOCATION NORTHEAST DRINKARD UNIT TOWNSHIP TULVEN #10  
 SECTION SECTION RANGE 22 - 215 - 37E



Tubing size 2 3/8" lined with FIBERGLASS EPOXY set in a  
GUBERSON UNI II (material)  
 (brand and model) packer at ± 6,400 feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation BUNEBILY / TULVIS / DRINKARD
2. Name of Field or Pool (if applicable) N. ELKIE B/E/D C16 & G15 Pool

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

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

HARE SIMPSON C16 & G15

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)

YES, HARE SIMPSON (1356 - 1459), CIBP CAPPED  
w/ CMT @ 7300'

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

**ATTACHMENT FOR FORM C-108**  
**NORTHEAST DRINKARD UNIT**  
**MISCELLANEOUS DATA**

**III. WELL DATA**

- B.(5) next higher oil zone - Paddock @ +/- 5200'  
next lower oil zone - Abo @ +/- 6750'

**VII. PROPOSED OPERATION**

1. Average Injection Rate 1350 BWPD  
Maximum Injection Rate 2000 BWPD
2. Closed Injection System.
3. Average Injection Pressure 1000 psi  
Maximum Injection Pressure Approximately 1200 psi  
(Will not exceed 0.2 psi/ft.  
to top perforation.)
4. Source Water - San Andres - Analysis attached.

**IX. STIMULATION PROGRAM**

Acid treatment schedule will be determined following evaluation of GR/CNL/CCL  
( to be run prior to perforating the unitized interval).

SHELL WESTERN E&P INC.  
WATER ANALYSIS REPORT  
WESTERN DIVISION

$\text{CaCO}_3$  0.44  
 $\text{CaSO}_4$  ✓

SAMPLE DESCRIPTION

COMPANY Shell Western E&P, Inc.  
FIELD CDU  
LEASE  
WELL NUMBER  
COUNTY & STATE  
PRODUCING FORMATION San Andres  
WHERE SAMPLED Water Supply Well #200  
REMARKS

LABORATORY Martin Water Labs., Inc.  
LABORATORY NUMBER 387246  
DATE SAMPLE TAKEN 3-17-87  
DATE SAMPLE RECEIVED 3-26-87  
DATE SAMPLE REPORTED 3-30-87

## CHEMICAL AND PHYSICAL PROPERTIES

TOTAL HARDNESS Mg/L AS CaCO<sub>3</sub> \_\_\_\_\_

TOTAL ALKALINITY Mg/L AS CaCO<sub>3</sub> 760

CONSTITUENT	M/LITER	REACT. COEF.	MOL/LITER
SODIUM (INCL POTASSIUM) AS Na +	10,057	0.04350	437.3
CALCIUM - Ca ++	1,000	0.04930	49.9
MAGNESIUM - Mg ++	334	0.08224	27.5
IRON TOTAL - Fe +++ & Fe + + +	2.9	0.03581	0.1
BARIUM - Ba ++		0.01460	
POSITIVE SUB-TOTAL	11,394		514.8
CHLORIDE - Cl -	14,914	0.02620	420.6
<del>BICARBONATE - HCO3 -</del>	927	0.01639 *	15.2
SULFATE - SO4 =	2,027	0.02082	42.2
HYDROXYL - OH -	0	0.05860	0.0
SULFIDE - S -	589	0.06238	36.8
NEGATIVE SUB--TOTAL	18,457		514.8
TOTAL DISSOLVED SOLIDS	29,851		1,029.6

**BICARBONATE**

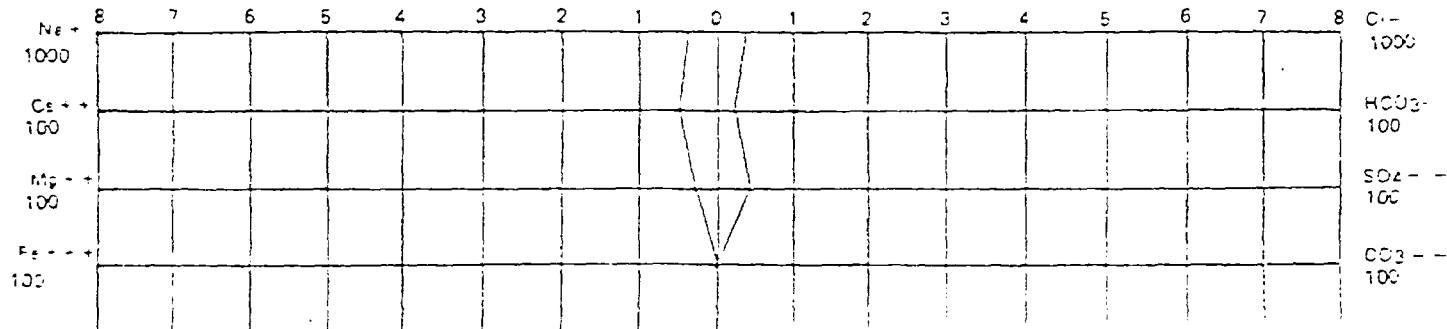
SPECIFIC GRAVITY 1.0222 @ 60 OF

pH 6.74 RES. 0.270 G 89 °F

**ANALYST** —

REQUESTED BY

REACTION VALUE = (MILLIGRAMS/LITER) X (REACTION COEFFICIENT)  
REACTION COEFFICIENT = VALENCE ÷ MOLECULAR WEIGHT.



SHELL WESTERN E&P INC.  
WATER ANALYSIS REPORT  
MID-CONTINENT DIVISION

SAMPLE DESCRIPTION

COMPANY SWEPI  
FIELD DRINKARD  
LEASE TURNER  
WELL NUMBER 2  
COUNTY & STATE LEA, NEW MEXICO  
PRODUCING FORMATION BLINEBERRY  
WHERE SAMPLED \_\_\_\_\_  
REMARKS \_\_\_\_\_

LABORATORY \_\_\_\_\_  
LABORATORY NUMBER \_\_\_\_\_  
DATE SAMPLE TAKEN 4/8  
DATE SAMPLE RECEIVED 4/8  
DATE SAMPLE REPORTED 4/9

## CHEMICAL AND PHYSICAL PROPERTIES

TOTAL HARDNESS Mg/L AS CaCO<sub>3</sub> 30500

TOTAL ALKALINITY Mg/L AS CaCO<sub>3</sub> 202

CONSTITUENT	MOL/LITER	REACT. COEF.	MOL/LITER
SODIUM (INCL POTASSIUM) AS Na -	46995	0.04350	
CALCIUM - Ca ++	7400	0.04990	
MAGNESIUM - Mg ++	2916	0.08224	
IRON TOTAL - Fe +++ & Fe + + +	44	0.03581	
BARIUM - Ba ++	0	0.01460	
POSITIVE SUB-TOTAL	57355		
CHLORIDE - Cl -	93035	0.02820	
CARBONATE & BICARBONATE - CO3 - & HCO3 -	246	0.01639 *	
SULFATE - SO4 =	1262	0.02382	
HYDROXYL - OH -	0	0.05830	
SULFIDE - S =	0	0.06238	
NEGATIVE SUB-TOTAL	94543		
TOTAL DISSOLVED SOLIDS	151898		

**BICARBONATE**

SPECIFIC GRAVITY 1.1068 at 60 °F PH 6.33 RES. .069 at 80 °F

**ANALYST** \_\_\_\_\_  
**REQUESTED BY** \_\_\_\_\_

**REACTION VALUE = (MILLIGRAMS/LITER) X (REACTION COEFFICIENT)**  
**REACTION COEFFICIENT = VALENCE + MOLECULAR WEIGHT.**

SHELL WESTERN E&P INC.  
WATER ANALYSIS REPORT  
WESTERN DIVISION

$\text{CaCO}_3$  -0.87 (none)  
 $\text{CaSO}_4$  ✓

SAMPLE DESCRIPTION

COMPANY Shell Western E&P, Inc.  
FIELD Drinkard  
LEASE Argo  
WELL NUMBER #5  
COUNTY & STATE Les, NM  
PRODUCING FORMATION Tubb  
WHERE SAMPLED   
REMARKS

LABORATORY Martin Water Labs., Inc.  
LABORATORY NUMBER 38790  
DATE SAMPLE TAKEN \_\_\_\_\_  
DATE SAMPLE RECEIVED 3-12-87  
DATE SAMPLE REPORTED 3-16-87

## CHEMICAL AND PHYSICAL PROPERTIES

TOTAL HARDNESS Mg/L AS CaCO<sub>3</sub> 5,750

TOTAL ALKALINITY Mg/L AS CaCO<sub>3</sub> \_\_\_\_\_ 90

CONSTITUENT	MG/LITER	REACT. COEF.	MG/LITER
SODIUM (INCL. POTASSIUM) AS Na -	6,152	0.04352	267.4
CALCIUM - Ca ++	1,640	0.04960	81.8
MAGNESIUM - Mg ++	401	0.06224	33.0
IRON TOTAL - Fe ++ & Fe + + +	255	0.03581	9.2
BARIUM - Ba ++	0	0.01460	0.0
POSITIVE SUB-TOTAL	8,448		391.4
CHLORIDE - Cl -	13,494	0.02620	380.5
<del>CARBONATE &amp; BICARBONATE - CO3 - &amp; HCO3 -</del>	110	0.01639 *	1.8
SULFATE - SO4 -	438	0.02982	9.1
HYDROXYL - OH -	0	0.05880	0.0
SULFIDE - S =	0.0	0.06238	0.0
NEGATIVE SUB--TOTAL	14,041		391.4
TOTAL DISSOLVED SOLIDS	22,490		782.8

• BICARBONATE

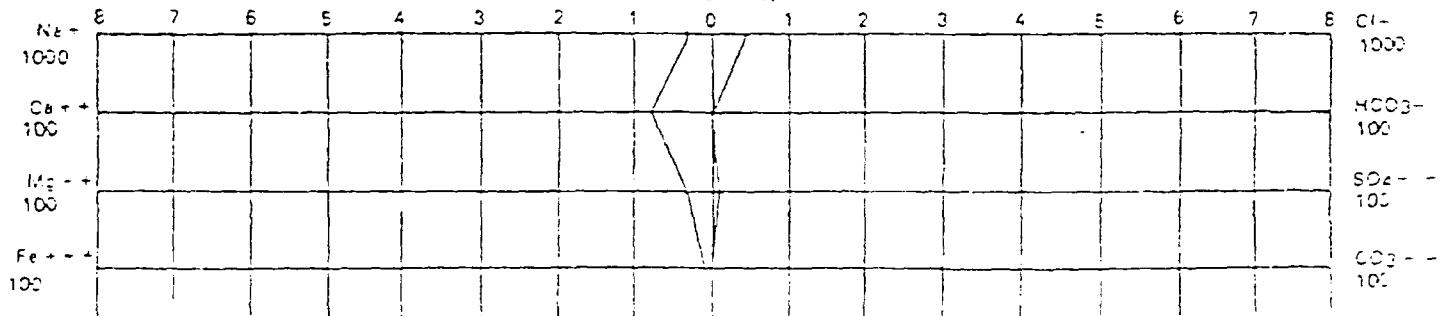
SPECIFIC GRAVITY 1.0181 @ 60 °F pH 6.02 RES. 0.390 @ 80 °F

ANALYST

REQUESTED BY

Mr. Donnie Anderson, Hobbs

**REACTION VALUE** = (MILLIGRAMS/LITER) X (REACTION COEFFICIENT)  
**REACTION COEFFICIENT** = VALENCE ÷ MOLECULAR WEIGHT.



SHELL WESTERN E&amp;P INC.

## WATER ANALYSIS REPORT

## WESTERN DIVISION

 $\text{CaCO}_3 - 0.58(\text{none})$  $\text{CaSO}_4 \quad N$ SAMPLE DESCRIPTION

COMPANY Shell Western E&P, Inc.  
 FIELD Drinkard  
 LEASE Argo "A"  
 WELL NUMBER #3  
 COUNTY & STATE Lee, NM  
 PRODUCING FORMATION Drinkard  
 WHERE SAMPLED \_\_\_\_\_  
 REMARKS \_\_\_\_\_

LABORATORY Mettler Water Labs., Inc.  
 LABORATORY NUMBER 38791  
 DATE SAMPLE TAKEN \_\_\_\_\_  
 DATE SAMPLE RECEIVED 3-12-87  
 DATE SAMPLE REPORTED 3-16-87

CHEMICAL AND PHYSICAL PROPERTIES

TOTAL HARDNESS Mg/L AS CaCO<sub>3</sub> 23,200 TOTAL ALKALINITY Mg/L AS CaCO<sub>3</sub> 106

CONSTITUENT	Mg/LITER	REACT. COEF.	Mg-LITER
SODIUM (INCL. POTASSIUM) AS Na <sup>+</sup>	26,603	0.04350	1,156.6
CALCIUM - Ca <sup>++</sup>	6,920	0.04890	345.3
MAGNESIUM - Mg <sup>++</sup>	1,434	0.05224	117.9
IRON TOTAL - Fe <sup>++</sup> & Fe <sup>+++</sup>	351	0.03581	12.6
BARIUM - Ba <sup>++</sup>	0	0.01450	0.0
POSITIVE SUB-TOTAL	35,308		1,632.4
CHLORIDE - Cl <sup>-</sup>	57,525	0.02820	1,622.2
DISSOCIATED BICARBONATE - <del>HCO<sub>3</sub><sup>-</sup></del> & HCO <sub>3</sub> <sup>-</sup>	129	0.01636 *	2.1
SULFATE - SO <sub>4</sub> <sup>2-</sup>	390	0.02082	8.1
HYDROXYL - OH <sup>-</sup>	0	0.05380	0.0
SULFIDE - S <sup>2-</sup>	0.0	0.06238	0.0
NEGATIVE SUB-TOTAL	58,045		1,632.4
TOTAL DISSOLVED SOLIDS	93,353		3,264.8

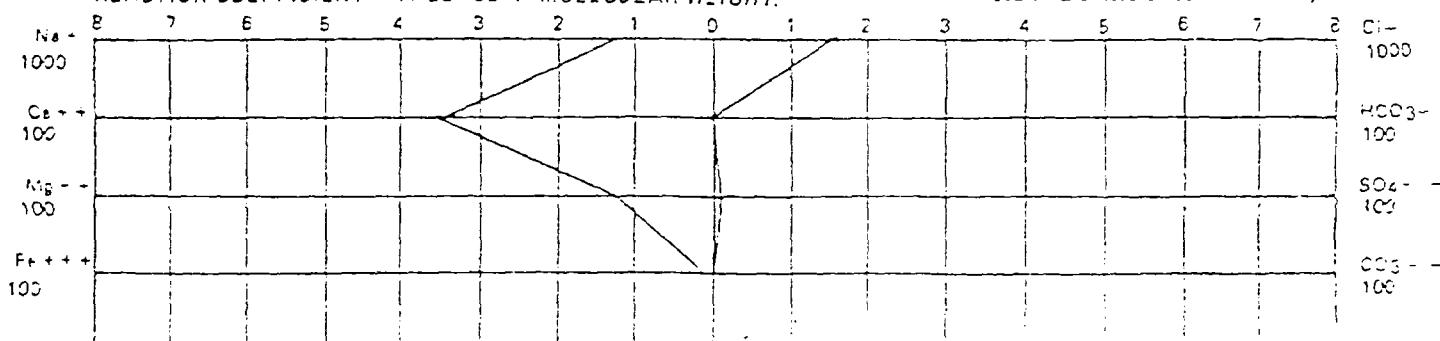
\* BICARBONATE

SPECIFIC GRAVITY 1.0651 @ 60 OF pH 5.9 RES 0.098 @ 60 OF

ANALYST \_\_\_\_\_

REQUESTED BY \_\_\_\_\_

Mr. Donnie Anderson, Hobbs

REACTION VALUE = (MILLIGRAMS/LITER) X (REACTION COEFFICIENT)  
REACTION COEFFICIENT = VALENCE +/- MOLECULAR WEIGHT.

