

# TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

## Drill-Stem Test Data

Well Name SCOTT 3-13 Test No. 1 Date 1/3/95  
Company E R OPERATING COMPANY Zone MORROW  
Address 3750 W. MAIN, STE AA, NORMAN, OK 73072 Elevation 3096  
Co. Rep./Geo. ARDEN RATZLAFF Cont. ABERCROMBIE #4 Est. Ft. of Pay 20  
Location: Sec. 13 Twp. 21S Rge. 35W Co. KEARNY State KS

Interval Tested 4829-4908  
Anchor Length 79  
Top Packer Depth 4824  
Bottom Packer Depth 4829  
Total Depth 4908

Drill Pipe Size 4.5" XH  
Wt. Pipe I.D. - 2.7 Ft. Run 385  
Drill Collar - 2.25 Ft. Run 0  
Mud Wt. 9.4 lb/Gal.  
Viscosity 52 Filtrate 7.2

Tool Open @ 7:32AM Initial Blow WEAK TO FAIR BLOW, SLOW STEADY BUILD TO 6 INCHES.

Final Blow FAIR BLOW, STEADY BUILD TO 7-1/2 INCHES. FINAL SHUT IN:  
NO RETURN BLOW.

Recovery - Total Feet 240 Flush Tool? NO

Rec. 60 Feet of OIL CUT MUD. 40% OIL; 60% MUD.  
Rec. 120 Feet of GASSY OIL CUT MUD. 10% GAS; 20% OIL; 70% MUD.  
Rec. 60 Feet of GASSY OIL CUT MUD. 20% GAS; 20% OIL; 60% MUD.  
Rec. \_\_\_\_\_ Feet of \_\_\_\_\_  
Rec. \_\_\_\_\_ Feet of \_\_\_\_\_

BHT 120 °F Gravity \_\_\_\_\_ °API @ \_\_\_\_\_ °F Corrected Gravity 32 °API  
RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm Recovery Chlorides 3,500 ppm System

(A) Initial Hydrostatic Mud 2473.7 PSI AK1 Recorder No. 11086 Range 4350

(B) First Initial Flow Pressure 74.4 PSI @ (depth) 4900 w / Clock No. 26199

(C) First Final Flow Pressure 103.4 PSI AK1 Recorder No. 6730 Range 4200

(D) Initial Shut-in Pressure 463.2 PSI @ (depth) 4903 w / Clock No. 24119

(E) Second Initial Flow Pressure 129.3 PSI AK1 Recorder No. \_\_\_\_\_ Range \_\_\_\_\_

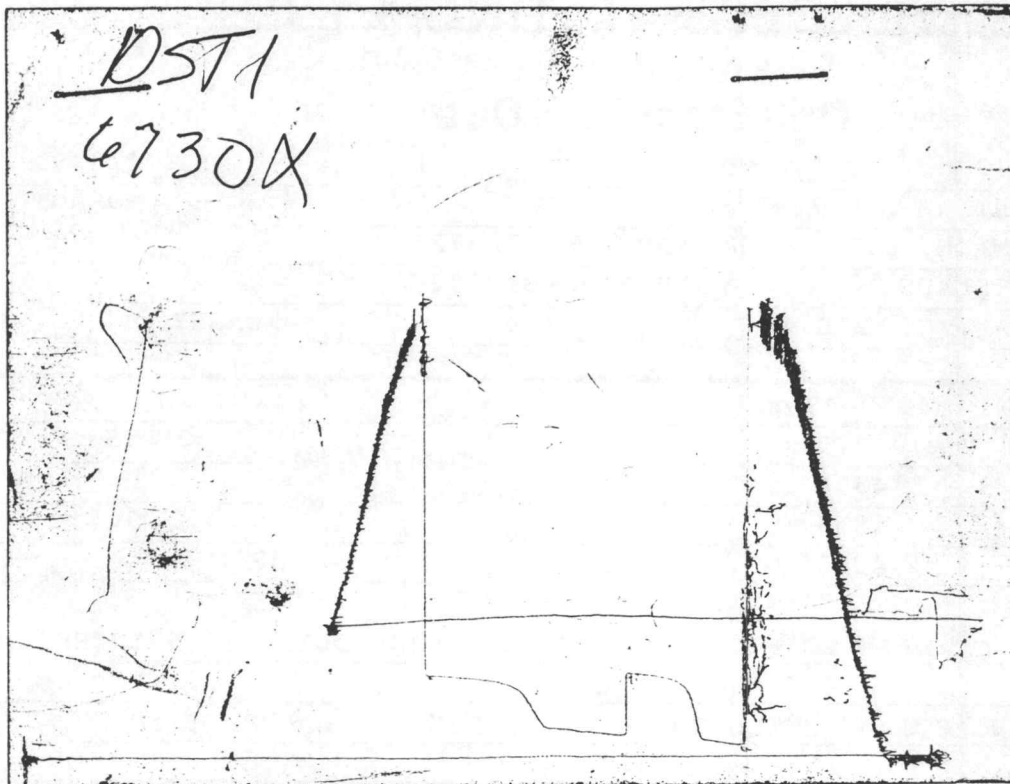
(F) Second Final Flow Pressure 165.9 PSI @ (depth) \_\_\_\_\_ w / Clock No. \_\_\_\_\_

