

Company Graves Drilling Company, Inc. Lease & Well No. #2 Cunningham  
 Elevation --- Formation Elgin Sand Effective Pay --- Ft. Ticket No. 18336  
 Date 12/3/82 Sec. 10 Twp. 32S Range 12W County Barber State Kansas  
 Test Approved by Frederick W. Stump Western Representative Jeff Piotrowski  
 Formation Test No. 1 Interval Tested from 3381 ft. to 3403 ft. Total Depth 3403 ft.  
 Packer Depth 3376 ft. Size 6 3/4 in. Packer Depth -- ft. Size -- in.  
 Packer Depth 3381 ft. Size 6 3/4 in. Packer Depth -- ft. Size -- in.  
 Depth of Selective Zone Set --  
 Top Recorder Depth (Inside) 3393 ft. Recorder Number 13267 Cap. 4050  
 Bottom Recorder Depth (Outside) 3396 ft. Recorder Number 13402 Cap. 4025  
 Below Straddle Recorder Depth -- ft. Recorder Number -- Cap. --  
 Drilling Contractor Graves Drlg. Rig #1 Drill Collar Length 120 I. D. 2.2 in.  
 Mud Type starch Viscosity 35 Weight Pipe Length -- I. D. -- in.  
 Weight 9.3 Water Loss 52.0 cc. Drill Pipe Length 3241 I. D. 3.8 in.  
 Chlorides 21,000 P.P.M. Test Tool Length 20 ft. Tool Size 5 1/2 OD in.  
 Jars: Make -- Serial Number -- Anchor Length 22 ft. Size 5 1/2 OD in.  
 Did Well Flow? No Reversed Out Yes Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.  
 Main Hole Size 7 7/8 in. Tool Joint Size 4 1/2 FH in.

Blow: Strong through both flow periods.

Recovered 1260 ft. of water Chlorides 92,000 ppm  
 Recovered --- ft. of ---  
 Recovered --- ft. of ---  
 Recovered --- ft. of ---  
 Recovered --- ft. of ---  
 Remarks: ---

Time Set Packer(s) 1:15 ~~A.M.~~ P.M. Time Started Off Bottom 3:30 ~~A.M.~~ P.M. Maximum Temperature 108°  
 Initial Hydrostatic Pressure 1661 P.S.I. (A)  
 Initial Flow Period 15 Minutes (B) 128 P.S.I. to (C) 212 P.S.I.  
 Initial Closed In Period 27 Minutes (D) 809 P.S.I.  
 Final Flow Period 60 Minutes (E) 318 P.S.I. to (F) 606 P.S.I.  
 Final Closed In Period 30 Minutes (G) 808 P.S.I.  
 Final Hydrostatic Pressure 1608 P.S.I. (H)

# WESTERN TESTING CO., INC.

## Pressure Data

Date 12/3/82 Test Ticket No. 18336  
 Recorder No. 13267 Capacity 4050 Location 108 Ft.  
 Clock No. -- Elevation ---- Well Temperature      °F

| Point                          | Pressure    |        | Time Given                 | Time Computed   |
|--------------------------------|-------------|--------|----------------------------|-----------------|
| A Initial Hydrostatic Mud      | <u>1661</u> | P.S.I. | <u>1:15P</u>               | <u>M</u>        |
| B First Initial Flow Pressure  | <u>128</u>  | P.S.I. | <u>15</u>                  | <u>15</u> Mins. |
| C First Final Flow Pressure    | <u>212</u>  | P.S.I. | <u>30</u>                  | <u>27</u> Mins. |
| D Initial Closed-in Pressure   | <u>809</u>  | P.S.I. | <u>60</u>                  | <u>60</u> Mins. |
| E Second Initial Flow Pressure | <u>318</u>  | P.S.I. | <u>30</u>                  | <u>30</u> Mins. |
| F Second Final Flow Pressure   | <u>606</u>  | P.S.I. |                            |                 |
| G Final Closed-in Pressure     | <u>808</u>  | P.S.I. |                            |                 |
| H Final Hydrostatic Mud        | <u>1608</u> | P.S.I. |                            |                 |
|                                |             |        | Open Tool                  |                 |
|                                |             |        | First Flow Pressure        |                 |
|                                |             |        | Initial Closed-in Pressure |                 |
|                                |             |        | Second Flow Pressure       |                 |
|                                |             |        | Final Closed-in Pressure   |                 |