$\text{CaCO}_3 \quad 0.63$ 

SHELL WESTERN E&P INC.  
WATER ANALYSIS REPORT

## WESTERN DIVISION

 $\text{CaSO}_4 \quad 10.22$ SAMPLE DESCRIPTION

COMPANY Shell Western E&P, Inc.  
 FIELD Drinkard  
 LEASE Sarkey  
 WELL NUMBER \_\_\_\_\_  
 COUNTY & STATE Lea, NM  
 PRODUCING FORMATION \_\_\_\_\_  
 WHERE SAMPLED \_\_\_\_\_  
 REMARKS \_\_\_\_\_

LABORATORY Martin Water Labs., Inc.  
 LABORATORY NUMBER 48739  
 DATE SAMPLE TAKEN 3-30-87  
 DATE SAMPLE RECEIVED 4-2-87  
 DATE SAMPLE REPORTED 4-8-87

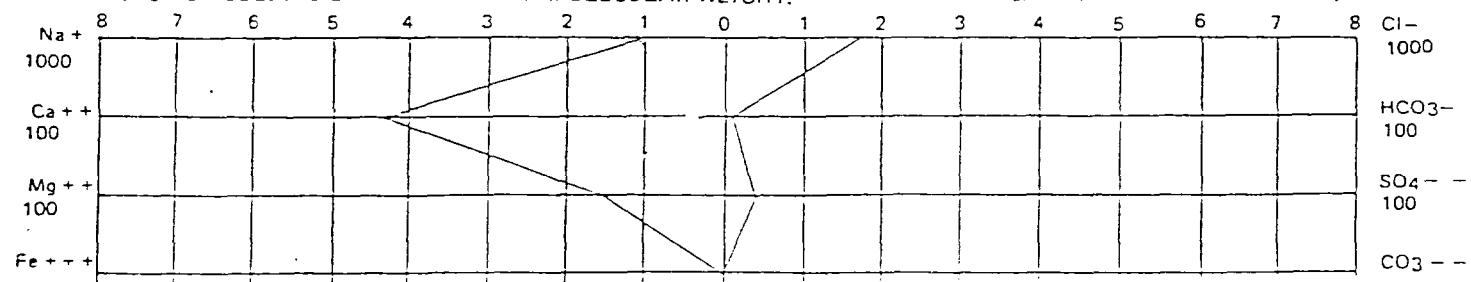
CHEMICAL AND PHYSICAL PROPERTIES

TOTAL HARDNESS Mg/L AS $\text{CaCO}_3$		TOTAL ALKALINITY Mg/L AS $\text{CaCO}_3$	
CONSTITUENT	Mg/LITER	REACT. COEF.	Meq/LITER
SODIUM (INCL. POTASSIUM) AS $\text{Na}^+$	25,607	0.04350	1,113.4
CALCIUM - $\text{Ca}^{++}$	8,680	0.04990	433.1
MAGNESIUM - $\text{Mg}^{++}$	1,920	0.08224	157.9
IRON TOTAL - $\text{Fe}^{++}$ & $\text{Fe}^{+++}$	21.6	0.03581	0.8
BARIUM - $\text{Ba}^{++}$	0	0.01460	0.0
POSITIVE SUB-TOTAL	36,228		1,705.2
CHLORIDE - $\text{Cl}^-$	58,946	0.02820	1,662.3
CARBONATE & BICARBONATE - $\text{CO}_3^{--}$ & $\text{HCO}_3^-$	403	0.01639 *	6.6
SULFATE - $\text{SO}_4^{--}$	1,742	0.02082	36.3
HYDROXYL - $\text{OH}^-$	0	0.05880	0.0
SULFIDE - $\text{S}^{=}$	0.0	0.06238	0.0
NEGATIVE SUB-TOTAL	61,090		1,705.2
TOTAL DISSOLVED SOLIDS	97,318		3,410.4

\* BICARBONATE

SPECIFIC GRAVITY 1.0770 @ 60 °F pH 6.49 RES. 0.096 @ 80 °FANALYST \_\_\_\_\_  
REQUESTED BY \_\_\_\_\_REACTION VALUE = (MILLIGRAMS/LITER) X (REACTION COEFFICIENT)  
REACTION COEFFICIENT = VALENCE ÷ MOLECULAR WEIGHT.

Mr. Donnie Anderson, Hobbs



# CORE DATA SUMMARY

$k \geq 0.1$  md

	<u>BLINEBRY</u>	<u>TUBB</u>	<u>DRINKARD</u>
POROSITY (%)	9.79	8.28	11.00
PERM. (md)	2.45	1.19	2.45
LITHOLOGY	DOLOMITE PACKSTONE	SANDY DOLOMITE	LIMESTONE PACKSTONE GRAINSTONE
PORE TYPES	BP, BC, MO		BP, MO



**UNICHEM  
INTERNATIONAL**

Home Office 707 N. Leech, P.O. Box 1499 / Hobbs, NM 88240 / Ph. 505/393-7751, TWX 910/988-0010

WATER ANALYSIS

ALL RESULTS EXPRESSED IN PPM UNLESS OTHERWISE NOTED

CLIENT NAME:	SHELL OIL CO.	DATE:	09/08/87
FACILITY:	DRINKARD	SAMPLE DATE:	09/08/87
LOCATION:	SEC. 10	DATE ANALYZED:	09/08/87
SAMPLE IDENTIFICATION :		NORTH	SOUTH

		7.43	7.45
PHENO ALKALINITY	(CaCO <sub>3</sub> )	NIL	NIL
TOTAL ALKALINITY	(CaCO <sub>3</sub> )	164	246
BICARBONATE	(HCO <sub>3</sub> )	200.1	300.1
CARBONATE	(CO <sub>3</sub> )	NIL	NIL
HYDROXIDE	(OH)	NIL	NIL
TOTAL HARDNESS	(CaCO <sub>3</sub> )	880	344
CALCIUM	(Ca)	200.0	78.4
CALCIUM	(CaCO <sub>3</sub> )	500	196
MAGNESIUM	(Mg)	91.2	35.5
MAGNESIUM	(CaCO <sub>3</sub> )	380	148
CHLORIDE	(Cl)	438	130
CHROMATE	(CrO <sub>4</sub> )	***	***
SULFATE	(SO <sub>4</sub> )	345	438
TOTAL PHOSPHATE	(PO <sub>4</sub> )	***	***
ORTHO PHOSPHATE	(PO <sub>4</sub> )	***	***
POLY PHOSPHATE	(PO <sub>4</sub> )	***	***
SILICA	(SiO <sub>2</sub> )	***	***
SILICA	(CaCO <sub>3</sub> )	***	***
SPECIFIC CONDUCTANCE	(mmhos)	2250	1270
IRON	(Fe)	***	***
CHOPPER	(Cu)	***	***

CALCULATED :

TOTAL DISSOLVED SOLIDS	1394	1231
SODIUM	(Na)	120

ANALYZED BY:

  
(HOBBS LAB)

APPROVED BY:

\*\* INDICATES THAT THIS TEST WAS NOT RUN



UNICHEM  
INTERNATIONAL

Home Office 707 N. Leech, P.O. Box 1499 / Hobbs, NM 88240 / Ph. 505/393-7751, TWX 910/986-0010

WATER ANALYSIS

ALL RESULTS EXPRESSED IN PPM UNLESS OTHERWISE NOTED

CLIENT NAME: SHELL OIL CO.  
FACILITY: NE DRINKARD  
LOCATION:

DATE: 09/21/87  
SAMPLE DATE: 09/21/87  
DATE ANALYZED: 09/21/87

SAMPLE IDENTIFICATION :

14

15

		14	15
pH		7.45	9.01
PHENO ALKALINITY	(CaCO <sub>3</sub> )	NIL	36
TOTAL ALKALINITY	(CaCO <sub>3</sub> )	248	120
BICARBONATE	(HCO <sub>3</sub> )	302.6	58.6
CARBONATE	(CO <sub>3</sub> )	NIL	43.2
HYDROXIDE	(OH)	NIL	NIL
TOTAL HARDNESS	(CaCO <sub>3</sub> )	344	248
CALCIUM	(Ca)	83.2	41.6
CALCIUM	(CaCO <sub>3</sub> )	208	104
MAGNESIUM	(Mg)	32.6	34.6
MAGNESIUM	(CaCO <sub>3</sub> )	136	144
CHLORIDE	(Cl)	148	160
CHROMATE	(CrO <sub>4</sub> )	***	***
SULFATE	(SO <sub>4</sub> )	250	164
TOTAL PHOSPHATE	(PO <sub>4</sub> )	***	***
ORTHO PHOSPHATE	(PO <sub>4</sub> )	***	***
POLY PHOSPHATE	(PO <sub>4</sub> )	***	***
SILICA	(SiO <sub>2</sub> )	***	***
SILICA	(CaCO <sub>3</sub> )	***	***
SPECIFIC CONDUCTANCE	(mmhos)	1001	924
IRON	(Fe)	***	***
COPPER	(Cu)	***	***

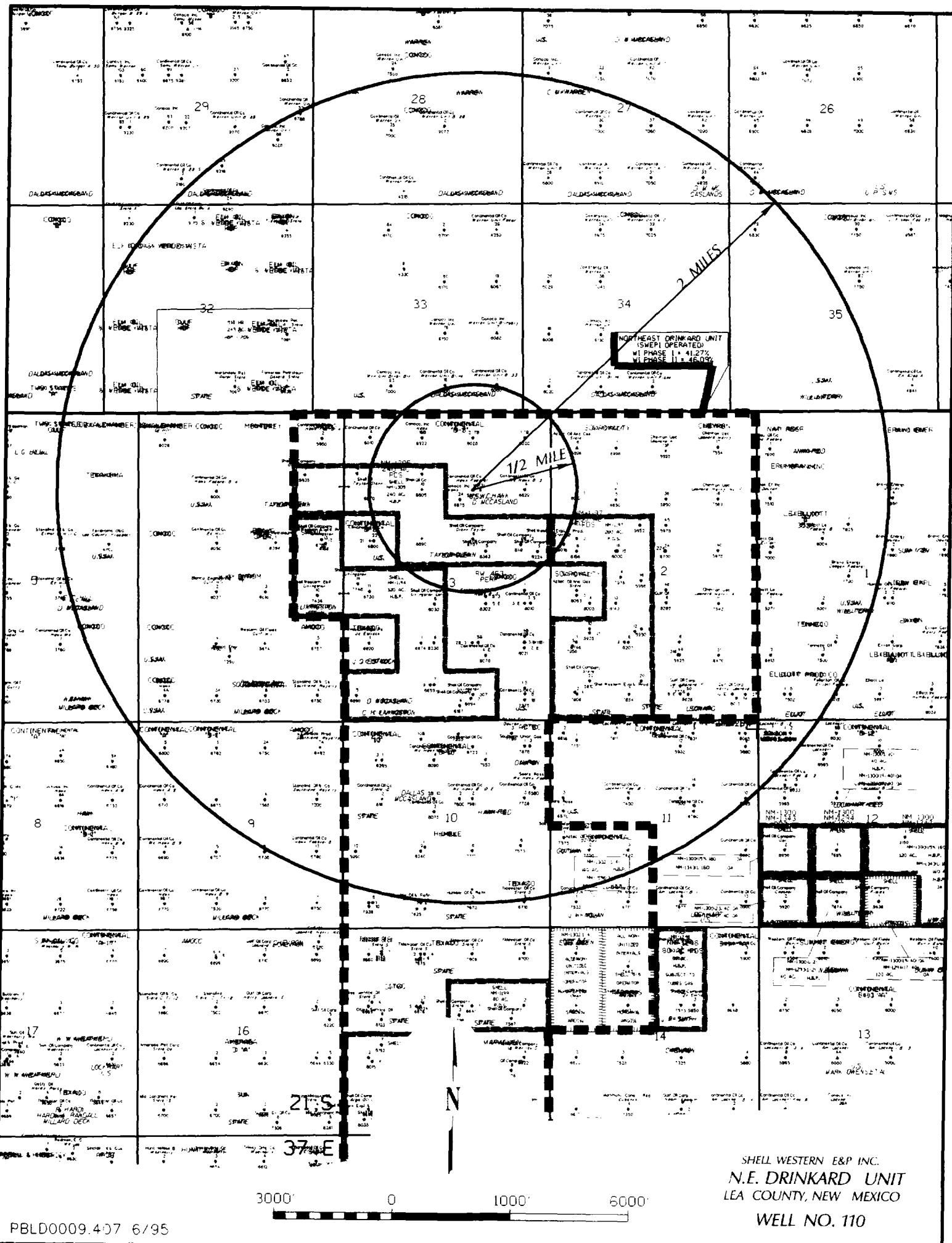
CALCULATED :

