

709 W. INDIANA  
MIDLAND, TEXAS 79701  
PHONE 683-4521

## RESULT OF WATER ANALYSES

|                                           |                                        |
|-------------------------------------------|----------------------------------------|
| TO: <u>Mr. Scott E. Gengler</u>           | LABORATORY NO. <u>1293169-DW1233-1</u> |
| <u>P. O. Box 50250, Midland, TX 79710</u> | SAMPLE RECEIVED <u>12-22-93</u>        |
|                                           | RESULTS REPORTED <u>12-27-93</u>       |

COMPANY Oxy U.S.A., Inc. LEASE Lincoln Ranch  
FIELD OR POOL NW/4 Sec 4 T-14-S R-37-E  
SECTION      BLOCK      SURVEY      COUNTY Lea STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO.1 Raw water - taken from water well. 12-21-93

NO.2 \_\_\_\_\_

NO.3 \_\_\_\_\_

NO.4 \_\_\_\_\_

## REMARKS:

| CHEMICAL AND PHYSICAL PROPERTIES     |        |       |       |       |
|--------------------------------------|--------|-------|-------|-------|
|                                      | NO. 1  | NO. 2 | NO. 3 | NO. 4 |
| Specific Gravity at 60° F.           | 1.0019 |       |       |       |
| pH When Sampled                      |        |       |       |       |
| pH When Received                     | 7.20   |       |       |       |
| Bicarbonate as HCO <sub>3</sub>      | 244    |       |       |       |
| Supersaturation as CaCO <sub>3</sub> |        |       |       |       |
| Undersaturation as CaCO <sub>3</sub> |        |       |       |       |
| Total Hardness as CaCO <sub>3</sub>  | 228    |       |       |       |
| Calcium as Ca                        | 70     |       |       |       |
| Magnesium as Mg                      | 13     |       |       |       |
| Sodium and/or Potassium              | 35     |       |       |       |
| Sulfate as SO <sub>4</sub>           | 54     |       |       |       |
| Chloride as Cl                       | 34     |       |       |       |
| Iron as Fe                           | 0.04   |       |       |       |
| Barium as Ba                         |        |       |       |       |
| Turbidity, Electric                  |        |       |       |       |
| Color as Pt                          |        |       |       |       |
| Total Solids, Calculated             | 450    |       |       |       |
| Temperature °F.                      |        |       |       |       |
| Carbon Dioxide, Calculated           |        |       |       |       |
| Dissolved Oxygen,                    |        |       |       |       |
| Hydrogen Sulfide                     | 0.0    |       |       |       |
| Resistivity, ohms/m at 77° F.        | 19.80  |       |       |       |
| Suspended Oil                        |        |       |       |       |
| Filtrable Solids as mg/l             |        |       |       |       |
| Volume Filtered, ml                  |        |       |       |       |
| Nitrate, as N                        | 1.8    |       |       |       |
|                                      |        |       |       |       |
|                                      |        |       |       |       |

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

NEW MEXICO  
OIL CONSERVATION DIVISION

EXHIBIT

Form No. 3

CASE NO. 10866/10867

By Waylan C. Martin, M.A.

Pre-hearing Statement  
NMOCD Case No. 10,331  
Page 2

**PROPOSED EVIDENCE**

**APPLICANT**

| WITNESS                        | EST. TIME  | EXHIBITS           |
|--------------------------------|------------|--------------------|
| Robert Jacobsen<br>(President) | 30 minutes | (a) Unit Agreement |

**OPPOSITION**

| WITNESS | EST. TIME | EXHIBITS |
|---------|-----------|----------|
|---------|-----------|----------|

**PROCEDURAL MATTERS**

(Please identify any procedural matters which  
need to be resolved prior to the hearing)

Respectfully Submitted,

HINKLE, COX, EATON, COFFIELD &  
HENSLEY

By 

James Bruce  
500 Marquette, N.W.  
Suite 800  
Albuquerque N.M. 87102  
(505) 768-1500

Attorneys for Applicant

# TRETOLITE

NEW MEXICO  
OIL CONSERVATION PETROLITE

16010 Barker's Point Lane, Suite 450  
Houston, Texas 77079-4021  
713 558-5200 • Fax: 713 589-4737

EXHIBIT 6B

CASE NO 10866/10867

Reply to: P.O. Box 5250  
Hobbs, New Mexico 88241  
505 392-6711 Phone  
505 392-3759 Fax

