Release Date
July 13, 1987

conoco

R. E. Irelan
Division Manager
Production Department
Hobbs Division
North American Production

Conoco Inc.
P.O. Box 460
726 East Michigan
Hobbs, NM 88240
(505) 393-4141

June 26, 1987

New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Attention Mr. W. J. LeMay

Gentlemen:

Application to Convert To Water Injection, Warren Unit (McKee) Well No. 88, Unit M, Section 29, T-20-S, R-38-E, Lea County, New Mexico

Attached are three (3) copies of the subject Application. Conoco Inc. respectfully requests administrative approval to convert to its Warren Unit (McKee) Well No. 88 from a producing well in the Warren Unit Area Waterflood Project approved by Order R-5632. Daily production of this well has declined to 1 BOPD, 169 BWPD, with no remedial prospects. Conoco Inc. is operator and co-owner of the Warren Unit situated in parts of Sections 20, 21, 22, 25, all of Sections 26, 27, 28, part of Section 29 and all of Sections 33, 34 and 35, T-20-S, R-38-E, Lea County, New Mexico. The Warren Unit McKee Participating Area consists of the E/2 SE/4 Section 20, E/2 NE/4 and S/2 Section 29.

Form C-108 and supporting data are attached to this application. A copy of this letter and attachments are being sent by certified mail to the Bureau of Land Management, surface owner at well location, and to operators within one-half mile of the Warren Unit Well No. 88. This is their notification that objections or requests for hearing must be filed with the New Mexico Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico, 87501 within 15 days of receipt of this letter.

If there are no objections within 15 days of receipt of this Application, it is requested that an Administrative Order be written approving this request.

Yours very truly,

R E Irelan

HAI/tm

Surface - Unleased Federal
as per Hugh Ingram
Was advised they notified
Shell & Chevron
E/L → Shell

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: [X] Secondary Recovery [ ] Pressure Maintenance [ ] Disposal [ ] Storage
Application qualifies for administrative approval? [X] yes [ ] no

II. Operator: Conoco Inc.

Address: P. O. Box 460, Hobbs, NM 88240

Contact party: Hugh Ingram Phone: 393-4141

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? [X] yes [ ] no
If yes, give the Division order number authorizing the project R-5632.

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: Hugh Ingram Title Conservation Coordinator

Signature: _____ Date: _____

* 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.

Warren McKee No. 88

Conversion to Injection

Target Formation: McKee Sand

Pool: Warren McKee

Purpose of Injection: Secondary Recovery

Description of Program: Conversion of Warren McKee No. 88 to injection will expand the Warren McKee Waterflood currently operated by Conoco. Conversion of Well No. 88 will allow for completion of the southwesternmost pattern in the field. Well No. 88 will be added to the open injection system currently in place in the field. Water is supplied by the City of Hobbs in the form of sewage effluent. This water is treated and made slightly saline prior to injection. This system has worked well as injection has progressed smoothly in the field for nine years.

Proposed Daily Injection, Avg: 600 BW Maximum: 1300 BW

Proposed Injection Pressure, Avg: 700 psi Maximum: 1200 psi

Geological Discussion of McKee Sand: The McKee Sand is part of the Simpson Group of Middle Ordivician Age. The gross productive interval in McKee No. 88 is 146 feet thick with net pay of 53 feet. The McKee Sand is broken into several different productive zones. These zones are separated by thin shaley stringers which appear to form effective barriers to vertical fluid movement. These sand zones and shaley stringers appear to be continuous and can be correlated from well to well.

Average Depth of Injection: 9056'

Stimulation Program: None

Recent Well Test: 1 BOPD, 169 BWPD

WELL: WARREN McKEE NO. 88 — PREPARED BY: SDA — DATE: 12/15/86

LOCATION: 660' FSL & 660' FWL — SECTION: 29 — TOWNSHIP: 20 SOUTH — RANGE: 38 EAST

COUNTY: LEA — STATE: NM

DATUM: 3328 — GROUND LEVEL: 3511 — TD: 9354 — PBTD: 9195

CASING RECORD

SIZE,IN.	GRADE	WEIGHT	DEPTH	CMT.	TOC	HOLE SIZE,IN.
13-3/8	K-55	54.5	1382	1130 SX	CIRC.	17-1/2
7	K-55	26	9345	3500 SX	1900	12-1/4
					@ 3200	8-3/4
3-1/2	C-75	9.2	145 JTS			
2-7/8	L-80	6.5	142 JTS			

LOGGING INFORMATION

DATE	TYPE	DEPTH
8-81	GR-FDC-CNL	5300-9328
8-81	GR-DLL	5300-9318
8-81	GR-SONIC	1330-9328

LOG TOPS

ZONE	TOP	SUBSEA
GLORIETA	5339	-1811
BLINEBRY	5866	-2338
TUBB	6362	-2834
DRINKARD	6702	-3174
ABO	6979	-3451
DEVONIAN	7908	-4380
FUSSELMAN	8233	-4705
MONTOYA	8490	-4962
SIMPSON	8789	-5261
McKEE	9082	-5554

PERFORATION RECORD

DATE	ZONE	DEPTHS	DENSITY & SIZE
9-81	McKEE	9220-28	4 JSPF
9-81	McKEE	9082-90, 9104-111, 130-136	4 JSPF
3-87	McKEE	9118-22, 9145-54, 9161-69, 9173-76	4 JSPF

SQUEEZE AND REPAIR

DATE	DEPTHS	WORK DONE
9-81	9220-28	SET CIBP WITH 6 SX. CLASS H ON TOP

STIMULATION RECORD

DATE	ZONE	AMOUNT AND TYPE	BEFORE	AFTER
9-81	9220-28	ACIDIZE WITH 600 GALS. 15% HCL	-	SWAB 70 BW
9-81	9082-9136	ACIDIZE WITH 1764 GALS. 15% HCL	-	43 BOPD
3-87	9082-9176	ACIDIZE WITH 50 BBLS 15% HCL-NE-FE	14 BOPD	0 BOPD, 145 BWPD