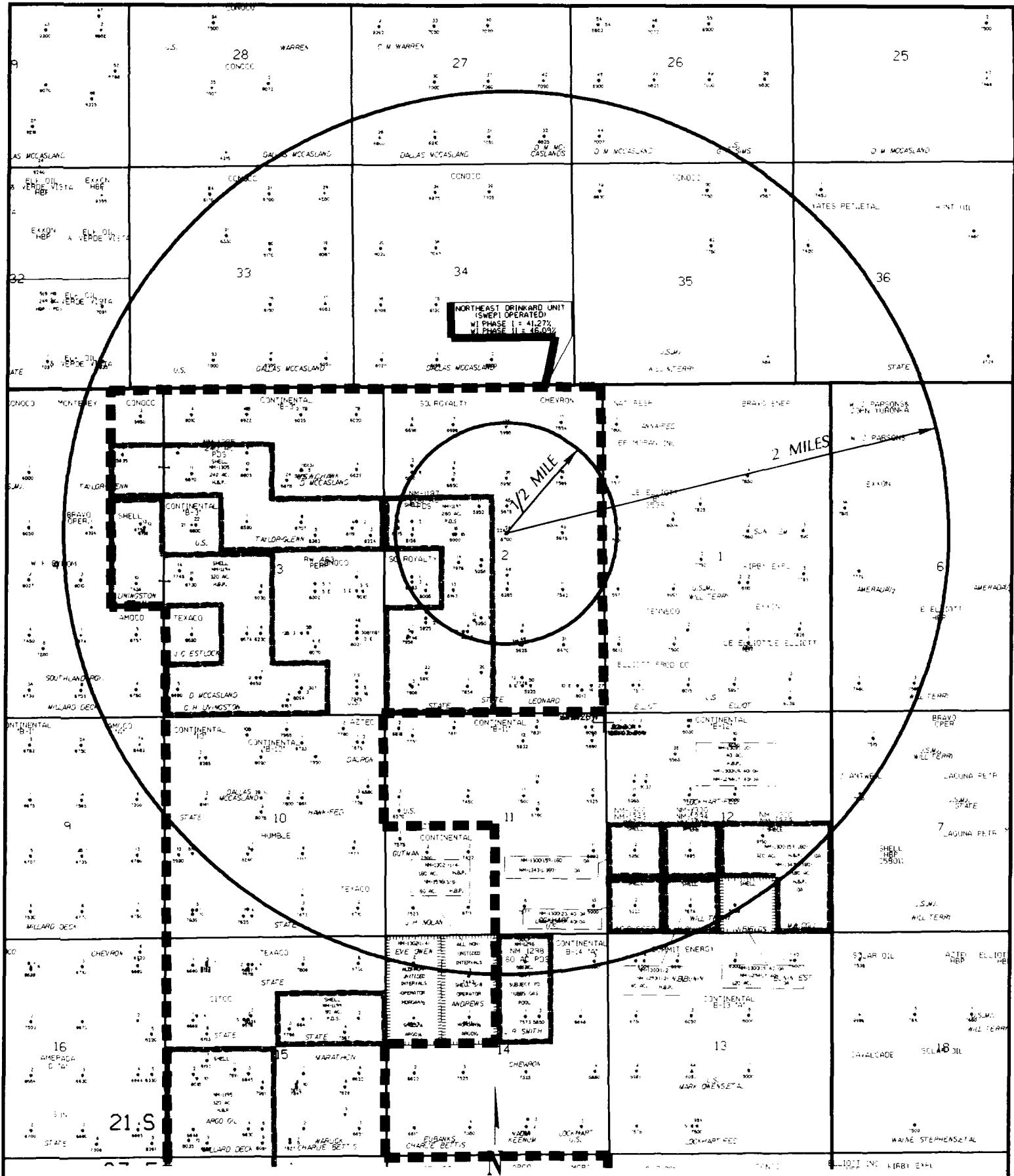
TOTAL DISSOLVED SOLIDS                    987                    625  
SODIUM                                        (Na)                    171                    123

ANALYZED BY: Duke Swearing  
(HOBBS LAB)

APPROVED BY: \_\_\_\_\_

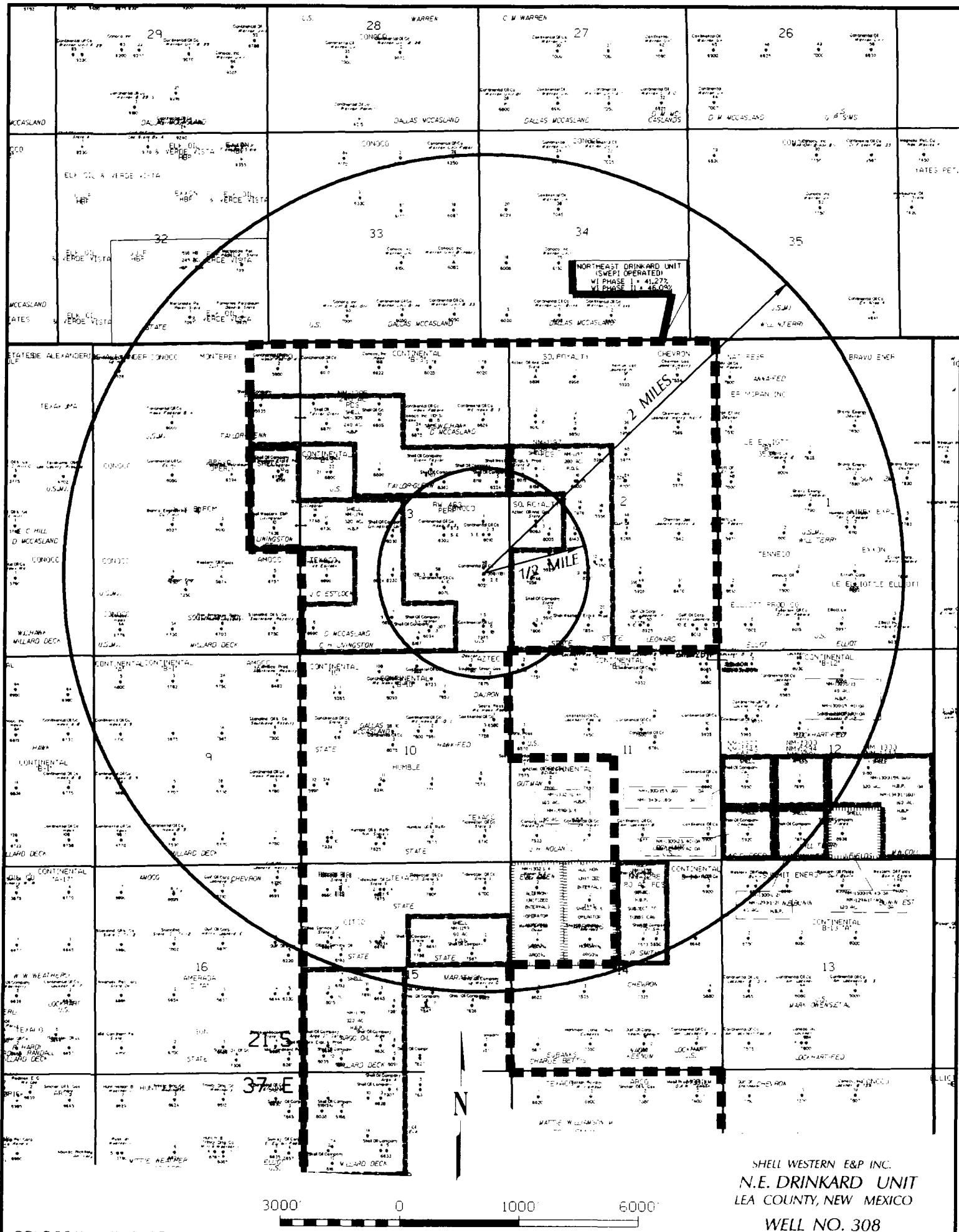
\*\*\* INDICATES THAT THIS TEST WAS NOT RUN



