



Production Department  
Hobbs Division  
North American Production

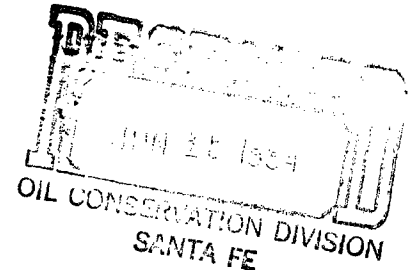
Conoco Inc.  
P.O. Box 460  
726 East Michigan  
Hobbs, NM 88240  
(505) 393-4141

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

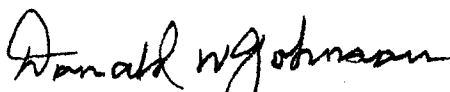
June 5, 1984

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<br>Mid-point of perfs |          |     | Over/Underbalance of Blinebry BHP<br>corrected to midpoint of Tubb<br>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.  
gfg

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 9289*

*water production or 9289*

|                                |  |                                                          |  |                            |  |                               |  |
|--------------------------------|--|----------------------------------------------------------|--|----------------------------|--|-------------------------------|--|
| Operator<br><b>Conoco Inc.</b> |  | Address<br><b>P. O. Box 460, Hobbs, New Mexico 88240</b> |  | County<br><b>Lea</b>       |  | Pod<br><b>Warren Tubb Oil</b> |  |
| LEASE NAME                     |  |                                                          |  | WELL NO.                   |  | TYPE OF TEST - (X)            |  |
| LOCATION                       |  |                                                          |  | DATE OF TEST               |  | CHOKE SIZE                    |  |
| T                              |  |                                                          |  | R                          |  | TBG. PRESS.                   |  |
| DAILY ALLOWABLE                |  |                                                          |  | LENGTH OF TEST HOURS       |  | PRODUCTION DURING TEST        |  |
| WATER BBL.                     |  |                                                          |  | GRAV. OIL                  |  | OIL BBL.                      |  |
| GAS M.C.F.                     |  |                                                          |  | GAS - OIL RATIO CU.FT/BBL. |  |                               |  |
| Warren Unit                    |  |                                                          |  | 31                         |  | 0                             |  |
| Warren Unit                    |  |                                                          |  | 32                         |  | P                             |  |
| Warren Unit                    |  |                                                          |  | 34                         |  | C                             |  |
| Warren Unit                    |  |                                                          |  | 36                         |  | D                             |  |
| Warren Unit                    |  |                                                          |  | 37                         |  | J                             |  |
| Warren Unit                    |  |                                                          |  | 40                         |  | G                             |  |
| Warren Unit                    |  |                                                          |  | 43                         |  | N                             |  |
| Warren Unit                    |  |                                                          |  | 44                         |  | M                             |  |
| Warren Unit                    |  |                                                          |  | 45                         |  | N                             |  |
| Warren Unit                    |  |                                                          |  | 46                         |  | K                             |  |
| Warren Unit                    |  |                                                          |  | 47                         |  | H                             |  |
| Warren Unit                    |  |                                                          |  | 48                         |  | F                             |  |
| Warren Unit                    |  |                                                          |  | 49                         |  | J                             |  |
| Warren Unit                    |  |                                                          |  | 50                         |  | B                             |  |
| Warren Unit                    |  |                                                          |  | 51                         |  | A                             |  |
| Warren Unit                    |  |                                                          |  | 52                         |  | I                             |  |

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 T. Quinn*  
(Signature)  
Administrative Supervisor  
June 1, 1984  
(Date)

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

C-116  
Revised 1-1-65

| Operator                               |          | Pool                  |    | County             |              |                                    |             |                                     |                      |                                             |              |           |                            |            |
|----------------------------------------|----------|-----------------------|----|--------------------|--------------|------------------------------------|-------------|-------------------------------------|----------------------|---------------------------------------------|--------------|-----------|----------------------------|------------|
| Conoco Inc.                            |          | Blinberry Oil and Gas |    | Lea                |              |                                    |             |                                     |                      |                                             |              |           |                            |            |
| Address                                |          |                       |    | TYPE OF TEST - (X) |              | Scheduled <input type="checkbox"/> |             | Completion <input type="checkbox"/> |                      | Special <input checked="" type="checkbox"/> |              |           |                            |            |
| P. O. Box 460, Hobbs, New Mexico 88240 |          |                       |    |                    |              |                                    |             |                                     |                      |                                             |              |           |                            |            |
| LEASE NAME                             | WELL NO. | LOCATION              |    |                    | DATE OF TEST | 2 1/2 IN. 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. |
| Warren Unit                            | 52       | I                     | 29 | 20                 | 3-08-84      | P                                  | NA          | 21                                  | 24                   | 10                                          | 40           | 13        | 67                         | 5,154      |
| Warren Unit                            | 54       | E                     | 26 | 20                 | 4-02-84      | P                                  | NA          | 2                                   | 24                   | 3                                           | 40           | 5         | 98                         | 19,600     |
| Warren Unit                            | 55       | G                     | 26 | 20                 | 4-03-84      | P                                  | NA          | 9                                   | 24                   | 0                                           | 40           | 7         | 70                         | 10,000     |
| Warren Unit                            | 56       | B                     | 26 | 20                 | 3-22-84      | P                                  | NA          | 3                                   | 24                   | 17                                          | 40           | 8         | 50                         | 6,250      |
| Warren Unit                            | 57       | D                     | 26 | 20                 | 3-21-84      | P                                  | NA          | 6                                   | 24                   | 53                                          | 40           | 20        | 141                        | 7,050      |
| Warren Unit                            | 62       | P                     | 20 | 20                 | 3-24-84      | P                                  | NA          | 21                                  | 24                   | 2                                           | 40           | 7         | 22                         | 3,143      |
| Warren Unit                            | 63       | O                     | 20 | 20                 | 3-11-84      | P                                  | NA          | 11                                  | 24                   | 1                                           | 40           | 5         | 13                         | 2,600      |
| Warren Unit                            | 68       | A                     | 27 | 20                 | 4-03-84      | P                                  | NA          | 8                                   | 24                   | 2                                           | 40           | 6         | 20                         | 3,333      |
| Warren Unit                            | 77       | J                     | 20 | 20                 | 3-13-84      | P                                  | NA          | 54                                  | 24                   | 1                                           | 40           | 22        | 81                         | 3,682      |
| Warren Unit                            | 78       | I                     | 20 | 20                 | 3-01-84      | P                                  | NA          | 10                                  | 24                   | 1                                           | 40           | 7         | 17                         | 2,429      |
| Warren Unit                            | 81       | L                     | 21 | 20                 | 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 S. Jagan*  
 (Signature)  
 Administrative Supervisor  
 June 1, 1984  
 (Date)

