

# CHENEY TESTING COMPANY, INC.

P. O. Box 367

HILL CITY, KANSAS 67642

## DRILL-STEM TEST DATA

|                    |                               |                  |                        |
|--------------------|-------------------------------|------------------|------------------------|
| Company            | A.L. Abercrombie Inc.         | Test No.         | 1                      |
| Well Name & Number | Jones #2                      | Zone Tested      | Arbuckle               |
| Company Address    | 801 Union Center, Wichita Ks. | Date             | 2/2/84                 |
| Company Rep.       | Mike Freeman                  | Tester           | Gary Hartwell          |
| Contractor         | company tools                 | Elevation        | 2060 KB                |
| Location: Sec.     | 15 Twp.                       | 18 Rge.          | 18w Co. Rush State Ks. |
|                    |                               | Est. Feet of Pay |                        |

Recorder No. 10983 Type AK-1 Range 4100 PSI

Recorder Depth 3796 Clock # 25562

(A) Initial Hydrostatic Mud 2010 PSI

(B) First Initial Flow Pressure 91 PSI

(C) First Final Flow Pressure 91 PSI

(D) Initial Shut-in Pressure 173 PSI

(E) Second Initial Flow Pressure 102 PSI

(F) Second Final Flow Pressure 102 PSI

(G) Final Shut-in Pressure 163 PSI

(H) Final Hydrostatic Mud 2000 PSI

Temperature

Mud Weight 9.8 Viscosity 44

Fluid Loss 10.5

Interval Tested 3758-3802

Anchor Length 44

Top Packer Depth 3753

Bottom Packer Depth 3758

Total Depth 3802

Drill Pipe Size 4 FH

Wt. Pipe I. D. 2.25 Ft. Run 687

Recovery-Total Feet 139

Recovered 15 Feet Of slightly gas cut oil spotted mud.

Recovered 124 Feet Of slightly gas cut oil specked mud.

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Extra Equipment Price of Job \$575.00

Recorder No. 13277 Type AK-1 Range 4125 PSI

Recorder Depth 3799 Clock # 22992

Tool Open Before I.S.I. 30 Mins.

Initial Shut-in 45 Mins.

Flow Period 30 Mins.

Final Shut-in 45 Mins.

Top Choke Size 1" Hole Size 7 7/8"

Bottom Choke Size 3/4" Rubber Size 6 3/4"

Tool Open @ 5:15 AM

Blow Remarks 1st open: Fair blow, 6 inches.

