

DATA FOR  
PROPOSED NORTHWEST EUMONT UNIT  
OIL CONSERVATION COMMISSION HEARING  
CASE NUMBER 2982

*Logs on all available  
proposed injection wells  
Northwest Eumont Unit  
11/11/11*

EXHIBIT NO. 3

LOGS OF ALL AVAILABLE  
PROPOSED INJECTION WELLS

NORTHWEST EUMONT UNIT

See Back Envelope

Operator Gulf Oil Corporation Date February 5, 1964

Project Northwest Eumont Unit Waterflood

Pool Eumont County Lea

Reservoir Queen

Other Operators Injecting into this Reservoir None

I. RESERVOIR CHARACTERISTICS

A. Information on Reservoir

1. Name of Reservoir Queen (See Exhibit No. 1)
2. Composition Fine-grained argillaceous gray sand interbedded with gray finely crystalline dolomite.
3. Structure Monocline located on the west flank of the large Monument uplift. Dip is a westerly and northwesterly direction at a rate of approximately 350 to 400 feet per mile as shown on Exhibit No. 2.

B. Information on Proposed Project Area

1. Number of Productive Acres in Project Area to be Flooded Unitized area is 2,760 acres as shown on Exhibit No. 1.
2. Average Depth to Top of Pay 4,000 feet (See Exhibit No. 3).
3. Estimated Average Gross Thickness 55 feet.
4. Estimated Average Effective Thickness 12 feet.
5. Estimated Average Effective Porosity 14.18%
6. Average Horizontal Permeability 2.61 mds. Range 0.10 to 62.0 mds.

II. PRIMARY PRODUCTION HISTORY AND PRESENT STATUS OF PROJECT AREA

- A. Date First Well Completed August 29, 1937.
- B. Oil and Water Production History by Months See Performance Curves on Exhibit No. 4 and Production Data on Exhibit No. 5.
- C. Type of Depletion Solution gas drive.
- D. Original Reservoir Pressure 1,323 psig.

- E. Oil Gravity 35.6° API.
- F. Stage of Depletion of Project Area Late.
- G. Number of Wells in Project Area 69.
- H. Average Daily Oil Production Per Well at Present Time 6.8 barrels.
- I. Cumulative Oil Production as of November 1, 1963 from Area to be Flooded 3,293,559 barrels.

### III. INJECTION INFORMATION

- A. Source of Injected Water From source wells to be completed in the San Andres formation.
- B. Type of Water Brackish - Injection system will be corrosion-resistant.
- C. Treatment of Injected Water None is anticipated; however, if water analysis after development indicates treatment is needed, appropriate action will be taken.
- D. Pattern and Spacing 80-acre 5-spot patterns as shown on Exhibit No. 6.
- E. Initial Injection Pressure to be Used Maximum pressure expected will be in the range of 1,500 to 2,000 psig, after increasing from 500 psig.
- F. Estimated Initial Per Well Rate of Injection 500 barrels per day.
- G. Additional Injection and Producing Wells to be Drilled None.
- H. Injection Well Geometry Water will be injected through internally plastic coated tubing below a tension packer situated about 50 feet above the bottom of the oil string as shown on Exhibit No. 6.

### IV. RESULTS EXPECTED

It is believed that the proposed waterflood will provide recovery of additional oil in the magnitude of 60% of the reservoir's ultimate primary recovery. In terms of barrels, the increased recovery due to waterflooding should be about 2,250,000 barrels of oil.

## V. REASONS AND RECOMMENDATIONS

The Eumont Oil Pool produces by a solution gas drive mechanism and as a result, a considerable quantity of oil will remain unrecovered at the end of primary depletion unless some type of fluid injection project is inaugurated to increase the ultimate oil recovery.

Production from the wells in the proposed unit area has declined to an average daily oil production of about 6.8 barrels per well per day. At the existing rate of decline, these wells have only a few years remaining to produce prior to depletion and abandonment. Therefore, in order to prolong the productive life of these wells and to increase the ultimate recovery, some type of secondary recovery project should be inaugurated. The available data indicate that the Queen formation underlying the proposed Northwest Eumont Unit is susceptible to waterflooding operations and that the proposed plan should increase ultimate recovery.

In view of the above considerations, Gulf, in association with Amerada, Cities Service, Continental, Marathon, Phillips, Shell, Skelly, Texaco and others, has concluded that the best course of action is the unitization of the 69 wells completed in this portion of the Eumont Pool as shown on Exhibit No. 1 so that a joint waterflood project can be undertaken. Therefore, Gulf Oil Corporation, as the Northwest Eumont Unit Operator, respectfully requests that the Oil Conservation Commission approve the installation of the proposed waterflood facilities and grant a Unit oil allowable equal to the sum of the current allowables for the 30 Unit wells not offset by water injection wells plus the allowable earned by the 39 wells in the waterflood area as provided in Rule 701 (E) Subparagraph 3 of the Commission Rules and Regulations.

