



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

Company Graves Drilling Co., Inc. Lease & Well No. McDaniel#1  
Elevation - Formation Indian Cave Effective Pay - Ft. Ticket No. 22485  
Date 3-8-77 Sec. 4 Twp. 32S Range 12W County Barber State Kansas  
Test Approved by Don Pate Western Representative Bill Hager

Formation Test No. 1 O.K.  Misrun  Interval Tested From 2568' to 2625' Total Depth 2625'  
Size Main Hole 7 7/8 Rat Hole  Conv.  B.T.  Damaged  Yes  No Conv.  B.T.  Damaged  Yes  No  
Top Packer Depth 2563 Ft. Size 6 3/4 Bottom Packer Depth 2568 Ft. Size 6 3/4

Straddle  Conv.  B.T.  Damaged  Yes  No Packer Depth - Ft. Size -  
Tool Size 5 1/2 OD Tool Joint Size 4 1/2 FH Anchor Length 57 Ft. Size 26' - 5 1/2 OD Surface Choke Size 3/4 In. Bottom Choke Size 3/4 In.

RECORDERS Depth 2615 Ft. Clock No. 9103 Depth 2618 Ft. Clock No. 5665  
Top Make Kuster Cap. 3000 No. 3474 Inside Inside Bottom Make Kuster Cap. 4150 No. 969 Inside  
Below Straddle: Depth - Rec. No. - Clock No. - Inside Inside Depth - Ft. Rec. No. - Clock No. - Outside

Time Set Packer 3:25P.M  
Tool Open I.F.P. From 3:27P.M. to 3:57P.M. - Hr. 30 Min. From (B) 71 P.S.I. To (C) 315 P.S.I.  
Tool Closed I.C.I.P. From 3:57P.M. to 4:27P.M. - Hr. 30 Min (D) 1088 P.S.I.  
Tool Open F.F.P. From 4:27P.M. to 5:27P.M. - Hr. 60 Min. From (E) 352 P.S.I. To (F) 582 P.S.I.  
Tool Closed F.C.I.P. From 5:27P.M. to 6:12P.M. - Hr. 45 Min. (G) 1081 P.S.I.  
Initial Hydrostatic Pressure (A) 1274 P.S.I. Final Hydrostatic Pressure (H) 1274 P.S.I. Maximum Temp. 96

**INFORMATION**

BLOW Good blow throughout test.

Did Well Flow -  Yes  No Recovery Total Ft. 1170' of salt water.

Reversed Out  Yes  No Mud Type Premix Viscosity 34 Weight 9.2 Water Loss - cc. Chlorides 31,000 PPM

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.Co., Inc. Length Drill Pipe? 2158 Ft. I.D. Drill Pipe 3.8 In. Tool Joint Size 4 1/2 FH In.  
Length Weight Pipe 270 Ft. I.D. Weight Pipe 2 1/4 lb. Tool Joint Size 4 1/2 XH In. Length Drill Collars 120 Ft. I.D. Drill Collars 2 1/4 In.  
Tool Joint Size 4 1/2 XH In. Length D.S.T. Tool 77 Ft.

Remarks:

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

Date 3-8-77 Test Ticket No. 22485  
 Recorder No. 3474 Capacity 3000 Location 2615 Ft.  
 Clock No. 9103 Elevation - Well Temperature 96 °F

Point	Pressure			Time	
				Given	Computed
A Initial Hydrostatic Mud	<u>1274</u>	<u>P.S.I.</u>	Open Tool	<u>3:25P.</u>	<u>M</u>
B First Initial Flow Pressure	<u>71</u>	<u>P.S.I.</u>	First Flow Pressure	<u>30</u>	<u>Mins. 30 Mins.</u>
C First Final Flow Pressure	<u>315</u>	<u>P.S.I.</u>	Initial Closed-in Pressure	<u>30</u>	<u>Mins. 30 Mins.</u>
D Initial Closed-in Pressure	<u>1088</u>	<u>P.S.I.</u>	Second Flow Pressure	<u>60</u>	<u>Mins. 60 Mins.</u>
E Second Initial Flow Pressure	<u>352</u>	<u>P.S.I.</u>	Final Closed-in Pressure	<u>45</u>	<u>Mins. 45 Mins.</u>
F Second Final Flow Pressure	<u>582</u>	<u>P.S.I.</u>			
G Final Closed-in Pressure	<u>1081</u>	<u>P.S.I.</u>			
H Final Hydrostatic Mud	<u>1274</u>	<u>P.S.I.</u>			