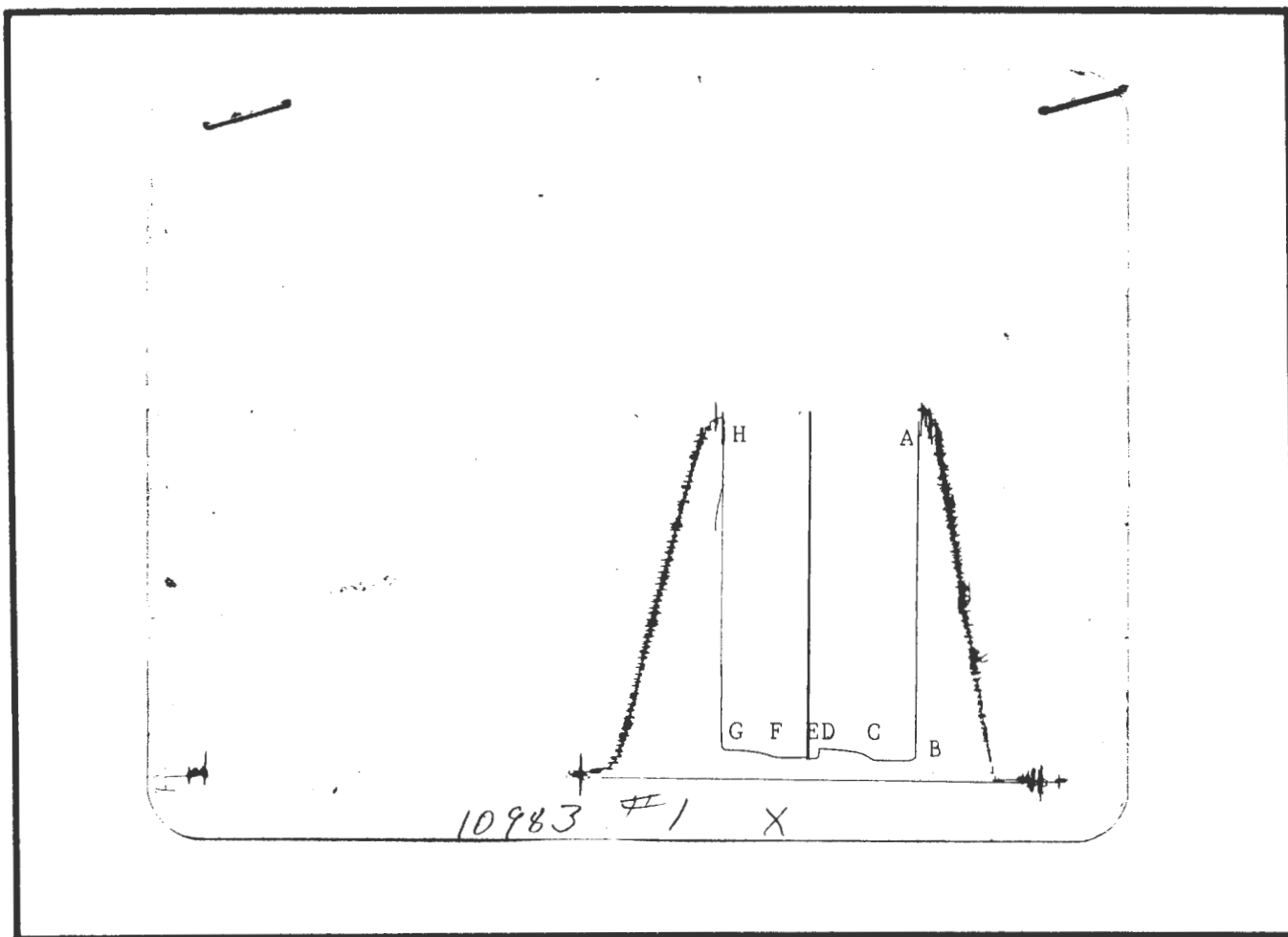
2nd open: Dieing off, flushed tool, good

surge, no blow.

Lost 15' of mud, tool opened.

Resistivity: 0.13 ohms @ 55° F

Chlorides: 68,000 ppm



This is an actual photograph of recorder chart.

| POINT                                  | PRESSURE      |                |
|----------------------------------------|---------------|----------------|
|                                        | Field Reading | Office Reading |
| (A) Initial Hydrostatic Mud .....      | 2010          | PSI            |
| (B) First Initial Flow Pressure .....  | 91            | PSI            |
| (C) First Final Flow Pressure .....    | 91            | PSI            |
| (D) Initial Closed-in Pressure .....   | 173           | PSI            |
| (E) Second Initial Flow Pressure ..... | 102           | PSI            |
| (F) Second Final Flow Pressure .....   | 102           | PSI            |
| (G) Final Closed-in Pressure .....     | 163           | PSI            |
| (H) Final Hydrostatic Mud .....        | 2000          | PSI            |

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## DRILL-STEM TEST DATA

|                                                      |                              |             |               |
|------------------------------------------------------|------------------------------|-------------|---------------|
| Company                                              | A.L. Abercrombie Inc.        | Test No.    | 2             |
| Well Name & Number                                   | Jones #2                     | Zone Tested | Arbuckle      |
| Company Address                                      | 801 Union Center Wichita Ks. | Date        | 2/2/84        |
| Company Rep.                                         | Mike Freeman                 | Tester      | Gary Hartwell |
| Contractor                                           | company tools                | Elevation   | 2060 KB       |
| Location: Sec. 15 Twp. 18 Rge. 18w Co.Rush State Ks. | Est. Feet of Pay             |             |               |

