

Company Mull Drilling Company, Inc. Lease & Well No. Woerpel #4  
 Elevation -- Formation Kansas City Effective Pay ---- Ft. Ticket No. 4670  
 Date 4/22/80 Sec. 13 Twp. 5S Range 31W County Rawlins State Kansas  
 Test Approved by Michael R. Kidwell Western Representative Ken Metzler

Formation Test No. 1 Interval Tested from 3993 ft. to 4020 ft. Total Depth 4020 ft.  
 Packer Depth 3988 ft. Size 6 3/4 in. Packer Depth - ft. Size - in.  
 Packer Depth 3993 ft. Size 6 3/4 in. Packer Depth - ft. Size - in.

Depth of Selective Zone Set -  
 Top Recorder Depth (Inside) 4013 ft. Recorder Number 1564 Cap. 3150  
 Bottom Recorder Depth (Outside) 4010 ft. Recorder Number 3085 Cap. 4500  
 Below Straddle Recorder Depth - ft. Recorder Number - Cap. -

Drilling Contractor Blue Goose Drilling Rig #2 Drill Collar Length 311 I. D. 2.26 in.  
 Mud Type premix-chemical Viscosity 34 Weight Pipe Length - I. D. 2.76 in.  
 Weight 9.2 Water Loss 10.0 cc. Drill Pipe Length 3679 I. D. 3.8 in.  
 Chlorides 3,000 P.P.M. Test Tool Length 19 ft. Tool Size 5 1/2 in.  
 Jars: Make None Serial Number - Anchor Length 27 ft. Size 5 1/2 in.  
 Did Well Flow? No Reversed Out No 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 blow throughout both openings.

Recovered 160 ft. of gas in pipe  
 Recovered 20 ft. of clean oil (38 gravity @ 60°)  
 Recovered 62 ft. of oil cut muddy water (5% gas; 19% oil; 43% mud; 33% water)  
 Recovered 300 ft. of slightly oil cut muddy water (48,000 chlorides ppm)  
 Recovered        ft. of (17% mud; 3% oil; 80% water)

Remarks: Slid four feet to bottom before tool opened.

Time Set Packer(s) 7:55 ~~P.M.~~ A.M. Time Started Off Bottom 11:40 ~~P.M.~~ A.M. Maximum Temperature 128°  
 Initial Hydrostatic Pressure ..... (A) 2252 P.S.I.  
 Initial Flow Period ..... Minutes 30 (B) 51 P.S.I. to (C) 130 P.S.I.  
 Initial Closed In Period ..... Minutes 45 (D) 814 P.S.I.  
 Final Flow Period ..... Minutes 60 (E) 183 P.S.I. to (F) 210 P.S.I.  
 Final Closed In Period ..... Minutes 60 (G) 812 P.S.I.  
 Final Hydrostatic Pressure ..... (H) 2060 P.S.I.

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

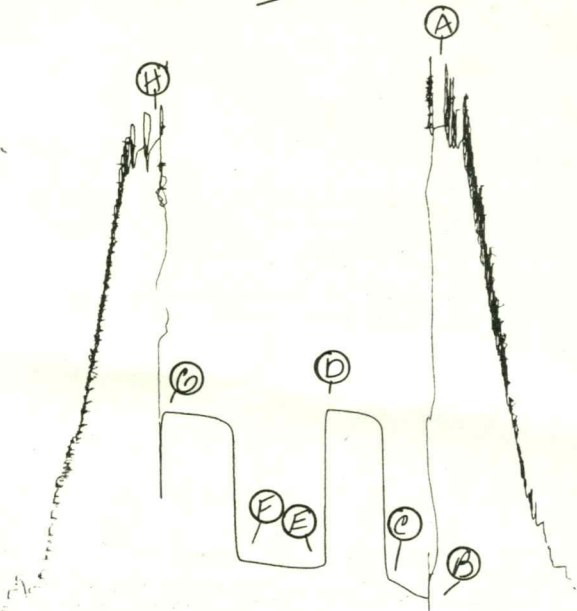
Date 4/22/80 Recorder No. 1564 Capacity 3150 Test Ticket No. 4670  
 Location 4013 Ft. Well Temperature 128 °F  
 Clock No. --- Elevation -

