



Home Office: Great Bend, Kansas  
P. O. Box 793 (316) 793-7903

Company Graves Drilling Co., Inc. Lease & Well No. Roulier #1  
Elevation 3277 Kelly Bushings Formation Wabaunsee Effective Pay \_\_\_\_\_ Ft. Ticket No. 12492  
Date 9-4-69 Sec. 35 Twp. 6S Range 36W County Thomas State Kansas  
Test Approved by Edgar E. Smith Western Representative Gerrell Veatch

Formation Test No. 1 O.K.  Misrun \_\_\_\_\_ Interval Tested From 3734' to 3800' Total Depth 3800'  
Size Main Hole 7 7/8" Rat Hole \_\_\_\_\_ Conv. \_\_\_\_\_ B.T.  Damaged \_\_\_\_\_ Yes  No Conv.  B.T. \_\_\_\_\_ Damaged  Yes \_\_\_\_\_ No  
Top Packer Depth 3730 Ft. Size 6 3/4" Packer Depth 3734 Ft. Size 6 3/4"  
Straddle \_\_\_\_\_ Yes \_\_\_\_\_ No  Conv. \_\_\_\_\_ B.T. \_\_\_\_\_ Damaged \_\_\_\_\_ Yes \_\_\_\_\_ No

Packer Depth \_\_\_\_\_ Ft. Size \_\_\_\_\_  
Tool Size 5 1/2" O.D. Tool Jr. Size 4 1/2" F.H. Anchor Length 66 Ft. Size 5 1/2" O.D. & 1 D.C.

RECORDERS Depth 3760 Ft. Clock No. 9726 Depth 3765 Ft. Clock No. 9103  
Top Make Kuster Cap. 4200 No. 3354 ~~Inside~~ Outside Bottom Make Kuster Cap. 3100 No. 1051 ~~Inside~~ Outside  
Below Straddle: Depth \_\_\_\_\_ Clock No. \_\_\_\_\_ Inside Depth \_\_\_\_\_ Ft. Clock No. \_\_\_\_\_ Outside  
Top Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Inside Bottom Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Outside

Time Set Packer 10:32 A.M.  
Tool Open I.F.P. From 10:35 M. to 10:50A.M. Hr. 15 Min. From (B) 31 P.S.I. To (C) 31 P.S.I.  
Tool Closed I.C.I.P. From 10:50 M. to 11:20A.M. Hr. 30 Min. (D) 559 P.S.I.  
Tool Open F.F.P. From 11:20 M. to 11:35 M. Hr. 15 Min. From (E) 35 P.S.I. To (F) 37 P.S.I.  
Tool Closed F.C.I.P. From 11:35M. to 12:05PM. Hr. 30 Min. (G) 667 P.S.I.  
Initial Hydrostatic Pressure (A) 1994 P.S.I. Final Hydrostatic Pressure (H) 1987 P.S.I.

SURFACE Size Choke 3/8 In. Max. Press. P.S.I. \_\_\_\_\_ Time \_\_\_\_\_ Description of Flow \_\_\_\_\_  
INFORMATION \_\_\_\_\_ M. \_\_\_\_\_  
\_\_\_\_\_ M. \_\_\_\_\_  
\_\_\_\_\_ M. \_\_\_\_\_

BLOW Weak intermitten blow - Dead in 12 minutes Bottom Choke Size 3/4 In.  
Did Well Flow \_\_\_\_\_ Yes  No \_\_\_\_\_ Recovery Total Ft. 10 feet drilling mud

Reversed Out \_\_\_\_\_ Yes  No \_\_\_\_\_ Mud Type Starch Viscosity 36 Weight 10 Water Loss 18 cc. Maximum Temp. 118 °F  
Type Circ. Sub. Plug Did Tool Plug? No Jars: Size \_\_\_\_\_ Make \_\_\_\_\_ Ser. No. \_\_\_\_\_  
EXTRA EQUIPMENT: Dual Packers Yes Safety Joint No Did Packer Hold? Yes Where? \_\_\_\_\_  
Length Drill Pipe 3654 ft. I.D. Drill Pipe 3.8 in. Length Weight Pipe \_\_\_\_\_ ft. I.D. Weight Pipe \_\_\_\_\_ in. Length Drill Collars 60 ft.  
I. D. Drill Collars 2.5 in. Length D.S.T. Tool 86 ft.

Remarks Flushed tool

**WESTERN TESTING CO., INC.**  
**Pressure Data**

Date 9-4-69 Test Ticket No. 12492  
 Recorder No. 3354 Capacity 4200 Location 3760 Ft.  
 Clock No. 9726 Elevation 3277 Kelly Bushings Well Temperature 118 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>1994</u>	P.S.I.	<u>10:35 A.</u>	<u>M</u>
B First Initial Flow Pressure	<u>31</u>	P.S.I.	<u>15</u> Mins.	<u>17</u> Mins.
C First Final Flow Pressure	<u>31</u>	P.S.I.	<u>30</u> Mins.	<u>30</u> Mins.
D Initial Closed-in Pressure	<u>559</u>	P.S.I.	<u>15</u> Mins.	<u>15</u> Mins.
E Second Initial Flow Pressure	<u>35</u>	P.S.I.	<u>30</u> Mins.	<u>30</u> Mins.
F Second Final Flow Pressure	<u>37</u>	P.S.I.		
G Final Closed-in Pressure	<u>667</u>	P.S.I.		
H Final Hydrostatic Mud	<u>1987</u>	P.S.I.		

**PRESSURE BREAKDOWN**

<b>First Flow Pressure</b> Breakdown: <u>3</u> Inc. of <u>5</u> mins. and a final inc. of <u>2</u> Min.	<b>Initial Shut-In</b> Breakdown: <u>10</u> Inc. of <u>3</u> mins. and a final inc. of _____ Min.	<b>Second Flow Pressure</b> Breakdown: <u>3</u> Inc. of <u>5</u> mins. and a final inc. of _____ Min.	<b>Final Shut-In</b> Breakdown: <u>10</u> Inc. of <u>3</u> mins. and a final inc. of _____ Min.
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Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>31</u>	<u>0</u>	<u>31</u>	<u>0</u>	<u>35</u>	<u>0</u>	<u>37</u>
P 2 <u>5</u>	<u>31</u>	<u>3</u>	<u>31</u>	<u>5</u>	<u>35</u>	<u>3</u>	<u>39</u>
P 3 <u>10</u>	<u>31</u>	<u>6</u>	<u>36</u>	<u>10</u>	<u>Flushed tool</u>	<u>6</u>	<u>68</u>
P 4 <u>15</u>	<u>31</u>	<u>9</u>	<u>43</u>	<u>15</u>	<u>37</u>	<u>9</u>	<u>139</u>
P 5 <u>17</u>	<u>31</u>	<u>12</u>	<u>72</u>			<u>12</u>	<u>216</u>
P 6 _____		<u>15</u>	<u>126</u>			<u>15</u>	<u>297</u>
P 7 _____		<u>18</u>	<u>208</u>			<u>18</u>	<u>396</u>
P 8 _____		<u>21</u>	<u>281</u>			<u>21</u>	<u>474</u>
P 9 _____		<u>24</u>	<u>390</u>			<u>24</u>	<u>548</u>
P10 _____		<u>27</u>	<u>476</u>			<u>27</u>	<u>603</u>
P11 _____		<u>30</u>	<u>559</u>			<u>30</u>	<u>667</u>
P12 _____							
P13 _____							
P14 _____							
P15 _____							
P16 _____							
P17 _____							
P18 _____							
P19 _____							
P20 _____							

Graves Drlg Co. Inc.  
Roulier #1

T.K.T.# 12492  
Test# 1





TIGHT HOLE

Home Office: Great Bend, Kansas
P. O. Box 793 (316) 793-7903

Company Graves Drilling Co., Inc. Lease & Well No. Roulier #1
Elevation 3277 Kelly Bushings Formation Tarkio Effective Pay Ft. Ticket No. 12493
Date 9-5-69 Sec. 35 Twp. 6S Range 36W County Thomas State Kansas
Test Approved by Edgar E. Smith Western Representative Gerrell Veatch

Formation Test No. 2 O.K. X Misrun Interval Tested From 3794' to 3850' Total Depth 3850'
Size Main Hole 7 7/8 Rat Hole Conv. B.T. X Damaged Yes X No Conv. X B.T. Damaged Yes X No
Top Packer Depth 3790 Ft. Size 6 3/4" Packer Depth 3794 Ft. Size 6 3/4"
Straddle Yes No X Conv. B.T. Damaged Yes No

Packer Depth Ft. Size
Tool Size 5 1/2" O.D. Tool Jt. Size 4 1/2" F.H. Anchor Length 56 Ft. Size 5 1/2" O.D. & 1 D.C.

RECORDERS Depth 3810 Ft. Clock No. 9726 Depth 3815 Ft. Clock No. 9103
Top Make Kuster Cap. 4200 No. 3354 Inside Outside Bottom Make Kuster Cap. 3100 No. 1051 Inside Outside
Below Straddle: Depth Clock No. Inside Outside Depth Ft. Clock No. Inside Outside
Top Make Cap. No. Inside Outside Bottom Make Cap. No. Inside Outside

Time Set Packer 1:57 A.M.
Tool Open I.F.P. From 2:00 M. to 2:10A. M. Hr. 10 Min. From (B) 27 P.S.I. To (C) 59 P.S.I.
Tool Closed I.C.I.P. From 2:10 M. to 2:40A. M. Hr. 30 Min. (D) 1063 P.S.I.
Tool Open F.F.P. From 2:40 M. to 3:40A. M. Hr. 60 Min. From (E) 91 P.S.I. To (F) 237 P.S.I.
Tool Closed F.C.I.P. From 3:40 M. to 4:10A. M. Hr. 30 Min. (G) 949 P.S.I.
Initial Hydrostatic Pressure (A) 1996 P.S.I. Final Hydrostatic Pressure (H) 1975 P.S.I.