Recorder No. 10983 Type AK-1 Range 4100 PSI

Recorder Depth 3801 Clock # 25562

(A) Initial Hydrostatic Mud 2102 PSI

(B) First Initial Flow Pressure 122 PSI

(C) First Final Flow Pressure 122 PSI

(D) Initial Shut-in Pressure 204 PSI

(E) Second Initial Flow Pressure 142 PSI

(F) Second Final Flow Pressure 142 PSI

(G) Final Shut-in Pressure 193 PSI

(H) Final Hydrostatic Mud 2092 PSI

Temperature

Mud Weight 9.9 Viscosity 46

Fluid Loss 12.4

Interval Tested 3758-3807

Anchor Length 49

Top Packer Depth 3753

Bottom Packer Depth 3758

Total Depth 3807

Drill Pipe Size 4 FH

Wt. Pipe I. D. 2.25 Ft. Run 687

Recovery-Total Feet 154

Recovered 154 Feet Of oil spotted mud.

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Extra Equipment Price of Job \$575.00

Recorder No. 13277 Type AK-1 Range 4125 PSI

Recorder Depth 3804 Clock # 22992

Tool Open Before I.S.I. 30 Mins.

Initial Shut-in 30 Mins.

Flow Period 30 Mins.

Final Shut-in 30 Mins.

Top Choke Size 1" Hole Size 7 7/8"

Bottom Choke Size 3/4" Rubber Size 6 3/4"

Tool Open @ 6:15 PM

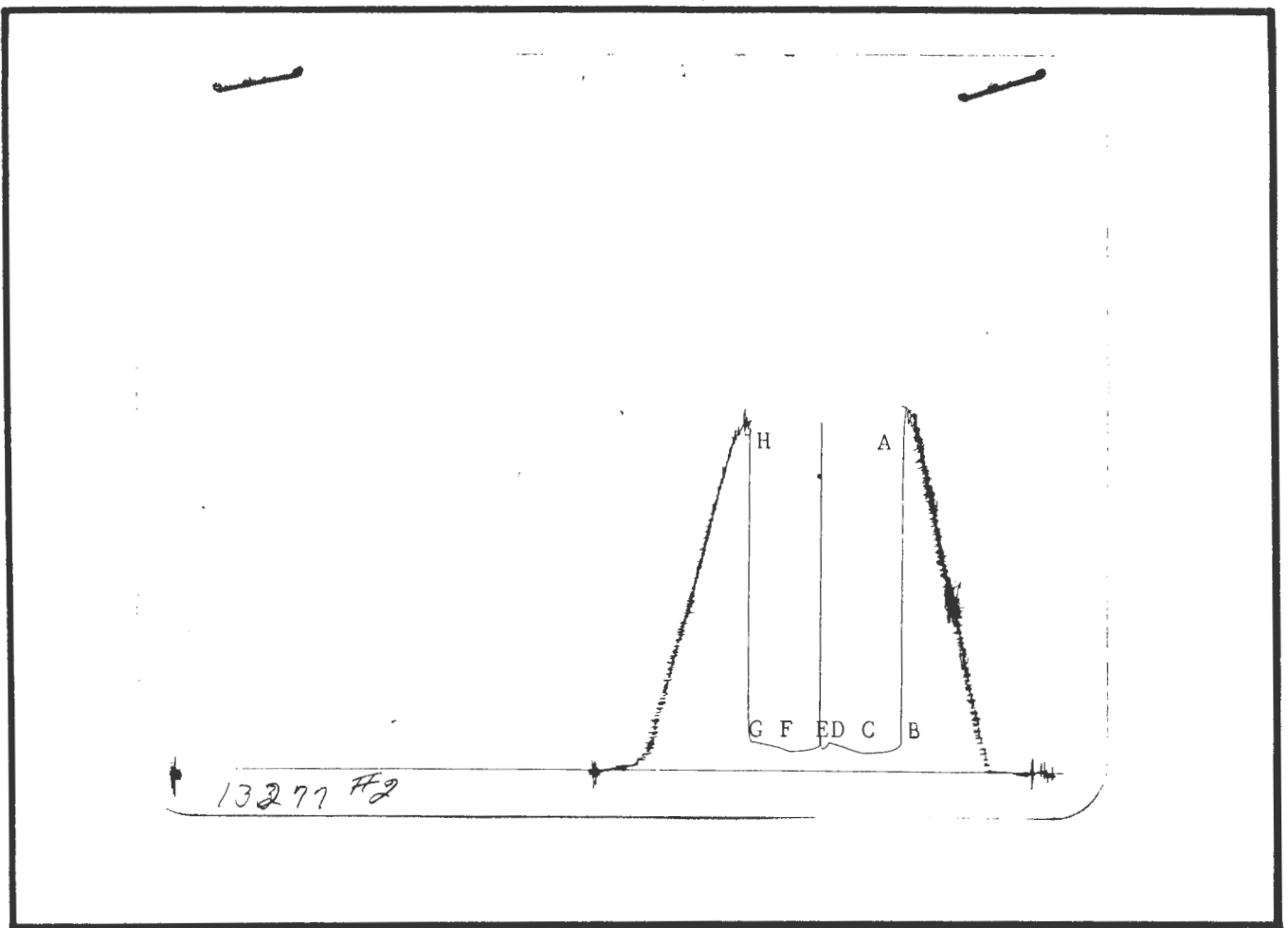
Blow Remarks 1st open: Weak blow, died in 15 minutes.