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

C-116  
Revised 1-1-65

| Operator                               |          | Pool            |    | County                   |    |                          |            |                                     |                  |                      |                   |           |           |                             |            |       |
|----------------------------------------|----------|-----------------|----|--------------------------|----|--------------------------|------------|-------------------------------------|------------------|----------------------|-------------------|-----------|-----------|-----------------------------|------------|-------|
| Conoco Inc.                            |          | Warren Tubb 011 |    | Lee                      |    |                          |            |                                     |                  |                      |                   |           |           |                             |            |       |
| Address                                |          |                 |    | TYPE OF TEST - (X)       |    | Completion               |            | Special                             |                  |                      |                   |           |           |                             |            |       |
| P. O. Box 460, Hobbs, New Mexico 88240 |          |                 |    | <input type="checkbox"/> |    | <input type="checkbox"/> |            | <input checked="" type="checkbox"/> |                  |                      |                   |           |           |                             |            |       |
| LEASE NAME                             | WELL NO. | LOCATION        |    |                          |    | DATE 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 BBLs.       | GRAV. OIL | OIL BBLs. |                             | 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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*David S. Jorgensen*  
(Signature)  
Administrative Supervisor  
(Title)  
June 1, 1984  
(Date)

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

C-116  
Revised 1-1-65

| Operator<br><b>Conoco Inc.</b>                           |          | Pool<br><b>Blinberry Oil and Gas</b> |    | County<br><b>Lea</b>                                                           |              |            |             |                  |                      |                                                                                 |             |                 |           |            |                             |
|----------------------------------------------------------|----------|--------------------------------------|----|--------------------------------------------------------------------------------|--------------|------------|-------------|------------------|----------------------|---------------------------------------------------------------------------------|-------------|-----------------|-----------|------------|-----------------------------|
| Address<br><b>P. O. Box 460, Hobbs, New Mexico 88240</b> |          | TYPE OF TEST - (X)                   |    | Scheduled <input type="checkbox"/> Special <input checked="" type="checkbox"/> |              |            |             |                  |                      |                                                                                 |             |                 |           |            |                             |
| LEASE NAME                                               | WELL NO. | LOCATION                             |    |                                                                                | DATE OF TEST | CHOKE SIZE | TBG. PRESS. | DAILY ALLOW-ABLE | LENGTH OF TEST HOURS | Completion <input type="checkbox"/> Special <input checked="" type="checkbox"/> |             |                 |           |            |                             |
|                                                          |          | U                                    | S  | T                                                                              |              |            |             |                  |                      | R                                                                               | WATER BBLs. | PROD. GRAV. OIL | OIL BBLs. | GAS M.C.F. | GAS - OIL RATIO CU.FT./BBL. |
| Warren Unit                                              | 31       | O                                    | 27 | 20                                                                             | 38           | 3-30-84    | P -         | NA               | 10                   | 24                                                                              | 0           | 40              | 5         | 71         | 14,200                      |
| Warren Unit                                              | 32       | P                                    | 27 | 20                                                                             | 38           | 3-28-84    | P -         | NA               | 11                   | 24                                                                              | 1           | 40              | 11        | 72         | 6,545                       |
| Warren Unit                                              | 34       | C                                    | 34 | 20                                                                             | 38           | 3-23-84    | P -         | NA               | 10                   | 24                                                                              | 1           | 40              | 8         | 149        | 18,625                      |
| Warren Unit                                              | 36       | D                                    | 27 | 20                                                                             | 38           | 3-04-84    | P -         | NA               | 2                    | 24                                                                              | 0           | 40              | 3         | TSTM       | -                           |
| Warren Unit                                              | 37       | J                                    | 27 | 20                                                                             | 38           | 3-17-84    | P -         | NA               | 6                    | 24                                                                              | 1           | 40              | 8         | 56         | 7,000                       |
| Warren Unit                                              | 40       | G                                    | 27 | 20                                                                             | 38           | 4-08-84    | P -         | NA               | -                    | 24                                                                              | 1           | 40              | 6         | 49         | 8,167                       |
| Warren Unit                                              | 43       | N                                    | 21 | 20                                                                             | 38           | 3-05-84    | P -         | NA               | 8                    | 24                                                                              | 1           | 40              | 12        | 13         | 1,083                       |
| Warren Unit                                              | 44       | M                                    | 26 | 20                                                                             | 38           | 3-01-84    | P -         | NA               | 8                    | 24                                                                              | 0           | 40              | 10        | 154        | 15,400                      |
| Warren Unit                                              | 45       | N                                    | 26 | 20                                                                             | 38           | 3-17-84    | P -         | NA               | 9                    | 24                                                                              | 0           | 40              | 1         | 12         | 12,000                      |
| Warren Unit                                              | 46       | K                                    | 26 | 20                                                                             | 38           | 3-19-84    | P -         | NA               | 5                    | 24                                                                              | 1           | 40              | 7         | 52         | 7,429                       |
| Warren Unit                                              | 47       | H                                    | 29 | 20                                                                             | 38           | 4-25-84    | P -         | NA               | 13                   | 24                                                                              | 21          | 40              | 9         | 38         | 4,222                       |
| Warren Unit                                              | 48       | F                                    | 26 | 20                                                                             | 38           | 3-23-84    | P -         | NA               | 17                   | 24                                                                              | 0           | 40              | 18        | 114        | 6,333                       |
| Warren Unit                                              | 49       | J                                    | 26 | 20                                                                             | 38           | 4-03-84    | P -         | NA               | 16                   | 24                                                                              | 1           | 40              | 7         | 70         | 10,000                      |
| Warren Unit                                              | 50       | B                                    | 29 | 20                                                                             | 38           | 3-06-84    | P -         | NA               | 5                    | 24                                                                              | 2           | 40              | 10        | 13         | 1,300                       |
| Warren Unit                                              | 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. Juma*  
(Signature)  
Administrative Supervisor  
(Title)  
June 1, 1984  
(Date)



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 <sub>3</sub> | <u>77%</u> | <u>82.5%</u> | <u>87%</u> | <u>67%</u> | <u>70.5%</u> |
| 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,

A handwritten signature in cursive script, appearing to read 'Joe Edwards'.

