

TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Raymond Oil Company**

P.O. Box 48788
Wichita, KS 67201-8788

ATTN: Clarke Sandberg

32-1S-35W Rawlins KS

McKain #1

Start Date: 2001.10.21 @ 01:20:29

End Date: 2001.10.21 @ 09:24:14

Job Ticket #: 14885 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Raymond Oil Company
P.O. Box 48788
Wichita, KS 67201-8788
ATTN: Clarke Sandberg

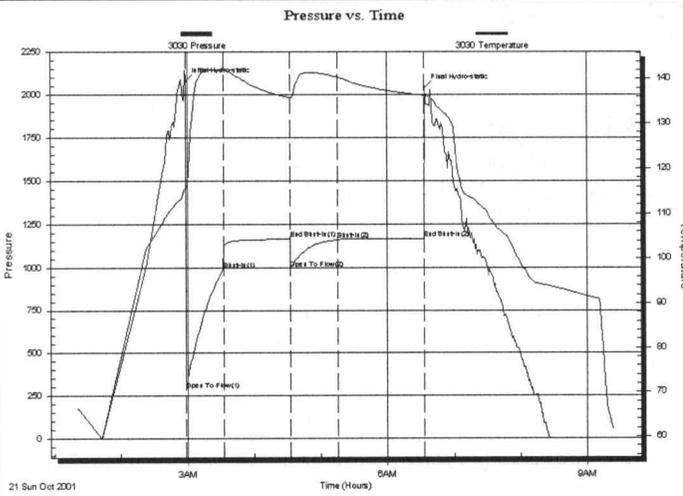
McKain #1
32-1S-35W Rawlins KS
Job Ticket: 14885 **DST#: 1**
Test Start: 2001.10.21 @ 01:20:29

GENERAL INFORMATION:

Formation: **L/KC 50'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:58:59
Time Test Ended: 09:24:14
Interval: **4195.00 ft (KB) To 4246.00 ft (KB) (TVD)**
Total Depth: 4246.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole
Tester: Rod Steinbrink
Unit No: 22
Reference Elevations: 3253.00 ft (KB)
3248.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 3030 Inside
Press@RunDepth: 1158.54 psig @ 4196.00 ft (KB)
Start Date: 2001.10.21 End Date: 2001.10.21
Start Time: 01:20:34 End Time: 09:24:13
Capacity: 7000.00 psig
Last Calib.: 1899.12.30
Time On Btm: 2001.10.21 @ 02:58:44
Time Off Btm: 2001.10.21 @ 06:34:14

TEST COMMENT: IF; Strong blow off btm in 1 1/2 min
IS; No return
FF; Fair to strong off btm in 2 1/2 min
FS; No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2078.37	115.71	Initial Hydro-static
1	283.23	115.79	Open To Flow (1)
34	986.86	142.02	Shut-In(1)
94	1164.33	135.77	End Shut-In(1)
94	992.93	135.77	Open To Flow (2)
137	1158.54	140.36	Shut-In(2)
215	1166.23	136.31	End Shut-In(2)
216	2041.48	136.29	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
240.00	Slightly OWCM 2%oil 58%w tr 40%mud	1.18
240.00	Slightly OCW 2%oil 98%w tr	1.54
2050.00	Water	28.76

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
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DRILL STEM TEST REPORT

TOOL DIAGRAM

Raymond Oil Company

McKain #1

P.O. Box 48788
Wichita, KS 67201-8788

32-1S-35W Rawlins KS

Job Ticket: 14885

DST#: 1

ATTN: Clarke Sandberg

Test Start: 2001.10.21 @ 01:20:29

Tool Information

Drill Pipe:	Length: 3740.00 ft	Diameter: 3.80 inches	Volume: 52.46 bbl	Tool Weight: 1800.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 440.00 ft	Diameter: 2.25 inches	Volume: 2.16 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 54.62 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4195.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	51.00 ft			
Tool Length:	73.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
S.I. Tool	5.00			4178.00	
HMV	5.00			4183.00	
Safety Joint	2.00			4185.00	
Packer	5.00			4190.00	22.00 Bottom Of Top Packer
Packer	5.00			4195.00	
Stubb	1.00			4196.00	
Recorder	0.00	3030	Inside	4196.00	
Perforations	12.00			4208.00	
C.O. Sub	1.00			4209.00	
Anchor	31.00			4240.00	
C.O. Sub	1.00			4241.00	
Recorder	0.00	13371	Outside	4241.00	
Bullnose	5.00			4246.00	51.00 Bottom Packers & Anchor