**PRESSURE BREAKDOWN**

Point Mins.	First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
	Breakdown:	Inc.	Breakdown:	Inc.	Breakdown:	Inc.	Breakdown:	Inc.
	<u>6</u>	<u>Inc.</u>	<u>10</u>	<u>Inc.</u>	<u>12</u>	<u>Inc.</u>	<u>15</u>	<u>Inc.</u>
	<u>of 5</u>	<u>mins. and a</u>	<u>of 3</u>	<u>mins. and a</u>	<u>of 5</u>	<u>mins. and a</u>	<u>of 3</u>	<u>mins. and a</u>
	<u>final inc. of 0</u>	<u>Min.</u>						
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.	
P 1 <u>0</u>	<u>71</u>	<u>0</u>	<u>315</u>	<u>0</u>	<u>352</u>	<u>0</u>	<u>582</u>	
P 2 <u>5</u>	<u>125</u>	<u>3</u>	<u>900</u>	<u>5</u>	<u>355</u>	<u>3</u>	<u>955</u>	
P 3 <u>10</u>	<u>192</u>	<u>6</u>	<u>979</u>	<u>10</u>	<u>381</u>	<u>6</u>	<u>989</u>	
P 4 <u>15</u>	<u>228</u>	<u>9</u>	<u>1012</u>	<u>15</u>	<u>408</u>	<u>9</u>	<u>1008</u>	
P 5 <u>20</u>	<u>260</u>	<u>12</u>	<u>1035</u>	<u>20</u>	<u>429</u>	<u>12</u>	<u>1021</u>	
P 6 <u>25</u>	<u>305</u>	<u>15</u>	<u>1049</u>	<u>25</u>	<u>454</u>	<u>15</u>	<u>1032</u>	
P 7 <u>30</u>	<u>315</u>	<u>18</u>	<u>1061</u>	<u>30</u>	<u>474</u>	<u>18</u>	<u>1042</u>	
P 8 _____	_____	<u>21</u>	<u>1069</u>	<u>35</u>	<u>493</u>	<u>21</u>	<u>1050</u>	
P 9 _____	_____	<u>24</u>	<u>1076</u>	<u>40</u>	<u>511</u>	<u>24</u>	<u>1055</u>	
P10 _____	_____	<u>27</u>	<u>1085</u>	<u>45</u>	<u>527</u>	<u>27</u>	<u>1061</u>	
P11 _____	_____	<u>30</u>	<u>1088</u>	<u>50</u>	<u>547</u>	<u>30</u>	<u>1065</u>	
P12 _____	_____	_____	_____	<u>55</u>	<u>565</u>	<u>33</u>	<u>1068</u>	
P13 _____	_____	_____	_____	<u>60</u>	<u>582</u>	<u>36</u>	<u>1073</u>	
P14 _____	_____	_____	_____	_____	_____	<u>39</u>	<u>1077</u>	
P15 _____	_____	_____	_____	_____	_____	<u>42</u>	<u>1079</u>	
P16 _____	_____	_____	_____	_____	_____	<u>45</u>	<u>1081</u>	
P17 _____	_____	_____	_____	_____	_____	_____	_____	
P18 _____	_____	_____	_____	_____	_____	_____	_____	
P19 _____	_____	_____	_____	_____	_____	_____	_____	
P20 _____	_____	_____	_____	_____	_____	_____	_____	



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Company Graves Drilling Co., Inc. Lease & Well No. McDaniel #1  
Elevation 1485 Kelly Bushing Formation Douglas Effective Pay - Ft. Ticket No. 22473  
Date 3-10-77 Sec. 4 Twp. 32S Range 12W County Barber State Kansas  
Test Approved by Fredrick W. Stump Western Representative Lonnie J. Cline

Formation Test No. 2 O.K.  Misrun  Interval Tested From 3532' to 3573' Total Depth 3573'  
Size Main Hole 77/8 Rat Hole  Conv.  B.T.  Damaged  Yes  No Conv.  B.T.  Damaged  Yes  No  
Top Packer Depth 3527 Ft. Size 6 3/4 Bottom Packer Depth 3532 Ft. Size 6 3/4  
Straddle  Conv.  B.T.  Damaged  Yes  No Packer Depth - Ft. Size -  
Tool Size 5 1/2 OD Tool Joint Size 4 1/2 FH Anchor Length 41 Ft. Size 5 1/2 OD Surface Choke Size 3/4 In. Bottom Choke Size 3/4 In.