2nd open: No blow, flushed tool, good surge, weak blow for 6 minutes, died.

Fluid dropped 20', tool opened, bled blow off.

Resistivity: 0.14 ohms @ 55° F

Chlorides: 65,000 ppm



This is an actual photograph of recorder chart.

| POINT                                  | PRESSURE      |                |
|----------------------------------------|---------------|----------------|
|                                        | Field Reading | Office Reading |
| (A) Initial Hydrostatic Mud .....      | 2102          | PSI            |
| (B) First Initial Flow Pressure .....  | 122           | PSI            |
| (C) First Final Flow Pressure .....    | 122           | PSI            |
| (D) Initial Closed-in Pressure .....   | 204           | PSI            |
| (E) Second Initial Flow Pressure ..... | 142           | PSI            |
| (F) Second Final Flow Pressure .....   | 142           | PSI            |
| (G) Final Closed-in Pressure .....     | 193           | PSI            |
| (H) Final Hydrostatic Mud .....        | 2092          | PSI            |

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## DRILL-STEM TEST DATA

|                                                                                          |                             |
|------------------------------------------------------------------------------------------|-----------------------------|
| Company <u>A.L. Abercrombie Inc.</u>                                                     | Test No. <u>3</u>           |
| Well Name & Number <u>Jones #2</u>                                                       | Zone Tested <u>Arbuckle</u> |
| Company Address <u>801 Union Center Wichita Ks.</u>                                      | Date <u>2/3/84</u>          |
| Company Rep. <u>Mike Freeman</u>                                                         | Tester <u>Gary Hartwell</u> |
| Contractor <u>company tools</u>                                                          | Elevation <u>2060 KB</u>    |
| Location: Sec. <u>15</u> Twp. <u>18</u> Rge. <u>18w</u> Co. <u>Rush</u> State <u>Ks.</u> | Est. Feet of Pay _____      |

Recorder No. 10983 Type AK-1 Range 4100 PSI  
 Recorder Depth 3806 Clock # 25562  
 (A) Initial Hydrostatic Mud 2035 PSI  
 (B) First Initial Flow Pressure 103 PSI  
 (C) First Final Flow Pressure 103 PSI  
 (D) Initial Shut-in Pressure 928 PSI  
 (E) Second Initial Flow Pressure 114 PSI  
 (F) Second Final Flow Pressure 114 PSI  
 (G) Final Shut-in Pressure 948 PSI  
 (H) Final Hydrostatic Mud 2014 PSI  
 Temperature 113  
 Mud Weight 10 Viscosity 60  
 Fluid Loss 12.4  
 Interval Tested 3758-3812  
 Anchor Length 54  
 Top Packer Depth 3753  
 Bottom Packer Depth 3758  
 Total Depth 3812  
 Drill Pipe Size 4 FH  
 Wt. Pipe I. D. 2.25 Ft. Run 687  
 Recovery-Total Feet 201