(G) Final Shut-in Pressure 453.5 PSI Initial Opening 30 Final Flow 60

(H) Final Hydrostatic Mud 2473.7 PSI Initial Shut-in 60 Final Shut-in 90

Our Representative GARY SPEER

# CHART PAGE



This is an actual photograph of recorder chart

|                                  | FIELD<br>READING | OFFICE<br>READING |
|----------------------------------|------------------|-------------------|
| (A) INITIAL HYDROSTATIC MUD      | 2407             | 2473.7            |
| (B) FIRST INITIAL FLOW PRESSURE  | 75               | 74.4              |
| (C) FIRST FINAL FLOW PRESSURE    | 86               | 103.4             |
| (D) INITIAL CLOSED-IN PRESSURE   | 452              | 463.2             |
| (E) SECOND INITIAL FLOW PRESSURE | 107              | 129.3             |
| (F) SECOND FINAL FLOW PRESSURE   | 150              | 165.9             |
| (G) FINAL CLOSED-IN PRESSURE     | 463              | 453.5             |
| (H) FINAL HYDROSTATIC MUD        | 2407             | 2473.7            |

## COMPUTER OIL EVALUATION BY TRILOBITE TESTING, L.L.C.

E R OPERATING COMPANY

SCOTT 3-13

DST 1

13 21S 35W

KEARNY KS

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|                   |           |                 |             |
|-------------------|-----------|-----------------|-------------|
| ELEVATION:        | 3096 KB   | EST. PAY        | 20 FT       |
| DATUM:            | -1808     | ZONE TESTED:    | MORROW      |
| TEST INTERVAL:    | 4829-4908 | TIME INTERVALS: | 30-60-60-90 |
| RECORDER DEPTH:   | 4903      | VISCOSITY:      | 8.68 CP     |
| BOTTOM HOLE TEMP: | 120       | HOLE SIZE:      | 7.875 IN    |

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|                                                           |        |                            |               |
|-----------------------------------------------------------|--------|----------------------------|---------------|
| CUBIC FEET OF GAS IN PIPE:                                | 1      |                            |               |
| TOTAL FEET OF RECOVERY:                                   | 240.00 | CORRECTED PIPE FILLUP:     | 442.400       |
| TOTAL BARRELS OF RECOVERY:                                | 1.68   | CORR. BARRELS OF RECOVERY: | 3.511 BBL     |
| BARRELS IN DRILL PIPE:                                    | 0.00   | API GRAVITY:               | 32            |
| BARRELS IN WEIGHT PIPE:                                   | 1.68   | FLUID GRADIENT:            | 0.375         |
| BARRELS IN DRILL COLLARS:                                 | 0.00   |                            |               |
| GAS OIL RATIO:                                            | 0.56   | CU.FT/BBL                  |               |
| BUBBLE POINT PRESSURE:                                    | 9      |                            |               |
| UNCORRECTED INITIAL PRODUCTION:                           |        |                            | 26.88 BBL     |
| INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE:      |        |                            | 56.18 BBL/DAY |
| INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE: |        |                            | 9.655         |

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|               |                 |             |                  |
|---------------|-----------------|-------------|------------------|
| INITIAL SLOPE | 129.50 PSI/CYCL | FINAL SLOPE | 133.21 PSI/CYCLE |
| INITIAL P*    | 485.99 PSI      | FINAL P*    | 493.64 PSI       |