Total Tool Length: 73.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Raymond Oil Company

McKain #1

P.O. Box 48788
Wichita, KS 67201-8788

32-1S-35W Rawlins KS

Job Ticket: 14885

DST#: 1

ATTN: Clarke Sandberg

Test Start: 2001.10.21 @ 01:20:29

Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 52.00 sec/qt
Water Loss: 9.55 in³
Resistivity: ohm.m
Salinity: 1000.00 ppm
Filter Cake: inches

Cushion Type:
Cushion Length: ft
Cushion Volume: bbl
Gas Cushion Type:
Gas Cushion Pressure: psig

Oil API: deg API
Water Salinity: 30000 ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
240.00	Slightly OWCM 2%oil 58%w tr 40%mud	1.180
240.00	Slightly OCW 2%oil 98%w tr	1.545
2050.00	Water	28.756

Total Length: 2530.00 ft Total Volume: 31.481 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: RW .24 @ 70 deg =

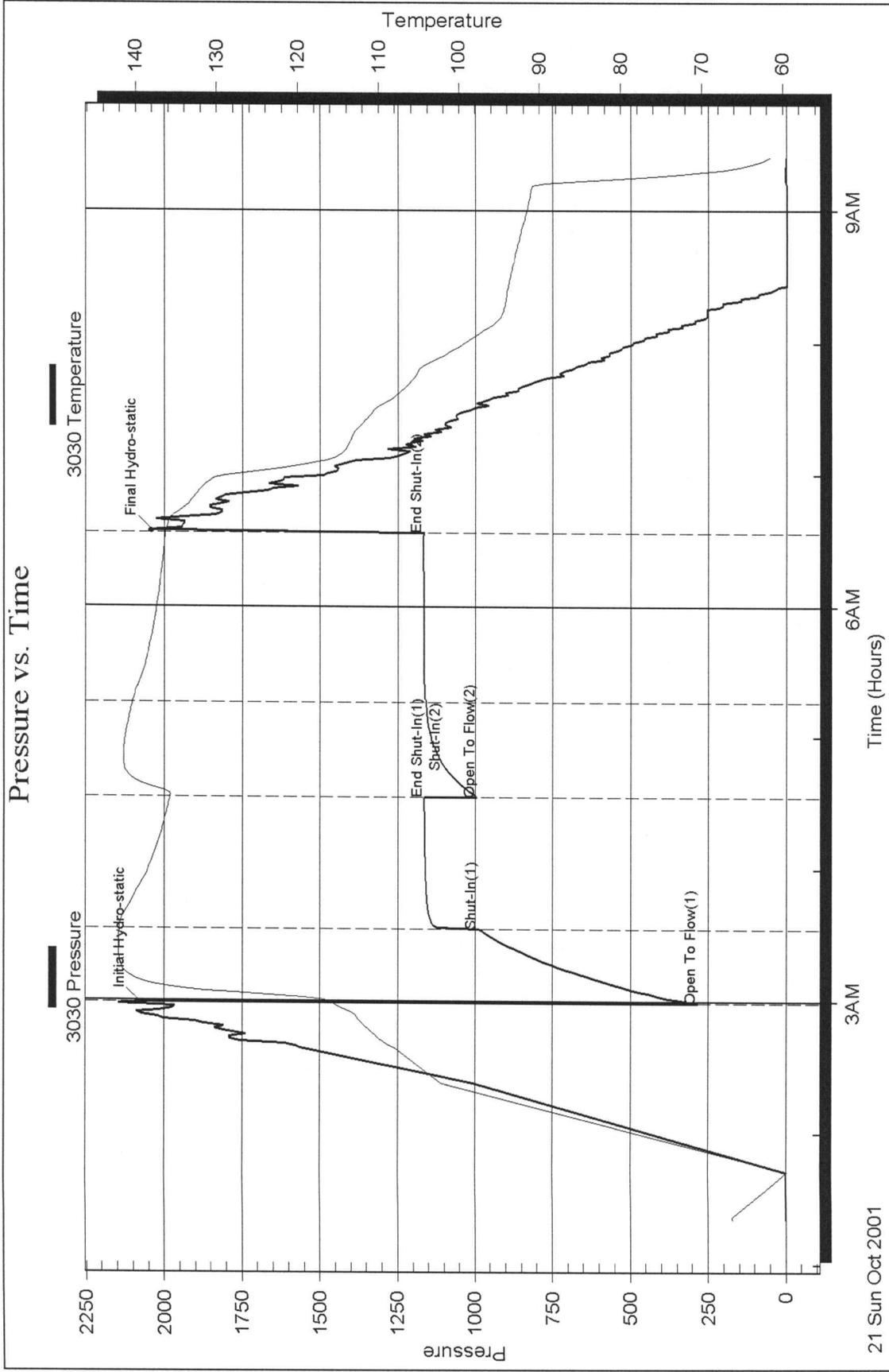
Serial #: 3030

Inside

Raymond Oil Company

32-1S-35W Raw/lins KS

DST Test Number: 1

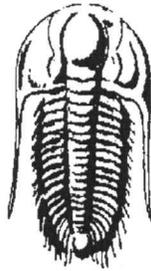


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TRILOBITE
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DRILL STEM TEST REPORT

Prepared For: **Raymond Oil Company**

P.O. Box 48788