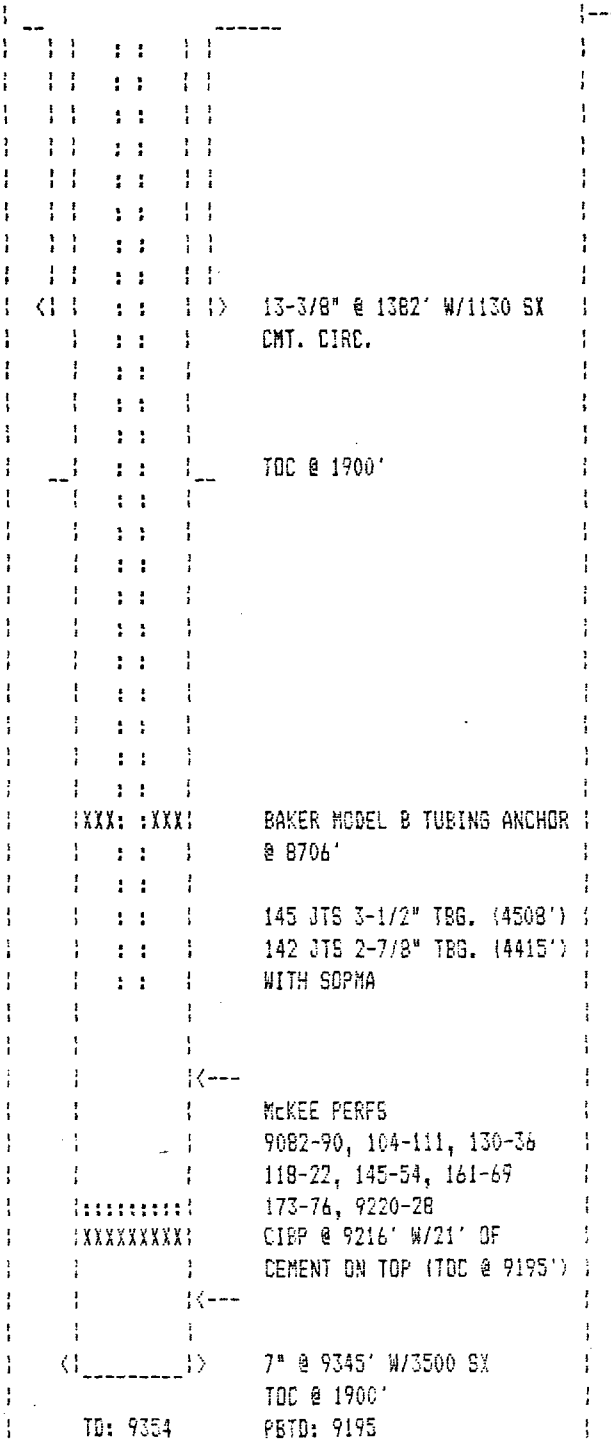
WELL: WARREN McKEE NO. 88 — PREPARED BY: SDA — DATE: 12/15/86

LOCATION: 660' FSL & 660' FWL — SECTION: 29 — TOWNSHIP: 20 SOUTH — RANGE: 38 EAST

COUNTY: LEA — STATE: NM

DATUM: 3528 — GROUND LEVEL: 3511 — TD: 9354 — PBTD: 9195

WELLBORE DIAGRAM (Present)



PULLING AND WORKOVER HISTORY

DATE	WORK PERFORMED
11-81	RUN TAPERED TUBING STRING
11-81	PUMP PARTED
12-81	TFF, PUMP PARTED
1-82	CHECK TUBING ANCHOR
5-82	CHANGE PUMP
9-82	PUMP PARTED
10-82	STUCK PUMP, C.O. TO 9216' (ACCORDING TO DDR)
8-83	PUMP PART, C.O. FILL
6-84	STUCK PUMP
12-84	CHANGE PUMP, TUBING ANCHOR
1-85	CHANGE PUMP, C.O. 60' FILL
9-85	C.O. TO PBTD
10-85	ROD PART
12-85	TUBING LEAK
2-86	ROD PART
3-86	CHANGE PUMP, POLISHED ROD, ROD PART
4-86	REPLACE WORN BOXES, ROD PART
5-86	ROD PART, FOUND SOPMA FULL OF SAND AND 125' OF SAND IN W
12-86	BODY BREAK BELOW POLISHED ROD
3-87	OPEN ADDITIONAL DAY AND ACIDIZE

WELL: WARREN McKEE NO. 4 PREPARED BY: SDA

DATE: 12/8/86

LOCATION: 1980' FSL & 660' FEL SECTION: 29 TOWNSHIP: 20 SOUTH RANGE: 38 EAST

COUNTY: LEA STATE: NM

DATUM: 3530 GROUND LEVEL: 3517 TD: 9220 PBTD: 9112

CASING RECORD

SIZE,IN.	GRADE	WEIGHT	DEPTH	CMT.	TOC	HOLE SIZE,IN.
13-3/8	WELDED	36	254	250 SX	CIRC.	17-1/4
9-5/8	H-40/J-55	36/40	2824	1915 SX	400	12-1/4
7	J-55/N-80	23/26	9225	286 SX	7300	8-3/4
2-7/8	J-55	6.5	8963			

LOGGING INFORMATION

DATE	TYPE	DEPTH
6-50	CALIPER	200-2825
7-50	SP-RESISTIVITY	2816-9217
7-50	SECTION GAUGE	2816-9217

LOG TOPS

ZONE	TOP	SUBSEA
GLORIETA	5338	-1808
TUBB	6352	-2822
DRINKARD	6680	-3150
DEVONIAN	7770	-4240
FUSSELMAN	8050	-4520
MONTOYA	8420	-4890
SIMPSON	8605	-5075
McKEE	8945	-5415

PERFORATION RECORD

DATE	ZONE	DEPTHS	DENSITY & SIZE
7-50	McKEE	9046-9081, 9087-9144	8 SPF
11-81	McKEE	9018-9034	4 JSPF(64 HOLES)

SQUEEZE AND REPAIR

DATE	DEPTHS	WORK DONE
4-56	McKEE	PB TO 9112'
4-56	6280'	SQUEEZE LEAK WITH 1500 SX.

STIMULATION RECORD

DATE	ZONE	AMOUNT AND TYPE	BEFORE	AFTER
7-50	McKEE	NATURAL	-	1752 BOPD
12-81	9018-9034	ACIDIZED WITH 30 BBLS. 15% HCL	57 BOPD, 187 BWPD	81 BOPD, 368 BWPD
2-86	9018-9090	ACIDIZED WITH 72 BBLS. 15% HCL	17 BOPD	NC