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|                         |                       |
|-------------------------|-----------------------|
| TRANSMISSIBILITY        | 68.58 (MD.-FT./CP.)   |
| PERMEABILITY            | 29.77 (MD.)           |
| INDICATED FLOW CAPACITY | 595.42 (MD.FT)        |
| PRODUCTIVITY INDEX      | 0.08 (BARREL/DAY/PSI) |
| DAMAGE RATIO            | 0.45                  |
| RADIUS OF INVESTIGATION | 51.76 (FT,)           |
| POTENTIOMETRIC SURFACE  | -662.24 (FT.)         |
| DRAWDOWN FACTOR         | -1.574 (%)            |

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# INITIAL FLOW

DST # 1

RECORDER 6730

TIME(MIN)      PRESSURE      <>  
PRESSURE

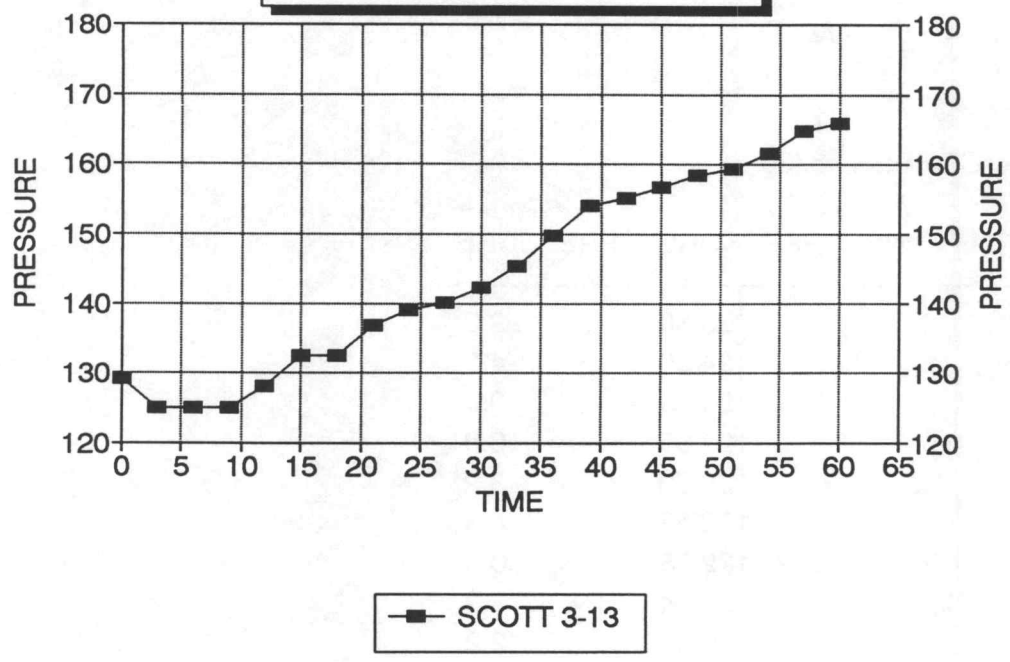
|    |        |      |
|----|--------|------|
| 0  | 74.35  | 74.3 |
| 3  | 74.35  | 0.0  |
| 6  | 71.12  | -3.2 |
| 9  | 70.04  | -1.1 |
| 12 | 72.19  | 2.2  |
| 15 | 79.74  | 7.5  |
| 18 | 80.81  | 1.1  |
| 21 | 87.28  | 6.5  |
| 24 | 88.36  | 1.1  |
| 27 | 92.67  | 4.3  |
| 30 | 92.67  | 0.0  |
| 33 | 94.82  | 2.2  |
| 36 | 103.44 | 8.6  |

# FINAL FLOW

DST # 1  
RECORDER 6730

| TIME(MIN) | PRESSURE | <><br>PRESSURE |
|-----------|----------|----------------|
| 0         | 129.30   | 129.3          |
| 3         | 124.99   | -4.3           |
| 6         | 124.99   | 0.0            |
| 9         | 124.99   | 0.0            |
| 12        | 128.22   | 3.2            |
| 15        | 132.53   | 4.3            |
| 18        | 132.53   | 0.0            |
| 21        | 136.84   | 4.3            |
| 24        | 139.00   | 2.2            |
| 27        | 140.08   | 1.1            |
| 30        | 142.23   | 2.2            |
| 33        | 145.47   | 3.2            |
| 36        | 149.78   | 4.3            |
| 39        | 154.09   | 4.3            |
| 42        | 155.16   | 1.1            |
| 45        | 160.55   | 5.4            |
| 48        | 158.40   | -2.2           |
| 51        | 156.24   | -2.2           |
| 54        | 161.63   | 5.4            |
| 57        | 164.86   | 3.2            |
| 60        | 165.94   | 1.1            |