## EXHIBIT NO. 5

MONTHLY OIL, WATER AND GAS PRODUCTION  
NORTHWEST EUMONT UNIT

| MONTH<br>AND<br>YEAR | OIL<br>BARRELS | WATER<br>BARRELS | GAS<br>MCF | MONTH<br>AND<br>YEAR | OIL<br>BARRELS | WATER<br>BARRELS | GAS<br>MCF |
|----------------------|----------------|------------------|------------|----------------------|----------------|------------------|------------|
| <u>1963</u>          |                |                  |            | <u>1962</u>          |                |                  |            |
| Jan.                 | 13,493         | 2,719            | 97,984     | Jan.                 | 16,848         | 2,404            | 92,222     |
| Feb.                 | 13,018         | 2,111            | 89,022     | Feb.                 | 16,345         | 2,750            | 101,354    |
| Mar.                 | 13,918         | 2,797            | 100,566    | Mar.                 | 16,942         | 2,804            | 98,692     |
| Apr.                 | 13,051         | 3,095            | 94,063     | Apr.                 | 15,995         | 2,493            | 104,219    |
| May                  | 13,139         | 2,571            | 100,982    | May                  | 15,286         | 2,284            | 102,438    |
| June                 | 12,346         | 2,170            | 98,143     | June                 | 13,938         | 2,068            | 108,187    |
| July                 | 12,253         | 2,210            | 101,476    | July                 | 15,203         | 1,999            | 114,301    |
| Aug.                 | 13,055         | 3,340            | 99,153     | Aug.                 | 14,136         | 2,695            | 112,689    |
| Sept.                | 11,631         | 2,452            | 89,147     | Sept.                | 13,963         | 3,280            | 110,134    |
| Oct.                 | 12,141         | 2,625            | 91,288     | Oct.                 | 15,743         | 6,323            | 120,245    |
| Nov.                 |                |                  |            | Nov.                 | 14,186         | 2,879            | 100,233    |
| Dec.                 |                |                  |            | Dec.                 | 14,469         | 2,700            | 105,101    |
|                      |                |                  |            | Total                | 183,054        | 34,679           | 1,269,815  |

| MONTH<br>AND<br>YEAR | OIL<br>BARRELS | WATER<br>BARRELS | GAS<br>MCF | MONTH<br>AND<br>YEAR | OIL<br>BARRELS | MONTH<br>AND<br>YEAR | OIL<br>BARRELS |
|----------------------|----------------|------------------|------------|----------------------|----------------|----------------------|----------------|
| <u>1961</u>          |                |                  |            | <u>1960</u>          |                | <u>1959</u>          |                |
| Jan.                 | 20,707         | 2,220            | 128,922    | Jan.                 | 26,784         | Jan.                 | 31,153         |
| Feb.                 | 17,585         | 1,818            | 110,064    | Feb.                 | 24,871         | Feb.                 | 25,776         |
| Mar.                 | 19,110         | 2,235            | 125,570    | Mar.                 | 27,255         | Mar.                 | 27,983         |
| Apr.                 | 18,632         | 2,454            | 121,650    | Apr.                 | 24,227         | Apr.                 | 29,156         |
| May                  | 18,950         | 2,176            | 126,912    | May                  | 23,325         | May                  | 29,221         |
| June                 | 19,064         | 2,591            | 126,627    | June                 | 22,528         | June                 | 27,035         |
| July                 | 19,082         | 2,454            | 117,121    | July                 | 22,459         | July                 | 28,757         |
| Aug.                 | 17,890         | 2,059            | 112,738    | Aug.                 | 22,545         | Aug.                 | 28,101         |
| Sept.                | 17,113         | 2,108            | 109,973    | Sept.                | 21,342         | Sept.                | 24,818         |
| Oct.                 | 17,133         | 1,744            | 108,810    | Oct.                 | 20,829         | Oct.                 | 29,061         |
| Nov.                 | 17,324         | 2,919            | 107,929    | Nov.                 | 20,151         | Nov.                 | 26,718         |
| Dec.                 | 17,625         | 2,850            | 106,151    | Dec.                 | 20,370         | Dec.                 | 26,820         |
| Total                | 220,215        | 27,628           | 1,402,467  | Total                | 276,686        | Total                | 334,599        |