WELL: WARREN McKEE NO. 4 PREPARED BY: SDA

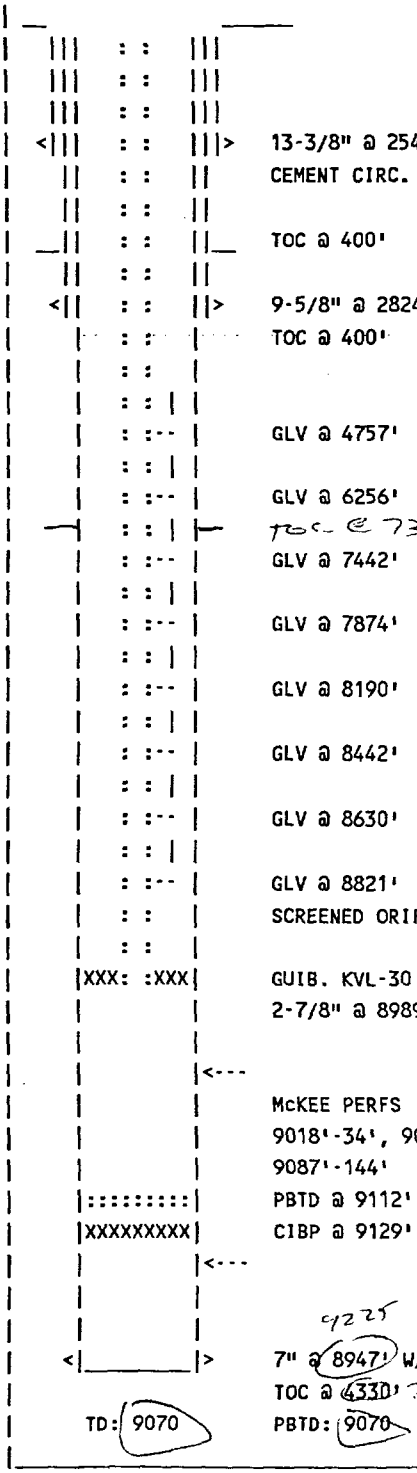
DATE: 12/8/86

LOCATION: 1980' FSL & 660' FEL SECTION: 29 TOWNSHIP: 20 SOUTH RANGE: 38 EAST

COUNTY: LEA STATE: NM

DATUM: 3530 GROUND LEVEL: 3517 TD: 9220 PBTD: 9112

WELLBORE DIAGRAM



PULLING AND WORKOVER HISTORY

DATE	WORK PERFORMED
4-56	C.O. AND PLUG BACK
8-63	C.O. AND INSTALL FLOW VALVES
7-65	CHAMBER G.L. EQUIPMENT STUCK IN WELL
11-65	MILL STUCK EQUIPMENT, C.O.
3-67	S.I.
5-79	C.O. AND CHG. G.L. VALVES
6-80	PUT ON PUMP
6-80	PARTED SUB
8-80	PARTED K-BAR
9-80	CHG. PUMP
10-80	C.O. AND CHG. PUMP
10-80	CHG. MUD ANCHOR, PARTED POLISHED ROD
12-80	CHG. PUMP AND DIP TUBE
12-80	PARTED K-BAR, RUN G.L. VALVES
7-81	C.O. TO PBTD, RE-SPACE VALVES
11-81	PERF. ADDITIONAL PAY
2-86	ACIDIZE, INSTALL NEW G.L. VALVES, SCALE SQUEEZE

WELL: WARREN McKEE NO. 6 PREPARED BY: SDA

DATE: 12/8/86

LOCATION: 660' FSL & 1980' FWL SECTION: 29 TOWNSHIP: 20 SOUTH RANGE: 38 EAST

COUNTY: LEA STATE: NM

DATUM: 3527 GROUND LEVEL: 3515 TD: 9160 PBTD: 9085

CASING RECORD

SIZE, IN.	GRADE	WEIGHT	DEPTH	CMT.	TOC	HOLE SIZE, IN.
10-3/4	H-40	32.75	243	200 SX	CIRC.	13-3/4
7-5/8	H-40	24	2893	1145 SX	800	9-7/8
5-1/2	J-55/N-80	15.5/17	9159	1650 SX	4650	6-3/4
2-7/8	J-55	6.5	8986			

LOGGING INFORMATION

DATE	TYPE	DEPTH
8-50	CALIPER	243-2874
10-50	SP-RESISTIVITY	2893-9157
8-59	RADIOACTIVITY	8097-9085

LOG TOPS

ZONE	TOP	SUBSEA
GLORIETA	5379	-1852
TUBB	6370	-2843
DRINKARD	6670	-3143
DEVONIAN	7755	-4228
FUSSELMAN	8050	-4523
MONTOYA	8455	-4928
SIMPSON	8630	-5103
McKEE	8923	-5396

PERFORATION RECORD

DATE	ZONE	DEPTHS	DENSITY & SIZE
10-50	McKEE	9016-59, 9065-116	4 JSPF
9-59	McKEE	9011-19, 34-44, 55-65, 73-81	4 JSPF

SQUEEZE AND REPAIR

DATE	DEPTHS	WORK DONE
7-56	9093-9160	PB TO 9093 WITH 25 SX.
9-59	9016-9093	SQUEEZE PERFS WITH 200 SX.

STIMULATION RECORD

DATE	ZONE	AMOUNT AND TYPE	BEFORE	AFTER
10-50	McKEE	NATURAL	-	915 BOPD
9-59	McKEE	REPERF, ACID. W/500 GALS. 15% HCL	52 BOPD	114 BOPD
		FRAC W/29,000 GALS.	1 BWPD	0 BOPD
12-83	McKEE	ACIDIZED WITH UNKNOWN AMOUNT	NA	NA

WELL: WARREN McKEE NO. 6 PREPARED BY: SDA

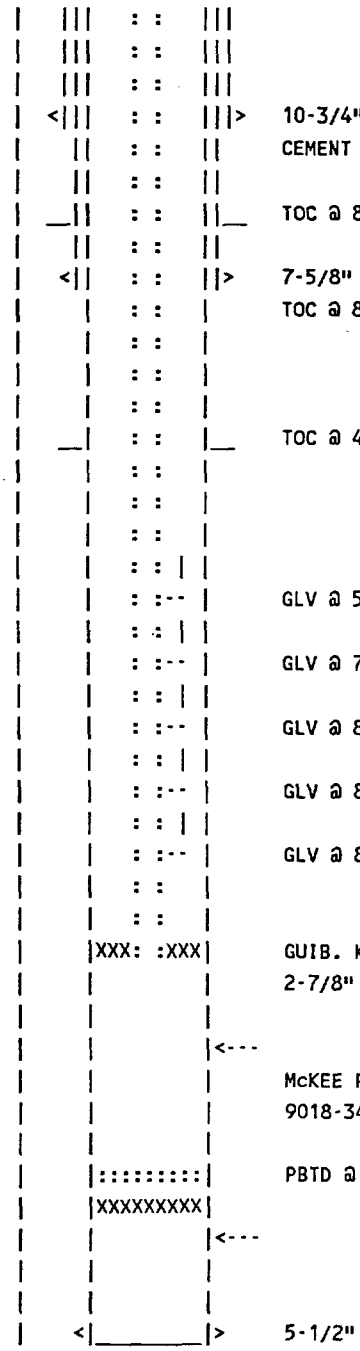
DATE: 12/8/86

LOCATION: 660' FSL & 1980' FWL SECTION: 29 TOWNSHIP: 20 SOUTH RANGE: 38 EAST

COUNTY: LEA STATE: NM

DATUM: 3527 GROUND LEVEL: 3515 TD: 9160 PBTD: 9085

WELLBORE DIAGRAM



PULLING AND WORKOVER HISTORY

DATE	WORK PERFORMED
9-55	INSTALL GAS LIFT VALVES
7-56	C.O., PLUG BACK
3-59	CLEAN OUT
9-59	C.O., SQUEEZE, RE-PERF, FRAC
10-59	CLEAN OUT
4-65	CLEAN OUT
12-80	REPLACE TUBING, INSTALL ADD'L G.L. VALVES
10-81	CHANGE G.L. VALVES
9-83	BHP SURVEY
12-83	CHANGE G.L. VALVES, ACIDIZE

