



Home Office: Wichita, Kansas 67201
P. O. Box 1599 (316) 838-0601

Company Graves Drilling Co., Inc. Lease & Well No. Kostner B-#1
Elevation 1452 Kelly Bush. Formation Mississippi Effective Pay - Ft. Ticket No. 22677
Date 9-19-77 Sec. 30 Twp. 28S Range 5W County Kingman State Kansas
Test Approved by Fredrick W. Stump Western Representative Sam McClune

Formation Test No. 1 O.K. Misrun Interval Tested From 3898' to 3917' Total Depth 3917'
Size Main Hole 7 7/8 Rat Hole Conv. B.T. Damaged Yes No Conv. B.T. Damaged Yes No
Top Packer Depth 3893 Ft. Size 6 3/4 Bottom Packer Depth 3898 Ft. Size 6 3/4
Straddle Conv. B.T. Damaged Yes No Packer Depth - Ft. Size -
Tool Size 4 1/2 OD Tool Joint Size 3 1/2 FH Anchor Length 19 Ft. Size 4 1/2 OD Surface Choke Size 3/4 In. Bottom Choke Size 3/4 In.

RECORDERS Depth 3910 Ft. Clock No. 6896 Depth 3913 Ft. Clock No. 10167
Top Make Kuster Cap. 4200 No. 1558 ^{Inside} ~~Outside~~ Bottom Make Kuster Cap. 3150 No. 1564 ~~Inside~~ ^{Outside}
Below Straddle: Depth - Rec. No. - Clock No. - ^{Inside} ~~Outside~~ Depth - Ft. Rec. No. - Clock No. - ^{Inside} ~~Outside~~

Time Set Packer 12:38A M
Tool Open I.F.P. From 12:40A M. to 1:00A M. - Hr. 20 Min. From (B) 28 P.S.I. To (C) 44 P.S.I.
Tool Closed I.C.I.P. From 1:00A M. to 1:45A M. - Hr. 45 Min (D) 1041 P.S.I.
Tool Open F.F.P. From 1:45A M. to 2:45A M. - Hr. 60 Min. From (E) 48 P.S.I. To (F) 85 P.S.I.
Tool Closed F.C.I.P. From 2:45A M. to 3:30A M. - Hr. 45 Min. (G) 1023 P.S.I.
Initial Hydrostatic Pressure (A) 1973 P.S.I. Final Hydrostatic Pressure (H) 1947 P.S.I. Maximum Temp. 117

INFORMATION

BLOW Strong blow throughout test. Gas to surface 18 minutes on initial flow period. See attached sheet for gas measurements.

Did Well Flow - Yes No Recovery Total Ft. 185' total fluid, 20' mud, 65' water, (54,000 p.p.m.)

Reversed Out - Yes No Mud Type Starch Viscosity 48 Weight 9.3 Water Loss 12.4 cc. Chlorides 18,000 p.p.m.

EXTRA EQUIPMENT: Type Circ. Sub. Pin Safety Joint - Jars: Size - In. Make - Ser. No. -

Dual Packer Yes Did Packers Hold? Yes Did Tool Plug? No Where? -

DRILLING CONTRACTOR Graves Drlg. Length Drill Pipe? 3618 Ft. I.D. Drill Pipe 3.8 In. Tool Joint Size 4 1/2 FH In.

Length Weight Pipe 180 Ft. I.D. Weight Pipe 2.7 In. Tool Joint Size 4 1/2 XH In. Length Drill Collars 119 Ft. I.D. Drill Collars 2.25 In.

Tool Joint Size 4 1/2 XH In. Length D.S.T. Tool 41 Ft.

Remarks:

WESTERN TESTING CO., INC.
Pressure Data

Date 9-19-77 Test Ticket No. 22677
 Recorder No. 1558 Capacity 4200 Location 3910 Ft.
 Clock No. 6896 Elevation 1452 Kelly Bushing Well Temperature 117 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>1973</u> P.S.I.	Open Tool	<u>12:38A</u> M	
B First Initial Flow Pressure	<u>28</u> P.S.I.	First Flow Pressure	<u>20</u> Mins.	<u>15</u> Mins.
C First Final Flow Pressure	<u>44</u> P.S.I.	Initial Closed-in Pressure	<u>45</u> Mins.	<u>45</u> Mins.
D Initial Closed-in Pressure	<u>1041</u> P.S.I.	Second Flow Pressure	<u>60</u> Mins.	<u>55</u> Mins.
E Second Initial Flow Pressure	<u>48</u> P.S.I.	Final Closed-in Pressure	<u>45</u> Mins.	<u>45</u> Mins.
F Second Final Flow Pressure	<u>85</u> P.S.I.			
G Final Closed-in Pressure	<u>1023</u> P.S.I.			
H Final Hydrostatic Mud	<u>1947</u> P.S.I.			