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

# WATER ANALYSIS REPORT

CONOCO, INC.  
HOBBS DIVISION  
HOBBS, NEW MEXICO

IDENTIFICATION Warren Unit #55

POOL \_\_\_\_\_ FORMATION Tubb

SAMPLE POINT \_\_\_\_\_ DEPTH \_\_\_\_\_

DATE COLLECTED \_\_\_\_\_ ON SITE ANALYSIS Partial

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

## ANALYSIS RESULTS

SPECIFIC GRAVITY 1.109 pH 7.12

RESISTIVITY AT \_\_\_\_\_ °F \_\_\_\_\_ OHM METER

|                                 | Meq/l        | Mg/l           |                   | Meq/l             | Mg/l          |
|---------------------------------|--------------|----------------|-------------------|-------------------|---------------|
| TOTAL SALTS                     |              | <u>152,548</u> | SODIUM (Na)       | <u>2,046</u>      | <u>47,063</u> |
| HYDROGEN SULFIDE                | <u>0.3</u>   | <u>5.1</u>     | MAGNESIUM (Mg)    | <u>179</u>        | <u>2,187</u>  |
| CHLORIDE (Cl)                   | <u>2,620</u> | <u>93,000</u>  | CALCIUM (Ca)      | <u>430</u>        | <u>8,600</u>  |
| SULFATE (SO <sub>4</sub> )      | <u>34</u>    | <u>1,625</u>   | BARIUM (Ba)       |                   |               |
| CARBONATE (CO <sub>3</sub> )    |              |                | IRON (Mg/l) TOTAL | <u>DISS. 10.5</u> |               |
| BICARBONATE (HCO <sub>3</sub> ) | <u>1.2</u>   | <u>73</u>      | SUSPENDED SOLIDS  |                   |               |
| HYDROXYL (OH)                   |              |                |                   |                   |               |

## SCALING TENDENCIES

| T°F | <u>CaCO<sub>3</sub></u><br><u>INTERPRETATION</u> | T°F | <u>CaSO<sub>4</sub></u><br><u>INTERPRETATION</u> | T°F | <u>BaSO<sub>4</sub></u><br><u>INTERPRETATION</u> |
|-----|--------------------------------------------------|-----|--------------------------------------------------|-----|--------------------------------------------------|
| 60  | <u>+0.38 yes</u>                                 | 60  | <u>yes</u>                                       | 60  |                                                  |
| 80  | <u>+0.60 yes</u>                                 | 80  | <u>yes</u>                                       | 80  |                                                  |
| 100 | <u>+0.85 yes</u>                                 | 100 | <u>no</u>                                        | 100 |                                                  |
| 140 | <u>+1.49 yes</u>                                 | 140 | <u>yes</u>                                       | 140 |                                                  |
| 160 | <u>+1.87 yes</u>                                 | 160 | <u>yes</u>                                       | 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  
Chamption Chemicals, Inc.

## ANALYSIS RESULTS

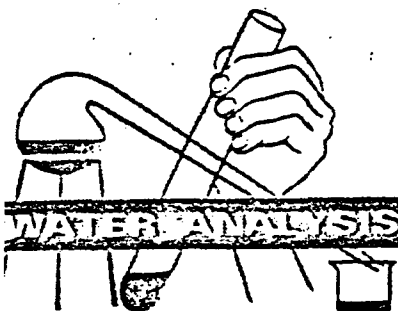
SPECIFIC GRAVITY 1.10 pH 7.44

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 <sub>4</sub> )      | <u>52</u>    | <u>2,500</u>   | BARIUM (Ba)       |               | <u>0</u>      |
| CARBONATE (CO <sub>3</sub> )    |              |                | IRON (Mg/l) TOTAL | <u>DISS.3</u> |               |
| BICARBONATE (HCO <sub>3</sub> ) | <u>2.2</u>   | <u>134</u>     | SUSPENDED SOLIDS  |               |               |
| HYDROXYL (OH)                   |              |                |                   |               |               |

## SCALING TENDENCIES

| T°F | CaCO <sub>3</sub><br>INTERPRETATION | T°F | CaSO <sub>4</sub><br>INTERPRETATION | T°F | BaSO <sub>4</sub><br>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

**Champion  
Chemicals, Inc.**BOX 4513  
ODESSA, TEXAS 79760

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

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

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

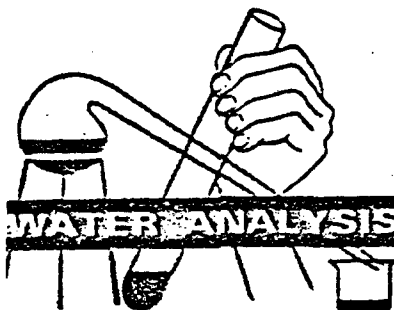
|               |                |                       |                       |
|---------------|----------------|-----------------------|-----------------------|
| PORT FOR      | Elma Winter    | DATE SAMPLED          | 4/2/84                |
|               | Jerry Skidmore | DATE REPORTED   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

