



Production Department
Hobbs Division
North American Production

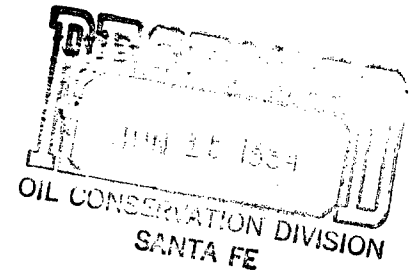
Conoco Inc.
P.O. Box 460
726 East Michigan
Hobbs, NM 88240
(505) 393-4141

June 5, 1984

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

Attention Mr. Gilbert Quintana

Gentlemen:



Conoco respectfully requests an exception to Division Rule 303-A to allow downhole commingling of the Warren Tubb and Blinebry Oil and Gas pools in 26 wells in the Warren Unit. Prior to this time, the Tubb and Blinebry had different windfall profit tax tiers; it was not possible for us to downhole commingle even though we had several wells which were candidates. Recently, the tax tiers for these pools have become the same; thus, we are submitting these 26 wells together in one application. The wells and their locations are listed on Table No. 1. Also, the following items are attached for each well.

- a) A lease plat.
- b) C-116's showing tests. Due to the large number of wells, all tests are not within a 30 day period; however, they are as recent as possible and will be representative of current and past production rates.
- c) Decline curves for both zones.
- d) Existing and proposed wellbore diagrams.

Bottom-hole pressure tests for these wells were discussed with Jerry Sexton of the Hobbs District Office. He suggested that if reasonably consistent bottom-hole pressures were recorded in each well tested, we could group the wells and get a bottom-hole pressure test from one well in each group. Table No. 2 gives the actual bottom-hole pressures and the attached map shows the wells tested and their groups.

The fluids from the Tubb and Blinebry will not be incompatible in the well-bore. Oil gravity for all wells is 40° API. Also, an analysis was made of the water from each zone to test their compatibility. The results of these tests are attached for your review. Because there is a possibility of downhole scaling indicated, the Tubb will be chemically inhibited to prevent any problems.

The value of the production will not be reduced by the commingling because the oil from both zones is sweet and valued at \$30.00 per bbl.

NMOCD

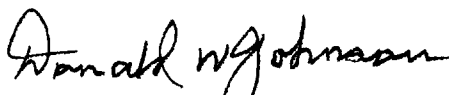
June 5, 1984

Page 2

Our proposed formulas for allocating production to each zone are listed on Table No. 3. These formulas are based on the ratio of production reflected by the wells tests.

By copy of this letter we are notifying the BLM and all offset operators (see attached address list).

Yours very truly,

A handwritten signature in cursive script, appearing to read "Donald W. Johnson".

Donald W. Johnson
Division Manager

DDP:cyp

TABLE I
WARREN UNIT WELLS
PROPOSED FOR DOWNHOLE COMMINGLING
TOWNSHIP 20S, RANGE 38E

<u>Well No.</u>	<u>Unit</u>	<u>Section</u>	<u>Well No.</u>	<u>Unit</u>	<u>Section</u>
31	O	27	50	B	29
32	P	27	51	A	29
34	C	34	52	I	29
36	D	27	54	E	26
37	J	27	55	G	26
40	G	27	56	B	26
43	N	21	57	D	26
44	M	26	62	P	20
45	N	26	63	O	20
46	K	26	68	A	27
47	H	29	77	J	20
48	F	26	78	I	20
49	J	26	81	L	21

TABLE NO. 2
BOTTOM-HOLE PRESSURES
WARREN UNIT

Wells #	Measured BHP at Mid-point of perfs			Over/Underbalance of Blinebry BHP corrected to midpoint of Tubb Perforations
	TUBB	BLINEBRY		
31	540 psi	448 psi		+213 psi
40	474 psi	409 psi		+135 psi
45	1011 psi	735 psi	OK!	- 60 psi
47	604 psi	370 psi		+ 69 psi
48	941 psi	584 psi		- 78 psi
62	791 psi	367 psi		-164 psi

Pressures are
within 50%
limitation and
~~some~~ ~~perform~~ tests
were on wells
representative of
each grouped area.
JPP

TABLE 3
RECOMMENDED PRODUCTION ALLOCATION
WARREN UNIT

Well No.	<u>Percent Total Production</u>			
	Blinebry		Tubb	
	Oil	Gas	Oil	Gas
31 ✓	24	34	76	66 ✓
32 ✓	58	62	42	38
34 ✓	62	76	38	24
36 ✓	23	0	77	100
37 ✓	53	52	47	48
40 ✓	55	33	45	67
43 ✓	86	38	14	62
44 ✓	48	84	52	16
45 ✓	11	55	89	45
46 ✓	47	66	53	34
47 ✓	56	66	44	34
48 ✓	49	31	51	69
49 ✓	39	70	61	30
50 ✓	50	45	50	55
51 ✓	21	32	79	68
52 ✓	81	89	19	11
54 ✓	50	100	50	0
55 ✓	58	100	42	0
56 ✓	47	100	53	0
57 ✓	54	99	46	1
62 ✓	29	35	71	65
63 ✓	22	18	78	82
68 ✓	55	80	45	20
77 ✓	81	82	19	18
78 ✓	41	40	59	60
81 ✓	86	100	14	0

Address List

Tamarack Petroleum Co.
P. O. Box 2046
Midland, TX 79701

Adobe Oil & Gas Corp.
1100 Western United Life Bldg.
Midland, TX 79701

Amerada Hess
P. O. Box 840
Seminole, TX 79360

Bureau of Land Mangagement
P. O. Box 1778
Carlsbad, NM 88220

**NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS**

C-116
Revised 1-1-65

off production or
9589

water production or
9589

Operator

Conoco Inc.

Address

P. O. Box 460, Hobbs, New Mexico 88240

Pool

Warren Tubb Oil

County

Lea

TYPE OF
TEST - (X)

Scheduled ☐

Completion ☐

Special ☒

LEASE NAME	WELL NO.	LOCATION				DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST				GAS - OIL RATIO CU.FT./BBL
		U	S	T	R							WATER BBLs.	GRAV. OIL	OIL BBLs.	GAS M.C.F.	
Warren Unit	31	O	27	20	38	3-20-84	P	-	NA	27	24	3 ✓	40	16 ✓	136	8,500
Warren Unit	32	P	27	20	38	3-28-84	P	-	NA	9	24	0 ✓	40	8 ✓	44	5,500
Warren Unit	34	C	34	20	38	4-19-84	P	-	NA	6	24	0 ✓	40	5 ✓	46	9,200
Warren Unit	36	D	27	20	38	3-04-84	P	-	NA	12	24	0 ✓	40	10 ✓	71	7,100
Warren Unit	37	J	27	20	38	4-07-84	P	-	NA	8	24	1 ✓	40	7 ✓	51	7,286
Warren Unit	40	G	27	20	38	3-23-84	P	-	NA	11	24	0 ✓	40	5 ✓	98	19,600
Warren Unit	43	N	21	20	38	4-14-84	P	-	NA	14	24	0 ✓	40	2 ✓	21	10,500
Warren Unit	44	M	26	20	38	4-01-84	P	-	NA	11	24	0 ✓	40	11 ✓	30	2,727
Warren Unit	45	N	26	20	38	3-18-84	P	-	NA	10	24	1 ✓	40	8 ✓	10	1,250
Warren Unit	46	K	26	20	38	3-19-84	P	-	NA	9	24	0 ✓	40	8 ✓	27	3,375
Warren Unit	47	H	29	20	38	3-04-84	P	-	NA	13	24	1 ✓	40	7 ✓	20	2,857
Warren Unit	48	F	26	20	38	3-23-84	P	-	NA	19	24	0 ✓	40	19 ✓	255	13,421
Warren Unit	49	J	26	20	38	4-03-84	P	-	NA	16	24	0 ✓	40	11 ✓	30	2,727
Warren Unit	50	B	29	20	38	4-09-84	P	-	NA	13	24	1 ✓	40	10 ✓	16	1,600
Warren Unit	51	A	29	20	38	3-07-84	P	-	NA	34	24	0 ✓	40	19 ✓	28	1,474
Warren Unit	52	I	29	20	38	3-09-84	P	-	NA	8	24	0 ✓	40	3 ✓	8	2,667