**DELTA T DELTA P**  
**FINAL FLOW / DST #1**



INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:

9.655

# INITIAL SHUT-IN

SCOTT 3-13

DST # 1

INITIAL FLOW TIME 30

-----  
SLOPE 129.5 PSI/CYCLE  
P\* 485.99 PSI  
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|   | TIME(MIN) | Pws (psi) | Log<br>Horn T | <><br>PRESSURE | Horn T |
|---|-----------|-----------|---------------|----------------|--------|
|   | -----     | -----     | -----         | -----          | -----  |
|   | 3         | 140.08    | 1.041         | 140.1          | 11     |
|   | 6         | 226.29    | 0.778         | 86.2           | 6      |
|   | 9         | 309.26    | 0.637         | 83.0           | 4      |
|   | 12        | 368.53    | 0.544         | 59.3           | 4      |
|   | 15        | 395.47    | 0.477         | 26.9           | 3      |
|   | 18        | 414.87    | 0.426         | 19.4           | 3      |
|   | 21        | 427.80    | 0.385         | 12.9           | 2      |
|   | 24        | 434.25    | 0.352         | 6.4            | 2      |
|   | 27        | 440.68    | 0.325         | 6.4            | 2      |
|   | 30        | 442.82    | 0.301         | 2.1            | 2      |
|   | 33        | 447.11    | 0.281         | 4.3            | 2      |
|   | 36        | 453.54    | 0.263         | 6.4            | 2      |
|   | 39        | 456.76    | 0.248         | 3.2            | 2      |
|   | 42        | 459.97    | 0.234         | 3.2            | 2      |
|   | 45        | 459.97    | 0.222         | 0.0            | 2      |
|   | 48        | 459.97    | 0.211         | 0.0            | 2      |
| X | 51        | 459.97    | 0.201         | 0.0            | 2      |
|   | 54        | 463.19    | 0.192         | 3.2            | 2      |
|   | 57        | 463.19    | 0.184         | 0.0            | 2      |
| X | 60        | 463.19    | 0.176         | 0.0            | 2      |