**CHEMICAL ANALYSIS (AS PARTS PER 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 <sub>3</sub> )      |                       |         |         |         |         |  |
| 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 <sub>3</sub> )     | 104                   | 12.2    | 24      | 24      | 24      |  |
| Carbonate (CO <sub>3</sub> )        |                       |         |         |         |         |  |
| Sulfate (SO <sub>4</sub> )          | 2,063                 | 1,450   | 1,175   | 1,425   | 1,925   |  |
| Hydrogen Sulfide (H <sub>2</sub> S) |                       |         |         |         |         |  |
| Specific Gravity                    | 1.10                  | 1.10    | 1.10    | 1.10    | 1.11    |  |
| Viscosity, lb./gal.                 |                       |         |         |         |         |  |
| Beckman [ ] Strip [ ]               |                       | 7.00    | 6.8     | 6.6     | 7.0     |  |
| DS                                  | 145,899               | 144,104 | 136,796 | 143,823 | 147,840 |  |
|                                     |                       |         |         |         |         |  |
|                                     |                       |         |         |         |         |  |
|                                     |                       |         |         |         |         |  |
|                                     |                       |         |         |         |         |  |

**OTHER DESCRIPTION, REMARKS AND RECOMMENDATIONS**

No 2476



## WATER ANALYSIS REPORT

Champion  
Chemicals, Inc.BOX 4513  
ODESSA, TEXAS 79760

TECH SERVICE LABORATORY: Odessa, Texas Phone (915) 337-0055 &amp; 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 : 10/90 |
| CC       |                | COUNTY                | STATE N.M.            |
| COMPANY  | Conoco, Inc.   | FORMATION             |                       |
| DRESS    |                | DEPTH                 |                       |
| 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 <sub>3</sub> ) |                       |         |         |         |         |  |
| 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 <sub>3</sub> )      | 79                    | 24      | 37      | 24      | 24      |  |
| Carbonate (CO <sub>3</sub> )         |                       |         |         |         |         |  |
| Sulfate (SO <sub>4</sub> )           | 1,713                 | 1,750   | 1,250   | 1,375   | 1,725   |  |
| Hydrogen Sulfide (H <sub>2</sub> S)  |                       |         |         |         |         |  |
| Specific Gravity                     | 1.10                  | 1.11    | 1.10    | 1.11    | 1.11    |  |
| Density, 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



BOX 45.13  
ODESSA, TEXAS 79760

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

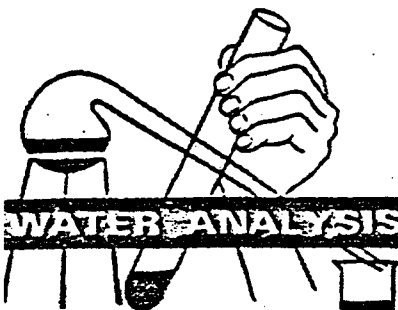
PORT FOR Elma Winter DATE SAMPLED 4/2/84  
 CC Jerry Skidmore DATE REPORTED 4/9/84  
 CC \_\_\_\_\_ FIELD, LEASE, OR WELL Warren Unit #55 Blinbry  
 CC \_\_\_\_\_ COUNTY \_\_\_\_\_ STATE N.M.  
 COMPANY Conoco, Inc. FORMATION \_\_\_\_\_  
 ADDRESS \_\_\_\_\_ DEPTH \_\_\_\_\_  
 SERVICE ENGINEER Jay Brown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

## CHEMICAL ANALYSIS 145 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 <sub>3</sub> )      |                       |         |         |  |  |  |
| Calcium (Ca)                        | 6,280                 | 6,240   | 6,320   |  |  |  |
| Magnesium (Mg)                      | 2,381                 | 2,381   | 2,527   |  |  |  |
| Bicarbonate (HCO <sub>3</sub> )     | 24                    | 37      | 18      |  |  |  |
| Sulfate (SO <sub>4</sub> )          | 1,600                 | 1,525   | 1,600   |  |  |  |
| Hydrogen Sulfide (H <sub>2</sub> S) |                       |         |         |  |  |  |
| Density Gravity                     | 1.09                  | 1.10    | 1.10    |  |  |  |
| Specific Gravity                    |                       |         |         |  |  |  |
| Beckman [ ] Strip [ ]               | 7.2                   | 7.0     | 7.05    |  |  |  |
| Total Solids                        | 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               |
|                  | Jerry Skidmore | DATE REPORTED         | 4/9/84               |
| CC               |                | FIELD, LEASE, OR WELL | Warren Unit #55 Tubb |
| CC               |                | COUNTY                | STATE N.M.           |
| CC               |                | FORMATION             |                      |
| COMPANY          | Conoco, Inc.   | DEPTH                 |                      |
| ADDRESS          |                | SUBMITTED BY          | Jay Brown            |
| SERVICE ENGINEER | Jay Brown      |                       |                      |

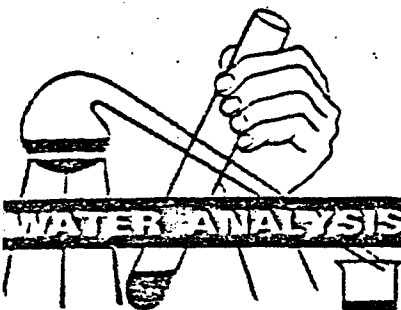
### CHEMICAL ANALYSIS (AS PARTS PER MILLION)

#### Field, Lease, or Well

| Chemical Component                  | 24 hrs. | 48 hrs. | 72 hrs. |  |  |  |
|-------------------------------------|---------|---------|---------|--|--|--|
| Chloride (Cl)                       | 88,000  | 95,000  | 96,000  |  |  |  |
| Iron (Fe)                           |         |         |         |  |  |  |
| Hardness (Ca CO <sub>3</sub> )      |         |         |         |  |  |  |
| Calcium (Ca)                        | 7,240   | 7,240   | 7,320   |  |  |  |
| Magnesium (Mg)                      | 2,527   | 2,527   | 2,649   |  |  |  |
| Bicarbonate (HCO <sub>3</sub> )     | 31      | 24      | 18      |  |  |  |
| Carbonate (CO <sub>3</sub> )        |         |         |         |  |  |  |
| Sulfate (SO <sub>4</sub> )          | 1,125   | 1,425   | 1,875   |  |  |  |
| Hydrogen Sulfide (H <sub>2</sub> 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