WELL: WARREN McKEE NO. 22

PREPARED BY: SDA
DATE: 12/11/86

LOCATION: 2090' fsl & 2090' fwl SECTION: 29 TOWNSHIP: 20 SOUTH RANGE: 38 EAST
COUNTY: LEA STATE: NM
DATUM: 3532 GROUND LEVEL: 3519 TD: 9200 PBTD: 9161

CASING RECORD

SIZE,IN.	GRADE	WEIGHT	DEPTH	CMT.	TOC	HOLE SIZE,IN.
10-3/4	H-40	32.75	256	250 SX	CIRC.	13-3/4
7-5/8	N-80/H-40	24/26.4	3998	700 SX	1375	9-7/8
5-1/2	J-55/N-80	15.5/17	9195	270 SX	5450	6-3/4
2-3/8	J-55		8852	PLASTIC	COATED	

LOGGING INFORMATION

DATE	TYPE	DEPTH
9-57	SP-MICRO	4000-9198
9-57	GR-NL	50-9150
	NUMEROUS TRACERS HAVE BEEN RUN	

LOG TOPS

ZONE	TOP	SUBSEA
RUSTLER	1373	2159
SALADO	1472	2060
YATES	2688	844
SEVEN RIVERS	2444	1088
QUEEN	3517	15
GRAYBURG	3861	-329
GLORIETA	5356	-1824
BLINEBRY	5880	-2348
TUBB	6363	-2831
DRINKARD	6670	-3138
ABO	6956	-3424
McKEE	8878	-5346

PERFORATION RECORD

DATE	ZONE	DEPTHS	DENSITY & SIZE
9-57	McKEE	8965, 8976, 8998, 9025, 9035, 9049	8 JSPF
		9071, 9108, 9123	

SQUEEZE AND REPAIR

DATE	DEPTHS	WORK DONE

STIMULATION RECORD

DATE	ZONE	AMOUNT AND TYPE	BEFORE	AFTER
9-57	McKEE	NATURAL, GAS LIFT	-	162 BOPD
6-59	McKEE	FRAC WITH 47,300 GALS.	78 BOPD	158 BOPD

WELL: WARREN McKEE NO. 22

PREPARED BY: SDA

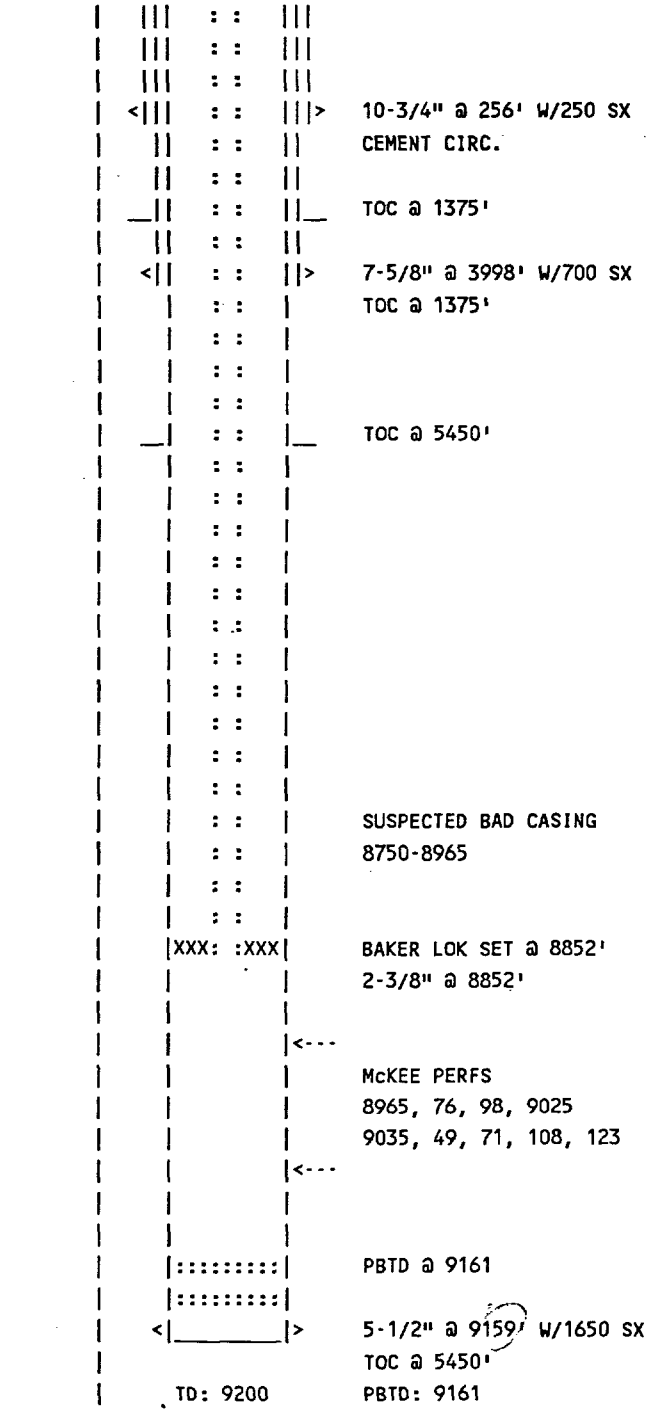
DATE: 12/11/86

LOCATION: 2090' fsl & 2090' fwl SECTION: 29 TOWNSHIP: 20 SOUTH RANGE: 38 EAST

COUNTY: LEA STATE: NM

DATUM: 3532 GROUND LEVEL: 3519 TD: 9200 PBTD: 9161

WELLBORE DIAGRAM



PULLING AND WORKOVER HISTORY

DATE	WORK PERFORMED
6-59	FRAC McKEE
3-62	C.O., RUN CHAMBER INSTALLATION
7-64	INSTALL NEW VALVES
9-65	C.O.
6-66	RUN STANDING VALVE
9-66	CHANGE OUT S.V.
12-75	REPLACED GAS LIFT VALVES
7-77	C.O., REPLACE VALVES
2-79	CONVERT TO IWA
9-79	C.O.
3-81	C.O., FOUND BAD CASING
6-81	CHECKED FOR CASING LEAK, NONE FOUND
9-83	CHECKED FOR TUBING-CASING COMMUNICATION
11-84	REPAIR TUBING LEAK

WELL: WARREN McKEE NO. 25

PREPARED BY: SDA

DATE: 12/11/86

LOCATION: 990' FSL & 2310' FEL SECTION: 29 TOWNSHIP: 20 SOUTH RANGE: 38 EAST

COUNTY: LEA STATE: NM

DATUM: 3525 GROUND LEVEL: 3515 TD: 9218 PBTD: 9188

CASING RECORD

SIZE,IN.	GRADE	WEIGHT	DEPTH	CMT.	TOC	HOLE SIZE,IN.
10-3/4	H-40	32.75	263	250 SX	CIRC.	15
7-5/8	N-80/H-40	24/26.4	4000	3350 SX	1575	9-7/8
5-1/2	J-55/N-80	15.5/17	9215	675 SX	5700	6-3/4
2-3/8	J-55		8756	PLASTIC	COATED	