| MONTH<br>AND<br>YEAR | OIL<br>BARRELS | MONTH<br>AND<br>YEAR | OIL<br>BARRELS | MONTH<br>AND<br>YEAR | OIL<br>BARRELS | MONTH<br>AND<br>YEAR | OIL<br>BARRELS |
|----------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|
| <u>1958</u>          |                | <u>1957</u>          |                | <u>1956</u>          |                | <u>1955</u>          |                |
| Jan.                 | 37,180         | Jan.                 | 49,047         | Jan.                 | 42,778         | Jan.                 | 8,755          |
| Feb.                 | 34,935         | Feb.                 | 43,348         | Feb.                 | 47,206         | Feb.                 | 9,415          |
| Mar.                 | 35,086         | Mar.                 | 47,984         | Mar.                 | 52,729         | Mar.                 | 11,238         |
| Apr.                 | 32,002         | Apr.                 | 44,500         | Apr.                 | 49,593         | Apr.                 | 11,559         |
| May                  | 32,271         | May                  | 43,541         | May                  | 53,322         | May                  | 13,607         |
| June                 | 30,929         | June                 | 41,376         | June                 | 50,717         | June                 | 13,860         |
| July                 | 32,096         | July                 | 40,486         | July                 | 52,264         | July                 | 16,162         |
| Aug.                 | 33,945         | Aug.                 | 40,193         | Aug.                 | 50,962         | Aug.                 | 19,363         |
| Sept.                | 32,390         | Sept.                | 35,727         | Sept.                | 49,404         | Sept.                | 25,636         |
| Oct.                 | 32,232         | Oct.                 | 36,668         | Oct.                 | 50,970         | Oct.                 | 32,190         |
| Nov.                 | 30,909         | Nov.                 | 35,122         | Nov.                 | 47,762         | Nov.                 | 34,000         |
| Dec.                 | 31,519         | Dec.                 | 34,870         | Dec.                 | 48,317         | Dec.                 | 34,130         |
| Total                | 395,494        | Total                | 492,862        | Total                | 596,024        | Total                | 229,915        |

## MONTHLY OIL, WATER AND GAS PRODUCTION

NORTHWEST EUMONT UNIT

| <u>MONTH<br/>AND<br/>YEAR</u> | <u>OIL<br/>BARRELS</u> | <u>MONTH<br/>AND<br/>YEAR</u> | <u>OIL<br/>BARRELS</u> | <u>MONTH<br/>AND<br/>YEAR</u> | <u>OIL<br/>BARRELS</u> | <u>MONTH<br/>AND<br/>YEAR</u> | <u>OIL<br/>BARRELS</u> |
|-------------------------------|------------------------|-------------------------------|------------------------|-------------------------------|------------------------|-------------------------------|------------------------|
| <u>1954</u>                   |                        | <u>1953</u>                   |                        | <u>1952</u>                   |                        | <u>1951</u>                   |                        |
| Jan.                          | 1,907                  | Jan.                          | 1,354                  | Jan.                          | 938                    | Jan.                          | 1,156                  |
| Feb.                          | 1,804                  | Feb.                          | 1,098                  | Feb.                          | 1,018                  | Feb.                          | 507                    |
| Mar.                          | 2,390                  | Mar.                          | 1,066                  | Mar.                          | 1,075                  | Mar.                          | 1,099                  |
| Apr.                          | 1,886                  | Apr.                          | 1,078                  | Apr.                          | 1,106                  | Apr.                          | 1,405                  |
| May                           | 2,060                  | May                           | 1,039                  | May                           | 1,042                  | May                           | 1,449                  |
| June                          | 2,021                  | June                          | 988                    | June                          | 1,306                  | June                          | 1,284                  |
| July                          | 1,860                  | July                          | 2,855                  | July                          | 1,095                  | July                          | 1,122                  |
| Aug.                          | 3,131                  | Aug.                          | 2,350                  | Aug.                          | 1,182                  | Aug.                          | 1,124                  |
| Sept.                         | 3,037                  | Sept.                         | 2,391                  | Sept.                         | 1,007                  | Sept.                         | 726                    |
| Oct.                          | 5,172                  | Oct.                          | 2,128                  | Oct.                          | 785                    | Oct.                          | 1,347                  |
| Nov.                          | 6,179                  | Nov.                          | 1,964                  | Nov.                          | 1,117                  | Nov.                          | 979                    |
| Dec.                          | 7,344                  | Dec.                          | 1,873                  | Dec.                          | 1,475                  | Dec.                          | 1,415                  |
| Total                         | <u>38,791</u>          | Total                         | <u>20,184</u>          | Total                         | <u>13,146</u>          | Total                         | <u>13,613</u>          |

| <u>MONTH<br/>AND<br/>YEAR</u> | <u>OIL<br/>BARRELS</u> |
|-------------------------------|------------------------|
| <u>1950</u>                   |                        |
| Jan.                          | 230                    |
| Feb.                          | 741                    |
| Mar.                          | 693                    |
| Apr.                          | 397                    |
| May                           | 945                    |
| June                          | 394                    |
| July                          | 782                    |
| Aug.                          | 396                    |
| Sept.                         | 780                    |
| Oct.                          | 401                    |
| Nov.                          | 717                    |
| Dec.                          | 217                    |
| Total                         | <u>6,693</u>           |