## WATER ANALYSIS REPORT

Company : OXY USA Date : 12-11-93  
Address : HOBBS NM Date Sampled : 11-22-93  
Lease : EAST EUMONT UNIT Analysis No. : 1103  
Well : WATER SOURCE WELL  
Sample Pt. : WELLHEAD NW 14 Sec 10 T-19-S R-37-E  
Lea County, NM

| ANALYSIS                              | mg/L       | * meq/L  |
|---------------------------------------|------------|----------|
| 1. pH                                 | 7.2        |          |
| 2. H2S                                | 0          |          |
| 3. Specific Gravity                   | 1.000      |          |
| 4. Total Dissolved Solids             | 2028.6     |          |
| 5. Suspended Solids                   | NR         |          |
| 6. Dissolved Oxygen                   | NR         |          |
| 7. Dissolved CO2                      | NR         |          |
| 8. Oil In Water                       | NR         |          |
| 9. Phenolphthalein Alkalinity (CaCO3) |            |          |
| 10. Methyl Orange Alkalinity (CaCO3)  | 204.0      |          |
| 11. Bicarbonate                       | HCO3 248.9 | HCO3 4.1 |
| 12. Chloride                          | Cl 1147.7  | Cl 32.4  |
| 13. Sulfate                           | SO4 25.0   | SO4 0.5  |
| 14. Calcium                           | Ca 268.5   | Ca 13.4  |
| 15. Magnesium                         | Mg 228.5   | Mg 18.8  |
| 16. Sodium (calculated)               | Na 109.8   | Na 4.8   |
| 17. Iron                              | Fe 0.2     |          |
| 18. Barium                            | Ba NR      |          |
| 19. Strontium                         | Sr NR      |          |
| 20. Total Hardness (CaCO3)            | 1611.4     |          |

## PROBABLE MINERAL COMPOSITION

| *milli equivalents per Liter       | Compound    | Equiv wt | X meq/L | = mg/L |
|------------------------------------|-------------|----------|---------|--------|
| 13 *Ca <----- *HCO3                | Ca (HCO3) 2 | 81.0     | 4.1     | 331    |
| ----- /----->                      | CaSO4       | 68.1     | 0.5     | 35     |
| 19 *Mg -----> *SO4                 | CaCl2       | 55.5     | 8.8     | 488    |
| ----- <----- /                     | Mg (HCO3) 2 | 73.2     |         |        |
| 5 *Na -----> *Cl                   | MgSO4       | 60.2     |         |        |
| ----- +----->                      | MgCl2       | 47.6     | 18.8    | 895    |
| Saturation Values Dist. Water 20 C | NaHCO3      | 84.0     |         |        |
| CaCO3 13 mg/L                      | Na2SO4      | 71.0     |         |        |
| CaSO4 * 2H2O 2090 mg/L             | NaCl        | 58.4     | 4.8     | 279    |
| BaSO4 2.4 mg/L                     |             |          |         |        |

## REMARKS:

----- G Archer, Sid Nichols, Joe Gibson, Scott Gingler, File

Petrolite Oilfield Chemicals Group

Respectfully submitted,  
G. ARCHER

# SCALE TENDENCY REPORT

|            |                     |              |             |
|------------|---------------------|--------------|-------------|
| Company    | : OXY USA           | Date         | : 12-11-93  |
| Address    | : HOBBS NM          | Date Sampled | : 11-22-93  |
| Lease      | : EAST EUMONT UNIT  | Analysis No. | : 1103      |
| Well       | : WATER SOURCE WELL | Analyst      | : G. ARCHER |
| Sample Pt. | : WELLHEAD          |              |             |

## STABILITY INDEX CALCULATIONS (Stiff-Davis Method) CaCO3 Scaling Tendency

|        |     |    |            |    |           |
|--------|-----|----|------------|----|-----------|
| S.I. = | 0.2 | at | 40 deg. F  | or | 4 deg. C  |
| S.I. = | 0.3 | at | 60 deg. F  | or | 16 deg. C |
| S.I. = | 0.3 | at | 80 deg. F  | or | 27 deg. C |
| S.I. = | 0.4 | at | 100 deg. F | or | 38 deg. C |
| S.I. = | 0.4 | at | 120 deg. F | or | 49 deg. C |

\*\*\*\*\*

## CALCIUM SULFATE SCALING TENDENCY CALCULATIONS (Skillman-McDonald-Stiff Method) Calcium Sulfate

|     |      |    |            |    |          |
|-----|------|----|------------|----|----------|
| S = | 1146 | at | 40 deg. F  | or | 4 deg C  |
| S = | 1201 | at | 60 deg. F  | or | 16 deg C |
| S = | 1239 | at | 80 deg. F  | or | 27 deg C |
| S = | 1243 | at | 100 deg. F | or | 38 deg C |
| S = | 1234 | at | 120 deg. F | or | 49 deg C |

Petrolite Oilfield Chemicals Group

Respectfully submitted,  
G. ARCHER