 BOX 4513  
 ODESSA, TEXAS 79760

TECH SERVICE LABORATORY: Odessa, Texas Phone (915) 337-0055 &amp; 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             |
| ENGINEER |                | SUBMITTED BY          |                       |

## CHEMICAL ANALYSIS (AS PARTS PER MILLION)

## Field, Lease, or Well

| Chemical Component                  | Theoretical<br>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 <sub>3</sub> )      |                          |         |         |         |         |  |
| 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 <sub>3</sub> )     | 128                      | 122     | 12.2    | 30      | 24      |  |
| Carbonate (CO <sub>3</sub> )        |                          |         |         |         |         |  |
| Sulfate (SO <sub>4</sub> )          | 2,413                    | 1,850   | 1,450   | 1,625   | 2,025   |  |
| Hydrogen Sulfide (H <sub>2</sub> 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

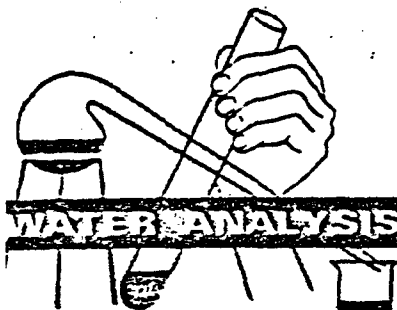
|                  |                |                       |                       |
|------------------|----------------|-----------------------|-----------------------|
| PORT FOR         | Elma Winter    | DATE SAMPLED          | 4/2/84                |
| CC               | Jerry Skidmore | DATE REPORTED         | 4/9/84                |
| CC               |                | FIELD, LEASE, OR WELL | Blinebry/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)

| Chemical Component                   | Field, Lease, or Well    |         |         |         |         |  |
|--------------------------------------|--------------------------|---------|---------|---------|---------|--|
|                                      | Theoretical<br>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 <sub>3</sub> ) |                          |         |         |         |         |  |
| 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 <sub>3</sub> )      | 116                      | 134     | 24      | 37      | 24      |  |
| Carbonate (CO <sub>3</sub> )         |                          |         |         |         |         |  |
| Sulfate (SO <sub>4</sub> )           | 2,238                    | 1,900   | 1,475   | 1,475   | 1,875   |  |
| Hydrogen Sulfide (H <sub>2</sub> 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



# WATER ANALYSIS REPORT



**Champion  
Chemicals, Inc.**

BOX 4513  
ODESSA, TEXAS 79760

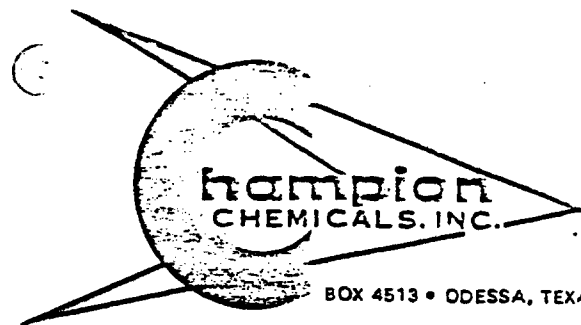
TECH SERVICE LABORATORY: Odessa, Texas Phone (915) 337-0055 & 563-0863  
RESEARCH LABORATORY: Houston, Texas Phone (713) 431-2561  
PLANT: Odessa, Texas Phone (915) 337-0055

|               |                |                       |                       |
|---------------|----------------|-----------------------|-----------------------|
| ORT FOR       | Elma Winter    | DATE SAMPLED          | 4/2/84                |
| CC            | Jerry Skidmore | DATE REPORTED         | 4/9/84                |
| CC            |                | FIELD, LEASE, OR WELL | Blinebry/Tubb : 30/70 |
| CC            |                | COUNTY                | STATE N. M.           |
| MPANY         | Conoco, Inc.   | FORMATION             |                       |
| DRESS         |                | DEPTH                 |                       |
| VICE ENGINEER | Jay Brown      | SUBMITTED BY          | Jay Brown             |

## CHEMICAL ANALYSIS (AS PARTS PER MILLION)

| Chemical Component              | Field, Lease, or Well |         |         |         |         |
|---------------------------------|-----------------------|---------|---------|---------|---------|
|                                 | Theoretical B/T 30/70 | Initial | 24 hrs. | 48 hrs. | 72 hrs. |
| ide (Cl)                        | 90,300                | 90,000  | 87,500  | 91,000  | 93,000  |
| (Fe)                            |                       |         |         |         |         |
| Hardness (Ca CO <sub>3</sub> )  |                       |         |         |         |         |
| um (Ca)                         | 8,000                 | 7,640   | 7,040   | 7,000   | 7,000   |
| esium (Mg)                      | 2,231                 | 2,211   | 2,454   | 2,552   | 2,673   |
| onate (HCO <sub>3</sub> )       | 91                    | 37      | 24      | 37      | 12.2    |
| onate (CO <sub>3</sub> )        |                       |         |         |         |         |
| ite (SO <sub>4</sub> )          | 1,888                 | 1,525   | 1,250   | 1,250   | 1,925   |
| ogen Sulfide (H <sub>2</sub> S) |                       |         |         |         |         |
| ific Gravity                    | 1.11                  | 1.11    | 1.10    | 1.11    | 1.11    |
| ity, 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



BOX 4513 • ODESSA, TEXAS

CHEMICAL WITH SERVICE

**SCALE ANALYSIS REPORT**

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

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

PLANT: Odessa, Texas • Ph.: 362-2353 &amp; 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  
cc \_\_\_\_\_ Blinebry  
cc \_\_\_\_\_ COUNTY \_\_\_\_\_ STATE N. M.  
ANY Conoco, Inc. FORMATION \_\_\_\_\_  
ESS \_\_\_\_\_ DEPTH \_\_\_\_\_  
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