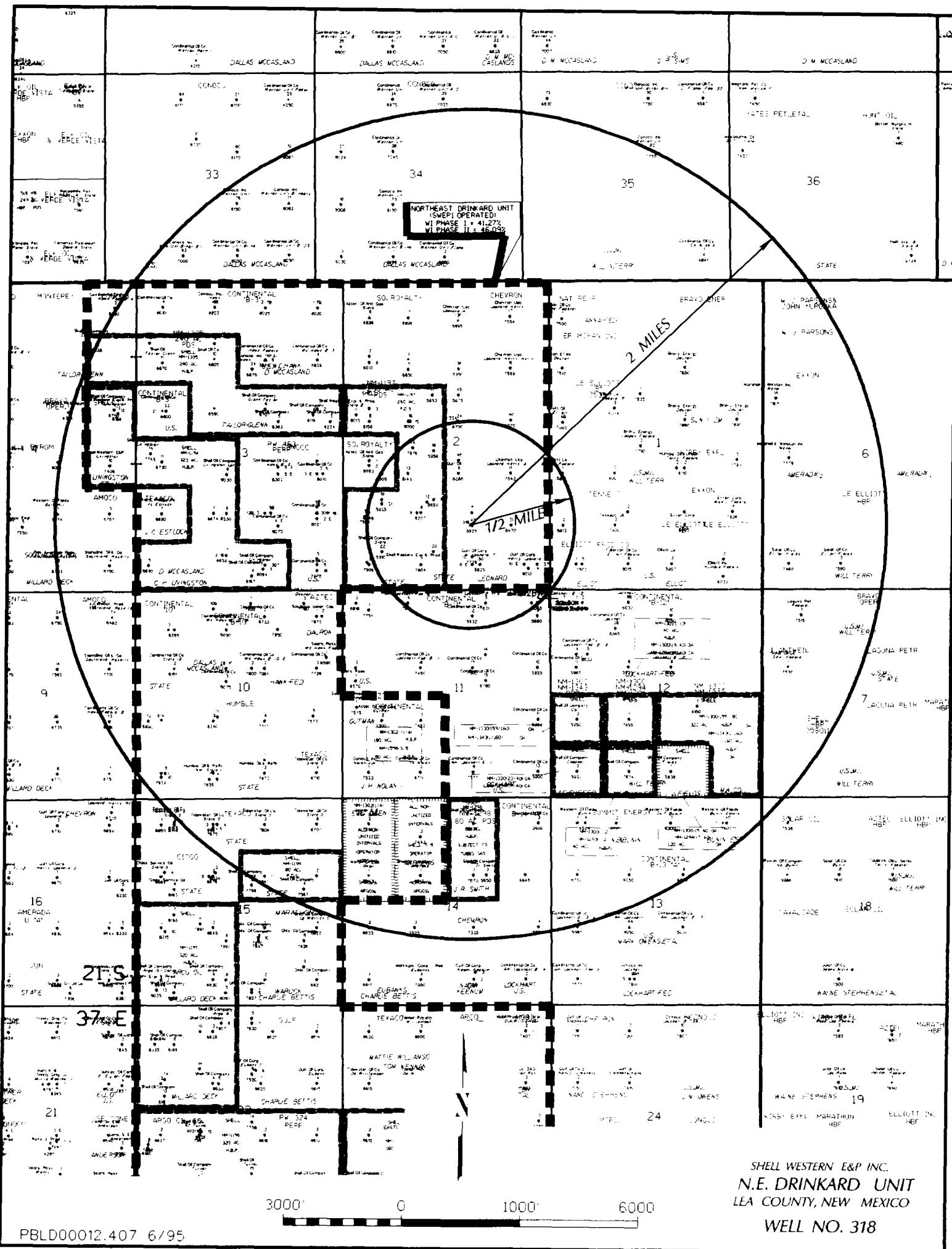


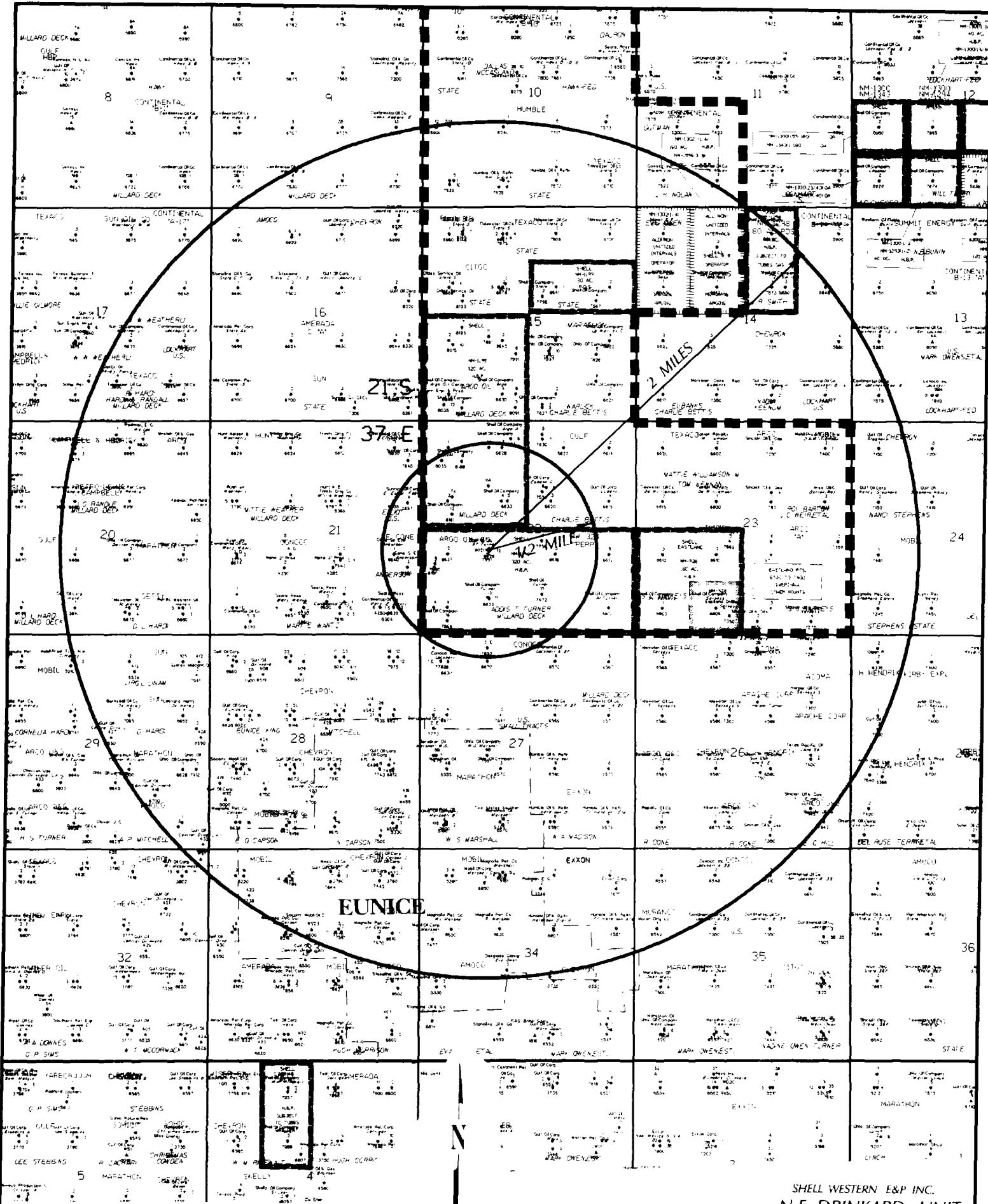
SHELL WESTERN E&P INC.  
N.E. DRINKARD UNIT  
LEA COUNTY, NEW MEXICO

WELL NO. 224



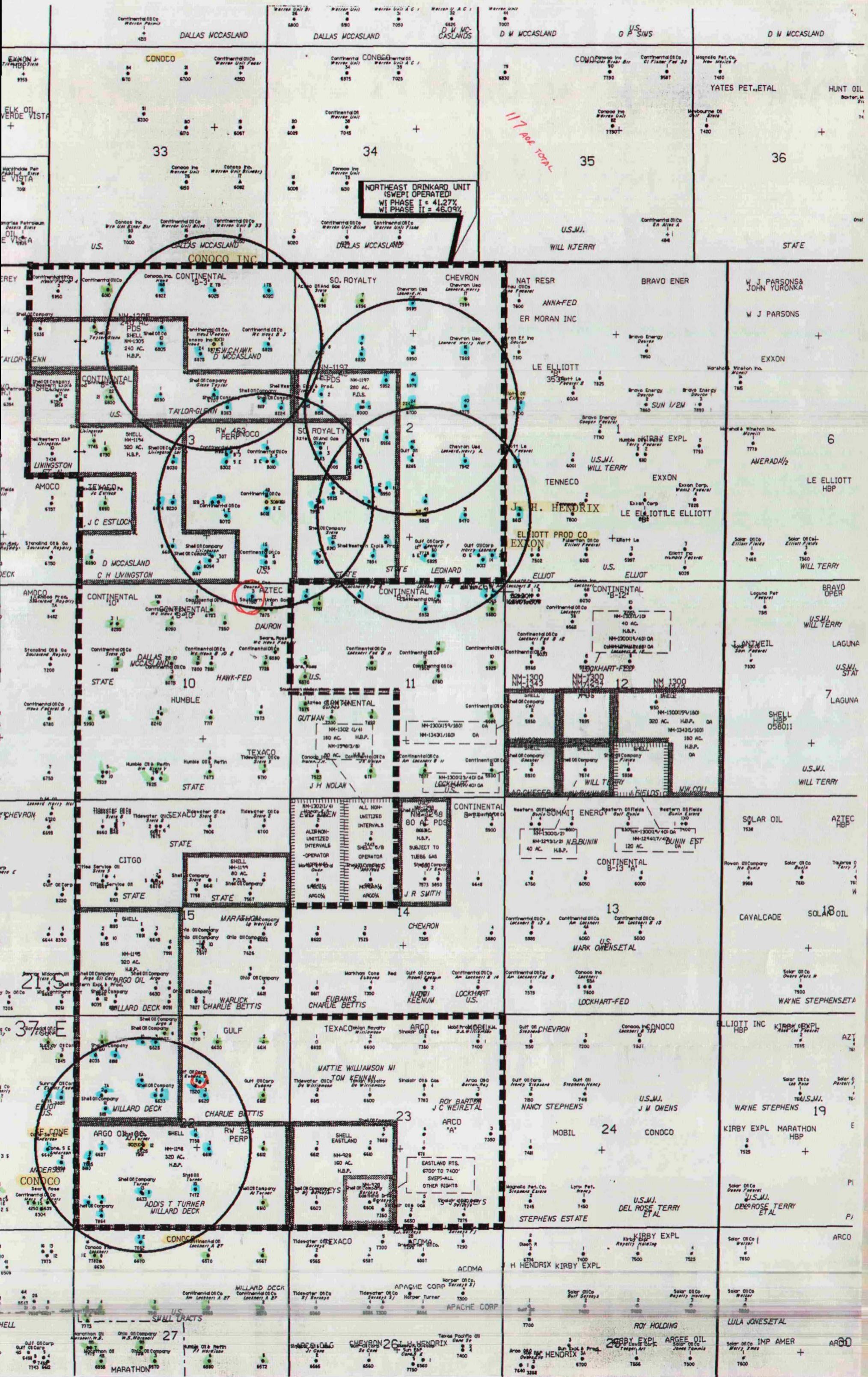
SHELL WESTERN E&P INC.  
N.E. DRINKARD UNIT  
LEA COUNTY, NEW MEXICO  
WELL NO. 308





SHELL WESTERN E&P INC.  
N.E. DRINKARD UNIT  
LEA COUNTY, NEW MEXICO

WELL NO. 902



Just  
INSIDE

CHICK

OUTSIDE  
AOR

"

AZTEC - DAVISON No. 3 A 10.21.37

CONOCO - HAWK B FTO No. 10 F 10.21.37

CHEVRON - NM STATE 'V' No. 11 K 10.21.37

CHEVRON - EUGENE 'C' No. 8 G 22.21.37

TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	INIT		CASING			WELL	PROD
						SPUD DATE	COMP DATE	TOTAL DEPTH	SIZE	DEPTH CMT	TYPE	STRING TOC
21S-37E	1	NAT RES GRP	ANNA-FED	1	990 FNL, 330 FWL	11/69	1/70	7600	9 5/8	808 300SX	OIL	2730
		MORAN OIL	DAURON	1	2310 FNL, 330 FWL	1/55	2/55	5960	10 3/4	224 200SX	OIL	3600
		LEONARD OIL	ELLIOTT-FED	2	1659 FSL, 330 FWL	12/51	3/52	8613	13 3/8	240 225SX	OIL	6670
		ELLIOT INC	ELLIOTT-FED B		2970 FSL, 330 FWL	7/54	7/54	5971	10 3/4	218 250SX	OIL	3910
		ELLIOT INC	ELLIOTT-FED B		3630 FSL, 330 FWL	11/54	12/54	5996	8 5/8	3029 1300SX	OIL	3080
		FULLERTON OIL	ELLIOTT-FED	4	660 FSL, 660 FWL	9/51	11/51	8370	13 3/8	238 250SX	OIL	4180
									8 5/8	3150 1380SX		
									5 1/2	8333 7389X		
		AZTEC O&G	STATE	1	3300 FSL, 660 FWL	5/49	6/49	6810	13 3/8	160 175SX	OIL	1970
		AZTEC O&G	STATE	2	1896 FNL, 660 FWL	1/50	8/51	8620	13 3/8	152 165SX	INJ	4250
		AZTEC O&G	STATE	3	3175 FSL, 660 FWL	2/51	4/51	8083	13 3/8	245 200SX	OIL	4910
		AZTEC O&G	STATE	4	2970 FSL, 990 FWL	12/51	2/52	8005	13 3/8	253 240SX	OIL	4910
		AZTEC O&G	STATE	5	5610 FSL, 1650 FWL	1/53	7/53	6011	13 3/8	200 225SX	OIL	4710
		AZTEC O&G	STATE	6	906 FNL, 660 FWL	3/54	5/54	6030	13 3/8	208 240SX	INJ	4780
		AZTEC O&G	STATE	7	921 FNL, 1650 FWL	5/54	6/54	6060	13 3/8	215 250SX	OIL	4760
		AZTEC O&G	STATE	8	5790 FSL, 660 FWL	12/55	1/56	6010	13 3/8	218 200SX	OIL	4830
		AZTEC O&G	STATE	9	1973 FNL, 1650 FWL	4/62	7/62	5780	13 3/8	329 325SX	OIL	2480
		GULF	H LEONARD A	12	860 FSL, 1980 FEL	3/52	5/52	7778	12 3/4	259 300SX	OIL	2180
		GULF	H LEONARD A	14	555 FSL, 555 FEL	5/52	6/52	8013	12 3/4	287 300SX	OIL	2740
		GULF	H LEONARD A	20	2982 FSL, 2317 FEL	11/52	3/53	8285	13 3/8	271 300SX	INJ	4460

TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	SPUD DATE	INIT COMP DATE	CASING			WELL TYPE	PROD TOC
								TOTAL	DEPTH	SIZE		
								8 5/8	2498	1700SX		
<i>Section 2 CONT.</i>	GULF	H LEONARD A	24	4303 FSL, 2317 FEL	2/53	4/53	8700	13 3/8	299	350SX	OIL	4340
								9 5/8	2999	1350SX		
								5 1/2	8280	700SX		
	GULF	H LEONARD A	43	990 FNL, 2310 FEL	7/54	8/54	5995	13 3/8	318	425SX	OIL	2110
								8 5/8	3099	2025SX		
								5 1/2	5879	670SX		
	GULF	H LEONARD-ST	2	660 FSL, 1980 FEL	12/51	2/52	7926	13 3/8	264	300SX	OIL	3750
								9 5/8	3026	1200SX		TS
								5 1/2	7925	850SX		
	GULF	H LEONARD-ST	3	660 FSL, 660 FEL	2/52	3/52	8168	13 3/8	225	350SX	OIL	3225
								8 5/8	2084	1075SX		TS
								5 1/2	8167	975SX		
	GULF	HARRY LEONARD E	6	1980 FSL, 1980 FEL		12/51	8350	16	253	300SX	OIL	4085
								10 3/4	2904	1600SX		TS
								7	8350	300SX		
	GULF	H LEONARD-ST	8	660 FSL, 330 FEL	4/53	5/53	5970	12 3/4	309	350SX	OIL	4629
								8 5/8	3099	2300SX		TS
								5 1/2	5750	195SX		
	GULF	H LEONARD-ST	9	1650 FSL, 990 FEL	5/53	8/53	8470	13 3/8	109	150SX	OIL	2400
								8 5/8	3099	1375SX		TS
								5 1/2	8300	180SX		
	GULF	H LEONARD-ST	10	2220 FNL, 2307 FEL	4/54	5/54	5950	13 3/8	375	475SX	INJ	3100
								8 5/8	3024	1550SX		TS
								5 1/2	5844	560SX		
	GULF	H LEONARD-ST	11	2970 FSL, 990 FEL	5/54	6/54	5950	13 3/4	336	450SX	OIL	2670
								9 5/8	3044	1400SX		TS
								7	5834	600SX		
	GULF	H LEONARD-ST	12	3534 FNL, 990 FEL	6/54	8/54	5975	13 3/8	332	450SX	OIL	2480
								8 5/8	3039	1900SX		TS
								5 1/2	5859	605SX		
	GULF	H LEONARD-ST	14	2386 FNL, 2307 FEL	8/54	9/54	5975	13 3/8	330	350SX	OIL	2740
								8 5/8	3548	1500SX		TS
								5 1/2	5829	500SX		
	GULF	H LEONARD-ST	15	3312 FSL, 2317 FEL	8/54	10/54	8150	13 3/8	325	375SX	OIL	2880
								8 5/8	3003	1350SX		TS
								5 1/2	8149	950SX		
	GULF	H LEONARD-ST	16	2217 FNL, 989 FEL	9/54	10/54	5975	13 3/8	332	375SX	OIL	60
								8 5/8	3099	1800SX		TS
								5 1/2	5989	775SX		
	GULF	H LEONARD-ST	17	897 FNL, 990 FEL	10/54	11/54	5980	13 3/9	327	375SX	OIL	2160
								8 5/8	3098	1700SX		TS
								5 1/2	5924	750SX		
	GULF	H LEONARD-ST	18	1650 FSL, 1980 FEL	12/54	1/55	5925	13 3/8	312	375SX	OIL	3375
								9 5/8	3340	1655SX		TS
								5 1/2	5764	675SX		
	GULF	H LEONARD-ST	19	660 FSL, 1780 FEL	1/55	2/55	5925	13 3/8	334	575SX	OIL	2080
								8 5/8	3049	200SX		TS
								5 1/2	5769	825SX		
	SHELL	STATE 2	1	1980 FSL, 660 FNL	8/49	9/49	6746	13 3/9	226	300SX	OIL	3860

TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	INITIAL			CASING			PROD	
						SPUD DATE	COMP DATE	TOTAL DEPTH	SIZE	DEPTH CMT	TYPE	WELL TOC	STRING
									8 5/8	3047 2000SX			
<i>Section 2 CONT.</i>	SHELL	STATE 2	2	4620 FSL, 660 FWL	10/49 12/49	6760	13 3/8	224 300SX	OIL	3280			
									5 1/2	6670 500SX			
	SHELL	STATE 2	3	660 FSL, 660 FWL	7/50 9/50	7906	13 3/8	223 300SX	OIL	4950			
									8 5/8	3150 2200SX			
	SHELL	STATE 2	4	710 FSL, 610 FWL	11/50 11/50	6718	13 3/8	228 250SX	OIL	3720			
									8 5/8	3150 1700SX			
	SHELL	STATE 2	5	1880 FSL, 560 FWL	12/50 1/51	7956	13 3/8	224 250SX	OIL	4550			
									8 5/8	3142 2000SX			FP
	SHELL	STATE 2	6	1980 FSL, 1980 FWL	5/51 7/51	8207	13 3/8	225 330SX	OIL	2958			
									8 5/8	3769 2000SX			TOL
	SHELL	STATE 2	7	660 FSL, 1980 FWL	7/51 9/51	7854	13 3/8	225 250SX	OIL	3210			
									8 5/8	3162 1950SX			
	SHELL	STATE 2	8	3546 FNL, 660 FWL	9/51 11/51	8156	13 3/8	219 250SX	OIL	3520			
									8 5/8	3147 2000SX			
	SHELL	STATE 2	9	1980 FSL, 1880 FWL	11/51 12/51	6704	13 3/8	208 250SX	INJ	2950			
									8 5/8	3145 2000SX			TOL
	SHELL	STATE 2	10	2310 FSL, 968 FWL	12/51 1/52	7985	13 3/8	211 250SX	OIL	3480			
									8 5/8	3152 1700SX			
	SHELL	STATE 2	11	3376 FNL, 330 FWL	1/52 3/52	8015	13 3/8	211 250SX	OIL	3400			
									8 5/8	3140 2000SX			TS
	SHELL	STATE 2	12	2250 FSL, 2140 FWL	1/52 3/52	8075	13 3/8	211 250SX	OIL	3290			
									8 5/8	3150 2200SX			
	SHELL	STATE 2	13	2970 FSL, 1650 FWL	3/52 4/52	8143	13 3/8	193 250SX	OIL	3095			
									8 5/8	3148 1900SX			TS
	SHELL	STATE 2	14	3630 FSL, 1770 FWL	4/52 6/52	7976	13 3/8	222 250SX	OIL	3470			
									8 5/8	3120 1700SX			
	SHELL	STATE 2	15	3546 FNL, 1650 FWL	6/52 7/52	8147	13 3/8	223 250SX	INJ	3510			
									8 5/8	3149 1600SX			
	SHELL	STATE 2	16	3546 FNL, 1700 FWL	7/52 9/52	8000	13 3/8	222 250SX	INJ	2932			
									8 5/8	3150 1800SX			TOL
									5 1/2	2932			



TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	SPUD DATE	INIT DEPTH	CASING			WELL TYPE	PROD TOC
								COMP DATE	TOTAL DEPTH	SIZE CMT		
Section 3 CONT.	CONOCO	HAWK B-3	4E	1650 FSL, 1650 FEL	9/51 11/51	8070	10 3/4	266	250SX	OIL	0	
								7 5/8	3154 1500SX			
								5 1/2	6010 350SX			
								7 5/8	3154 1355SX			
								5 1/2	8069 700SX			
								7 5/8	3147 1100SX			
								5 1/2	8024 600SX			
								9 5/8	3049 1200SX			
								7	6759 775SX			
								9 5/8	3149 1300SX	2		
CONOCO	HAWK B-3	5E	2970 FSL, 1650 FEL	8/52 10/52	8302	13 3/4	269	260SX	OIL	3125		
								7	6759 775SX			
								9 5/8	3149 1300SX	2		
								7	232 250SX	OIL		
								9 5/8	2895 1000SX			
								7	6752 625SX			
								7 5/8	3038 1150SX			
								5 1/2	6019 510SX			
								7 5/8	3081 1066SX			
								5 1/2	6024 375SX			
CONOCO	HAWK B-3	16	660 FNL, 1980 FWL	9/56 11/56	6480	10 3/4	260	150SX	OIL	650		
								7 5/8	3049 1805SX			
								5 1/2	6479 500SX			
								7 5/8	3119 1150SX			
								5 1/2	5974 400SX			
								9 5/8	268 250SX	OIL		
								7 5/8	3119 1150SX			
								7	6782 400SX			
								9 5/8	1370 500SX	OIL	0	
								9 5/8	1370 500SX			
CONOCO	HAWK B-3	22	3300 FSL, 760 FWL	8/62 11/62	6800	9 5/8	2819	650SX	OIL	2200		
								7	6800 650SX			
								8 5/8	1395 674SX			
								5 1/2	6875 2268SX			
								8 5/8	1395 674SX			
								5 1/2	6875 2268SX			
								9 5/8	2900 1800SX			
								7	6875 2268SX			
								8 5/8	2900 1800SX			
								5 1/2	6875 2268SX			
SHELL	LIVINGSTON	1	1980 FSL, 1980 FWL	9/49 11/49	6674	13 3/8	228	300SX	INJ	3300		
								8 5/8	2900 1800SX			
								5 1/2	6874 600SX			
								8 5/8	3148 2200SX			
SHELL	LIVINGSTON	2	660 FSL, 1980 FWL	2/50 3/50	6674	13 3/8	224	300SX	INJ	3300		
								8 5/8	3148 2200SX			
								5 1/2	6874 600SX			
								8 5/8	3147 2200SX			
SHELL	LIVINGSTON	3	560 FSL, 2030 FWL	2/51 5/51	8094	13 3/8	223	250SX	OIL	5345		
								8 5/8	3147 2200SX			
								5 1/2	7968 500SX			
SHELL	LIVINGSTON	4	360 FSL, 2310 FWL	1/52 3/52	8167	13 3/8	151	200SX	OIL	3520		

TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	SPUD DATE	COMP DATE	INIT	CASING		WELL TYPE	PROD TOC
								TOTAL	DEPTH	SIZE		
									8 5/8	3147 2000SX		
<i>Section 3 CONT.</i>												
		SHELL	LIVINGSTON	5	660 FSL, 330 FWL	1/52	2/52	6690	13 3/8	218 250SX	OIL	5560
		SHELL	LIVINGSTON	6	1980 FSL, 2308 FWL	6/52	8/52	8230	13 3/8	222 250SX	OIL	3580
		SHELL	LIVINGSTON	7	915 FSL, 2308 FWL	7/52	9/52	8130	13 3/8	222 250SX	OIL	3800
		SHELL	LIVINGSTON	8	2970 FSL, 2308 FWL	7/52	9/52	8030	13 3/8	251 250SX	OIL	2648
		SHELL	LIVINGSTON	9	915 FSL, 2208 FWL	10/52	11/52	6659	13 3/8	237 250SX	GAS	4330
		SHELL	LIVINGSTON	11	3300 FSL, 660 FWL	11/61	1/62	6730	9 5/8	271 250SX	INJ	3630
		SHELL	LIVINGSTON	14	3500 FSL, 367 FWL	4/84	6/84	7745	13 3/8	481 475SX	OIL	460
		SHELL	TAYLOR-GLENN	1	3226 FNL, 1980 FWL	9/47	3/48	8590	13 3/8	301 250SX	INJ	4260
		SHELL	TAYLOR-GLENN	2	4620 FSL, 660 FEL	1/50	2/50	6710	13 3/8	222 300SX	INJ	3290
		SHELL	TAYLOR-GLENN	3	3546 FNL, 330 FEL	11/51	1/52	8224	13 3/8	219 250SX	OIL	3210
		SHELL	TAYLOR-GLENN	4	3376 FNL, 764 FEL	3/52	5/52	8119	13 3/8	200 250SX	OIL	3750
		SHELL	TAYLOR-GLENN	5	3546 FNL, 1650 FEL	5/52	10/52	8391	13 3/8	225 250SX	OIL	3570
		SHELL	TAYLOR-GLENN	6	4620 FSL, 1979 FEL	7/52	8/52	6707	13 3/8	225 250SX	OIL	3280
		SHELL	TAYLOR-GLENN	8	1582 FNL, 330 FWL	10/56	11/56	5930	13 3/8	307 300SX	OIL	4680

TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	INIT			CASING			PROD	
						SPUD DATE	COMP DATE	TOTAL - DEPTH	SIZE	DEPTH	CMT	WELL TYPE	STRING TOC
<b>Section 3 CONT.</b>	SHELL	TAYLOR-GLENN	9	1585 FNL, 1980 FWL	1/63	1/63	6000	7 5/8	8 5/8	3150	1200SX		
									5 1/2	5810	200SX		
	SHELL	TAYLOR-GLENN	10	1980 FNL, 1980 FWL	10/74	2/75	6805	8 5/8	1361	600SX	GAS	1040	
									5 1/2	6805	1025SX		
									4 1/2	6000	175SX		
SHELL	TAYLOR-GLENN	11	2080 FNL, 660 FWL	7/75	9/75	6870	8 5/8	1380	400SX	INJ	2030		
								5 1/2	6870	860SX			
								4 1/2	6870	175SX			
TEXACO	ESTLACK	1	1980 FSL, 660 FWL	1/50	4/50	6690	13 3/8	286	300SX	GAS	2620		
								8 5/8	2972	1800SX			
								5 1/2	6620	200SX	TS		

(0) <sup>1</sup>  
<sup>1</sup>  
<sup>1</sup>

TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	SPUD DATE	INIT SPUD DATE	CASING			WELL TYPE	PROD TOC
								DEPTH	TOTAL	SIZE		
21S-37E	/ 10	AZTEC	DAURON	2	660 FNL, 525 FEL	11/50	1/51	7463	13 3/8	196 200SX	OIL	4540 TS
								8 5/8	2995 1500SX			
								5 1/2	7462 500SX			
		AZTEC	DAURON	3	330 FNL, 990 FEL	10/51	12/51	7774	13 3/8	215 200SX	OIL	* 5800
								8 5/8	3002 2300SX			
								5 1/2	7772 350SX			
		CONOCO	HAWK B-10	1	660 FNL, 1980 FEL	6/50	8/50	6723	10 3/4	245 200SX	OIL	3155 TS
								7 5/8	3049 750SX			
								5 1/2	6715 320SX			
		CONOCO	HAWK B-10E	1E	990 FNL, 1650 FEL	2/51	5/51	7850	10 3/4	253 250SX	OIL	3180 TS
								7 5/8	3071 1000SX			
								5 1/2	7922			
		CONOCO	HAWK B-10	2	1980 FNL, 2310 FWL	11/80	2/81	8079	10 3/4		OIL	3250 TS
								7 5/8	3149 1360SX			
								5 1/2	8078 470SX			
		CONOCO	HAWK B-10	2S	1980 FNL, 2310 FEL	5/52	7/52	7800	13 3/8	253 250SX	INJ	0
								9 5/8	3099 1000SX			
								7	7795 1250SX			
		CONOCO	HAWK B-10	3E	1980 FNL, 660 FEL	6/51	8/51	7728	10 3/4	260	OIL	0 CIRC
								7 3/4	3099 1525SX			
								5 1/2	7727 404SX			
		CONOCO	HAWK B-10 FED	3	1980 FNL, 1980 FEL	5/51	6/51	7981	10 3/4	268 250SX	OIL	* 6560
								7 5/8	3099			
								5 1/2	7980 252SX			
		CONOCO	HAWK B-10	5E	1980 FNL, 2310 FWL	4/52	6/52	8079	10 3/4	270 250SX	OIL	0 CIRC
								7 5/8	3149 1300SX			
								5 1/2	8072 450SX			
		CONOCO	HAWK B-10 FED	5	330 FNL, 2340 FEL	1/52	3/52	7955	10 3/8	273 225SX	OIL	950
								7 5/8	3099 1250SX			
								5 1/2	7954 600SX			
		CONOCO	HAWK B-10 FED	6	990 FNL, 2310 FWL	3/52	5/52	8090	10 3/8	256 250SX	OIL	2250
								7 5/8	3099 1250SX			
								5 1/2	8089 500SX			
		CONOCO	HAWK B-10 FED	7	2310 FNL, 2310 FWL	6/52	8/52	8075	13 3/8	251 260SX	OIL	3200 TS
								9 5/8	3149 1500SX			
								7	8074 1050SX			
		CONOCO	HAWK B-3	10	460 FNL, 1980 FWL	4/62	6/62	6790	13 3/8	337 250SX	INJ	3150 TS
								8 5/8	3000 350SX			
								5 1/2	6485 505SX			
		CONOCO	STATE 10	1	990 FNL, 990 FWL	12/52	2/53	8285	13 3/8	236 250SX	OIL	3060 TS
								9 5/8	3128 1308SX			
								7	8279 1250SX			
		CONOCO	STATE 10	2	1980 FNL, 990 FWL	2/53	6/54	8161	10 3/4	249 250SX	OIL	3180 TS
								7 5/8	3128 1275SX			
								5 1/2	7669 375SX			

TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	SPUD DATE	INIT COMP DATE	CASING			WELL TYPE	PROD TOC
								TOTAL	DEPTH	SIZE		
Section 10 CONT.		CONOCO	STATE 10	3	990 FNL, 840 FWL	5/53	6/54	7500	13 3/8	240 250SX	OIL	3275 TS
		HUMBLE	BL-TB GAS UNIT	1	990 FSL, 1980 FEL	5/55	7/55	6312	13 3/8	353 300SX	OIL	4480
		HUMBLE	NM STATE V	1	660 FSL, 660 FWL	9/48	11/49	6660	10 3/4	316 250SX	OIL	2032
		HUMBLE	NM STATE V	2	660 FSL, 1980 FWL	11/48	2/49	6751	10 3/4	332 275SX	OIL	0
		HUMBLE	NM STATE V	3	660 FSL, 1980 FEL	1/51	3/51	7673	10 3/4	342 300SX	INJ	2945
		HUMBLE	NM STATE V	4	500 FSL, 2080 FWL	3/51	5/51	8043	10 3/4	344 300SX	OIL	2610
		HUMBLE	NM STATE V	5	660 FSL, 760 FWL	5/51	8/51	8396	12 3/4	329 400SX	OIL	4310
		HUMBLE	NM STATE V	6	1980 FSL, 1980 FEL	8/51	10/51	7717	12 3/4	329 350SX	OIL	3040
		HUMBLE	NM STATE V	7	500 FSL, 1880 FWL	10/51	12/51	7625	12 3/4	337 350SX	OIL	4810
		HUMBLE	NM STATE V	8	2100 FSL, 760 FEL	12/51	2/52	7573	11 3/4	305 350SX	OIL	2900
		HUMBLE	NM STATE V	9	1980 FSL, 1980 FWL	12/52	3/52	8240	10 3/4	329 375SX	OIL	2990
		HUMBLE	NM STATE V	10	560 FSL, 660 FWL	3/52	5/52	7939	10 3/4	342 375SX	OIL	2680
		HUMBLE	NM STATE V	11	2080 FSL, 2080 FWL	9/52	12/52	7785	13 3/8	333 275SX	INJ	5510
		HUMBLE	NM STATE V	12	1980 FSL, 330 FWL	4/62	6/62	5990	10 3/4	310 200SX	OIL	3000
		RODGERS	HAWK B-10 FED	1	1715 FNL, 409 FEL	5/53	6/53	6580	10 3/4	207 150SX	OIL	2950
		STH UNION GAS	DAURON	1	660 FNL, 660 FEL	9/50	11/50	7875	13 3/8	228 175SX	OIL	4815
		TIDEWATER	STATE 5	9	660 FSL, 660 FEL	2/64	3/64	6710	13 3/8	336 325SX	6AS	2600
									9 5/8	2999 960SX		
									5 1/2	6709 1065SX		

TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	SPUD DATE	INIT COMP DATE	CASING			WELL CMT	TYPE	PROD STRING TOC
								TOTAL	DEPTH	SIZE			
21S-37E	11	AZTEC	GUTMAN	1	2310 FSL, 345 FWL	2/52	4/52	7575	13 3/8	245 275SX	OIL	4310	TS
								8 5/8	3001 2450SX				
		AZTEC	GUTMAN	2	1980 FSL, 990 FWL	11/63	1/64	7200	13 3/8	366 300SX	OIL	3400	TS
								9 5/8	3008 900SX				
								7	6000				
								4 1/2	6000				
									7200				
		CONOCO	LOCKHART B-11	1	510 FNL, 660 FWL, 10/50	12/50	7751	10 3/4	248 250SX	OIL	750		
								7 5/8	3049 865SX				
		CONOCO	LOCKHART B-11	2	330 FNL, 330 FWL	7/51	9/51	6818	10 3/4	266 250SX	OIL	2440	
								7 5/8	3049 1230SX				
		CONOCO	LOCKHART B-11	3	1980 FNL, 330 FWL	8/51	10/51	7659	10 3/4	262 250SX	OIL	1240	
								7 5/8	3099 100SX				
		CONOCO	LOCKHART B-11	4	330 FNL, 1650 FWL	11/51	1/52	7811	10 3/4	272 250SX	OIL	1540	
								7 5/8	3149 1200SX				
		CONOCO	LOCKHART B-11	5	330 FNL, 1650 FEL	3/52	5/52	7831	10 3/4	255 250SX	OIL	1290	
								7 5/8	3149 1000SX				
		CONOCO	LOCKHART B-11	6	330 FNL, 330 FEL	7/52	9/52	8065	13 3/8	246 260SX	OIL	2870	
								9 5/8	3136 1615SX				
		CONOCO	LOCKHART B-11	7	330 FNL, 490 FEL	10/52	12/52	8042	13 3/8	248 250SX	OIL	2200	
								9 5/8	3152 1100SX				
		CONOCO	LOCKHART B-11	8	660 FSL, 1980 FEL	6/53	9/53	7577	13 3/8	268 250SX	OIL	1340	
								9 5/8	2956 2100SX				
		CONOCO	LOCKHART B-11	9	660 FNL, 330 FEL	3/54	4/54	5880	10 3/4	275 250SX	OIL	1030	
								7 3/4	3149 940SX				
		CONOCO	LOCKHART B-11	10	1980 FNL, 330 FEL	4/56	5/56	5925	10 3/4	266 250SX	OIL	960	
								7 5/8	2955 1546SX				
		CONOCO	LOCKHART B-11	11	1980 FSL, 330 FEL	3/56	4/56	5902	10 3/4	265 300SX	OIL	2400	
								7 5/8	2953 700SX				
		CONOCO	LOCKHART B-11	12	660 FNL, 1980 FEL	4/56	5/56	5932	8 5/8	1696 700SX	OIL	0	
								5 1/2	5931 2426SX				
		CONOCO	LOCKHART B-11	13	660 FSL, 330 FEL	6/56	7/56	5900	8 5/8	1400 750SX	OIL	0	
								5 1/2	5899 3200SX				
		CONOCO	LOCKHART B-11	14	1650 FNL, 1650 FEL	5/57	7/57	5925	10 3/4	275 250SX	OIL	1250	
								7 5/8	3124 250SX				
		CONOCO	LOCKHART B-11	15	2310 FNL, 1650 FEL	1/60	3/60	6760	13 3/8	307 260SX	OIL	1200	
								9 5/8	2995 1150SX				

TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	INIT		CASING		WELL	PROD	
						SPUD	COMP	TOTAL	DEPTH			SIZE
<b>Section II</b>												
CONT.												
		CONOCO	LOCKHART B-11	16	1980 FNL, 1980 FWL	12/61	3/62	7450	13 3/8	322 250SX	OIL	2450
								9 5/8		2912 950SX		
		CONOCO	LOCKHART B-11	17	1980 FNL, 1980 FEL	4/62	5/62	7500	13 3/8	368 300SX	OIL	3290
								9 5/8		3094 450SX		
		CONOCO	NOLAN	1	660 FSL, 660 FWL	7/50	10/50	7523	10 3/4	269 225SX	INJ	3225
								7 5/8		3059 1780SX		TS
		CONOCO	NOLAN	2	660 FSL, 1980 FWL	5/55	7/55	6711	10 3/4	254 250SX	OIL	1030
								7 5/8		3049 1242SX		
		CONOCO	NOLAN	3	1980 FSL, 1980 FWL	3/62	5/62	7492	13 3/8	350 250SX	OIL	3800
								9 5/8		3093 1200SX		TS
		RODGERS	LOCKHART	1	2310 FNL, 330 FWL	2/53	3/53	6570	13 3/8	174 250SX	OIL	5045
								8 5/8		3044 900SX		
								5 1/2		6453 250SX		



TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	INIT			CASING			WELL	PROD	
						SPUD	COMP	TOTAL	DEPTH	SIZE	DEPTH	CMT	TYPE	TOC
									8 5/8	2887	2000SX			
									5 1/2	2671				TOL
<b>SECTION 22</b> Cont.		SHELL OIL	TURNER	14	2310 FSL, 2310 FEL	11/50 01/51	7758	13 3/8	224	250SX	OIL	4740		
		SHELL OIL	TURNER	13	880 FSL, 1685 FWL	08/50 08/50	6633	13 3/8	223	300SX	OIL	3740		
		SHELL OIL	TURNER	12	2065 FSL, 1700 FWL	05/50 06/50	6626	13 3/8	220	300SX	OIL	3670		
		SHELL OIL	TURNER	11	915 FSL, 1650 FWL	08/50 06/50	7782	13 3/8	224	300SX	OIL	4740		
		SHELL OIL	TURNER	10	2080 FSL, 1650 FWL	03/50 04/50	7502	13 3/8	222	300SX	OIL	3800		
		SHELL OIL	TURNER	9	1980 FSL, 1650 FWL	02/50 03/50	7951	13 3/8	227	300SX	OIL	4910		
		SHELL OIL	TURNER	8	1740 FSL, 350 FWL	12/49 01/50	7985	13 3/8	209	300SX	OIL	4510		
		SHELL OIL	TURNER	7	1650 FSL, 330 FWL	10/49 12/49	8180	13 3/8	225	300SX	OIL	4690		
		SHELL OIL	TURNER	6	660 FSL, 660 FWL	08/49 10/49	6632	13 3/8	225	300SX	OIL	4775		
		SHELL OIL	TURNER	4	1980 FSL, 660 FEL	07/49 09/49	6612	13 3/8	224	300SX	OIL	3640		
		SHELL OIL	TURNER	4	660 FSL, 330 FWL	05/49 08/49	7890	13 3/8	226	300SX	OIL	4410		
		SHELL OIL	TURNER	3	1980 FSL, 1980 FEL	05/49 06/49	6618	13 3/8	225	300SX	OIL	3710		
		SHELL OIL	ARGO A	12	2310 FNL, 760 FWL	11/51 01/52	8181	13 3/8	215	250SX	OIL	0		
		SHELL OIL	ARGO A	11	1605 FNL, 1650 FWL	11/51 01/52	8005	13 3/8	226	250SX	OIL	3170		
		SHELL OIL	ARGO A	10	660 FNL, 1650 FWL	09/51 12/51	8130	13 3/8	216	250SX	OIL	3560		
		SHELL OIL	ARGO A	9	980 FNL, 500 FWL	09/51 11/51	8035	13 3/8	212	250SX	OIL	2708		

TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	SPUD DATE	COMP DATE	INIT	CASING	WELL	STRING
								TOTAL	DEPTH		
<b>Section 22</b>											
CONT.											
SHELL OIL	ARGO A	8	990 FNL, 990 FWL	03/51 05/51	8188	13 3/8	226	300SX	OIL	5000	
						8 5/8	2928	1700SX		FP	
						5 1/2	8011	500SX			
SHELL OIL	ARGO A	7	1880 FNL, 760 FWL	10/50 12/50	8190	13 3/8	226	300SX	OIL	3760	
						8 5/8	2913	1700SX		TS	
						5 1/2	8080	750SX			
SHELL OIL	ARGO A	6	440 FNL, 2200 FWL	05/50 07/50	7907	13 3/8	227	300SX	OIL	4000	
						8 5/8	2883	2000SX		FP	
						5 1/2	7770	500SX			
SHELL OIL	ARGO A	5	1980 FNL, 2130 FWL	01/50 03/50	6633	13 3/8	230	250SX	<sup>WATER</sup> <sup>SOURCE</sup>	4000	
						8 5/8	2920	2000SX	<sup>WELL</sup>	FP	
						5 1/2	6530	500SX			
SHELL OIL	ARGO A	4	1980 FNL, 1980 FWL	11/49 01/50	7810	13 3/8	245	300SX	OIL	4290	
						8 5/8	2910	2000SX			
						5 1/2	7670	600SX			
SHELL OIL	ARGO A	2	1980 FNL, 660 FWL	10/47 12/47	6629	13 3/8	255	200SX	OIL	3250	
						8 5/8	2913	1400SX			
						5 1/2	6627	600SX			
GULF OIL	EUBANK C	8	1750 FNL, 2310 FEL	10/52 11/52	7520	13 3/8	315	360SX	OIL	* 5845	
						8 5/8	2799	1650SX		TS	
						5 1/2	7519	290SX			
GULF OIL	EUBANK	7	450 FNL, 2305 FEL	07/51 09/51	7630	13 3/8	306	300SX	OIL	3400	
						9 5/8	2799	1400SX		TS	
						7	7629	625SX			
GULF OIL	EUBANK	5	330 FNL, 2310 FEL	02/50 04/50	7756	13 3/8	294	300SX	OIL	2950	
						9 5/8	2800	1300SX		TS	
						7	7644	700SX			
GULF OIL	EUBANK	4	1980 FNL, 660 FEL	01/49 02/49	6615	13 3/8	300SX	OIL		2010	
						9 5/8	2800	1300SX			
						7	6550	700SX			
GULF OIL	EUBANK	3	1980 FNL, 2086 FEL	11/48 01/49	6620	13 3/8	295	300SX	OIL	3100	
						9 5/8	2800	1300SX		TS	
						7	6535	700SX			
GULF OIL	EUBANK	2	660 FNL, 660 FEL	10/48 12/48	6614	13 3/8	291	300SX	OIL	2720	
						9 5/8	2800	1300SX		TS	
						7	6550	700SX			
GULF OIL	EUBANK	1	660 FNL, 1780 FEL	08/48 09/48	6620	13 3/8	317	300SX	OIL	2850	
						9 5/8	2800	1262SX		TS	
						7	6500	700SX			

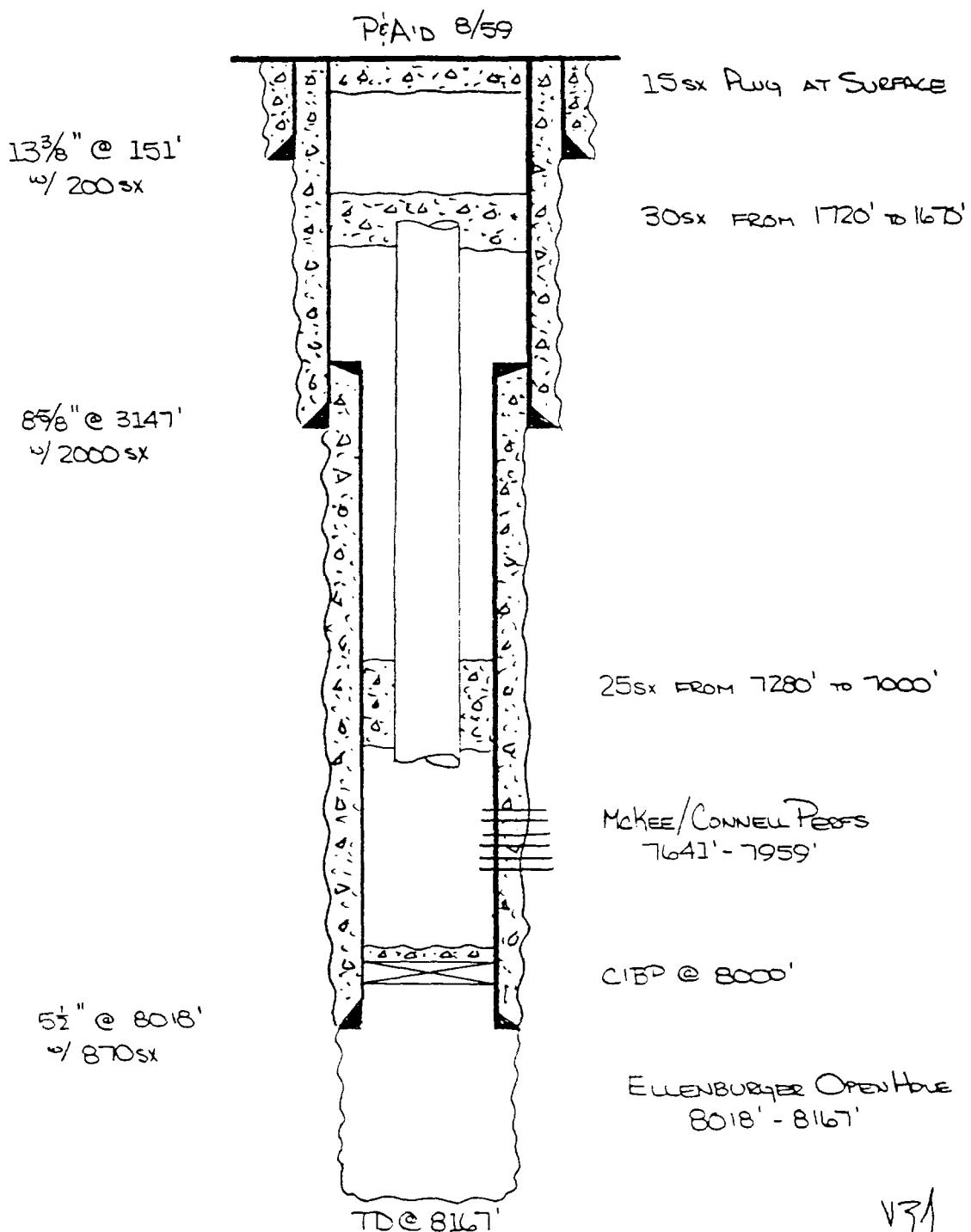
TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	INIT			CASING			WELL	STRING
						SPUD	COMP	TOTAL	DEPTH	SIZE	DEPTH		
21S-37E	27	CONOCO	LOCKHART A-27	1	660 FNL, 510 FWL	5/49	7/49	7782 13 3/8	225	200SX	OIL	1240	
									9 5/8	2744 500SX			
									7	7728 1000SX			
		CONOCO	LOCKHART A-27	3	330 FNL, 1650 FWL	10/50	11/50	7652 10 3/4	202	250SX	OIL	3316	
								7 5/8	2675 1000SX				
								5 1/2	7651 200SX				
		CONOCO	LOCKHART A-27	5	660 FNL, 660 FEL	10/47	12/47	6567 13 3/8	200	200SX	GAS	4610	
								9 5/8	2731 500SX				
							5 1/2	6566 500SX					
	CONOCO	LOCKHART A-27	6	660 FNL, 1980 FEL	12/47	1/48	6570 13 3/8	200	200SX	OIL	3320		
							9 5/8	2648 500SX					
							7	6569 500SX					
	CONOCO	LOCKHART A-27	7	810 FNL, 660 FWL	12/49	2/50	6630 13 3/8	216	250SX	OIL	4120		
							9 5/8	2654 1350SX					
							7	6629 650SX					
	CONOCO	LOCKHART A-27 FED	7	660 FNL, 1650 FWL	12/50	2/51	6670 13 3/8	253	250SX	OIL	3460		
							7 5/8	2679 1050SX					
							5 1/2	6669 275SX					
	CONOCO	LOCKHART A-27	12	330 FNL, 330 FWL	2/52	5/52	7615 10 3/4	255	225SX	OIL	2940		
							7 5/8	2743 1100SX					
							5 1/2	7614 400SX					