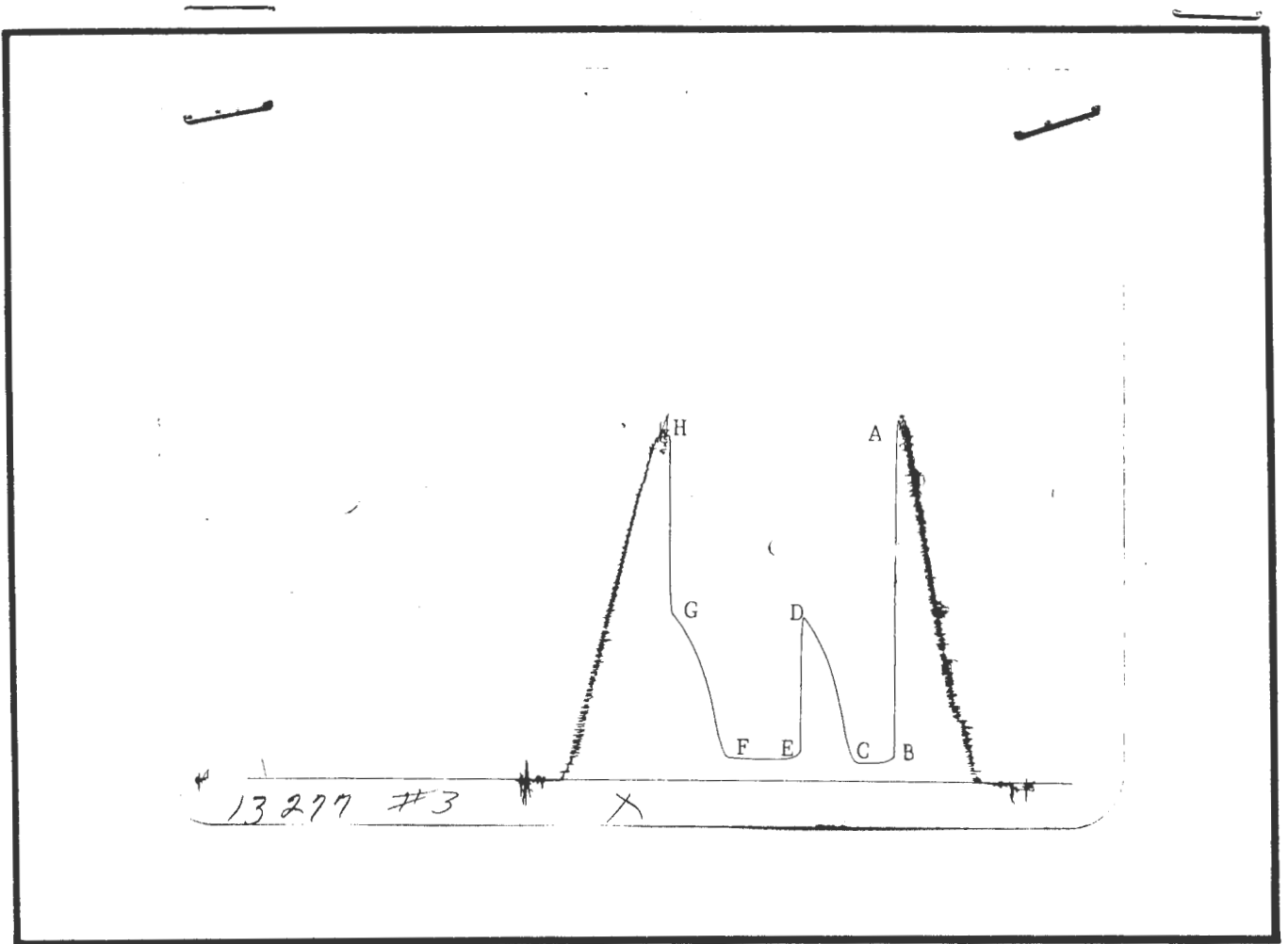
Recorder No. 13277 Type AK-1 Range 4125 PSI  
 Recorder Depth 3809 Clock # 22992  
 Tool Open Before I.S.I. 30 Mins.  
 Initial Shut-in 45 Mins.  
 Flow Period 60 Mins.  
 Final Shut-in 45 Mins.  
 Top Choke Size 1" Hole Size 7 7/8"  
 Bottom Choke Size 3/4" Rubber Size 6 3/4"  
 Tool Open @ 6:25 AM

Blow Remarks 1st open: Weak blow slightly  
building to 2 inches.  
2nd open: Weak blow slightly building to  
1 inch. Steady last 15 Minutes.