PRESSURE BREAKDOWN

Point Mins.	First Flow Pressure	Initial Shut-In	Second Flow Pressure	Final Shut-In			
	Breakdown: <u>3</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Breakdown: <u>15</u> Inc. of <u>3</u> mins. and a final inc. of <u>0</u> Min.	Breakdown: <u>11</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Breakdown: <u>15</u> Inc. of <u>3</u> mins. and a final inc. of <u>0</u> Min.			
	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1	<u>28</u>	<u>0</u>	<u>44</u>	<u>0</u>	<u>48</u>	<u>0</u>	<u>85</u>
P 2	<u>32</u>	<u>3</u>	<u>333</u>	<u>5</u>	<u>54</u>	<u>3</u>	<u>423</u>
P 3	<u>38</u>	<u>6</u>	<u>577</u>	<u>10</u>	<u>58</u>	<u>6</u>	<u>650</u>
P 4	<u>44</u>	<u>9</u>	<u>755</u>	<u>15</u>	<u>61</u>	<u>9</u>	<u>795</u>
P 5		<u>12</u>	<u>858</u>	<u>20</u>	<u>65</u>	<u>12</u>	<u>875</u>
P 6		<u>15</u>	<u>916</u>	<u>25</u>	<u>68</u>	<u>15</u>	<u>918</u>
P 7		<u>18</u>	<u>958</u>	<u>30</u>	<u>73</u>	<u>18</u>	<u>947</u>
P 8		<u>21</u>	<u>983</u>	<u>35</u>	<u>76</u>	<u>21</u>	<u>964</u>
P 9		<u>24</u>	<u>999</u>	<u>40</u>	<u>80</u>	<u>24</u>	<u>979</u>
P10		<u>27</u>	<u>1010</u>	<u>45</u>	<u>82</u>	<u>27</u>	<u>990</u>
P11		<u>30</u>	<u>1018</u>	<u>50</u>	<u>83</u>	<u>30</u>	<u>998</u>
P12		<u>33</u>	<u>1024</u>	<u>55</u>	<u>85</u>	<u>33</u>	<u>1003</u>
P13		<u>36</u>	<u>1030</u>			<u>36</u>	<u>1009</u>
P14		<u>39</u>	<u>1034</u>			<u>39</u>	<u>1015</u>
P15		<u>42</u>	<u>1038</u>			<u>42</u>	<u>1019</u>
P16		<u>45</u>	<u>1041</u>			<u>45</u>	<u>1023</u>
P17							
P18							
P19							
P20							



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Company Graves Drilling Co., Inc. Lease & Well No. Kostner B-#1
Elevation 1952 Kelly Bush. Formation Mississippi Effective Pay - Ft. Ticket No. 22678
Date 9-20-77 Sec. 30 Twp. 28S Range 5W County Kingman State Kansas
Test Approved by Fredrick W. Stump Western Representative Sam McClune

Formation Test No. 2 O.K. - Misrun X Interval Tested From 3919' to 3931' Total Depth 3931'
Size Main Hole 7 7/8 Rat Hole - Conv. - B.T. X Damaged - Yes X No Conv. - B.T. X Damaged - Yes X No
Top Packer Depth 3914 Ft. Size 6 3/4 Bottom Packer Depth 3919 Ft. Size 6 3/4
Straddle - Conv. - B.T. - Damaged - Yes - No Packer Depth - Ft. Size -
Tool Size 4 1/2 OD Tool Joint Size 3 1/2 FH Anchor Length 12 Ft. Size 4 1/2 OD Surface Choke Size 3/4 In. Bottom Choke Size 3/4 In.