Point	Pressure		Time Given	Time Computed
A. Initial Hydrostatic Mud	2252	P.S.I.	7:55A	M
B. First Initial Flow Pressure	51	P.S.I.	30	Mins. 30
C. First Final Flow Pressure	130	P.S.I.	45	Mins. 45
D. Initial Closed-in Pressure	814	P.S.I.	60	Mins. 60
E. Second Initial Flow Pressure	183	P.S.I.	60	Mins. 60
F. Second Final Flow Pressure	210	P.S.I.		
G. Final Closed-in Pressure	812	P.S.I.		
H. Final Hydrostatic Mud	2060	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 <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>51</u>	<u>0</u>	<u>130</u>	<u>0</u>	<u>183</u>	<u>0</u>	<u>210</u>	
P 2 <u>5</u>	<u>51</u>	<u>3</u>	<u>464</u>	<u>5</u>	<u>182</u>	<u>3</u>	<u>299</u>	
P 3 <u>10</u>	<u>70</u>	<u>6</u>	<u>754</u>	<u>10</u>	<u>176</u>	<u>6</u>	<u>742</u>	
P 4 <u>15</u>	<u>87</u>	<u>9</u>	<u>771</u>	<u>15</u>	<u>177</u>	<u>9</u>	<u>757</u>	
P 5 <u>20</u>	<u>104</u>	<u>12</u>	<u>782</u>	<u>20</u>	<u>179</u>	<u>12</u>	<u>773</u>	
P 6 <u>25</u>	<u>119</u>	<u>15</u>	<u>790</u>	<u>25</u>	<u>181</u>	<u>15</u>	<u>779</u>	
P 7 <u>30</u>	<u>130</u>	<u>18</u>	<u>794</u>	<u>30</u>	<u>183</u>	<u>18</u>	<u>784</u>	
P 8		<u>21</u>	<u>797</u>	<u>35</u>	<u>188</u>	<u>21</u>	<u>788</u>	
P 9		<u>24</u>	<u>800</u>	<u>40</u>	<u>192</u>	<u>24</u>	<u>792</u>	
P10		<u>27</u>	<u>803</u>	<u>45</u>	<u>196</u>	<u>27</u>	<u>796</u>	
P11		<u>30</u>	<u>806</u>	<u>50</u>	<u>201</u>	<u>30</u>	<u>800</u>	
P12		<u>33</u>	<u>808</u>	<u>55</u>	<u>206</u>	<u>33</u>	<u>802</u>	
P13		<u>36</u>	<u>810</u>	<u>60</u>	<u>210</u>	<u>36</u>	<u>804</u>	
P14		<u>39</u>	<u>812</u>			<u>39</u>	<u>805</u>	
P15		<u>42</u>	<u>813</u>			<u>42</u>	<u>806</u>	
P16		<u>45</u>	<u>814</u>			<u>45</u>	<u>807</u>	
P17						<u>48</u>	<u>808</u>	
P18						<u>51</u>	<u>809</u>	
P19						<u>54</u>	<u>810</u>	
P20						<u>57</u>	<u>811</u>	
						<u>60</u>	<u>812</u>	

RL# 4670  
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Company Mull Drilling Company, Inc. Lease & Well No. Woerpel #4  
 Elevation -- Formation Kansas City Effective Pay -- Ft. Ticket No. 4671  
 Date 4/23/80 Sec. 13 Twp. 5S Range 31W County Rawlins State Kansas  
 Test Approved by Michael Kidwell Western Representative Ken Metzler

Formation Test No. 2 Interval Tested from 4062 ft. to 4106 ft. Total Depth 4106 ft.  
 Packer Depth 4057 ft. Size 6 3/4 in. Packer Depth -- ft. Size -- in.  
 Packer Depth 4062 ft. Size 6 3/4 in. Packer Depth -- ft. Size -- in.