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

David J. Ryan
(Signature)

Administrative Supervisor
(Title)

June 1, 1984

(Date)

**NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS**

C-116
Revised 1-1-65

Operator		Pool		County												
Conoco Inc.		Blinedry Oil and Gas		Lea												
Address P. O. Box 460, Hobbs, New Mexico 88240				TEST - (X)												
LEASE NAME				TYPE OF TEST - (X)												
WELL NO.				SCHEDULED ☐												
LOCATION				COMPLETION ☐												
DATE OF TEST				SPECIAL ☒												
CHOKE SIZE				DAILY ALLOWABLE												
TBG. PRESS.				LENGTH OF TEST HOURS												
PROD. DURING TEST				GAS - OIL RATIO												
WATER BBL.				CU. FT./BBL.												
GRAV. OIL BBL.																
OIL BBL.																
GAS M.C.F.																
Warren Unit	52	I	29	20	38	3-08-84	P	-	NA	21	24	10	40	13	67	5,154
Warren Unit	54	E	26	20	38	4-02-84	P	-	NA	2	24	3	40	5	98	19,600
Warren Unit	55	G	26	20	38	4-03-84	P	-	NA	9	24	0	40	7	70	10,000
Warren Unit	56	B	26	20	38	3-22-84	P	-	NA	3	24	17	40	8	50	6,250
Warren Unit	57	D	26	20	38	3-21-84	P	-	NA	6	24	53	40	20	141	7,050
Warren Unit	62	P	20	20	38	3-24-84	P	-	NA	21	24	2	40	7	22	3,143
Warren Unit	63	O	20	20	38	3-11-84	P	-	NA	11	24	1	40	5	13	2,600
Warren Unit	68	A	27	20	38	4-03-84	P	-	NA	8	24	2	40	6	20	3,333
Warren Unit	77	J	20	20	38	3-13-84	P	-	NA	54	24	1	40	22	81	3,682
Warren Unit	78	I	20	20	38	3-01-84	P	-	NA	10	24	1	40	7	17	2,429
Warren Unit	81	L	21	20	38	3-04-84	P	-	NA	52	24	22	40	18	35	1,944

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I hereby certify that the above information is true and complete to the best of my knowledge and belief.

David L. Juma
(Signature)
Administrative Supervisor
(Title)

June 1, 1984

(Date)

**NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS**

C-116
Revised 1-1-65

Operator Conoco Inc.		Pool Warren Tubb Oil		County Lea												
Address P. O. Box 460, Hobbs, New Mexico 88240				Type of Test - (X) ☒ TEST - (X)												
				Scheduled ☐												
				Completion ☐												
				Special ☒												
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	TYPE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO CU.FT./BBL		
		U	S	T							R	WATER BBL.S.	GRAV. OIL		OIL BBL.S.	GAS M.C.F.
Warren Unit	54	E	26	20	38	4-02-84	P	-	NA	5	24	0	40	5	TSTM	-
Warren Unit	55	G	26	20	38	4-03-84	P	-	NA	6	24	0	40	5	TSTM	-
Warren Unit	56	B	26	20	38	3-22-84	P	-	NA	25	24	7	40	9	TSTM	-
Warren Unit	57	D	26	20	38	3-05-84	P	-	NA	14	24	3	40	17	2	118
Warren Unit	62	P	20	20	38	3-10-84	P	-	NA	24	24	0	40	17	40	2,353
Warren Unit	63	O	20	20	38	3-13-84	P	-	NA	28	24	6	40	18	61	3,389
Warren Unit	68	A	27	20	38	3-17-84	P	-	NA	10	24	2	40	5	5	1,000
Warren Unit	77	J	20	20	38	3-14-84	P	-	NA	15	24	0	40	5	18	3,600
Warren Unit	78	I	20	20	38	4-06-84	P	-	NA	10	24	1	40	10	25	2,500
Warren Unit	81	L	21	20	38	3-09-84	P	-	NA	7	24	0	40	3	TSTM	-

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Louise S. Jagan
(Signature)
Administrative Supervisor
(Title)
June 1, 1984
(Date)

**NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS**

C-116
Revised 1-1-65

Operator Conoco Inc.		Pool Blinberry Oil and Gas		County Lea												
Address P. O. Box 460, Hobbs, New Mexico 88240																
LEASE NAME	WELL NO.	LOCATION U S T R		DATE OF TEST	TYPE OF TEST - (X)											
					Scheduled ☐ Special ☒											
Warren Unit Warren Unit Warren Unit Warren Unit Warren Unit Warren Unit Warren Unit Warren Unit Warren Unit Warren Unit Warren Unit Warren Unit Warren Unit Warren Unit Warren Unit	31	O	27	20	38	3-30-84	P	-	NA	10	24	0	40	5	71	14,200
	32	P	27	20	38	3-28-84	P	-	NA	11	24	1	40	11	72	6,545
	34	C	34	20	38	3-23-84	P	-	NA	10	24	1	40	8	149	18,625
	36	D	27	20	38	3-04-84	P	-	NA	2	24	0	40	3	TSTM	-
	37	J	27	20	38	3-17-84	P	-	NA	6	24	1	40	8	56	7,000
	40	G	27	20	38	4-08-84	P	-	NA	-	24	1	40	6	49	8,167
	43	N	21	20	38	3-05-84	P	-	NA	8	24	1	40	12	13	1,083
	44	M	26	20	38	3-01-84	P	-	NA	8	24	0	40	10	154	15,400
	45	N	26	20	38	3-17-84	P	-	NA	9	24	0	40	1	12	12,000
	46	K	26	20	38	3-19-84	P	-	NA	5	24	1	40	7	52	7,429
	47	H	29	20	38	4-25-84	P	-	NA	13	24	21	40	9	38	4,222
	48	F	26	20	38	3-23-84	P	-	NA	17	24	0	40	18	114	6,333
	49	J	26	20	38	4-03-84	P	-	NA	16	24	1	40	7	70	10,000
	50	B	29	20	38	3-06-84	P	-	NA	5	24	2	40	10	13	1,300
	51	A	29	20	38	3-07-84	P	-	NA	21	24	3	40	5	13	2,600

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I hereby certify that the above information is true and complete to the best of my knowledge and belief.

David A. Dyer
(Signature)
Administrative Supervisor
(Title)
June 1, 1984
(Date)



Champion
Chemicals, Inc.

P.O. BOX 2187
HOBBS, NEW MEXICO 88240

(505) 393-7726

March 30, 1984

Conoco, Inc.
Post Office Box 460
Hobbs, New Mexico 88240
Attn: Elma Winter

Dear Ms. Winter:

Water samples of the Warren Unit #55 from the Tubb and Blinebry were mixed at 3 ratios. The production figures indicate that the waters will mix close to half and half.

The waters were combined at 75-25, 50-50, and 25-75%; Tubb and Blinebry respectively. The water mixtures were observed immediately after mixing and showed no haziness.

Millipores were run on each mixture and the 2 separate waters after 2 weeks. The results follow:

	Tubb	Blinebry	75-25	50-50	25-75
CaCO ₃	77%	82.5%	87%	67%	70.5%
Acid Insol.	23%	8%	0%	9.6%	0%

These numbers show that the co-mingling of the two at the above ratios should not cause any worse conditions as the each water separate.

If you have any questions, please contact us.