# FINAL SHUT-IN

SCOTT 3-13

DST # 1

TOTAL FLOW TIME 90

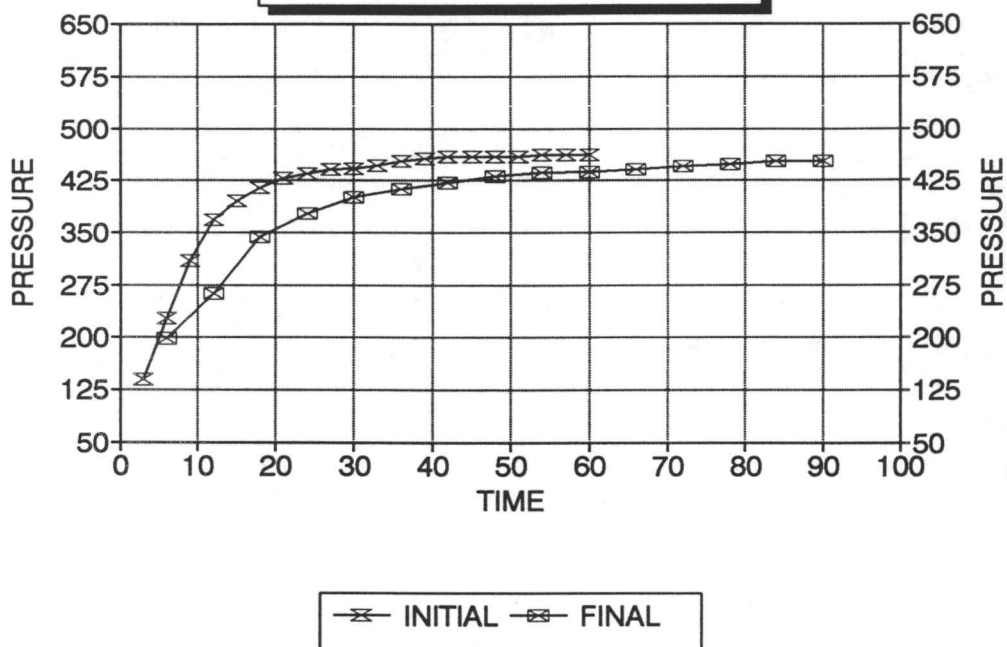
SLOPE 133.2 PSI/CYCLE  
P\* 493.64 PSI

|   | TIME(MIN) | Pws (psi) | Log<br>Horn T | <><br>PRESSURE | Horn T |
|---|-----------|-----------|---------------|----------------|--------|
|   | 6         | 198.27    | 1.204         | 198.3          | 16     |
|   | 12        | 261.85    | 0.929         | 63.6           | 9      |
|   | 18        | 343.74    | 0.778         | 81.9           | 6      |
|   | 24        | 377.15    | 0.677         | 33.4           | 5      |
|   | 30        | 400.86    | 0.602         | 23.7           | 4      |
|   | 36        | 412.71    | 0.544         | 11.9           | 4      |
|   | 42        | 422.41    | 0.497         | 9.7            | 3      |
|   | 48        | 431.03    | 0.459         | 8.6            | 3      |
|   | 54        | 436.39    | 0.426         | 5.4            | 3      |
|   | 60        | 438.54    | 0.398         | 2.1            | 3      |
|   | 66        | 440.68    | 0.374         | 2.1            | 2      |
|   | 72        | 446.04    | 0.352         | 5.4            | 2      |
| X | 78        | 449.26    | 0.333         | 3.2            | 2      |
|   | 84        | 453.54    | 0.316         | 4.3            | 2      |
| X | 90        | 453.54    | 0.301         | 0.0            | 2      |

