

# TRETOLITE DIVISION

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## WATER ANALYSIS REPORT

Company : POGO PRODUCING  
Address : MIDLAND, TX  
Lease : COVINGTON "A"  
Well : #9  
Sample Pt. : WELLHEAD

Date : 3/17/94  
Date Sampled : 3/16/94  
Analysis No. : 632

| ANALYSIS                              |       | mg/L     |      | * meq/L |
|---------------------------------------|-------|----------|------|---------|
| -----                                 |       | ----     |      | -----   |
| 1. pH                                 | 5.7   |          |      |         |
| 2. H2S                                | NEG   |          |      |         |
| 3. Specific Gravity                   | 1.160 |          |      |         |
| 4. Total Dissolved Solids             |       | 254252.3 |      |         |
| 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)  |       |          |      |         |
| 11. Bicarbonate                       | HCO3  | 122.0    | HCO3 | 2.0     |
| 12. Chloride                          | Cl    | 157833.0 | Cl   | 4452.3  |
| 13. Sulfate                           | SO4   | 75.0     | SO4  | 1.6     |
| 14. Calcium                           | Ca    | 19800.0  | Ca   | 988.0   |
| 15. Magnesium                         | Mg    | 3705.0   | Mg   | 304.8   |
| 16. Sodium (calculated)               | Na    | 72717.3  | Na   | 3163.0  |
| 17. Iron                              | Fe    | NR       |      |         |
| 18. Barium                            | Ba    | NR       |      |         |
| 19. Strontium                         | Sr    | NR       |      |         |
| 20. Total Hardness (CaCO3)            |       | 64700.0  |      |         |

## PROBABLE MINERAL COMPOSITION

| *milli equivalents per Liter       |                  | Compound  | Equiv wt | X meq/L | = | mg/L      |
|------------------------------------|------------------|-----------|----------|---------|---|-----------|
| -----                              |                  |           |          |         |   |           |
| 988                                | *Ca <----- *HCO3 | Ca(HCO3)2 | 81.0     | 2.0     |   | 162       |
|                                    | /----->          | CaSO4     | 68.1     | 1.6     |   | 106       |
| 305                                | *Mg -----> *SO4  | CaCl2     | 55.5     | 984.5   |   | 54628     |
|                                    | <-----/          | Mg(HCO3)2 | 73.2     |         |   |           |
| 3163                               | *Na -----> *Cl   | MgSO4     | 60.2     |         |   |           |
|                                    |                  | MgCl2     | 47.6     | 304.8   |   | 14511     |
|                                    |                  | NaHCO3    | 84.0     |         |   |           |
|                                    |                  | Na2SO4    | 71.0     |         |   |           |
|                                    |                  | NaCl      | 58.4     | 3163.0  |   | 184845    |
| Saturation Values Dist. Water 20 C |                  |           |          |         |   |           |
|                                    | CaCO3            |           |          |         |   | 13 mg/L   |
|                                    | CaSO4 * 2H2O     |           |          |         |   | 2090 mg/L |
|                                    | BaSO4            |           |          |         |   | 2.4 mg/L  |