SURFACE Size Choke 3/8 In. Max. Press. P.S.I. Time Description of Flow
INFORMATION M. M. M.

BLOW Strong Bottom Choke Size 3/4 In.
Did Well Flow Yes X No Recovery Total Ft. 530 feet muddy salt water

Reversed Out Yes X No Mud Type Starch Viscosity 41 Weight 10 Water Loss 14 cc. Maximum Temp. 127 °F
Type Circ. Sub. Plug Did Tool Plug? No Jars: Size Make Ser. No.
EXTRA EQUIPMENT: Dual Packers Yes Safety Joint No Did Packer Hold? Yes Where?
Length Drill Pipe 3714 ft. I.D. Drill Pipe 3.8 in. Length Weight Pipe ft. I.D. Weight Pipe in. Length Drill Collars 60 ft.
I. D. Drill Collars 2.5 in. Length D.S.T. Tool 76 ft.

Remarks

**WESTERN TESTING CO., INC.**  
**Pressure Data**

Date 9-5-69 Test Ticket No. 12493  
 Recorder No. 3354 Capacity 4200 Location 3810 Ft.  
 Clock No. 9726 Elevation 3277 Kelly Bushings Well Temperature 127 °F

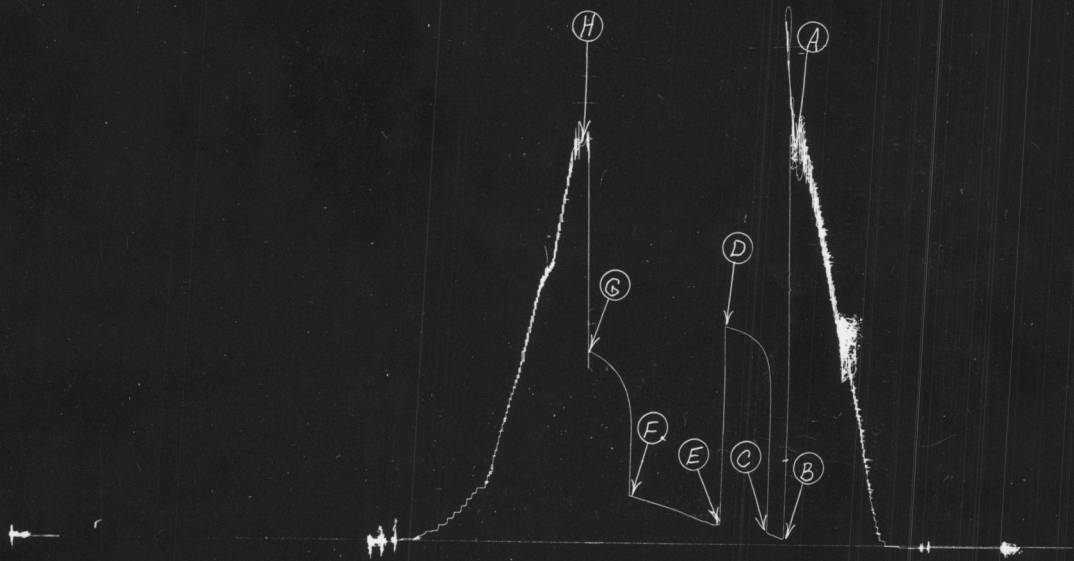
Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>1996</u>	P.S.I.	<u>2:00</u> A. M.	
B First Initial Flow Pressure	<u>27</u>	P.S.I.	<u>10</u> Mins.	<u>11</u> Mins.
C First Final Flow Pressure	<u>59</u>	P.S.I.	<u>30</u> Mins.	<u>31</u> Mins.
D Initial Closed-in Pressure	<u>1063</u>	P.S.I.	<u>60</u> Mins.	<u>61</u> Mins.
E Second Initial Flow Pressure	<u>91</u>	P.S.I.	<u>30</u> Mins.	<u>29</u> Mins.
F Second Final Flow Pressure	<u>237</u>	P.S.I.		
G Final Closed-in Pressure	<u>949</u>	P.S.I.		
H Final Hydrostatic Mud	<u>1975</u>	P.S.I.		

**PRESSURE BREAKDOWN**

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: <u>2</u> Inc.		Breakdown: <u>10</u> Inc.		Breakdown: <u>12</u> Inc.		Breakdown: <u>9</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>1</u> Min.		final inc. of <u>1</u> Min.		final inc. of <u>1</u> Min.		final inc. of <u>2</u> Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>27</u>	<u>0</u>	<u>59</u>	<u>0</u>	<u>91</u>	<u>0</u>	<u>237</u>
P 2 <u>5</u>	<u>37</u>	<u>3</u>	<u>917</u>	<u>5</u>	<u>94</u>	<u>3</u>	<u>729</u>
P 3 <u>10</u>	<u>53</u>	<u>6</u>	<u>957</u>	<u>10</u>	<u>109</u>	<u>6</u>	<u>786</u>
P 4 <u>11</u>	<u>59</u>	<u>9</u>	<u>989</u>	<u>15</u>	<u>116</u>	<u>9</u>	<u>829</u>
P 5		<u>12</u>	<u>1004</u>	<u>20</u>	<u>137</u>	<u>12</u>	<u>854</u>
P 6		<u>15</u>	<u>1021</u>	<u>25</u>	<u>151</u>	<u>15</u>	<u>877</u>
P 7		<u>18</u>	<u>1033</u>	<u>30</u>	<u>166</u>	<u>18</u>	<u>898</u>
P 8		<u>21</u>	<u>1043</u>	<u>35</u>	<u>177</u>	<u>21</u>	<u>913</u>
P 9		<u>24</u>	<u>1048</u>	<u>40</u>	<u>191</u>	<u>24</u>	<u>931</u>
P10		<u>27</u>	<u>1054</u>	<u>45</u>	<u>202</u>	<u>27</u>	<u>943</u>
P11		<u>30</u>	<u>1061</u>	<u>50</u>	<u>213</u>	<u>29</u>	<u>949</u>
P12		<u>31</u>	<u>1063</u>	<u>55</u>	<u>221</u>		
P13				<u>60</u>	<u>235</u>		
P14				<u>61</u>	<u>237</u>		
P15							
P16							
P17							
P18							
P19							
P20							

Graves DrLg. Co. Inc.  
Roulier #1

T.K.T.# 12493  
Test# 2





TIGHT HOLE

Home Office: Great Bend, Kansas  
P. O. Box 793 (316) 793-7903

Company Graves Drilling Co., Inc. Lease & Well No. Roulier # 1  
Elevation 3277 Kelly Bushing Formation Topeka & Toronto Effective Pay \_\_\_\_\_ Ft. Ticket No. 12494  
Date 9-6-69 Sec. 35 Twp. 6 Range 36W County Thomas State Kansas  
Test Approved by Edgar E. Smith Western Representative Gerrell V. atch

Formation Test No. 3 O.K.  Misrun \_\_\_\_\_ Interval Tested From 4030' to 4120' Total Depth 4120'  
Size Main Hole 7 7/8" Rat Hole \_\_\_\_\_ Conv. \_\_\_\_\_ B.T.  Damaged Yes  No Conv.  B.T. \_\_\_\_\_ Damaged Yes  No  
Top Packer Depth 4026 Ft. Size 6 3/4 Packer Depth 4030 Ft. Size 6 3/4  
Straddle Yes \_\_\_\_\_ No  Conv. \_\_\_\_\_ B.T. \_\_\_\_\_ Damaged Yes \_\_\_\_\_ No  
Packer Depth \_\_\_\_\_ Ft. Size \_\_\_\_\_

Tool Size 5 1/2" OD Tool Jt. Size 4 1/2" PH Anchor Length 90 Ft. Size 5 1/2" OD 1 stand DC  
RECORDERS Depth 4105 Ft. Clock No. 9726 Depth 4110 Ft. Clock No. 9103  
Top Make Kuster Cap. 4200 No. 3354 Inside Outside Bottom Make Kuster Cap. 3100 No. 1051 Inside Outside  
Below Straddle: Depth \_\_\_\_\_ Clock No. \_\_\_\_\_ Inside \_\_\_\_\_ Outside \_\_\_\_\_  
Top Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Inside \_\_\_\_\_ Outside \_\_\_\_\_  
Bottom Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Inside \_\_\_\_\_ Outside \_\_\_\_\_

Time Set Packer 9:32A M  
Tool Open I.F.P. From 9:35 M. to 9:45 M. Hr. 10 Min. From (B) 104 P.S.I. To (C) 131 P.S.I.  
Tool Closed I.C.I.P. From 9:45 M. to 10:15A M. Hr. 30 Min. (D) 1261 P.S.I.  
Tool Open F.F.P. From 10:15 M. to 11:15A M. Hr. 60 Min. From (E) 154 P.S.I. To (F) 371 P.S.I.  
Tool Closed F.C.I.P. From 11:15 M. to 11:45A M. Hr. 30 Min. (G) 1202 1211 P.S.I.  
Initial Hydrostatic Pressure (A) 2224 P.S.I. Final Hydrostatic Pressure (H) 2211 P.S.I.