Regards,

Joe Edwards
Tech Service Representative



**Champion
Chemicals, Inc.**

P.O. BOX 2187
HOBBS, NEW MEXICO 88240

(505) 393-7726

April 9, 1984

Conoco, Inc.
Post Office Box 460
Hobbs, New Mexico 88240
Attention: Elma Winter

Dear Ms. Winter:

Attached are the results of the water compatibility study on the Warren Unit #55 Tubb-Blinbry. The waters were caught, mixed and analyzed in the field initially. They were then brought to the lab and kept at 120°F for 72 hours. At 24, 48, and 72 hours, the waters were again analyzed. At the end of the 72 hour period, a millipore was run on each water.

These results are comparable to the first millipore run on March 30, 1984. It appears there will be no significant change in the scaling tendency by co-mingling the two waters.

If you have any questions, please contact us.

Regards,

Joe Edwards
Technical Services Representative

JE/gr

attachments

CONOCO, INC.
HOBBS DIVISION
HOBBS, NEW MEXICO

BOTTOM HOLE TEMP °F _____ ANALYSIS BY Joe Edwards
Champion Chemicals, Inc.

RESISTIVITY AT	° F	OHM METER
100	70	100
200	70	200
300	70	300
400	70	400
500	70	500
600	70	600
700	70	700
800	70	800
900	70	900
1000	70	1000
1100	70	1100
1200	70	1200
1300	70	1300
1400	70	1400
1500	70	1500
1600	70	1600
1700	70	1700
1800	70	1800
1900	70	1900
2000	70	2000
2100	70	2100
2200	70	2200
2300	70	2300
2400	70	2400
2500	70	2500
2600	70	2600
2700	70	2700
2800	70	2800
2900	70	2900
3000	70	3000
3100	70	3100
3200	70	3200
3300	70	3300
3400	70	3400
3500	70	3500
3600	70	3600
3700	70	3700
3800	70	3800
3900	70	3900
4000	70	4000
4100	70	4100
4200	70	4200
4300	70	4300
4400	70	4400
4500	70	4500
4600	70	4600
4700	70	4700
4800	70	4800
4900	70	4900
5000	70	5000
5100	70	5100
5200	70	5200
5300	70	5300
5400	70	5400
5500	70	5500
5600	70	5600
5700	70	5700
5800	70	5800
5900	70	5900
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6300	70	6300
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6500	70	6500
6600	70	6600
6700	70	6700
6800	70	6800
6900	70	6900
7000	70	7000
7100	70	7100
7200	70	7200
7300	70	7300
7400	70	7400
7500	70	7500
7600	70	7600
7700	70	7700
7800	70	7800
7900	70	7900
8000	70	8000
8100	70	8100
8200	70	8200
8300	70	8300
8400	70	8400
8500	70	8500
8600	70	8600
8700	70	8700
8800	70	8800
8900	70	8900
9000	70	9000
9100	70	9100
9200	70	9200
9300	70	9300
9400	70	9400
9500	70	9500
9600	70	9600
9700	70	9700
9800	70	9800
9900	70	9900
10000	70	10000

SCALING TENDENCIES

CaCO ₃		CaSO ₄		BaSO ₄	
T°F	INTERPRETATION	T°F	INTERPRETATION	T°F	INTERPRETATION
60	+0.38 yes	60	yes	60	
80	+0.60 yes	80	yes	80	
100	+0.85 yes	100	no	100	
140	+1.49 yes	140	yes	140	
160	+1.87 yes	160	yes	160	

WATER ANALYSIS REPORT

CONOCO, INC.
HOBBS DIVISION
HOBBS, NEW MEXICO

IDENTIFICATION Warren Unit #55

POOL _____ FORMATION Blinebry

SAMPLE POINT _____ DEPTH _____

DATE COLLECTED _____ ON SITE ANALYSIS Partial

BOTTOM HOLE TEMP °F _____ ANALYSIS BY Joe Edwards
Champion Chemicals, Inc.

ANALYSIS RESULTS

SPECIFIC GRAVITY 1.10 pH 7.44

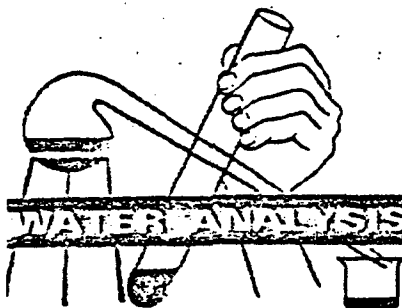
RESISTIVITY AT _____ °F _____ OHM METER

	Meq/l	Mg/l		Meq/l	Mg/l
TOTAL SALTS		<u>139,249</u>	SODIUM (Na)	<u>1,899</u>	<u>43,682</u>
HYDROGEN SULFIDE	<u>0.3</u>	<u>5</u>	MAGNESIUM (Mg)	<u>191</u>	<u>2,333</u>
CHLORIDE (Cl)	<u>2,366</u>	<u>84,000</u>	CALCIUM (Ca)	<u>330</u>	<u>6,600</u>
SULFATE (SO ₄)	<u>52</u>	<u>2,500</u>	BARIUM (Ba)		<u>0</u>
CARBONATE (CO ₃)			IRON (Mg/l) TOTAL	<u>DISS.3</u>	
BICARBONATE (HCO ₃)	<u>2.2</u>	<u>134</u>	SUSPENDED SOLIDS		
HYDROXYL (OH)					

SCALING TENDENCIES

T°F	CaCO ₃ INTERPRETATION	T°F	CaSO ₄ INTERPRETATION	T°F	BaSO ₄ INTERPRETATION
60	<u>+0.74 yes</u>	60	<u>yes</u>	60	
80	<u>+0.94 yes</u>	80	<u>yes</u>	80	
100	<u>+1.17 yes</u>	100	<u>yes</u>	100	
140	<u>+1.80 yes</u>	140	<u>yes</u>	140	
160	<u>+2.17 yes</u>	160	<u>yes</u>	160	

No 2481



WATER ANALYSIS REPORT

Champion
Chemicals, Inc.BOX 4513
ODESSA, TEXAS 79760

TECH SERVICE LABORATORY: Odessa, Texas Phone (915) 337-0055 & 563-0863

RESEARCH LABORATORY: Houston, Texas Phone (713) 431-2561

PLANT: Odessa, Texas Phone (915) 337-0055

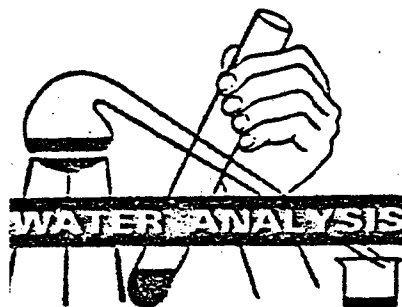
PORT FOR	Elma Winter	DATE SAMPLED	4/2/84
CC	Jerry Skidmore	DATE REPORTED	4/9/84
CC		FIELD, LEASE, OR WELL	Blinebry/Tubb : 50/50
CC		COUNTY	STATE N.M.
COMPANY	Conoco, Inc.	FORMATION	
ADDRESS		DEPTH	
SERVICE ENGINEER	Jay Brown	SUBMITTED BY	Jay Brown

CHEMICAL ANALYSIS (AS PRESENTED MILLION)

Field, Lease, or Well

Chemical Component	Theoretical B/T 50/50	Initial	24 hrs.	48 hrs.	72 hrs.	
Chloride (Cl)	88,500	88,000	84,000	88,000	90,000	
Iron (Fe)						
Hardness (Ca CO ₃)						
Calcium (Ca)	7,600	6,880	6,640	6,520	6,960	
Magnesium (Mg)	2,260	2,309	2,697	2,673	2,600	
Bicarbonate (HCO ₃)	104	12.2	24	24	24	
Carbonate (CO ₃)						
Sulfate (SO ₄)	2,063	1,450	1,175	1,425	1,925	
Hydrogen Sulfide (H ₂ S)						
Specific Gravity	1.10	1.10	1.10	1.10	1.11	
Density, lb./gal.						
Beckman [] Strip []		7.00	6.8	6.6	7.0	
TDS	145,899	144,104	136,796	143,823	147,840	