Fluid dropped 10', tool opened.

Recovered 77 Feet Of gassy oil spotted mud.  
 Recovered 124 Feet Of gassy oil cut mud, 15% oil, 85% mud.  
 Recovered \_\_\_\_\_ Feet Of \_\_\_\_\_  
 Recovered \_\_\_\_\_ Feet Of \_\_\_\_\_  
 Recovered \_\_\_\_\_ Feet Of \_\_\_\_\_  
 Recovered \_\_\_\_\_ Feet Of \_\_\_\_\_

Extra Equipment \_\_\_\_\_ Price of Job \$575.00



This is an actual photograph of recorder chart.

| POINT                                  | PRESSURE      |                |
|----------------------------------------|---------------|----------------|
|                                        | Field Reading | Office Reading |
| (A) Initial Hydrostatic Mud .....      | 2035          | PSI            |
| (B) First Initial Flow Pressure .....  | 103           | PSI            |
| (C) First Final Flow Pressure .....    | 103           | PSI            |
| (D) Initial Closed-in Pressure .....   | 928           | PSI            |
| (E) Second Initial Flow Pressure ..... | 114           | PSI            |
| (F) Second Final Flow Pressure .....   | 114           | PSI            |
| (G) Final Closed-in Pressure .....     | 948           | PSI            |
| (H) Final Hydrostatic Mud .....        | 2014          | PSI            |

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## DRILL-STEM TEST DATA

|                                                       |                              |             |               |
|-------------------------------------------------------|------------------------------|-------------|---------------|
| Company                                               | A.L. Abercrombie Inc.        | Test No.    | 4             |
| Well Name & Number                                    | Jones #2                     | Zone Tested | Arbuckle      |
| Company Address                                       | 801 Union Center Wichita Ks. | Date        | 2/3/84        |
| Company Rep.                                          | Mike Freeman                 | Tester      | Gary Hartwell |
| Contractor                                            | company tools                | Elevation   | 2060 KB       |
| Location: Sec. 15 Twp. 18 Rge. 18w Co. Rush State Ks. | Est. Feet of Pay             |             |               |

Recorder No. 10983 Type Ak-1 Range 4100 PSI

Recorder Depth 3809 Clock # 25562

(A) Initial Hydrostatic Mud 2066 PSI

(B) First Initial Flow Pressure 145 PSI

(C) First Final Flow Pressure 145 PSI

(D) Initial Shut-in Pressure 1184 PSI

(E) Second Initial Flow Pressure 207 PSI

(F) Second Final Flow Pressure 259 PSI

(G) Final Shut-in Pressure 1184 PSI

(H) Final Hydrostatic Mud 2014 PSI

Temperature 114

Mud Weight 9.8 Viscosity 50

Fluid Loss 8.0

Interval Tested 3758-3815

Anchor Length 57

Top Packer Depth 3753

Bottom Packer Depth 3758

Total Depth 3815

Drill Pipe Size 4 FH

Wt. Pipe I. D. 2.25 Ft. Run 687

Recovery-Total Feet 573

Recovered 139 Feet Of gassy oil cut mud, 20% oil, 15% gas, 65% mud.

Recovered 62 Feet Of gassy heavy oil cut mud, 40% oil, 10% gas, 50% mud.

Recovered 186 Feet Of gassy heavy oil cut mud, 45% oil, 20% gas, 35% mud.

Recovered 124 Feet Of gassy mud cut oil, 60% oil, 10% gas, 30% mud.

Recovered 62 Feet Of gassy mud cut oil, 50% oil, 15% gas, 35% mud.

Recovered Feet Of

Extra Equipment Price of Job \$575.00

Recorder No. 13277 Type AK-1 Range 4125 PSI

Recorder Depth 3812 Clock # 22992

Tool Open Before I.S.I. 30 Mins.

Initial Shut-in 60 Mins.

Flow Period 60 Mins.

Final Shut-in 60 Mins.

Top Choke Size 1" Hole Size 7 7/8"

Bottom Choke Size 3/4" Rubber Size 6 3/4"

Tool Open @ 6:55 PM

Blow Remarks 1st open: Fair building blow, 8".