SURFACE Size Choke 3/8 In. Max. Press. P.S.I. \_\_\_\_\_ Time \_\_\_\_\_ Description of Flow \_\_\_\_\_  
INFORMATION \_\_\_\_\_ M. \_\_\_\_\_  
\_\_\_\_\_ M. \_\_\_\_\_  
\_\_\_\_\_ M. \_\_\_\_\_

BLOW Strong Bottom Choke Size 3/4 In.  
Did Well Flow Yes  No \_\_\_\_\_ Recovery Total Ft. 690 feet salt water

Reversed Out Yes  No \_\_\_\_\_ Mud Type starch Viscosity 42 Weight 10 Water Loss 13 cc. Maximum Temp. 128 °F  
Type Circ. Sub. plug Did Tool Plug? no Jars: Size \_\_\_\_\_ Make \_\_\_\_\_ Ser. No. \_\_\_\_\_  
EXTRA EQUIPMENT: Dual Packers yes Safety Joint no Did Packer Hold? yes Where? \_\_\_\_\_  
Length Drill Pipe 3980 ft. I.D. Drill Pipe 38 in. Length Weight Pipe \_\_\_\_\_ ft. I.D. Weight Pipe \_\_\_\_\_ in. Length Drill Collars 30 ft.  
I. D. Drill Collars 2.5 in. Length D.S.T. Tool 110 ft.

Remarks

**WESTERN TESTING CO., INC.**  
**Pressure Data**

Date 9-6-69 Test Ticket No. 12494  
 Recorder No. 3354 Capacity 4200 Location 4105 Ft.  
 Clock No. 9726 Elevation 3277 Kelly Pushing Well Temperature 128 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>2224</u>	P.S.I.	<u>9:35A</u>	<u>M</u>
B First Initial Flow Pressure	<u>104</u>	P.S.I.	<u>10</u> Mins.	<u>10</u> Mins.
C First Final Flow Pressure	<u>131</u>	P.S.I.	<u>30</u> Mins.	<u>30</u> Mins.
D Initial Closed-in Pressure	<u>1261</u>	P.S.I.	<u>60</u> Mins.	<u>62</u> Mins.
E Second Initial Flow Pressure	<u>154</u>	P.S.I.	<u>30</u> Mins.	<u>30</u> Mins.
F Second Final Flow Pressure	<u>371</u>	P.S.I.		
G Final Closed-in Pressure	<u>1211</u>	P.S.I.		
H Final Hydrostatic Mud	<u>2211</u>	P.S.I.		

**PRESSURE BREAKDOWN**

**First Flow Pressure**  
 Breakdown: 2 Inc.  
 of 5 mins. and a  
 final inc. of \_\_\_\_\_ Min.

**Initial Shut-In**  
 Breakdown: 10 Inc.  
 of 3 mins. and a  
 final inc. of \_\_\_\_\_ Min.

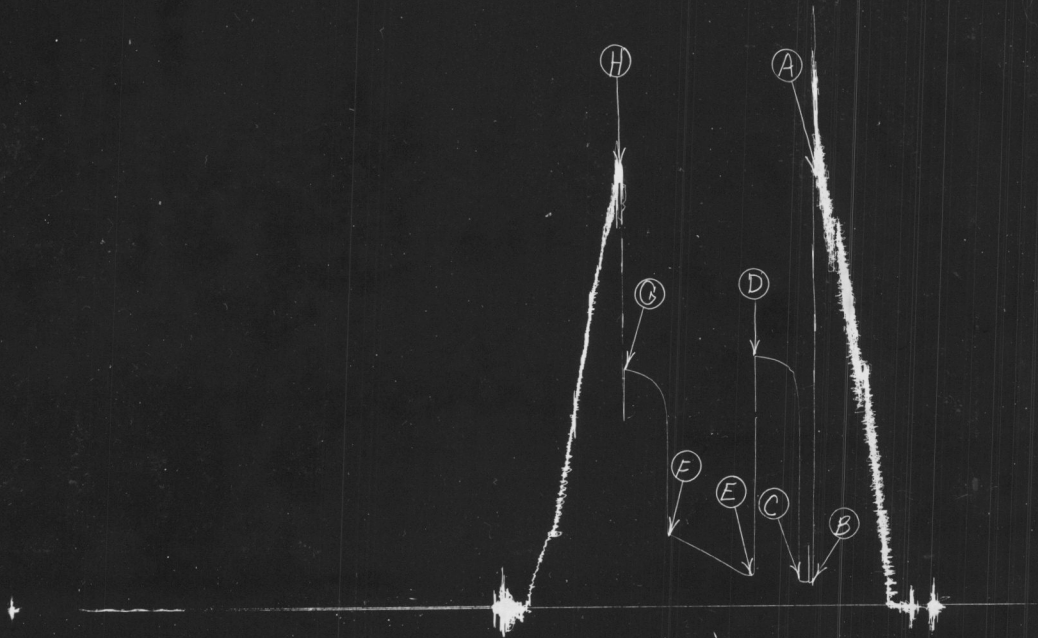
**Second Flow Pressure**  
 Breakdown: 12 Inc.  
 of 5 mins. and a  
 final inc. of 2 Min.

**Final Shut-In**  
 Breakdown: 10 Inc.  
 of 3 mins. and a  
 final inc. of \_\_\_\_\_ Min.

Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>104</u>	<u>0</u>	<u>131</u>	<u>0</u>	<u>154</u>	<u>0</u>	<u>371</u>
P 2 <u>5</u>	<u>116</u>	<u>3</u>	<u>1135</u>	<u>5</u>	<u>162</u>	<u>3</u>	<u>1061</u>
P 3 <u>10</u>	<u>131</u>	<u>6</u>	<u>1181</u>	<u>10</u>	<u>171</u>	<u>6</u>	<u>1103</u>
P 4 _____	_____	<u>9</u>	<u>1217</u>	<u>15</u>	<u>187</u>	<u>9</u>	<u>1141</u>
P 5 _____	_____	<u>12</u>	<u>1234</u>	<u>20</u>	<u>206</u>	<u>12</u>	<u>1158</u>
P 6 _____	_____	<u>15</u>	<u>1242</u>	<u>25</u>	<u>227</u>	<u>15</u>	<u>1173</u>
P 7 _____	_____	<u>18</u>	<u>1249</u>	<u>30</u>	<u>248</u>	<u>18</u>	<u>1184</u>
P 8 _____	_____	<u>21</u>	<u>1255</u>	<u>35</u>	<u>271</u>	<u>21</u>	<u>1189</u>
P 9 _____	_____	<u>24</u>	<u>1257</u>	<u>40</u>	<u>296</u>	<u>24</u>	<u>1197</u>
P10 _____	_____	<u>27</u>	<u>1259</u>	<u>45</u>	<u>312</u>	<u>27</u>	<u>1202</u>
P11 _____	_____	<u>30</u>	<u>1261</u>	<u>50</u>	<u>331</u>	<u>30</u>	<u>1221</u>
P12 _____	_____	_____	_____	<u>55</u>	<u>348</u>	_____	_____
P13 _____	_____	_____	_____	<u>60</u>	<u>362</u>	_____	_____
P14 _____	_____	_____	_____	<u>62</u>	<u>371</u>	_____	_____
P15 _____	_____	_____	_____	_____	_____	_____	_____
P16 _____	_____	_____	_____	_____	_____	_____	_____
P17 _____	_____	_____	_____	_____	_____	_____	_____
P18 _____	_____	_____	_____	_____	_____	_____	_____
P19 _____	_____	_____	_____	_____	_____	_____	_____
P20 _____	_____	_____	_____	_____	_____	_____	_____

Graves Drlg. Co.  
Roulier #1

T.K.T.# 12494  
TEST# 3





Home Office: Great Bend, Kansas  
P. O. Box 793 (316) 793-7903

Company Graves Drilling Co. Lease & Well No. Roulier # 1  
Elevation 3277 Kelly Bushing Formation Kansas City Effective Pay \_\_\_\_\_ Ft. Ticket No. 12495  
Date 9-7-69 Sec. 35 Twp. 6 Range 36W County Thomas State Kansas  
Test Approved by Edgar E. Smith Western Representative Gerrell Veatch

Formation Test No. 4 O.K.  Misrun \_\_\_\_\_ Interval Tested From 4127' to 4175' Total Depth 4175'  
Size Main Hole 7 7/8 at Hole \_\_\_\_\_ Conv. \_\_\_\_\_ B.T.  Damaged \_\_\_\_\_ Yes  No Conv.  B.T. Damaged  Yes \_\_\_\_\_ No  
Top Packer Depth 4123 Ft. Size 6 3/4 Packer Depth 4127 Ft. Size 6 3.4  
Straddle \_\_\_\_\_ Yes \_\_\_\_\_ No  Conv. \_\_\_\_\_ B.T. \_\_\_\_\_ Damaged \_\_\_\_\_ Yes \_\_\_\_\_ No

Packer Depth \_\_\_\_\_ Ft. Size \_\_\_\_\_  
Tool Size 5 1/2" OD Tool Jt. Size 4 1/2" FH Anchor Length 48 Ft. Size 5 1/2" OD

RECORDERS Depth 4155 Ft. Clock No. 9726 Depth 4160 Ft. Clock No. 9103  
Top Make Kuster Cap. 4200 No. 3354 Inside Outside Bottom Make Kuster Cap. 3100 No. 1051 Inside Outside  
Below Straddle: Depth \_\_\_\_\_ Clock No. \_\_\_\_\_ Inside Outside Depth \_\_\_\_\_ Ft. Clock No. \_\_\_\_\_ Inside Outside  
Top Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Inside Outside Bottom Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Inside Outside

Time Set Packer 2:32A M  
Tool Open I.F.P. From 2:35 M. to 2:45A M. Hr. 10 Min. From (B) 35 P.S.I. To (C) 52 P.S.I.  
Tool Closed I.C.I.P. From 2:45 M. to 3:15A M. Hr. 30 Min. (D) 1244 P.S.I.  
Tool Open F.F.P. From 3:15 M. to 4:15A M. Hr. 60 Min. From (E) 76 P.S.I. To (F) 199 P.S.I.  
Tool Closed F.C.I.P. From 4:15M to 4:45A M. Hr. 30 Min. (G) 1173 P.S.I.  
Initial Hydrostatic Pressure (A) 2181 P.S.I. Final Hydrostatic Pressure (H) 2154 P.S.I.