Depth of Selective Zone Set --  
 Top Recorder Depth (Inside) 4097 ft. Recorder Number 1564 Cap. 3150  
 Bottom Recorder Depth (Outside) 4100 ft. Recorder Number 3085 Cap. 4500  
 Below Straddle Recorder Depth -- ft. Recorder Number -- Cap. --

Drilling Contractor Blue Goose Drlg. Rig #2 Drill Collar Length 311 I. D. 2.26 in.  
 Mud Type premix-chemical Viscosity 45 Weight Pipe Length -- I. D. -- in.  
 Weight 9.4 Water Loss 11.2 cc. Drill Pipe Length 3753 I. D. 3.8 in.  
 Chlorides 3,000 P.P.M. Test Tool Length 19 ft. Tool Size 5 1/2 in.  
 Jars: Make No Serial Number -- Anchor Length 44 ft. Size 5 1/2 in.  
 Did Well Flow? No Reversed Out No 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: Had fair blow in first opening; then dying before first shut-in.  
 Blow never started back.

Recovered 60 ft. of drilling mud (2% oil; 98% mud)  
 Recovered -- ft. of  
 Recovered -- ft. of  
 Recovered -- ft. of  
 Recovered -- ft. of  
 Remarks: Slid ten feet to bottom.

Time Set Packer(s) 7:15 ~~P.M.~~ A.M. Time Started Off Bottom 9:30 ~~P.M.~~ A.M. Maximum Temperature 126°  
 Initial Hydrostatic Pressure (A) 2138 P.S.I.  
 Initial Flow Period Minutes 30 (B) 70 P.S.I. to (C) 62 P.S.I.  
 Initial Closed In Period Minutes 45 (D) 967 P.S.I.  
 Final Flow Period Minutes 30 (E) 79 P.S.I. to (F) 71 P.S.I.  
 Final Closed In Period Minutes 30 (G) 732 P.S.I.  
 Final Hydrostatic Pressure (H) 2085 P.S.I.

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

Date 4/23/80 Test Ticket No. 4671  
 Recorder No. 1564 Capacity 3150 Location 4097 Ft.  
 Clock No. - Elevation = Well Temperature 126 °F

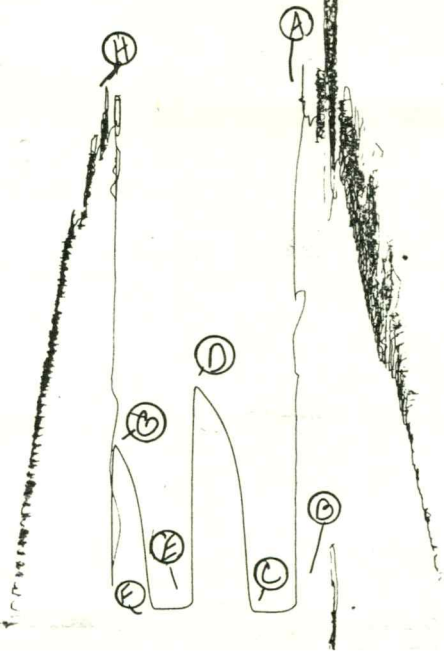
Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>2138</u> P.S.I.	Open Tool	<u>7:15A</u> M	
B First Initial Flow Pressure	<u>70</u> P.S.I.	First Flow Pressure	<u>30</u> Mins.	<u>30</u> Mins.
C First Final Flow Pressure	<u>62</u> P.S.I.	Initial Closed-in Pressure	<u>45</u> Mins.	<u>45</u> Mins.
D Initial Closed-in Pressure	<u>967</u> P.S.I.	Second Flow Pressure	<u>30</u> Mins.	<u>30</u> Mins.
E Second Initial Flow Pressure	<u>79</u> P.S.I.	Final Closed-in Pressure	<u>30</u> Mins.	<u>30</u> Mins.
F Second Final Flow Pressure	<u>71</u> P.S.I.			
G Final Closed-in Pressure	<u>732</u> P.S.I.			
H Final Hydrostatic Mud	<u>2085</u> P.S.I.			