105

P+A'd WELL

SWEPI's LIVINGSTON #4

UNIT LETTER W  
3-21S-37E  
LEA County, New Mexico

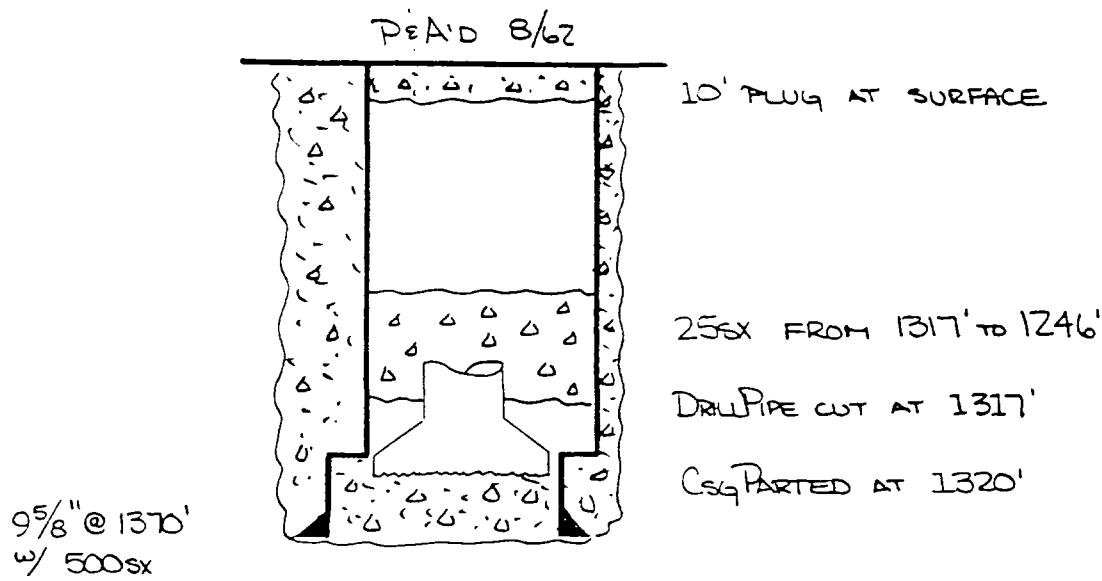


V31 9/87

P&A'd well

Conoco's HANK B-3 #21

3300' FNL & 660' FWL  
3 - 21S - 37E  
LEA County, New Mexico



\* AFTER SETTING 9 5/8" STRING - CSG PARTED AND  
MILL BECAME STUCK AT 1320'. PIPE CUT AT  
1317'. TWO PLUGS SET TO P&A.