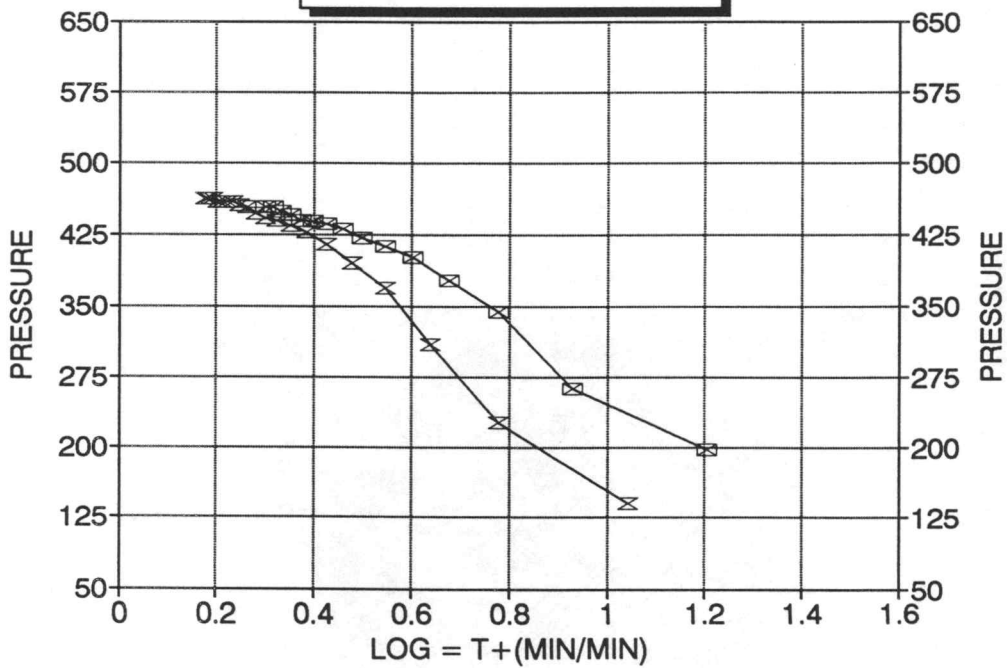


# DELTA T DELTA P

## SCOTT 3-13 / DST #1



# HORNER PLOT



# CALCULATED RECOVERY ANALYSIS

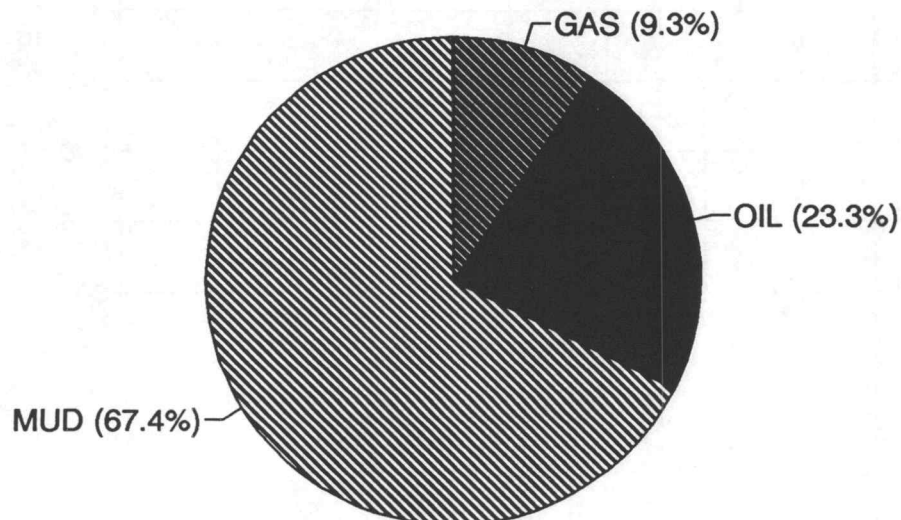
DST # 1

TICKET # 7729

| SAMPLE #      | TOTAL FEET | GAS % | FEET | OIL % | FEET | WATER % | FEET | MUD % | FEET |
|---------------|------------|-------|------|-------|------|---------|------|-------|------|
| DRILL PIPE 1  |            |       | 0    |       | 0    |         | 0    |       | 0    |
| 2             |            |       | 0    |       | 0    |         | 0    |       | 0    |
| 3             |            |       | 0    |       | 0    |         | 0    |       | 0    |
| 4             |            |       | 0    |       | 0    |         | 0    |       | 0    |
| 5             |            |       | 0    |       | 0    |         | 0    |       | 0    |
| 6             |            |       | 0    |       | 0    |         | 0    |       | 0    |
| WEIGHT PIPE 1 | 60         |       | 0    | 40    | 24   |         | 0    | 60    | 36   |
| 2             | 120        | 10    | 12   | 20    | 24   |         | 0    | 70    | 84   |
| 3             | 60         | 20    | 12   | 20    | 12   |         | 0    | 60    | 36   |
| 4             |            |       | 0    |       | 0    |         | 0    |       | 0    |
| DRL COLLAR 1  |            |       | 0    |       | 0    |         | 0    |       | 0    |
| 2             |            |       | 0    |       | 0    |         | 0    |       | 0    |
| 3             |            |       | 0    |       | 0    |         | 0    |       | 0    |
| 4             |            |       | 0    |       | 0    |         | 0    |       | 0    |
| 5             |            |       | 0    |       | 0    |         | 0    |       | 0    |
| TOTAL         | 240        |       | 0    |       | 0    |         | 0    |       | 0    |

HRS OPE BBL/DAY

BBL OIL= 0.42 \* 1.50 6.72  
 BBL WATER= 0 \* 0  
 BBL MUD= 1.2168  
 BBL GAS = 0.168



# FLUID SAMPLER DATA

Ticket No.: 7729 Date: 1/3/95  
Company: E R OPERATING COMPANY  
Lease: SCOTT 3-13 Test No.: 1  
County: KEARNY Sec.: 13 Twp.: 21S Rng.: 35W

## SAMPLER RECOVERY

|          |      |     |
|----------|------|-----|
| Gas      |      | ML  |
| Oil      | 1000 | ML  |
| Mud      | 3000 | ML  |
| Water    |      | ML  |
| Other    |      | ML  |
| Pressure | 50   | PSI |
| TOTAL    | 4000 | ML  |

## PIT MUD ANALYSIS

|             |                 |
|-------------|-----------------|
| Chlorides   | 3,500           |
| Resistivity | 1.75 ohms@ 70 F |
| Viscosity   | 52              |
| Mud Wt.     | 9.4             |
| Filtrate    | 7.2             |
| Other       | LCM#1/2         |

## SAMPLER ANALYSIS

|             |       |                |
|-------------|-------|----------------|
| Resistivity | ohms@ | F              |
| Chlorides   |       | ppm.           |
| Gravity     |       | corrected @60F |

## PIPE RECOVERY

### TOP

|             |       |     |
|-------------|-------|-----|
| Resistivity | ohms@ | F   |
| Chlorides   |       | ppm |

### MIDDLE

|             |       |     |
|-------------|-------|-----|
| Resistivity | ohms@ | F   |
| Chlorides   |       | ppm |

### BOTTOM

|             |       |     |
|-------------|-------|-----|
| Resistivity | ohms@ | F   |
| Chlorides   |       | ppm |