LOGGING INFORMATION

DATE	TYPE	DEPTH
2-58	CALIPER	262-3860
4-58	GR-NL	1300-9182
4-58	SP-EL-MICRO	4000-9218
	NUMEROUS TRACERS	
	HAVE BEEN RUN	

LOG TOPS

ZONE	TOP	SUBSEA
YATES	2687	838
SEVEN RIVERS	2952	573
QUEEN	3527	-2
PENROSE	3625	-100
GRAYBURG	3948	-423
SAN ANDRES	4083	-558
GLORIETA	5376	-1851
BLINEBRY	5895	-2370
TUBB	6387	-2862
DRINKARD	6687	-3162
ABO	6968	-3443
DEVONIAN	7780	-4255
MONTOYA	8466	-4941
McKEE	8934	-5409

PERFORATION RECORD

DATE	ZONE	DEPTHS	DENSITY & SIZE
4-58	McKEE	9030-32, 9053-55, 9070-72, 9092-94	8 JSPF
		9104-06, 9115-20, 9130-32	
12-58	McKEE	9024-32, 9053-72, 9092,106	4 JSPF

SQUEEZE AND REPAIR

DATE	DEPTHS	WORK DONE
12-58	9030-9132	SQUEEZED W/25 SX. PBTD @ 9176

STIMULATION RECORD

DATE	ZONE	AMOUNT AND TYPE	BEFORE	AFTER
4-58	McKEE	NATURAL, GAS LIFT	-	317 BOPD
12-58	McKEE	FRAC W/10,000 GALS. & 10,000 #	25 BOPD, 20 BWPD	161 BOPD, 0 BWPD

WELL: WARREN McKEE NO. 25 PREPARED BY: SDA

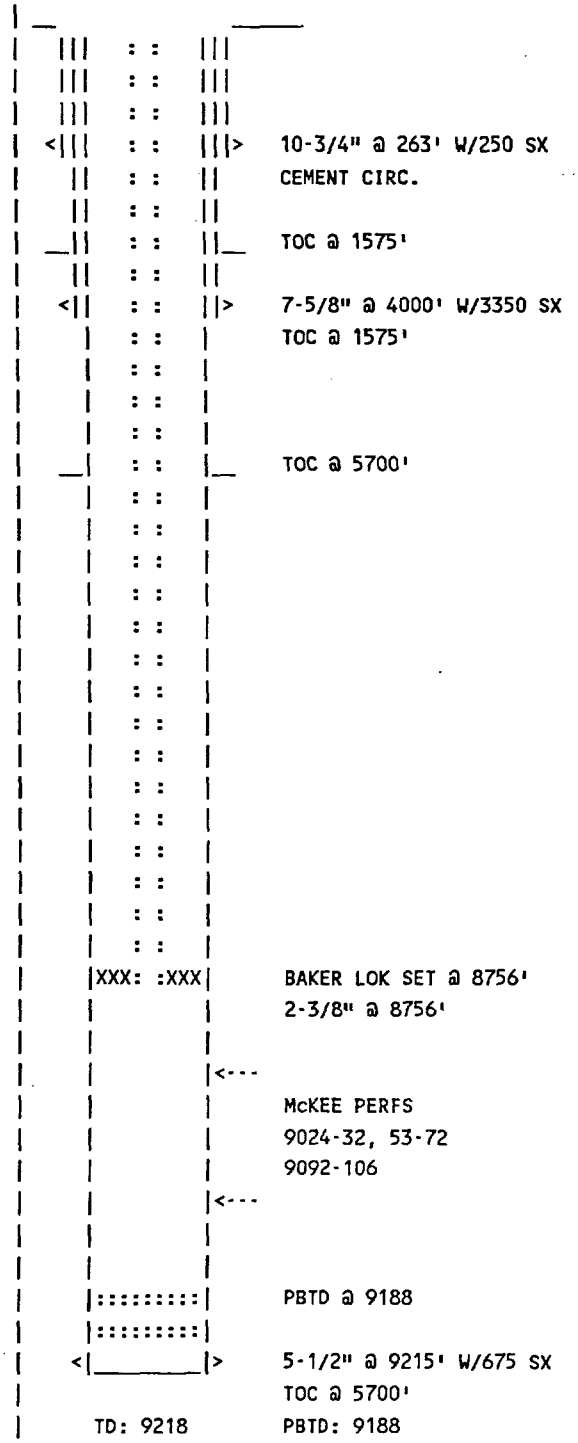
DATE: 12/11/86

LOCATION: 990' FSL & 2310' FEL SECTION: 29 TOWNSHIP: 20 SOUTH RANGE: 38 EAST

COUNTY: LEA STATE: NM

DATUM: 3525 GROUND LEVEL: 3515 TD: 9218 PBTD: 9188

WELLBORE DIAGRAM



PULLING AND WORKOVER HISTORY

DATE	WORK PERFORMED
12-58	SQUEEZE AND FRAC McKEE
7-66	C.O., INSTALL CHAMBER G.L. SYSTEM
8-78	C.O. TO TD
5-79	CONVERT TO IWA, C.O. TO 9145'
1-80	COMMUNICATION IN WELL
9-85	C.O. TO 9188', FISH PKR.

WELL: ANTWEIL LEA BU No. 1 — PREPARED BY: SDA — DATE: 5/05/87

LOCATION: 330' FNL & 2307' FWL — SECTION: 32 — TOWNSHIP: 20 SOUTH — RANGE: 38 EAST

COUNTY: LEA — STATE: NM

DATUM: 3534 — GROUND LEVEL: 3523 — TD: 9170 — PBTD: P & A

CASING RECORD

SIZE,IN.	GRADE	WEIGHT	DEPTH	CMT.	TOC	HOLE SIZE,IN.
13-3/8	H-40	48	307	400 SX	CIRC.	17-1/2
8-5/8	J-55	24/32	2991	1800 SX	CIRC.	11
5-1/2	NA	15.5/17	9159	850 SX	3510	7-7/8

LOGGING INFORMATION

DATE	TYPE	DEPTH

LOG TOPS

ZONE	TOP	SUBSEA

PERFORATION RECORD

DATE	ZONE	DEPTHS	DENSITY & SIZE
11-54	McKEE	9138-9154	4 JSPF
11-54	McKEE	9034-44, 9076-86	4 JSPF
2-68	TUBB	6303-6687	1 JSPF (16 HOLES)
2-68	TUBB?	5995-6226	1 JSPF (17 HOLES)

SQUEEZE AND REPAIR

DATE	DEPTHS	WORK DONE
11-54	9102	SET CIBP @ 9102 W/1 SX ON TOP

STIMULATION RECORD

DATE	ZONE	AMOUNT AND TYPE	BEFORE	AFTER
11-54	9138 - 9154	FRAC W/2000 GAL, 2000# SAND	-	SWAB DRY
11-54	9076 - 9086	FRAC W/7000 GALS, 7000# SAND	-	
11-54	9034 - 9044	ACIDIZE W/500 GALS, FRAC W/2000 GALS, 2000# SAND	-	74 BOPD
2-63	9034 - 9044	ACIDIZE W/500 GALS	NA	NA
2-68	6303 - 6687	ACIDIZE W/1500 GALS, FRAC W/1400 GALS, 14,000#	-	NA
2-68	5995 - 6226	ACIDIZE W/2500 GALS, FRAC W/40,000 GALS, 60,000#	-	NA