Wichita, KS 67201-8788

ATTN: Clarke Sandberg

32-1S-35W Rawlins KS

McKain #1

Start Date: 2001.10.21 @ 22:07:09

End Date: 2001.10.22 @ 05:49:24

Job Ticket #: 14886 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620



**TRILOBITE
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DRILL STEM TEST REPORT

Raymond Oil Company
P.O. Box 48788
Wichita, KS 67201-8788
ATTN: Clarke Sandberg

McKain #1
32-1S-35W Rawlins KS
Job Ticket: 14886 **DST#: 2**
Test Start: 2001.10.21 @ 22:07:09

GENERAL INFORMATION:

Formation: **L/KC 100' zone**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 00:09:09
Time Test Ended: 05:49:24
Interval: **4261.00 ft (KB) To 4298.00 ft (KB) (TVD)**
Total Depth: 4298.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole
Tester: Rod Steinbrink
Unit No: 22
Reference Elevations: 3253.00 ft (KB)
3248.00 ft (CF)
KB to GR/CF: 5.00 ft

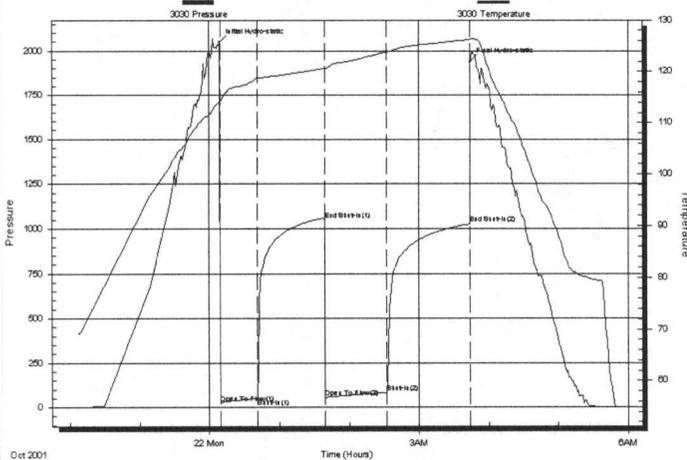
Serial #: 3030

Inside

Press@RunDepth: 82.75 psig @ 4262.00 ft (KB) Capacity: 7000.00 psig
Start Date: 2001.10.21 End Date: 2001.10.22 Last Calib.: 1899.12.30
Start Time: 22:07:14 End Time: 05:49:23 Time On Btm: 2001.10.22 @ 00:08:54
Time Off Btm: 2001.10.22 @ 03:44:08