RECORDERS Depth 3542 Ft. Clock No. 4763 Depth 3545 Ft. Clock No. 6866  
Top Make Kuster Cap. 4150 No. 2604 <sup>Inside</sup> ~~Outside~~ Bottom Make Kuster Cap. 4000 No. 3660 <sup>Inside</sup> ~~Outside~~  
Below Straddle: Depth - Rec. No. - Clock No. - <sup>Inside</sup> ~~Outside~~ Depth - Ft. Rec. No. - Clock No. - <sup>Inside</sup> ~~Outside~~

Time Set Packer 5:22 P M  
Tool Open I.F.P. From 5:25 P M. to 5:40 P M. - Hr. 15 Min. From (B) 92 P.S.I. To (C) 417 P.S.I.  
Tool Closed I.C.I.P. From 5:40 P M. to 6:10 P M. - Hr. 30 Min (D) 1406 P.S.I.  
Tool Open F.F.P. From 6:10 P M. to 7:10 P M. 1 Hr. - Min. From (E) 445 P.S.I. To (F) 990 P.S.I.  
Tool Closed F.C.I.P. From 7:10 P M. to 7:40 P M. - Hr. 30 Min. (G) 1395 P.S.I.  
Initial Hydrostatic Pressure (A) 1668 P.S.I. Final Hydrostatic Pressure (H) 1649 P.S.I. Maximum Temp. 119

**INFORMATION**

BLOW Strong blow throughout test.

Did Well Flow - Yes  No  Recovery Total Ft. 2,050' salt water.

Reversed Out - Yes  No  Mud Type premix Viscosity 34 Weight 9.1 Water Loss 48.0 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. Co., Inc. Length Drill Pipe? 3025 Ft. I.D. Drill Pipe 3.9 In. Tool Joint Size 4 1/2 FH In.  
Length Weight Pipe 275 Ft. I.D. Weight Pipe 2.9 In. Tool Joint Size 4 1/2 XH In. Length Drill Collars 123 Ft. I.D. Drill Collars 2 1/4 In.  
Tool Joint Size 4 1/2 H90 In. Length D.S.T. Tool 63 Ft.

Remarks:

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

Date 3-10-77 Test Ticket No. 22473  
 Recorder No. 2604 Capacity 4150 Location 3542 Ft.  
 Clock No. 4763 Elevation 1485 Kelly Bushing Well Temperature 119 °F

Point	Pressure		Open Tool	Time Given	Time Computed
A Initial Hydrostatic Mud	1668	P.S.I.		5:22 P <sub>M</sub>	
B First Initial Flow Pressure	92	P.S.I.	First Flow Pressure	15 Mins.	15 Mins.
C First Final Flow Pressure	417	P.S.I.	Initial Closed-in Pressure	30 Mins.	30 Mins.
D Initial Closed-in Pressure	1406	P.S.I.	Second Flow Pressure	60 Mins.	60 Mins.
E Second Initial Flow Pressure	445	P.S.I.	Final Closed-in Pressure	30 Mins.	36 Mins.
F Second Final Flow Pressure	990	P.S.I.			
G Final Closed-in Pressure	1395	P.S.I.			
H Final Hydrostatic Mud	1649	P.S.I.			