WELL: ANTWEIL LEA BU No. 1 PREPARED BY: SDA

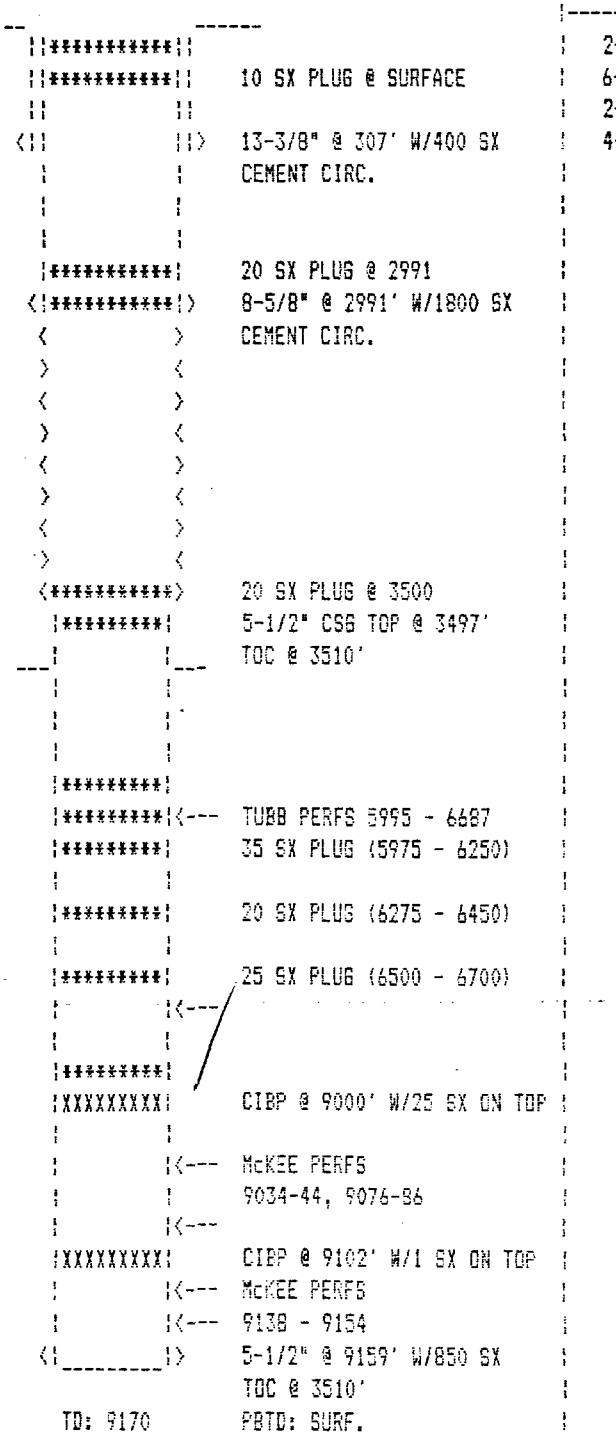
DATE: 5/05/87

LOCATION: 330' FNL & 2307' FWL SECTION: 32 TOWNSHIP: 20 SOUTH RANGE: 38 EAST

COUNTY: LEA STATE: NM

DATUM: 3534 GROUND LEVEL: 3523 TD: 9170 PBTD: P & A

WELLBORE DIAGRAM



PULLING AND WORKOVER HISTORY

DATE	WORK PERFORMED
2-63	ACIDIZE UPPER McKEE PERFS
6-64	PLUG AND ABANDON WELL
2-68	ANTWEIL RE-ENTERS WELL TO TEST TUBB
4-68	PLUG AND ABANDON WELL

WELL: SHELL STATE A No. 1 — PREPARED BY: SDA — DATE: 5/05/87

LOCATION: 330' FNL & 660' FWL — SECTION: 32 — TOWNSHIP: 20 SOUTH — RANGE: 38 EAST

COUNTY: LEA — STATE: NM

DATUM: 3521 — GROUND LEVEL: 3510 — TD: 9200 — PBTD: P & A

CASING RECORD

SIZE,IN.	GRADE	WEIGHT	DEPTH	CMT.	TOC	HOLE SIZE,IN.
13-3/8	NA	32.4	250	300 SX	CIRC.	17-1/4
8-5/8	NA	32	2950	2000 SX	CIRC.	11
5-1/2	NA	NA	7110	50 SX	NA	7-7/8

LOGGING INFORMATION

DATE	TYPE	DEPTH

LOG TOPS

ZONE	TOP	SUBSEA

PERFORATION RECORD

DATE	ZONE	DEPTHS	DENSITY & SIZE

SQUEEZE AND REPAIR

DATE	DEPTHS	WORK DONE

STIMULATION RECORD

DATE	ZONE	AMOUNT AND TYPE	BEFORE	AFTER
2-51	McKEE	DST'd OPEN HOLE ZONE	-	DST WATER
5-52	ABO	ACIDIZE W/22,500 GALS	-	SWAB 20 BOPD