SURFACE Size Choke 3/8 In. Max. Press. P.S.I. \_\_\_\_\_ Time \_\_\_\_\_ Description of Flow \_\_\_\_\_  
INFORMATION \_\_\_\_\_ M. \_\_\_\_\_  
\_\_\_\_\_ M. \_\_\_\_\_  
\_\_\_\_\_ M. \_\_\_\_\_

BLOW Fair increasing to strong Bottom Choke Size 3/4 In.  
Did Well Flow \_\_\_\_\_ Yes  No \_\_\_\_\_ Recovery Total Ft. 440 feet salt water with few spots of oil

Reversed Out \_\_\_\_\_ Yes  No \_\_\_\_\_ Mud Type starch Viscosity 39 Weight 9.8 Water Loss 15 cc. Maximum Temp. 129 °F  
Type Circ. Sub. plug Did Tool Plug? no Jars: Size \_\_\_\_\_ Make \_\_\_\_\_ Ser. No. \_\_\_\_\_  
EXTRA EQUIPMENT: Dual Packers yes Safety Joint no Did Packer Hold? yes Where? \_\_\_\_\_  
Length Drill Pipe 4047 ft. I.D. Drill Pipe 3.8 in. Length Weight Pipe no ft. I.D. Weight Pipe \_\_\_\_\_ in. Length Drill Collars 60 ft.  
I. D. Drill Collars 2.5 in. Length D.S.T. Tool 68 ft.

Remarks

**WESTERN TESTING CO., INC.**  
**Pressure Data**

Date 9-7-69 Test Ticket No. 12495  
 Recorder No. 3354 Capacity 4200 Location 4155 Ft.  
 Clock No. 9726 Elevation 3277 Kelly Bushing Well Temperature 129 °F

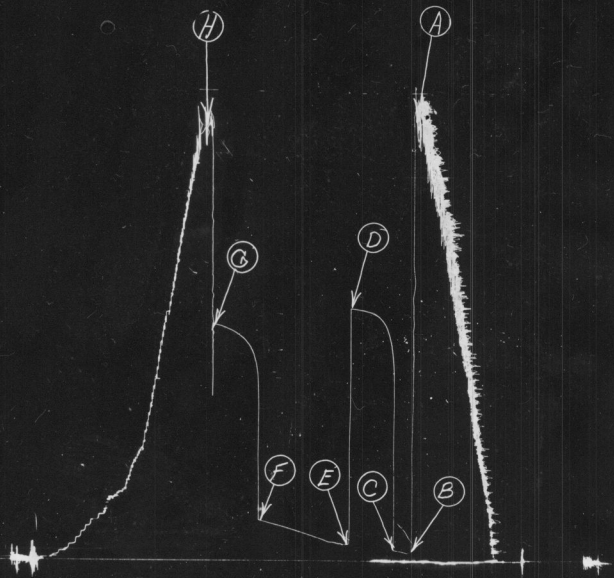
Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>2181</u>	P.S.I.	<u>2:35A</u>	M
B First Initial Flow Pressure	<u>35</u>	P.S.I.	<u>10</u> Mins.	<u>13</u> Mins.
C First Final Flow Pressure	<u>52</u>	P.S.I.	<u>30</u> Mins.	<u>33</u> Mins.
D Initial Closed-in Pressure	<u>1244</u>	P.S.I.	<u>60</u> Mins.	<u>61</u> Mins.
E Second Initial Flow Pressure	<u>76</u>	P.S.I.	<u>30</u> Mins.	<u>33</u> Mins.
F Second Final Flow Pressure	<u>199</u>	P.S.I.		
G Final Closed-in Pressure	<u>1173</u>	P.S.I.		
H Final Hydrostatic Mud	<u>2154</u>	P.S.I.		

**PRESSURE BREAKDOWN**

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: <u>2</u> Inc.		Breakdown: <u>11</u> Inc.		Breakdown: <u>12</u> Inc.		Breakdown: <u>11</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>3</u> Min.		final inc. of _____ Min.		final inc. of <u>1</u> Min.		final inc. of _____ Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>35</u>	<u>0</u>	<u>52</u>	<u>0</u>	<u>76</u>	<u>0</u>	<u>199</u>
P 2 <u>5</u>	<u>40</u>	<u>3</u>	<u>474</u>	<u>5</u>	<u>80</u>	<u>3</u>	<u>833</u>
P 3 <u>10</u>	<u>46</u>	<u>6</u>	<u>934</u>	<u>10</u>	<u>88</u>	<u>6</u>	<u>995</u>
P 4 <u>13</u>	<u>52</u>	<u>9</u>	<u>1120</u>	<u>15</u>	<u>97</u>	<u>9</u>	<u>1061</u>
P 5 _____	_____	<u>12</u>	<u>1171</u>	<u>20</u>	<u>109</u>	<u>12</u>	<u>1090</u>
P 6 _____	_____	<u>15</u>	<u>1201</u>	<u>25</u>	<u>120</u>	<u>15</u>	<u>1111</u>
P 7 _____	_____	<u>18</u>	<u>1217</u>	<u>30</u>	<u>132</u>	<u>18</u>	<u>1128</u>
P 8 _____	_____	<u>21</u>	<u>1225</u>	<u>35</u>	<u>145</u>	<u>21</u>	<u>1143</u>
P 9 _____	_____	<u>24</u>	<u>1232</u>	<u>40</u>	<u>156</u>	<u>24</u>	<u>1154</u>
P10 _____	_____	<u>27</u>	<u>1236</u>	<u>45</u>	<u>168</u>	<u>27</u>	<u>1166</u>
P11 _____	_____	<u>30</u>	<u>1240</u>	<u>50</u>	<u>175</u>	<u>30</u>	<u>1169</u>
P12 _____	_____	<u>33</u>	<u>1244</u>	<u>55</u>	<u>183</u>	<u>33</u>	<u>1173</u>
P13 _____	_____	_____	_____	<u>60</u>	<u>196</u>	_____	_____
P14 _____	_____	_____	_____	<u>61</u>	<u>199</u>	_____	_____
P15 _____	_____	_____	_____	_____	_____	_____	_____
P16 _____	_____	_____	_____	_____	_____	_____	_____
P17 _____	_____	_____	_____	_____	_____	_____	_____
P18 _____	_____	_____	_____	_____	_____	_____	_____
P19 _____	_____	_____	_____	_____	_____	_____	_____
P20 _____	_____	_____	_____	_____	_____	_____	_____

Graves DrLg. Co. Inc.  
Roulier #1

T.K.T.# 12495  
Test # 4





Home Office: Great Bend, Kansas  
P. O. Box 793 (316) 793-7903

Company Graves Drilling Co., Inc. Lease & Well No. Roulier # 1  
Elevation 3277 Kelly Bushing Formation Kansas City Effective Pay \_\_\_\_\_ Ft. Ticket No. 12496  
Date 9-7-69 Sec. 35 Twp. 6 Range 36w County Thomas State Kansas  
Test Approved by Edgar E. Smith Western Representative Gerrell Veatch

Formation Test No. 5 O.K.  Misrun \_\_\_\_\_ Interval Tested From 4180' to 4226' Total Depth 4226'  
Size Main Hole 7 7/8 Rat Hole \_\_\_\_\_ Conv. \_\_\_\_\_ B.T.  Damaged \_\_\_\_\_ Yes  No Conv.  B.T. \_\_\_\_\_ Damaged \_\_\_\_\_ Yes  No  
Top Packer Depth 4176 Ft. Size 6 3/4 Packer Depth 4180 Ft. Size 6 3/4  
Straddle \_\_\_\_\_ Yes \_\_\_\_\_ No  Conv. \_\_\_\_\_ B.T. \_\_\_\_\_ Damaged \_\_\_\_\_ Yes \_\_\_\_\_ No

Tool Size 5 1/2" OD Tool Jt. Size 4 1/2 FH Anchor Length 46 Ft. Size 5 1/2" OD

RECORDERS Depth 4185 Ft. Clock No. 9726 Depth 4190 Ft. Clock No. 9103  
Top Make Kuster Cap. 4200 No. 3354 Inside Outside Bottom Make Kuster Cap. 3100 No. 1051 Inside Outside  
Below Straddle: Depth \_\_\_\_\_ Clock No. \_\_\_\_\_ Inside \_\_\_\_\_ Outside \_\_\_\_\_  
Top Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Inside \_\_\_\_\_ Outside \_\_\_\_\_  
Bottom Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Inside \_\_\_\_\_ Outside \_\_\_\_\_

Time Set Packer 4:47P M  
Tool Open I.F.P. From 4:50 M. to 5:00P M. Hr. 10 Min. From (B) 383 P.S.I. To (C) 751 P.S.I.  
Tool Closed I.C.I.P. From 5:00 M. to 5:30P M. Hr. 30 Min. (D) 1307 P.S.I.  
Tool Open F.F.P. From 5:30 M. to 6:35P M. Hr. 65 Min. From (E) 854 P.S.I. To (F) 1301 P.S.I.  
Tool Closed F.C.I.P. From 6:35 M. to 7:05P M. Hr. 30 Min. (G) 1305 P.S.I.  
Initial Hydrostatic Pressure (A) 2231 P.S.I. Final Hydrostatic Pressure (H) 2193 P.S.I.

