

PETROLITE

Mid-Continent Region  
Technical Services  
5801 West 10th Street  
Great Bend, Kansas 67530  
(316) 792-7728

**TRETOLITE** DIVISION

SAMPLE

Sample Date: Jan. 4, 1994

Field:

Submitted by: Bill Daily

Company: Ritchie Exploration

Lease/Well: O'Brien A-5

Source: Pump

ANALYSIS REQUESTED:

Scale analysis

RESULTS:

|                      |        |
|----------------------|--------|
| <u>Iron Sulphide</u> | 70-80% |
| Iron Oxide           | 5-15%  |

REMARKS:

Sales Engineer: Bill Daily

cc: Sam Keister

Date: January 7, 1994

Analyst: R. Rush Blaz

## TRETELITE DIVISION

SCALE TENDENCY REPORT  
-----

|            |                       |              |                |
|------------|-----------------------|--------------|----------------|
| Company    | : Ritchie Exploration | Date         | : 01/04/94     |
| Address    | :                     | Date Sampled | : 01/04/94     |
| Lease      | : O'Brien             | Analysis No. | :              |
| Well       | : A-5                 | Analyst      | : R. Rush Blaz |
| Sample Pt. | :                     |              |                |

STABILITY INDEX CALCULATIONS  
(Stiff-Davis Method)  
CaCO<sub>3</sub> Scaling Tendency

|        |     |    |            |    |           |
|--------|-----|----|------------|----|-----------|
| S.I. = | 0.5 | at | 80 deg. F  | or | 27 deg. C |
| S.I. = | 0.6 | at | 100 deg. F | or | 38 deg. C |
| S.I. = | 0.7 | at | 125 deg. F | or | 52 deg. C |
| S.I. = | 0.8 | at | 150 deg. F | or | 66 deg. C |
| S.I. = | 0.9 | at | 180 deg. F | or | 82 deg. C |

\*\*\*\*\*

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

|     |      |    |            |    |          |
|-----|------|----|------------|----|----------|
| S = | 4055 | at | 80 deg. F  | or | 27 deg C |
| S = | 4172 | at | 100 deg. F | or | 38 deg C |
| S = | 4207 | at | 125 deg. F | or | 52 deg C |
| S = | 4179 | at | 150 deg. F | or | 66 deg C |
| S = | 4061 | at | 180 deg. F | or | 82 deg C |

Petrolite Oilfield Chemicals Group  
Mid-Continent Region  
5601 Northwest 72nd, Suite 324  
Oklahoma City, OK 73132Respectfully submitted,  
  
R. Rush Blaz

BATCH ACID TREATMENT

Lease Name O'Brien A

Well No. 5

Date 5-15-73

Quantity 250 gals

Type Acid 502 Mod

Salt Water Flush 40 bbls

Production - Before: Oil 4 Water - 24 Hrs. 87

Production - After: Oil 7 Water - 24 Hrs. 166

BATCH ACID TREATMENT

LEASE NAME Corien A WELL NO. 5

DATE 8-3-34

QUANTITY 250 gal 15%

TYPE ACID Mod 20%

SALT WATER FLUSH 45 bbl

PRODUCTION - BEFORE: OIL 3 WATER - 24 HRS. 46 4-17-34

PRODUCTION - AFTER: OIL 2 WATER - 24 HRS. 61 9-20-34