OTHER DESCRIPTION, REMARKS AND RECOMMENDATIONS



WATER ANALYSIS REPORT

No 2476



**Champion
Chemicals, Inc.**

BOX 4513
ODESSA, TEXAS 79760

TECH SERVICE LABORATORY: Odessa, Texas Phone (915) 337-0055 & 563-0863

RESEARCH LABORATORY: Houston, Texas Phone (713) 431-2581

PLANT: Odessa, Texas Phone (915) 337-0055

PORT FOR	Elma Winter	DATE SAMPLED	4/2/84
CC	Jerry Skidmore	DATE REPORTED	4/9/84
CC		FIELD, LEASE, OR WELL	Blinebry/Tubb : 10/90
CC		COUNTY	STATE N.M.
COMPANY	Conoco, Inc.	FORMATION	
ADDRESS		DEPTH	
SERVICE ENGINEER	Jay Brown	SUBMITTED BY	Jay Brown

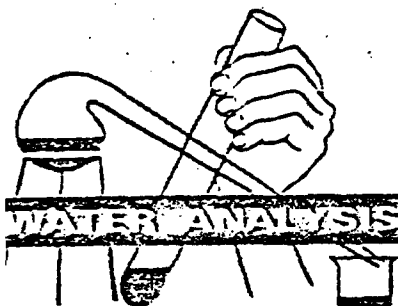
CHEMICAL ANALYSIS (AS PARTS PER MILLION)

Field, Lease, or Well

Chemical Component	Theoretical B/T 10/90	Initial	24 hrs.	48 hrs.	72 hrs.	
Chloride (Cl)	92,100	91,000	89,000	92,000	96,000	
Iron (Fe)						
Total Hardness (Ca CO ₃)						
Calcium (Ca)	8,400	8,400	7,200	7,040	7,160	
Magnesium (Mg)	2,202	1,823	2,527	2,843	2,697	
Bicarbonate (HCO ₃)	79	24	37	24	24	
Carbonate (CO ₃)						
Sulfate (SO ₄)	1,713	1,750	1,250	1,375	1,725	
Hydrogen Sulfide (H ₂ S)						
Specific Gravity	1.10	1.11	1.10	1.11	1.11	
Viscosity, lb./gal.						
Beckman [] Strip []		7.00	6.7	6.8	6.8	
TDS	151,218	149,696	145,246	150,119	157,318	

OTHER DESCRIPTION, REMARKS AND RECOMMENDATIONS

No 2474



WATER ANALYSIS REPORT

Champion
Chemicals, Inc.BOX 4513
ODESSA, TEXAS 79760

TECH SERVICE LABORATORY: Odessa, Texas Phone (915) 337-0055 & 563-0863

RESEARCH LABORATORY: Houston, Texas Phone (713) 431-2561

PLANT: Odessa, Texas Phone (915) 337-0055

ORDER FOR Elma Winter DATE SAMPLED 4/2/84
 CC Jerry Skidmore DATE REPORTED 4/9/84
 CC _____ FIELD, LEASE, OR WELL Warren Unit #55 Blinbry
 CC _____ COUNTY _____ STATE N.M.
 COMPANY Conoco, Inc. FORMATION _____
 ADDRESS _____ DEPTH _____
 SERVICE ENGINEER Jay Brown SUBMITTED BY Jay Brown

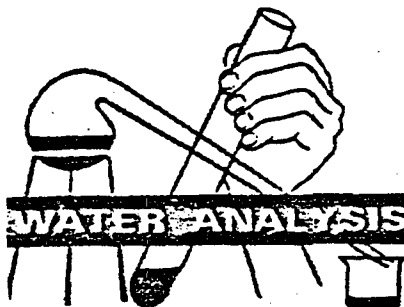
CHEMICAL ANALYSIS (AS PARTS PER MILLION)

Field, Lease, or Well

Chemical Component	24 hrs.	48 hrs.	72 hrs.			
Chloride (Cl)	78,500	83,000	86,000			
Iron (Fe)						
Hardness (Ca CO ₃)						
Calcium (Ca)	6,280	6,240	6,320			
Magnesium (Mg)	2,381	2,381	2,527			
Bicarbonate (HCO ₃)	24	37	18			
Carbonate (CO ₃)						
Sulfate (SO ₄)	1,600	1,525	1,600			
Hydrogen Sulfide (H ₂ S)						
Specific Gravity	1.09	1.10	1.10			
Density, lb./gal.						
Beckman [] Strip []	7.2	7.0	7.05			
Residue	128,699	136,046	140,931			

OTHER DESCRIPTION, REMARKS AND RECOMMENDATIONS

No 2471



WATER ANALYSIS REPORT



Champion Chemicals, Inc.

BOX 4513
ODESSA, TEXAS 79760

TECH SERVICE LABORATORY: Odessa, Texas Phone (915) 337-0055 & 563-0863

RESEARCH LABORATORY: Houston, Texas Phone (713) 431-2561

PLANT: Odessa, Texas Phone (915) 337-0055

PORT FOR Elma Winter DATE SAMPLED 4/2/84
 CC Jerry Skidmore DATE REPORTED 4/9/84
 CC _____ FIELD, LEASE, OR WELL Warren Unit #55 Tubb
 CC _____ COUNTY _____ STATE N.M.
 COMPANY Conoco, Inc. FORMATION _____
 ADDRESS _____ DEPTH _____
 SERVICE ENGINEER Jay Brown SUBMITTED BY Jay Brown

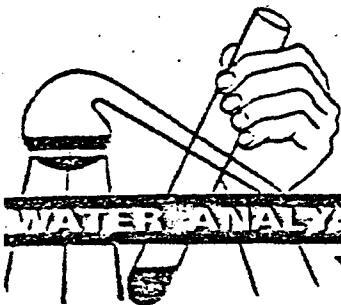
CHEMICAL ANALYSIS (AS PARTS PER MILLION)

Field, Lease, or Well

Chemical Component	24 hrs.	48 hrs.	72 hrs.			
Chloride (Cl)	88,000	95,000	96,000			
Iron (Fe)						
Total Hardness (Ca CO ₃)						
Calcium (Ca)	7,240	7,240	7,320			
Magnesium (Mg)	2,527	2,527	2,649			
Bicarbonate (HCO ₃)	31	24	18			
Carbonate (CO ₃)						
Sulfate (SO ₄)	1,125	1,425	1,875			
Hydrogen Sulfide (H ₂ S)						
Specific Gravity	1.10	1.11	1.11			
Density, lb./gal.						
Beckman [] Strip []	6.6	6.6	6.9			
TDS	143,394	155,376	157,549			

OTHER DESCRIPTION, REMARKS AND RECOMMENDATIONS

No 2468



WATER ANALYSIS REPORT

Champion
Chemicals, Inc.BOX 4513
ODESSA, TEXAS 79760

TECH SERVICE LABORATORY: Odessa, Texas Phone (915) 337-0055 & 563-0863

RESEARCH LABORATORY: Houston, Texas Phone (713) 431-2561

PLANT: Odessa, Texas Phone (915) 337-0055

PORT FOR	Elma Winter	DATE SAMPLED	4/2/84
CC	Jerry Skidmore	DATE REPORTED	4/9/84
CC		FIELD, LEASE, OR WELL	Blinebry/Tubb : 90/10
CC		COUNTY	STATE N.M.
COMPANY	Conoco, Inc.	FORMATION	
ADDRESS	Jay Brown	DEPTH	Jay Brown
SERVICE ENGINEER		SUBMITTED BY	

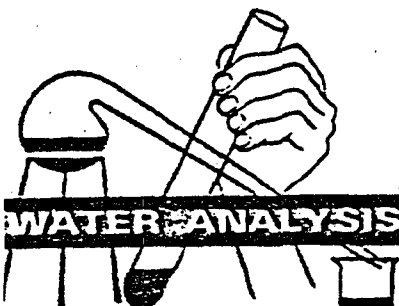
CHEMICAL ANALYSIS (AS PARTS PER MILLION)

Field, Lease, or Well

Chemical Component	Theoretical B/T 90/10	Initial	24 hrs.	48 hrs.	72 hrs.	
Chloride (Cl)	84,900	86,000	81,500	84,000	89,000	
Iron (Fe)	3.75	2				
Hardness (Ca CO ₃)						
Calcium (Ca)	6,159	7,200	6,200	6,640	7,240	
Magnesium (Mg)	2,318	1,920	2,333	2,309	2,187	
Bicarbonate (HCO ₃)	128	122	12.2	30	24	
Carbonate (CO ₃)						
Sulfate (SO ₄)	2,413	1,850	1,450	1,625	2,025	
Organic Sulfide (H ₂ S)						
Specific Gravity	1.10	1.10	1.095	1.099	1.10	
Density, lb./gal.						
Beckman [] Strip []		7.21	6.8	6.95	6.9	
DS	140,579	141,862	133,475	137,833	146,669	

OTHER DESCRIPTION, REMARKS AND RECOMMENDATIONS

No 2467



WATER ANALYSIS REPORT



Champion Chemicals, Inc.