SURFACE Size Choke 3/8 In. Max. Press. P.S.I. \_\_\_\_\_ Time \_\_\_\_\_ Description of Flow \_\_\_\_\_  
INFORMATION \_\_\_\_\_ M. \_\_\_\_\_  
\_\_\_\_\_ M. \_\_\_\_\_  
\_\_\_\_\_ M. \_\_\_\_\_

BLOW Strong--Dead in 55 minutes Bottom Choke Size 3/4 In.  
Did Well Flow \_\_\_\_\_ Yes  No \_\_\_\_\_ Recovery Total Ft. 2640 feet salt water

Reversed Out \_\_\_\_\_ Yes  No \_\_\_\_\_ Mud Type starch Viscosity 38 Weight 9.7 Water Loss 6 cc. Maximum Temp. 137 °F  
Type Circ. Sub. plug Did Tool Plug? no Jars: Size \_\_\_\_\_ Make \_\_\_\_\_ Ser. No. \_\_\_\_\_  
EXTRA EQUIPMENT: Dual Packers yes Safety Joint no Did Packer Hold? yes Where? \_\_\_\_\_  
Length Drill Pipe 4000 ft. I.D. Drill Pipe 3.8 in. Length Weight Pipe \_\_\_\_\_ ft. I.D. Weight Pipe \_\_\_\_\_ in. Length Drill Collars 60 ft.  
I. D. Drill Collars 2.5 in. Length D.S.T. Tool 66 ft.

Remarks \_\_\_\_\_

**WESTERN TESTING CO., INC.**  
**Pressure Data**

Date 9-7-69 Test Ticket No. 12496  
 Recorder No. 3354 Capacity 4200 Location 4185 Ft.  
 Clock No. 9726 Elevation 3277 Kelly Bushing Well Temperature 137 °F

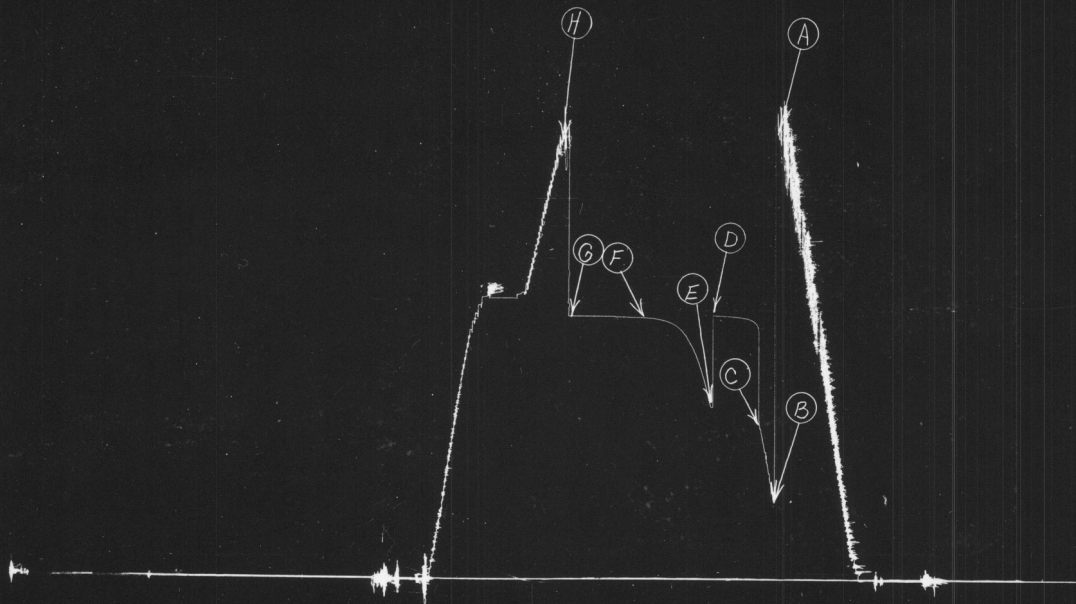
Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>2231</u>	P.S.I.	<u>4:50P</u>	M
B First Initial Flow Pressure	<u>383</u>	P.S.I.	<u>10</u>	Mins. <u>10</u> Mins.
C First Final Flow Pressure	<u>751</u>	P.S.I.	<u>30</u>	Mins. <u>30</u> Mins.
D Initial Closed-in Pressure	<u>1307</u>	P.S.I.	<u>65</u>	Mins. <u>65</u> Mins.
E Second Initial Flow Pressure	<u>854</u>	P.S.I.	<u>30</u>	Mins. <u>30</u> Mins.
F Second Final Flow Pressure	<u>1301</u>	P.S.I.		
G Final Closed-in Pressure	<u>1305</u>	P.S.I.		
H Final Hydrostatic Mud	<u>2193</u>	P.S.I.		

**PRESSURE BREAKDOWN**

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: <u>2</u> Inc.		Breakdown: <u>10</u> Inc.		Breakdown: <u>13</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 _____ Min.		final inc. of _____ Min.		final inc. of _____ Min.		final inc. of _____ Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1	<u>0</u>	<u>0</u>	<u>751</u>	<u>0</u>	<u>854</u>	<u>0</u>	<u>1301</u>
P 2	<u>5</u>	<u>3</u>	<u>1272</u>	<u>5</u>	<u>968</u>	<u>3</u>	<u>1304</u>
P 3	<u>10</u>	<u>6</u>	<u>1286</u>	<u>10</u>	<u>1092</u>	<u>6</u>	<u>1305</u>
P 4		<u>9</u>	<u>1293</u>	<u>15</u>	<u>1170</u>	<u>9</u>	<u>1305</u>
P 5		<u>12</u>	<u>1297</u>	<u>20</u>	<u>1277</u>	<u>12</u>	<u>1305</u>
P 6		<u>15</u>	<u>1300</u>	<u>25</u>	<u>1259</u>	<u>15</u>	<u>1306</u>
P 7		<u>18</u>	<u>1302</u>	<u>30</u>	<u>1278</u>	<u>18</u>	<u>1305</u>
P 8		<u>21</u>	<u>1304</u>	<u>35</u>	<u>1289</u>	<u>21</u>	<u>1305</u>
P 9		<u>24</u>	<u>1306</u>	<u>40</u>	<u>1293</u>	<u>24</u>	<u>1305</u>
P10		<u>27</u>	<u>1307</u>	<u>45</u>	<u>1296</u>	<u>27</u>	<u>1305</u>
P11		<u>30</u>	<u>1307</u>	<u>50</u>	<u>1297</u>	<u>30</u>	<u>1305</u>
P12				<u>55</u>	<u>1299</u>		
P13				<u>60</u>	<u>1200</u>		
P14				<u>65</u>	<u>1301</u>		
P15							
P16							
P17							
P18							
P19							
P20							

Graves Drlg. Co.  
Roulier #1

T.K.T.# 12496  
Test # 5





TIGHT HOLE

Home Office: Great Bend, Kansas  
P. O. Box 793 (316) 793-7903

Company Graves Drilling Co., Inc. Lease & Well No. Roulier # 1

Elevation 3277 Kelly Bushing Formation Kansas City Effective Pay \_\_\_\_\_ Ft. Ticket No. 12497

Date 9-8-69 Sec. 35 Twp. 6 Range 36W County Thomas State Kansas

Test Approved by Edgar E. Smith Western Representative Gerrell Veatch

Formation Test No. 6 O.K.  Misrun \_\_\_\_\_ Interval Tested From 4240' to 4345' Total Depth 4345'

Size Main Hole 7 7/8 Rat Hole \_\_\_\_\_ Conv. \_\_\_\_\_ B.T.  Damaged \_\_\_\_\_ Yes  No Conv.  B.T. \_\_\_\_\_ Damaged \_\_\_\_\_ Yes  No

Top Packer Depth 4236 Ft. Size 6 3/4 Packer Depth 4240 Ft. Size 6 3/4

Straddle \_\_\_\_\_ Yes \_\_\_\_\_ No  Conv. \_\_\_\_\_ B.T. \_\_\_\_\_ Damaged \_\_\_\_\_ Yes \_\_\_\_\_ No

Packer Depth \_\_\_\_\_ Ft. Size \_\_\_\_\_

Tool Size 5 1/2"OD Tool Jt. Size 4 1/2"FH Anchor Length 105 Ft. Size 5 1/2"OD

RECORDERS Depth 4245 Ft. Clock No. 9726 Depth 4250 Ft. Clock No. 9103

Top Make Kuster Cap. 4200 No. 3354 ~~Outside~~ Inside Bottom Make Kuster Cap. 3100 No. 1051 ~~Inside~~ Outside

Below Straddle: Depth \_\_\_\_\_ Clock No. \_\_\_\_\_ Inside Depth \_\_\_\_\_ Ft. Clock No. \_\_\_\_\_ Outside

Top Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Inside Bottom Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Outside

Time Set Packer 6:27P M

Tool Open I.F.P. From 6:30 M. to 7:00P M. Hr. 30 Min. From (B) 27 P.S.I. To (C) 29 P.S.I.