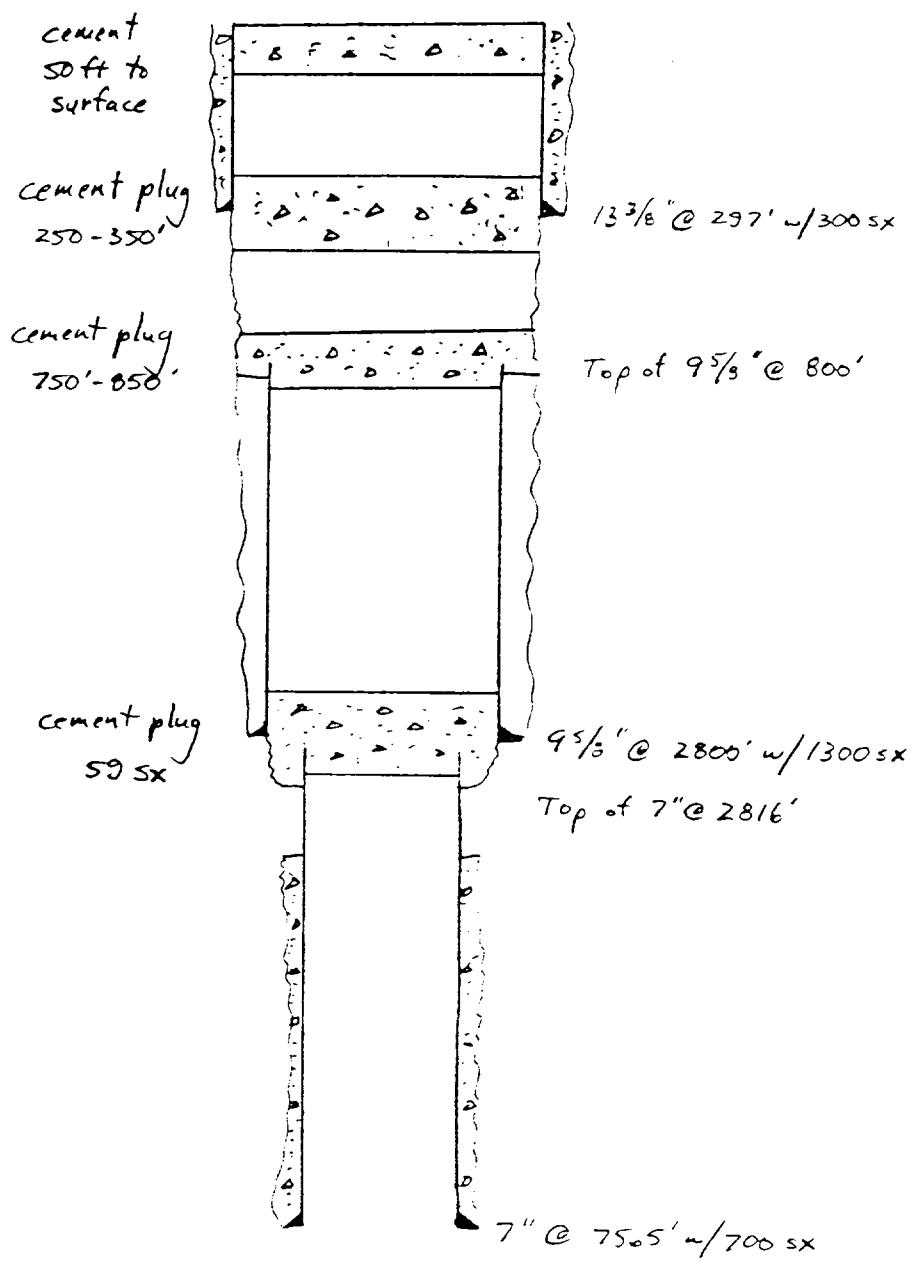
VTP  
9/87

P+Add well

GULF EUBANK #6

UNIT LETTER O

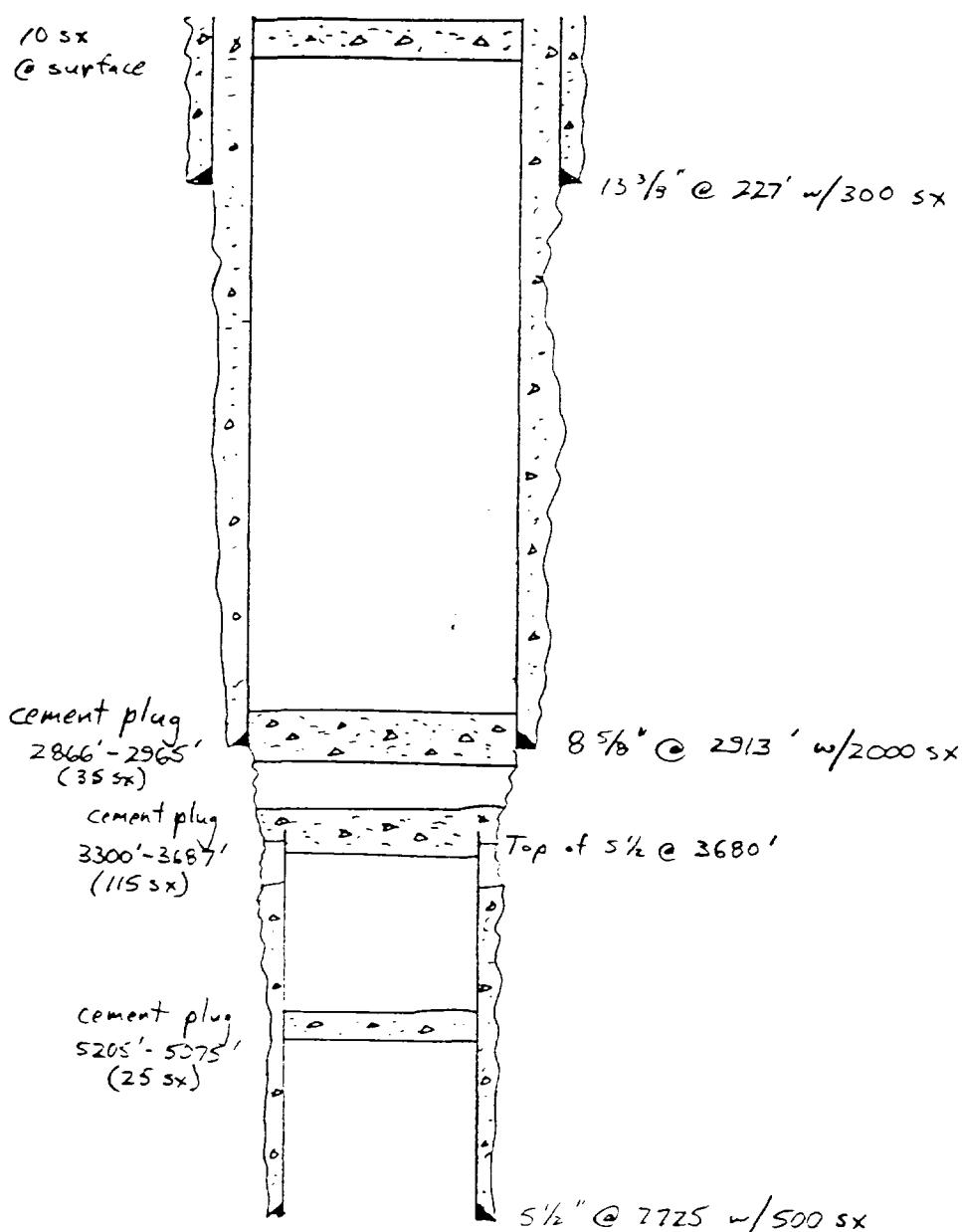
22-215-37E



P+A'd well

Shell Turner #9

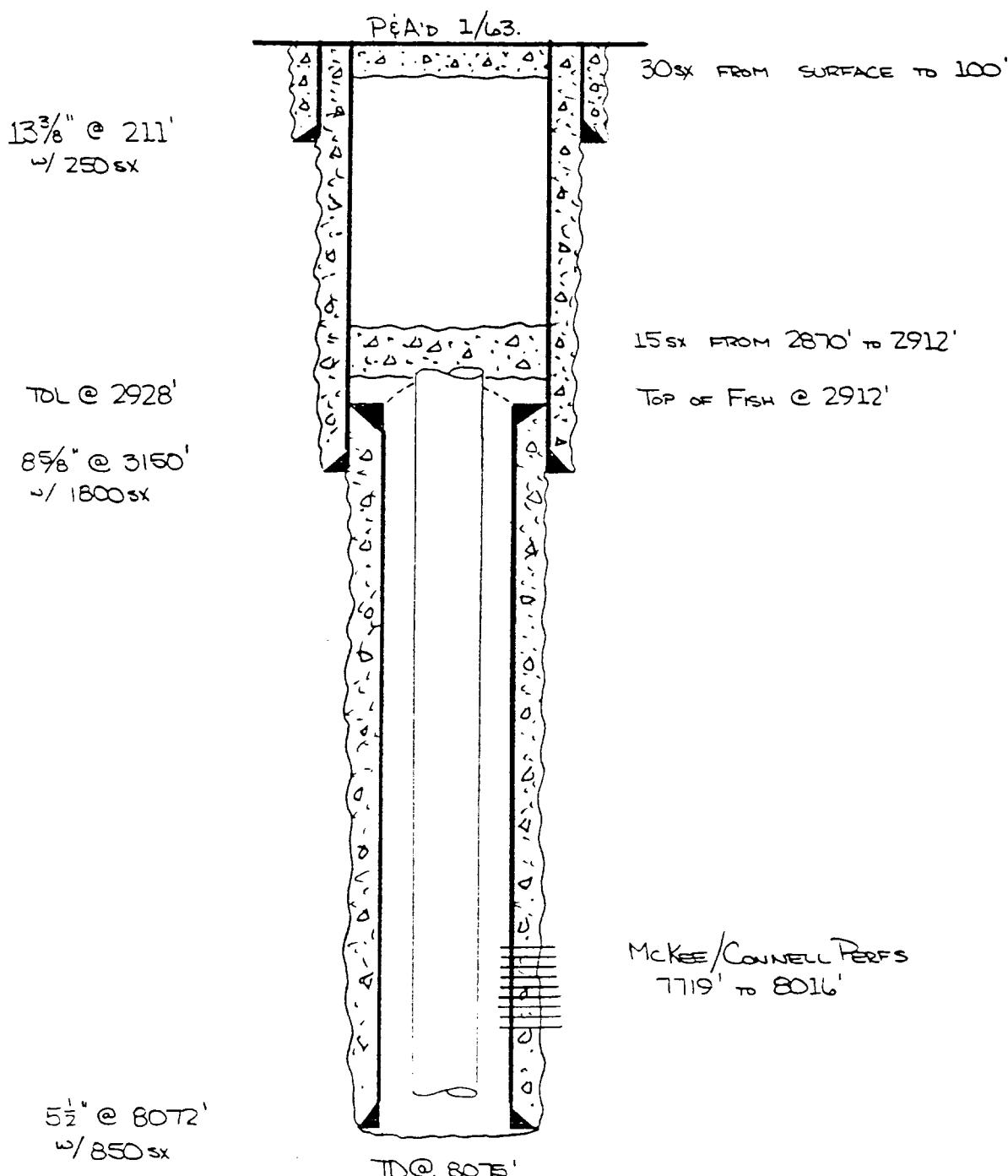
UNIT LETTER K  
22-215-37E



PtA'd well

SWEPI's STATE SECTION 2 #12

UNIT LETTERS  
2-21S-37E  
LEA County, New Mexico

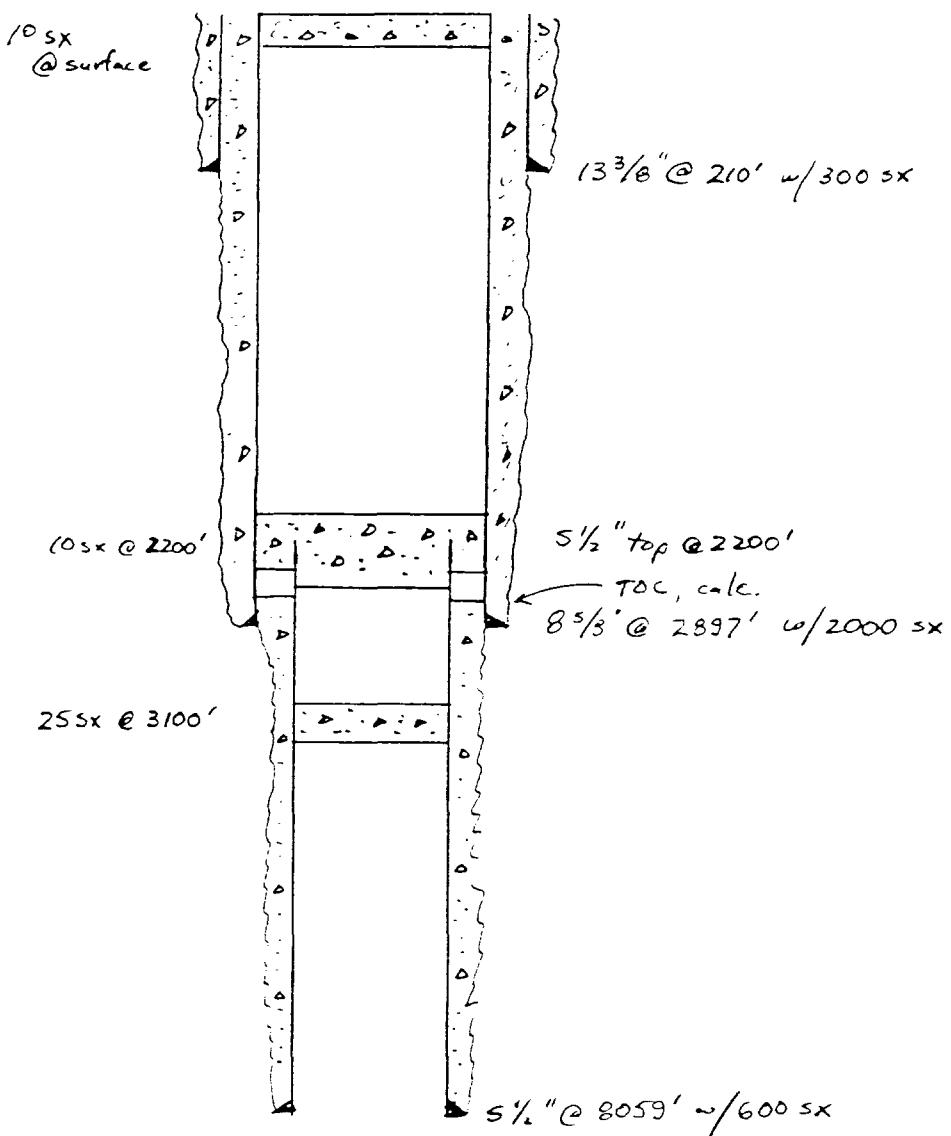


VTP  
9/87

P+A'd well

SHELL TURNER #7

3630' FNL, 4950' FEL  
22-21S-37E



## AFFIDAVIT OF PUBLICATION

State of New Mexico,  
County of Lea.

I, Kathi Bearden

General Manager

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.

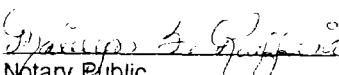
of 1

                   weeks.  
Beginning with the issue dated

May, 21, 1995  
and ending with the issue dated

May, 21, 1995

  
Kathi Bearden  
General Manager  
Sword and subscribed to before  
me this 25 day of

May, 1995  
  
Shirley A. Griffith  
Notary Public.

My Commission expires  
March 24, 1998  
(Seal)

### LEGAL NOTICE

May 21, 1995

Notice is hereby given of the application of Shell Western E & P Inc., Attention: Y. T. Iverson, Land Representative, P.O. Box 576, Houston, TX 77001 (713) 544-3226, to the Oil Conservation Division, New Mexico Energy, Minerals and Natural Resources Department, for approval of the following injection wells for the purpose of secondary recovery.

Pool Name: North Eunice Blinebry-Tubb-Drinkard Oil & Gas Lease/Unit Name: Northeast Drinkard Unit All wells are located in Lea County, New Mexico Well No. 110-(Formerly Conoco Hawk B-3, No. 18) Location-1980' FNL & 1980' FEL Section 3, T21S-R37E Unit G Well No. 224-(Formerly Chevron H. Leonard NCT-F, No. 7) Location-4302.8 FSL & 2317 FEL Section 2, T21S-R37E Unit J Well No. 308-(Formerly Conoco Hawk B-3, No. 11) Location-1980' FSL & 660' FEL Section 3, T21S-R37E Unit Q Well No. 318-(Formerly Conoco Harry Leonard NCT-F, No. 18) Location-1650' FSL & 1980' FEL Section 2, T21S-R37E Unit R Well No. 902-(Formerly Turner No. 10) Location-2080' FSL & 1650' FWL Section 22, T21S-R37E Unit K

The injection formations are the Blinebry, Tubb, and Drinkard located between the intervals of 5500' MD to 6800' MD below the surface of the ground. Expected maximum injection rate is 2000 barrels per day, and expected maximum injection pressure is 1200psi. Interested parties must file objections or requests for hearing with the Oil Conservation Division, 310 Old Santa Fe Trail, Room 206, Santa Fe, New Mexico 87504, within fifteen days.

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.

PS Form 3811, July 1983 447-845

<b>● SENDER:</b> Complete items 1, 2, 3 and 4.	
Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.	
1. <input type="checkbox"/> Show to whom, date and address of delivery. 2. <input type="checkbox"/> Restricted Delivery.	
3. Article Addressed to:	
CHRIS M. FURNEAUX P.O. BOX 575 WILDEN, CO 80480	
4. Type of Service:	Article Number
<input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail	P 300 358319
Always obtain signature of addressee or agent and DATE DELIVERED.	
5. Signature - Addressee	
X X	
6. Signature - Agent	
X X	
7. Date of Delivery	
8. Addressee's Address (ONLY if requested and fee paid)	

**● SENDER:** Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

## 3. Article Addressed to:

MARILYN McNEILL CATES  
SLOT 1 S. CRESTBROOK  
MORRISON, CO 80465

## 4. Type of Service:

<input type="checkbox"/> Registered	<input type="checkbox"/> Insured
<input checked="" type="checkbox"/> Certified	<input type="checkbox"/> COD
Express Mail	

P 300 358 320

## Article Number

**● SENDER:** Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

## 3. Article Addressed to:

MARCIA McNEILL BLACKBURN  
P.O. BOX 3989  
ABILENE, TX 79604

## 4. Type of Service:

<input type="checkbox"/> Registered	<input type="checkbox"/> Insured
<input checked="" type="checkbox"/> Certified	<input type="checkbox"/> COD
Express Mail	

P 300 358 321

## Article Number

**● SENDER:** Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

## 3. Article Addressed to:

MURIEL T. McNEILL  
IND. AS TRUSTEE OF THE WILHELM  
TERRY TRUST  
P.O. BOX 666  
HOBBS, NM 88241

## 4. Type of Service:

<input type="checkbox"/> Registered	<input type="checkbox"/> Insured
<input checked="" type="checkbox"/> Certified	<input type="checkbox"/> COD
Express Mail	

P 300 358 322

## Article Number

**● SENDER:** Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

## 3. Article Addressed to:

JOHN H. HENDRIX, CORPORATION  
P.O. BOX 910  
EVANIE, NM 88231

## 4. Type of Service:

<input type="checkbox"/> Registered	<input type="checkbox"/> Insured
<input checked="" type="checkbox"/> Certified	<input type="checkbox"/> COD
Express Mail	

P 300 358 323

## Article Number

**● SENDER:** Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

## 3. Article Addressed to:

JAMES L. HARRIS  
P.O. BOX 910  
EVANIE, NM 88231

## 4. Type of Service:

<input type="checkbox"/> Registered	<input type="checkbox"/> Insured
<input checked="" type="checkbox"/> Certified	<input type="checkbox"/> COD
Express Mail	

P 300 358 324

## Article Number

● SENDER: Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

3. Article Addressed to:

EXXON CORPORATION  
P.O. BOX 1600  
MIDLAND, TX 79702-1600

PS Form 3811, July 1983 447-845

● SENDER: Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

3. Article Addressed to:

ELLIOTT OIL COMPANY  
P.O. BOX 1355  
ROSWELL, NM 88202-1355

PS Form 3811, July 1983 447-845

● SENDER: Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

3. Article Addressed to:

CORTECO, INC.  
1410 N. WEST COUNTY ROAD  
HOBBS, NM 88240

PS Form 3811, July 1983 447-845

● SENDER: Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

3. Article Addressed to:

S.E. CONE JR.  
P.O. BOX 10321  
LUBBOCK, TX 79408-3321

PS Form 3811, July 1983 447-845

● SENDER: Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

3. Article Addressed to:

DOMESTIC RETURN RECEIPT  
5. Signature - Addressee  
X  
6. Signature - Agent  
X  
7. Date of Delivery  
  
8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, July 1983 447-845

● SENDER: Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

3. Article Addressed to:

DOMESTIC RETURN RECEIPT  
5. Signature - Addressee  
X  
6. Signature - Agent  
X  
7. Date of Delivery  
  
8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, July 1983 447-845

● SENDER: Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

3. Article Addressed to:

DOMESTIC RETURN RECEIPT  
5. Signature - Addressee  
X  
6. Signature - Agent  
X  
7. Date of Delivery  
  
8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, July 1983 447-845

● SENDER: Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

3. Article Addressed to:

DOMESTIC RETURN RECEIPT  
5. Signature - Addressee  
X  
6. Signature - Agent  
X  
7. Date of Delivery  
  
8. Addressee's Address (ONLY if requested and fee paid)

**● SENDER:** Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

3. Article Addressed to:  
**MILLARD DECK**  
 C/O NATIONAL BANK OF TEXAS  
 1417 N.E. LOOP 410, SUITE 1250  
 SAN ANTONIO, TX 78217

4. Type of Service:  
 Registered     Insured     Certified     COD     Express Mail    P 241 193 937

Always obtain signature of addressee or agent and DATE DELIVERED.

DOMESTIC RETURN RECEIPT

**● SENDER:** Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

3. Article Addressed to:  
**DALLAS McCASLAND**  
 P.O. BOX 2000  
 EUNICE, NM 88231

4. Type of Service:  
 Registered     Insured     Certified     COD     Express Mail    P 241 193 938

Always obtain signature of addressee or agent and DATE DELIVERED.

DOMESTIC RETURN RECEIPT

**● SENDER:** Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

3. Article Addressed to:  
**STATE OF NEW MEXICO**  
 OFFICE OF LAND COMMISSIONER  
 P.O. BOX 1146  
 STATE LAND OFFICE BLDG.  
 SANTA FE, NM 87504-1146

4. Type of Service:  
 Registered     Insured     Certified     COD     Express Mail    P 241 193 939

Always obtain signature of addressee or agent and DATE DELIVERED.

DOMESTIC RETURN RECEIPT

**● SENDER:** Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

3. Article Addressed to:  
**STATE OF NEW MEXICO**  
 BLM CONSERVATION DIVISION  
 2040 SOUTH PACHECO  
 SANTA FE NM 87505

4. Type of Service:  
 Registered     Insured     Certified     COD     Express Mail    P 247 193 940

Always obtain signature of addressee or agent and DATE DELIVERED.

DOMESTIC RETURN RECEIPT

**● SENDER:** Complete items 1, 2, 3 and 4.

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

1.  Show to whom, date and address of delivery.
2.  Restricted Delivery.

3. Article Addressed to:  
**STATE OF NEW MEXICO**  
 BLM CONSERVATION DIVISION  
 2040 SOUTH PACHECO  
 SANTA FE NM 87505

4. Type of Service:  
 Registered     Insured     Certified     COD     Express Mail    P 247 193 940

Always obtain signature of addressee or agent and DATE DELIVERED.

DOMESTIC RETURN RECEIPT

8

8. Addressee's Address (ONLY if requested and fee paid)

8. Addressee's Address (ONLY if requested and fee paid)

# CHECKLIST for ADMINISTRATIVE INJECTION APPLICATIONS

Operator: Shell Western E&P Inc. Well: NORTHEAST DRINKARD UNIT - 5 WELLS

Contact: YVONNE IVERSON Title: LAND REP Phone: (713) 544-3226

DATE IN 7-3-95

RELEASE DATE 7-17-95

DATE OUT 7-27-95

Proposed Injection Application is for:  WATERFLOOD  Expansion  Initial

Original Order: R- 8541  Secondary Recovery  Pressure Maintenance

~~SENSITIVE AREAS~~

SALT WATER DISPOSAL

~~WIRP~~

~~Capitan Reef~~

Commercial Operation

Data is complete for proposed well(s)? YES Additional Data \_\_\_\_\_

## AREA of REVIEW WELLS

117 Total # of AOR

6 # of Plugged Wells

YES Tabulation Complete

YES Schematics of P & A's

\* YES Cement Tops Adequate

YES AOR Repair Required - AS NOTED BELOW

## INJECTION INFORMATION

Injection Formation(s)

SUNEBRY / TUBB / DRINKARD

Source of Water

SAN ANDRES SUPPLY WELLS

Compatible YES

## PROOF OF NOTICE

YES Copy of Legal Notice

YES Information Printed Correctly

YES Correct Operators

YES Copies of Certified Mail Receipts

NO Objection Received

Set to Hearing N/A Date

NOTES: Cart Sqz: DAVRON No. 3 "A" 10-215-37E

EUBANK 'C' No. 8 "G" 22-215-37E

## APPLICATION QUALIFIES FOR ADMINISTRATIVE APPROVAL YES

### COMMUNICATION WITH CONTACT PERSON:

1st Contact:  Telephoned  Letter  Date Nature of Discussion \_\_\_\_\_

2nd Contact:  Telephoned  Letter  Date Nature of Discussion \_\_\_\_\_

3rd Contact:  Telephoned  Letter  Date Nature of Discussion \_\_\_\_\_