**PRESSURE BREAKDOWN**

**First Flow Pressure**  
 Breakdown: 3 Inc.  
 of 5 mins. and a  
 final inc. of 0 Min.

**Initial Shut-In**  
 Breakdown: 10 Inc.  
 of 3 mins. and a  
 final inc. of 0 Min.

**Second Flow Pressure**  
 Breakdown: 12 Inc.  
 of 5 mins. and a  
 final inc. of 0 Min.

**Final Shut-In**  
 Breakdown: 12 Inc.  
 of 3 mins. and a  
 final inc. of 0 Min.

Point Mins.	First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>92</u>	<u>0</u>	<u>417</u>	<u>0</u>	<u>445</u>	<u>0</u>	<u>990</u>	
P 2 <u>5</u>	<u>234</u>	<u>3</u>	<u>1163</u>	<u>5</u>	<u>523</u>	<u>3</u>	<u>1293</u>	
P 3 <u>10</u>	<u>331</u>	<u>6</u>	<u>1292</u>	<u>10</u>	<u>588</u>	<u>6</u>	<u>1325</u>	
P 4 <u>15</u>	<u>417</u>	<u>9</u>	<u>1332</u>	<u>15</u>	<u>646</u>	<u>9</u>	<u>1345</u>	
P 5		<u>12</u>	<u>1355</u>	<u>20</u>	<u>694</u>	<u>12</u>	<u>1355</u>	
P 6		<u>15</u>	<u>1370</u>	<u>25</u>	<u>745</u>	<u>15</u>	<u>1365</u>	
P 7		<u>18</u>	<u>1381</u>	<u>30</u>	<u>786</u>	<u>18</u>	<u>1372</u>	
P 8		<u>21</u>	<u>1389</u>	<u>35</u>	<u>826</u>	<u>21</u>	<u>1378</u>	
P 9		<u>24</u>	<u>1397</u>	<u>40</u>	<u>864</u>	<u>24</u>	<u>1382</u>	
P10		<u>27</u>	<u>1402</u>	<u>45</u>	<u>899</u>	<u>27</u>	<u>1387</u>	
P11		<u>30</u>	<u>1406</u>	<u>50</u>	<u>931</u>	<u>30</u>	<u>1391</u>	
P12				<u>55</u>	<u>962</u>	<u>33</u>	<u>1393</u>	
P13				<u>60</u>	<u>990</u>	<u>36</u>	<u>1395</u>	
P14								
P15								
P16								
P17								
P18								
P19								
P20								



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Company Graves Drilling Co., Inc. Lease & Well No. McDaniel #1  
 Elevation 1485 Kelly Bushing Formation Mississippi Effective Pay - Ft. Ticket No. 22475  
 Date 3-12-77 Sec. 4 Twp. 32S Range 12W County Barber State Kansas  
 Test Approved by Fredrick W. Stump Western Representative Lonnie J. Cline

Formation Test No. 3 O.K.  Misrun  Interval Tested From 4208' to 4235' Total Depth 4235'  
 Size Main Hole 77/8 Rat Hole  Conv.  B.T.  Damaged  Yes  No Conv.  B.T.  Damaged  Yes  No  
 Top Packer Depth 4203 Ft. Size 6 3/4 Bottom Packer Depth 4208 Ft. Size 6 3/4  
 Straddle  Conv.  -B.T.  Damaged  Yes  No Packer Depth  Ft. Size   
 Tool Size 5 1/2 OD Tool Joint Size 4 1/2 FH Anchor Length 27 Ft. Size 5 1/2 OD Surface Choke Size 3/4 In. Bottom Choke Size 3/4 In.

RECORDERS Depth 4227 Ft. Clock No. 4763 Depth 4230 Ft. Clock No. 6866  
 Top Make Kuster Cap. 4150 No. 2604 <sup>Inside</sup> ~~Outside~~ Bottom Make Kuster Cap. 4000 No. 3660 <sup>Inside</sup> ~~Outside~~  
 Below Straddle: Depth  Rec. No.  Clock No.  <sup>Inside</sup> ~~Outside~~ Depth  Ft. Rec. No.  Clock No.  <sup>Inside</sup> ~~Outside~~

Time Set Packer 4:03 P.M.  
 Tool Open I.F.P. From 4:05 P.M. to 4:20 P.M. - Hr. 15 Min. From (B) 58 P.S.I. To (C) 52 P.S.I.  
 Tool Closed I.C.I.P. From 4:20 P.M. to 5:05 P.M. - Hr. 45 Min (D) 782 P.S.I.  
 Tool Open F.F.P. From 5:05 P.M. to 6:05 P.M. 1 Hr. - Min. From (E) 46 P.S.I. To (F) 50 P.S.I.  
 Tool Closed F.C.I.P. From 6:05 P.M. to 6:50 P.M. - Hr. 45 Min. (G) 791 P.S.I.  
 Initial Hydrostatic Pressure (A) 2023 P.S.I. Final Hydrostatic Pressure (H) 2004 P.S.I. Maximum Temp. 124

**INFORMATION**

BLOW Good blow throughout test.

Did Well Flow - Yes  No  Recovery Total Ft. 90' gas cut drilling mud, 2430' gas in pipe.

Reversed Out - Yes  No  Mud Type premix Viscosity 38 Weight 9.0 Water Loss 9.6 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 Co. Tools Length Drill Pipe? 3788 Ft. I.D. Drill Pipe 3.9 In. Tool Joint Size 4 1/2 FH In.  
 Length Weight Pipe 275 Ft. I.D. Weight Pipe 2.9 In. Tool Joint Size 4 1/2 FH In. Length Drill Collars 123 Ft. I.D. Drill Collars 2 1/4 In.  
 Tool Joint Size 4 1/2 H90 In. Length D.S.T. Tool 49 Ft.