BOX 4513
ODESSA, TEXAS 79760

TECH SERVICE LABORATORY: Odessa, Texas Phone (915) 337-0055 & 563-0863

RESEARCH LABORATORY: Houston, Texas Phone (713) 431-2561

PLANT: Odessa, Texas Phone (915) 337-0055

PORT FOR	Elma Winter	DATE SAMPLED	4/2/84
CC	Jerry Skidmore	DATE REPORTED	4/9/84
CC		FIELD, LEASE, OR WELL	Blinbry/Tubb : 70/30
CC		COUNTY	STATE N.M.
COMPANY	Conoco, Inc.	FORMATION	
ADDRESS		DEPTH	
SERVICE ENGINEER	Jay Brown	SUBMITTED BY	Jay Brown

CHEMICAL ANALYSIS (AS PARTS PER MILLION)

Field, Lease, or Well

Chemical Component	Theoretical B/T 70/30	Initial	24 hrs.	48 hrs.	72 hrs.	
Chloride (Cl)	86.700	87.000	82.000	85.000	89.000	
Iron (Fe)	5.2	4				
Total Hardness (Ca CO ₃)						
Calcium (Ca)	7.200	7.600	6.480	6.600	6.520	
Magnesium (Mg)	2.289	1.580	2.552	2.527	2.697	
Bicarbonate (HCO ₃)	116	134	24	37	24	
Carbonate (CO ₃)						
Sulfate (SO ₄)	2.238	1.900	1.475	1.475	1.875	
Hydrogen Sulfide (H ₂ S)						
Specific Gravity	1.10	1.10	1.10	1.10	1.10	
Density, lb./gal.						
Beckman [] Strip []		7.19	6.7	6.8	6.8	
DS	143,239	143,828	134,124	137,433	146,117	

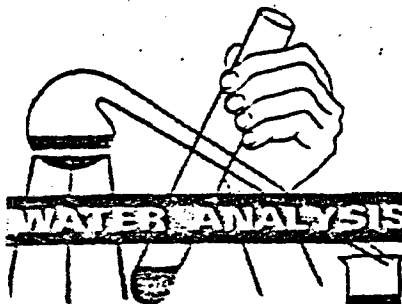
OTHER DESCRIPTION, REMARKS AND RECOMMENDATIONS

No 2480



Champion Chemicals, Inc.

BOX 4513
ODESSA, TEXAS 79760



WATER ANALYSIS REPORT

TECH SERVICE LABORATORY: Odessa, Texas Phone (915) 337-0055 & 563-0863

RESEARCH LABORATORY: Houston, Texas Phone (713) 431-2561

PLANT: Odessa, Texas Phone (915) 337-0055

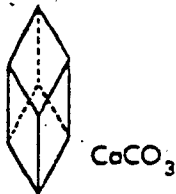
PORT FOR	Elma Winter	DATE SAMPLED	4/2/84
CC	Jerry Skidmore	DATE REPORTED	4/9/84
CC		FIELD, LEASE, OR WELL	Blainebry/Tubb : 30/70
CC		COUNTY	STATE N M
COMPANY	Conoco, Inc.	FORMATION	
ADDRESS		DEPTH	
SERVICE ENGINEER	Jay Brown	SUBMITTED BY	Jay Brown

CHEMICAL ANALYSIS (AS PARTS PER MILLION)

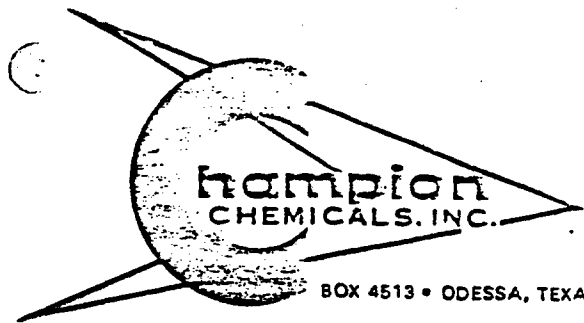
Field, Lease, or Well

Chemical Component	Theoretical B/T 30/70	Initial	24 hrs.	48 hrs.	72 hrs.	
Chloride (Cl)	90,300	90,000	87,500	91,000	93,000	
Iron (Fe)						
Hardness (Ca CO ₃)						
Calcium (Ca)	8,000	7,640	7,040	7,000	7,000	
Magnesium (Mg)	2,231	2,211	2,454	2,552	2,673	
Bicarbonate (HCO ₃)	91	37	24	37	12.2	
Sulfate (CO ₃)						
Sulfate (SO ₄)	1,888	1,525	1,250	1,250	1,925	
Hydrogen Sulfide (H ₂ S)						
Specific Gravity	1.11	1.11	1.10	1.11	1.11	
Density, lb./gal.						
Beckman [] Strip []		7.13	6.7	6.75	6.8	
DS	148,558	147,528	142,851	148,543	152,708	

OTHER DESCRIPTION, REMARKS AND RECOMMENDATIONS



CaSO₄



BOX 4513 • ODESSA, TEXAS

CHEMICAL WITH SERVICE

SCALE ANALYSIS REPORT

SERVICE LABORATORY: Odessa, Texas • Ph.: 362-2353 & 563-0863
 RESEARCH LABORATORY: Houston, Texas • Ph.: (713) 433-6771
 PLANT: Odessa, Texas • Ph.: 362-2353 & 563-0863

FOR Elma Winter DATE SAMPLED 4/2/84
 CC Jerry Skidmore DATE REPORTED 4/6/84
 CC _____ FIELD, LEASE OR WELL Warren Unit #55 Tubb and Blinebry
 CC _____ COUNTY _____ STATE N. M.
 ANY Conoco, Inc. FORMATION _____
 SS _____ DEPTH _____
 E ENGINEER Jay Brown SUBMITTED BY Joe Edwards

OTHER DESCRIPTION

Millipore analysis of 5 ratio blends of the waters from the Tubb and Blinebry formations from Warren Unit #55

PAGE #1

SCALE COMPONENT	CHEMICAL ANALYSIS (AS WEIGHT PERCENT)				
	Field, Lease, or Well				
	Blinebry	Tubb	B/T 90%/10%	B/T 70%/30%	B/T 50%/50%
CaCO ₃	50%	57.2%	68.3%	69.9%	73.4%
FeS	18.4%	42.8%	28.3%	25.8%	26.6%
Acid Insolubles	31.6%	0	3.4%	4.3%	0
Suspended Solids (Mg/L)	213	180	145	186	194
TOTAL	100%	100%	100%	100%	100%