RECORDERS Depth 3924 Ft. Clock No. 6896 Depth 3927 Ft. Clock No. 10167
Top Make Kuster Cap. 4200 No. 1558 ~~Inside~~ Outside Bottom Make Kuster Cap. 3150 No. 1554 ~~Inside~~ Outside
Below Straddle: Depth - Rec. No. - Clock No. - ~~Inside~~ Outside Depth - Ft. Rec. No. - Clock No. - ~~Inside~~ Outside

Time Set Packer 2:52A M
Tool Open I.F.P. From 2:55A M. to 3:25A M. - Hr. 30 Min. From (B) plugging action P.S.I. To (C) plugging action P.S.I.
Tool Closed I.C.I.P. From 3:25 M. to 4:10 M. - Hr. 45 Min (D) plugging action P.S.I.
Tool Open F.F.P. From 4:10 M. to 4:45 M. - Hr. 35 Min. From (E) plugging action P.S.I. To (F) 116 P.S.I.
Tool Closed F.C.I.P. From 4:45 M. to 5:20 M. - Hr. 45 Min. (G) 1062 P.S.I.
Initial Hydrostatic Pressure (A) 1966 P.S.I. Final Hydrostatic Pressure (H) 1958 P.S.I. Maximum Temp. 119

INFORMATION

BLOW Fair blow diminished in 17 minutes. Flushed tool. Weak blow returned for remainder of initial flow period. Flushed tool at 5 minutes on final flow period. Weak blow.

Did Well Flow - Yes X No Recovery Total Ft. 135' mud filtrate water 28,000 p.p.m. chloride

Reversed Out - Yes X No Mud Type Starch Viscosity 56 Weight 9.5 Water Loss 12.4 cc. Chlorides 18,000 p.p.m.

EXTRA EQUIPMENT: Type Circ. Sub. Pin Safety Joint - Jars: Size - In. Make - Ser. No. -

Dual Packer Yes Did Packers Hold? Yes Did Tool Plug? Yes Where? Anchor

DRILLING CONTRACTOR Graves Drilling Length Drill Pipe? 3897 Ft. I.D. Drill Pipe 3.8 In. Tool Joint Size 4 1/2 FH In.

Length Weight Pipe 180 Ft. I.D. Weight Pipe 2.9 In. Tool Joint Size 4 1/2 XH In. Length Drill Collars 120 Ft. I.D. Drill Collars 2.25 In.

Tool Joint Size 4 1/2 XH In. Length D.S.T. Tool 34 Ft.

Remarks: Tool slid 20' to bottom.

WESTERN TESTING CO., INC.
Pressure Data

Date 9-20-77 Test Ticket No. 22678
 Recorder No. 1558 Capacity 4200 Location 3924 Ft.
 Clock No. 6896 Elevation 1452 Kelly Bushing Well Temperature 119 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>1966</u> P.S.I.	Open Tool	<u>2:53A</u>	<u>M</u>
B First Initial Flow Pressure	<u>plugging action</u> P.S.I.	First Flow Pressure	<u>30</u> Mins.	<u>30</u> Mins.
C First Final Flow Pressure	<u>plugging action</u> P.S.I.	Initial Closed-in Pressure	<u>45</u> Mins.	<u>45</u> Mins.
D Initial Closed-in Pressure	<u>plugging action</u> P.S.I.	Second Flow Pressure	<u>35</u> Mins.	<u>35</u> Mins.
E Second Initial Flow Pressure	<u>plugging action</u> P.S.I.	Final Closed-in Pressure	<u>45</u> Mins.	<u>45</u> Mins.
F Second Final Flow Pressure	<u>116</u> P.S.I.			
G Final Closed-in Pressure	<u>1062</u> P.S.I.			
H Final Hydrostatic Mud	<u>1958</u> P.S.I.			