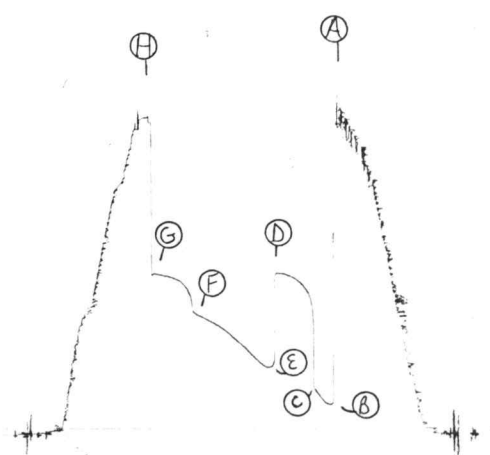
### PRESSURE BREAKDOWN

| First Flow Pressure         |             | Initial Shut-In             |             | Second Flow Pressure        |             | Final Shut-In               |             |
|-----------------------------|-------------|-----------------------------|-------------|-----------------------------|-------------|-----------------------------|-------------|
| Breakdown: <u>3</u> Inc.    |             | Breakdown: <u>9</u> Inc.    |             | Breakdown: <u>12</u> Inc.   |             | Breakdown: <u>10</u> Inc.   |             |
| of <u>5</u> mins. and a     |             | of <u>3</u> mins. and a     |             | of <u>5</u> mins. and a     |             | of <u>3</u> mins. and a     |             |
| final inc. of <u>0</u> Min. |             | final inc. of <u>0</u> Min. |             | final inc. of <u>0</u> Min. |             | final inc. of <u>0</u> Min. |             |
| Point Mins.                 | Press.      | Point Minutes               | Press.      | Point Minutes               | Press.      | Point Minutes               | Press.      |
| P 1 <u>0</u>                | <u>128</u>  | <u>0</u>                    | <u>212</u>  | <u>0</u>                    | <u>318</u>  | <u>0</u>                    | <u>606</u>  |
| P 2 <u>5</u>                | <u>136</u>  | <u>3</u>                    | <u>697</u>  | <u>5</u>                    | <u>320</u>  | <u>3</u>                    | <u>732</u>  |
| P 3 <u>10</u>               | <u>178</u>  | <u>6</u>                    | <u>733</u>  | <u>10</u>                   | <u>342</u>  | <u>6</u>                    | <u>754</u>  |
| P 4 <u>15</u>               | <u>212</u>  | <u>9</u>                    | <u>760</u>  | <u>15</u>                   | <u>379</u>  | <u>9</u>                    | <u>773</u>  |
| P 5 <u>    </u>             | <u>    </u> | <u>12</u>                   | <u>775</u>  | <u>20</u>                   | <u>417</u>  | <u>12</u>                   | <u>784</u>  |
| P 6 <u>    </u>             | <u>    </u> | <u>15</u>                   | <u>788</u>  | <u>25</u>                   | <u>446</u>  | <u>15</u>                   | <u>791</u>  |
| P 7 <u>    </u>             | <u>    </u> | <u>18</u>                   | <u>797</u>  | <u>30</u>                   | <u>478</u>  | <u>18</u>                   | <u>795</u>  |
| P 8 <u>    </u>             | <u>    </u> | <u>21</u>                   | <u>806</u>  | <u>35</u>                   | <u>509</u>  | <u>21</u>                   | <u>799</u>  |
| P 9 <u>    </u>             | <u>    </u> | <u>24</u>                   | <u>808</u>  | <u>40</u>                   | <u>535</u>  | <u>24</u>                   | <u>803</u>  |
| P10 <u>    </u>             | <u>    </u> | <u>27</u>                   | <u>809</u>  | <u>45</u>                   | <u>554</u>  | <u>27</u>                   | <u>806</u>  |
| P11 <u>    </u>             | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>50</u>                   | <u>573</u>  | <u>30</u>                   | <u>808</u>  |
| P12 <u>    </u>             | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>55</u>                   | <u>591</u>  | <u>    </u>                 | <u>    </u> |
| P13 <u>    </u>             | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>60</u>                   | <u>606</u>  | <u>    </u>                 | <u>    </u> |
| P14 <u>    </u>             | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> |
| P15 <u>    </u>             | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> |
| P16 <u>    </u>             | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> |
| P17 <u>    </u>             | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> |
| P18 <u>    </u>             | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> |
| P19 <u>    </u>             | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> |
| P20 <u>    </u>             | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> | <u>    </u>                 | <u>    </u> |

TKT # 18336

15267  
DST#1

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WESTERN TESTING CO., INC.  
FORMATION TESTING

TICKET

OK  
No 18336

P. O. BOX 1599      PHONE (316) 262-5861  
WICHITA, KANSAS 67201

Elevation \_\_\_\_\_ Formation Elgin Sd. Eff. Pay \_\_\_\_\_ Ft.