**CHEMICAL ANALYSIS (AS WEIGHT PERCENT)**

| SCALE COMPONENT         | Field, Lease, or Well |       |                |                |                |
|-------------------------|-----------------------|-------|----------------|----------------|----------------|
|                         | Blinebry              | Tubb  | B/T<br>90%/10% | B/T<br>70%/30% | B/T<br>50%/50% |
| CaCO <sub>3</sub>       | 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



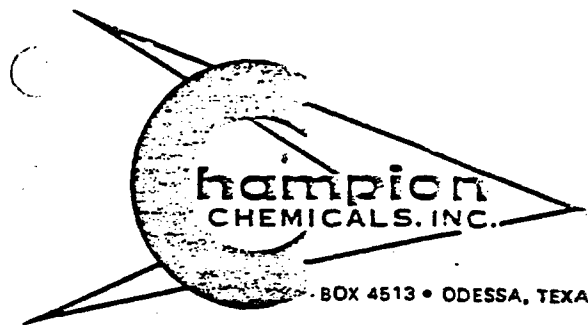
CaCO<sub>3</sub>



CaSO<sub>4</sub>

## 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  
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

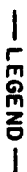
PAGE #2

### CHEMICAL ANALYSIS (AS WEIGHT PERCENT)

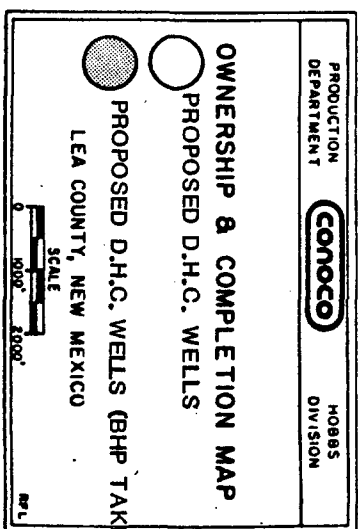
| SCALE COMPONENT         | Field, Lease, or Well |                |  |  |  |
|-------------------------|-----------------------|----------------|--|--|--|
|                         | B/T<br>30%/70%        | B/T<br>10%/90% |  |  |  |
| CaCO <sub>3</sub>       | 67.1%                 | 52.4%         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

