

WATER ANALYSIS REPORT

Company : YATES PETROLUEM Date : 10/19/95  
 Address : ARTESIA, NM Date Sampled : 10/18/95  
 Lease : ARAPHO AKP Analysis No. : 013  
 Well : BATTERY  
 Sample Pt. : TANK 29-265-33e

| ANALYSIS                              | mg/L        | * meq/L   |
|---------------------------------------|-------------|-----------|
| 1. pH                                 | 5.6         |           |
| 2. H2S                                | 0 PPM       |           |
| 3. Specific Gravity                   | 1.180       |           |
| 4. Total Dissolved Solids             | 264604.5    |           |
| 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 36.0   | HCO3 0.6  |
| 12. Chloride                          | Cl 164862.0 | Cl 4650.6 |
| 13. Sulfate                           | SO4 125.0   | SO4 2.6   |
| 14. Calcium                           | Ca 30200.0  | Ca 1507.0 |
| 15. Magnesium                         | Mg 3323.3   | Mg 273.4  |
| 16. Sodium (calculated)               | Na 66058.2  | Na 2873.3 |
| 17. Iron                              | Fe NR       |           |
| 18. Barium                            | Ba NR       |           |
| 19. Strontium                         | Sr NR       |           |
| 20. Total Hardness (CaCO3)            | 89100.0     |           |

PROBABLE MINERAL COMPOSITION

| *milli equivalents per Liter       | Compound  | Equiv wt | X meq/L | = mg/L |
|------------------------------------|-----------|----------|---------|--------|
| 1507 *Ca <----- *HCO3              | Ca(HCO3)2 | 81.0     | 0.6     | 48     |
| /----->                            | CaSO4     | 68.1     | 2.6     | 177    |
| 273 *Mg -----> *SO4                | CaCl2     | 55.5     | 1503.8  | 83445  |
| <-----/                            | Mg(HCO3)2 | 73.2     |         |        |
| 2873 *Na -----> *Cl                | MgSO4     | 60.2     |         |        |
|                                    | MgCl2     | 47.6     | 273.4   | 13016  |
| Saturation Values Dist. Water 20 C | NaHCO3    | 84.0     |         |        |
| CaCO3 13 mg/L                      | Na2SO4    | 71.0     |         |        |
| CaSO4 * 2H2O 2090 mg/L             | NaCl      | 58.4     | 2873.3  | 167918 |
| BaSO4 2.4 mg/L                     |           |          |         |        |

REMARKS:

----- ANDY MILLER

Petrolite Oilfield Chemicals Group

Respectfully submitted,  
 SHAWNA MATTHEWS