PRESSURE BREAKDOWN

First Flow Pressure Breakdown: <u>6</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Initial Shut-In Breakdown: <u>15</u> Inc. of <u>3</u> mins. and a final inc. of <u>0</u> Min.	Second Flow Pressure Breakdown: <u>7</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Final Shut-In Breakdown: <u>15</u> Inc. of <u>3</u> mins. and a final inc. of <u>0</u> Min.
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Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>plugging action</u>	<u>0</u>	<u>plugging action</u>	<u>0</u>	<u>plugging action</u>	<u>0</u>	<u>116</u>
P 2 <u>5</u>	<u>plugging action</u>	<u>3</u>	<u>plugging action</u>	<u>5</u>	<u>plugging action</u>	<u>3</u>	<u>629</u>
P 3 <u>10</u>	<u>plugging action</u>	<u>6</u>	<u>plugging action</u>	<u>10</u>	<u>plugging action</u>	<u>6</u>	<u>1048</u>
P 4 <u>15</u>	<u>plugging action</u>	<u>9</u>	<u>plugging action</u>	<u>15</u>	<u>plugging action</u>	<u>9</u>	<u>1057</u>
P 5 <u>20</u>	<u>plugging action</u>	<u>12</u>	<u>plugging action</u>	<u>20</u>	<u>plugging action</u>	<u>12</u>	<u>1059</u>
P 6 <u>25</u>	<u>plugging action</u>	<u>15</u>	<u>plugging action</u>	<u>25</u>	<u>127</u>	<u>15</u>	<u>1060</u>
P 7 <u>30</u>	<u>plugging action</u>	<u>18</u>	<u>plugging action</u>	<u>30</u>	<u>118</u>	<u>18</u>	<u>1060</u>
P 8 _____	_____	<u>21</u>	<u>plugging action</u>	<u>35</u>	<u>116</u>	<u>21</u>	<u>1061</u>
P 9 _____	_____	<u>24</u>	<u>plugging action</u>	_____	_____	<u>24</u>	<u>1061</u>
P10 _____	_____	<u>27</u>	<u>plugging action</u>	_____	_____	<u>27</u>	<u>1061</u>
P11 _____	_____	<u>30</u>	<u>plugging action</u>	_____	_____	<u>30</u>	<u>1062</u>
P12 _____	_____	<u>33</u>	<u>plugging action</u>	_____	_____	<u>33</u>	<u>1062</u>
P13 _____	_____	<u>36</u>	<u>plugging action</u>	_____	_____	<u>36</u>	<u>1062</u>
P14 _____	_____	<u>39</u>	<u>plugging action</u>	_____	_____	<u>39</u>	<u>1062</u>
P15 _____	_____	<u>42</u>	<u>plugging action</u>	_____	_____	<u>42</u>	<u>1062</u>
P16 _____	_____	<u>45</u>	<u>plugging action</u>	_____	_____	<u>45</u>	<u>1062</u>
P17 _____	_____	_____	_____	_____	_____	_____	_____
P18 _____	_____	_____	_____	_____	_____	_____	_____
P19 _____	_____	_____	_____	_____	_____	_____	_____
P20 _____	_____	_____	_____	_____	_____	_____	_____



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 Elevation 1452 Kelly Bush. Formation Mississippi Effective Pay - Ft. Ticket No. 22679
 Date 9-20-77 Sec. 30 Twp. 28S Range 5W County Kingman State Kansas
 Test Approved by Fredrick W. Stump Western Representative Sam McClune

Formation Test No. 3 O.K. Misrun Interval Tested From 3919' to 3931' Total Depth 3931'
 Size Main Hole 7 7/8 Rat Hole Conv. B.T. Damaged Yes No Conv. B.T. Damaged Yes No
 Top Packer Depth 3914 Ft. Size 6 3/4 Bottom Packer Depth 3919 Ft. Size 6 3/4
 Straddle Conv. B.T. Damaged Yes No Packer Depth Ft. Size
 Tool Size 4 1/2 OD Tool Joint Size 3 1/2 IF Anchor Length 12 Ft. Size 4 1/2 OD Surface Choke Size 3/4 In. Bottom Choke Size 3/4 In.

RECORDERS Depth 3924 Ft. Clock No. 6896 Depth 3927 Ft. Clock No. 10167
 Top Make Kuster Cap. 4200 No. 1558 ~~Inside~~ Outside Bottom Make Kuster Cap. 3150 No. 1564 ~~Inside~~ Outside
 Below Straddle: Depth Rec. No. Clock No. Outside Depth Ft. Rec. No. Clock No. Inside Outside

Time Set Packer 3:53 M
 Tool Open I.F.P. From 3:55 M. to 4:25 M. - Hr. 30 Min. From (B) 30 P.S.I. To (C) 84 P.S.I.
 Tool Closed I.C.I.P. From 4:25 M. to 5:10 M. - Hr. 45 Min (D) 1006 P.S.I.
 Tool Open F.F.P. From 5:10 M. to 6:10 M. - Hr. 60 Min. From (E) 91 P.S.I. To (F) 154 P.S.I.
 Tool Closed F.C.I.P. From 6:10 M. to 6:55 M. - Hr. 45 Min. (G) 1004 P.S.I.
 Initial Hydrostatic Pressure (A) 1954 P.S.I. Final Hydrostatic Pressure (H) 1954 P.S.I. Maximum Temp. 119

INFORMATION

BLOW Strong blow throughout test. See attached sheet for gas measurements.

Did Well Flow Yes No Recovery Total Ft. 115' gas cut muddy water with oil scum, 240' water with scum of oil, 365' total fluid.