**PRESSURE BREAKDOWN**

Point Mins.	First Flow Pressure	Initial Shut-In	Second Flow Pressure	Final Shut-In
	Breakdown: <u>6</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>6</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Breakdown: <u>10</u> Inc. of <u>3</u> mins. and a final inc. of <u>0</u> Min.
	Press.	Point Minutes	Press.	Point Minutes
P 1	<u>70</u>	<u>0</u>	<u>62</u>	<u>0</u>
P 2	<u>70</u>	<u>3</u>	<u>115</u>	<u>3</u>
P 3	<u>62</u>	<u>6</u>	<u>302</u>	<u>6</u>
P 4	<u>57</u>	<u>9</u>	<u>491</u>	<u>9</u>
P 5	<u>59</u>	<u>12</u>	<u>597</u>	<u>12</u>
P 6	<u>59</u>	<u>15</u>	<u>673</u>	<u>15</u>
P 7	<u>62</u>	<u>18</u>	<u>729</u>	<u>18</u>
P 8		<u>21</u>	<u>771</u>	<u>21</u>
P 9		<u>24</u>	<u>806</u>	<u>24</u>
P10		<u>27</u>	<u>840</u>	<u>27</u>
P11		<u>30</u>	<u>867</u>	<u>30</u>
P12		<u>33</u>	<u>893</u>	
P13		<u>36</u>	<u>914</u>	
P14		<u>39</u>	<u>936</u>	
P15		<u>42</u>	<u>954</u>	
P16		<u>45</u>	<u>967</u>	
P17				
P18				
P19				
P20				

1564

RT # 4671  
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Company Mull Drilling Company, Inc. Lease & Well No. Woerpel #4  
 Elevation -- Formation Kansas City Effective Pay ---- Ft. Ticket No. 4672  
 Date 4/24/80 Sec. 13 Twp 5S Range 31W County Rawlins State Kansas  
 Test Approved by Michael Kidwell Western Representative Ken Metzler

Formation Test No. 3 Interval Tested from 4008 ft. to 4018 ft. Total Depth 4180 ft.  
 Packer Depth 4008 ft. Size 6 3/4 in. Packer Depth - ft. Size - in.  
 Packer Depth 4018 ft. Size 6 3/4 in. Packer Depth - ft. Size - in.  
 Depth of Selective Zone Set -

Top Recorder Depth (Inside) 3999 ft. Recorder Number 1564 Cap. 3150  
 Bottom Recorder Depth (Outside) 4002 ft. Recorder Number 3085 Cap. 4500  
 Below Straddle Recorder Depth 4180 ft. Recorder Number 41 Cap. -

Drilling Contractor Blue Goose Drlg. Rig #2 Drill Collar Length 311 I. D. 2.26 in.  
 Mud Type premix-chemical Viscosity 60 Weight Pipe Length - I. D. - in.  
 Weight 9.5 Water Loss 8.8 cc. Drill Pipe Length 3847 I. D. 3.8 in.  
 Chlorides 3,000 P.P.M. Test Tool Length 21 ft. Tool Size 5 1/2 in.  
 Jars: Make No Serial Number - Anchor Length 10' between packers 5 1/2 in.  
 Did Well Flow? No Reversed Out No 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: Weak building to strong through both openings.