Tool Closed I.C.I.P. From 7:00 M. to 7:30P M. Hr. 30 Min. (D) 1227 P.S.I.

Tool Open F.F.P. From 7:30 M. to 8:00P M. Hr. 30 Min. From (E) 39 P.S.I. To (F) 37 P.S.I.

Tool Closed F.C.I.P. From 8:00 M. to 8:30P M. Hr. 30 Min. (G) 1159 P.S.I.

Initial Hydrostatic Pressure (A) 2312 P.S.I. Final Hydrostatic Pressure (H) 2289 P.S.I.

SURFACE Size Choke 3/8 In. Max. Press. P.S.I. \_\_\_\_\_ Time \_\_\_\_\_ Description of Flow \_\_\_\_\_

INFORMATION \_\_\_\_\_ M. \_\_\_\_\_

\_\_\_\_\_ M. \_\_\_\_\_

\_\_\_\_\_ M. \_\_\_\_\_

BLOW Weak Blow for 30 minutes Bottom Choke Size 3/4 In.

Did Well Flow \_\_\_\_\_ Yes  No \_\_\_\_\_ Recovery Total Ft. 65 feet drilling mud

Reversed Out \_\_\_\_\_ Yes  No \_\_\_\_\_ Mud Type starch Viscosity 40 Weight 10 Water Loss 12 cc. Maximum Temp. 129 °F

Type Circ. Sub. plug Did Tool Plug? no Jars: Size \_\_\_\_\_ Make \_\_\_\_\_ Ser. No. \_\_\_\_\_

EXTRA EQUIPMENT: Dual Packers yes Safety Joint no Did Packer Hold? yes Where? \_\_\_\_\_

Length Drill Pipe 4160 ft. I.D. Drill Pipe 3.8 in. Length Weight Pipe \_\_\_\_\_ ft. I.D. Weight Pipe \_\_\_\_\_ in. Length Drill Collars 60 ft.

I. D. Drill Collars 2.5 in. Length D.S.T. Tool 125 ft.

Remarks Flushed tool

**WESTERN TESTING CO., INC.**  
**Pressure Data**

Date 9-8-69 Test Ticket No. 12497  
 Recorder No. 3354 Capacity 4200 Location 4245 Ft.  
 Clock No. 9725 Elevation 3277 Kelly Bushing Well Temperature 129 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>2312</u>	P.S.I.	<u>6:30P</u> M	
B First Initial Flow Pressure	<u>27</u>	P.S.I.	<u>30</u> Mins.	<u>30</u> Mins.
C First Final Flow Pressure	<u>29</u>	P.S.I.	<u>30</u> Mins.	<u>33</u> Mins.
D Initial Closed-in Pressure	<u>1227</u>	P.S.I.	<u>30</u> Mins.	<u>30</u> Mins.
E Second Initial Flow Pressure	<u>39</u>	P.S.I.	<u>30</u> Mins.	<u>29</u> Mins.
F Second Final Flow Pressure	<u>37</u>	P.S.I.		
G Final Closed-in Pressure	<u>1159</u>	P.S.I.		
H Final Hydrostatic Mud	<u>2289</u>	P.S.I.		

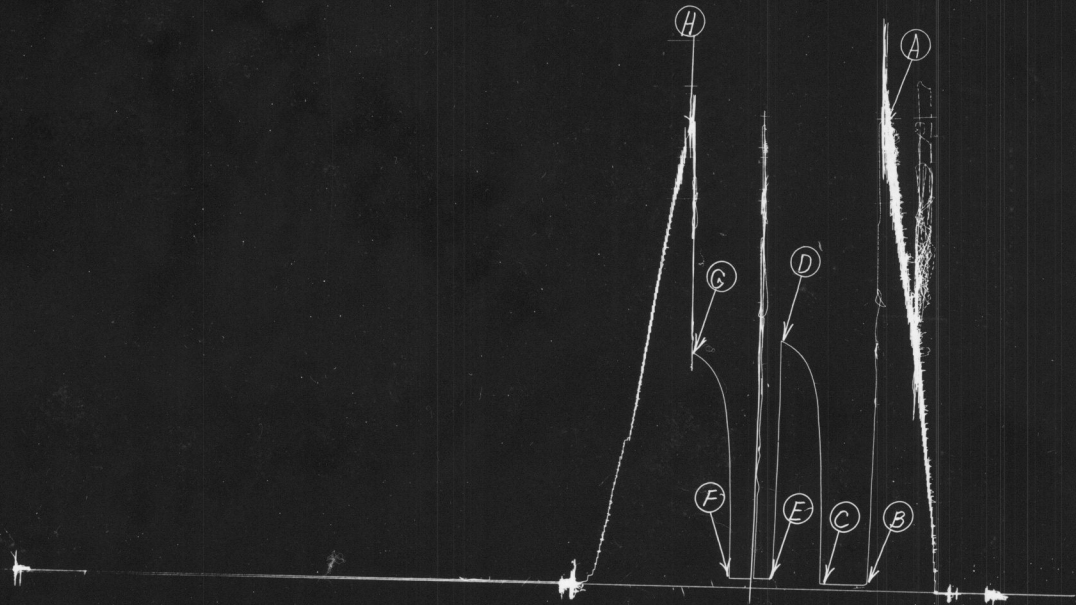
**PRESSURE BREAKDOWN**

<b>First Flow Pressure</b> Breakdown: <u>6</u> Inc. of <u>5</u> mins. and a final inc. of _____ Min.	<b>Initial Shut-In</b> Breakdown: <u>11</u> Inc. of <u>3</u> mins. and a final inc. of _____ Min.	<b>Second Flow Pressure</b> Breakdown: <u>6</u> Inc. of <u>5</u> mins. and a final inc. of _____ Min.	<b>Final Shut-In</b> Breakdown: <u>9</u> Inc. of <u>3</u> mins. and a final inc. of <u>2</u> Min.
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Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>27</u>	<u>0</u>	<u>29</u>	<u>0</u>	<u>39</u>	<u>0</u>	<u>37</u>
P 2 <u>5</u>	<u>27</u>	<u>3</u>	<u>518</u>	<u>5</u>	<u>39</u>	<u>3</u>	<u>542</u>
P 3 <u>10</u>	<u>27</u>	<u>6</u>	<u>767</u>	<u>10</u>	<u>39</u>	<u>6</u>	<u>761</u>
P 4 <u>15</u>	<u>27</u>	<u>9</u>	<u>945</u>	<u>15</u>	<u>flushed tool</u>	<u>9</u>	<u>906</u>
P 5 <u>20</u>	<u>28</u>	<u>12</u>	<u>1033</u>	<u>20</u>	<u>37</u>	<u>12</u>	<u>987</u>
P 6 <u>25</u>	<u>29</u>	<u>15</u>	<u>1101</u>	<u>25</u>	<u>6</u>	<u>15</u>	<u>1044</u>
P 7 <u>30</u>	<u>29</u>	<u>18</u>	<u>1139</u>	<u>30</u>	<u>37</u>	<u>18</u>	<u>1080</u>
P 8 _____		<u>21</u>	<u>1164</u>			<u>21</u>	<u>1109</u>
P 9 _____		<u>24</u>	<u>1185</u>			<u>24</u>	<u>1129</u>
P10 _____		<u>27</u>	<u>1202</u>			<u>27</u>	<u>1154</u>
P11 _____		<u>30</u>	<u>1217</u>			<u>29</u>	<u>1159</u>
P12 _____		<u>33</u>	<u>1227</u>				
P13 _____							
P14 _____							
P15 _____							
P16 _____							
P17 _____							
P18 _____							
P19 _____							
P20 _____							

Graves Drlg. Co.  
Roulier #1

T.K.T# 12497  
Test# 6





TIGHT HOLE

Home Office: Great Bend, Kansas  
P. O. Box 793 (316) 793-7903

Company Graves Drilling Co., Inc. Lease & Well No. Roulier #1  
Elevation 3277 Kelly Bushings Formation Kansas City Effective Pay \_\_\_\_\_ Ft. Ticket No. 12498  
Date 9-9-69 Sec. 35 Twp. 6 Range 36W County Thomas State Kansas  
Test Approved by Edgar E. Smith Western Representative Gerrell Veatch

Formation Test No. 7 O.K.  Misrun \_\_\_\_\_ Interval Tested From 4357' to 4410' Total Depth 4410'  
Size Main Hole 7 7/8 Rat Hole \_\_\_\_\_ Conv. \_\_\_\_\_ B.T.  Damaged Yes  No Conv.  B.T. Damaged Yes  No  
Top Packer Depth 4353 Ft. Size 6 3/4" Packer Depth 4357 Ft. Size 6 3/4"  
Straddle Yes \_\_\_\_\_ No  Conv. \_\_\_\_\_ B.T. Damaged Yes \_\_\_\_\_ No

Packer Depth \_\_\_\_\_ Ft. Size \_\_\_\_\_  
Tool Size 5 1/2" O.D. Tool Jr. Size 4 1/2" F.H. Anchor Length 53 Ft. Size 5 1/2" O.D.