REMARKS AND RECOMMENDATIONS



CaCO₃



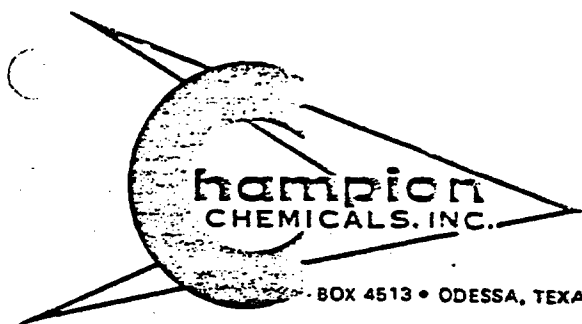
CaSO₄

SCALE ANALYSIS REPORT

SERVICE LABORATORY: Odessa, Texas • Ph.: 362-2353 & 563-0863

RESEARCH LABORATORY: Houston, Texas • Ph.: (713) 433-6771

PLANT: Odessa, Texas • Ph.: 362-2353 & 563-0863



BOX 4513 • ODESSA, TEXAS

CHEMICAL WITH SERVICE

FOR Elma Winter DATE SAMPLED 4/2/84
cc Jerry Skidmore DATE REPORTED 4/6/84
cc _____ FIELD, LEASE OR WELL Warren Unit #55 Tubb and
cc _____ Blinebry COUNTY _____ STATE N.M.
ANY Conoco, Inc. FORMATION _____
SS _____ DEPTH _____
E ENGINEER Jay Brown SUBMITTED BY Joe Edwards

OTHER DESCRIPTION

Millipore analysis of 5 ratio blends of the waters from the Tubb and Blinebry formations from Warren Unit #55

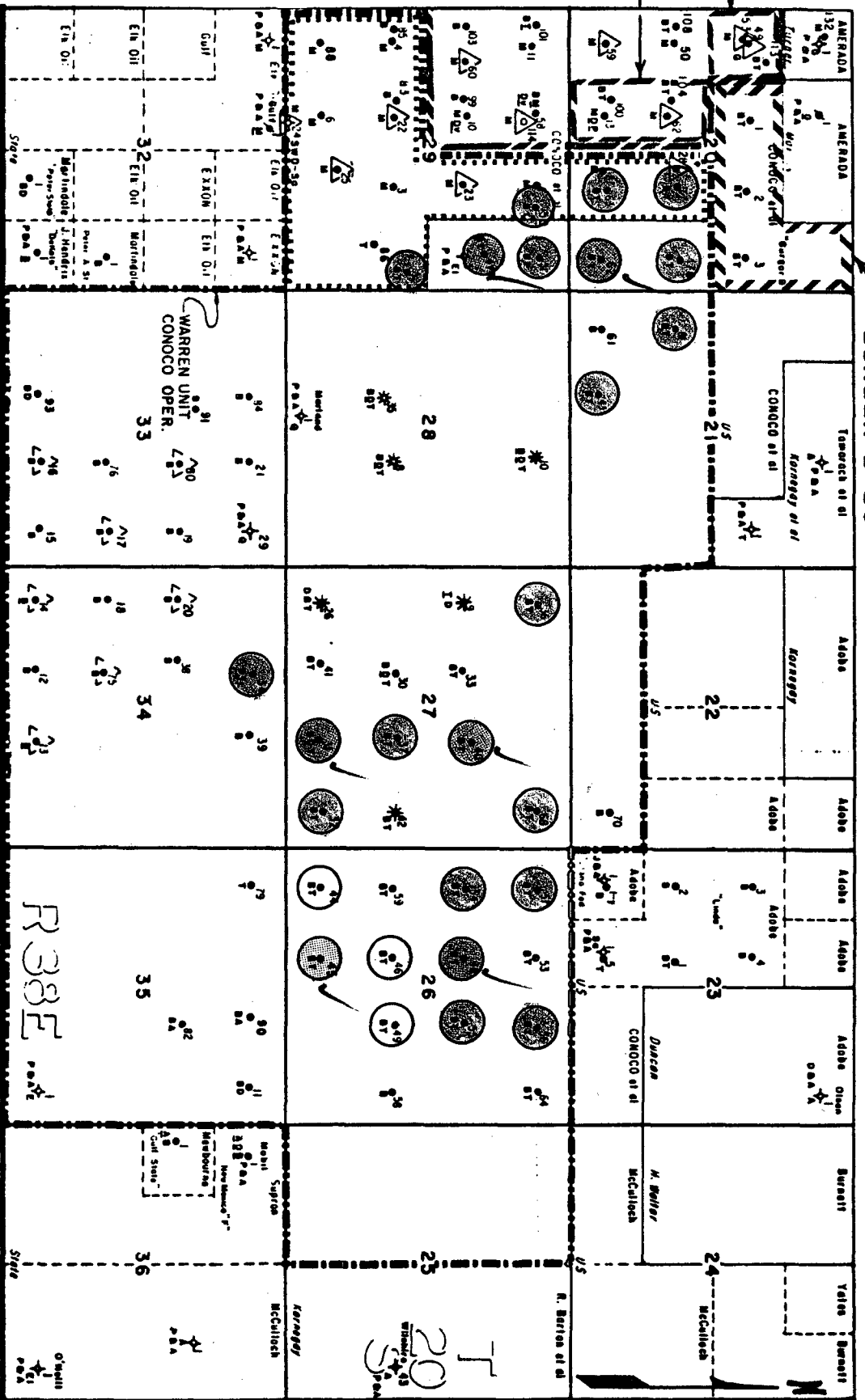
PAGE #2

CHEMICAL ANALYSIS (AS WEIGHT PERCENT)

SCALE COMPONENT	Field, Lease, or Well				
	B/T 30%/70%	B/T 10%/90%			
CaCO ₃	67.1%	52.4%			
FeS	32.9%	47.6%			
Acid Insolubles	0	0			
Suspended Solids (Mg/L)	146	145			
TOTAL	100%	100%			