2nd open: Weak 1/2" blow building to 7 inches.

Fluid dropped 10', tool open.

Tool slid 1-2' after open.

Strap pipe out of hole.

Resistivity: 0.14 Ohms @ 50° F

Chlorides: 68,000 ppm

RECORDER NO. 13277 DEPTH 3812 FT.

-----  
INITIAL SHUT-IN

TOTAL FLOW TIME: T = 90 MIN.

| DT (MIN) | T-DT) /DT | PRESSURE ( PSIG) |
|----------|-----------|------------------|
| 0        | --        | 156              |
| 5        | 19.00     | 876              |
| 10       | 10.00     | 1119             |
| 15       | 7.00      | 1148             |
| 20       | 5.50      | 1168             |
| 25       | 4.60      | 1174             |
| 30       | 4.00      | 1176             |
| 35       | 3.57      | 1179             |
| 40       | 3.25      | 1184             |
| 45       | 3.00      | 1185             |
| 50       | 2.80      | 1186             |
| 55       | 2.64      | 1187             |
| 60       | 2.50      | 1188             |

EXTRAPOLATED PRESSURE: 1212 PSI

SLOPE: 59.00 PSI/LOG CYCLE

POINTS USED: 4

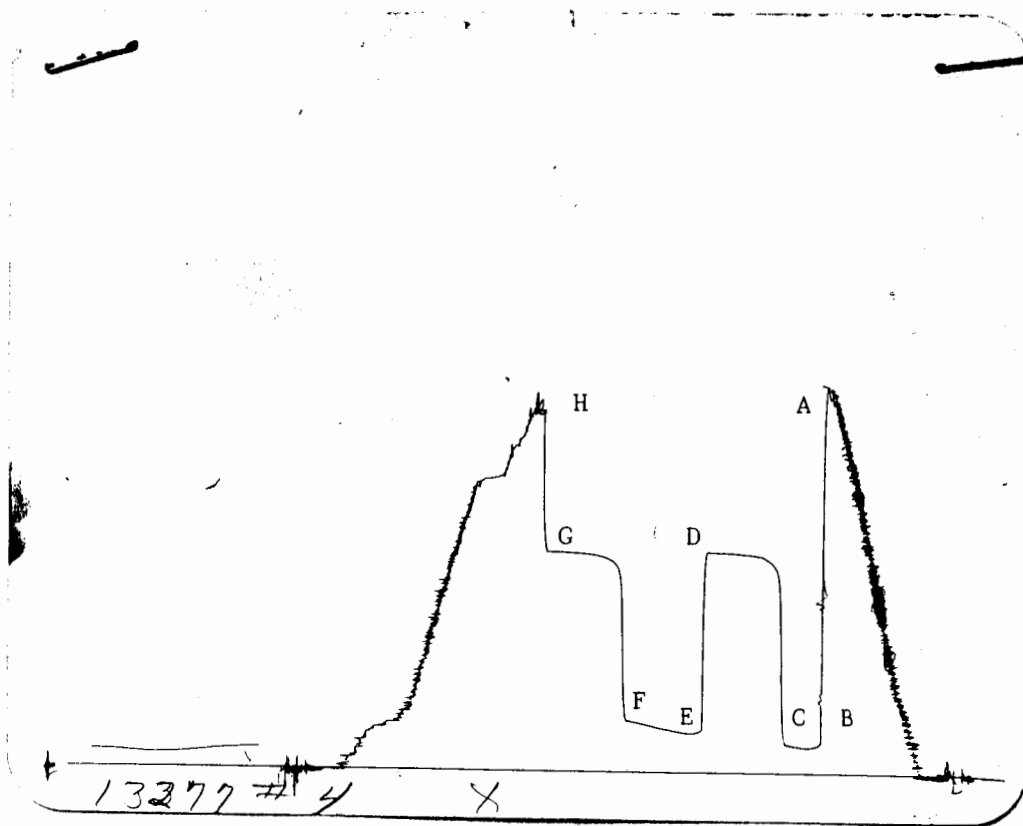


RECORDER NO. 13277 DEPTH 3812 FT.