Reversed Out Yes No Mud Type Starch Viscosity 62 Weight 9.5 Water Loss 16.8 cc. Chlorides 31,000 p.p.m.

EXTRA EQUIPMENT: Type Circ. Sub. Pin Safety Joint Jars: Size In. Make Ser. No.

Dual Packer Yes No Did Packers Hold? Yes No Did Tool Plug? Yes No Where?

DRILLING CONTRACTOR Graves Drilling Length Drill Pipe? 3897 Ft. I.D. Drill Pipe 3.8 In. Tool Joint Size 4 1/2 FH In.
 Length Weight Pipe 180 Ft. I.D. Weight Pipe 2.7 In. Tool Joint Size 4 1/2 XH In. Length Drill Collars 120 Ft. I.D. Drill Collars 2.25 In.
 Tool Joint Size 4 1/2 XH In. Length D.S.T. Tool 34 Ft.

Remarks:

WESTERN TESTING CO., INC.
Pressure Data

Date 9-20-77 Test Ticket No. 22679
 Recorder No. 1558 Capacity 4200 Location 3924 Ft.
 Clock No. 6896 Elevation 1452 Kelly Bushing Well Temperature 119 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>1954</u> P.S.I.	Open Tool	<u>3:53</u> M	
B First Initial Flow Pressure	<u>30</u> P.S.I.	First Flow Pressure	<u>30</u> Mins.	<u>30</u> Mins.
C First Final Flow Pressure	<u>84</u> P.S.I.	Initial Closed-in Pressure	<u>45</u> Mins.	<u>42</u> Mins.
D Initial Closed-in Pressure	<u>1006</u> P.S.I.	Second Flow Pressure	<u>60</u> Mins.	<u>60</u> Mins.
E Second Initial Flow Pressure	<u>91</u> P.S.I.	Final Closed-in Pressure	<u>45</u> Mins.	<u>45</u> Mins.
F Second Final Flow Pressure	<u>154</u> P.S.I.			
G Final Closed-in Pressure	<u>1004</u> P.S.I.			
H Final Hydrostatic Mud	<u>1954</u> P.S.I.			

PRESSURE BREAKDOWN

Point Mins.	First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes
P 1 <u>0</u>	<u>30</u>	<u>0</u>	<u>84</u>	<u>0</u>	<u>91</u>	<u>0</u>	<u>154</u>	
P 2 <u>5</u>	<u>36</u>	<u>3</u>	<u>420</u>	<u>3</u>	<u>108</u>	<u>3</u>	<u>439</u>	
P 3 <u>10</u>	<u>46</u>	<u>6</u>	<u>629</u>	<u>6</u>	<u>114</u>	<u>6</u>	<u>650</u>	
P 4 <u>15</u>	<u>61</u>	<u>9</u>	<u>748</u>	<u>9</u>	<u>118</u>	<u>9</u>	<u>762</u>	
P 5 <u>20</u>	<u>67</u>	<u>12</u>	<u>815</u>	<u>12</u>	<u>123</u>	<u>12</u>	<u>827</u>	
P 6 <u>25</u>	<u>81</u>	<u>15</u>	<u>860</u>	<u>15</u>	<u>128</u>	<u>15</u>	<u>868</u>	
P 7 <u>30</u>	<u>84</u>	<u>18</u>	<u>894</u>	<u>18</u>	<u>133</u>	<u>18</u>	<u>898</u>	
P 8		<u>21</u>	<u>919</u>	<u>21</u>	<u>138</u>	<u>21</u>	<u>918</u>	
P 9		<u>24</u>	<u>939</u>	<u>24</u>	<u>142</u>	<u>24</u>	<u>936</u>	
P10		<u>27</u>	<u>957</u>	<u>27</u>	<u>146</u>	<u>27</u>	<u>951</u>	
P11		<u>30</u>	<u>970</u>	<u>30</u>	<u>150</u>	<u>30</u>	<u>962</u>	
P12		<u>33</u>	<u>981</u>	<u>33</u>	<u>154</u>	<u>33</u>	<u>973</u>	
P13		<u>36</u>	<u>992</u>	<u>36</u>	<u>154</u>	<u>36</u>	<u>981</u>	
P14		<u>39</u>	<u>998</u>	<u>39</u>		<u>39</u>	<u>988</u>	
P15		<u>42</u>	<u>1006</u>	<u>42</u>		<u>42</u>	<u>995</u>	
P16						<u>45</u>	<u>1004</u>	
P17								
P18								
P19								
P20								