TEST COMMENT: If; Weak building blow to 3"
IS; No return
FF; Weak return in 10 mins steady thru
FS; No return

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2048.53	114.11	Initial Hydro-static
1	23.03	114.16	Open To Flow (1)
32	50.15	118.71	Shut-In(1)
90	1048.11	120.67	End Shut-In(1)
91	53.99	120.66	Open To Flow (2)
144	82.75	123.84	Shut-In(2)
215	1026.12	126.26	End Shut-In(2)
216	1938.14	126.27	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
90.00	Slightly Oil Stained WM 2%oil 38%w tr 60°	0.44
60.00	Muddy Water 80%w tr 20%mud	0.30

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
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DRILL STEM TEST REPORT

TOOL DIAGRAM

Raymond Oil Company

McKain #1

P.O. Box 48788
Wichita, KS 67201-8788

32-1S-35W Rawlins KS

Job Ticket: 14886

DST#: 2

ATTN: Clarke Sandberg

Test Start: 2001.10.21 @ 22:07:09

Tool Information

Drill Pipe:	Length: 3804.00 ft	Diameter: 3.80 inches	Volume: 53.36 bbl	Tool Weight: 1800.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 440.00 ft	Diameter: 2.25 inches	Volume: 2.16 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 55.52 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4261.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	37.00 ft			
Tool Length:	59.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
S.I. Tool	5.00			4244.00	
HMV	5.00			4249.00	
Safety Joint	2.00			4251.00	
Packer	5.00			4256.00	22.00 Bottom Of Top Packer
Packer	5.00			4261.00	
Stubb	1.00			4262.00	
Recorder	0.00	3030	Inside	4262.00	
Perforations	31.00			4293.00	
Recorder	0.00	13371	Outside	4293.00	
Bullnose	5.00			4298.00	37.00 Bottom Packers & Anchor
Total Tool Length:	59.00				



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Raymond Oil Company

McKain #1

P.O. Box 48788
Wichita, KS 67201-8788

32-1S-35W Rawlins KS

Job Ticket: 14886 DST#: 2

ATTN: Clarke Sandberg

Test Start: 2001.10.21 @ 22:07:09

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	25000 ppm
Viscosity: 48.00 sec/qt	Cushion Volume: bbl		
Water Loss: 9.54 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1000.00 ppm			
Filter Cake: inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
90.00	Slightly Oil Stained WM 2%oil 38%w tr 60%	0.443
60.00	Muddy Water 80%w tr 20%mud	0.295

Total Length: 150.00 ft Total Volume: 0.738 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: RW .30 @ 65 deg =