RECORDERS Depth 4365 Ft. Clock No. 9726 Depth 4370 Ft. Clock No. 9103  
Top Make Kuster Cap. 4200 No. 3354 ~~3354~~ Inside Bottom Make Kuster Cap. 3100 No. 1051 Inside  
Below Straddle: Depth \_\_\_\_\_ Clock No. \_\_\_\_\_ Inside Depth \_\_\_\_\_ Ft. Clock No. \_\_\_\_\_ Inside  
Top Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Inside Bottom Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Inside

Time Set Packer 11:42 A.M  
Tool Open I.F.P. From 11:45 M. to 11:55A.M. Hr. 10 Min. From (B) 89 P.S.I. To (C) 274 P.S.I.  
Tool Closed I.C.I.P. From 11:55 M. to 12:25P.M. Hr. 30 Min. (D) 1363 P.S.I.  
Tool Open F.F.P. From 12:25 M. to 1:25P. M. Hr. 60 Min. From (E) 319 P.S.I. To (F) 970 P.S.I.  
Tool Closed F.C.I.P. From 1:25 M. to 1:55P. M. Hr. 30 Min. (G) 1321 P.S.I.  
Initial Hydrostatic Pressure (A) 2397 P.S.I. Final Hydrostatic Pressure (H) 2366 P.S.I.

SURFACE Size Choke 3/8 In. Max. Press. P.S.I. \_\_\_\_\_ Time \_\_\_\_\_ Description of Flow \_\_\_\_\_  
INFORMATION \_\_\_\_\_ M. \_\_\_\_\_  
\_\_\_\_\_ M. \_\_\_\_\_  
\_\_\_\_\_ M. \_\_\_\_\_

BLOW Strong Bottom Choke Size 3/4 In.  
Did Well Flow Yes  No \_\_\_\_\_ Recovery Total Ft. 2100 feet salt water

Reversed Out  Yes  No \_\_\_\_\_ Mud Type Starch Viscosity 40 Weight 10 Water Loss 11 cc. Maximum Temp. 130 °F  
Type Circ. Sub. Plug Did Tool Plug? No Jars: Size \_\_\_\_\_ Make \_\_\_\_\_ Ser. No. \_\_\_\_\_  
EXTRA EQUIPMENT: Dual Packers Yes Safety Joint No Did Packer Hold? Yes Where? \_\_\_\_\_  
Length Drill Pipe 4277 ft. I.D. Drill Pipe 3.8 in. Length Weight Pipe \_\_\_\_\_ ft. I.D. Weight Pipe \_\_\_\_\_ in. Length Drill Collars 60 ft.  
I. D. Drill Collars 2.5 in. Length D.S.T. Tool 73 ft.

Remarks \_\_\_\_\_

**WESTERN TESTING CO., INC.**  
**Pressure Data**

Date 9-9-69 Test Ticket No. 12498  
 Recorder No. 3354 Capacity 4200 Location 4365 Ft.  
 Clock No. 9726 Elevation 3277 Kelly Bushing Well Temperature 130 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>2397</u>	P.S.I.	<u>11:45A.</u> M	
B First Initial Flow Pressure	<u>89</u>	P.S.I.	<u>10</u> Mins.	<u>10</u> Mins.
C First Final Flow Pressure	<u>274</u>	P.S.I.	<u>30</u> Mins.	<u>31</u> Mins.
D Initial Closed-in Pressure	<u>1363</u>	P.S.I.	<u>60</u> Mins.	<u>60</u> Mins.
E Second Initial Flow Pressure	<u>319</u>	P.S.I.	<u>30</u> Mins.	<u>30</u> Mins.
F Second Final Flow Pressure	<u>970</u>	P.S.I.		
G Final Closed-in Pressure	<u>1321</u>	P.S.I.		
H Final Hydrostatic Mud	<u>2366</u>	P.S.I.		

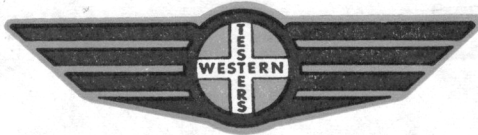
**PRESSURE BREAKDOWN**

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: <u>2</u> Inc.		Breakdown: <u>10</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 _____ Min.		final inc. of <u>1</u> Min.		final inc. of _____ Min.		final inc. of _____ Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>89</u>	<u>0</u>	<u>274</u>	<u>0</u>	<u>319</u>	<u>0</u>	<u>970</u>
P 2 <u>5</u>	<u>158</u>	<u>3</u>	<u>1088</u>	<u>5</u>	<u>389</u>	<u>3</u>	<u>1251</u>
P 3 <u>10</u>	<u>274</u>	<u>6</u>	<u>1263</u>	<u>10</u>	<u>466</u>	<u>6</u>	<u>1274</u>
P 4 _____	_____	<u>9</u>	<u>1308</u>	<u>15</u>	<u>537</u>	<u>9</u>	<u>1286</u>
P 5 _____	_____	<u>12</u>	<u>1324</u>	<u>20</u>	<u>605</u>	<u>12</u>	<u>1297</u>
P 6 _____	_____	<u>15</u>	<u>1339</u>	<u>25</u>	<u>664</u>	<u>15</u>	<u>1303</u>
P 7 _____	_____	<u>18</u>	<u>1348</u>	<u>30</u>	<u>723</u>	<u>18</u>	<u>1308</u>
P 8 _____	_____	<u>21</u>	<u>1353</u>	<u>35</u>	<u>772</u>	<u>21</u>	<u>1312</u>
P 9 _____	_____	<u>24</u>	<u>1357</u>	<u>40</u>	<u>813</u>	<u>24</u>	<u>1316</u>
P10 _____	_____	<u>27</u>	<u>1360</u>	<u>45</u>	<u>864</u>	<u>27</u>	<u>1319</u>
P11 _____	_____	<u>30</u>	<u>1362</u>	<u>50</u>	<u>900</u>	<u>30</u>	<u>1321</u>
P12 _____	_____	<u>31</u>	<u>1363</u>	<u>55</u>	<u>938</u>	_____	_____
P13 _____	_____	_____	_____	<u>60</u>	<u>970</u>	_____	_____
P14 _____	_____	_____	_____	_____	_____	_____	_____
P15 _____	_____	_____	_____	_____	_____	_____	_____
P16 _____	_____	_____	_____	_____	_____	_____	_____
P17 _____	_____	_____	_____	_____	_____	_____	_____
P18 _____	_____	_____	_____	_____	_____	_____	_____
P19 _____	_____	_____	_____	_____	_____	_____	_____
P20 _____	_____	_____	_____	_____	_____	_____	_____

Graves DrLg. Co. Inc.  
ROULIER #1

TKT# 12498  
TEST# 7





Home Office: Great Bend, Kansas  
P. O. Box 793 (316) 793-7903

**TIGHT HOLE**

Company Graves Drilling Co., Inc. Lease & Well No. Roulier # 1  
Elevation 3277 Kelly Bushing Formation Marmaton Effective Pay \_\_\_\_\_ Ft. Ticket No. 12499  
Date 9-10-69 Sec. 35 Twp. 6 Range 36w County Thomas State Kansas  
Test Approved by Edgar E. Smith Western Representative Gerrell V. Hatch

Formation Test No. 8 O.K.  Misrun \_\_\_\_\_ Interval Tested From 4438' to 4450' Total Depth 4450'  
Size Main Hole 7 7/8 Rat Hole \_\_\_\_\_ Conv. \_\_\_\_\_ B.T.  Damaged Yes  No Conv.  B.T. Damaged Yes  No  
Top Packer Depth 4434 Ft. Size 6 3/4 Packer Depth 4438 Ft. Size 6 3/4  
Straddle Yes \_\_\_\_\_ No  Conv. \_\_\_\_\_ B.T. \_\_\_\_\_ Damaged Yes \_\_\_\_\_ No

Packer Depth \_\_\_\_\_ Ft. Size \_\_\_\_\_  
Tool Size 5 1/2" OD Tool Jt. Size 4 1/2" FH Anchor Length 12 Ft. Size 5 1/2" OD

RECORDERS Depth 4442 Ft. Clock No. 9726 Depth 4446 Ft. Clock No. 9103  
Top Make Kuster Cap. 4200 No. 3354 Inside Outside Bottom Make Kuster Cap. 3100 No. 1051 Inside Outside  
Below Straddle: Depth \_\_\_\_\_ Clock No. \_\_\_\_\_ Inside Outside Depth \_\_\_\_\_ Ft. Clock No. \_\_\_\_\_ Inside Outside  
Top Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Inside Outside Bottom Make \_\_\_\_\_ Cap. \_\_\_\_\_ No. \_\_\_\_\_ Inside Outside

Time Set Packer 4:22A M  
Tool Open I.F.P. From 4:25 M. to 4:40A M. Hr. 15 Min. From (B) 17 P.S.I. To (C) 17 P.S.I.  
Tool Closed I.C.I.P. From 4:40 M. to 5:10A M. Hr. 30 Min. (D) 21 P.S.I.  
Tool Open F.F.P. From 5:10 M. to 5:40A M. Hr. 30 Min. From (E) 17 P.S.I. To (F) 19 P.S.I.  
Tool Closed F.C.I.P. From 5:40 M. to 6:10A M. Hr. 30 Min. (G) 21 P.S.I.  
Initial Hydrostatic Pressure (A) 2397 P.S.I. Final Hydrostatic Pressure (H) 2371 P.S.I.