WELL: SHELL STATE A No. 1 PREPARED BY: SDA

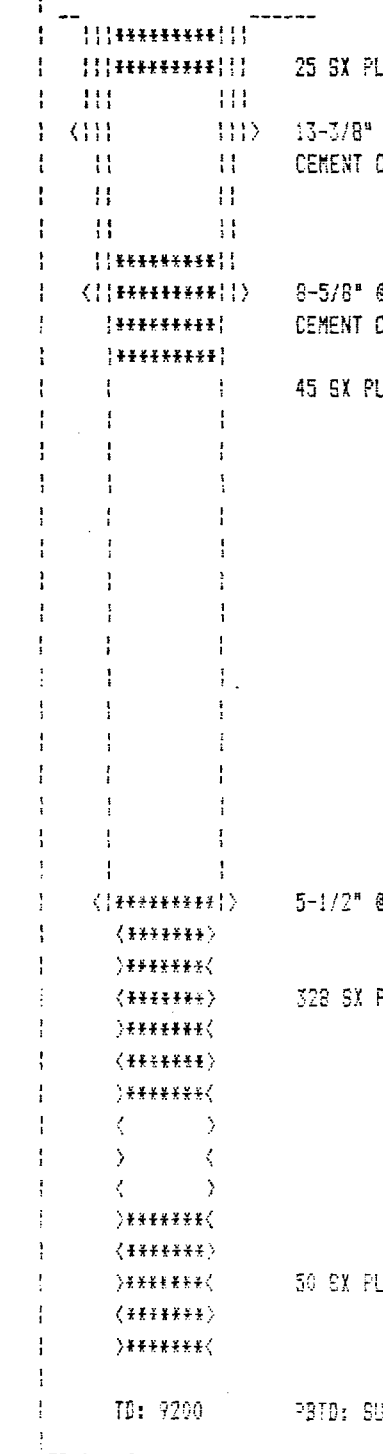
DATE: 5/05/87

LOCATION: 330' FNL & 660' FWL SECTION: 32 TOWNSHIP: 20 SOUTH RANGE: 38 EAST

COUNTY: LEA STATE: NM

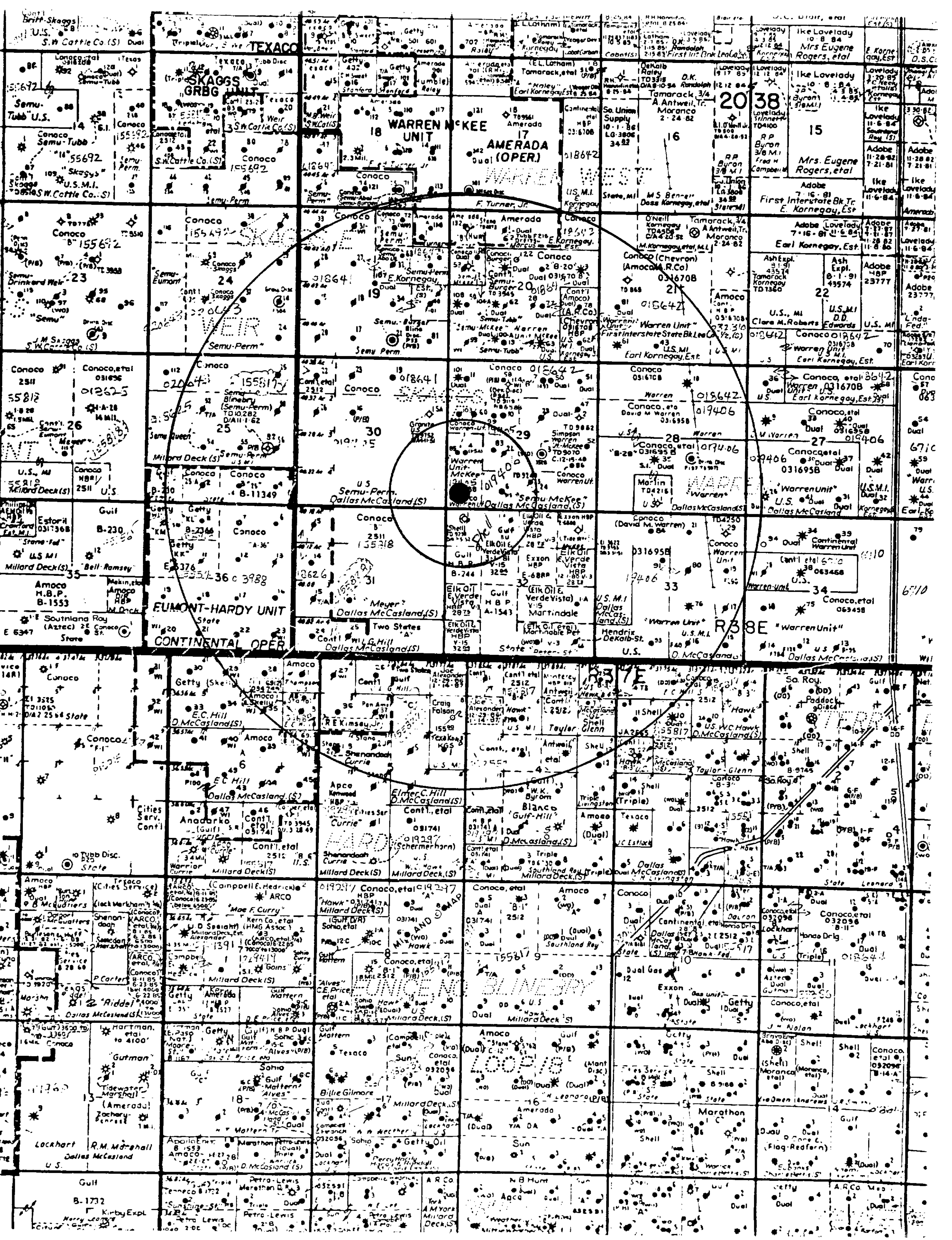
DATUM: 3521 GROUND LEVEL: 3510 TD: 9200 PBTD: P & A

WELLBORE DIAGRAM



PULLING AND WORKOVER HISTORY

DATE	WORK PERFORMED
2-51	PLUG AND ABANDON WELL
5-52	RE-ENTER WELL TO TEST ABD
5-52	PLUG AND ABANDON WELL



TEXACO
SKAGGS GRBG UNIT
WARREN McKEE UNIT
AMERADA (OPER.)
EUMONT-HARDY UNIT
CONTINENTAL OPER
R38E
R37E
Semu-Perm
Semu-McKee
Warren Unit
Dallas McCasland (S)
Millard Deck (S)
Earl Kornegay, Est.
Conoco
Amoco
Gulf
Getty
Shell
Exxon
Elk Oil & Verde Vista
Tamarack
Adobe
Ike Lovelady
Mrs. Eugene Rogers, etal
First Interstate Bk. Tr.
Two States
Shenandoah
Marathon
Sohio
Apco
Anadarko
Texaco
Sun
Cities Serv.
Lockhart
R.M. Marshall
Triple