Serial #: 3030

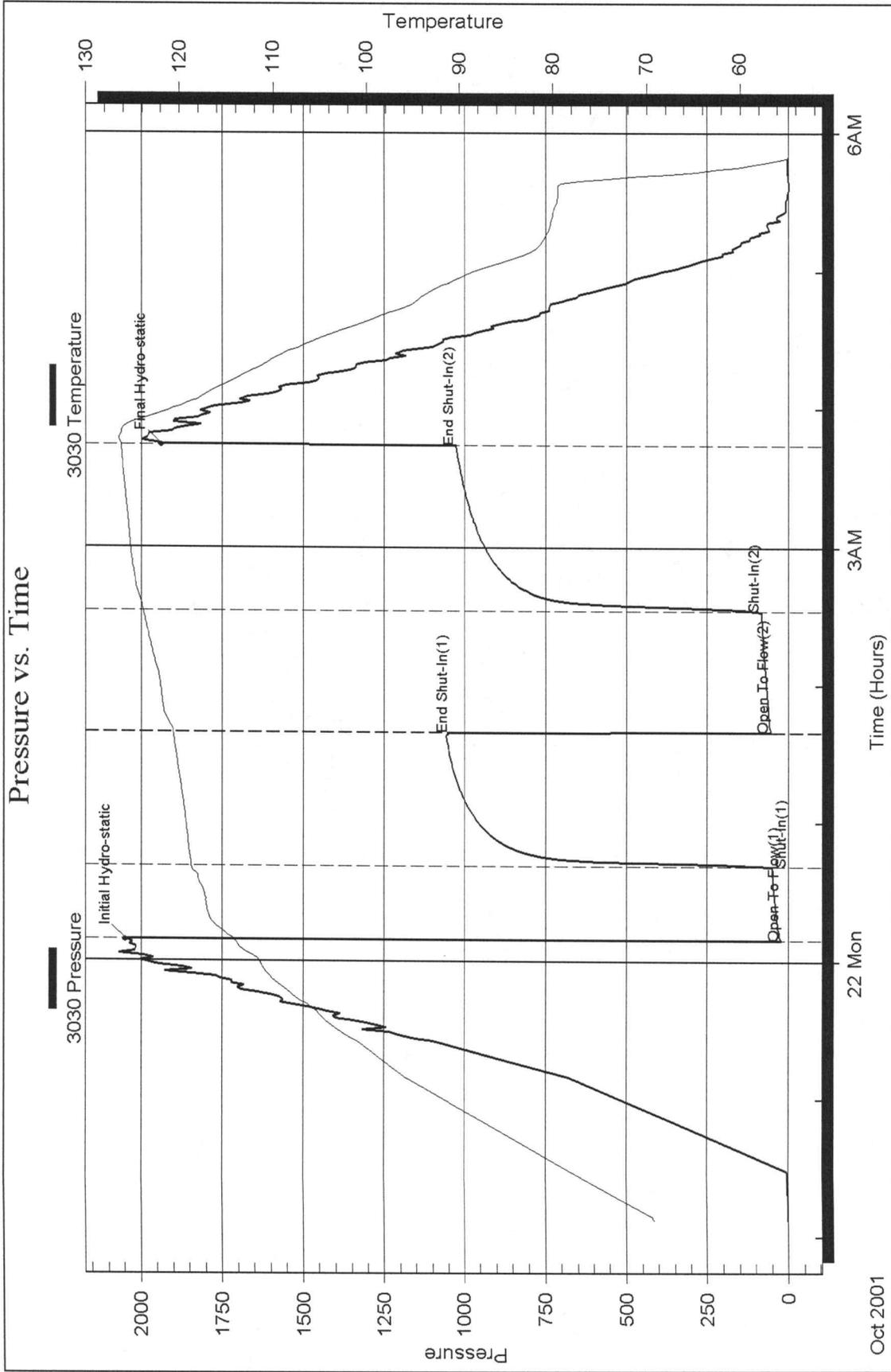
Inside

Raymond Oil Company

32-1S-35W Raw lins KS

DST Test Number: 2

Pressure vs. Time





DRILL STEM TEST REPORT

Prepared For: **Raymond Oil Company**

P.O. Box 48788
Wichita, KS 67201-8788

ATTN: Clarke Sandberg

32-1S-35W Rawlins KS

McKain #1

Start Date: 2001.10.23 @ 18:40:18

End Date: 2001.10.24 @ 01:48:33

Job Ticket #: 14887 DST #: 3

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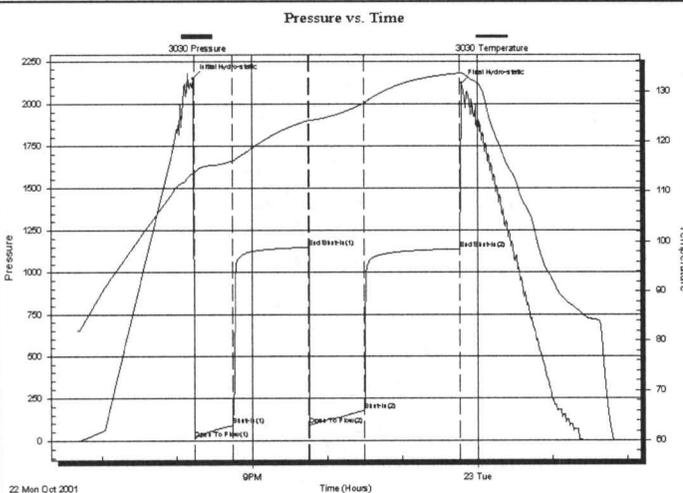
McKain #1
32-1S-35W Rawlins KS
Job Ticket: 14887 **DST#: 3**
Test Start: 2001.10.23 @ 18:40:18