REMARKS AND RECOMMENDATIONS

## SEMUR TUBB A

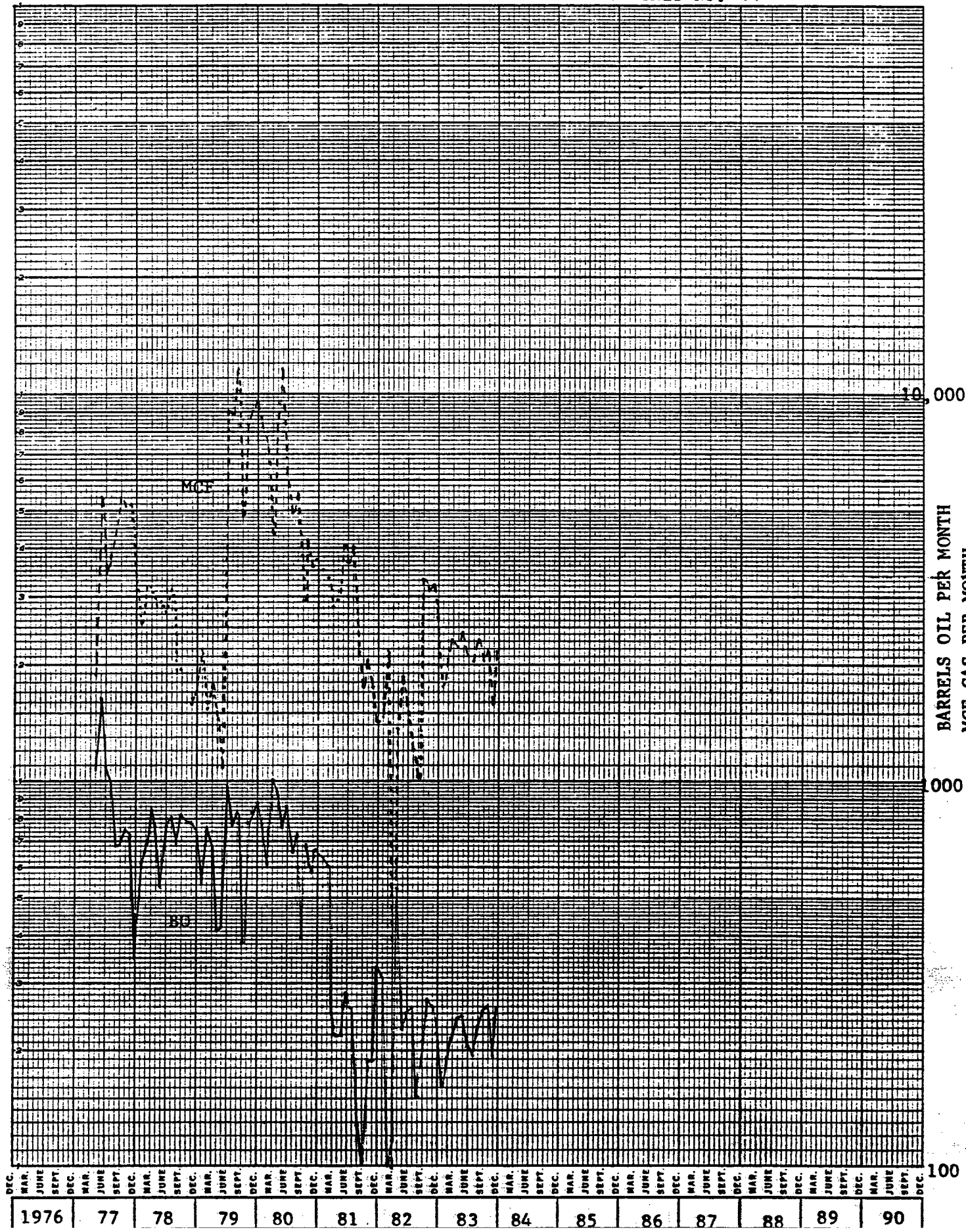


- 2. PROPOSED INJECTOR**

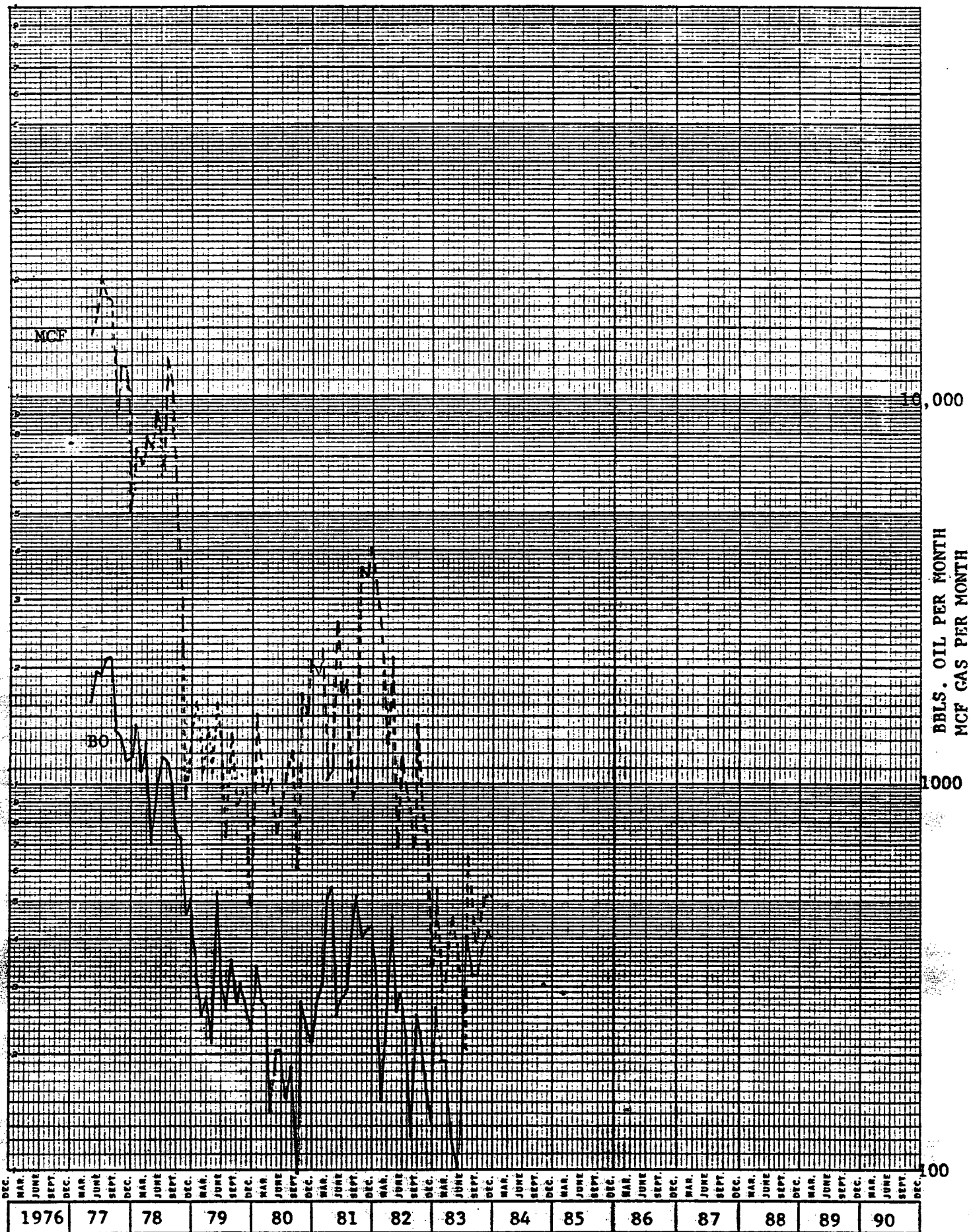


**RECEIVED**

**GRAPH PAPER**



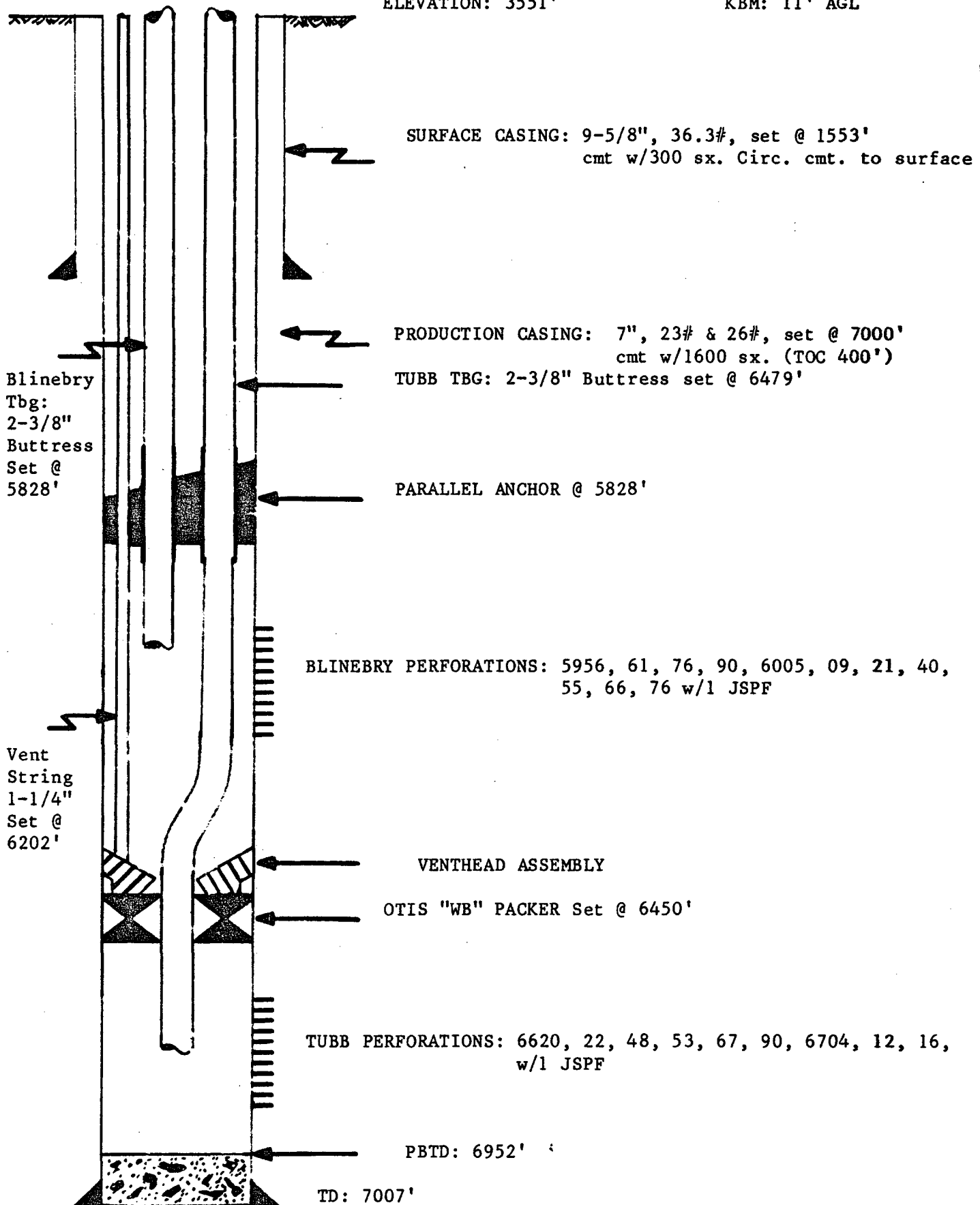