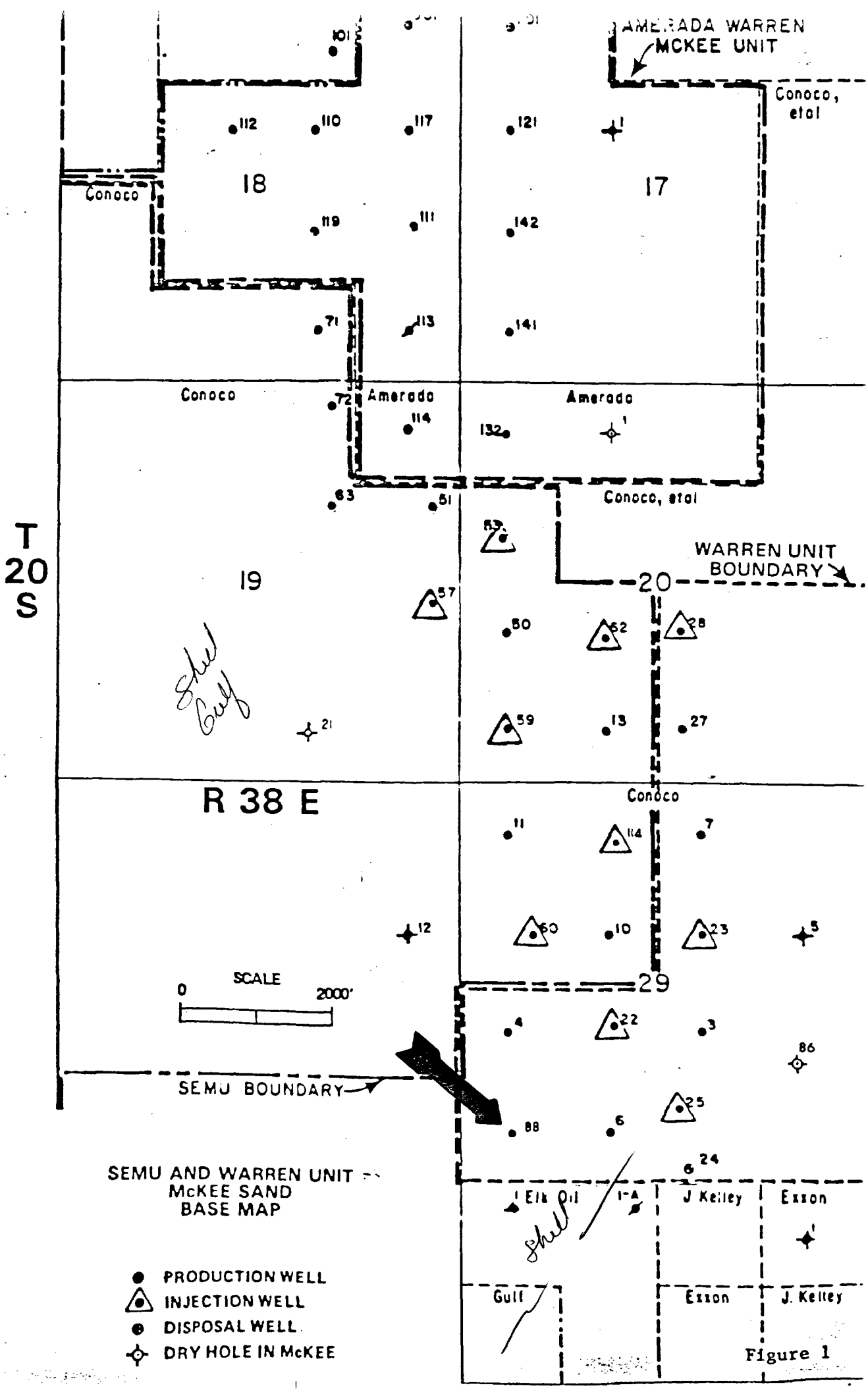
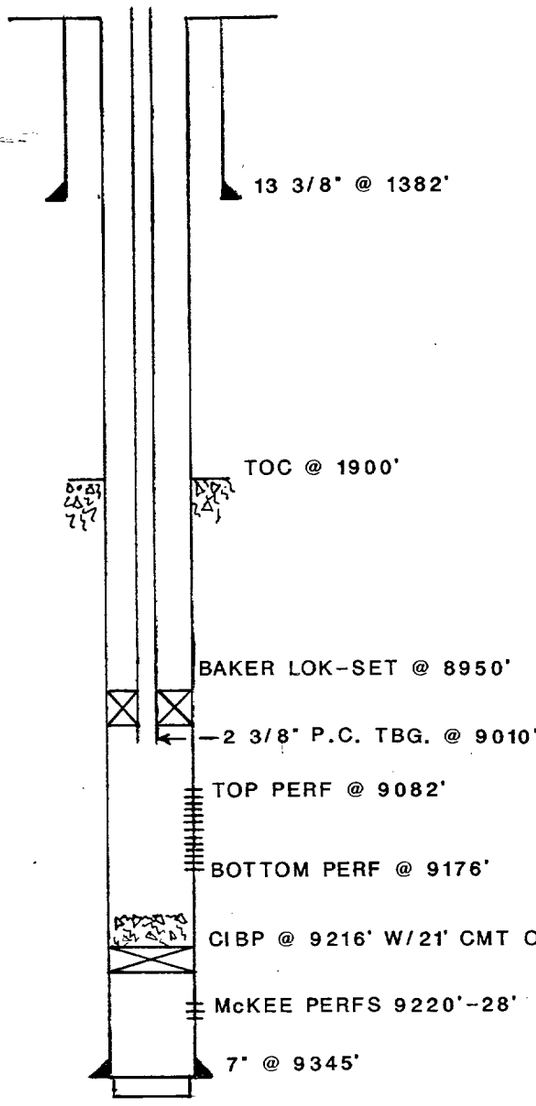

AMERADA WARREN
MCKEE UNIT
Conoco, etal
Conoco
18
17
Amerada
Amerada
Conoco, etal
WARREN UNIT
BOUNDARY
T
20
S
19
20
Shell
Gulf
R 38 E
Conoco
29
SCALE
0
2000'
SEMU BOUNDARY
SEMU AND WARREN UNIT
McKEE SAND
BASE MAP
PRODUCTION WELL
INJECTION WELL
DISPOSAL WELL
DRY HOLE IN McKEE
Elk Oil
J Kelley
Exxon
Gulf
Exxon
J. Kelley
Shell

Figure 1

INJECTION WELL DATA SHEET

Conoco Inc.	Warren McKee Waterflood			
OPERATOR	LEASE			
88	660' FSL & 660' FWL	29	20 South	38East
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing

Size 13-3/8 " Cemented with 1130 sx.

TOC Circ feet determined by returns

Hole size 17-1/2"

Intermediate Casing

Size NA " Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string

Size 7 " Cemented with 3500 sx.

TOC 1900 feet determined by temp. survey

Hole size 12-1/4 @ 3200' 8-3/4" @ T.D.

Total depth 9354'

Injection interval

9082' feet to 9176' feet perf.

(perforated or open-hole, indicate which)

Tubing size 2-3/8" lined with plastic coating (material) set in a

Baker Lok-set (brand and model) packer at 8950' feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation McKee

2. Name of Field or Pool (if applicable) Warren McKee

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

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

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

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. Glorieta 5339', Blinebry 5866', Tubb 6362', Drinkard 6702', Abo 6979'.

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.

I, Robert L. Summers

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

of One weeks.

Beginning with the issue dated May 26, 19 87

and ending with the issue dated May 26, 19 87

Robert L Summers
Publisher.

Sworn and subscribed to before me this 27 day of May, 19 87

Vera Murphy
Notary Public.

My Commission expires Nov. 14, 19 88
(Seal)

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

32 **LEGAL NOTICE**
MAY 26, 1987
CONVERT TO WATER INJECTION

Conoco Inc., 926 E. Michigan, P.O. Box 460, Hobbs, New Mexico 88240, Mr. R. E. Irelan, Division Manager of Production, intends for the purpose of secondary recovery to convert from producing oil well to water injection well, its Warren Unit (McKee) Well No. 88, located 660' FSL & 660' FWL of Section 29, T-20-S, R-38-E, Lea County, New Mexico. Subject well is completed in the McKee formation, total depth being 9345'. Operator intends to inject water into the McKee formation at intervals 9802' to 9176' at an average rate of approximately 600 BWPD, max. 1300 BWPD and an average pressure of 700 psi, max. 1200 psi. Any objections to this intent or requests for hearing must be filed with the New Mexico Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501, within 15 days from date of this publication.