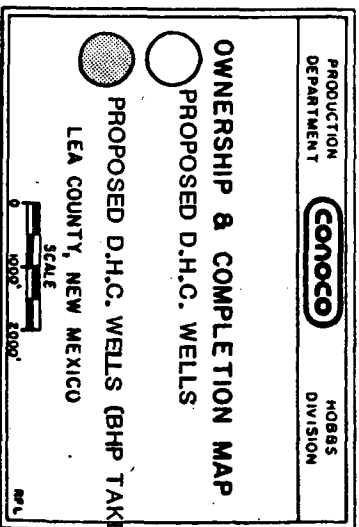
REMARKS AND RECOMMENDATIONS

ŽEMŲ TUBB A



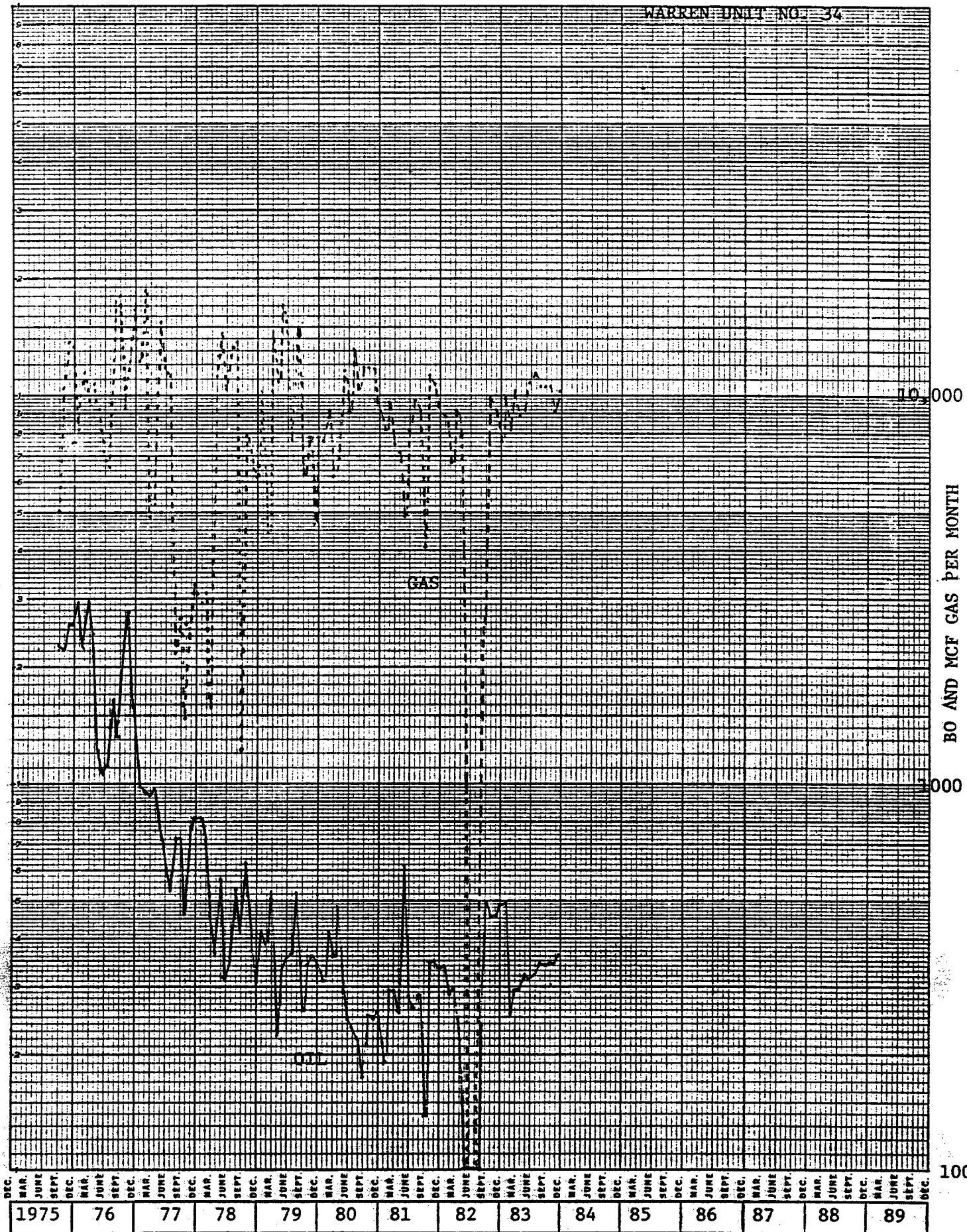
1	Abo	1	McKee
2	Blinebry	2	Paddock
3	Drinkard	3	Queen
4	Devonian	4	Simpson
5	Ellenburger	5	San Andreas
6	Grayburg	6	Tubb
7	Glarietta	7	St, TA, Or ZA.