Remarks:

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

Date 3-12-77

Test Ticket No. 22475

Recorder No. 2604 Capacity 4150

Location 4227 Ft.

Clock No. 4763 Elevation 1485 Kelly Bushing

Well Temperature 124 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>2023</u> P.S.I.	Open Tool	<u>4:03</u> P.M.	
B First Initial Flow Pressure	<u>58</u> P.S.I.	First Flow Pressure	<u>15</u> Mins.	<u>15</u> Mins.
C First Final Flow Pressure	<u>52</u> P.S.I.	Initial Closed-in Pressure	<u>45</u> Mins.	<u>48</u> Mins.
D Initial Closed-in Pressure	<u>782</u> P.S.I.	Second Flow Pressure	<u>60</u> Mins.	<u>60</u> Mins.
E Second Initial Flow Pressure	<u>46</u> P.S.I.	Final Closed-in Pressure	<u>45</u> Mins.	<u>48</u> Mins.
F Second Final Flow Pressure	<u>50</u> P.S.I.			
G Final Closed-in Pressure	<u>791</u> P.S.I.			
H Final Hydrostatic Mud	<u>2004</u> P.S.I.			

**PRESSURE BREAKDOWN**

**First Flow Pressure**  
Breakdown: 3 Inc.  
of 5 mins. and a  
final inc. of 0 Min.

**Initial Shut-In**  
Breakdown: 16 Inc.  
of 3 mins. and a  
final inc. of 0 Min.

**Second Flow Pressure**  
Breakdown: 12 Inc.  
of 5 mins. and a  
final inc. of 0 Min.

**Final Shut-In**  
Breakdown: 16 Inc.  
of 3 mins. and a  
final inc. of 0 Min.

Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>58</u>	<u>0</u>	<u>52</u>	<u>0</u>	<u>46</u>	<u>0</u>	<u>50</u>
P 2 <u>5</u>	<u>52</u>	<u>3</u>	<u>120</u>	<u>5</u>	<u>46</u>	<u>3</u>	<u>121</u>
P 3 <u>10</u>	<u>52</u>	<u>6</u>	<u>174</u>	<u>10</u>	<u>46</u>	<u>6</u>	<u>181</u>
P 4 <u>15</u>	<u>52</u>	<u>9</u>	<u>233</u>	<u>15</u>	<u>46</u>	<u>9</u>	<u>243</u>
P 5 _____	_____	<u>12</u>	<u>284</u>	<u>20</u>	<u>47</u>	<u>12</u>	<u>303</u>
P 6 _____	_____	<u>15</u>	<u>342</u>	<u>25</u>	<u>47</u>	<u>15</u>	<u>357</u>
P 7 _____	_____	<u>18</u>	<u>397</u>	<u>30</u>	<u>47</u>	<u>18</u>	<u>408</u>
P 8 _____	_____	<u>21</u>	<u>449</u>	<u>35</u>	<u>48</u>	<u>21</u>	<u>450</u>
P 9 _____	_____	<u>24</u>	<u>496</u>	<u>40</u>	<u>48</u>	<u>24</u>	<u>500</u>
P10 _____	_____	<u>27</u>	<u>542</u>	<u>45</u>	<u>49</u>	<u>27</u>	<u>543</u>
P11 _____	_____	<u>30</u>	<u>582</u>	<u>50</u>	<u>49</u>	<u>30</u>	<u>588</u>
P12 _____	_____	<u>33</u>	<u>619</u>	<u>55</u>	<u>50</u>	<u>33</u>	<u>625</u>
P13 _____	_____	<u>36</u>	<u>657</u>	<u>60</u>	<u>50</u>	<u>36</u>	<u>667</u>
P14 _____	_____	<u>39</u>	<u>694</u>	_____	_____	<u>39</u>	<u>703</u>
P15 _____	_____	<u>42</u>	<u>724</u>	_____	_____	<u>42</u>	<u>736</u>
P16 _____	_____	<u>45</u>	<u>759</u>	_____	_____	<u>45</u>	<u>768</u>
P17 _____	_____	<u>48</u>	<u>782</u>	_____	_____	<u>48</u>	<u>791</u>
P18 _____	_____	_____	_____	_____	_____	_____	_____
P19 _____	_____	_____	_____	_____	_____	_____	_____
P20 _____	_____	_____	_____	_____	_____	_____	_____