SURFACE Size Choke 3/8 In. Max. Press. P.S.I. \_\_\_\_\_ Time \_\_\_\_\_ Description of Flow \_\_\_\_\_  
INFORMATION \_\_\_\_\_ M. \_\_\_\_\_  
\_\_\_\_\_ M. \_\_\_\_\_  
\_\_\_\_\_ M. \_\_\_\_\_

BLOW Weak blow for 12 minutes Bottom Choke Size 3/4 In.  
Did Well Flow Yes  No \_\_\_\_\_ Recovery Total Ft. 10 feet drilling mud

Reversed Out Yes  No \_\_\_\_\_ Mud Type starch Viscosity 40 Weight 10 Water Loss 6 cc. Maximum Temp. 130 °F  
Type Circ. Sub. plug Did Tool Plug? no Jars: Size \_\_\_\_\_ Make \_\_\_\_\_ Ser. No. \_\_\_\_\_  
EXTRA EQUIPMENT: Dual Packers yes Safety Joint no Did Packer Hold? \_\_\_\_\_ Where? \_\_\_\_\_  
Length Drill Pipe 4328 ft. I.D. Drill Pipe 3.8 in. Length Weight Pipe \_\_\_\_\_ ft. I.D. Weight Pipe \_\_\_\_\_ in. Length Drill Collars 90 ft.  
I. D. Drill Collars 2.5 in. Length D.S.T. Tool 32 ft.

Remarks Flushed tool

**WESTERN TESTING CO., INC.**  
**Pressure Data**

Date 9-10-69 Test Ticket No. 12499  
 Recorder No. 3354 Capacity 4200 Location 4442 Ft.  
 Clock No. 9726 Elevation 3277 Keely Bushing Well Temperature 130 °F

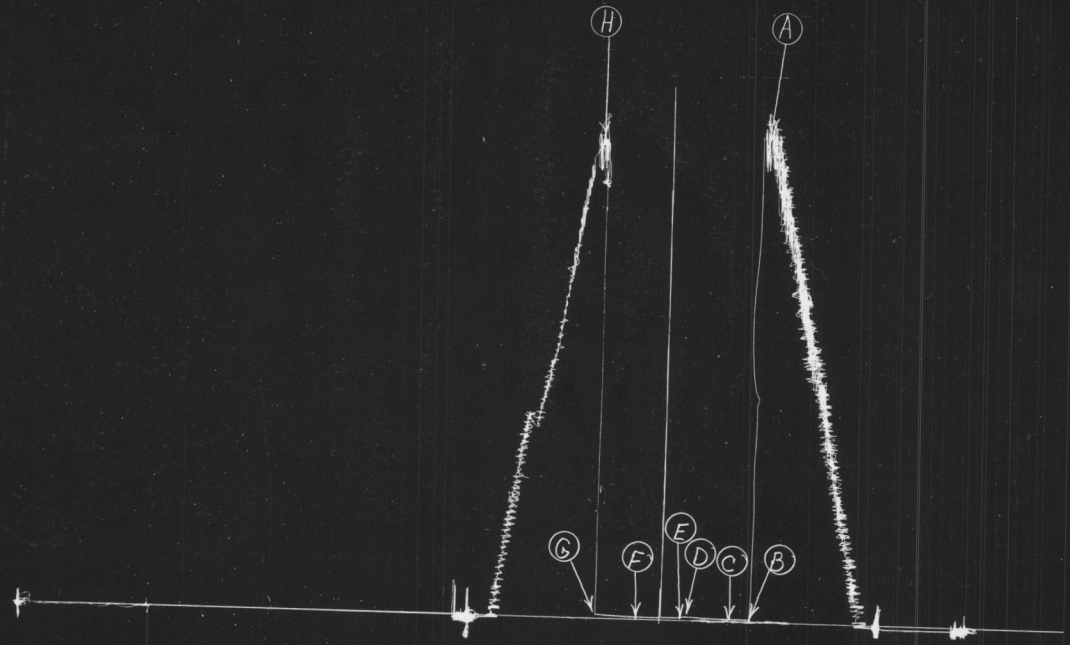
Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>2397</u>	P.S.I.	<u>4:25A</u>	M
B First Initial Flow Pressure	<u>17</u>	P.S.I.	<u>15</u> Mins.	<u>15</u> Mins.
C First Final Flow Pressure	<u>17</u>	P.S.I.	<u>30</u> Mins.	<u>30</u> Mins.
D Initial Closed-in Pressure	<u>21</u>	P.S.I.	<u>30</u> Mins.	<u>30</u> Mins.
E Second Initial Flow Pressure	<u>17</u>	P.S.I.	<u>30</u> Mins.	<u>30</u> Mins.
F Second Final Flow Pressure	<u>19</u>	P.S.I.		
G Final Closed-in Pressure	<u>21</u>	P.S.I.		
H Final Hydrostatic Mud	<u>2371</u>	P.S.I.		

**PRESSURE BREAKDOWN**

Point Mins.	First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
	Breakdown:	Inc.	Breakdown:	Inc.	Breakdown:	Inc.	Breakdown:	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 _____ Min.		final inc. of _____ Min.		final inc. of _____ Min.		final inc. of _____ Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.	
P 1 <u>0</u>	<u>17</u>	<u>0</u>	<u>17</u>	<u>0</u>	<u>17</u>	<u>0</u>	<u>19</u>	
P 2 <u>5</u>	<u>17</u>	<u>3</u>	<u>17</u>	<u>5</u>	<u>17</u>	<u>3</u>	<u>19</u>	
P 3 <u>10</u>	<u>17</u>	<u>6</u>	<u>17</u>	<u>10</u>	<u>17</u>	<u>6</u>	<u>19</u>	
P 4 <u>15</u>	<u>17</u>	<u>9</u>	<u>17</u>	<u>15</u>	<u>17</u>	<u>9</u>	<u>19</u>	
P 5 _____	_____	<u>12</u>	<u>19</u>	<u>20</u>	<u>19</u>	<u>12</u>	<u>19</u>	
P 6 _____	_____	<u>15</u>	<u>19</u>	<u>25</u>	<u>19</u>	<u>15</u>	<u>20</u>	
P 7 _____	_____	<u>18</u>	<u>19</u>	<u>30</u>	<u>19</u>	<u>18</u>	<u>20</u>	
P 8 _____	_____	<u>21</u>	<u>20</u>			<u>21</u>	<u>20</u>	
P 9 _____	_____	<u>24</u>	<u>20</u>			<u>24</u>	<u>20</u>	
P10 _____	_____	<u>27</u>	<u>20</u>			<u>27</u>	<u>21</u>	
P11 _____	_____	<u>30</u>	<u>21</u>			<u>30</u>	<u>21</u>	
P12 _____	_____							
P13 _____	_____							
P14 _____	_____							
P15 _____	_____							
P16 _____	_____							
P17 _____	_____							
P18 _____	_____							
P19 _____	_____							
P20 _____	_____							

Graves DrLg. Co. Inc.  
Roulier #1

T.K.T.# 12499  
Test# 8



## NOMENCLATURE

<b>b</b>	= Approximate Radius of Investigation .....	Feet
<b>b<sup>1</sup></b>	= Approximate Radius of Investigation (Net Pay Zone h <sup>1</sup> ) .....	Feet
<b>D.R.</b>	= Damage Ratio .....	—
<b>EI</b>	= Elevation .....	Feet
<b>GD</b>	= B.T. Gauge Depth (From Surface Reference) .....	Feet
<b>h</b>	= Interval Tested .....	Feet
<b>h<sup>1</sup></b>	= Net Pay Thickness .....	Feet
<b>K</b>	= Permeability .....	md
<b>K<sup>1</sup></b>	= Permeability (From Net Pay Zone h <sup>1</sup> ) .....	md
<b>m</b>	= Slope Extrapolated Pressure Plot (Psi <sup>2</sup> /cycle Gas) .....	psi/cycle
<b>OF<sup>1</sup></b>	= Maximum Indicated Flow Rate .....	MCF/D
<b>OF<sup>2</sup></b>	= Minimum Indicated Flow Rate .....	MCF/D
<b>OF<sup>3</sup></b>	= Theoretical Open Flow Potential with/Damage Removed Max. ....	MCF/D
<b>OF<sup>4</sup></b>	= Theoretical Open Flow Potential with/Damage Removed Min. ....	MCF/D
<b>P<sup>S</sup></b>	= Extrapolated Static Pressure .....	Psig.
<b>P<sup>F</sup></b>	= Final Flow Pressure .....	Psig.
<b>P<sup>DT</sup></b>	= Potentiometric Surface (Fresh Water*) .....	Feet
<b>Q</b>	= Average Adjusted Production Rate During Test .....	bbls/day
<b>Q<sup>1</sup></b>	= Theoretical Production w/Damage Removed .....	bbls/day
<b>Q<sup>g</sup></b>	= Measured Gas Production Rate .....	MCF/D
<b>R</b>	= Corrected Recovery .....	bbls
<b>r<sup>w</sup></b>	= Radius of Well Bore .....	Feet
<b>t</b>	= Flow Time .....	Minutes
<b>t<sup>o</sup></b>	= Total Flow Time .....	Minutes
<b>T</b>	= Temperature Rankine .....	°R
<b>Z</b>	= Compressibility Factor .....	—
<b>u</b>	= Viscosity Gas or Liquid .....	CP
<b>Log</b>	= Common Log	

\* Potentiometric Surface Reference to Rotary Table When Elevation Not Given, Fresh Water Corrected to 100° F.