Recovered 165 ft. of gas in pipe  
 Recovered 45 ft. of clean oil - 38 gravity  
 Recovered 32 ft. of heavy oil cut mud (40% oil;60% mud)  
 Recovered 92 ft. of oil cut lsightly watery mud (15% oil;2% water;83% water)  
 Recovered 120 ft. of slightly oily and slightly watery mud (6% oil;7% water;87% mud)  
 Remarks: 162 feet of tail pipe  
Bottom packer did not hold

Time Set Packer(s) 2:27 ~~AM~~ P.M. Time Started Off Bottom 5:45 ~~AM~~ P.M. Maximum Temperature -  
 Initial Hydrostatic Pressure ..... (A) 2266 P.S.I.  
 Initial Flow Period ..... Minutes 30 (B) 70 P.S.I. to (C) 98 P.S.I.  
 Initial Closed In Period ..... Minutes 42 (D) 1204 P.S.I.  
 Final Flow Period ..... Minutes 60 (E) 126 P.S.I. to (F) 140 P.S.I.  
 Final Closed In Period ..... Minutes 57 (G) 1123 P.S.I.  
 Final Hydrostatic Pressure ..... (H) 2089 P.S.I.

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

Date 4/24/80 Test Ticket No. 4672  
 Recorder No. 1564 Capacity 3150 Location 3999 Ft.  
 Clock No. ---- Elevation -- Well Temperature -- °F

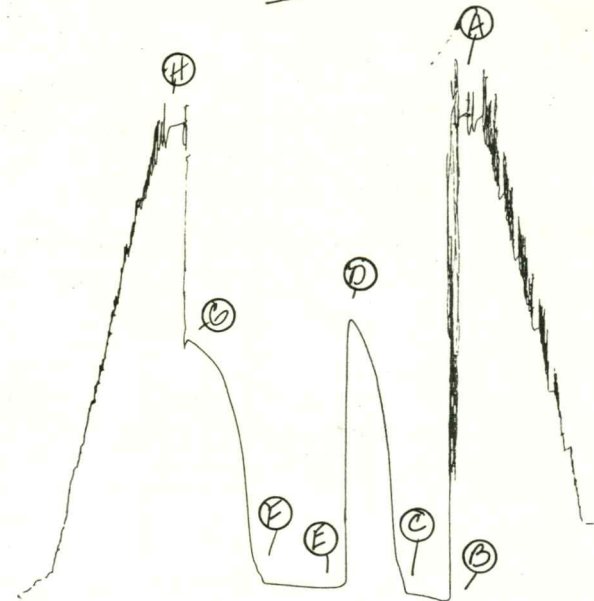
Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	2266	P.S.I.	2:27	M
B First Initial Flow Pressure	70	P.S.I.	30	Mins. 30 Mins.
C First Final Flow Pressure	98	P.S.I.	45	Mins. 42 Mins.
D Initial Closed-in Pressure	1204	P.S.I.	60	Mins. 60 Mins.
E Second Initial Flow Pressure	126	P.S.I.	60	Mins. 57 Mins.
F Second Final Flow Pressure	140	P.S.I.		
G Final Closed-in Pressure	1123	P.S.I.		
H Final Hydrostatic Mud	2089	P.S.I.		

**PRESSURE BREAKDOWN**

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: <u>6</u> Inc.		Breakdown: <u>14</u> Inc.		Breakdown: <u>12</u> Inc.		Breakdown: <u>19</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	0	98	0	126	0	140
P 2	5	3	157	5	126	3	176
P 3	10	6	207	10	122	6	210
P 4	15	9	316	15	122	9	266
P 5	20	12	622	20	122	12	455
P 6	25	15	776	25	124	15	654
P 7	30	18	870	30	126	18	751
P 8		21	937	35	129	21	810
P 9		24	1004	40	131	24	867
P10		27	1049	45	133	27	922
P11		30	1093	50	136	30	972
P12		33	1128	55	138	33	1002
P13		36	1161	60	140	36	1025
P14		39	1194			39	1046
P15		42	1204			42	1060
P16						45	1074
P17						48	1087
P18						51	1099
P19						54	1111
P20						57	1123

156.7

TKT # 4622  
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#3

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TK # 4672  
Below Straddle