-----  
FINAL SHUT-IN  
TOTAL FLOW TIME: T = 90 MIN.

| DT (MIN) | T+DT)/DT | PRESSURE (PSIG) |
|----------|----------|-----------------|
| 0        | --       | 282             |
| 5        | 19.00    | 1059            |
| 10       | 10.00    | 1131            |
| 15       | 7.00     | 1152            |
| 20       | 5.50     | 1164            |
| 25       | 4.60     | 1171            |
| 30       | 4.00     | 1175            |
| 35       | 3.57     | 1176            |
| 40       | 3.25     | 1178            |
| 45       | 3.00     | 1180            |
| 50       | 2.80     | 1182            |
| 55       | 2.64     | 1184            |
| 60       | 2.50     | 1186            |

EXTRAPOLATED PRESSURE: 1208. PSI  
SLOPE: 58.00 - PSI/LOG CYCLE  
POINTS USED: 5



This is an actual photograph of recorder chart.

| POINT                                  | PRESSURE      |                |
|----------------------------------------|---------------|----------------|
|                                        | Field Reading | Office Reading |
| (A) Initial Hydrostatic Mud .....      | 2066          | 2061           |
| (B) First Initial Flow Pressure .....  | 145           | 140            |
| (C) First Final Flow Pressure .....    | 145           | 156            |
| (D) Initial Closed-in Pressure .....   | 1184          | 1188           |
| (E) Second Initial Flow Pressure ..... | 207           | 210            |
| (F) Second Final Flow Pressure .....   | 259           | 282            |
| (G) Final Closed-in Pressure .....     | 1184          | 1186           |
| (H) Final Hydrostatic Mud .....        | 2014          | 2009           |

# TEST PARAMETERS

|                      |         |                  |       |
|----------------------|---------|------------------|-------|
| DRILLPIPE CAPACITY   | .0108   | HOLE SIZE        | 7.787 |
| DRILLCOLLAR CAPACITY | .0049   | PAY THICKNESS    | 18'   |
| DRILLCOLLAR LENGTH   | 687'    | VISCOSITY        | 1.    |
| BOTTOM HOLE TEMP     | 114° F  | 1ST FLOW TIME    | 30    |
| RECORDER NUMBER      | 13277   | 1ST SHUT-IN TIME | 60    |
| RECORDER DEPTH       | 3812    | 2ND FLOW TIME    | 30    |
| ELEVATION            | 2060 KB | 2ND SHUT-IN TIME | 60    |
| DATUM                | -1752   |                  |       |

# CALCULATIONS

|                                                   |           |
|---------------------------------------------------|-----------|
| EXTRAPOLATED INITIAL SHUT-IN PRESSURE (PSI) ..... | 1212.00   |
| NUMBER OF POINTS USED .....                       | 4         |
| SLOPE (PSI/LOG CYCLE) .....                       | 59.00     |
| EXTRAPOLATED FINAL SHUT-IN PRESSURE (PSI) .....   | 1208.00   |
| NUMBER OF POINTS USED .....                       | 5         |
| SLOPE (PSI/LOG CYCLE) .....                       | 58.00     |
| <br>AVERAGE PRODUCTION RATE (BARRELS/DAY) .....   | <br>35.91 |
| TRANSMISSIBILITY (MD.-FT./CP.) .....              | 100.67    |
| PERMEABILITY (MD.) .....                          | 5.59      |
| PRODUCTIVITY INDEX (BARRELS/DAY/PSI) .....        | .114      |
| DAMAGE RATIO .....                                | 2.86      |
| APPROXIMATE RADIUS OF INVESTIGATION (FT.) .....   | 22.43     |
| DRAWDOWN FACTOR (%) .....                         | .33       |
| POTENTIOMETRIC SURFACE (FT.) .....                | 1049.35   |

INITIAL SHUT-IN  $\triangle$

RECORDER # 13277 @ 3812

$P_{si} = 1212.00 \text{ psi}$

$M_{si} = 59.00 \text{ psi/log cycle}$

FINAL SHUT-IN  $\odot$

RECORDER #13277 @3812

$P_{sf} = 1208.00 \text{ psi}$

$M_{sf} = 58.00 \text{ psi/log cycle}$