PROPOSED INJECTOR

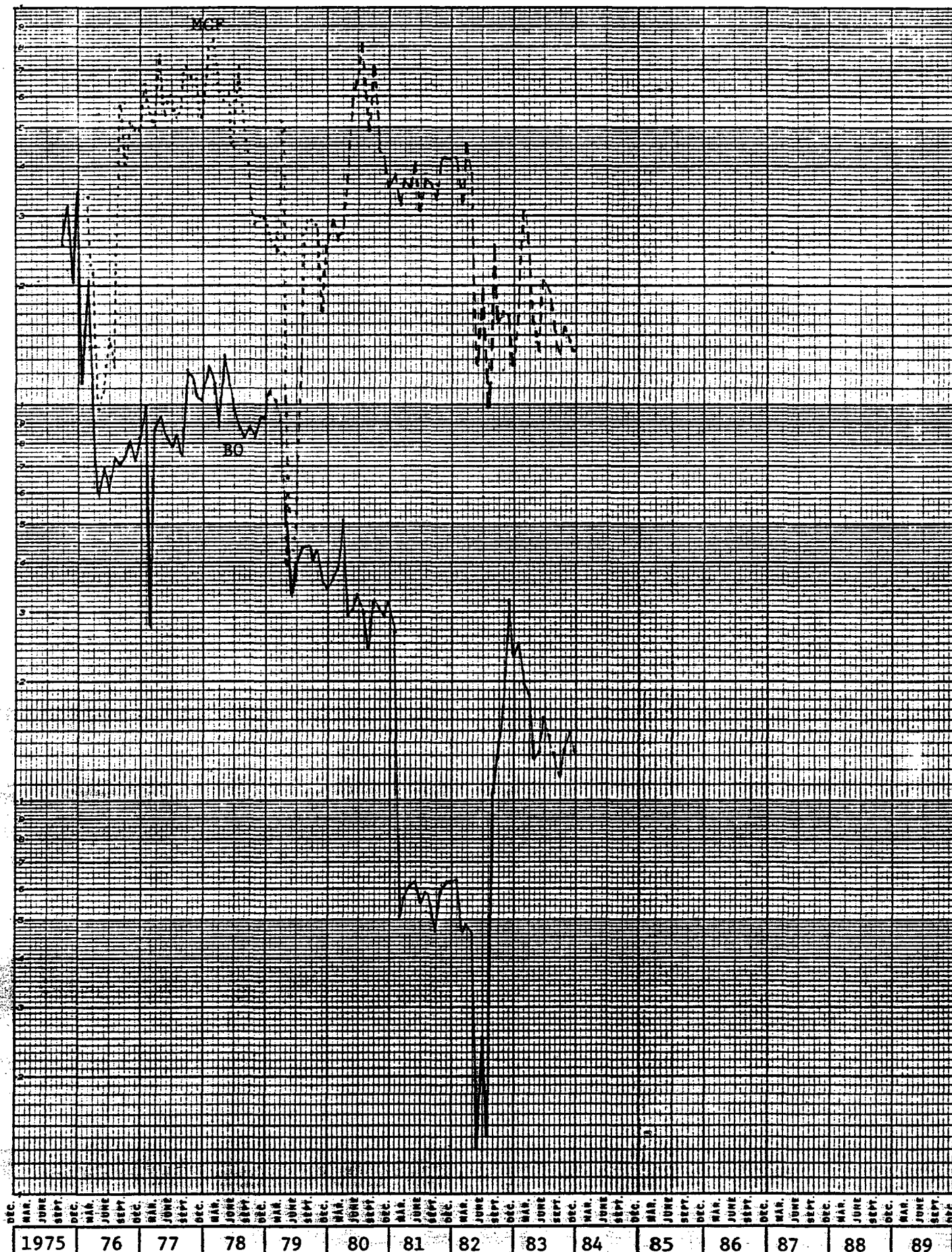


BLINEBRY POOL

WARREN UNIT NO. 34



WARREN TUBB OIL
WARREN UNIT NO. 34

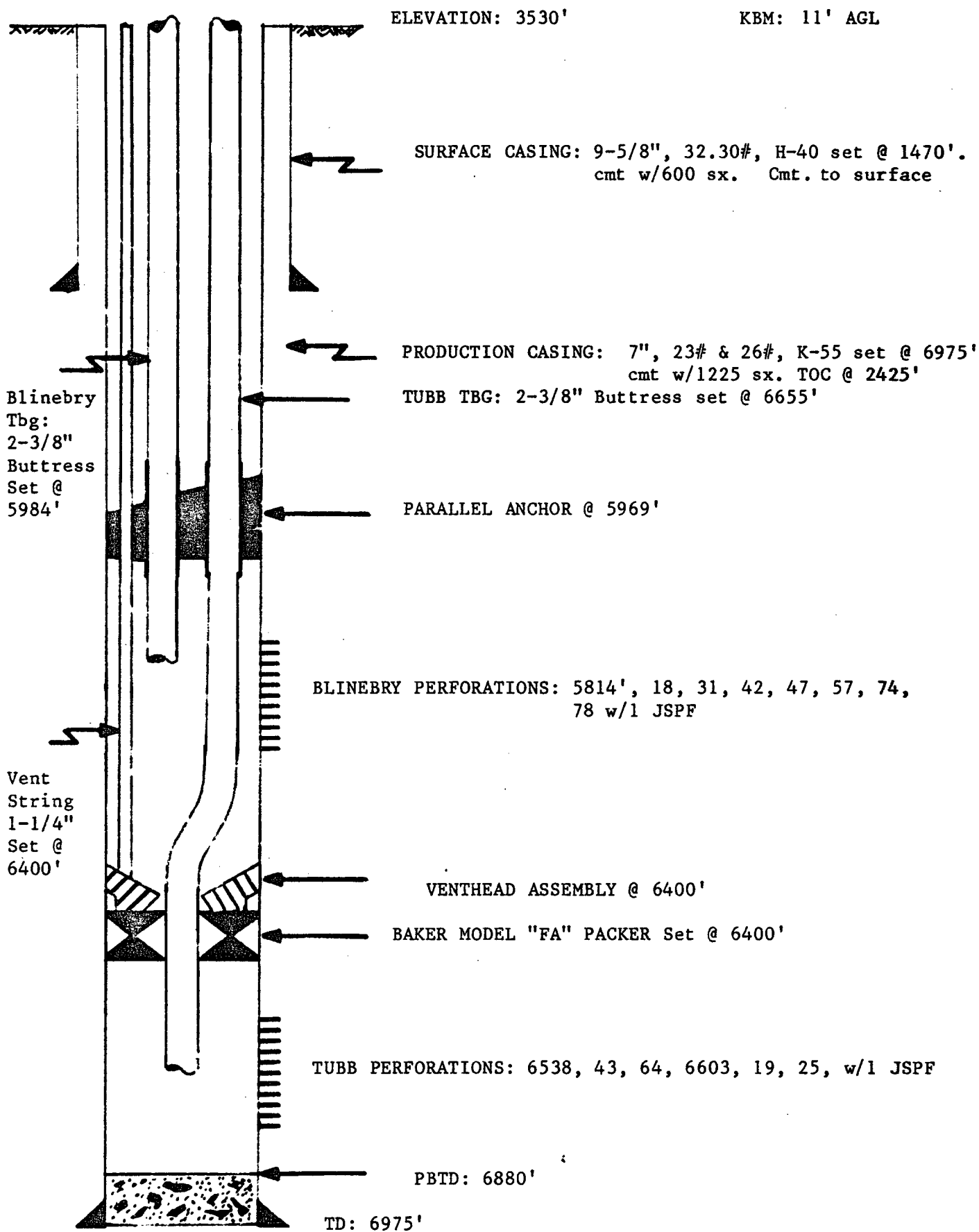


100
BBLS. OIL & MCF GAS PER MONTH
100

10

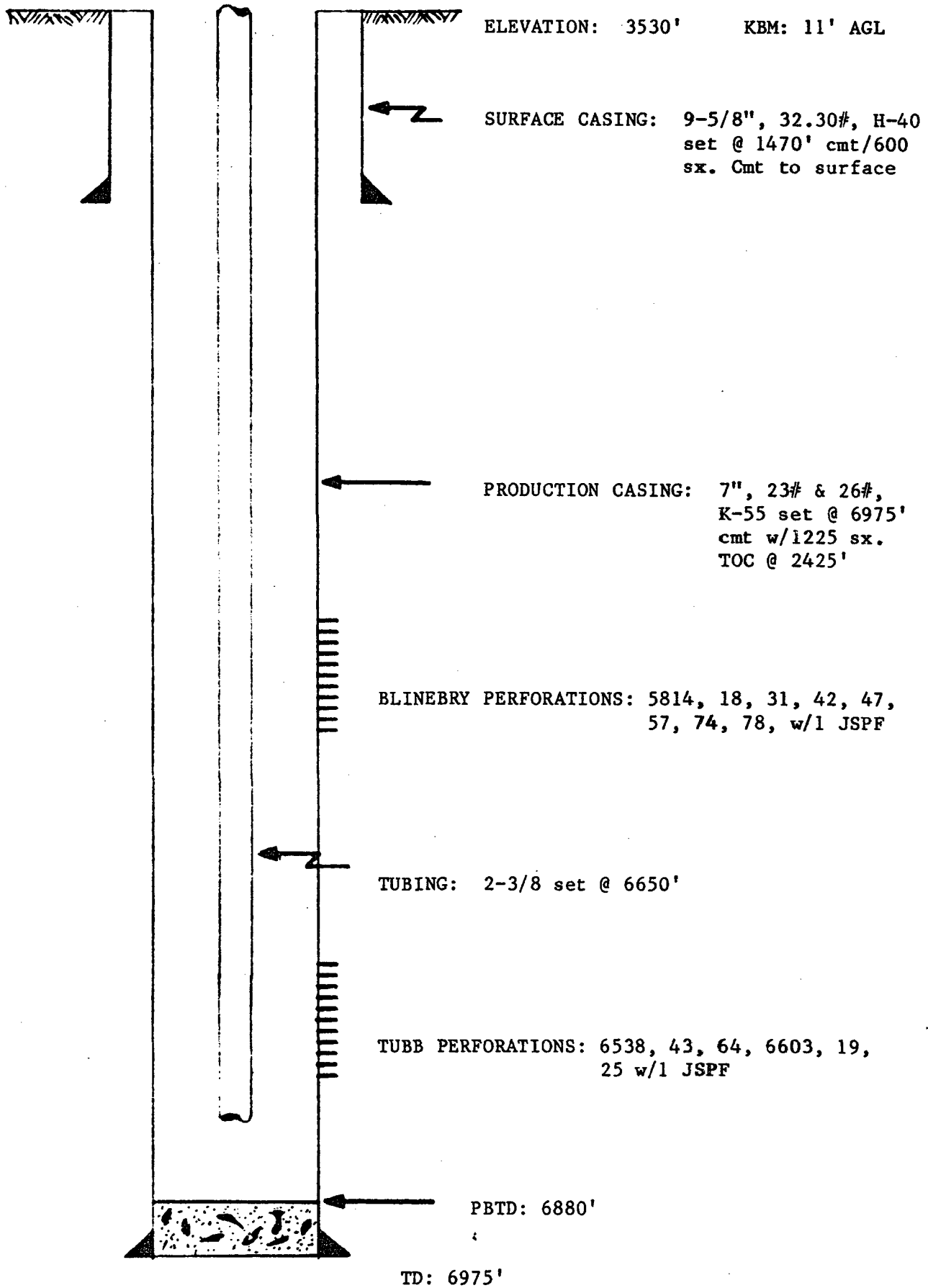
DEC. 1975 MAR. 1976 JUNE 1976 SEPT. 1976 DEC. 1976 MAR. 1977 JUNE 1977 SEPT. 1977 DEC. 1977 MAR. 1978 JUNE 1978 SEPT. 1978 DEC. 1978 MAR. 1979 JUNE 1979 SEPT. 1979 DEC. 1979 MAR. 1980 JUNE 1980 SEPT. 1980 DEC. 1980 MAR. 1981 JUNE 1981 SEPT. 1981 DEC. 1981 MAR. 1982 JUNE 1982 SEPT. 1982 DEC. 1982 MAR. 1983 JUNE 1983 SEPT. 1983 DEC. 1983 MAR. 1984 JUNE 1984 SEPT. 1984 DEC. 1984 MAR. 1985 JUNE 1985 SEPT. 1985 DEC. 1985 MAR. 1986 JUNE 1986 SEPT. 1986 DEC. 1986 MAR. 1987 JUNE 1987 SEPT. 1987 DEC. 1987 MAR. 1988 JUNE 1988 SEPT. 1988 DEC. 1988 MAR. 1989 JUNE 1989 SEPT. 1989 DEC. 1989

WARREN UNIT NO. 34
660' FNL & 1980' FWL
Sec. 34, T-20-S, R-38-E



PRESENT WELLBORE

WARREN UNIT NO. 34
660' FNL & 1980' FWL
Sec. 34, T-20-S, R-38-E



PROPOSED WELLBORE