District Pratt Date 12/3/82 Customer Order No. \_\_\_\_\_

COMPANY NAME Graves Drilling Co Inc.

ADDRESS 910 Union Center, Wichita KS 67202

LEASE AND WELL NO. Cunningham #2 COUNTY Barber STATE KS Sec. 10 Twp. 32s Rge. 12w

Mail Invoice To Same #2 CUNNINGHAM No. Copies Requested Reg  
Co. Name \_\_\_\_\_ Address \_\_\_\_\_

Mail Charts To Same No. Copies Requested Reg  
Address \_\_\_\_\_

Formation Test No. 1 Interval Tested From 3381 ft. to 3403 ft. Total Depth 3403 ft.

Packer Depth 3376 ft. Size 6 3/4 in. Packer Depth \_\_\_\_\_ ft. Size \_\_\_\_\_ in.

Packer Depth 3381 ft. Size 6 3/4 in. Packer Depth \_\_\_\_\_ ft. Size \_\_\_\_\_ in.

Depth of Selective Zone Set \_\_\_\_\_

Top Recorder Depth (Inside) 3393 ft.

Recorder Number 13267 Cap. 4050

Bottom Recorder Depth (Outside) 3396 ft.

Recorder Number 13402 Cap. 4025

Below Straddle Recorder Depth \_\_\_\_\_ ft.

Recorder Number \_\_\_\_\_ Cap. \_\_\_\_\_

Drilling Contractor Co Tools #1

Drill Collar Length 120 I. D. 2.2 in.

Mud Type Starch Viscosity 35

Weight Pipe Length \_\_\_\_\_ I. D. \_\_\_\_\_ in.

Weight 9.3 Water Loss 52.0 cc.

Drill Pipe Length 3241 I. D. 3.8 in.

Chlorides 21,000 P.P.M.

Test Tool Length 20 ft. Tool Size 5 1/2 OD in.

Jars: Make \_\_\_\_\_ Serial Number \_\_\_\_\_

Anchor Length 22 ft. Size 5 1/2 OD in.

Did Well Flow? NO Reversed Out Yes

Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.

Main Hole Size 7 7/8 in. Tool Joint Size 4 1/2 FH in.

Blow: Strong thru Both Flow periods.

Recovered 1260 ft. of Water Chlorides 92,000 ppm

Recovered \_\_\_\_\_ ft. of \_\_\_\_\_

Recovered \_\_\_\_\_ ft. of \_\_\_\_\_

Recovered \_\_\_\_\_ ft. of \_\_\_\_\_

Recovered \_\_\_\_\_ ft. of \_\_\_\_\_

Remarks: \_\_\_\_\_

RECEIVED  
DEC 6 - 1982  
RECEIVED

Time On Location 10:30 A.M. Time Pick Up Tool 11:30 A.M. Time Off Location 6:00 A.M.

Time Set Packer(s) 1:15 A.M. Time Started Off Bottom 3:30 A.M. Maximum Temperature 108°

Initial Hydrostatic Pressure ..... (A) 1665 P.S.I.

Initial Flow Period ..... Minutes 15 (B) 121 P.S.I. to (C) 212 P.S.I.

Initial Closed In Period ..... Minutes 30 (D) 800 P.S.I.

Final Flow Period ..... Minutes 60 (E) 313 P.S.I. to (F) 587 P.S.I.

Final Closed In Period ..... Minutes 30 (G) 800 P.S.I.

Final Hydrostatic Pressure ..... (H) 1624 P.S.I.

COMPANY TERMS

Western Testing Co., Inc. shall not be liable for damages of any kind to the property or personnel of the one for whom a test is made or for any loss suffered or sustained directly or indirectly through the use of its equipment, of its statements or opinion concerning the results of any test. Tools lost or damaged in the hole shall be paid at cost by the party for whom the test is made.

All charges subject to 12% interest after 60 days from date of invoice. Any expense incurred for collection will be added to the original amount.

Test Approved By Frederick W. Stump  
Signature of Customer or his authorized representative

Western Representative [Signature]

FIELD INVOICE

Open Hole Test \$ 620<sup>00</sup>  
Misrun \$ \_\_\_\_\_  
Straddle Test \$ \_\_\_\_\_  
Jars \$ \_\_\_\_\_  
Selective Zone \$ \_\_\_\_\_  
Safety Joint \$ \_\_\_\_\_  
Standby \$ \_\_\_\_\_  
Evaluation \$ \_\_\_\_\_  
Extra Packer \$ \_\_\_\_\_  
Circ. Sub. \$ 35<sup>00</sup>  
Mileage \$ \_\_\_\_\_  
Fluid Sampler \$ \_\_\_\_\_  
Extra Charts \$ \_\_\_\_\_