GENERAL INFORMATION:

Formation: **L/KC 180' zone**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 20:13:48
Time Test Ended: 01:48:33
Interval: **4345.00 ft (KB) To 4398.00 ft (KB) (TVD)**
Total Depth: 4246.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole
Tester: Rod Steinbrink
Unit No: 22
Reference Elevations: 3253.00 ft (KB)
3248.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 3030 **Inside**
Press@RunDepth: 176.78 psig @ 4346.00 ft (KB) Capacity: 7000.00 psig
Start Date: 2001.10.22 End Date: 2001.10.23 Last Calib.: 1899.12.30
Start Time: 18:40:23 End Time: 01:48:32 Time On Btm: 2001.10.22 @ 20:13:18
Time Off Btm: 2001.10.22 @ 23:47:33

TEST COMMENT:



PRESSURE SUMMARY

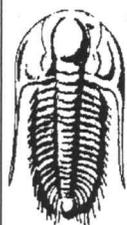
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2149.97	113.66	Initial Hydro-static
1	14.42	113.73	Open To Flow (1)
32	91.41	116.18	Shut-In(1)
92	1149.99	124.21	End Shut-In(1)
93	93.23	124.27	Open To Flow (2)
136	176.78	127.67	Shut-In(2)
213	1140.99	133.60	End Shut-In(2)
215	2119.28	133.63	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
140.00	WM 15%w tr 85% mud	0.69
240.00	MW 90%w tr 10% mud	1.18

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
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DRILL STEM TEST REPORT

TOOL DIAGRAM

Raymond Oil Company

McKain #1

P.O. Box 48788
Wichita, KS 67201-8788

32-1S-35W Rawlins KS

Job Ticket: 14887

DST#: 3

ATTN: Clarke Sandberg

Test Start: 2001.10.23 @ 18:40:18

Tool Information

Drill Pipe:	Length: 3906.00 ft	Diameter: 3.80 inches	Volume: 54.79 bbl	Tool Weight: 1800.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 440.00 ft	Diameter: 2.25 inches	Volume: 2.16 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 56.95 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4345.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	44.00 ft			
Tool Length:	66.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:
IF; Weak blow built to 2"
IS; No return

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
S.I. Tool	5.00			4328.00	
HMV	5.00			4333.00	
Safety Joint	2.00			4335.00	
Packer	5.00			4340.00	22.00 Bottom Of Top Packer
Packer	5.00			4345.00	
Stubb	1.00			4346.00	
Recorder	0.00	3030	Inside	4346.00	
Perforations	5.00			4351.00	
C.O. Sub	1.00			4352.00	
Anchor	31.00			4383.00	
C.O. Sub	1.00			4384.00	
Recorder	0.00	13371	Outside	4384.00	
Bullnose	5.00			4389.00	44.00 Bottom Packers & Anchor
Total Tool Length:	66.00				



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DRILL STEM TEST REPORT

FLUID SUMMARY

Raymond Oil Company

McKain #1

P.O. Box 48788
Wichita, KS 67201-8788

32-1S-35W Rawlins KS

Job Ticket: 14887

DST#: 3

ATTN: Clarke Sandberg

Test Start: 2001.10.23 @ 18:40:18

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

40000 ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbl

Water Loss: 9.54 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
140.00	WM 15%w tr 85%mud	0.688
240.00	MW 90%w tr 10%mud	1.180

Total Length: 380.00 ft Total Volume: 1.868 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .19 @ 70 deg =

Serial #: 3030

Inside

Raymond Oil Company

32-1S-35W Raw lins KS

DST Test Number: 3