**GRAPH PAPER**



WARREN UNIT NO. 44  
660' FSL & 660' FWL  
Sec. 26, T-20-S, R-38-E

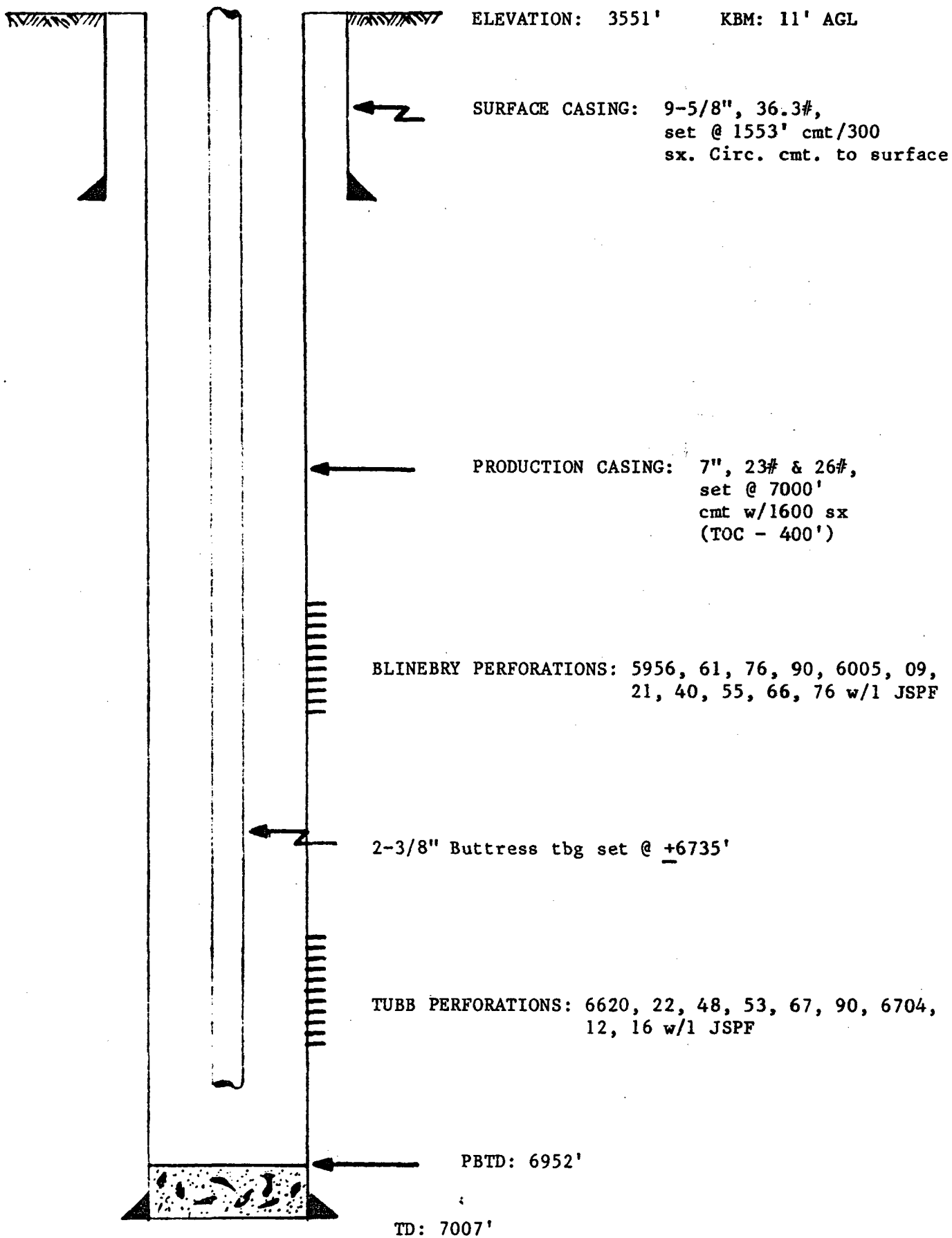
ELEVATION: 3551'

KBM: 11' AGL



PRESENT WELLBORE

WARREN UNIT NO. 44  
660' FSL & 660' FWL  
Sec. 26, T-20-S, R-38-E



PROPOSED WELLBORE