# WESTERN TESTING CO., INC.

## Pressure Data

Date 12-3 Recorder No. 13267 Capacity 4050 Test Ticket No. 18336 Location 3393 Ft.  
 Clock No.      Elevation      Well Temperature 108 °F

| Point                          | Pressure           | Time Given      | Time Computed   |
|--------------------------------|--------------------|-----------------|-----------------|
| A Initial Hydrostatic Mud      | <u>1661</u> P.S.I. | <u>1:15</u> P   | <u>    </u> M   |
| B First Initial Flow Pressure  | <u>128</u> P.S.I.  | <u>15</u> Mins. | <u>15</u> Mins. |
| C First Final Flow Pressure    | <u>212</u> P.S.I.  | <u>30</u> Mins. | <u>27</u> Mins. |
| D Initial Closed-in Pressure   | <u>809</u> P.S.I.  | <u>60</u> Mins. | <u>60</u> Mins. |
| E Second Initial Flow Pressure | <u>318</u> P.S.I.  | <u>30</u> Mins. | <u>30</u> Mins. |
| F Second Final Flow Pressure   | <u>606</u> P.S.I.  |                 |                 |
| G Final Closed-in Pressure     | <u>808</u> P.S.I.  |                 |                 |
| H Final Hydrostatic Mud        | <u>1608</u> P.S.I. |                 |                 |

## PRESSURE BREAKDOWN

| First Flow Pressure         |            | Initial Shut-In             |            | Second Flow Pressure        |            | Final Shut-In               |            |
|-----------------------------|------------|-----------------------------|------------|-----------------------------|------------|-----------------------------|------------|
| Breakdown: <u>3</u> Inc.    |            | Breakdown: <u>9</u> Inc.    |            | Breakdown: <u>12</u> Inc.   |            | Breakdown: <u>10</u> Inc.   |            |
| of <u>5</u> mins. and a     |            | of <u>3</u> mins. and a     |            | of <u>5</u> mins. and a     |            | of <u>3</u> mins. and a     |            |
| final inc. of <u>0</u> Min. |            | final inc. of <u>0</u> Min. |            | final inc. of <u>0</u> Min. |            | final inc. of <u>0</u> Min. |            |
| Point Mins.                 | Press.     | Point Minutes               | Press.     | Point Minutes               | Press.     | Point Minutes               | Press.     |
| P 1 0                       | <u>128</u> | 0                           | <u>212</u> | 0                           | <u>318</u> | 0                           | <u>606</u> |
| P 2 5                       | <u>136</u> | 3                           | <u>697</u> | 5                           | <u>320</u> | 3                           | <u>732</u> |
| P 3 10                      | <u>178</u> | 6                           | <u>733</u> | 10                          | <u>342</u> | 6                           | <u>754</u> |
| P 4 15                      | <u>212</u> | 9                           | <u>760</u> | 15                          | <u>379</u> | 9                           | <u>773</u> |
| P 5 20                      |            | 12                          | <u>775</u> | 20                          | <u>417</u> | 12                          | <u>784</u> |
| P 6 25                      |            | 15                          | <u>788</u> | 25                          | <u>446</u> | 15                          | <u>791</u> |
| P 7 30                      |            | 18                          | <u>797</u> | 30                          | <u>478</u> | 18                          | <u>795</u> |
| P 8 35                      |            | 21                          | <u>806</u> | 35                          | <u>509</u> | 21                          | <u>799</u> |
| P 9 40                      |            | 24                          | <u>808</u> | 40                          | <u>535</u> | 24                          | <u>803</u> |
| P 10 45                     |            | 27                          | <u>809</u> | 45                          | <u>554</u> | 27                          | <u>806</u> |
| P 11 50                     |            | 30                          |            | 50                          | <u>573</u> | 30                          | <u>808</u> |
| P 12 55                     |            | 33                          |            | 55                          | <u>591</u> | 33                          |            |
| P 13 60                     |            | 36                          |            | 60                          | <u>606</u> | 36                          |            |
| P 14                        |            | 39                          |            | 65                          |            | 39                          |            |
| P 15                        |            | 42                          |            | 70                          |            | 42                          |            |
| P 16                        |            | 45                          |            | 75                          |            | 45                          |            |
| P 17                        |            | 48                          |            | 80                          |            | 48                          |            |
| P 18                        |            | 51                          |            | 85                          |            | 51                          |            |
| P 19                        |            | 54                          |            | 90                          |            | 54                          |            |
| P 20                        |            | 57                          |            |                             |            | 57                          |            |
|                             |            | 60                          |            |                             |            | 60                          |            |